

Last updated: 5 January 2009

AMMOPHILA

Ammophila W. Kirby, 1798:199. Type species: *Sphex sabulosus* Linnaeus, 1758, designated by International Commission on Zoological Nomenclature, 1946:571 (Opinion 180).

Ammophylus Latreille, 1802b:332. Lapsus or emendation of *Ammophila* W. Kirby, 1798.

Miscus Jurine, 1807:130, no included species. Type species: *Miscus campestris* (Latreille, 1809) [= *Ammophila campestris* Latreille, 1809], designated by Shuckard, 1837:79 (one of the two species first included in *Miscus* by Latreille, 1809:54).

Ammophilus Latreille in Cuvier, 1829:322. Lapsus or emendation of *Ammophila* W. Kirby, 1798.

Coloptera Latreille, 1845:387. Type species: *Coloptera barbara* Lepeletier, 1845, by monotypy.

Argyrammophila Gussakovskij, 1928a:7. Type species: *Ammophila induta* Kohl, 1901, by original designation.

Apyncnemis Leclercq, 1961c:211. Type species: *Ammophila fallax* Kohl, 1884 [= *Ammophila hungarica* Mocsáry, 1883], by original designation.

Keys: Alfieri, 1944:108 (Egypt); Dreisbach, 1944:268 (Michigan); Leclercq, 1955h:80 (*Ammophila rubripes* and related species); de Beaumont, 1963b:7 (Palearctic species of *nasuta* group); Myartseva, 1971 (Turkmenistan); Alayo Dalmau, 1976:11 (Cuba); Guichard, 1988a:126 (Arabian Peninsula); Menke, 2004:772 (red-legged South American species).

Nest structure: Barth, 1910.

Structure of gastral segment I: Pulawski, 1965b:259.

Nest provisioning and parental investment: Field, 1992a, b (*sabulosa*).

Sleeping aggregations: Vardy, 1995.

Review of known biology: Kazenas, 2000b:102.

1. *aberti* Haldeman

Ammophila urnaria Lepeletier de Saint Fargeau, 1845:381, ♀, junior primary homonym of *Ammophila urnaria* Dahlbom, 1843. Holotype or syntypes: ♀, Brazil: no specific locality (M. Spinola coll.). Synonymized with *Ammophila aberti* by Menke in Bohart and Menke, 1976:150. – Amarante, 2005a:14 (correction to his 2002 catalog). NOTE: Synonymy with *aberti* is questionable because the latter does not occur in Brazil.

Ammophila aberti Haldeman, 1852:368, sex not indicated. Holotype or syntypes: USA: Utah: Great Salt Lake Valley (lost: Fernald, 1931a:449). – Cresson, 1863:318 (in catalog of North American Hymenoptera); Patton, 1879d:353 (USA: nw. Kansas); Cresson, 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:395 (in catalog of world Hymenoptera, as *alberti*); Ashmead, 1899d:354 (in checklist of North American Sphecidae, as *alberti*); Bridwell, 1899:209 (Kansas: no specific locality); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); Evans, 1959b:148 (description of larva), 1958e:451 (behavioral evolution), 1959d:454 (nesting behavior), 1963c:63 (nest closure); Powell, 1964b:244 (life cycle, male activities, mating, nest construction, prey: geometrid caterpillars, nest closure, parasites); Menke, 1965b:257 (Hicks, 1935b, correctly identified this species); G. Bohart, Nye, and Hawthorn, 1970:49 (Utah: Logan, onion pollinator); Hurd and Linsley, 1975:116 (Arizona: Cochise County: Douglas and Portal; New Mexico, Socorro County: Socorro; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:150 (listed); Krombein, 1979b:1589 (in catalog of North American Hymenoptera); Zalom, Meyer, and Mason, 1979:239 (Arizona: Santa Rita Mountains; sympatric association with the bombyliids *Systropus angulatus ammophiloides* and *S. arizonicus*); F. Parker, Tepedino, and Vincent, 1981:249 (nest provisioning); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Sand Mountain); Brockmann, 1985b:312 (nest closure summary); Parks, 1986:34 (California: Torrey Pines State Reserve); Kingsley, Bailowitz, and Smith, 1987:18 (Arizona: Organ Pipe Cactus National

Monument: Quitobaquito Springs area); Menke, 1994f:21 (Utah: Calf Creek Falls State Park); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Ohl and Linde, 2003:149 (number of ovarioles); Jiménez-Jiménez, and Placios-Cardiel, 2008:227 (Mexico: Baja California Sur: La Paz area; nesting habits). – **As *Sphex aberti***: Mickel, 1918b:403 (new combination, in catalog of Nebraskan Sphecidae, as *aberti*); Hicks, 1932b:145 (nesting habits); Fernald, 1934:80 (revision); Murray, 1938:41 (redescription); *Podalonia*); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan); Strickland, 1947:129 (Canada: Alberta: Lethbridge, Medicine Hat); Spencer and Wellington, 1948:10 (British Columbia).

Ammophila tarsata F. Smith, 1856:219. Substitute name for *Ammophila urnaria* Lepeletier. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera).

Ammophila yarrowi Cresson, 1875:713, ♂. Lectotype: ♂, USA: Colorado: Pueblo (ANSP), selected by Cresson, 1916:95. Synonymized with *Ammophila aberti* by Fernald, 1931a:449 (as *Sphex aberti*). – W. Fox, 1894c:101 (Mexico: Baja California), 1895c:266 (Mexico: Baja California Sur); Dalla Torre, 1897:412 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae, as *yarrowii*); G. Carpenter, 1930b:297 (nest closure).

Sphex transversus Fernald, 1934:141, ♂. Holotype: ♂, USA: Utah: Beaver Valley (H. Fernald coll.). Synonymized with *Ammophila aberti* by Murray, 1938:41.

2. *acuta* (Fernald)

Sphex acutus Fernald, 1934:150, ♂. Holotype: ♂, USA: southern Arizona: no specific locality (H. Fernald coll., now?). – **As *Ammophila acuta***: Murray in Muesebeck et al., 1951:975 (new combination, in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:150 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); .

3. *adelpha* Kohl

As *Ammophila striata*: Kohl, 1884a:382 (description, China), corrected to *Ammophila adelpha* by Kohl, 1901d:152.

Ammophila adelpha Kohl, 1901:152, ♀. Syntypes: ♀, China: Sinkiang (as Dzhungaria) (NHMW), Uzbekistan: Samarkand (Berlin). – Kohl, 1906b:343 (in revision of Palearctic Ammophilini); Gussakovskij, 1934a:6 (NW China); de Beaumont, 1957b:129 (n. Iran; diagnostic characters); R. Bohart and Menke, 1976:150 (listed); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (type material in NHMW); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:35 (geographic distribution, collecting localities in Kazakhstan), 2004b:100 (Kazakhstan: western Tien Shan Mts.).

4. *aellos* Menke

Ammophila aellos Menke, 1966b:26, ♀, ♂. Holotype: ♂, Mexico: Jalisco: 8 mi S Guadalajara (UCD). – R. Bohart and Menke, 1976:150 (listed); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

5. *afghanica* Balthasar

Ammophila afghanica Balthasar, 1957b:190, ♀, ♂. Holotype: ♀, Afghanistan: Badakhshan: Sarekanda (originally V. Balthasar coll., now Prague Museum). – R. Bohart and Menke, 1976:150 (listed).

6. *albotomentosa* Morice

Ammophila albotomentosa Morice, 1900a:69, ♀, ♂. Syntypes: Algeria: Biskra (OXUM). – Kohl, 1906b:348 (in revision of Palearctic Ammophilini); Morice, 1911:73 (Algeria: Biskra); Roth, 1928:195 (in revision of North African Ammophilini); Leclercq, 1955h:84 (bibliographic references); de Beaumont, 1963b:20 (in revision of the *nasuta* group); R. Bohart and Menke, 1976:150 (listed); Gayubo, 1985b:492 (Spain: Valencia: Gilet; redescription); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:77 (in Sphecid Fauna of Western Europe).

7. *altigena* Gussakovskij

Ammophila altigena Gussakovskij, 1930b:73, ♂. Holotype: ♂, Tajikistan: Sary-kol Range on Chinese border of Pamir (ZIN). – R. Bohart and Menke, 1976:150 (listed); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia).

8. *aphrodite* Menke

Ammophila aphrodite Menke, 1964a, ♀, ♂. Holotype: ♂, USA: California: Riverside County: 10 mi E White Water (UCD). – R. Bohart and Menke, 1976:150 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera).

9. *apicalis* Guérin-Méneville

Ammophilus apicalis Guérin-Méneville, 1835:pl. 70, Fig. 3, ♀, actually ♂. Holotype or syntypes: ♂, Cuba: no specific locality (MSNG). – Guérin-Méneville, 1844:435 (description); Guiglia, 1948b:179 (type in Genova Mus). – **As *Ammophila apicalis***: F. Smith, 1856:224 (new combination, in catalog of Hymenoptera in British Museum); Cresson, 1863:318 (in catalog of North American Hymenoptera), 1865a:134 (Cuba); Girard, 1879:969 (morphology and distribution); Menke, 1964b:151 (synonymy, study of type, diagnostic characters), 1970:238 (member of *nigricans* group, diagnostic characters, distribution); Alayo Dalmau, 1973:185 (in catalog of Cuban Hymenoptera), 1976:11 (in key to Cuban *Ammophila*), 27 (in checklist of Cuban Sphecidae); R. Bohart and Menke, 1976:150 (listed); Genaro and Sánchez Alonso, 1990b:1 (nesting behavior); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Portuendo and Fernández, 2004:134 (Cuba: Sierra Maestra and Nipe-Sagua-Baracoa mountains); Genaro, 2006:51 (in checklist of Cuban Sphecidae and Crabronidae; other countries: Isla de la Juventud, Bahamas: Long Island, Jamaica).

Ammophila guerinii Dalla Torre, 1897:400 (as *guérinii*, incorrect diacritic mark). Unnecessary substitute name for *Ammophila apicalis* Guérin-Méneville, 1835, nec Brullé, 1839. – Ashmead, 1899d:354 (in checklist of North American Sphecidae), 1900:308 (in checklist of Caribbean Hymenoptera). – **As *Sphex guerinii***: Holland, 1917:294 (new combination, Cuba: Isla de Pinos, now Isla de la Juventud: Nueva Gerona); Fernald, 1934:57 (revision).

10. *arabica* W.F. Kirby

Ammophila arabica W.F. Kirby, 1900:24, ♀. Holotype: ♀, Yemen: Lahej near Aden (lost: Guichard, 1988a:129). – R. Bohart and Menke, 1976:150 (listed).

11. *ardens* F. Smith

Ammophila ardens F. Smith, 1868:247, ♀. Holotype or syntypes: ♀, Australia: Western Australia: Swan River (BMNH). – Froggatt, 1892:209 (in catalog of Australian Hymenoptera); Dalla Torre, 1897:395 (in catalog of world Hymenoptera); R. Turner, 1908:466 (Australia: Queensland: Mackay); R. Bohart and Menke, 1976:150 (listed); Cardale, 1985:229 (in catalog of Australian Sphecidae).

12. *areolata* Walker

Ammophila areolata Walker, 1871:19, ♀. Holotype or syntypes: ♀, Egypt: Sinai Peninsula: Pharaoh's Baths (destroyed). – Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Kohl, 1906b:370 (original description copied); R. Bohart and Menke, 1976:150 (listed).

13. *argyrocephala* Arnold

Ammophila argyrocephala Arnold, 1951:143, ♀. Syntypes: Ethiopia: River Errer, Meisso (BMNH). – Leclercq, 1955h:82 (bibliographic references); R. Bohart and Menke, 1976:150 (listed).

14. *arnaudi* Tsuneki

Ammophila arnaudi Tsuneki, 1976d:289, ♂. Holotype: ♂, China: Heilongjiang Sheng: Estsentientze, 65 km E Harbin (CAS). – Pulawski, 1994:27 (CAS holotype no. 12,546); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

15. *arvensis* Lepeletier de Saint Fargeau (preoccupied)

Ammophila arvensis Lepeletier de Saint Fargeau, 1845:384, ♀, ♂, junior secondary homonym of *Ammophila arvensis* (Dahlbom, 1843), now *Ammohila pubescens*. Syntypes: North America: no specific locality (M. Spinola coll.). – F. Smith, 1856:223 (in catalog of Hymenoptera in British Museum); Cresson, 1863:318 (in catalog of North American Hymenoptera), 1887:274 (in catalog of North American Hymenoptera); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:150 (listed, = *Ammophila pro-cera* or *Podalonia*); Casolari and Casolari Moreno, 1980:101 (specimens in M. Spinola collection). – **As *Sphex arvensis***: Rohwer, 1916b:682 (new combination, in catalog of Hymenoptera of Connecticut); J.Ch. Bradley, 1928:1012 (in catalog of New York Sphecidae).

16. *asiatica* Tsuneki

Ammophila asiatica Tsuneki, 1971k:166, ♂, ♀. Holotype: ♂, Mongolia: Uvs Aymag: Hödlon gol (TMB). – R. Bohart and Menke, 1976:150 (listed); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).

17. *assimilis* Kohl

Ammophila assimilis Kohl, 1901d:150, ♀, ♂. Syntypes: Syria: no specific locality; Israel: Jerusalem; also: Brammana (NHMW). – Kohl, 1906b:341 (in revision of Palearctic Ammophilini); Balthasar, 1954b:281 (Palestine: Jerusalem); de Beaumont and Bytinski-Salz, 1955:39 (Israel); de Beaumont, 1967a:269 (Turkey), 1969:81 (Turkey), 1970a:389 (Afghanistan); R. Bohart and Menke, 1976:150 (listed); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (type material in NHMW); Guichard, 1991a:338 (Jordan); Ljubomirov and Yildirim, 2008:33 (in catalog of Sphecidae of Turkey).

18. *atripes* F. Smith

Ammophila atripes F. Smith, 1852a:46, ♀. Holotype or syntypes: ♀, India: Maharashtra: Khandaly (BMNH). – F. Smith, 1856:217 (in catalog of Hymenoptera in British Museum); de Motschoulsky, 1863:23 (Sri Lanka, listed); Cameron, 1889c:93 (listed), 97 (redescription); Bingham, 1896a:437 (references), 1897:229 (redescription; prey: Locustidae, probably in error); Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Cameron, 1901a:25 (Malaysia); Ashmead, 1904d:150 (Philippines); Bingham, 1905:44 (Malaysia: Biserat); Cameron, 1905k:65 (Java); R. Brown, 1906:687 (in catalog of Philippine Hymenoptera); Paiva, 1907:15 (India: West Bengal: Siliguri; Nepal: Soondrijal); Strand, 1913a:85 (Taiwan); Nurse, 1914:445 (India: Assam: Sadiya); Strand, 1915:95 (India, Sri Lanka; China: Tsingtau, now Qingdao); Dover, 1926:234 (China: Hong Kong); Matsumura and Uchida, 1926:41 (Okinawa); von Schulthess, 1935:304 (Australia: Burnside, Darwin, Katherine; Indonesia: Flores: Kelimotoe; specimens from Timor = *Ammophila insolata auricollis*); Iwata and Yoshikawa, 1961:398 (Thailand); Tsuneki, 1963i:101 (Malaya); Yasumatsu and Hirashima, 1965:176 (Taiwan: Tainan); Baltazar, 1966:342 (occurrence in Philippines doubtful); R. Bohart and Menke, 1976:151 (listed); Hua, 1989:116 (China); Krombein, 1984a:6 (Sri Lanka, nesting habits); Cardale, 1985:229 (in catalog of Australian Sphecidae); Zhou and Wu, 1993a:670 (China: Wuling Mountains), 1993b:724 (China: Longqi Mountain Nature Reserve, as *atripes atripes*); Li, Li, and Yang, 1994:289 (in revision of *Ammophila* of Shandong Province, China, as *atripes atripes*); S. Gupta, 1995:85 (India: Uttar Pradesh); Li and C. Yang, 1995c:573 (China: Zhejiang Province: Baishanzu Mountain, as *atripes atripes*), 1995d:271 (China: Zhejiang Province: Gutianshan, as *atripes atripes*); Wu and Zhou, 1996a:47 (in revision in Economic Insect Fauna of China, as *atripes atripes*); Jha and Farooqi, 1994:8 (description and illustration of male genitalia); Yamane, Ikudome, and Terayama, 1999:480 (in Identification Guide to Sphecidae of Nansei = Ryukyu Islands, Japan); Li and He, 2001:754 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E, as *atripes atripes*); S. Gupta, 2004:25 (India: Uttaranchal: Naitwar in Uttarkashi District); Li and He, 2004:1117 (in hymenopterous fauna of Zhejiang Province, China, as *atripes atripes*); Hua, 2006:275 (in list of Chinese insects, geographic distribution, as *atripes atripes*); Li, 2006:140 in X. Chen and J. He (description, habits, distribution, illustration of habi-

- tus, as *atripes atriipes*). – **As *Ammophila clavus atriipes***: Tsuneki, 1957j:15 (new status), 1967j:9 (in key), 1974b:590 (Tailand, Malaysia). – **As *Sphex atriipes***: Rohwer, 1922:671 (new combination, Philippines).
- ? *Ammophila dimidiata* F. Smith, 1856:216, ♀, junior primary homonym of *Ammophila dimidiata* (Christ, 1791). Syntypes: ♀, India: Bombay, Madras, north Bengal (BMNH). Synonymized with ... – Cameron, 1889c:93 (listed); Bingham, 1897:230 (redescription); Dalla Torre, 1897:398 (in catalog of world Hymenoptera).
- Ammophila pulchella* F. Smith, 1856:218, ♂. Syntypes: China: Hong Kong and Shanghai (BMNH). Synonymized with *Ammophila atriipes* by Bingham, 1897:229. – Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Nomura, 1934:25 (Japan: Ryukyu Islands, as *sulchella*).
- Ammophila simillima* F. Smith, 1856:217, ♀. Holotype or syntypes: ♀, China: Hong-Kong (BMNH). Synonymized with *Ammophila atriipes* by Bingham, 1897:229. – A. Costa, 1864b:111 (specimen from China in Museo Zoologico di Napoli); Dalla Torre, 1897:410 (in catalog of world Hymenoptera).
- Ammophila humbertiana* de Saussure, 1867:25, ♀. Lectotype: ♀, Sri Lanka: Trincomalee (MHNG), designated by Menke in Bohart and Menke, 1976:151. Synonymized with *Ammophila atriipes* by W. Schulz, 1911b:161. – Radoszkowski, 1871:196 (China: Zheizhang Province: Ning-Po); Cameron, 1889c:93 (listed); Bingham, 1896a:437 (references), 1897:230 (redescription); Dalla Torre, 1897:403 (in catalog of world Hymenoptera).
- Ammophila longiventris* de Saussure, 1867:24, ♂. Lectotype: ♂, Sri Lanka: Trincomalee (MHNG), designated by Menke in Bohart and Menke, 1976:151. Synonymized with *Ammophila atriipes* by Bingham, 1897:229, synonymy confirmed by W. Schulz, 1911b:162. – Bingham, 1896a:437 (references); Cameron, 1889c:93 (listed); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
- Ammophila spinosa* F. Smith, 1873a:259, ♀. Holotype or syntypes: ♀, China: Hong Kong (BMNH). Synonymized with *Ammophila atriipes* by Bingham, 1897:229. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera).
- Ammophila buddha* Cameron, 1889c:94, sex not indicated. Syntypes: India: Uttar Pradesh: Allahabad; and West Bengal: Barrackpore 20 km N Calcutta (OXUM). Synonymized with *Ammophila atriipes* by Bingham, 1897:229. – Cameron, 1889c:93 (listed); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Dollfuss, 1989:7 (type material in NHMW).

19. *aucella* Menke

- Ammophila aucella* Menke, 1966b:27, ♀, ♂. Holotype: ♂, Mexico: Jalisco: 3 mi SE Plan de Barrancas (UCD). – R. Bohart and Menke, 1976:151 (listed); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

20. *aurifera* R. Turner

- Ammophila aurifera* R. Turner, 1908:464, ♀, ♂. Syntypes: Australia: Northern Territory: Darwin (BMNH). – R. Bohart and Menke, 1976:151 (listed); Cardale, 1985:229 (in catalog of Australian Sphecidae); .

21. *azteca* Cameron

- Ammophila azteca* Cameron, 1888a:17, ♀. Syntypes: ♀, Mexico: Sinaloa: Mazatlán (BMNH). – Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1934:152 (redescription, as unrecognized species); Evans, 1965:8 (simultaneous care of more than one nest), 1970:485 (Wyoming: Jackson Hole, prey); Menke, 1965b:200 (*Sphex aculeatus* of Hicks, 1935, is *Ammophila azteca*); G. Bohart, Nye, and Hawthorn, 1970:49 (Utah: Logan, onion pollinator); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:151 (listed); Kumar, Lavigne, Lloyd, and Pfadt, 1976:51 (USA: Colorado: Pawnee National Grassland); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Finnamore, 1982:28 (in Sphecid Fauna of Southern Quebec); Menke, 1983b:21 (Nebraska: Hooker County: Mullen area, Cherry County: Nenzel area, and Dawes County: N Crawford); Brockmann, 1985b:312 (nest closure summary); Rust, Menke, and Miller, 1985:46 (California Channel

Islands), 52 (prey: geometrid caterpillar); Menke, 1986c:35 (Utah: San Juan County: E Natural Bridges Natl. Monument; Arizona: Navajo County: 18 mi W Kayenta); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills); O'Brien, 1989b:209 (distribution in Michigan); Menke, 1994f:22 (Utah: Monticello area; New Mexico: Aztec); Finnamore, 1997:884 (Canada: Yukon, as *azteca azteca*); Weissmann and Kondratieff, 1999:77 (Colorado: Great Sand Dunes National Monument); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada).

Sphex pilosus Fernald, 1934:120, ♀, ♂. Holotype: ♀, USA: "Colorado Territory": no specific locality (ANSP). Synonymized with *Ammophila azteca* by Menke, 1965b:258 and 1967a:3 (as new synonym). – Murray, 1938:26 (26 (redescription); Dreisbach, 1944:269, 271 (in key to *Ammophila* of Michigan), 274 (Michigan: locality records); Strickland, 1947:129 (Canada: Alberta); Spencer and Wellington, 1948:10 (British Columbia, as *pilosus pilosus*). – **As *Ammophila pilosa***: Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Evans, 1963b:238 (nesting behavior); Powell, 1964b:244 (prey: lycaenid and pterophorid caterpillars); Evans, 1970:486 (Wyoming: Jackson Hole).

Sphex aculeatus Fernald, 1934:145, ♀, ♂. Holotype: ♀, USA: Colorado: Boulder County: Owen's Lake (H. Fernald coll., now?). Synonymized with *Ammophila azteca* by Menke, 1967a:3. – Hicks, 1935:99 (nesting habits).

Sphex pilosus var. *nudus* Murray, 1938:28, ♀, ♂, junior primary homonym of *Sphex nudus* Fernald, 1903. Holotype: ♂, USA: Minnesota: Sawyer (depository?). – **As *Sphex pilosus nudus***: Dreisbach, 1944:269, 271 (new status, in key to *Ammophila* of Michigan), 273 (Michigan: locality records). – **As *Sphex nudus***: Strickland, 1947:129 (new status, Canada: Alberta).

Ammophila pilosa brevisericea Murray in Muesebeck et al., 1951:976. Substitute name for *Sphex pilosus nudus* Murray, 1938.

As *Sphex breviceps*: Hicks, 1933a:49 (nesting habits), corrected to *Ammophila azteca* by Menke, 1965b:258.

As *Sphex arvensis*: A. Brown, 1934:264 (Canada: Ontario: Timagami), corrected to *Ammophila azteca* by Buck, 2004:75.

ssp. clemente Menke

Ammophila azteca clemente Menke, 1967a:7, ♀, ♂. Holotype: ♂, USA: California: Los Angeles County: San Clemente Island (Los Angeles County Mus.). – R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands), 52 (prey); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

22. barbara (Lepeletier de Saint Fargeau)

Coloptera barbara Lepeletier de Saint Fargeau, 1845:387, ♂. Syntypes: Algeria: Oran (originally Lepeletier de Saint Fargeau coll., now?). – Lucas, 1849:276 (Algeria: Oran; original description copied with modifications); F. Smith, 1856:225 (in catalog of Hymenoptera in British Museum); Ed. André, 1886:92 (in revision of Sphecidae of Europe and Algeria), 1888:5* (bibliographic references); Pérez, 1895:CLXXII (valid species; Tunisia: Kairouan); Acloque, 1897:97 (in Sphecid Fauna of France and Algeria); Zanon, 1925:91 (Libya: Fueihat 15 km S Benghazi). – **As *Ammophila barbara***: Dalla Torre, 1897:396 (new combination, in catalog of world Hymenoptera); Kohl, 1906b:317 (in revision of Palearctic *Ammophilini*); von Schulthess, 1926b:208 (Tunisia: Kairouan; Libya: Benghazi); Roth, 1928:186 (in revision of North African *Ammophilini*); Guiglia, 1934b:291 (Libya: bibliography and summary of locality records); Giner Marí, 1945:362 (Rio de Oro), 1947:18 (Rio de Oro); Berland, 1950b:296 (Niger: Air area); de Beaumont, 1950f:395 (Algeria), 1951e:264 (Morocco; nominotypical subspecies); Grandi, 1954:235 (Algeria: El Kantara); de Beaumont and Bytinski-Salz, 1955:36 (Israel); Leclercq, 1955h:93 (bibliographic references); de Beaumont, 1956a:215 (Libya), 1958a:290 (illustration of genitalia), 1960c:3 (taxonomy and relationships); R. Bohart and Menke, 1976:151 (listed); Guichard, 1980:224 (Oman), 1988a:127 (Oman).

As *Ammophila judaeorum* (present correction based on geographic distribution): W. Schulz, 1905b:32 (Algeria: Biskra; redescription); Morice, 1911:73 (Algeria: Biskra); Giner Marí, 1945b:362 (Morocco: Western Sahara: Aserifa, Um at Sfaia), 1947:18 (Western Sahara).

ssp. *airensis* Berland

Ammophila barbara var. *airensis* Berland, 1950:296, ♀. Holotype: ♀, Niger: Air: Agadez (MNHN). – de Beaumont, 1960e:4 (diagnostic characters). – As *Ammophila airensis*: R. Bohart and Menke, 1976:150 (new status; listed).

ssp. *judaeorum* Kohl

Ammophila judaeorum Kohl, 1901d:149, ♀, ♂. Syntypes: ♀, ♂, Palestine: Jericho (NHMW). – Kohl, 1906b:318 (in revision of Palearctic *Ammophilini*); nec Morice, 1911:73 and Giner Marí, 1945b:362 (= *Ammophila barbara*); Roth, 1928:187 (comparison with *Ammophila barbara*); Gussakovskij, 1933b:274 (Iran); Balthasar, 1954b:281 (Palestine: Wadi el Kelt near Jericho); de Beaumont and Bytinski-Salz, 1955:36 (Israel); R. Bohart and Menke, 1976:152 (listed); Dollfuss, 1989:7 (type material in NHMW). – As *Ammophila barbara judaeorum*: de Beaumont, 1960e:4 (new status); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Ljubomirov and Yildirim, 2008:33 (in catalog of Sphecidae of Turkey). Nec *Ammophila judaeorum* (= *Ammophila barbara*: W. Schulz, 1905b:32; Morice, 1911:73; Giner Marí, 1945b:362, 1947:18).

ssp. *semota* de Beaumont

Ammophila barbara semota de Beaumont, 1967a:265, ♀. Holotype: ♀, Turkey: Ankara: Dickmen (BMNH). – R. Bohart and Menke, 1976:151 (listed); Gülmez and Tüzün, 2005:50 (Turkey: Ankara Province); Ljubomirov and Yildirim, 2008:34 (in catalog of Sphecidae of Turkey).

ssp. *theryi* (Gribodo)

Coloptera theryi Gribodo, 1894a:3, ♀, ♂ (as *Theryi*, incorrect original capitalization). Syntypes: Algeria: Biskra (Genoa). – de Beaumont, 1950e:261 (study of female syntype). – As *Ammophila barbara theryi*: de Beaumont, 1950e:261 (new combination, new status), 1960c:4 (subspecific status confirmed; diagnosis). – As *Ammophila theryi*: R. Bohart and Menke, 1976:154 (listed, as full species).

23. *barbarorum* Arnold

Ammophila barbarorum Arnold, 1951:141, ♀. Syntypes: Ethiopia: Addis Ababa (BMNH). – Leclercq, 1955h:86 (bibliographic reference); R. Bohart and Menke, 1976:151 (listed).

24. *basalis* F. Smith

Ammophila basalis F. Smith, 1856:214, ♀. Syntypes: ♀, India or Pakistan: Punjab: no specific locality (BMNH). – Cameron, 1889c:93 (listed); Bingham, 1897:231 (redescription); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Nurse, 1893a:520 (description of ♂); Dutt, 1912:202 (India: Pusa); Ramakrishna Aiyar, 1916:554 (reference to Nurse, 1903); Matsumura and Uchida, 1926:41 (Okinawa); R. Bohart and Menke, 1976:151 (listed); Jha and Farooqi, 1994:8 (description and illustration of male genitalia); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

Ammophila nigripes F. Smith, 1856:215, ♂. Holotype or syntypes: ♂, India: Tamil Nadu: Madras (BMNH). Synonymized with *Ammophila basalis* by R. Turner, 1919c:396. – F. Smith, 1878b:167 (Burma: Tenasserim Province); Cameron, 1889c:93 (listed), 97 (redescription); Bingham, 1897:231 (redescription); Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Bingham, 1905:44 (Malaysia: Sungkei); Dutt, 1912:202 (India: Pusa).

Ammophila orientalis Cameron, 1889c:9, ♀. Syntypes: origin not indicate, but probably India (OXUM). Synonymized with *Ammophila basalis* by Bingham, 1897:231. – Cameron, 1889c:3 (listed); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Dollfuss, 1989:7 (type material in NHMW).

25. bechuana (R. Turner)

Sphex bechuana R. Turner, 1929b:554, ♀. Holotype or syntypes: ♀, Botswana: Ghanzi, Mongalatsila (BMNH). – **As *Ammophila bechuana***: Leclercq, 1955h:88 (new combination, bibliographic references); R. Bohart and Menke, 1976:151 (listed).

26. bella Menke

Ammophila bella Menke, 1966b:27, ♀, ♂. Holotype: ♂, Mexico: Puebla: 3 mi N Petlalcingo (UCD). – R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

27. bellula Menke

Ammophila bellula Menke, 1964a:17, ♀, ♂. Holotype: ♂, USA: Arizona: Pima County: Madera Canyon in Santa Rita Mountains (UCD). – R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

28. beniniensis (Palisot de Beauvois)

Sphex beniniensis Palisot de Beauvois, 1806:48, sex not indicated. Holotype or syntypes: Nigeria: city of Benin (destroyed?). – R. Turner, 1919c:394 (synonymy); Arnold, 1920:37 (revision), 1928:263 (revision), 1930:17 (in checklist of Afrotropical Sphecidae); Schouteden, 1930:95 (Zaire); Scott *in* Arnold, 1933a:370 (Ethiopia: Harar District and Higo Samula); Arnold, 1945:87 (Madagascar, geographic variation). – **As *Ammophila beniniensis***: F. Smith, 1856:213 (new combination, in catalog of Hymenoptera in British Museum); W Fox, 1896e:552 (Ethiopia: Bale Province: Sheikh Husein, now Shek Husen); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Bingham, 1902:218 (South Africa, Malawi); Cameron, 1908a:266 (Kenya, redescription); Carpenter, 1918:xlii (nesting behavior; determination questionable); Giordani Soika, 1939c:104 (Eritrea: Alta Assaorta, Maio); Guiglia, 1939a:201 (Eritrea: Saganeiti), 1939b:91 (Ethiopia: Lake Tana: Bahar-Dar), 1943c:76 (Ethiopia: Gamo Gofa: Sagan – Omo region), 1950:245 (Ethiopia: Gamo Gofa: Banno); Arnold, 1951:141 (Ethiopia: Moggio); Berland, 1952b:276 (boundary of Ivory Coast, Guinea, and Liberia: Mt. Nimba); Leclercq, 1953b:211 (Madagascar), 1955h:89 (bibliographic references, locality records from Zaire and elsewhere), 1955i:406 (Rwanda), 1961b:54 (Madagascar, Zaire), 1961d:107 (Madagascar, color variation), 1962a:394 (Tanzania: Uluguru Mts.); Diniz, 1964c:110 (Angola: Lunda: Alto Chicapa, Andrada, Dundo, Muíta-Luembe, Rio Caquele, Xá-Ua at Rio Luita); Leclercq, 1969:1051 (Congo Brazzaville); I. Robertson, 1969:480 (Tanzania: Nuarumbugu); R. Bohart and Menke, 1976:139 (listed); de Beaumont, 1967b:503 (South Africa, Zimbabwe); R. Bohart and Menke, 1976:151 (listed); nec Guichard, 1980:224 (= *Ammophila punti*); Gess, 1981:19 (South Africa: 18 km WNW Grahamstown; nesting in friable soils); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains, as *benninensis*); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits: nest provisioned with one large caterpillar), 1989b:847-871 (habitat selection and nest construction); Dollfuss, 1990:122 (Central African Republic); S. Gess, 1996:279, 283, 303 (floral records).

Sphex tenuis Palisot de Beauvois, 1806:48, sex not indicated. Holotype or syntypes: Nigeria: city of Benin (destroyed?). Synonymized with *Sphex beniniensis* by Arnold, 1945:86. – Schletterer, 1891:13 (Zaire); W. Schulz, 1906:192 (probably a synonym of *Ammophila beniniensis*); Brauns, 1911a:238 (South Africa, as *tennis*); Arnold, 1920:39 (revision), 1928b:263 (revision), 1930:17 (in checklist of Afrotropical Sphecidae), 1943:77 (Zaire); Schouteden, 1930:95 (Zaire); Arnold, 1943:77 (Zaire). – **As *Ammophila tenuis***: F. Smith, 1856:212 (new combination, in catalog of Hymenoptera in British Museum); Kohl, 1894:342 (Mozambique: Maputo Bay, now Maputo Bay; South Africa: Port Natal, now Durban; country unknown: Chama); Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Guiglia, 1940b:289 (Somalia), 1943c:76 (Ethiopia: Gamo Gofa: Sagan – Omo region),

1950:246 (Ethiopia: Gamo Gofa: Banao, Caschei, headwaters of Sagan); I. Robertson, 1969:480 (Tanzania: Ukiriguru).

Ammophila cyaneiventris Guérin-Méneville, 1843:9, ♂. Holotype or syntypes: ♂, Senegal: no specific locality (MNHN). Synonymized with *Sphex beniniensis* by R. Turner, 1919c:394. – Magretti, 1895:166 (Ethiopia: Gannale); Dalla Torre, 1897:398 (in catalog of world Hymenoptera, as *cyaneiventris*). – **As *Chlorion cyaneiventris***: Jørgensen, 1912:285 (new combination, Argentina: Mendoza Province); Schrottky, 1913a:224 (Argentina, as *cyaneiventris*); Guiglia, 1948b:179 (type in Genova), 185 (redescription; as *cyaneiventris*).

? *Ammophila rugicollis* Lepeletier de Saint Fargeau, 1845:373, ♂ (authorship attributed to Klug). Holotype or syntypes: ♂, South Africa: Cape of Good Hope (M. Spinola coll., Torino). Synonymized with *Ammophila beniniensis* by ... – F. Smith, 1856:212 (in catalog of Hymenoptera in British Museum); A. Costa, 1864b:111 (specimen from Algeria in Museo Zoologico di Napoli); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); Morice, 1900a:67 (Algeria: Biskra); Magretti, 1906:20 (Eritrea); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).

Ammophila lugubris Gerstaecker in Peters, 1858:510, ♀, ♂. Syntypes: Mozambique: no specific locality (ZMHU). Synonymized with *Sphex beniniensis* by R. Turner, 1919c:394. – Radoszkowski, 1881:211 (Angola); W. Fox, 1896e:552 (Ethiopia: Bale Province: Sheikh Husein, now Shek Husen); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Magretti, 1906:20 (Eritrea); G. Carpenter, 1930b:292 (nest closure).

Ammophila lugubris Gerstaecker, 1862:480, ♀, ♂. Objective synonym of *Ammophila lugubris* Gerstaecker, 1858.

Ammophila guineensis Ritsema, 1874:192, ♀. Syntypes: ♀, Guinea: no specific locality (RMNH). Synonymized with *Sphex tenuis* by R. Turner, 1919c:394. – Dalla Torre, 1897:400 (in catalog of world Hymenoptera).

Ammophila coeruleornata Cameron, 1910b:135, ♂. Holotype or syntypes: ♂, South Africa: Transvaal: Borea Park [in Pretoria?]. Synonymized with *Sphex tenuis* by R. Turner, 1919c:394 and Brauns, 1917:241 (as *coeruleornata*).

Ammophila maculifrons Cameron, 1910b:134, ♂, actually ♀. Holotype or syntypes: ♀, South Africa: Transvaal: Borea Park [in Pretoria?] (TMP). Synonymized with *Ammophila tenuis* by R. Turner, 1919c:394 and Brauns, 1917:241.

Ammophila massaica Cameron, 1908a:264, ♂. Syntypes: ♂, Kenya: Mount Meru lowlands: Ngare na nyuki (NRS). Synonymized with *Sphex tenuis* by Arnold, 1928b:279.

Ammophila sjoestedti Cameron, 1908a:267, ♂ (as *Sjöstedti* incorrect original capitalization and diacritic mark). Holotype or syntypes: ♂, Kenya: Mt. Meru lowlands: Ngare na nyuki (NRS). Synonymized with *Sphex tenuis* by Arnold, 1928b:279.

ssp. *imerinae* de Saussure

Ammophila imerinae de Saussure, 1892:435, ♂. Syntypes: ♂, Madagascar: Imerina, Antananarivo, Anosibé (MHNG). – Dalla Torre, 1897:403 (in catalog of world Hymenoptera); Arnold, 1945:87 (as junior synonym of *Sphex beniniensis*, Madagascar). – **As *Ammophila lugubris* var. *imerinae***: Kohl, 1909:371 (new status; Comoro Islands, Madagascar, Europa Island in Mozambique Channel); Bischoff, 1912:220 (Zaire). – **As *Ammophila beniniensis imerinae***: R. Bohart and Menke, 1976:151 (new status, listed); Pulawski, 2003b:795 (in checklist of Malagasy Sphecidae).

As *Ammophila rubiginosa*: de Saussure, 1892:435 (Madagascar), corrected to *Sphex beniniensis* by Arnold, 1945:87; Friederichs, 1918:43 (nesting habits in Madagascar), 48 (Madagascar: Diego Suarez), present correction.

ssp. *tomentosa* (Arnold) (preoccupied)

Sphex beniniensis race *tomentosus* Arnold, 1920:39, ♀ (as *tomentosa*, incorrect original termination), junior primary homonym of *Sphex tomentosus* Fabricius, 1787. Holotype: ♀, Namibia: Windhoek (TMP). – Arnold, 1928b:265 (revision), 1930:17 (in checklist of Afrotropical Sphecidae). – **As *Ammophila beniniensis tomentosa***: R. Bohart and Menke, 1976:151 (new status, listed).

29. boharti Menke

Ammophila boharti Menke, 1964a:9, ♀, ♂. Holotype: ♂, USA: California: Yolo County: Davis (UCD). – R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera).

30. bonaespei Lepeletier

Ammophila bonaespei Lepeletier, 1845:382, ♀, ♂ (as *Bonae-Spei*, incorrect original capitalization and hyphenation).

Lectotype: ♀, South Africa: Cape Province: Cape of Good Hope (Torino), designated by Menke in Bohart and Menke, 1976:151. – nec Lucas, 1849:276 (= *Eremochares dives*); F. Smith, 1856:218 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Bingham, 1902:216 (South Africa); Bradley, 1957:39 (type in Turin; as *bonae-spei*); I. Robertson, 1969:480 (Tanzania: Ukiriguru); R. Bohart and Menke, 1976:151 (listed); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Gess, 1981:19 (South Africa: 18 km WNW Grahamstown; nesting in friable soils); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); Gess and Gess, 1994:100 (visiting flowers of *Aspalathus spinescens*); S. Gess, 1996:275, 295 (floral records). – **As *Sphex bonaespei***: Arnold, 1920:49 (new combination, revision), 1928b:275 (revision), 1930:17 (in checklist of Afrotropical Sphecidae), 1933a:357 (Ethiopia), 1935a:503 (South Africa: Kalahari).

Ammophila rubriceps Taschenberg, 1869:432, ♀, ♂. Syntypes: South Africa: Cape Province: no specific locality (HALLE). Synonymized with *Ammophila bonaespei* by Menke in Bohart and Menke, 1976:151. – Dalla Torre, 1897:407 (in catalog of world Hymenoptera); Leclercq, 1955h:93 (bibliographic references, as incertae sedis).

31. borealis Li and C. Yang

Ammophila borealis Li and C. Yang, 1990:263, ♀, ♂. Holotype: ♀, China: Nei Mongol: Hailar City (Beijing Agricultural University). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

32. braunsi (R. Turner)

Sphex braunsi R. Turner, 1919c:395, ♀, ♂. Syntypes: South Africa: Cape Province: Willowmore (BMNH). – Arnold, 1920:42 (revision), 1928b:267 (revision), 1930:17 (in checklist of Afrotropical Sphecidae). – **As *Ammophila braunsi***: Leclercq, 1955h:88 (new combination, bibliographic references); R. Bohart and Menke, 1976:151 (listed); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits: one large caterpillar per cell), 1989b:847-871 (nests in abandoned burrows of other wasps in non-friable clay soils).

33. breviceps F. Smith

Ammophila breviceps F. Smith, 1856:221, ♀. Holotype: ♀, Mexico: no specific locality (BMNH). – Cresson, 1863:318 (in catalog of North American Hymenoptera); Cameron, 1888a:19 (Mexico); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray *in* Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); Hurd and Linsley, 1975:116 (New Mexico: Hidalgo County: Lordsburg; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:151 (listed); C. Ward et al., 1977:55 (associated with mesquite (*Prosopis*)); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Zalom, Meyer, and Mason, 1979:239 (Arizona: Santa Rita Mountains; sympatric association with the bombyliids *Systropus angulatus ammophiloides* and *S. arizonicus*); Menke, 1986c:36 (Arizona: Gila County: Carrizo), 37 (Arizona: Cochise County: N Apache, Naco); Kingsley, Bailowitz, and Smith, 1987:18 (Arizona: Organ Pipe Cactus National Monument: Quitobaquito Springs area); Menke, 1994f:21 (Utah: Calf Creek Falls State Park and Monticello area; Arizona: Bisbee); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Ohl and Linde, 2003:149 (number of ovarioles); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 47 (Mexico: Tamaulipas). – **As *Sphex breviceps***: H. Smith, 1908b:329 (new combination, in revision of Nebraskan Sphecidae); Mickel, 1918b:403 (in catalog of Nebraskan Sphecidae); Fernald, 1931:448 (synonymy); nec Hicks, 1933a:49 (= *Ammophila azteca*); Fernald, 1934:84 (revi-

sion, as *breviceps breviceps*); Dreisbach, 1944:270 (in key to *Ammophila* of Michigan, as *breviceps breviceps*); Strickland, 1947:129 (Canada: Alberta: Lethbridge, Vermillion, as *breviceps breviceps*).

34. *brevipennis* Bingham

Ammophila brevipennis Bingham, 1897:232, ♀. Holotype: ♀, India: Maharashtra (BMNH). – Giner Mari, 1945c:850 (India: Maharashtra: Khandala); Gupta, 1960:26 (India: Himalaya); R. Bohart and Menke, 1976:151 (listed).

35. *californica* Menke

Ammophila californica Menke, 1964a:18, ♀, ♂. Holotype: ♂, USA: California: Kern County: Mill Potrero on N side of Mount Pinos (UCD). – R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Menke, 2007:37 (in review of *Ammophila pruinosus* complex).

36. *calva* (Arnold)

Sphex beniniensis var. *calvus* Arnold, 1920:38, ♀, ♂. Syntypes: Zimbabwe: Umgusa and Sawmills; South Africa: Zululand (SAM). – Arnold, 1928b:264 (revision), 1930:17 (in checklist of Afrotropical Sphecidae). – **As *Sphex beniniensis calvus***: Marshall, 1997:3 (new combination, new status, reference to original description). – **As *Sphex calvus***: Arnold, 1945:86 (new status, raised to full species). – **As *Ammophila calva***: Menke in Bohart and Menke, 1976:151 (as new status, listed).

37. *campestris* Latreille

Ammophila campestris Latreille, 1809:54, ... – Dahlbom, 1831:45 (redescription); nec Curtis, 1836:pl.604, Shuckard, 1837a:80, 251, and Stephens, 1846:15 (= *Ammophila pubescens*); Lepeletier de Saint Fargeau and Audinet-Serville, 1828:452 (redescription); Taschenberg, 1858:61 (in key to Sphecidae of Germany); Funk, 1859:59 (Germany: Bayern: Bamberg); Taschenberg, 1866:208 (in revision of Hymenoptera of Germany); Kirchner, 1867:217 (in catalog of European Hymenoptera); Wierzejski, 1868:117 (Ukraine: Podole region); Schlechtendal, 1872:37 (Germany: Sachsen: Zwickau); Wierzejski, 1874:258 (Ukraine: Podole region); Becker, 1880:150 (Russia: Sarepta, now Krasnoarmeysk S Volgograd); Kohl, 1880:183 (Austria: Tirol, and Italy: Trentino-Alto Adige), 237 (the genus *Miscus* cannot be maintained); Magretti, 1881:113 (Italy: Lombardia), 270 (listed); Kohl, 1883e:674 (Switzerland); von Heyden, 1884:116 (Germany: Frankfurt am Main); Ed. André, 1886:62 (in revision of Sphecidae of Europe and Algeria); Wüstnei, 1886:43 (Germany: Schleswig-Holstein); Ed. André, 1888:2* (bibliographic references); Kohl, 1888b:729 (Austria: Tirol, now Italy: Alto Adige); Kohl and Handlirsch, 1889:276 (Turkmenistan); F. Morawitz, 1889a:127 (Mongolia); Kohl, 1893a:35 (Austria: Niederösterreich); F. Morawitz, 1893a:108 (Russia: Karelian Isthmus, may be *Ammophila pubescens*), 1893b:407 (Tajikistan: Takfan in Yagnovb River valley); Sickmann, 1893:95 (Germany: Niedersachsen: Iburg); Baldini, 1894:47 (Italy: Modena area); Engel, 1894:53 (Germany: Jägerhof in Hausbruch near Hamburg); Krieger, 1894:13 (Germany: Kingdom of Saxony); Medina, 1894a:259 (Spain: Cazalla); Sickmann, 1894:218 (China: Hopei Province: Tientsin); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Mocsáry, 1897:79 (Kingdom of Hungary, some localities are in today's Croatia, Romania, and Slovakia); O. Schneider, 1898:103 (Germany: Borkum Island); nec Morice, 1900c:210 (= *Ammophila pubescens*); nec Adlerz, 1901:170 (= *Ammophila pubescens*); nec Barnes, 1902:266 (= *Ammophila pubescens*); Friese, 1902:477 (occurring in Lapland according to Zetterstedt, 1838, may be *Ammophila pubescens*); E. Saunders, 1902b:143 (Great Britain: Jersey Island; France: Bretagne: St. Briac); de Cobelli, 1903:103 (Italy: Province of Trentino); Antiga and Bofill, 1904:4 (Spain: Cataluña Province); Gadeau de Kerville, 1903:306 (France: Eure Department); Adlerz, 1904:108 (nesting habits, may be *Ammophila pubescens*); Aurivillius, 1904:254 (in revision of Swedish Sphecidae); nec E. Saunders, 1903a:16 (= *Ammophila pubescens*); Zilahi Kiss, 1904:77 (Hungary: Hadad); Ferton, 1905:97 (homing); Kubes, 1905:83 (Czech Republic: Kolín, Obora, Sušice); Kohl, 1906b:319 (in revision of Palearctic Ammophilini); Scholz, 1906:202 (mating); Móczár and Henter, 1907:205 (Romania: Caraş-Severin: Mehadia); Schmiedeknecht, 1907:245 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Adlerz, 1909:163 (detailed study of nesting

habits); E. Scholz, 1909a:22 (habitat and nesting behavior), 1910:306 (Germany: Wohlau: Krehlau; now Poland: Wołów); Dittrich, 1911b:25 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:48 (Italy: Trieste area); Zavattari, 1911:3 (Italy: Piemonte: Valle del Maira); Torca, 1913:35 (Germany: Provinz Posen, now Poland: Poznań Region); Alfken, 1914:283 (NW Germany); Birula, 1914:388 (Belarus: Ambrosovich and Luskinopol' near Vitebsk, sleeping aggregation of females); Dusmet y Alonso, 1915:86 (Spain: Aragón); O. Meyer, 1919:156 (Germany: Posen Province, now Poland: Poznań Region); nec Morley, 1919:209 (= *Ammophila pubescens*); Łoziński, 1920:121 (Poland: Dąbrowa near Tarnów); Strand, 1920:14 (Germany: Mecklenburg-Vorpommern: Rostock), 23 (Germany: Berlin-Dahlem); A. Wagner, 1920:35 (Germany: Lower Elbe region); Dubois, 1921c:213 (in key to Belgian Sphecidae); Fahringer and Friese, 1921:160 (Turkey: Erzurum: Chanziri in Amanus Mts. = Gavur Dağları); Strand, 1921:33 (Germany: Bayern: Kulmbach); Fahringer, 1922:176 (Turkey); Hedicke, 1922:272 (Germany: Brandenburg: Gross Machnower Weinberg); Strand, 1922:197 (Germany: Bayern: Kulmbach); Alfken, 1924:231 (n. Germany); Berland, 1925d:31 (in Sphecidae Fauna of France); Bischoff, 1925:301 (Latvia: Wezkukkul; Poland: Białowieża and Grajewo area); Coulon, 1925:115 (France); E. Nielsen, 1925:441 (nesting habits, prey); Shestakov, 1925:37 (Russia: Yaroslavl' area); K. Strohm, 1925:212 (Germany: Baden-Württemberg: Heidelberg); Friese, 1926:167 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Grandi, 1926:271 (nesting habits), 275 (description of mature larva); Hémon, 1926:199 (France: Finistère: Fouesnant); Maneval, 1926:81 (substituting prey, tenthredinid larvae); K. Strohm, 1926:74 (reference to Leininger, 1922); Bouwman, 1927:113 (in revision of Sphecidae of Netherlands); Crèvecoeur, 1927:308 (material excavated from nest is carried in flight); Grandi, 1927:188 (nest closing), 1927:271 (nesting habits), 275 (description of larva and cocoon); Kokujev, 1927:71 (Russia: Siberia: Lake Baikal); Benoist, 1928:408 (France: Alpes-Maritimes, Basses-Alpes, Hautes-Alpes); Grandi, 1928d:264 (nest closure); Blüthgen, 1929:83 (Germany: Saale River valley: Himmelreich); Roth, 1929:179 (in revision of Spanish Ammophilini); Bischoff, 1930:215 (Tajikistan: Pamir); Schmiedeknecht, 1930:706 (in keys to Hymenoptera of North and Central Europe); nec Hobby, 1931b:108 and Spooner, 1931:14 (= *Ammophila pubescens*); Bondroit, 1932:33 (Belgium: Forêt de Soignes); Crèvecoeur, 1932 (nesting habits, progressive provisioning); Guiglia, 1932c:3 (Italy: Valle d'Aosta: Parco Nazionale del Gran Paradiso); nec Hobby, 1932a:4 (*Ammophila pubescens*); Micheli, 1933:5 (nesting behavior); E. Nielsen, 1933:308 (nesting habits); Balles, 1934:21 (Germany: Baden-Württemberg: Mannheim-Rheinau, Oberachern); Bondroit, 1934:60 (Belgium: specimen with setae covered with secretion); Grandi, 1934:64 (correction to Crèvecoeur, 1932, interpretation of Grandi, 1926, observations), 130 (Italy: Trentino-Alto Adige: Vallesinella); Gussakovskij, 1934a:6 (China, Mongolia); Jansson, 1934:290 (Sweden); Minkiewicz, 1934:220 (nesting behavior); Forsius in Forsius and Hellén, 1935:12 (in checklist of Hymenoptera of Finland); Gussakovskij, 1935:414 (Transcaspia); Vergne, 1935:117 (France: Auvergne: common); Crèvecoeur and Maréchl, 1936:249 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:130 (Poland: Łowicz, Skarżysko); Heldmann, 1936:103 (Germany: Hessen: Bergstrasse); J. Muller, 1936:163 (Belgium); Dulac, 1937:7 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Goebel, 1937:47 (Poland: Poznań District: Głuszyna, Kobylepole, Puszczykowo, Strzeszyn, Wysogotowo); Zavadil, Šustera, and Bat'a, 1937:212 (in catalog of Sphecidae of Czechoslovakia); Gussakovskij, 1938:3 (China: Kiangsu Province); A. Wagner, 1938a:123 (northwestern Germany); nec Yarrow, 1939:15 (= *Ammophila pubescens*); Dovnar-Zapolskiy, 1940:304 (Russia: Kursk Oblast'); Balthasar, 1941b:112 (Czech Republic: eastern Morava); Guiglia, 1941c:165 (Italy: Calabria: Grande Sila); Schneid, 1941:1050 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); J. Perkins, 1942:197 (Sweden: Skåne: Degaberga and Löderup); nec Adriaanse, 1943:69 (= *Ammophila pubescens*); Giner Marí, 1943a:70 (in Sphecidae Fauna of Spain); nec Spooner, 1943:71 (= *Ammophila pubescens*); Adriaanse, 1944:150 (nesting habits, partly *Ammophila pubescens*); Guiglia, 1944b:6 (Italy); de Beaumont, 1945:467 (Switzerland; diagnostic characters); Richards, 1946:235 (in key to *Ammophila campestris* and *pubescens*); Adriaanse, 1947:1 (nesting behavior, comparison with that of *Ammophila adriaansei*, now *pubescens*); Carl and de Beaumont, 1947:67 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Guiglia, 1947a:28 (Italy: Piano Maiuri); Wilcke, 1947:118

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1978:85 (France: Nièvre Department); Pulawski, 1978:182 (in key to Sphecidae of European part of former USSR); Benedek, 1979:227 (Hungary: Bakony Hills); Leclercq, Gaspar and Verstraeten, 1979:map 1404 (Belgium); Lefeber, 1979:11 (in checklist of Sphecidae of Netherlands), 20 (Netherlands: distribution map); Richards, 1979:400 (British Channel Islands); Schwammler, 1979:113 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Kazenas, 1980e:81 (Russia: Far East); Pagliano, 1980:111 (Italy: Piemonte); Petit, 1980:42 (Belgium: Aayen); Gayubo, 1981a:138 (N Spain: Sierra de Béjar); Haeseler, 1981:50 (Germany: Frisian Island: Amrum Island); Donath, 1982:211 (Germany: Cottbus Bezirk); Gayubo, 1982f:246 (Spain: Cádiz Province: Puerto Real); Skibińska, 1982:122 (Poland: Warszawa area); Dollfuss, 1983b:3 (in catalog of Sphecidae of Austria); Gayubo, 1983c:233 (Spain: Salamanca Province: La Alberca); Lefeber, 1983a:84 (Netherlands: Waddendistrict: northern coast sand dunes); Mingo and Gayubo, 1983:160 (Spain); Schmidt and Westrich, 1983:121 (Greece); Grimm, 1984:101 (Germany: Island Hiddensee; activity depending on weather condition; determination questionable, may be *Ammophila pubescens*); Haack, Tschamtko, and Vidal, 1984:124 (Germany: Hamburg area); Pagliano, 1984:368 (Italy); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985c:571 (Germany: Frisian Islands); Józán, 1985a:180 (Hungary), 1985b:55 (Hungary S Lake Balaton), 76 (floral records), 83 (ecological and zoogeographic characteristics); Lefeber, 1985:86 (Netherlands: southern Limburg); Pagliano, 1985:13 (Italy); Tyrner, 1985:9 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:57 (Germany: Südpfalz); Gayubo, 1986b:37 (Spain: Andalucía), 1986c:30 (Spain: Zamora Province); Gayubo and Sanza, 1986:31 (Spain: Burgos, Segovia); Gayubo and Tormos, 1986a:9 (Spain: Castellón de la Plana); Islamov, 1986:514 (Uzbekistan: Surkhandarya and Tashkent Oblasts); Nemkov, 1986:93 (Russia: Irkutsk Oblast'); Vikberg, 1986b:75 (Finland); Schmidt and Westrich, 1987:357 (Germany: Mainz area); Tormos and Jiménez, 1987a:123 (Spain: Valencia); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:8, 21 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Karsai, 1988:99 (Hungary: Kiskunság National Park); Wolf, 1988b:139 (Germany: Nordrhein-Westfalen); Jacobs, 1989:4 (Germany: Mecklenburg-Vorpommern); Józán, 1989:100 (Hungary: Tihany Nature Reserve); Nilsson, 1989:47 (Sweden); Pádr *in* Šedivý, 1989a:166 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:94 (Belorussia: Berezinskiy Nature Reserve); Pádr, 1990:68 (Czech Republic: Praha area); Gayubo, Asís, and Tormos, 1990a:12 (Spain); Jacobs and Oehlke, 1990:134 (new records from Democratic Germany); Pagliano, 1990:60 (in catalog of Italian Sphecidae); Riemann and Melber, 1990:119 (northwest Germany: *Callunameadows*); Schwammler and Priesner, 1990:533 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Dollfuss, 1991:32 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:396 (Italy); Kuhlmann et al., 1991:87 (Germany: Senne Region); Negrisoló, 1991:316 (Italy: Venezia Province); van der Smissen, 1991:96 (nw. Germany); Delarze, 1992:67 (Switzerland: Valais: Les Folletères); Gayubo, Borsato, and Osella, 1992:278 (France, Greece, Turkey); Hamon, Tussac, and Fonfria, 1992:406, 410 (in key to French Ammophilini), 411 (distribution in France); Józán, 1992a:228 (Hungary: Béda-Karapanca Protected Area), 1992b:171 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Gorobchishin, 1993:46 (Ukraine: Kanev Nature Reserve); Józán, 1993:412 (Hungary: Bükk National Park); Kuhlmann, 1993:75 (Germany: known from Westfalen); Wiśniowski, 1993a:96 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Blagoveshchenskaya, 1994:88 (Russia: Ul'yanovsk Oblast'); Schmid-Egger, 1994a:687 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Krasnobayev et al., 1995:138 (Russia: Zhiguli Hills NW Samara); Negrisoló, 1995a:18 (visiting flowers of *Echinophora spinosa* L.), 22 (Italy: Veneto); Negrisoló *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Schmid-Egger, Risch, and Niehuis, 1995:163 (summary of records from Germany: Rheinland-Pfalz Province); Skibińska, 1995:423, 424 (Poland: pine forest in Białowieża Primeval Forest); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Jakubzik, 1996:251 (Germany: Köln); Lauterbach, 1996:133 (Germany: Nordr-

hein-Westfalen: Bielefeld area); Minoranskiy and Shkuratov, 1996:81 (Russia: Rostov Oblast'); Schmid-Egger, Schmidt, and D. Doczkal, 1996:375, 376 (Germany: Baden-Württemberg: endangered); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg), 106 (locality records); Woydak, 1996:10 (Germany: Westfalen: summary of distribution and nesting habits); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Wu and Zhou, 1996a:50 (in revision in Economic Insect Fauna of China), 1996b:297 (China: Karakorum – Kunlun Mts.); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:78 (in Sphecicid Fauna of Western Europe); Schmidt and Schmid-Egger, 1997:5 (in checklist of German Sphecidae); Stoyanov and Ljubomirov, 1997:26 (Bulgaria: Rila Mountains); Dollfuss, Gusenleitner, and Bregant, 1998:508 (Austria: summary of collecting records from Burgenland); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Mauss and Schindler, 1898:136 (Germany: Schleswig-Holstein: Nordfriesland District); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); van der Smissen, 1998:53 (Germany: Schleswig-Holstein, Niedersachsen); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); Kuhlmann, Wolf, and Woydak, 1999:569 (strongly endangered in Nordrhein-Westfalen State of Germany); Ljubomirov, 1999b:44 (Bulgaria: Mt. Vitoshka near Sofia); Pauly, 1999:107 (in catalog of Belgian aculeates); M. Schwarz, 1999:84 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:127 (in Sphecicid Fauna of Germany); Cartier, 2000a:74 (France: Hauts-de-Seine: Rueil-Malmaison); Dressler, 2000:30 (Germany: Hessen: Darmstadt area); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:105 (Greece); Jacobs, 2000:6, 17 (Germany: Land Mecklenburg-Vorpommern: vulnerable); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhine River); Shkuratov, 2000:54 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Cungs and Jakubzik, 2001:122, 123 (Luxembourg); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 107 (review of known biology); Kazenas and Esenbekova, 2001:133 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:137 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien); Kazenas, 2002a:35 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:152 (Poland: Kampinos National Park near Warszawa); Shlyakhtenok and Skibinska, 2002:32 (Belarus: no specific locality); Drewes, 2003:132 (France, Germany: miscellaneous locality records); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:63 (in catalog of wasps and bees of Bayern, Germany); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: approaching endangered status); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (in checklist of Sphecidae of Nordrhein-Westfalen State of Germany); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mts.); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Wiśniowski, 2004:39 and 58 (in checklist of Polish Sphecidae); Blösch, 2005:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Gayubo and Özbek, 2005:12 (Turkey: Erzurum: Palandöken, Karapazarý, Oltu; Kayseri: Hacýlar); Gülmez and Tüzün, 2005:50 (Turkey: Ankara Province); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Jacobs, 2005:436 (Bulgaria); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Pagliano and Negrisoló, 2005:66 (in Sphecicid Fauna of Italy); Shorenko, 2005a:163 (Ukraine: Crimea); Yildirim and Ljubomirov, 2005:1788 (Turkey: Erzurum: Arıbahçe, Aşkale); Blösch, 2006:63 (specimens spend nights attached to plant stems or leave blades with their mandibles); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Tomarchio and Turrisi, 2006:954 (Italy: first record from Sicilia: Mount Etna); Jacobs, 2007:46, 47 (in key to Sphecidae of Germany); Kazenas, 2007:89 (Kazakhstan: Akmalá Oblast': Kurgandzhin Nature Reserve and vicinity); Ljubomirov and Yildirim, 2008:34 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part

of Russia). – **As *Sphex campestris***: Zetterstedt, 1838:436 (new combination, in revision of insects of Lapland, probably misidentified *Ammophila pubescens*); Valkeila, 1962b:67 (southwestern Finland). – **As *Podalonia campestris***: Bischoff, 1931:8 (new combination, Spain). – **As *Miscus campestris***: Vander Linden, 1827:362 (new combination, France: Paris area); von Siebold, 1839:47 (Germany: Danzig, now Poland: Gdańsk); Herich-Schaeffer, 1840:297 (Germany: Bayern: Regensburg area); Dahlbom, 1942a:8 (in review of Scandinavian aculeates), 1843:7 (in revision of Sphecidae and Pompilidae), 1845:429 (in key); Lepeletier de Saint Fargeau, 1845:386 (revision); Eversmann, 1849:363 (Russia: Orenburg area); nec F. Smith, 1849b:2550 (= *Ammophila pubescens*, preying on caterpillars, nesting in soil); Wissmann, 1849:9 (Germany: Kingdom of Hannover: Hannover, Hedemünden); Tischbein, 1850:7 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Wesmael, 1852:83 (Belgium); Kirchner, 1854:310 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); F. Smith, 1856:224 (in catalog of Hymenoptera in British Museum); Kawall, 1857:23 (Kurland, now Latvia); Ruthe and Stein, 1857:312 (Germany: Berlin area); Schenck, 1857:203 (in revision of fossorial wasps of Nassau Region, Germany); A. Costa, 1858a:19 (Italy: Campania: Monti Partenii in Benevento Region), 1858b:21 (in revision of Sphecidae of Kingdom of Naples); Assmus, 1859:606 (Russia: Moscow Oblast'); Schenck, 1860:149 (Germany: Nassau Region); Brischke, 1862:98 (Germany: Preussen Province, now Poland: Pomorze Region), 1864:208 (Germany: Pommern, now Poland: Pomorze Region, prey); A. Costa, 1867b:79 and 1867c:23 (in revision of Italian Sphecidae); Jaennicke, 1867:147 (Germany: Hessen: Frankfurt area); Schenck, 1867a:357 (Germany: Nassau Region); Dietrich, 1868:364 (Switzerland: Zurich Canton); Jaennicke, 1868:9 (Germany: Hessen: Rüsselsheim); Aichinger, 1870:321 (Austria: Tirol); Thomson, 1870:230 (in revision of Swedish wasps); Ivanov, 1872:152 (Ukraine: Kharkov area); Dours, 1874:146 (in catalog of Hymenoptera of France); Thomson, 1874:173 (in revision of Hymenoptera of Scandinavia); Beuthin, 1876:231 (Germany: Hamburg area); Girard, 1879:970 (morphology and habits); Marquet, 1881:178 (southern France, a variety of *Ammophila sabulosa*); Radoszkowski, 1887b:91 (in list of Transcaspian Hymenoptera); Brischke, 1888a:54 (Germany: Hela Peninsula, now Poland: Hel Peninsula), 1888b:94 (Germany: Preussen Province, now Poland: Pomorze Region); Westerlund, 1893:23 (Russia: Karelian Republic: northern shore of Lake Ladoga); Acloque, 1897:97 (in Sphecidae Fauna of France and Algeria); Borries, 1897:99 (nesting habits); Lüderwaldt, 1897b:30 (Germany: Gollnow, now Poland: Pomorze Region: Goleniów); Strand, 1898b:92 (Norway); Chyzer, 1902:33 (Hungary); Cavro, 1910:685 (France: Département du Nord); Schirmer, 1912:168 (Germany: Berlin area); Ferton, 1923:294 (finds nest with difficulty when carrying prey); Casolari and Casolari Moreno, 1980:101 (specimens in M. Spinola collection).

Ammophilus retusus Gistel, 1848:142, sex not indicated. Holotype or syntypes: Germany: no specific locality (depository unknown, perhaps München). Synonymized with *Ammophila campestris* by Menke, 1964b:152. – **As *Ammophila retusus***: Gistel, 1850:466 (new combination, redescription).

Miscus neoxenus F. Smith, 1856:225, ♀, ♂. Syntypes: China: Shanghai (BMNH). Synonymized with *Ammophila campestris* by Kohl, 1906b:319. – Kohl, 1906b:321 (as a variety of *Ammophila campestris*), 373 (original description copied). – **As *Ammophila neoxena***: Dalla Torre, 1897:405 (new combination, in catalog of world Hymenoptera); Dover, 1926:234 (China: Hong Kong).

? *Ammophila striaticollis* F. Morawitz, 1889a:127, ♀. Holotype or syntypes: ♀, China or Mongolia (Hutoho (ZIN)). Synonymized with *Ammophila campestris* by Kohl, 1906:320. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Kohl, 1906b:376 (original description copied).

? *Ammophila nigrina* F. Morawitz, 1889a:128, ♀. Holotype or syntypes: ♀, China: Gansu: Sigu (ZIN). Synonymized with *Ammophila campestris* by Kohl, 1906b:320. – Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Kohl, 1906b:321 (as a variety of *Ammophila campestris*), 373 (original description copied).

Ammophila slovacica Zavadil in Zavadil, Šusterka, and Bat'a, 1937:213, ♂. Holotype: ♂, Slovakia: Dĕvinská Kobyla (NATL. MUS. PRAHA). Synonymized with *Ammophila campestris* by Noskiewicz, 1939:163 and Balthasar, 1972:430. – Šnoflak in Zavadil and Šnoflak, 1948:100 (in key to Sphecidae of Czechoslovakia); Bajári, 1957a:13 (in key to Hungarian Sphecidae), 1957b:134 (first record from Hungary); R. Bohart and Menke, 1976:153 (listed).

38. *caprella* Arnold

Ammophila caprella Arnold, 1951:142, ♂, ♀. Syntypes: Ethiopia: Addis Ababa, Mangasha (BMNH). – Leclercq, 1955h:83 (bibliographic references); R. Bohart and Menke, 1976:151 (listed).

39. *cellularis* Gussakovskij

Ammophila cellularis Gussakovskij, 1930c:203, ♀. Holotype: ♀, Russia: sw. Siberia: Pavlodar (ZIL). – R. Bohart and Menke, 1976:151 (listed); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia), 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia, as *cellularis*), 2002a:36 (geographic distribution, collecting localities in Kazakhstan).

40. *centralis* Cameron

Ammophila centralis Cameron, 1888a:6, ♂. Lectotype, ♂, Guatemala: El Reposo (BMNH), designated by Menke in Bohart and Menke, 1976:151. – Dalla Torre, 1897:397 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Maes, 1989:94 (in catalog of Nicaraguan Sphecidae); Hanson and Menke, 1995:637 (known from Costa Rica); Menke, 1996e:192 (in key, in revision of Costa Rican species); Menke and Parker, 1996:186 (Costa Rica: population largest during the wet season); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 47 (Mexico: Tamaulipas). – **As *Sphex centralis***: Fernald, 1934:109 (new combination, revision).

Ammophila consors Cameron, 1888a:12, ♀, ♂. Lectotype: ♂, Mexico: N Yucatán: Temax (BMNH), designated by Menke in Bohart and Menke, 1976:151. Synonymized with *Ammophila centralis* by Bohart and Menke, 1976:151 and by Menke, 1996e:192 (as new synonym). – Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera). – **As *Sphex consors***: Fernald, 1934:41 (new combination, revision).

Ammophila nigrocaerulea Cameron, 1888a:12, [♀] (as *nigro-caerulea*, incorrect original hyphenation). Syntypes: ♀, Guatemala: San Gerónimo (BMNH). Synonymized with *Ammophila centralis* by Bohart and Menke, 1976:151 and by Menke, 1996e:192 (as new synonym). – Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1934:157 (redescription, as unrecognized species).

41. *clavus* (Fabricius)

NOTE: *clavus*, Latin for nail, is a noun and thus invariable.

Sphex clavus Fabricius, 1775:348, sex not indicated (as *clausus*). Holotype or syntypes: ♀, Nova Hollandia, now Australia: no specific locality (BMNH: Banks collection). – Fabricius, 1781:445 (redescription), 1787:275 (redescription); Gmelin, 1790:2727 (redescription); Christ, 1791:299 (redescription); Fabricius, 1793:205 (redescription), 1796:155 (in Index to his Entomologia Systematica, 1793), 1804:206 (...); Dahlbom, 1845:XX (specimens in collection Fabricius are *Ammophila holosericea*). – **As *Ammophila clavus***: Sonan, 1927:132 (new combination, Taiwan, as *clvus*); Yasumatsu, 1935a:3, 22 (China: Jehol Region); Sonan, 1942:134 (in revision of Ammophilini of Taiwan, as *clavus*); van der Vecht, 1961a:39 (redescription of type material, as *clavus*); Iwata, 1965:107 (number of oocytes); Okuno, 1969:63 (nesting habits). – **As *Ammophila clava*** (records by Tsuneki probably belong to *atripes*): F. Smith, 1856:214 (in catalog of Hymenoptera in British Museum, type in Banks collection); Froggatt,

1892:209 (in catalog of Australian Hymenoptera); Dalla Torre, 1897:397 (in catalog of world Hymenoptera); R. Turner, 1908:463 (redescription; Australia: Queensland); Maidl, 1915a:381 (Indonesia: Sumatra); Iwata, 1939b:165 (nesting habits); Tsuneki, 1962b:25, 26 (in key; synonymy); Iwata, 1964b:358 (nesting behavior in Thailand); Tsuneki, 1966a:21 (Japan), 1967e:2 (China: Manchuria), 1967i:383 (Ryukyu Islands and Taiwan), 1967j:5 (Taiwan), 9, 11 (in key); R. Bohart and Menke, 1976:151 (listed); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Brockmann, 1985b:312 (nest closure summary); Cardale, 1985:229 (in catalog of Australian Sphecidae); Naumann, 1993:181 (Australia: Queensland: Heathlands area in Cape York); Ohl and Linde, 2003:149 (number of ovarioles); Hua, 2006:275 (in list of Chinese insects, geographic distribution, as *clavus clavus*).

ssp. formosana Strand

Ammophila formosana Strand, 1913:85, ♀, ♂. Syntypes: Taiwan: many localities (DEI). – **As *Ammophila atripes formosana***: R. Bohart and Menke, 1976:151 (new status, listed); Tsuneki, 1982d:10 (Taiwan), 1982g:55 (known from the Ryukyu archipelago); Yamane and Ikudome, 1990:101 (distribution in Ryukyu Islands, Japan); Porter, Stange, and Wang, 1999:5 (in checklist of Sphecidae of Taiwan). – **As *Ammophila clavus formosana***: Tsuneki and Iida, 1969:17 (description of arva), Tsuneki, 1971f:4 (Taiwan); Haneda, 1972:5 (Taiwan); Tano, 1972:22 (Japan: Ryukyu Islands); Murota, 1973b:116 (Taiwan); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

Ammophila clavus taiwana Tsuneki, 1967j:15, ♀, ♂. Holotype: ♀, Taiwan: Puli (originally K. Tsuneki coll., now USNM). Synonymized with *Ammophila clavus formosana* by Tsuneki, 1971f:4. – Tsuneki, 1967j:9 (in key), 1968i:60 (nesting habits); Tsuneki in Tsuneki and Iida, 1969:6 (nesting habits); Haneda, 1971b:31 (Taiwan); Nuhn and Menke, 1994:26 (holotype transferred to USNM).

ssp. japonica Kohl

Ammophila japonica Kohl, 1906:328, ♀, ♂. Lectotype: ♂, Japan: Kofou (MNHN), designated by Menke in Bohart and Menke, 1976:151. – Strand, 1915:95 (as synonym of *Ammophila atripes*); Gussakovskij, 1938:3 (China: Kiangsu Province). – **As *Ammophila atripes japonica***: R. Bohart and Menke, 1976:151 (new status, listed); Tsuneki, 1982b:14 (known from Korea), 1991:199 (Korea); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:386 (in key to Sphecidae of Russian Far East). – **As *Ammophila clavus japonica***: Tsuneki, 1967j:9, 11 (in key), 15 (new status); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Tsuneki, 1968i:36 (nesting habits), 1969e:24 (Japan), 1973p:120 (Japan: Fukui Prefecture), 1974a:359 (Korea); Nambu, 1975b:70 (Japan: Saitama Prefecture); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

ssp. taschenbergi Cameron

Ammophila erythropus Taschenberg, 1869:434, ♀, junior primary homonym of *Ammophila erythropus* F. Smith, 1856. Syntypes: Indonesia: Java: no specific locality (HALLE). – Bohart and Menke, 1976:151 (listed).

Ammophila taschenbergi Cameron, 1889c:94. Substitute name for *Ammophila erythropus* Taschenberg. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera). – **As *Ammophila atripes taschenbergi***: R. Bohart and Menke, 1976:151 (new status, listed).

42. cleopatra Menke

Ammophila cleopatra Menke, 1964a:19, ♀, ♂. Holotype: ♂, USA: California: Santa Barbara County: Goleta (UCD). – Evans, 1970:485 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Parks, 1986:34 (California: Torrey Pines State Reserve); Menke, 1986c:36 (Arizona: Cochise County: 3 mi E Willcox), 37 (Arizona: Cochise County: Naco); O'Brien, 1989b:210 (distribution in Michigan); Dollfuss, 1989:7 (paratype in NHMW); Menke, 1994f:21 (Utah: Calf Creek Falls State Park and Monticello Area); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Ohl and Linde, 2003:149 (number of ovarioles); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within On-

tario), 34 (first records from Ontario and British Columbia: list of localities); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 47 (Mexico: Tamaulipas).

As *Ammophila juncea*: Evans, 1959d:461 (nesting behavior), corrected to *Ammophila cleopatra* by Menke, 1965b:258.

43. *clypeola* Li and C. Yang

Ammophila clypeola Li and C. Yang, 1990:262, ♀. Holotype: ♀, China: Nei Mongol: Dongsheng County: no specific locality (Beijing Agricultural University). – Hua, 2006:275 (in list of Chinese insects, geographic distribution)

44. *coachella* Menke

Ammophila coachella Menke, 1966b:38, ♀, ♂. Holotype: ♂, USA: California: Riverside County: Boyd Desert Research Center 4 mi S Palm Desert (originally CIS, now CAS). – R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera).

45. *conditor* F. Smith

Ammophila conditor F. Smith, 1856:223, ♀. Holotype or syntypes: ♀, USA: Florida: Duval County: St. John's Bluff, now in Jacksonville (BMNH). – Cresson, 1863:318 (in catalog of North American Hymenoptera); Provancher, 1882:15 (description of ♂), 1883:616 (in revision of Canadian Hymenoptera); Taylor, 1884:80 (Canada: British Columbia: Vancouver Island); Cresson, 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); nec Harrington, 1902:224 (= *Amophila urnaria*); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera). – As *Sphex conditor*: nec Faull, 1913:384 (= *Ammophila urnaria*); Fernald, 1926:8 (as new synonym of *Ammophila procera*); Krombein and Evans, 1955:233 (Florida).

46. *confusa* A. Costa

Ammophila confusa A. Costa, 1864b:111, sex not indicated. Syntypes: Senegal: no specific locality (NAPOLI). – Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Berland, 1950b:295 (Niger: Aïr area, as *confusa* Smith); Leclercq, 1955h:92 (bibliographic references, as incertae sedis); R. Bohart and Menke, 1976:151 (listed).

47. *conifera* (Arnold)

Sphex conifer Arnold, 1920:47, ♀, ♂ (as *conifera*, incorrect original termination). Syntypes: South Africa: Cape Province: Willowmore; Zimbabwe: Bulawayo (SAM). – Arnold, 1928b:273 (revision), 1930:17 (in checklist of Afro-tropical Sphecidae); Marshall, 1997:3 (reference to original description). – As *Ammophila conifera*: Leclercq, 1955h:87 (new combination, bibliographic references, locality records); de Beaumont, 1967b:504 (South Africa); R. Bohart and Menke, 1976:151 (listed); Gess, 1981:19 (South Africa: 18 km WNW Grahamstown; nesting in friable soils); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits); S. Gess, 1996:275, 303 (floral records).

48. *cora* Cameron

Ammophila cora Cameron, 1888a:14, ♂. Lectotype: ♂, Guatemala: San Geronimo (BMNH), designated by Menke in Bohart and Menke, 1976:151. – Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); R. Bohart and Menke, 1976:151 (listed); Amarante, 2002:66 (in catalog of Neotropical Sphecidae). – As *Sphex cora*: Fernald, 1934:107 (new combination, revision).

49. *coronata* A. Costa

Ammophila coronata A. Costa, 1864b:111, sex not indicated. Holotype: Philippines: no specific locality (NAPOLI). – Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Ashmead, 1904d:150 (Philippines, as *corinata*); R. Brown, 1906:687 (in catalog of Philippine Hymenoptera); Baltazar, 1966:342 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:151 (listed); Tano, Nozaka, Kurokawa, and Murota, 1994:51 (Philippines). – As *Sphex coronatus*: Rohwer, 1922:671 (new combination, Philippines).

Ammophila superciliaris de Saussure, 1867:24, ♀. Holotype or syntypes: Philippines: Manila (NHMW). Synonymized with *Ammophila coronata* by ... – Cameron, 1889c:94 (listed, as *superciliosa*); Casto de Elera, 1895:245 (in catalog of fauna of Philippines); Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Ashmead, 1904a:6 (Philippines), 1904d:150 (Philippines); R. Brown, 1906:687 (in catalog of Philippine Hymenoptera).

50. *crassifemoralis* (R. Turner)

Sphex crassifemoralis R. Turner, 1919d:48, ♂. Holotype: ♂, Uganda: Mt. Elgon or Nzoia River valley in N Kavirondo (BMNH). – Arnold, 1928b:263 (original description copied), 1930:17 (in checklist of Afrotropical Sphecidae). – As *Ammophila crassifemoralis*: Leclercq, 1955h:93 (new combination, bibliographic references); R. Bohart and Menke, 1976:151 (listed).

51. *cybele* Menke

Ammophila cybele Menke, 1970:237, ♀, ♂. Holotype: ♂, Cuba: Oriente: Juraguá (Acad. Cienc. Cuba). – Alayo Dalmau, 1973:186 (in catalog of Cuban Hymenoptera), 1976:11 (in key to Cuban *Ammophila*), 27 (in checklist of Cuban Sphecidae); R. Bohart and Menke, 1976:151 (listed); Reyes and Hernández, 1995:3 (holotype in Inst. Ecol. Sist., La Havana, Cuba); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Portuendo and Fernández, 2004:134 (Cuba: Sierra Maestra); Genaro, 2006:51 (in checklist of Cuban Sphecidae and Crabronidae).

52. *dantoni* Roth

Ammophila dantoni Roth in Nadig, 1933:101, ♀, ♂ (as *Dantoni*, incorrect original capitalization). Holotype: sex not indicated, Morocco: no specific locality (originally Nadig coll., now Zurich). – de Beaumont, 1951:265 (Morocco, as *dantani*); Leclercq, 1955h:84 (bibliographic references); R. Bohart and Menke, 1976:151 (listed, as *dantani*).

53. *dejecta* Cameron

Ammophila dejecta Cameron, 1888a:14, sex not indicated. Syntypes: Mexico: northern Sonora: no specific locality (BMNH). – Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1934:155 (redescription, as unrecognized species); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

54. *dentigera* Gussakovskij

Ammophila dentigera Gussakovskij, 1928a:8, ♀, ♂. Syntypes: Turkmenistan: Bayram Ali; Uzbekistan: Khiva; Iran: Astrabad (ZIL). – de Beaumont, 1961b:272 (Afghanistan); Myartseva, 1972a:86 (Turkmenistan); R. Bohart and Menke, 1976:151 (listed); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 107 (nest with terminal false burrow next to cell, prey: caterpillar, probably Noctuidae), 2002a:36 (geographic distribution, collecting localities in Kazakhstan); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan).

55. *deserticola* Tsuneki

Ammophila deserticola Tsuneki, 1971k:169, ♂, ♀. Holotype: ♂, Mongolia: Bulgan Aymag: Somon Abzaga (TMB). – Tsuneki, 1971m:2 (China: Peking: Tiendang); R. Bohart and Menke, 1976:151 (listed); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).

56. *djaouak* de Beaumont

Ammophila djaouak de Beaumont, 1956a:178, ♂. Holotype: ♂, Libya: n. Tripolitania: Gargaresc (BMNH). – de Beaumont, 1960b:226 (Libya), 1963b:18 (in revision of the *nasuta* group); R. Bohart and Menke, 1976:151 (listed).

57. dolichocephala Cameron

Ammophila dolichocephala Cameron, 1910b:135, ♂. Syntypes: ♂, South Africa: Transvaal: Pretoria (TMP). – Brauns, 1917:241 (syntypes in TMP); Leclercq, 1955h:87 (bibliographic references); de Beaumont, 1967b:504 (Namibia); R. Bohart and Menke, 1976:151 (listed); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits), 1989b:847-871 (habitat selection and nest construction). – **As *Sphex dolichocephala***: Arnold, 1920:46 (new combination, description of ♀), 1928b:272 (revision), 1930:17 (in checklist of Afrotropical Sphecidae).

58. dolichodera Kohl

Ammophila dolichodera Kohl, 1884a:383, ♂. Syntypes: ♂, South Africa: "Prince Albert Land" (NHMW). – Dalla Torre, 1897:399 (in catalog of world Hymenoptera); Leclercq, 1955h:86 (bibliographic references); de Beaumont, 1967b:504 (Namibia); I. Robertson, 1969:480 (Tanzania: Nyarumbu); R. Bohart and Menke, 1976:151 (listed); Guichard, 1988a:128 (Saudi Arabia); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits: hunting precedes nest construction, one large caterpillar used), 1989b:847-871 (habitat selection and nest construction); Dollfuss, 1989:7 (type material in NHMW); Gadallah and Assery, 2004a:217 (in key to Sphecidae of Jeddah Region, Saudi Arabia), 224 (in catalog of Sphecidae of Saudi Arabia). – **As *Sphex dolichoderus***: R. Turner, 1919c:396 (new combination, synonymy); Arnold, 1920:48 (revision), 1928b:274 (revision), 1930:17 (in checklist of Afrotropical Sphecidae), 1935a:503 (South Africa: Kalahari).

Ammophila macrocola Kohl, 1884:377, ♂. Holotype or syntypes: ♂, South Africa: Prince Albert Land: no specific locality (depository?). Synonymized with ...

Ammophila pulchricollis Cameron, 1910b:133, ♂, actually ♀ (Brauns, 1917:241). Holotype or syntypes: ♂, South Africa: Transvaal: Masemola (TMP). Synonymized with *Ammophila dolichodera* by R. Turner, 1919c:396. – Brauns, 1917:241 (holotype is a ♀).

Ammophila lukombensis Cameron, 1912b:398, ♀. Holotype or syntypes: ♀, Zaire: Lukombe (MRAC). Synonymized with *Ammophila dolichodera* by Leclercq, 1955h:86. – **As *Sphex lukombensis***: Arnold, 1928b:279 (new combination, original description copied), 1930:17 (in checklist of Afrotropical Sphecidae); Schouteden, 1930:95 (Zaire).

59. dubia Kohl

Ammophila dubia Kohl, 1901d:159, ♀, ♂. Syntypes: Egypt (NHMW), Libya (TMB), Malta: Zeitun (NHMW). – Kohl, 1906b:356 (in revision of Palearctic Ammophilini); Gussakovskij, 1933b:274 (Iran); Guiglia, 1934b:293 (Libya: bibliography and summary of locality records); Alfieri, 1946:130 (in revision of Egyptian *Ammophila*); de Beaumont and Bytinski-Salz, 1955:39 (Israel); Leclercq, 1955h:84 (bibliographic references); de Beaumont, 1965b:772 (Chad: Ennedi); Pulawski, 1967c:387 (Sudan: Nile second cataract); R. Bohart and Menke, 1976:151 (listed); Dollfuss, 1989:7 (type material in NHMW); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula).

60. dysmica Menke

Ammophila dysmica Menke, 1966b:30, ♀, ♂. Holotype: ♂, USA: California: Nevada County: Sagehen Creek near Hobart Mills (UCD). – Evans, 1970:485 (nesting habits); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Rosenheim, 1987:739-749 (nesting habits), 1988:33 (role of parasites in nest site selection), 1989:353-348 (behaviorally mediated refuges from the cleptoparasite *Argochrysis armilla*).

61. elongata Fischer de Waldheim

Ammophila elongata Fischer de Waldheim, 1843:2, ♀, ♂. Syntypes: Southern Russia: no specific locality (depository unknown). – F. Smith, 1856:210 (in catalog of Hymenoptera in British Museum); Kirchner, 1867:217 (in catalog of European Hymenoptera); Dalla Torre, 1897:399 (in catalog of world Hymenoptera); Kohl, 1906b:325 (in revision of Palearctic Ammophilini); Tsuneki, 1971k:177 (Mongolia); Kazenas, 1972b:100 (Kazakhstan); Myartseva, 1972a:86 (Turkmenistan); R. Bohart and Menke, 1976:151 (listed); Kazenas, 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:181 (in key to Sphecidae of European part of former USSR); Kazenas,

2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:36 (geographic distribution, collecting localities in Kazakhstan).

62. *erminea* Kohl

Ammophila erminea Kohl, 1901d:157, ♀, ♂. Syntypes: Sinai: Tor; Aden; Assab, Egypt: no specific locality; Malta: Zeitun, actually Egypt (NHMW). – Kohl, 1906b:365 (in revision of Palearctic *Ammophilini*); Maidl, 1924:246 (Sudan: Port Sudan); von Schulthess, 1926b:209 (Tunisia); Roth, 1928:206 (in revision of North African *Ammophilini*); Guiglia, 1932d:468 (Libya: Gialo), Guiglia, 1934b:293 (Libya: bibliography and summary of locality records), 1936:4 (Libya: Gialo, and Fezzan: no specific locality), 1937:184 (Libya: Cyrenaica: Mechili), 1942b:229 (Libya); Giner Mari, 1945b:362 (Morocco: Western Sahara), 1945e:219 (Western Sahara); Alfieri, 1946:140 (in revision of Egyptian *Ammophila*); Giner Mari, 1947:19 (Western Sahara); de Beaumont, 1951e:265 (Morocco; Zeitoun is in Egypt, not in Malta as accepted by Kohl; range: Sinai to Rio de Oro); de Beaumont and Bytinski-Salz, 1955:39 (Israel); Leclercq, 1955h:77 (bibliographic references); de Beaumont, 1956:180 (Libya), 1960:226 (Libya), 1966:211 (Egypt: Aboukir); R. Bohart and Menke, 1976:153 (as junior synonym of *Ammophila rubripes*); Guichard, 1988a:128 (resurrected status, Arabian Peninsula); Dollfuss, 1989:7 (type material in NHMW); Guichard, 1991a:338 (Jordan); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Gadallah and Assery, 2004a:217 (in key to Sphecidae of Jeddah Region, Saudi Arabia), 224 (in catalog of Sphecidae of Saudi Arabia, as *ermenia*).

63. *evansi* Menke

Ammophila evansi Menke, 1964a:20, ♀, ♂. Holotype: ♂, USA: Connecticut: Litchfield County: Colebrook (MCZ) – R. Bohart and Menke, 1976:151 (listed); Finnamore, 1982:29 (in Sphecid Fauna of Southern Quebec); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); O'Brien and O'Brien, 1988:73 (nesting habits); O'Brien, 1989b:210 (distribution in Michigan); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Ahlstrom, 1995:107 (in checklist of insects of North Carolina); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada).

64. *exsecta* Kohl

Ammophila propinqua var. *exsecta* Kohl, 1906:364, sex not indicated. Holotype or syntypes: Syria: no specific locality (NHMW). – As *Ammophila exsecta*: R. Bohart and Menke, 1976:151 (new status, listed); Dollfuss, 1989:7 (type material in NHMW).

65. *extremitata* Cresson

Ammophila extremitata Cresson, 1865b:457, ♀, ♂. Lectotype: ♀, USA: "Colorado Territory": no specific locality (ANSP), designated by Cresson, 1916:94 (as *extrematata*). – Cresson, 1887:274 (in catalog of North American Hymenoptera, as *extrematata*); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado, as *extrematata*); Dalla Torre, 1897:399 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae, as *extremator*); Viereck, 1903a:68 (New Mexico: Beulah); Hart, 1907:255 (Illinois); Johnson and Ledig, 1918:24 (California: Claremont); Fernald, 1931a:449 (as new synonym of *Sphex placidus*); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument, identification questionable); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera). – As *Sphex extremitatus*: H. Smith, 1908b:330 (new combination, in revision of Nebraskan Sphecidae); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut, as *extrematata*, probably in error); Mickel, 1918b:404 (in catalog of Nebraskan Sphecidae); nec *Sphex guerinii extremitatus*: Fernald, 1934:62 (= *Ammophila fernaldi*).

66. *eyrensis* R. Turner

Ammophila eyrensis R. Turner, 1908:465, ♀. Holotype: ♀. Australia: South Australia: Killalpanima 100 mi E Lake Eyre (BMNH). – R. Bohart and Menke, 1976:151 (listed); Cardale, 1985:229 (in catalog of Australian Sphecidae);

67. femurrubra W. Fox

Ammophila femurrubra W. Fox, 1894c:102, ♀ (as *femur-rubra*, incorrect original hyphenation). Syntypes: Mexico: Baja California Sur: San José del Cabo (CAS). – W. Fox, 1895c:266 (Mexico: Baja California Sur); Dalla Torre, 1897:399 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1934:54 (as new synonym of *Sphex volcanicus*); R. Bohart and Menke, 1976:151 (listed, as valid species); Krombein, 1979b:1591 (in catalog of North American Hymenoptera).

68. fernaldi (Murray)

Sphex fernaldi Murray, 1938:19, ♀, ♂. Holotype: ♀, USA: Minnesota: Luverne (Univ. Minnesota). – Dreisbach, 1944:268, 269, 270 (in key to *Ammophila* of Michigan). – **As *Ammophila fernaldi***: Murray in Muesebeck et al., 1951:975 (new combination, in catalog of North American Hymenoptera); Evans and Linsley, 1960:32 (regular member of sleeping aggregation at Southwest Research Station, Arizona); Evans, 1964b:241 (larva); Menke, 1965a:260 (species identification by Evans, 1964d:241, is correct); R. Bohart and Menke, 1976:151 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Finnamore, 1982:30 (in Sphecidae Fauna of Southern Quebec); Menke, 1986c:36 (Arizona: Cochise County: Apache Pass); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario), 34 (first record from Ontario: Borden, Walsingham).

As *Sphex guerinii extremitatus*: Fernald, 1934:62 (new status, revision), corrected to *Sphex fernaldi* by Murray, 1938:19 (who referred to it as *Sphex placidus extremitatus*).

69. ferrugineipes Lepeletier de Saint Fargeau

Ammophila ferrugineipes Lepeletier de Saint Fargeau, 1845:383, ♀. Holotype or syntypes: ♀, South Africa: Cape of Good Hope (originally J. Serville coll., now TORINO). – F. Smith, 1856:212 (in catalog of Hymenoptera in British Museum); Gerstaecker in Peters, 1858:510 (Mozambique); Gerstaecker, 1862:481 (Mozambique); A. Costa, 1864b:111 (specimen from Senegal in Museo Zoologico di Napoli); Walker, 1871:18 (Sudan: Hor Tamanib; Djibouti: Tajura); Radoszkowski, 1876b:131 (Ethiopia); Gribodo, 1884a:297 (Ethiopia: Ambo-Karra), 1894c:134 (Mozambique: Imhambane); W. Fox, 1896e:552 (Ethiopia: Bale Province: Sheikh Husein, now Shek Husen); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Bingham, 1902:218 (South Africa, Malawi); Innes Bey, 1912:111 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected at Tadjurah); Cameron, 1910b:133 (South Africa: Transvaal), 1912b:398 (Zaire); Guiglia, 1940b:289 (Somalia, as *bonae-spei* var. *ferrugineipes*); Arnold, 1943:77 (Zaire, as *bonae-spei ferrugineipes*), 1951:141 (Ethiopia, Ghana, Senegal, as *Ammophila bonae-spei* var. *ferrugineipes*); Bradley, 1957:39 (type in Turin); de Beaumont, 1967b:504 (Namibia); Menke in Bohart and Menke, 1976:151 (listed, reverted to full species status); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Gess, 1981:19 (South Africa: 18 km WNW Grahamstown; nesting in friable soils; prey: geometrid larvae), 40 (method of nest construction), 41 (vibration of wings when digging nest); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits), 1989b:847-871 (habitat selection and nest construction); S. Gess, 1996:278, 283, 290, 303 (floral records). – **As *Sphex ferrugineipes***: R. Turner, 1919c:396 (new combination, synonymy); Schouteden, 1930:95 (Zaire). – **As *Sphex bonaespei* var. *ferrugineipes***: Arnold, 1920:51 (new status, revision), 1928b:276 (revision), 1930:17 (in checklist of Afrotropical Sphecidae), 1935a:503 (South Africa: Kalahari); Guiglia, 1943c:76 (Ethiopia: Gamo Gofa: Sagan – Omo region), 1950:247 (Ethiopia: Gamo Gofa: Banno, Caschei).

Ammophila erythrospila Cameron, 1905h:303, ♂. Holotype or syntypes: ♂, South Africa: Table Farm (AMG). Synonymized with *Sphex bonaespei ferrugineipes* by Arnold, 1920:51. – Jacot-Guillarmod, 1961:.. (syntype in Albany Museum, Grahamstown).

Ammophila dunbrodyensis Cameron, 1905i:322, ♂. Holotype or syntypes: ♂, South Africa: Cape Province: Dunbrody (BMNH). Synonymized with *Sphex bonaespei ferrugineipes* by R. Turner, 1919c:396.

Ammophila meruensis Cameron, 1908a:265, ♂. Syntypes: ♂, Kenya: Mt. Kilimanjaro: Kibonoto and Mt. Meru lowlands: Ngare na nyuki (NRS). Synonymized with *Sphex ferrugineipes* by Arnold, 1928b:279.

? *Ammophila curvistriata* Cameron, 1908a:265, ♂. Holotype or syntypes: ♂, Kenya: Mt. Kilimanjaro: Kibonoto (NRS). Tentatively synonymized with *Sphex ferrugineipes* by Arnold, 1928b:279.

70. *ferruginosa* Cresson

Ammophila ferruginosa Cresson, 1865b:455, ♀. Lectotype: ♀, USA: “Colorado Territory”: no specific locality (ANSP), designated by Cresson, 1916:94. – Cresson, 1876:208 (Colorado: Plains), 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Melander, 1903:159 (in key to North American Ammophilini); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:152 (listed); Kumar, Lavigne, Lloyd, and Pfadt, 1976:51 (USA: Colorado: Pawnee National Grassland); C. Ward et al., 1977:56 (associated with mesquite (*Prosopis*)); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1983b:20 (Nebraska: Thomas County: Halsey area), 21 (Nebraska: Hooker County: Mullen area, and Dawes County: N Crawford); Menke, 1986c:35 (Arizona: Navajo County: Hopi Reservation). – As *Sphex ferruginosus*: H. Smith, 1908b:329 (new combination, in revision of Nebraskan Sphecidae); Mickel, 1918b:403 (in revision of Nebraskan Sphecidae); Fernald, 1931a:449 (as new synonym of *Sphex wrighti*), 1934:41 (valid species, revision).

Ammophila collaris Cresson, 1865b:456, ♂. Holotype: ♂, USA: “Colorado Territory”: no specific locality (ANSP). Synonymized with *Ammophila ferruginosa* by Fernald, 1931a:449 and 1934:41. – Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Melander, 1903:159 (...); Cresson, 1916:94 (holotype in ANSP); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection). – As *Psammodia collaris*: Ashmead, 1899d:354 (new combination, in checklist of North American Sphecidae).

Sphex cressoni H. Smith, 1908bb:329. Substitute name for *Sphex collaris* (Cresson.) H. Smith, junior secondary homonym of *Sphex collaris* Linnaeus, 1767. – Mickel, 1918b:404 (in revision of Nebraskan Sphecidae).

71. *filata* Walker

? *Ammophila filata* Walker, 1871:18, ♂. Holotype or syntypes: ♂, Egypt: Sinai Peninsula: Wadi Genneh (destroyed). – Dalla Torre, 1897:400 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:152 (listed as questionable member of *Ammophila*).

72. *formicoides* Menke

Ammophila formicoides Menke, 1964a:10, ♀, ♂. Holotype: ♂, USA: New Mexico: Hidalgo County: Rodeo (CIS according to original description, now CAS). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1986c:37 (Arizona: Cochise County: W Naco); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

73. *formosensis* Tsuneki

As *Ammophila subassimilis*: Tsuneki, 1967i:383 (Taiwan), corrected to *Ammophila formosensis* by Tsuneki, 1967j:18 and 1971f:4.

Ammophila formosana Tsuneki, 1967j:18, ♀, ♂, junior primary homonym of *Ammophila formosana* Strand, 1913. Holotype: ♀, Taiwan: Chiayi Prefecture: Fenchihu (originally K. Tsuneki coll., now USNM). – Tsuneki, 1967j:5 (Taiwan), 10, 11 (in key); nec *Ammophila clavus formosana* Tsuneki of Tsuneki and Iida, 1969:17 (= *Ammophila clavus formosana* Strand); Nuhn and Menke, 1994:25 (holotype transferred to USNM).

Ammophila formosensis Tsuneki, 1971f:4, substitute name for *Ammophila formosana* Tsuneki, 1967. – Haneda, 1972a:5 (Taiwan); R. Bohart and Menke, 1976:152 (listed); Porter, Stange, and Wang, 1999:5 (in checklist of Sphecidae of Taiwan).

74. *ganquana* Yang and Li

Ammophila ganquana Yang and Li, 1989:105, ♀, ♂. Holotype: ♀, China: Shaanxi Province: Ganquan County: Quinguan (Beijing Agricult Univ.). – Li and L. Yang, 2005:883 (China: Gansu: Quinling Range and South Mountains); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

75. *gaumeri* Cameron

Ammophila gaumeri Cameron, 1888a:4, ♀, ♂. Lectotype: ♀, Mexico: north Yucatán: Temax (BMNH), designated by Menke in Bohart and Menke, 1976:152. – Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); R. Bohart and Menke, 1976:152 (listed); Nascimento and Overall, 1980:2 (Brazil); Maes, 1989:94 (in catalog of Nicaraguan Sphecidae); Hanson and Menke, 1995:637 (known from Costa Rica); Menke, 1996e:192 (in key), 194 (in revision of Costa Rican species); Menke and Parker, 1996:187 (Costa Rica: phenological observations); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae). – **As *Sphex gaumeri***: Fernald, 1934:111 (new combination, revision).

Ammophila micans Cameron, 1888a:5, ♀. Holotype or syntypes: ♀, Guatemala: San Gerónimo (BMNH). Synonymized with *Ammophila gaumeri* by Fernald, 1934:114 (as *Sphex gaumeri*). – W. Fox, 1895c:266 (Mexico: Baja California Sur); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae).

76. *globifrontalis* Li and Ch. Yang

Ammophila globifrontalis Li and Ch. Yang, 1995c:574, ♀, ♂. Holotype: ♀, China: Guangxi Province: Nanning: Forestry Research Institute (Beijing Agricultural University). – Li and He, 2004:1119 (in hymenopterous fauna of Zhejiang Province, China).

77. *gracilis* Lepeletier de Saint Fargeau

Ammophila gracilis Lepeletier de Saint Fargeau, 1845:381, ♀. Holotype or syntypes: ♀, Mexico: no specific locality, in error according to Menke, 1965a:216 (TORINO.). – F. Smith, 1856:221 (in catalog of Hymenoptera in British Museum); Cresson, 1863:318 (in catalog of North American Hymenoptera), 1873:210 (Texas); Provancher, 1883:615 (in revision of Canadian Hymenoptera); Cresson, 1887:274 (in catalog of North American Hymenoptera); Cameron, 1888a:16 (Mexico, redescription); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Viereck, 1903d:121 (Maryland: Chestertown); Ducke, 1907b:90 (Brasil: Maranhão State: Alcantara); Schrottky, 1909c:210, 212 (occurring on dry sand); Cheesman, 1929:151 (Panama: Colón); Menke, 1965a:216 (synonymy); R. Bohart and Menke, 1976:152 (listed); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Nascimento and Overall, 1980:2 (Brazil); Yústiz, 1987:13 (Venezuela: Central Lara Depression); Gaimari and Martins, 1996:240 (nesting behavior, nest distributions); Amarante, 2002:67 (in catalog of Neotropical Sphecidae).

Ammophila mutica Dahlbom, 1845:431, ♀, ♂. Holotype or syntypes: Brazil: no specific locality (Lund). Synonymized with *Ammophila gracilis* by Menke, 1965a:216. – Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Menke, 1964b:150 (redescription of type ♀). – **As *Sphex muticus***: Fernald, 1942:31 (new combination, Guyana: Kartabo).

Ammophila moneta F. Smith, 1856:219, ♀, ♂. Lectotype: ♀, Brazil: no specific locality (BMNH). Synonymized with *Ammophila mutica* by Menke, 1964b:149. – W. Fox, 1897b:374 (Brazil: Chapada, Pedra Branca, and Santarém).

Ammophila fragilis F. Smith, 1856:219, ♀, ♂. Lectotype: ♀, Brazil: no specific locality (BMNH). Synonymized with *Ammophila moneta* by W. Fox, 1897b:374 and with *Ammophila mutica* by Menke, 1964b:149. – Taschenberg, 1869:434 (Brazil; redescription); Cameron, 1888a:15 (Costa Rica, Mexico; redescription); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Ducke, 1907:... (Brazil, as *gracilis*, corrected to *fragilis* by Ducke, 1910:110); Schrottky, 1908:51 (visiting flowers of *Oxalis* sp); Ducke, 1910:110 (Brazil: Ceará State); Strand, 1910a:129 (Paraguay); Schrottky, 1913a:224 (Argentina, Paraguay); Bischoff and von Schulthess, 1937:168 (Argentina, Bolivia); Richards, 1937a:102 (Guyana). – **As *Sphex fragilis***: Fernald, 1907:271 (new combination, Argentina, variation), 1934:114 (revision); Rau, 1938b:541 (sleeping habits).

? *Ammophila suavis* Burmeister, 1872:241, ♀. Holotype: ♀, Argentina: Mendoza: Mendoza (ZMHU). – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Schrottky, 1903b:123 (in checklist of Hymenoptera of Argentina, Paraguay, and Uruguay); Jörgensen, 1912:285 (Argentina: Mendoza Province); R. Bohart and Menke, 1976:152 (listed as tentative synonym of *Ammophila gracilis*).

? *Ammophila arechavaletai* Brèthes, 1909b:61, ♀ (as *Arechavaletai*, incorrect original capitalization). Holotype: ♀, origin unknown, probably Uruguay: no specific locality (Mus. Montevideo). – R. Bohart and Menke, 1976:152 (listed, as tentative synonym of *Ammophila gracilis*); Genise, 1990:26 (type material in Museo de Montevideo).

78. *gracillima* Taschenberg

Ammophila gracillima Taschenberg, 1869:433, ♀. Lectotype: ♀, Sudan: Khartum (HALLE), designated by Menke *in* Bohart and Menke, 1976:152. – Ed. André, 1886:73 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Kohl, 1906b:323 (in revision of Palearctic Ammophilini); Longstaff, 1911:124 (Sudan: Khartum); Morice, 1911:73 (Algeria: Biskra); Strand, 1915:96 (Turkmenistan: Askhabad); Maidl, 1924:246 (Sudan: Port Sudan); Roth, 1928:188 (in revision of North African Ammophilini), 1930:82 (Algeria: Tassili des Ajjer); Guiglia, 1932d:468 (Libya: Gialo); Nadig, 1933:101 (Morocco: Agadir); Guiglia, 1934b:291 (Libya: bibliography and summary of locality records); Roth, 1934b:186 (Algeria); Gussakovskij, 1935:414 (Iran, Transcaspiya, lower Volga); Yasumatsu, 1935a:3, 22 (China: Jehol Region); Guiglia, 1936:3 (Libya: Fezzan: no specific locality); Yasumatsu, 1940:31 (China: Nei Mongol: Kunshantagh Desert); Guiglia, 1942b:229 (Libya); Giner Mari, 1945e:219 (Western Sahara); Alfieri, 1946:131 (in revision of Egyptian *Ammophila*); Giner Mari, 1947:19 (Western Sahara); Berland, 1950b:295 (Niger: Aïr area); de Beaumont, 1950f:396 (Algeria); Arnold, 1951:141 (Ethiopia); de Beaumont, 1951e:264 (Morocco), 1953a:172 (Mauritania); de Beaumont and Bytinski-Salz, 1955:36 (Israel); Leclercq, 1955h:88 (bibliographic references); de Beaumont, 1956a:175 (Libya), 1960b:226 (Libya); Myartseva, 1963b:59 (Turkmenistan: lower Murgab River), 1965:85 (Turkmenistan: Akibay, Anau, Sakar-Chagin district, Mary district, and Bayram-Ali district); de Beaumont, 1967a:266 (Turkey); Tsuneki, 1967e:2 (China: Manchuria); de Beaumont, 1970a:388 (Afghanistan), 1970c:2 (Iran: Baluchistan); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan); Kazenas, 1972b:100 (Kazakhstan); Myartseva, 1972a:86 (Turkmenistan), 1972b:112 (parasite: *Spinolia (Euchroeus) virgo* Sem., a chrysidid); R. Bohart and Menke, 1976:152 (listed); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:181 (in key to Sphecidae of European part of former USSR); Guichard, 1980:224 (Oman); Roche, 1981:2 (in checklist of Sphecidae of United Arab Emirates); Islamov, 1986:514 (Uzbekistan: Surkhandarya and Tashkent Oblasts); Guichard, 1988a:128 (Arabian Peninsula), 1991a:338 (Jordan); Roche and Zalot, 1994:114 (Egypt: Sinai Peninsula); Wu and Zhou, 1996a:51 (in revision in Economic Insect Fauna of China); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:37 (geographic distribution, collecting localities in Kazakhstan), 2004b:100 (Kazakhstan: western Tien Shan Mts.); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Hua, 2006:275 (in list of Chinese insects, geographic distribution). – **As *Sphex gracillima***: Arnold, 1928b:278 (new combination, original description translated into English), 1930:17 (in checklist of Afrotropical Sphecidae); Scott *in* Arnold, 1933a:370 (described from Ethiopia).

Ammophila longicollis Kohl, 1884:379, ♀. Holotype or syntypes: ♀, Russia: Sarepta, now Krasnoarmeysk near Volgograd (NHMW). Synonymized with *Ammophila gracillima* by Roth, 1938:188. – Ed. André, 1886:68 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); F. Morawitz, 1891a:203 (Russia: Astrakhan Government: Ryn Peski), 1894:340 (Turkmenistan: Serax); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia).

Ammophila debilis F. Morawitz, 1889a:125, ♀. Holotype or syntypes: ♀, Mongolia: Tsagan Buryuk on Edsin-gol river (ZIN). Synonymized with *Ammophila gracillima* by ... – Dalla Torre, 1897:398 (in catalog of world Hymenoptera).

As *Ammophila producticollis* (♂ only): Morice, 1900a:70, corrected to *Ammophila gracillima* by ...

79. *guichardi* de Beaumont

Ammophila guichardi de Beaumont, 1956a:176, ♀, ♂. Holotype: ♀, Libya: n. Tripolitania: Giado (BMNH). – de Beaumont, 1960b:226 (Libya), 1966:211 (Egypt: Wadi Digla near Cairo); R. Bohart and Menke, 1976:152 (listed); Guichard, 1988a:127 (Saudi Arabia: Lodar).

80. *haimatosoma* Kohl

Ammophila haimatosoma Kohl, 1884a:383, ♀. Holotype ("bei vorliegendem Stücke"): ♀, Cyprus: no specific locality (NHMW). – Ed. André, 1886:73 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Dalla Torre, 1897:400 (in catalog of world Hymenoptera, as *haematosoma*); Kohl, 1901d:153 (revision), 1906b:326 (in revision of Palearctic Ammophilini); Morice, 1911:73 (Algeria: Biskra); Roth, 1924:123 (Algeria: Nemours, now Ghazaouet); von Schulthess, 1926b:208 (Tunisia); Roth, 1928:188 (in revision of North African Ammophilini), 217 (nesting habits), 230 (prey capture preceds nest construction); G. Carpenter, 1930b:291 (nest closure); Nadig, 1933:101 (Morocco: Marrakech); Guiglia, 1934b:292 (Libya: bibliography and summary of locality records); Alfieri, 1946:127 (in revision of Egyptian *Ammophila*); de Beaumont, 1950d:6 (Egypt: Siwa oasis), 1950f:395 (Morocco); Pittioni, 1950:20 (Cyprus); de Beaumont, 1951e:264 (Morocco), 1953b:226 (Libya); de Beaumont and Bytinski-Salz, 1955:36 (Israel); Leclercq, 1955h:89 (bibliographic references); de Beaumont, 1956a:175 (Libya); Grandi, 1957:386 (Libya: Tripolitania: Wadi Kaam); de Beaumont, 1960:226 (Libya), 1961e:2 (Iraq), 1965b:772 (Chad: Ennedi), 1970c:2 (Iran: Khuzestan); R. Bohart and Menke, 1976:152 (listed); Georghiou, 1977:188 (Cyprus); Guichard, 1988a:127 (Saudi Arabia); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula); Gadallah and Assery, 2004a:217 (in key to Sphecidae of Jeddah Region, Saudi Arabia), 224 (in catalog of Sphecidae of Saudi Arabia: Abrug E Jeddah, N and S Jeddah). – As *Sphex haimatosoma*: R. Turner, 1918a:91 (new combination, Pakistan: Karachi).

ssp. sinaitica Alfieri

Ammophila haimatosoma variété *sinaitica* Alfieri, 1946:128. Holotype: ♀, Egypt: Sinai Peninsula: Wadi El Ghedeirat (A. Alfieri coll., now?). – As *Ammophila haimatosoma sinaitica*: R. Bohart and Menke, 1976:152 (new status, listed); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula).

81. *harti* (Fernald)

Ammophila argentata Hart, 1907:266, ♀, ♂, junior primary homonym of *Ammophila argentata* Lepeletier de Saint Fargeau, 1845. Syntypes: USA: Illinois: Mason County: no specific locality (Illinois State Laboratory of Natural History). – As *Sphex argentatus*: Mickel, 1918b:405 (new combination, in catalog of Nebraskan Sphecidae); Rau, 1922:24 (USA: Missouri: St. Louis, nesting behavior); J.Ch. Bradley, 1928:1012 (in catalog of New York Sphecidae).

Sphex harti Fernald, 1931a:450. Substitute name for *Sphex argentatus* (Hart) Fernald, junior secondary homonym of *Sphex argentatus* Fabricius, 1787. – Dreisbach, 1944:268, 271 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records); Strickland, 1947:129 (Canada: Alberta: Wainwright). – As *Ammophila harti*: Murray in Muese-

beck et al., 1951:975 (new combination, in catalog of North American Hymenoptera); Evans and Lin, 1956a:146 (larva), 1958e:451 (behavioral evolution), 1959d:459 (nesting behavior), 1963c:62 (nest closure), 1970:485 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1983b:20 (Nebraska: Thomas County: Halsey area); Brockmann, 1985b:312 (nest closure summary); Hager and Kurczewski, 1985:597 (male reproductive behavior), 1986a:451 (sarcophagid cleptoparasites *Senotainia vigilans* and *Phrosisinella aurifacies*), 1986b:7 (nesting habits); O'Brien, 1989b:210 (distribution in Michigan); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1992:996 (species of miltogrammine parasites listed), 1002 (counter-cleptoparasitic behavior: freeze-stop and face-off, diversionary flight), 1003 (chasing flight), 1004 (post-larvipositional counter-cleptoparasitic behavior: abandon burrow), 1005 (abandon prey, clean burrow, clean prey, inordinate amount of post-provisioning time in burrow, larval feeding on maggot); Kurczewski, 1998d:250 (pine barrens in upstate New York); Weissmann and Kondratieff, 1999:77 (Colorado: Great Sand Dunes National Monument); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada).

82. *hemilauta* Kohl

Ammophila hemilauta Kohl, 1906:360, ♀. Syntypes: Tunisia: Médenine (NHMW). – von Schulthess, 1926b:209 (Tunisia, Libya); Roth, 1928:203 (revision, description of ♂); nec Bischoff, 1933:6 (= *Ammophila strumosa*); Bischoff, 1933:6 (Morocco); Guiglia, 1934b:292 (Libya: bibliography and summary of locality records); Alfieri, 1946:135 (in revision of Egyptian *Ammophila*); de Beaumont and Bytinski-Salz, 1955:37 (Israel); Leclercq, 1955h:85 (bibliographic references); de Beaumont, 1956a:178 (Libya), 1958a:290 (illustration of genitalia), 1960b:226 (Libya), 1963b:20 (in revision of the *nasuta* group); R. Bohart and Menke, 1976:152 (listed); Dollfuss, 1989:7 (type material in NHMW).

83. *hermosa* Menke

Ammophila hermosa Menke, 1966b:31, ♀, ♂. Holotype: ♂, USA: California: Mono County: Black Lake (UCD). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1994f:22 (Arizona: Bisbee); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

84. *heteroclypeola* Li and Xue

Ammophila heteroclypeola Li and Xue, 1998:181, ♀, ♂. Holotype: ♀, China: Xingjiang: Wujiagu (Zhejiang Agricult. Univ.).

85. *hevans* Menke

Ammophila hevans Menke, 2004:766, ♀, ♂. Holotype: ♀, Bolivia, Santa Cruz 3 km N Brazilio (CAS). Paratypes: Argentina, Paraguay.

86. *heydeni* Dahlbom

NOTE. European records of *Ammophila holosericea* probably refer to *heydeni*.

Ammophila heydeni Dahlbom, 1845:430, sex non indicated (as *Heydeni*, incorrect original capitalization). Holotype or syntypes: southern Europe: no specific locality (Lund). – Eversmann, 1849:364 (Russia: Astrakhan, Orenburg and Saratov areas); F. Smith, 1856:210 (in catalog of Hymenoptera in British Museum); A. Costa, 1858a:19 (Italy: Campania: Monti Partenii in Benevento Region), 1858b:19 (in revision of Sphecidae of Kingdom of Naples); Frauenfeld, 1861:103 (Croatia: Dalmatia); Sichel, 1861:751 (Italy: Sicilia); Giraud, 1863a:14 (Italy: Piemonte: Suse; and France: Hautes-Alpes: Vallouise near Briançon); A. Costa, 1867b:77 and 1867c:21 (in revision of Italian Sphecidae); Kirchner, 1867:217 (in catalog of European Hymenoptera); Palma, 1867:37 (Italy: Sicilia settentrionale); Aichinger, 1870:321 (Austria: Tirol); Dours, 1874:141 (in catalog of Hymenoptera of France); Frivaldszky, 1876:354 (Hungary: Temes Komitat: Grebenáč, now in Timiș District in Romania); Becker, 1880:150 (Russia: Sarepta, now Krasnoarmeysk S Volgograd); Kohl, 1880:184 (Austria: Tirol, and Italy: Trentino–Alto Adige); Ma-

gretti, 1881:113 (Italy: Lombardia), 270 (listed); A. Costa, 1882b:22 (Italy: Sardegna); De Stefani Perez, 1882:39 (Italy: Sicilia: Sciacca); Magretti, 1882a:383 (Italy: Pisa Province: Lavaiano); Kohl, 1883e:674 (Switzerland); Ed. André, 1886:71 (in revision of Sphecidae of Europe and Algeria); De Stefani Perez, 1886:171 (Italy: Sicilia: monte di Renda near Palermo); Gasperini, 1887:18 (Dalmatia: Brusije, San Giorgio, Spalato, now Croatia: Brusje and Sućuraj on Hvar Island, Split); Ed. André, 1888:3* (bibliographic references); Cuní y Martorell, 1888:164 (Spain: Barcelona); Kohl and Handlirsch, 1889:276 (Turkmenistan); F. Morawitz, 1891a:203 (Russia: Astrakhan Government); Kohl, 1893a:36 (Austria: Niederösterreich); F. Morawitz, 1893b:408 (Tajikistan); Baldini, 1894:48 (Italy: Modena area); De Stefani Perez, 1894:216 (Italy: Sicilia), 1895:226 (in catalog of Sicilian Hymenoptera); Cuní y Martorell, 1897:331 (Spain: Cataluña: villa de Calella); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Mocsáry, 1897:79 (Kingdom of Hungary, some localities are in today's Croatia and Romania); Flamary, 1898:38 (France: Saône-et-Loire: Mâcon area); Ferton, 1899:340 (prey paralyzing); Ghigi, 1902:190 (Greece: Ionian Islands: Kefalonia: Ankona, as *heideini*); deCobelli, 1903:104 (Italy: Province of Trentino); Antiga and Bofill, 1904:3 (Spain: Cataluña Province); E. Saunders, 1904c:635 (Spain); Zilahi Kiss, 1904:77 (Hungary: Nagyfalú); Ferton, 1905:97 (homing); Kohl, 1905c:232 (Turkey: Kayseri: Erciyes Dağı); Mantero, 1905:68 (Italy: Toscana: Isola del Giglio); W. Schulz, 1905b:34 (Algeria: Biskra and Oued Deurdeur); Vängel, 1905:167 (Hungary); Kohl, 1906b:366 (in revision of Palearctic Ammophilini); W. Schulz, 1906:43 (Greece: Crete); Móczár and Henter, 1907:205 (Hungary: Hatvan, Tiszaalpár; Romania: Caraș-Severin: Mehadia); Schmiedeknecht, 1907:245 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Ferton, 1908:560 (nesting habits), 582 (nest excavation and homing, prey); von Schulthess, 1909:440 (Libya: Derna, Gherran); Olivier, 1910:163 (Algerie: Bou Saâda); Graeffe, 1911:48 (Italy: Trieste area); Morice, 1911:74 (Algeria: Constantine); Birula, 1912:545 (Ukraine: Zhytomyr Oblast': Radomyshl'); Kohl, 1913b:15 (Russia: Voronezh Oblast': Valuyki at 50°14'N 38°08'E); Szilády, 1913:89 (Hungary: Nagyenyed, Vizakna); Zavattari, 1913:3 (Greece: Island of Rhodes, as *heydeini*); Kerenskiy, 1919:35 (Russia: Penza Government); Rabaud, 1919:52 (nest excavation homing, choice of prey); Berland, 1921:533 (Greece); Fahringer and Friese, 1921:160 (Turkey: Erzurum: Iyaribashi in Amanus Mts. = Gavur Dağları); Ferton, 1921:347 (France: Corse: Propriano; nesting behavior); Maidl, 1922:67 (Albania, Croatia); Fahringer, 1922:176 (Turkey); Strand, 1922:198 (Austria: Niederösterreich: Guntramsdorf); Ferton, 1923:87 (prey paralyzing), 138 (progressive provisioning), 294 (easily finds nest when carrying prey), 303 (evacuation of sand from nest in flight, prey carrying), 320 (captures other families when preferred geometrid caterpillars are in short supply); Gribodo, 1924a:262 (Libya: Benghazi), 1924b:48 (Libya: Benghazi, Tolmetta); Roth, 1924:123 (Algeria: Nemours, now Ghazaouaet); Berland, 1925a:13 (a spider, *Filistata insidiatrix*, taking away a female's prey, a caterpillar of a *Pararge* butterfly, probably *P. maegera* L.), 1925d:30 (in Sphecid Fauna of France); Coulon, 1925:115 (France: Allier, Oise); Italy: Sicilia; Turkey: Istanbul); Grandi, 1925a:90 (Italy: Emilia: Gaggio Montano); Zanon, 1925:91 (Libya: Fueihat 15 km S Benghazi); Grandi, 1926:281 (nesting habits); von Schulthess, 1926b:209 (Tunisia, Libya); Kuznetsov-Ugamskij, 1927:249 (Kazakhstan: Khumsan); Benoist, 1928:408 (France: Alpes-Maritimes: Grasse); Roth, 1928:206 (in revision of North African Ammophilini), 224 (nesting habits); Grandi, 1929:258 (prey carrying, sleeping position), 1929:287 (Italy: Toscana: valle della Limentra); Roth, 1929:185 (in revision of Spanish Ammophilini); G. Carpenter, 1930b:291, 292 (nest closure); Grandi, 1930:302 (attempts at nest closure with a stone that escaped from the mandibles), 340 (Italy: Toscana: Maremma); Schmiedeknecht, 1930:706 (in keys to Hymenoptera of North and Central Europe); Dusmet y Alonso, 1931:7 (Portugal: Mitra); Molitor, 1931b:413 (nesting habits); Giordani Soika, 1932a:20 (Italy: Lido di Venezia); Guiglia, 1932d:467 (Libya: Gialo); Molitor, 1932b:450 (nesting habits and experiments); Bischoff, 1933:6 (Morocco); Dulac, 1933b:39 (France: Saône-et-Loire: Saint-Leu and Montcenis near Le Creusot); Gussakovskij, 1933b:274 (Iran, as *heydenii*); Masi, 1933:196 (Italy: Toscana: Isola di Capraia); Molitor, 1933c:502 (experiments with prey substitution), 507 (fighting between females); Nadig, 1933:100 (Algeria: Oran; Morocco); Grandi, 1934:65 (attempts at nest closure with a stone that escaped from the mandibles), 130 (Italy: Lazio: Acilia, and Toscana: San Vincenzo); Guiglia, 1934b:292 (Libya: bibliography and summary of locality records); Gussakovskij, 1934a:6 (China:

Sinkiang: Kuldja, as *heydenii*); Maidl, 1934:64 (Greece: Aegean Islands); Molitor, 1934c:450 (experiments on nesting behavior); Nadig, 1934:33 (France: Corse: Ajaccio, Bastia, Cap Corse); Zavadil, 1934:187 (Slovakia); Berland, 1935b:63 (use of pebble for tampering nest entrance); Bernard, 1935:60 (France: Var: Fréjus area); Grandi, 1935a:49 (nesting habits), 111 (Italy); Gussakovskij, 1935:413 (Tajikistan: Kulab, as *heydenii*); Vergne, 1935:117 (France: Auvergne: Chanturgue, Lezoux); Bernard, 1936c:287 (France: Hérault: Valvras; Var: Fréjus); Molitor, 1936a:195 (experiments on color recognition), 1936b:524 (reaction to disturbance and obstacles); Noskiewicz, 1936:160 (Poland: Podole Region: Trembowla, now Ukraine); Roller, 1936:315 (Austria: loess cliffs at Bisamberg near Vienna); Dulac, 1937:7 (France: Saône-et-Loire: Montcenis, Saint-Laurent d'Andenay); Zavadil, Šusterka, and Baťa, 1937:212 (in catalog of Sphecidae of Czechoslovakia); Zavadil, 1939:121 (Czech Republic: Morava: Čejč); Guiglia, 1941c:165 (Italy: Calabria: Grande Sila), 1942a:59 (Greece: Isle of Rhodé: Kremasti); Deleurance, 1943:62 (France: Dordogne: Montignac; two eggs in a single cell reported); Giner Marí, 1943a: (in Sphecidae Fauna of Spain); Guiglia, 1943d:91 (Albania: Scutari); Timon-David, 1943:29 (France: Bouches-du-Rhône: plage de Fos); Giordani Soika, 1944:13 (Italy: Sicilia: Messina, Taormina); Guiglia, 1944b:5 (Italy); Benoist, 1946:68 (caterpillar prey defense mechanism); de Andrade, 1949:6 (Portugal); Deleurance, 1946b:61 (prey), 67 (France: Bouche-du-Rhône: Camargue: Bois des Rièges); Balthasar, 1948:144 (Slovakia: Kovačov, Parkan); Šnoflak in Zavadil and Šnoflak, 1948:99 (in key to Sphecidae of Czechoslovakia); de Beaumont, 1950f:396 (Algeria, Morocco); Scobiola, 1950:21 (Romania); de Beaumont, 1951e:265 (Morocco); Cleu, 1953:50 (France: Ardèche River basin); de Beaumont, 1953h:193 (study of a ♂ from Dalmatia, holotype or syntype of *heydenii*); Guiglia, 1953b:10 (Italy: Lucania-Calabria: Santicelli); Nouvel and Ribaut, 1953:176 (France: Haute-Garonne: Saint-Béat); de Beaumont 1954e:86 (Italy); Grandi, 1954:155 (nesting habits), 235 (Italy); Hertzog, 1954:99 (France: Bouches-du-Rhône: Camargue); Aerts, 1955:64 (Germany: Rheinland); de Beaumont, 1955c:55 (effects of stylopization); de Beaumont and Bytinski-Salz, 1955:39 (Israel); Harant and Leclercq, 1955:251 (France: Hérault: eight localities); Leclercq, 1955h:76 (bibliographic references, locality records from Africa); Steiner, 1955:132 (France: Dordogne); Vergne, 1955:3 (France: Auvergne); Vogrin, 1955:31 (Yugoslavia); Bytinski-Salz, 1956:224 (Turkey: thirteen localities); Ceballos, 1956:359 (in catalog of Hymenoptera of Spain); de Beaumont, 1956a:180 (Libya: Cyrenaica); Dulac, 1956:9 (France: Saône-et-Loire: Mâcon, St.-Laurent-d'Andenay E Creusot); Leclercq, 1956g:324 (Greece); Morel, Nouvel, and Ribaut, 1956:336 (France: Département des Pyrénées-Orientales); Bajári, 1957a:14 (in key to Hungarian Sphecidae); de Beaumont, 1957b:129 (n. Iran); Grandi, 1957:340 (prey carrying), 386 (Italy); Nouvel and Ribaut, 1958:8 (France: Pyrénées-Orientales: Banyuls-sur-Mer area); Pulawski, 1958a:163 (Bulgaria: Aitos, Kniazhevo near Sofia, Nesebar, Sandanski, Sozopol, Varna); van der Zanden, 1958b:90 (France: Piquey, name may be in error); Ceballos, 1959:228 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1959a:7 (Italy); Diniz, 1959:26 (Portugal: 15 localities); Giner Marí, 1959:387 (Morocco); Scobiola-Palade, 1959:499 (Romania: Constanța Region: Agigea); Suárez, 1959:52 (Spain: Almería Province); Suárez in Giner Marí, 1959:400 (recorded from Morocco by de Beaumont, 1951); Wolf, 1959b:28 (only record from Germany doubtful; unknown from Nassau); Čingovski, 1960:5 (Macedonia: several localities); de Beaumont, 1960a:5 (Greece: Isle of Rhodes), 1960b:226 (Libya); Noskiewicz and Pulawski, 1960:38 (in key to Polish Sphecidae, not yet found in Poland); Scobiola, 1960b:233 (Romania: Constanța Region: Eforie and Techirghiol, Craiova Region: Bucovăț, illustration of male genitalia); de Beaumont, 1961b:272 (Afghanistan), 1961c:44 (Greece: Crete Island); Grandi, 1961:133 (nesting habits); Atanassov, 1962:125 (Bulgaria: Petrich area); de Beaumont, 1962b:19 (Spain); Grandi, 1962:97 (Italy); Scobiola, 1963:825 (Romania: Cardon); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1964c:26 (in Sphecidae Fauna of Switzerland), 1965a:11 (Greece); Diniz, 1965:2 (Portugal: thirty seven localities); Pulawski, 1965b:260 (structure of gastral segment I); Roberti, Frilli, and Pizzaghi, 1965:109 (Italy: Emilia-Romagna: Bobbio and Marsalia in Piacenza Province); Scobiola-Palade, 1966b:391 (Romania: Tulcea District: Chilia Veche, Tulcea); Balthasar, Hrubant, and Hrubant, 1967:176 (Bulgaria: Slanchev Bryag near Nessebar); Carayon, 1967:744, 746 (France: Vaucluse Department: nocturnal rest site); de Beaumont, 1967a:270 (Turkey; also sp. aff.); Scobiola-Palade, 1967a:161 (Romania: Constanța District: Canaraua Fetei, Hagieni), 1967b:36 (Roma-

nia); Benedek, 1968:70 (Hungary, floral records); Scobiola-Palade, 1968b:141 (Romania: Island of Letea in delta of Danube), 1968c:382 (Romania: București, Budești, Cernica, Copăceni); de Beaumont, 1969:81 (Turkey); Zangheri, 1969:1699 (Italy: in catalog of flora and fauna of Romagna Region); Islamov, 1970:63 (Uzbekistan: Chirchik Basin); Oehlke, 1970:673 (Taschenberg's 1866 record from Democratic Germany area is questionable); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan); Atanassov, 1972a:192 (Bulgaria: Stara Planina Mountains), 1972b:32, 48, 49 (Bulgaria: Stara Planina Mountains); Balthasar, 1972:429 (in Sphecidae Fauna of Czechoslovakia); Kazenas, 1972b:99 (Kazakhstan); Krombein, 1972b:384 (Greece; prey: a geometrid caterpillar); Myartseva, 1972a:86 (Turkmenistan); Scobiola-Palade, 1972a:148 (Romania: delta of Danube: Caraorman); Simon Thomas, 1972:174 (France: Gironde, Landes, Lot-et-Garonne); R. Bohart and Menke, 1976:152 (listed); Georghiou, 1977:188 (Cyprus); Kolesnikov, 1977:317 (Russia: Bryansk Oblast'); Guichard, 1978:269 (Greece); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Marion, 1978:85 (France: Nièvre Department); Pulawski, 1978:182 (in key to Sphecidae of European part of former USSR); Benedek, 1979:227 (Hungary: Bakony Hills); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, as *hegedeni*); Pagliano, 1980:111 (Italy: Piemonte); Gayubo, 1981a:139 (N Spain: Sierra de Béjar); Józán, 1981:304 (Hungary: Hortobágy National Park); Gayubo, 1982f:246 (Spain: Cádiz Province); Dollfuss, 1983b:3 (in catalog of Sphecidae of Austria); Gayubo, 1983c:231 (Spain: Salamanca Province); Mingo and Gayubo, 1983:160 (Spain); Schmidt and Westrich, 1983:121 (Greece); Gayubo, 1984c:358 (Portugal: El Algarve Province); Gayubo and Tormos, 1984:11 (Spain: Valencia); Pagliano, 1984:368 (Italy); Brockmann, 1985b:312 (nest closure summary); Chevin and Chevin, 1985:38 (France: Aude); Gayubo, 1985c:167 (Spain: Segovia: Cantaleo; Valladolid: Traspinedo); Józán, 1985b:55 (Hungary S Lake Balaton), 76 (floral records), 83 (ecological and zoogeographic characteristics); Pagliano, 1985:14 (Italy); Scobiola-Palade, 1985:95 (Romania: delta of Danube); Gayubo, 1986b:37 (Spain: Andalucía), 1986c:30 (Spain: Zamora Province), 1986f:999 (strepsipteran parasite); Gayubo and Heras, 1986:31 (Spain: Segovia and Valladolid Provinces; floral records); Gayubo and Sanza, 1986:31 (Spain: Burgos, Segovia, and Soria provinces); Gayubo and Tormos, 1986a:9 (Spain: Castellón de la Plana), 1986b:5 (Spain: Valencia); Islamov, 1986:513 (Uzbekistan: Tashkent Oblast'); Józán, 1986:368 (Hungary: Kiskunság National Park); Asís and Jiménez, 1987:25 (Spain: Provincia de Castellón); Gayubo, 1987:108 (Spain: Provincia de Ciudad Real); Scobiola-Palade, 1987:65 (Romania: Dobrogea); Tormos and Jiménez, 1987a:123 (Spain: Valencia Province); Dollfuss, 1988:8, 21 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Józán, 1989:100 (Hungary: Tihany Nature Reserve); Pádr in Šedivy, 1989a:166 (in checklist of Czechoslovakian Sphecidae); Scobiola-Palade, 1989:87 (Romania: delta of Danube); Jacobs and Oehlke, 1990:122 (occurrence in Democratic Germany questionable); Gayubo, Asís, and Tormos, 1990a:12 (Spain); Jacobs and Oehlke, 1990:135 (unknown from Democratic Germany); Pagliano, 1990:60 (in catalog of Italian Sphecidae); Chinin, 1991:111 (Russia: Samara Oblast'); Dollfuss, 1991:32 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:396 (Italy); Negrisol, 1991:316 (Italy: Duino and Gorizia Provinces); Schembri, 1991:175 (Malta); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Gayubo, Borsato, and Osella, 1992:279 (France: Corse; Greece, Turkey, as *heybeni*); Hamon, Tussac, and Fonfria, 1992:405, 410 (in key to French Ammophilini), 412 (distribution in France); Józán, 1992c:289 (Hungary: Zselic Hills); Ebrahimi, 1993:90 (Iran); Gayubo, Tormos, and Asís, 1993b:307 (parasitized by *Paraxenos sphecidarum* Dufour); Torregrosa, Gayubo, Tormos, and Asís, 1993:11 (Spain: Alicante Province); Blagoveshchenskaya, 1994:88 (Russia: Ulyanovsk Oblast'); Gayubo and Borsato, 1994:202 (Italy: Veneto, Emilia, Toscana; as *heydeni heydeni*); Tormos, Asís, and Gayubo, 1994:187, 196 (Spain: Albacete Province); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Negrisol, 1995a:18 (visiting flowers of *Eryngium maritimum* L. and *Echinophora spinosa* L.), 22 (Italy: Veneto); Negrisol in Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Minoranskiy and Shkuratov, 1996:81 (Russia: Rostov Oblast'); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:79 (in Sphecidae Fauna of Western Europe; description of two cryptic species confused under the name of *heydeni*); Schmidt and Schmid-Egger, 1997:5 (does not occur in Germany); Dollfuss, Gusenleitner, and Bregant, 1998:508 (Austria: summary of collecting records from Burgenland); González, Gayubo, and Torres, 1998:72, 73

- (Spain: Valladolid Province); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); González, Gayubo, and Torres, 1999:354 (Spain: Valladolid: Viana de Cega); Blösch, 2000:129 (in Sphecidae Fauna of Germany); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:105 (Greece); Ljubomirov, 2000:6, 8 (Bulgaria, specimens in N. Nedelkov collection); Shkuratov, 2000:54 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Basset, 2001:77 (France: Département de Gironde); Ivanov and Ljubomirov, 2001:210 (Bulgaria: Kresna Gorge at 41°48'N 23°10'E); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 108 (nest structure, review of known biology); Kazenas and Esenbekova, 2001:133 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:46 (Bulgaria: Mount Vitoshka near Sofia); Mazzucco, 2001:203 (Austria: Niederösterreich: Steinfeld); Ohl et al., 2001:142 (recorded from Germany but not occurring there); Kazenas, 2002a:37 (geographic distribution, collecting localities in Kazakhstan); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien); Shkuratov, 2002b:138 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Drewes, 2003:132 (Austria, Croatia, Italy, Spain: miscellaneous locality records); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Schmid-Egger, 2003:749 (Italy: Basilicata: Lauria, Sicilia: six localities); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mts.); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: found before 1866); Cruz-Sánchez, Gayubo, González, and Torres, 2005:219 (Spain: Salamanca: San Martín del Castañar); Gayubo and Özbek, 2005:12 (Turkey: many localities); Gülmez and Tüzün, 2005:50 (Turkey: Ankara Province); Jacobs, 2005:436 (Bulgaria); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Pagliano and Negrisolo, 2005:66 (in Sphecidae Fauna of Italy); Shorenko, 2005a:162 (Ukraine: Crimea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Yildirim and Ljubomirov, 2005:1788 (Turkey: Bitlis, Erzurum, and Konya provinces); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Standfuss and Standfuss, 2006c:308 (Greece: Thessalia: Magnissa Peninsula at 39°N 23°E); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); Jacobs, 2007:45, 47 (in key to Sphecidae of Germany, not yet found in Germany); Kazenas, 2007:90 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Yildirim and Ljubomirov, 2007:116 (Turkey: nine localities); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Ljubomirov and Yildirim, 2008:35 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia);. – **As *Podalonia heydeni***: Bischoff, 1931:8 (new combination, Spain).
- ? *Sphex attenuata* Christ, 1791:314. Synonymized with ... – Kohl in Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Kohl, 1906b:370 (original description copied).
- Ammophila iberica* Ed. André, 1886:69, ♀, ♂ (as *Iberica*, incorrect original capitalization). Syntypes: Portugal: no specific locality (MNHN). Synonymized with *Ammophila heydeni* by Kohl, 1889a:20. – Ed. André, 1888:2* (listed); Medina, 1898:153; (Portugal: Mamede and Valpassos); E. Saunders, 1904c:635 (Spain). – **As *Ammophila heydeni* var. *iberica***: Medina, 1894a:259 (new status, Spain: Cazalla); Antiga and Bofill, 1904:4 (Spain: Cataluña Province).
- As *Ammophila holosericea*: Vander Linden, 1827:356 (synonymy; Italy, Dalmatia); Eversmann, 1849:364 (Russia: Orenburg area); Kiesenwetter, 1849:87, footnote (Sicily, southern France); Belke, 1859:71 (Ukraine: Kamieniec Podolski); Imhoff, 1863:90 (Switzerland: Wallis: Saasthal); Schenck, 1861:162 (redescription, Germany: Sachsen = Saxony, may be not *Ammophila heydeni*); A. Costa, 1869a:16 (Italy: Piemonte); Mocsáry, 1874:120 (Siebenbürgen, now Romania: Transylvania: no specific locality); Fabre, 1879:208 (nesting habits), corrected to *Ammophila heydeni* by Berland, 1923a:172; Ferton, 1901a:141 (experiment with prey substitution); Antiga and Bofill, 1904:4 (Spain: Cataluña Province); de Gaulle, 1908:103 (in catalog of French Hymenoptera).

ssp. rubra Radoszkowski

Ammophila rubra Radoszkowski, 1876b:132, sex not indicated (authorship attributed to Sichel). Syntypes: Corsica, Causcaus, Egypt, and Kazakhstan (Kraków, ZMMU). – Radoszkowski, 1877:3 (Kazakhstan), 1887b:90 (in list of Transcaspien Hymenoptera); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976 (as questionable synonym of *Ammophila heydeni* or *quadraticollis*). – **As *Ammophila heydeni* var. *rubra***: Kohl, 1906b:367 (new status, in revision of Palearctic *Ammophilini*); Myartseva, 1963b:59 (Turkmenistan: lower Murgab River), 1965:86 (Turkmenistan: Akibay, Murgab district, and Bayram-Ali district), 1972a:86 (Turkmenistan). – **As *Ammophila heydeni rubra***: de Beaumont, 1970a:388 (new status, Afghanistan); Kazenas, 1972b:99 (Kazakhstan), 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia)

ssp. rubriventris A. Costa

Ammophila rubriventris A. Costa, 1864b:111, sex not indicated. Syntypes: France: Corse: no specific locality (NAPOLI). – A. Costa, 1867b:78 and 1867c:23 (in revision of Italian Sphecidae), 1883a:57 (Italy: Sardegna), 1884a:32 (Italy: Sardegna); Ed. André, 1886:72 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Baldini, 1894:48 (Italy: Modena area; determination?); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); Fertton, 1908:577 (is a climate induced variety of *Ammophila heydeni*); Mantero, 1911:71 (Italy: Sardegna: Isola dell'Asinara); Fertton, 1923:138 (nest closure), 343 (females occur in Corsica together with *Ammophila heydeni*, males have coloration of *heydeni*); Georghiou, 1977:189 (Cyprus). – **As *Ammophila heydeni* var. *rubriventris***: Kohl, 1906b:367 (new status, in revision of Palearctic *Ammophilini*); Berland, 1925d:30 (in Sphecid Fauna of France). – **As *Ammophila heydeni rubriventris***: Nadig, 1934:33 (new status, France: Corse: Monte d'Oro, Vizzavona; Italy: Sardegna: Gennargentu); Grandi, 1957:386 (Italy: Sardegna), 1959b:287 (Italy: Sardegna: Monte Limbara in Sassari district); Erlandsson, 1974:57 (Italy: Capo Falcone); Hamon, Tussac, and Fonfria, 1992:405, 410 (in key to French *Ammophilini*); Luchetti, 1993:105 (Italy: Sardegna: Maddalena archipelago); Gayubo and Borsato, 1994:202 (Italy: Sardegna); Negrisolino in Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Drewes, 2003:132 (Cyprus: Amathus); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Pagliano and Negrisolino, 2005:67 (in Sphecid Fauna of Italy).

Ammophila heydeni var. *sarda* Kohl, 1906:367, ♀. Holotype or syntypes: ♀, Italy: Sardinia: no specific locality (NHMW). Synonymized with *Ammophila heydeni rubriventris* by Pagliano, 1990:60. – **As *Ammophila heydeni sarda***: Nadig, 1934:33 (new status, France: Corse; Vizzavona; Italy: Sardegna: Gennargentu); de Beaumont, 1947b:382 (Cyprus); Pittioni, 1950:20 (Cyprus); Pagliano, 1984:368 (Italy), 1985:14 (Italy); Dollfuss, 1989:7 (type material in NHMW).

87. holosericea (Fabricius)

Sphex holosericeus Fabricius, 1793:205, sex not indicated (as *holoserica* incorrect original termination). Holotype or syntypes: "Barbaria" = North Africa (lost, identity cannot be established: van der Vecht, 1961a:40). Records from Europe probably refer to *Ammophila heydeni* – Fabricius, 1796:155 (in Index to his Entomologia Systematica, 1793); Coquebert, 1801:50 (original description copied), pl. XII Fig 1 (illustration of Fabrician type); Dahlbom, 1845:XX (specimens in collection Fabricius are *Ammophila holosericea*). – **As *Ammophila holosericea***: Germar, 1817:260 (new combination, Dalmatia: Cherso, now Croatia: Cres); Lepeletier de Saint Fargeau and Audinet-Serville, 1828:452 (redescription); Dahlbom, 1843:9 (in revision of Sphecidae and Pompilidae), 1845:430 (in key); Lepeletier de Saint Fargeau, 1845:378 (revision); Eversmann, 1849:364 (Russia); Lucas, 1849:275 (Algeria: Alger, Constantine, Oran); F. Smith, 1856:209 (in catalog of Hymenoptera in British Museum); Taschenberg, 1858:61 (in key to Sphecidae of Germany); A. Costa, 1861:33 (in revision of Sphecidae of Kingdom of Naples); Imhoff, 1863:90 (Switzerland: Wallis: Saasthal); Taschenberg, 1866:208 (in revision of Hymenoptera of Germany); A. Costa, 1867b:78 and 1867c:22 (in revision of Italian Sphecidae); Kirchner, 1867:217 (in catalog of European Hymenoptera); Palma, 1867:37 (Italy: Sicilia settentrionale); Schenck, 1867a:357 (known from Germany); Wierzejski, 1868:117 (Ukraine: Podole); Taschenberg, 1869:432 (represented in Halle University collection); Aichinger,

1870:321 (Austria: Tirol, now Italy: Trentino–Alto Adige; as *holosericea* Dahlb.); Ivanov, 1872:152 (Ukraine: Kharkov area; as *holosericea* Vander-Lind.); Dours, 1874:141 (in catalog of Hymenoptera of France); Martinez y Saez, 1874:31 (specimens from Spain: Madrid area, donated to Leon Dufour); Wierzejski, 1874:258 (Ukraine: Podole; as *holosericea* Dhlb.); Marquet, 1875:208 (France: Hérault); Radoszkowski, 1876b:131 (Egypt); Fabre, 1879:207 (nesting habits); Girard, 1879:969 (morphology and distribution); Kohl, 1880:184 (common in Italy: Bolzano and Meran according to von Aichinger, 1870); Marquet, 1881:177 (southern France); Magretti, 1883:249 (Sudan); Ed. André, 1886:70 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Cuní y Martorell, 1889:64 (Spain: Cataluña: Begas); Chrétien, 1896:411 (preying on caterpillars *Epimecia ustula* Frr.); W Fox, 1896e:552 (Ethiopia or Somalia: Dabulli); Acloque, 1897:96 (in Sphecid Fauna of France and Algeria); Cuní y Martorell, 1897:331 (Spain: Cataluña: villa de Calella); Dalla Torre, 1897:402 (in catalog of world Hymenoptera); Bingham, 1898a:105 (Yemen: Aden); Antiga and Bofill, 1904:4 (Spain: Cataluña Province); W. Schulz, 1905b:34 (Algeria), 1906:44 (Greece: Crete); Kohl, 1906b:360 (in revision of Palearctic Ammophilini); Ferton, 1923:294 (easily finds nest when carrying prey), 327 (experiments with offering caterpillar to female that just performed final closure of nest); Berland, 1925d:30 (in Sphecid Fauna of France); Roth, 1928:208 (in revision of North African Ammophilini), 227 (nesting habits), 1929:185 (in revision of Spanish Ammophilini); Giner Marí, 1943a:72 (in Sphecid Fauna of Spain); Leclercq, 1955h:84 (bibliographic references); Scobiola, 1960b:236 (not occurring in Romania); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Radović, Krunic and Brajković, 1982:28 (Yugoslavia); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:81 (in Sphecid Fauna of Western Europe).

Ammophila sericea Lepeletier de Saint Fargeau and Audinet-Serville, 1828:453. Synonymized with *Ammophila holosericea* by Kohl, 1906:360.

88. *honorei* Alfieri

Ammophila honorei Alfieri, 1946:140, ♀ (as *Honorei*, incorrect original capitalization). Holotype: ♀, Egypte: Sinai: between el Arish and Hassana (originally A. Alfieri coll., now?). – de Beaumont and Bytinski-Salz, 1955:40 (Israel, description of ♂); Leclercq, 1955h:87 (bibliographic references); R. Bohart and Menke, 1976:152 (listed); Guichard, 1991a:338 (Jordan); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula).

89. *horni* von Schulthess

Ammophila horni von Schulthess, 1927:297, ♂. Holotype: ♂, Sudan: Port Sudan (DEI). – de Beaumont, 1963b:21 (se. Egypt; in revision of the *nasuta* group); Oehlke and Wudowenz, 1974:423 (holotype in DEI); R. Bohart and Menke, 1976:152 (listed).

90. *hungarica* Mocsáry

Ammophila hungarica Mocsáry, 1883:25, ♀ (as *Hungarica*, incorrect original capitalization). Holotype or syntypes: ♀, Hungary: Lipótmézön near Budapest (TMB). – Ed. André, 1886:61 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Medina, 1894a:259 (Spain: Hornachuelos); Mocsáry, 1900:79 (Hungary); R. Bohart and Menke, 1976:152 (listed); Pulawski, 1978:181 (in key to Sphecidae of European part of former USSR); Leclercq, Gaspar and Verstraeten, 1979:map 1405 (Belgium); Gayubo, 1981a:140 (N Spain: Sierra de Béjar); Dollfuss, 1983a:75 (endangered in Niederösterreich, Austria), 1983b:3 (in catalog of Sphecidae of Austria); Gayubo, 1983c:233 (Spain: Salamanca Province: Fregeneda, Membribe); Mingo and Gayubo, 1983:160 (Spain); Haeseler, 1985d:279 (tool using behavior); Józán, 1985b:55 (citation of Bajári's 1957 record from Simontornya), 68 (map of distribution in Hungary), 83 (ecological and zoogeographic characteristics); Gayubo, 1986b:37 (Spain: Andalucía); Islamov, 1986:514 (Uzbekistan: Tashkent Oblast'); Dollfuss, 1988:9 (Austria: Bisamberg near Vienna); Gayubo, Asís, and Tormos, 1990a:12 (Spain); Dollfuss, 1991:33 (in key to Sphecidae of North and Central Europe); Pagliano, 1990:61 (in catalog of Italian Sphecidae); Day, 1991:xii (summary of European Endangered Hymenoptera Lists); Gayubo, Borsato, and Osella, 1992:279 (Turkey); Hamon, Tussac, and Fonfria, 1992:408, 411

(in key to French Ammophilini), 412 (distribution in France); Dollfuss, 1994:97 (endangered in Austria); Tormos, Asís, and Gayubo, 1994:187, 197 (Spain: Albacete Province); Haeseler, 1995:603 (nest breaking, prey theft, brood parasitism); Negrisoló *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:81 (in Sphecidae Fauna of Western Europe); Gusenleitner, 1999:594 (Austria: locality records); Pauly, 1999:107 (in catalog of Belgian aculeates); Zettel, 2000:24 (Austria: Sptalberg near Bruckneudorf); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 109 (nesting habits, review of known biology); Kazenas and Esenbekova, 2001:133 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:46 (Bulgaria: Mount Vitosha near Sofia); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien, collected in the XIXth century, then in 1992 and 2001); Kazenas, 2002a:37 (geographic distribution, collecting localities in Kazakhstan); fauna; Drewes, 2003:132 (Cyprus: Amathus); González, Gayubo, Asís, Tormos, and García, 2003:61 (Spain: Soria: Chavaler); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mts.); Cruz-Sánchez, Gayubo, González, and Torres, 2005:219 (Spain: Salamanca: San Martín del Castañar); Gülmez and Tüzün, 2005:51 (Turkey: Ankara Province); Jacobs, 2005:436 (Bulgaria: Arkutino near Burgas); Pagliano and Negrisoló, 2005:67 (in Sphecidae Fauna of Italy); Standfuss and Standfuss, 2006c:308 (Greece: Thessalia: Magnissa Peninsula at 39°N 23°E); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); Ljubomirov and Yildirim, 2008:35 (in catalog of Sphecidae of Turkey).

Ammophila turcica Mocsáry, 1883:29, ♂ (as *Turcica*, incorrect original capitalization). Holotype or syntypes ♂, Turkey: Brussa, now Bursa (TMB). Synonymized with ... – Ed. André, 1886:63 (in revision of Sphecidae of Europe and Algeria), 1888:2 (bibliographic references).

Ammophila hispanica Mocsáry, 1883:28, ♀. Holotype or syntypes: ♂, Spain: Malaga (TMB). Synonymized with *Ammophila fallax* by Kohl, 1889a:2. – Ed. André, 1886:63 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references).

Ammophila fallax Kohl, 1884a:380, ♀, ♂. Lectotype: ♀, Turkey: Amasia, now Amasya (NHMW), designated by Menke *in* Bohart and Menke, 1976:152. Synonymized with *Ammophila hungarica* by Kohl, 1889a:20. – Ed. André, 1886:62 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Kohl, 1893a:36 (Austria: Niederösterreich: Bisamberg); Dalla Torre, 1897:399 (in catalog of world Hymenoptera); Kohl, 1906b:315 (in revision of Palearctic Ammophilini); Schmiedeknecht, 1907:245 (in key to Hymenoptera of Central Europe); Graeffe, 1911:48 (Italy: Trieste area); Berland, 1925d:31 (in Sphecidae Fauna of France, not yet found in France); Roth, 1928:185 (in revision of North African Ammophilini), 1929:177 (in revision of Spanish Ammophilini); Berland, 1930b:163 (France: Bouche-du-Rhône Department); Schmiedeknecht, 1930:706 (in keys to Hymenoptera of North and Central Europe); Dusmet y Alonso, 1931:7 (Portugal); Maidl, 1934:64 (Greece: Aegean Islands: Mytilene); Zavadil, Šustera, and Baťa, 1937:213 (in catalog of Sphecidae of Czechoslovakia); Giner Marí, 1943a:70 (in Sphecidae Fauna of Spain); Balthasar, 1945:115 (Czech Republic: southeastern Morava Region); de Beaumont, 1947b:382 (Cyprus); Šnoflak *in* Zavadil and Šnoflak, 1948:100 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:6 (Portugal, Cyprus); de Beaumont, 1950f:396 (Morocco); Pittioni, 1950:19 (Cyprus); Leclercq, 1955h:75 (bibliographic references); Vogrin, 1955:31 (Yugoslavia); Ceballos, 1956:359 (in catalog of Hymenoptera of Spain); Bajári, 1957a:13 (in key to Hungarian Sphecidae); Grandi, 1957:386 (Italy: Abruzzi); Balthasar, 1958:339 (Slovakia: Gbelce); de Beaumont, 1959a:6 (Italy); Diniz, 1959:26 (Portugal: five localities); Noskiewicz and Pulawski, 1960:38 (in key to Polish Sphecidae, not yet found in Poland); Leclercq, 1961f:148 (Belgium: Limbourg: Lommel); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1964c:26 (in Sphecidae Fauna of Switzerland, not recorded from Switzerland), 1965a:11 (Greece); Diniz, 1965:2 (Portugal: Carcavelos, Coimbra, Estoril, Gois, Lisboa, Viseu); Pulawski, 1965b:260 (structure of gastral segment I); de Beaumont, 1967a:265 (Turkey), 1969:80 (Turkey), 1970a:387 (Afghanistan), 1970c:2 (Iran: Khuzestan); Balthasar, 1972:428 (in Sphecidae Fauna of Czechoslovakia); Kazenas, 1972b:98 (Kazakhstan); Erlandsson, 1974:57

(Spain: Málaga: Fuengirola); Georghiou, 1977:188 (Cyprus); Kazenas, 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (lectotype in NHMW); Pádr *in* Šedivy, 1989a:166 (in checklist of Czechoslovakian Sphecidae); Guichard, 1991a:338 (Jordan).

91. *hurdi* Menke

Ammophila hurdi Menke, 1964a:12, ♀, ♂ Holotype: ♂, USA: California: Alameda County: Tesla = Corral Hollow Creek about 10 mi E Livemore (CIS according to original description, now CAS). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera).

92. *iliensis* Kazenas

Ammophila tsunekii Kazenas, 1978a:661, ♀, ♂, junior primary homonym of *Ammophila tsunekii* Menke, 1976. Holotype: ♀, Kazakhstan: Ili River Valley 15 km E Ayak-kalkan (ZIL).

Ammophila iliensis Kazenas, 2001b:18. Substitute name for *Ammophila tsunekii* Kazenas, 1978 (in checklist of Sphecidae of Kazakhstan and Central Asia, the original reference to 1985 paper is in error)

Ammophila iliensis Kazenas, 2002a:38. Unnecessary substitute name for *Ammophila tsunekii* Kazenas, 1978.

93. *imitator* Menke

Ammophila imitator Menke, 1966b:37, ♂. Holotype: ♂, USA: Arizona: Cochise County: 6 mi E Douglas (originally CIS, now CAS). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1986c:37 (Arizona: Cochise County: W Naco); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

94. *induta* Kohl

Ammophila induta Kohl, 1901d:158, ♀. Syntypes: Turkmenistan: Repetek (NHMW). – Kohl, 1906b:345 (in revision of Palearctic Ammophilini); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (type material in NHMW); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:37 (geographic distribution, Kazakhstan: Chelkar in Bolshiye Barsuki sands).

95. *infesta* F. Smith

Ammophila infesta F. Smith, 1873a:190, ♀, ♂. Syntypes: Japan: Hyogo (BMNH). – Dalla Torre, 1897:403 (in catalog of world Hymenoptera); Pérez, 1905a:25 (listed); Matsumura and Uchida, 1926:41 (Okinawa); Gussakovskij, 1932:4 (Russia: Primorskiy Krai); Yasumatsu, 1934c:63 (Japan: Yakushima Island); Baba, 1935:84 (Japan: Sado Island); Yasumatsu, 1935a:7, 22 (China: Jehol Region); Iwata, 1936a:121 (nesting habits); Masaki, 1936:259 (Korea); Yasumatsu, 1937c:67 (Japan: Tsushima Island); Gussakovskij, 1938:3 (China: Kiangsu Province); Yasumatsu, 1938e:345 (China: Changsha in Yangtze Basin), 1939e:12 (China: Manchuria: Changchun); Yasumatsu, 1940a:92 (China: Hopei: Kalgan); nec Yasumatsu, 1942b:103 (= *Ammophila sabulosa nipponica*); Yasumatsu, 1942c:104 (China: Beijing); R. Bohart and Menke, 1976:628 (listed, is a full species); Tsuneki, 1982b:1 (Korea; reversed to species status), 1982g:56 (known from the Ryukyu archipelago), 1991:199 (Korea); Yamane, Ikudome, and Terayama, 1999:479 (in Identification Guide to Sphecidae of Nansei = Ryukyu Islands, Japan); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia). – *As Sphecx infesta*: Okamoto, 1924:203 (new combination, Korea: Quelpart Island, now Cheju Island). – *As Ammophila sabulosa infesta*: Tsuneki, 1962b:25, 26 (in key), 1962c:29 (new status); Tsuneki and Shimoyama, 1963:48 (Japan: Towada Prefecture); Tano, 1964:38 (Japan: Kyushu: Yakushima Island); Tsuneki, 1967e:2 (China: Manchuria; also Harbin: *sabulosa infesta* forma B), 1967g:44 (Japan: Mt. Hyonosen; forma A), 1967j:10, 12 (in key), 20 (discussion); Fukuda, 1968:26 (Japan); Haneda, 1968a:45 (Japan), 1968b:56 (Japan: Nagano Prefecture: Ina District); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Nishino, 1968:24 (Japan); Tsuneki, 1968j:1 (taxonomy); Haneda, 1969:69 (Japan: Yamanashi Prefecture); T. Iida, 1969a:272 (description of ma-

ture larva); Itami, 1969:46 (Japan: Niigata Prefecture); Tsuneki, 1969e:24 (Japan), 1970b:9 (central Japan); Tano, 1971:82 (Japan: Shikoku: Mt. Tsurugi); Yamada, 1971:34 (Japan: Aichi Prefecture); Nambu, 1973d:152 (Japan: Saitama Prefecture); Suda, 1973:123 (Yamanashi Prefecture); Tsuneki, 1974a:360 (Korea); Kim, Yoon, and Kim, 1975:21 (Korea); Nambu, 1975b:70 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:153 (listed); Tsuneki, 1982b:14 (known from Korea), 1982g:56 (known from Ryukyu archipelago); Sk. Yamane and Ikudome, 1990:102 (distribution in Ryukyu Islands, Japan); Li, Li, and Yang, 1994:290 (in revision of *Ammophila* of Shandong Province, China); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Ohl and Linde, 2003:149 (number of ovarioles); Li and He, 2004:1119 (in hymenopterous fauna of Zhejiang Province, China); Li and L. Yang, 2005:883 (China: Gansu: Quinling Range and South Mountains); Li, 2006:141 *in* X. Chen and J. He (description, habits, distribution, illustration of habitus); Okusa and Tajima, 2008:74 (Japan: central Honshu: Aichi Prefecture).

Ammophila marginalis Pérez, 1905a:151, ♀. Holotype or syntypes: ♀, Japan: Yokohama (MNHN). Synonymized with *Ammophila sabulosa infesta* by Menke *in* Bohart and Menke, 1976:153. – Pérez, 1905a:25 (listed); Kohl, 1906b:373 (original description copied).

96. *insignis* F. Smith

Ammophila insignis F. Smith, 1856:213, ♀, ♂. Syntypes: Gambia: no specific locality (BMNH or OXUM). – W Fox, 1896e:552 (Ethiopia or Somalia: Turfer); Dalla Torre, 1897:403 (in catalog of world Hymenoptera); Bingham, 1898a:105 (Yemen: Aden); Schouteden, 1930:95 (Zaire, as *insignis* var.); Berland, 1950b:295 (Niger: Air area); Leclercq, 1955h:82 (bibliographic references, locality records from Zaire and elsewhere), 1961b:55 (Zaire); Diniz, 1964c:110 (Angola: Lunda: Posto Cacombo at Upper Cuilo); R. Bohart and Menke, 1976:152 (listed); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits: nests are mass provisioned), 1989b:847-871 (nests in vertical banks, animal burrows, and caves). – *As Sphex insignis*: R. Turner, 1929b:555 (new combination, variation).

Ammophila transvaalensis Cameron, 1910b:134, ♂. Holotype or syntypes: ♂, South Africa: Transvaal: no specific locality (TMP). Synonymized with *Ammophila insignis* by ... – *As Sphex egregia race transvaalensis*: Arnold, 1920:53 (new combination, new status, original description copied), 1928b:270 (revision) 1930:17 (in checklist of Afrotropical Sphecidae), 1935a:503 (South Africa: Kalahari). – *As Ammophila insignis var. transvaalensis*: Giordani Soika, 1939c:105 (new subspecific combination, Eritrea: Adi Ugri).

Sphex egregia race promontorii Arnold, 1920:43, ♀, ♂ (authorship attributed to Kohl). Syntypes: Zimbabwe and South Africa: no specific localities (SAM). Synonymized with *Sphex egregia transvaalensis* by Arnold, 1928b:270. – *As Ammophila egregia var. promontorii*: Kohl, 1894:342 (Mozambique: Delagoa Bay, now Maputo Bay). – *As Sphex insignis race promontorii*: Scott *in* Arnold, 1933a:370 (Ethiopia: Maraquo).

ssp. egregia Mocsáry

Ammophila egregia Mocsáry, 1881b:327, ♀, ♂. Syntypes: Lebanon: Beirut (TMB). – Ed. André, 1886:75 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Dalla Torre, 1897:399 (in catalog of world Hymenoptera); Kohl, 1906b:361 (in revision of Palearctic Ammophilini); Brauns, 1911a:238 (South Africa); R. Turner, 1929:555 (*egregia* is a synonym of *insignis* F. Smith); Arnold, 1931:207 (Turner's synonymy reported); Guiglia, 1939c:184 (Libya: Tassile des Ajjer: Wadi Tagiuresa; as *egregia* var.; redescription), 1942b:229 (Libya; as *egregia* var.); Alfieri, 1946:137 (in revision of Egyptian *Ammophila*); de Beaumont and Bytinski-Salz, 1955:39 (Israel); de Beaumont, 1956a:179 (Chad: Tibesti). – *As Sphex egregia*: R. Turner, 1929b:555 (new combination, as new synonym of *Ammophila insignis*); Schouteden, 1930:95 (Zaire). – *As Ammophila insignis egregia*: R. Bohart and Menke, 1976:152 (new status, listed); Guichard, 1980:224 (Oman), 1988a:128 (Arabian Peninsula), 1991a:338 (Jordan); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Gadallah and Assery, 2004a:217 (in key to Sphecidae of Jeddah Region, Saudi Arabia), 224 (in catalog of Sphecidae of Saudi Arabia: S Jeddah), 2004b:1396 (skeletal parts of sting apparatus).

ssp. *litoralis* (Arnold)

Sphex egregia race *litoralis* Arnold, 1920:45, ♀, ♂. Syntypes: South Africa: Eastern Cape Province: coastal area: no specific locality (SAM). – Arnold, 1928b:271 (revision). – **As *Sphex egregia litoralis***: Marshall, 1997:3 (new status, reference to original description). – **As *Ammophila insignis litoralis***: R. Bohart and Menke, 1976:152 (new status, listed); Gess, 1981:19 (South Africa: 18 km WNW Grahamstown; nesting in friable soils); Dollfuss, 1990:122 (Central African Republic); S. Gess, 1996:303 (floral records).

Ammophila insignis Smith subsp. *litoralis* Arnold var. *nigricollis* Arnold, 1960b:83 (South Africa: Natal: Drakensberg Mts.: Little Berg Summits (SAMC). Synonymized with *Ammophila insignis litoralis* by Bohart and Menke, 1976:152.

97. *insolata* F. Smith

Ammophila insolata F. Smith, 1858b:14, ♀, ♂. Syntypes: Indonesia: Celebes, now Sulawesi: no specific locality (BMNH or OXUM). – F. Smith, 1863a:34 (Indonesia), Dalla Torre, 1897:403 (in catalog of world Hymenoptera); von Schulthess, 1935:304 (Indonesia: Flores: Ende, Todabeloe); van der Vecht, 1957c:370 (Lesser Sunda Islands: locality records); R. Bohart and Menke, 1976:152 (listed, as *insolita*).

ssp. *argyropleura* van der Vecht

Ammophila insolata argyropleura van der Vecht, 1957c:371, ♀, ♂. Holotype: ♀, Indonesia: Sumba Island: Lokojengo (BASEL). – R. Bohart and Menke, 1976:152 (listed).

ssp. *auricollis* van der Vecht

As *Ammophila atripes*: von Schulthess, 1935:304 (Indonesia: Timor), corrected to *Ammophila insolata auricollis* by van der Vecht, 1957c:372.

Ammophila insolata auricollis van der Vecht, 1957c:372, ♀, ♂. Holotype: ♀, Indonesia: Timor: Baun (RMNH). – R. Bohart and Menke, 1976:152 (listed).

ssp. *ruficoxa* van der Vecht

Ammophila insolata ruficoxa van der Vecht, 1957c:372, ♀, ♂. Holotype: ♀, Indonesia: Kisar Island: no specific locality (RMNH). – R. Bohart and Menke, 1976:152 (listed).

98. *instabilis* F. Smith

Ammophila instabilis F. Smith, 1856:214, ♀. Syntypes: Australia: Western Australia: Swan River; Northern Territory: Port Essington (BMNH). – Froggatt, 1892:209 (in catalog of Australian Hymenoptera); Dalla Torre, 1897:403 (in catalog of world Hymenoptera); R. Turner, 1908:466 (synonymy); R. Bohart and Menke, 1976:152 (listed); Cardale, 1985:229 (in catalog of Australian Sphecidae).

Ammophila impatiens F. Smith, 1868:247, ♀, actually ♂. Holotype or syntypes: ♂, Australia: Western Australia: Champion Bay (BMNH). Synonymized with *Ammophila instabilis* by R. Turner, 1908:466. – Froggatt, 1892:209 (in catalog of Australian Hymenoptera); Dalla Torre, 1897:403 (in catalog of world Hymenoptera).

99. *juncea* Cresson

Ammophila juncea Cresson, 1865b:460, ♂. Holotype: ♂, USA: no specific locality (ANSP). – Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:403 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Cresson, 1916:94 (holotype in ANSP); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); Evans and Lin, 1956a:147 (description of larva); nec Evans, 1959d:461 (= *Ammophila cleopatra*); Evans and Linsley, 1960:32 (regular member of sleeping aggregations at Southwest Research Station, Arizona); Evans, 1963:62 (nest closure); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Cherry County: Nenzel area, and Dawes County: SE Crawford); Brockmann,

1985b:312 (nest closure summary); Menke, 1986c:35 (Utah: San Juan County: SE Natural Bridges Natl. Monument); Menke, 1994f:21, 22 (Utah: Wind Whistle Campground in Monticello area); Weissmann and Kondratieff, 1999:77 (Colorado: Great Sand Dunes National Monument); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae). – **As *Sphex junceus***: Mickel, 1918b:404 (new combination, in catalog of Nebraskan Sphecidae); Fernald, 1934:129 (revision); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records).

Ammophila montezuma Cameron, 1888a:13, ♂. Holotype or syntypes: ♂, Mexico: northern Sonora: no specific locality (BMNH). Synonymized with ... – Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1931a:449 (as new synonym of *Sphex placidus*).

100. *kalaharica* (Arnold)

Sphex kalaharicus Arnold, 1935a:502, ♀, ♂. Syntypes: Namibia: Damara Pan (TMP). – **As *Ammophila kalaharica***: Leclercq, 1955h:82 (new combination, bibliographic references, South Africa: Bothaville); R. Bohart and Menke, 1976:152 (listed).

101. *karenae* Menke

Ammophila karenae Menke, 1964a: , ♀, ♂. Holotype: ♂, USA: California: Inyo County: 13 mi S Olancho (CIS according to original description, not in CAS now). – Hurd and Linsley, 1975:116 (Arizona: Cochise County: Benson; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1986c:23 (Arizona: Coconino County: Moenkopi Wash near Tuba City); Menke, 1994d:15 (California: Monterey County: Parkfield area); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

102. *kennedyi* (Murray)

Ammophila vulgaris Cresson, 1865b:458, ♀, ♂, junior primary homonym of *Ammophila vulgaris* W. Kirby, 1798. Lectotype: USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:95. – Cresson, 1873:210 (Texas), 1875:714 (Colorado, Nevada, New Mexico) Cresson, 1876:208 (Colorado: Middle Park, Iowa: Davenport, Utah: Spring Lake), 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Hart, 1907:255 (Illinois); Rohwer, 1917a:241 (California: Tahoe); Viereck, 1903a:68 (New Mexico: Beulah); Johnson and Ledig, 1918:24 (California: Claremont). – **As *Sphex vulgaris***: H. Smith, 1908b:330 (new combination, in revision of Nebraskan Sphecidae); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:404 (in catalog of Nebraskan Sphecidae); G. Carpenter, 1930b:293 (nest closure); Fernald, 1931a:447 (as new synonym of *Sphex arvensis*).

Sphex kennedyi Murray, 1938:36. Substitute name for *Ammophila vulgaris* Cresson, 1865. – Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records); Spencer and Wellington, 1948:10 (British Columbia). – **As *Ammophila kennedyi***: Strickland, 1947:129 (new combination, Canada: Alberta: Vermilion); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); K. Cooper, 1953:34 (Massachusetts: Penikese Island); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Hooker County: Mullen area, Cherry County: Valentine and Nenzel areas, and Dawes County: N and SE Crawford); Brockmann, 1985b:312 (nest closure summary); O'Brien, 1989b:211 (distribution in Michigan); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1992:996 (species of miltogrammine parasites listed), 1005 (post-larvipositional counter-cleptoparasitic behavior: clean burrow); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada).

103. *koppenfelsii* Taschenberg

Ammophila koppenfelsii Taschenberg, 1880:777, ♀, ♂. Syntypes: West Africa: no specific locality (Halle). – Dalla Torre, 1897:403 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:152 (listed).

104. *laeviceps* F. Smith

Ammophila laeviceps F. Smith, 1873a:259, ♀. Holotype or syntypes: ♀, Chile: Santiago (BMNH). – Dalla Torre, 1897:403 (in catalog of world Hymenoptera, as *leviceps*); R. Bohart and Menke, 1976:152 (listed); Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Menke, 2004:770 (redescription).

Ammophila chilensis Reed, 1894:621, ♀, ♂. Syntypes: Chile: central provinces: no specific locality (CAS). – Gazulla and Ruiz Pereira, 1929:299 (Chile: Hacienda de "Las Mercedes"). Synonymized with *Ammophila laeviceps* by Bohart and Menke, 1976:143 (tentatively) and Menke, 2004:770 (definitely). – **As *Sphex chilensis***: Soukup, 1943:265 (new combination, Peru).

? *Ammophila chilensis* var. *ruficollis* Reed, 1894:622, sex not indicated, junior primary homonym of *Ammophila ruficollis* F. Morawitz, 1890. Syntypes: sex unknown, Chile: central provinces: no specific locality (MCZ); Menke, 2004:771 (redescription of syntype). – **As tentative synonym of *Ammophila laeviceps***: Bohart and Menke, 1976:142 (listed).

105. *laevicollis* Ed. André

Ammophila laevicollis Ed. André, 1886:77, ♀ (as *Laevicollis*, incorrect original capitalization). Syntypes: Spain, southern France: no specific locality (MNHN). – Ed. André, 1888:3* (listed); Dalla Torre, 1897:403 (in catalog of world Hymenoptera, as *levicollis*); Morice, 1900a:68 (Algeria: Biskra); Kohl, 1906b:350 (in revision of Palearctic Ammophilini); Pérez, 1907:495 (Oman: Dibba); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Magretti, 1906:13 (Eritrea); Ferton, 1921:347 (Algeria: Nemours, now Ghazaouet; prey and nest), 1923:141 (prey and nest); Berland, 1925d:31 (in Sphecidae Fauna of France); Roth, 1928:196 (in revision of North African Ammophilini), 1928:196 (in revision of Spanish Ammophilini); Berland, 1930b:163 (France: Bouche-du-Rhône Department); Dusmet y Alonso, 1931:7 (Portugal: Évora, Porto); Nadig, 1933:100 (Morocco: Marrakech); Giner Marí, 1934a:130 (Spain); Giner Marí, 1943a:73 (in Sphecidae Fauna of Spain); de Andrade, 1949:6 (Portugal); Hertzog, 1954:99 (France: Bouches-du-Rhône: Camargue); Leclercq, 1955h:85 (bibliographic references); Morel, Nouvel, and Ribaut, 1956:336 (France: Département des Pyrénées-Orientales); Ceballos, 1956:360 (in catalog of Hymenoptera of Spain); Diniz, 1959:27 (Portugal: 10 localities); Suárez, 1959:52 (Spain: Almería Province); de Beaumont, 1962b:18 (Spain), 1963b:16 (in revision of the *nasuta* group); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); Diniz, 1965:2 (Portugal: twenty five localities); R. Bohart and Menke, 1976:152 (listed); Marion, 1978:85 (France); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Gayubo, 1981a:141 (N Spain: Sierra de Béjar), 1982f:246 (Spain: Cádiz Province) Gayubo, 1983c:233 (Spain: Salamanca Province); Mingo and Gayubo, 1983:161 (Spain); Gayubo, 1984c:358 (Portugal: El Algarve Province); Gayubo and Tormos, 1984:11 (Spain: Valencia); Pagliano, 1984:368 (Italy); Gayubo, 1985c:167 (Spain: Valladolid: Traspinedo); Pagliano, 1985:15 (Italy); Gayubo, 1986b:37 (Spain: Andalucía), 1986c:30 (Spain: Zamora Province); Gayubo and Heras, 1986:32 (Spain: Segovia and Valladolid Provinces; floral records); Gayubo and Sanza, 1986:31 (Spain: Burgos); Gayubo and Tormos, 1986a:10 (Spain: Castellón de la Plana), 1986b:6 (Spain: Valencia), 1986f:999 (prey: geometrid larva); Asís and Jiménez, 1987:25 (Spain: Castellón Province); Gayubo, 1987:108 (Spain: Ciudad Real Province); Tormos and Jiménez, 1987a:123 (Spain: Valencia), 1987b:316 (Spain: Valencia Province: Dehesa de El Saler); Asís, Gayubo, and Tormos, 1990b:240 (mature larva); Gayubo, Asís, and Tormos, 1990a:12 (Spain); Gayubo, Borsato, and Osella, 1992:280 (Spain); Hamon, Tussac, and Fonfria, 1992:405, 410 (in key to French Ammophilini); Gayubo, Tormos, and Asís, 1993b:308 (parasitized by *Paraxenos sphecidarum* Dufour); Torregrosa, Gayubo, Tormos, and Asís, 1993:11 (Spain: Alicante Province); Tormos, Asís, and Gayubo, 1994:187, 197 (Spain: Albacete Province); Tormos, Asís, and Gayubo, 1995:157 (nesting habits); Bitsch, Barbier,

Gayubo, Schmidt, and Ohl, 1997:83 (in Sphecidae Fauna of Western Europe); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province), 1999:354 (Spain: Valladolid: Viana de Cega); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); Drewes, 2003:132 (Spain: Tarragona area); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Pagliano and Negrisolo, 2005:68 (in Sphecidae Fauna of Italy); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas Larrieu Nature Reserve near Argelès-sur-Mer).

106. *laevigata* F. Smith

Ammophila laevigata F. Smith, 1856:215, ♀. Syntypes: India: Tamil Nadu: Madras; Gujarat: no specific locality (BMNH). – de Saussure, 1867:23 (redescription, Sri Lanka); Cameron, 1889c:93 (listed); de Saussure, 1892:436 (Madagascar); Bingham, 1896a:437 (Sri Lanka: Pundaluoya), 1897:231 (redescription); Dalla Torre, 1897:403 (in catalog of world Hymenoptera, as *levigata*); Dutt, 1912:202 (India: Pusa); Strand, 1915:97 (Sri Lanka); Arnold, 1945:86 (de Saussure's 1882 record from Madagascar is unreliable); R. Bohart and Menke, 1976:152 (listed); Krombein, 1984a:3 (Sri Lanka, nesting habits); S. Gupta, 1995:85 (India: Uttar Pradesh, as *laevigata*); Wu and Zhou, 1996a:51 (in revision in Economic Insect Fauna of China); Jha and Farooqi, 1994:8 (description and illustration of male genitalia); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

Ammophila laevigata ab. *bicellularis* Strand, 1915:97, ♂. Holotype: ♂, Sri Lanka: Vurelia (DEI). Synonymized with ... – Oehlke and Wudowenz, 1974:421 (holotype in DEI).

107. *lampei* Strand

Ammophila chilensis var. *nigripes* Reed, 1894:622, ♀, junior primary homonym of *Ammophila nigripes* F. Smith, 1856. Holotype: ♀, Chile: Valparaiso (MCZ).

Ammophila lampei Strand, 1910b:13, ♀ (as *Lampey*, incorrect original capitalization). Lectotype: ♀, Bolivia (as “Peru”): Guaqui (Städtisches Mus. Wiesbaden), designated by Menke, 1964b:150. – Menke, 1964b:150 (new synonym of and valid name for *Sphex chilensis nigripes* Reed, 1894); R. Bohart and Menke, 1976:152 (listed); Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Ch. Porter, 1987:43 (Chile: Tarapacá Region); Amarante, 2002:67 (in catalog of Neotropical Sphecidae).

Sphex peruvianus Rohwer, 1913:453, ♀. Holotype: ♀, Peru: Cuzco (USNM). Synonymized with *Ammophila lampei* Strand by Menke, 1964b:150. – Soukup, 1943:265 (Peru).

108. *laticeps* (Arnold)

Sphex laticeps Arnold, 1928b:268, ♀. Holotype: ♀, Namibia: Koakoveld: Warmbad (SAMC). – Arnold, 1930:17 (in checklist of Afrotropical Sphecidae). – As *Ammophila laticeps*: Leclercq, 1955h:88 (new combination, bibliographic references); R. Bohart and Menke, 1976:152 (listed).

109. *lativalvis* Gussakovskij

Ammophila lativalvis Gussakovskij, 1928a:9, ♀, ♂. Syntypes: Uzbekistan: Ak-mechet, Ravat, Khiva area (ZIL). – R. Bohart and Menke, 1976:152 (listed); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 110 (nesting behavior), 2002a:38 (geographic distribution, collecting localities in Kazakhstan).

110. *leclercqi* Menke

Ammophila yarrowi Leclercq, 1961c:211, ♀, junior primary homonym of *Ammophila yarrowi* Cresson, 1876. Holotype: ♀, Spain: Badajoz Province: Merida (BMNH). – Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae).

Ammophila leclercqi Menke, 1964b:154. Substitute name for *Ammophila yarrowi* Leclercq, 1961. – Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:85 (in Sphecidae Fauna of Western Europe).

111. *leoparda* (Fernald)

Sphex urnarius leopardus Fernald, 1934:125, ♀, ♂. Holotype: ♀, USA: Georgia: no specific locality (ANSP). – **As *Sphex leopardus***: Murray, 1938:29 (new status); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records). – **As *Ammophila leoparda***: Murray in Muesebeck et al., 1951:975 (new combination, in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); O'Brien, 1989b:211 (distribution in Michigan).

112. *macra* Cresson

Ammophila macra Cresson, 1865b:460, ♂. Lectotype: ♂, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:94. – Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); W. Fox, 1894c:101 (Mexico: Baja California); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Evans, 1970:486 (Wyoming: Jackson Hole); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Cherry County: Nenzel area); Brockmann, 1985b:312 (nest closure summary); Parks, 1986:34 (California: Torrey Pines State Reserve); Weissmann and Kondratieff, 1999:77 (Colorado: Great Sand Dunes National Monument). – **As *Sphex macrus***: Fernald, 1926:91 (new combination, as new synonym of *Ammophila procera*), 1931a:448 and 1933:44 (as junior synonym of *Ammophila procera*).

113. *marshi* Menke

Ammophila marshi Menke, 1964a:13, ♀, ♂. Holotype: ♂, USA: California: Tuolumne County: Strawberry (UCD). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills), 1990b:241 (aerial prey caching as defence against ants).

114. *mcclayi* Menke

Ammophila mcclayi Menke, 1964a:24, ♀, ♂. Holotype: ♂, USA: California: Kern County: Woody (CIS according to original description, not in CAS now). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands), 52 (prey); Parks, 1986:34 (California: Torrey Pines State Reserve); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

115. *mediata* Cresson

Ammophila mediata Cresson, 1865b:159, ♀, ♂. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:94. – Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Fernald, 1931a:447 (as new synonym of *Sphex arvensis*); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Evans, 1970:486 (Wyoming: Jackson Hole); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Finnamore, 1982:32 (in Sphecid Fauna of Southern Quebec); O'Brien and O'Brien, 1988:75 (nesting habits); O'Brien, 1989b:211 (distribution in Michigan); Finnamore, 1997:884 (Canada: Yukon); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada). – **As *Sphex mediatius***: Murray, 1938:24 (new combination, redescription); Dreisbach, 1944:269 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records); Strickland, 1947:129 (Canada: Alberta: Cypress Hills, Waterton); Spencer and Wellington, 1948:10 (British Columbia).

116. menghaiana Li and C. Yang

Ammophila menghaiana Li and C. Yang, 1989:34, ♀, ♂. Holotype: ♀, China: Yunnan Province: Menghai County: no specific locality (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

117. meridionalis Kazenas

Ammophila meridionalis Kazenas, 1980f:49, ♂. Holotype: ♂, Tajikistan: 10 km NE Garavuty on Vakhsh River (ZIN). – Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia)

118. mescalero Menke

Ammophila mescalero Menke, 1966b:33, ♀, ♂. Holotype: ♂, Mexico: Puebla: Cacaloapán (UCD). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Menke, 1986c:36 (Arizona: Gila County: Carrizo), 37 (Arizona: Cochise County: Naco), 1994f:21 (Arizona: Snowflake); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

119. mimica Menke

Ammophila mimica Menke, 1966b:36, ♀, ♂. Holotype: ♂, USA: California: San Bernardino County: Cronise Valley (originally CIS, now CAS). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera).

120. mitlaensis Alfieri

Ammophila mitlaensis Alfieri, 1961:139, ♀. Holotype: ♀, Egypt: Sinai: Wadi Mitla (originally A. Alfieri coll., now USNM). – R. Bohart and Menke, 1976:152 (listed); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula).

121. modesta Mocsáry

Ammophila modesta Mocsáry, 1883:28, ♀. Holotype or syntypes: ♀, Spain: Granada (TMB). – Ed. André, 1886:66 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Medina, 1894a:259 (Spain: Hornachuelos); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Antiga and Bofill, 1904:4 (Spain: Cataluña Province); Dusmet y Alonso, 1906:7 (Spain); Kohl, 1906b:344 (in revision of Palearctic Ammophilini); Dusmet y Alonso, 1915:86 (Spain: Aragón); Roth, 1929:181 (in revision of Spanish Ammophilini), 188 (abnormal wing venation); Bischoff, 1933:6 (Spain: Sierra Morena: Santa Helena); Giner Marí, 1943a:71 (in Sphecid Fauna of Spain); de Andrade, 1949:7 (Portugal); Ceballos, 1956:360 (in catalog of Hymenoptera of Spain); Nouvel and Ribaut, 1958:8 (first record from France: Pyrénées-Orientales: Banyuls-sur-Mer); Diniz, 1959:27 (Portugal: Torre da Marinha); Suárez, 1959:52 (Spain: Almería Province); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); Diniz, 1965:2 (Portugal: ten localities); R. Bohart and Menke, 1976:152 (listed); Gayubo, 1981a:141 (N Spain: Sierra de Béjar); Gayubo, 1983c:234 (Spain: Salamanca Province: Fregeneda, Saucelle); Gayubo and Tormos, 1984:11 (Spain: Valencia); Gayubo, 1986b:37 (Spain: Andalucía); Gayubo and Sanza, 1986:32 (Spain: Segovia); Gayubo and Tormos, 1986a:10 (Spain: Castellón de la Plana), 1986b:6 (Spain: Valencia); Tormos and Jiménez, 1987a:123 (Spain: Valencia); Gayubo, Asís, and Tormos, 1990a:13 (Spain); Hamon, Tussac, and Fonfria, 1992:408, 411 (in key to French Ammophilini), 412 (in France collected only in Banyuls-sur-Mer); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:85 (in Sphecid Fauna of Western Europe).

122. moenkopi Menke

Ammophila moenkopi Menke, 1967a:3, ♀, ♂. Holotype: ♂, USA: Arizona: Coconino County: 4.5 mi E Moenkopi (Arizona State Univ.). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Menke, 1994f:21 (Utah: Calf Creek Falls State Park).

123. monachi Menke

Ammophila monachi Menke, 1966b:34, ♀, ♂. Holotype: ♂, USA: Nevada: Mineral County: Mount Montgomery (UCD). – R. Bohart and Menke, 1976:152; Krombein, 1979b:1592 (in catalog of North American Hymenoptera).

124. *mongolensis* Tsuneki

Ammophila mongolensis Tsuneki, 1971k:163, ♀, ♂. Holotype: ♂, Mongolia: Central Aymag: 3 km. E Somon Nalajah (TMB). – R. Bohart and Menke, 1976:152 (listed); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).

125. *murrayi* Menke

Ammophila murrayi Menke, 1964a:14, ♀, ♂. Holotype: ♂, USA: California: Los Angeles County: Tanbark Flat in San Gabriel Mountains (UCD). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Menke, 1994d:15 (California: Monterey County: Parkfield area).

126. *nancy* Menke

Ammophila nancy Menke, 2007:32, ♀, ♂. Holotype: ♂, USA: Arizona: Cochise County: Geronimo Trail E Douglas (USNM). Paratypes: California, Nevada, New Mexico, Texas, Baja California Sur, and Sonora.

127. *nasalis* Provancher

Ammophila nasalis Provancher, 1895:111, ♂. Holotype or syntypes: ♂, USA: California: Los Angeles (Laval Univ.). – not listed by Gahan and Rohwer, 1917-1918; Murray *in* Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Powell, 1964b:251 (review of Hicks, 1935 observations); Menke, 1965b:259 (identity of *Ammophila craspedotus* of Hicks, 1935); R. Bohart and Menke, 1976:151 (listed); Gwynne, 1977:335 (nesting behavior); Krombein, 1979b:1592 (in catalog of North American Hymenoptera). – **As *Sphex nasalis***: Fernald, 1934:77 (new combination, revision).

Sphex craspedotus Fernald, 1934:96, ♀. Holotype: ♀, USA: California: Los Angeles County: no specific locality (USNM). Synonymized with *Ammophila nasalis* by Murray *in* Muesebeck et al., 1951:976. – Hicks, 1935:97 (nesting habits).

128. *nasuta* Lepeletier de Saint Fargeau

Ammophila nasuta Lepeletier de Saint Fargeau, 1845:380, ♀, ♂. Lectotype: ♀, Algeria: Oran (Turin), designated by Menke *in* Bohart and Menke, 1976:152. – Lucas, 1849:275 (Algeria: La Calle, Oran; original description copied with modifications); F. Smith, 1856:211 (in catalog of Hymenoptera in British Museum); Walker, 1871:17 (Djibouti: Tajura; Eritrea: Rafla Bay; Africa: Red Sea coast: Akeek Island, Massowah); Kirchner, 1867:217 (in catalog of European Hymenoptera); Dours, 1874:141 (in catalog of Hymenoptera of France); Ed. André, 1886:78 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Acloque, 1897:96 (in Sphecid Fauna of France and Algeria); Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Medina, 1898:153 (Portugal (Foz do Douro); Antiga and Bofill, 1904:4 (Spain: Cataluña Province); W. Schulz, 1905b:33 (Algeria); Graeffe, 1906:456 (Tunisia: Tunis area); Kohl, 1906b:351 (in revision of Palearctic Ammophilini); Morice, 1911:73 (Algeria: Alger); Innes Bey, 1912:110 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected at Tadjurah); Roth, 1920a:15 (color variation), 1920b:86 (this variation was already observed by Lepeletier de Sait Fargeau); Roth, 1924:123 (Algeria: Nemours, now Ghazaouet); von Schulthess, 1926b:209 (Tunisia); Roth, 1928:197 (in revision of North African Ammophilini), 223 (habitat); Bischoff, 1933:6 (Morocco); nec Alfieri, 1946:136 (= *Ammophila pseudonasuta*); de Beaumont, 1955:56 (effects of stylopisation); Leclercq, 1955h:85 (bibliographic references); Ceballos, 1956:360 (in catalog of Hymenoptera of Spain); Bradley, 1957:39 (Lepeletier's specimens in Turin); Diniz, 1959:27 (Portugal: no specific locality); de Beaumont, 1963b:9, 12 (in revision of the *nasuta* group); R. Bohart and Menke, 1976:152 (listed).

***ssp. atlantica* Roth**

Ammophila nasuta var. *atlantica* Roth, 1928:199, ♀, ♂. Syntypes: Morocco: Tanger, Tetouan, Mogador, Laguna Guedira (IEE, Madrid, and MNHN). – Nadig, 1933:101 (Morocco); Leclercq, 1955h:85 (bibliographic reference). – **As *Ammophila atlantica***: Bytinski-Salz *in* de Beaumont and Bytinski-Salz, 1955:38 (full species status);

R. Bohart and Menke, 1976:151 (listed). – **As *Ammophila nasuta atlantica***: de Beaumont, 1951e:267 (new status; Morocco), 1963b:11 (subspecific status confirmed, in revision of the *nasuta* group).

ssp. *quadraticollis* A. Costa

Ammophila quadraticollis A. Costa, 1893a:99, ♀. Holotype or syntypes: ♀, Tunisia: no specific locality (NAPOLI). – Dalla Torre, 1897:406 (in catalog of world Hymenoptera, as *quadrucollis*); Kohl, 1906b:353 (in revision of Palearctic Ammophilini, original description copied); von Schulthess, 1909:440 (Libya: Derna, Tripoli); Morice, 1911:73 (Algeria: Bône, La Calle, Le Tarf); Mantero, 1915:323 (Libya); Gribodo, 1921:6 (Libya: Cyrenaica: Ghemines); von Schulthess, 1926b:209 (Tunisia, Libya); Roth, 1928:200 (in revision of North African Ammophilini); Guiglia, 1934b:292 (Libya: bibliography and summary of locality records); Alfieri, 1946:132 (in revision of Egyptian *Ammophila*); de Beaumont and Bytinski-Salz, 1955:37 (Israel); Leclercq, 1955h:85 (bibliographic references); de Beaumont, 1956a:179 (Libya), 1960b:226 (Libya); R. Bohart and Menke, 1976:153 (listed). – **As *Ammophila nasuta quadraticollis***: de Beaumont, 1963b:13 (new status, in revision of the *nasuta* group); Roche and Zalot, 1994:114 (Egypt: Sinai Peninsula).

Ammophila quadraticollis A. Costa, 1893b:4, ♀, ♂. Syntypes: Tunisia: no specific locality (NAPOLI). Objective synonym of *Ammophila quadraticollis* A. Costa, 1893a:99.

129. *nearctica* Kohl

Ammophila nearctica Kohl, 1889a:18, ♂. Syntypes: ♂, USA: Washington: no specific locality (NHMW). – Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Melander, 1903:162 (...); Fernald, 1931a:449 (as new synonym of *Sphex politus*); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Dollfuss, 1989:7 (lectotype in NHMW); Menke, 1994d:15 (California: Monterey County: Parkfield area).

130. *nefertiti* Menke

Ammophila nefertiti Menke, 1964a:16, ♀, ♂. Holotype: ♂, USA: California: Lassen County: 10.6 mi N Lichtfield (CIS according to original description, now CAS). – R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera).

131. *nigricans* Dahlbom

Ammophila nigricans Dahlbom, 1843:14, ♂. Holotype or syntypes: USA: South Carolina: no specific locality (Lund). – Dahlbom, 1845:430 (in key); F. Smith, 1856:223 (in catalog of Hymenoptera in British Museum); Cresson, 1863:319 (in catalog of North American Hymenoptera), 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Evans, 1959d:465 (nesting behavior); Kurczewski and Kurczewski, 1963:147 (Pennsylvania: Presque Isle State Park); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Finnamore, 1982:33 (in Sphecid Fauna of Southern Quebec); O'Brien, 1989b:212 (distribution in Michigan); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Ahlstrom, 1995:107 (in checklist of insects of North Carolina); Kurczewski, 1998d:250 (pine barrens in upstate New York); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario), 34 (first record from Ontario: list of localities). – **As *Sphex nigricans***: H. Smith, 1908b:330 (new combination, in revision of Nebraskan Sphecidae); Mickel, 1918b:402 (in catalog of Nebraskan Sphecidae); Fernald, 1934:98 (revision); Peckham, 1934b:259 (nest and prey); Brimley, 1938:444 (North Carolina: statewide); Rau, 1938b:541 (sleeping habits); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records); Strandtmann, 1945a:310 (nest and prey).

Ammophila intercepta Lepeletier de Saint Fargeau, 1845:378, ♀ (authorship attributed to Klug). Holotype or syntypes: ♀, North America: no specific locality (M. Spinola coll.). Synonymized with *Ammophila nigricans* by ... –

F. Smith, 1856:223 (in catalog of Hymenoptera in British Museum); Cresson, 1863:318 (in catalog of North American Hymenoptera), 1873:210 (Texas); Patton, 1879d:353 (USA: nw. Kansas); Cresson, 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:403 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Bridwell, 1899:209 (Kansas: no specific locality); Casolari and Casolari Moreno, 1980:100, 101 (specimens in M. Spinola collection).

132. *nitida* Fischer de Waldheim

Ammophila nitida Fischer de Waldheim, 1834:2, sex not indicated. Holotype or syntypes: Southern Russia: no specific locality (depository unknown). – F. Smith, 1856:210 (in catalog of Hymenoptera in British Museum); Kirchner, 1867:217 (in catalog of European Hymenoptera); Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Kohl, 1906b:374 (original description copied); R. Bohart and Menke, 1976:152 (listed).

133. *novita* (Fernald)

Sphex novitus Fernald, 1934:147, ♀, ♂. Holotype: ♀, “L. Cal.” = Mexico: Baja California: no specific locality (ANSP). – **As *Ammophila novita***: Murray in Muesebeck et al., 1951:976 (new combination, in catalog of North American Hymenoptera); Hurd and Linsley, 1975:116 (Arizona: Yuma County: 24.5 mi. N Yuma; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:152 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Amarante, 2005a:14 (correction to his 2002 catalog).

134. *obliquestriolae* Yang and Li

Ammophila obliquestriolae Yang and Li, 1989:106, ♂. Holotype, ♂, China: Shaanxi Province: Ganquan County: Quingquan (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

135. *obscura* Bischoff

Ammophila rufipes var. *obscura* Bischoff, 1912:220, ♀, ♂. Syntypes: Zaire: Mawambi on Ituri River (ZMHU). – **As *Ammophila obscura***: Menke in Bohart and Menke, 1976:152 (new status, listed).

136. *occipitalis* F. Morawitz

Ammophila occipitalis F. Morawitz, 1890:583, ♀, ♂. Syntypes: Turkmenistan: Tedjen (ZIL). – F. Morawitz, 1891a:203 (Russia: Astrakhan Government: Ryn Peski); Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Kohl, 1906b:322 (in revision of Palearctic Ammophilini); Morice, 1921:822 (Iraq: Amara); Gussakovskij, 1933b:274 (Iran); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan), 1972a:86 (Turkmenistan); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:181 (in key to Sphecidae of European part of former USSR); Nazarova, 1998:40 (Tajikistan: Ti-grovaya Balka Nature Reserve); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 110 (nest parasites), 2002a:38 (geographic distribution, collecting localities in Kazakhstan); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mts.).

137. *pachythoracalis* Yang and Li

Ammophila pachythoracalis Yang and Li, 1989:107, ♂ (spelled *pachytnoracalia* in English summary, p. 110). Holotype: ♂, China: Shaanxi Province: Ganquan County: Quingquan (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

138. *parapolita* (Fernald)

Sphex parapolitus Fernald, 1934:51, ♀, ♂. Holotype: ♀, USA: California: Felton in Santa Cruz Mountains (Cornell Univ.). – Strickland, 1947:129 (Canada: Alberta: Medicine Hat, Wainwright). – **As *Ammophila parapolita***: Murray in Muesebeck et al., 1951:976 (new combination, in catalog of North American Hymenoptera); R. Bohart and

Menke, 1976:153 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Menke, 1994d:15 (California: Monterey County: Parkfield area).

139. *parkeri* Menke

Ammophila parkeri Menke, 1964a:23, ♀, ♂. Holotype: ♂, USA: California: Nevada County: Boca (UCD). – Powell, 1964b:243 (nesting site, prey: geometrid caterpillar); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Menke, 1994d:15 (California: Monterey County: Parkfield area).

140. *peckhami* (Fernald)

Sphex peckhami Fernald, 1934:93, ♂. Holotype: ♂, Mexico: Meadow Valley (USNM). – **As *Ammophila peckhami***: Murray in Muesebeck et al., 1951:976 (new combination, in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

Sphex willistoni Fernald, 1934:91, ♀. Holotype: ♀, USA: Mexico: Meadow Valley (USNM). Synonymized with *Sphex peckhami* by Menke, 1967a:3

141. *peringueyi* (Arnold)

Sphex peringueyi Arnold, 1928:269, ♀ (as *Peringueyi*, incorrect original capitalization). Holotype: ♀, South Africa: Cape Province: Tradouw Pass in Swellendam District (SAM). – Arnold, 1930:17 (in checklist of Afrotropical Sphecidae). – **As *Ammophila peringueyi***: Leclercq, 1955h:87 (new combination, bibliographic references); R. Bohart and Menke, 1976:153 (listed).

142. *philomela* Nurse

Ammophila philomela Nurse, 1903a:519, ♀. Holotype or syntypes: ♀, India: Gujarat: Deesa (BMNH). – Ramakrishna Aiyar, 1916:554 (in catalog of Indian aculeates described after Bingham, 1897); R. Bohart and Menke, 1976:153 (listed).

143. *picipes* Cameron

Ammophila picipes Cameron, 1888a:11, ♂. Lectotype: ♂, Mexico: Yucatán: Temax (BMNH), designated by Menke, 1996e:194 (as holotype, Article 74b). – Dalla Torre, 1897:406 (in catalog of world Hymenoptera, as *piceipes*); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1934:158 (original description copied); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Hanson and Menke, 1995:637 (known from Costa Rica); Menke, 1996e:192 (in key), 194 (in revision of Costa Rican species); Menke and Parker, 1996:186 (Costa Rica: population largest during the dry season); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 47 (Mexico: Tamaulipas).

Ammophila alticola Cameron, 1888a:10, ♂. Lectotype: ♂, Panama: Volcán de Chiriquí (BMNH), designated by Menke, 1996e:194 (as holotype, Article 74b). Synonymized with *Ammophila picipes* by Bohart and Menke, 1976:153. – Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae).

Ammophila volcanica Cameron, 1888a:17, ♀. Lectotype: ♀, Panama: Volcán de Chiriquí (BMNH), designated by Menke, 1996e:194 (as holotype, Article 74b). Synonymized with *Ammophila picipes* by Bohart and Menke, 1976:153. – Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Linsley, 1962:156 (sleeping aggregations); Murray in Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera). – **As *Sphex volcanicus***: Fernald, 1934:54 (new combination, revision)

Ammophila chiriquensis Cameron, 1888a:18, ♀. Lectotype: ♀, Panama: Volcán de Chiriquí (BMNH), designated by Menke, 1996e:194 (as holotype, Article 74b). Synonymized with *Ammophila picipes* by Dalla Torre, 1897:395. – Dalla Torre, 1897:397 (in catalog of world Hymenoptera, here listed as valid species); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1934:134 (revision); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera).

144. *pictipennis* Walsh

Ammophila pictipennis Walsh, 1869:164, ♀, ♂. Syntypes: USA: southern Illinois and Colorado: no specific locality (...). – Cresson, 1873:210 (Texas); Riley, 1873:149 (...); Cresson, 1876:208 (Iowa: Davenport), 1887:274 (in catalog of North American Hymenoptera); Viereck, 1893e:132 (New Jersey: Riverton; New York: Staten Island); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Bridwell, 1899:209 (Kansas: Baldwin); W. Fox, 1895c:266 (Mexico: Baja California Sur); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Rohwer, 1916b:686 (in catalog of sphecids of Connecticut); Fernald, 1931a:449 (as new synonym of *Sphex placidus*); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Brockmann, 1985b:312 (nest closure summary); O'Brien, 1989b:212 (distribution in Michigan); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1992:996 (species of miltogrammine parasites listed), 1002 (counter-cleptoparasitic behavior: diversionary flight), 1005 (post-larvipositional counter-cleptoparasitic behavior: clean burrow); Ahlstrom, 1995:107 (in checklist of insects of North Carolina); Kurczewski, 1998d:250 (pine barrens in upstate New York); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario), 35 (first record from Canada: Ontario: list of localities). – **As *Sphex extremitata* var. *pictipennis***: Viereck, 1903d:121 (new combination, new status, Maryland: no specific locality); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut). – **As *Sphex pictipennis***: Rau, 1922:23 (USA: Missouri: St. Louis, preying on caterpillars); J.Ch. Bradley, 1928:1012 (in catalog of New York Sphecidae); G. Carpenter, 1930b:296 (nest closure); Hendrickson, 1930:159 (Iowa); Peckham, 1934b:259 (mimicked by fly *Systrophus macer* Loew); Rau, 1938b:541 (sleeping habits).

Ammophila anomala Taschenberg, 1869:434, ♀, ♂. Lectotype: ♀, USA: Illinois: no specific locality (HALLE), designated by Menke in Bohart and Menke, 1976:153. Synonymized with *Ammophila pictipennis* by ... – Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1931a:449 (as new synonym of *Ammophila placida*).

? *Sphex nigropilosus* Rohwer, 1912:465, ♀. Holotype: ♀, Mexico: Distrito Federal: no specific locality (USNM). – Fernald, 1931a:449 (as new synonym of *Sphex placidus*, also misspelled as *longispinus*); R. Bohart and Menke, 1976:153 (listed, as questionable synonym of *Ammophila pictipes*).

145. *pilimarginata* Cameron

Ammophila pilimarginata Cameron, 1912a:429, [♂]. Holotype or syntypes: ♂, Guiana: Demerara: no specific locality (BMNH). – Richards, 1937:... (as synonym of *Ammophila fragilis*); R. Bohart and Menke, 1976:153 (listed); Amarante, 2002:67 (in catalog of Neotropical Sphecidae, listed in error as synonym of *Ammophila gracilis*), 2005a:14 (correction to his 2002 catalog).

146. *placida* F. Smith

Ammophila placida F. Smith, 1856:221, ♂. Holotype or syntypes: ♂, USA: California: no specific locality (BMNH). – Cresson, 1863:319 (in catalog of North American Hymenoptera), 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); K. Cooper, 1953:34 (Massachusetts: Penikese Island); Evans, 1959b:148 (description of larva), 1959d:456 (nesting behavior); Menke, 1965b:260 (own observations of Evans, 1959d:456, refer to this species, but authors he cited

dealt with *Ammophila pictipennis*); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Brockmann, 1985b:312 (nest closure summary); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae). – *As Spheg guerinii placidus*: Fernald, 1934:59 (new combination, new status, revision). – *As Spheg placidus*: Fernald, 1931a:449 (synonymy); Krombein, 1936:98 (New York: Buffalo; floral records); Brimley, 1938:444 (North Carolina: state-wide); Rau, 1938b:541 (sleeping habits, as *placidus*); Strandmann, 1945a:310 (nest and prey); Spencer and Wellington, 1948:10 (British Columbia); Krombein and Evans, 1954:233 (Florida), 1955:233 (Florida). – *As Spheg placidus placidus*: Fernald, 1943a:290 (Florida); Dreisbach, 1944:270 (in key to *Ammophila* of Michigan), 274 (Michigan: locality records).

As Spheg xanthopterus (corrected to *Ammophila placida* by Menke, 1965b:258): Hicks, 1932c:193 (new combination, nesting habits), 1933c:49 (nest parasite: *Paniscus* sp.), and 1934a:39 (prey capture and stinging).

147. *planicollaris* Li and C. Yang

Ammophila planicollaris Li and C. Yang, 1990:259, ♂. Holotype: ♂, China: Nei Mongol: Jumgar Banner, Ih Ju League: Mt. Sheshan (Beijing Agricultural University). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

148. *platensis* Brèthes

Ammophila platensis Brèthes, 1909b:62, ♀. Holotype: ♀, origin unknown, probably Uruguay: no specific locality (Mus. Montevideo). – R. Bohart and Menke, 1976:153 (listed); Genise, 1990:26 (type material in MACN); Amarante, 2002:67 (in catalog of Neotropical Sphecidae).

149. *poecilocnemis* Morice

Ammophila poecilocnemis Morice, 1900a:67, ♀, ♂. Syntypes: Algeria: Biskra (OXUM). – Kohl, 1906b:358 (in revision of Palearctic *Ammophilini*); Morice, 1911:74 (Algeria: Biskra); von Schulthess, 1926b:209 (Tunisia); Roth, 1928:208 (in revision of North African *Ammophilini*); Maidl, 1933b:122 (Morocco); Giner Mari, 1945b:362 (Western Sahara), 1945e:220 (Western Sahara), 1947:19 (Western Sahara); Leclercq, 1955h:84 (bibliographic references); de Beaumont, 1956a:180 (Chad: Tibesti; specimen studied has one midtibial spur), 1958b:56 (Tassili des Ajjer; Sahara between Tunisia and Western Sahara); R. Bohart and Menke, 1976:153 (listed); Guichard, 1988a:128 (Saudi Arabia); Gadallah and Assery, 2004a:224 (in catalog of Sphecidae of Saudi Arabia).

150. *polita* Cresson

Ammophila polita Cresson, 1865b:458, ♀. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:94. – Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Peckham and Peckham, 1900:91 (nesting habits); Melander, 1903:160 (...); G. Carpenter, 1930b:292 (nest closure); Murray *in* Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Blow Sand Mountains); Weislo, 1998:181 (proportions of antennae in relations to parasitic/non-parasitic behavior). – *As Spheg politus*: Mickel, 1918b:404 (new combination, in catalog of Nebraskan Sphecidae); Fernald, 1931a:449 (*Ammophila nearctica* Kohl is a synonym), 1934:49 (revision); Dreisbach, 1944:268, 270 (in key to *Ammophila* of Michigan); Strickland, 1947:129 (Canada: Alberta: Lethbridge); Spencer and Wellington, 1948:10 (British Columbia).

151. *procera* Dahlbom

Ammophila procera Dahlbom, 1843:15, sex not indicated (authorship attributed to Klug). Lectotype: southern North America: no specific locality (Lund), designated by Menke, 1996e:194 (as holotype, Article 74b). – Dahlbom,

1845:430 in key); F. Smith, 1856:224 (in catalog of Hymenoptera in British Museum); Cresson, 1863:319 (in catalog of North American Hymenoptera); Taschenberg, 1869:434 (Illinois; description of coloration); Patton, 1879d:353 (USA: nw. Kansas); Cresson, 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Bridwell, 1899:209 (Kansas: no specific locality); Melander, 1903:158 (diagnostic characters); Viereck, 1903d:121 (Maryland: Chestertown); Hartman, 1905:11 (nesting habits); Hart, 1907:255 (Illinois); Rau and Rau, 1918:215, 226, 237 (habits); Rau, 1922:24 (USA: Missouri: Silica, Wickes); G. Carpenter, 1930b:295, 298 (nest closure); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Evans and Lin, 1956a:145 (larva); Evans, 1958e:451 (behavioral evolution), 1959d:451 (nesting behavior); Evans and Linsley, 1960:32 (casual member of sleeping aggregation at Southwest Research Station, Arizona); Linsley, 1962:156 (sleeping aggregations); Evans, 1963c:62 (nest closure); Powell, 1964b:242 (review of Tilden, 1953, observations); Menke, 1965b:260 (*Sphex procerus* of Hicks, 1935, is *Ammophila procera*); Evans, 1975a:264 (slow colonizer of new habitats); Horning and Barr, 1970:105 (USA: Idaho: Craters of the Moon National Monument); Hurd and Linsley, 1975:116 (Arizona: eight sites, southern California: one site, New Mexico: six sites; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Finnamore, 1982:34 (in Sphecid Fauna of Southern Quebec); Menke, 1983b:20 (Nebraska: Thomas County: Halsey area), 21 (Nebraska: Cherry County: Valentine area and Nenzel area, and Dawes County: SE Crawford); Brockmann, 1985b:312 (nest closure summary); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills); O'Brien, 1989b:213 (distribution in Michigan); Menke, 1994f:20 (New Mexico: Zuni; Utah: Monticello area); Ahlstrom, 1995:107 (in checklist of insects of North Carolina); Hanson and Menke, 1995:637 (known from Costa Rica); Menke, 1996e:192 (in key), 194 (in revision of Costa Rican species); Kurczewski, 1998d:250 (pine barrens in upstate New York); Meagher and Mitchell, 1999:368 (collected in pheromone- and synthetic floral volatile-baited traps); Weissmann and Kondratieff, 1999:77 (Colorado: Great Sand Dunes National Monument); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada); Amarante, 2005a:14 (correction to his 2002 catalog); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 47 (Mexico: Tamaulipas). – **As *Sphex procerus***: H. Smith, 1908b:328 (new combination, in revision of Nebraskan Sphecidae); Faull, 1913:384 (Canada: Toronto region, as *procera*); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:402 (in catalog of Nebraskan Sphecidae); Rau, 1922:24 (habits); Criddle, 1924:121 (nesting habits, as *procera*); Fernald, 1926:8 (influence of climate on coloration); Rau, 1926:211 (habits); J.Ch. Bradley, 1928:1012 (in catalog of New York Sphecidae); Hendrickson, 1930:159 (Iowa); Fernald, 1934:44 (revision); Peckham, 1934b:259 (floral records); Brimley, 1938:444 (North Carolina: Robeson and Wake counties west); Fernald, 1943b:135 (first record from Florida); Dreisbach, 1944:268, 269 (in key to *Ammophila* of Michigan), 274 (Michigan: locality records); Strickland, 1947:129 (Canada: Alberta.); Spencer and Wellington, 1948:10 (British Columbia); Krombein, 1950a:268 (North Carolina: Dare County); G. Bohart and Knowlton, 1953:100 (mating, prey, nesting behavior); Krombein, 1953a:285 (nesting habits), 296 (visiting foliage of *Quercus marilandica*), 297 (visiting foliage of *Liquidambar styraciflua*), 298 (visiting flowers of *Monarda punctata* and *Cephalanthus occidentalis*), 333 (North Carolina), 1953b:118 (nest, prey), 123 (visiting foliage of *Quercus virginiana*), 124 (visiting flowers of *Pluchea* sp.), 133 (North Carolina: Kill Devil Hills); Krombein and Evans, 1954:234 (Florida); Krombein, 1955d:151 (cocoon), 1958c:104 (prey, prey carrying, nest); L. Davis, 1978:217 (North Carolina: Kill Devil Hills, data from Krombein, 1953a); D. Thomas, 2000:194 (nest excavation)..

Ammophila procera Lepeletier de Saint Fargeau, 1845:376, ♀ (authorship attributed to Klug), junior primary homonym of *Ammophila procera* Dahlbom, 1843. Lectotype: ♀, North America: no specific locality (Torino), desig-

nated by Menke, 1996e:194 (as holotype, Article 74b). Synonymized with *Ammophila procera* Dahlbom by Bohart and Menke, 1976:153. – Amarante, 2005a:14 (correction to his 2002 catalog).

Ammophila saeva F. Smith, 1856:222, ♀. Lectotype: ♀, USA: California: no specific locality (BMNH), designated by Menke in Bohart and Menke, 1976:153. Synonymized with *Ammophila procera* by Fernald, 1931a:448 (as *Sphex saevus*). – Cresson, 1863:319 (in catalog of North American Hymenoptera), 1887:274 (in catalog of North American Hymenoptera); W. Fox, 1894c:101 (Mexico: Baja California); Dalla Torre, 1897:409 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Tilden, 1953:211 (nesting behavior). – **As *Sphex saevus***: Rohwer, 1917a:241 (new combination, California: Calaveras County).

Ammophila gryphus F. Smith, 1856:222, ♀, ♂ (as *Gryphus*, incorrect original capitalization). Lectotype: ♀, USA: Florida: Charleston (BMNH), designated by Menke in Bohart and Menke, 1976:153. Synonymized with *Ammophila procera* by Dalla Torre, 1897:406. – Cresson, 1863:318 (in catalog of North American Hymenoptera), 1865b:459 (coloration), 1873:209 (Texas); Provancher, 1883:615 (in revision of Canadian Hymenoptera); Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Pergande, 1892:256 (nest closure, prey), 1895:168 (prey carrying); Howard, 1901:pl. V fig. 15 (...); Harrington, 1902:224 (Canada: Ontario: Ottawa); G. Carpenter, 1930b:293, 298 (nest closure); Wheeler and Wheeler, 1924:486 (use of pebble for tamping during nest closure).

Ammophila barbata F. Smith, 1873c:260, ♀. Syntypes: ♀, Mexico: no specific locality (BMNH). Synonymized with *Ammophila procera* by Fernald, 1931a:448 (as *Sphex procerus*). – Cameron, 1888a:7 (Mexico, diagnostic characters); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1926:91 (probably a synonym of *Ammophila procera*).

Ammophila ceres Cameron, 1888a:8, ♂. Lectotype: ♂, Guatemala: San Gerónimo (BMNH), designated by Menke in Bohart and Menke, 1976:153. Synonymized with *Ammophila procera* by Fernald, 1926:91 (as *Sphex procerus*). – Dalla Torre, 1897:397 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae).

Ammophila championi Cameron, 1888a:9, ♀. Lectotype: ♀, Guatemala: San Gerónimo (BMNH), designated by Menke in Bohart and Menke, 1976:153. Synonymized with *Ammophila procera* by Fernald, 1926:91 (as *Sphex procerus*). – Dalla Torre, 1897:397 (in catalog of world Hymenoptera, as *championii*); Ashmead, 1899d:354 (in checklist of North American Sphecidae).

Ammophila striolata Cameron, 1888a:10, ♀. Holotype or syntypes: ♀, Mexico: Durango: Ventana (BMNH). Synonymized with *Ammophila procera* by Fernald, 1926:90 (as *Sphex procerus*). – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae).

152. *producticollis* Morice

Ammophila producticollis Morice, 1900a:67, ♀, ♂ (♂ = *Ammophila gracillima*). Syntypes: Algeria: Biskra (OXUM). – Kohl, 1906b:347 (in revision of Palearctic Ammophilini); Morice, 1911:73 (Algeria: Biskra); von Schulthess, 1926b:208 (Tunisia, Algeria: Laghouat); Roth, 1928:195 (in revision of North African Ammophilini); Alfieri, 1946:131 (in revision of Egyptian *Ammophila*); Berland, 1950b:295 (Niger: Air area); de Beaumont, 1951e:264 (Morocco); de Beaumont and Bytinski-Salz, 1955:36 (Israel); Leclercq, 1955h:86 (bibliographic references); de Beaumont 1956a:176 (Chad: Tibesti); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia); Guichard, 1988a:128 (Saudi Arabia); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia); Gadallah and Assery, 2004a:224 (in catalog of Sphecidae of Saudi Arabia).

Ammophila divina Kohl, 1901d:157, ♀. Holotype: ♀, n. Africa to Siberia (NHMW). Synonymized with *Ammophila producticollis* by Kohl, 1906b:347.

Ammophila argentina Gussakovskij, 1930c:202, ♀, ♂. Syntypes: Turkmenistan: Askhabad, and Uzbekistan: Karakul (ZIL). Synonymized with *Ammophila producticollis* by Pulawski in Bohart and Menke, 1976:153. – Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve).

153. *proxima* (F. Smith)

Coloptera proxima F. Smith, 1856:225, ♀. Holotype or syntypes: ♀, Guinea: no specific locality (BMNH or OXUM). – As *Ammophila proxima*: Dalla Torre, 1897:406 (new combination, in catalog of world Hymenoptera); Leclercq, 1955h:94 (bibliographic references); R. Bohart and Menke, 1976:153 (listed).

154. *pruinosa* Cresson

Ammophila pruinosa Cresson, 1865b:455, ♀, ♂. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:94. – Cresson, 1875:713 (Colorado, Nevada, New Mexico), 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); W. Fox, 1894c:101 (Mexico: Baja California); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Johnson and Ledig, 1918:24 (California: Claremont); Fernald, 1931a:448 (as new synonym of *Sphex breviceps*); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); Evans, 1959b:149 (larva), 1959d:466 (Hicks' biological observations on *Sphex breviceps* probably apply to *pruinosa*); Evans and Linsley, 1960:32 (regular member of sleeping aggregation at Southwest Research Station, Arizona); Linsley, 1962:156 (sleeping aggregations; may be *Ammophila breviceps*); Powell, 1964b:251 (nest construction, transport, prey: noctuid and geometrid caterpillars); R. Bohart and Menke, 1976:153 (listed); C. Ward et al., 1977:56 (associated with mesquite (*Prosopis*)); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Sand Mountain); Brockmann, 1985b:312 (nest closure summary); Menke, 1986c:35 (Arizona: Coconino County: Moenkopi Wash near Tuba City, and Navajo County: Hopi Reservation), 36 (Arizona: Cochise County: 3 mi E Willcox), 37 (Arizona: Cochise County: N Apache, W Naco), 1994d:15 (California: Monterey County: Parkfield area); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Ohl and Linde, 2003:149 (number of ovarioles); Menke, 2007:36 (in review of *Ammophila pruinosa* complex). – As *Sphex pruinosus*: Mickel, 1918b:404 (new combination, in catalog of Nebraskan Sphecidae); Fernald, 1934:87 (revision, as *breviceps pruinosus*).

155. *pseudoheydeni* Li and He

Ammophila pseudoheydeni Li and He, 2000d:337, ♀, ♂. Holotype: ♀, China: Xinjiang: Wulumuqi at 43.8°N 87.6°E (Zhejiang Agricultural Univ.).

156. *pseudonasuta* Bytinski-Salz

As *Ammophila nasuta*: Alfieri, 1946:136 (in revision of Egyptian *Ammophila*), corrected to *Ammophila pseudonasuta* by Bytinski-Salz in de Beaumont and Bytinski-Salz, 1955:37.

Ammophila pseudonasuta Bytinski-Salz in de Beaumont and Bytinski-Salz, 1955:37, ♂. Holotype: ♂, Israel: Bat Yam (H. Bytinski-Salz coll., now Tel Aviv Univ.). – de Beaumont, 1963b:17 (in revision of the *nasuta* group); R. Bohart and Menke, 1976:153 (listed); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula).

157. *pubescens* Curtis

Ammophila pubescens Curtis, 1828-1829:122 (nomen nudum).

Ammophila pubescens Curtis, 1836:explanation of pl. 604, ♀, ♂ (as junior synonym of *Ammophila campestris*). Synonyms: Great Britain: no specific locality (depository?). – Richards, 1946:235 (in key to distinguish if from *Ammophila campestris*; synonymy); Leclercq, 1958:204 (nomenclatural history, diagnostic characters, Belgium: Bruxelles and Campine areas); de Beaumont, 1951h:32 (Switzerland: Neuchâtel area); Leininger, 1953:18 (Germany: Baden-Württemberg); Nouvel and Ribaut, 1953:176 (France: Hautes-Pyrénées: Campan, Cauterets); de Beaumont,

1955c:56 (effects of stylopization); Fahlander, 1957:63 (Sweden); Grandi, 1957:386 (Italy); Zirngiebl, 1957:185 (Germany: Rheinland-Pfalz: Birkenheide, Leistadt); Balthasar, 1958:339 (Czech Republic); Benno, 1958b:10 (in review of Dutch Sphecidae); de Beaumont, 1958c:201 (Swiss National Park); Hoop, 1961:66 (Germany: Schleswig-Holstein: Eggstedt); Wolf, 1959b:28 (Germany: Nassau); Noskiewicz and Pulawski, 1960:38 (in key to Polish Sphecidae); Grandi, 1962:55 (nesting habits), 97 (Italy: Alpes); Lyneborg, 1962:328 (first record from Denmark: Anholt, Bornholm, Gindeskov, Hanstet-reservatet, Læsø, Sjælland, Skagen, Stensbæk planatage); Erlands-son, 1963:66 (Denmark: Bornholm Island); Evans, 1963a:150 (prey specialization as distinctive character); Hoop, 1963a:73 (Germany: Schleswig-Holstein: Reher Kratt), 1963b:8 (Germany: Schleswig-Holstein: Fahrenkrug, Lehmrade, Reher Kratt); Chmurzyński, 1964b:123 (report on special orientation experiments by Baerends, 1941); de Beaumont, 1964c:26 (in Sphecida Fauna of Switzerland); Fæster, 1965:192 (Denmark: Hansted Nature Reserve); Pulawski, 1965b:260 (structure of gastral segment I); Bonelli, 1966c:217 (Italy: Trentino–Alto Adige: Piazzöl, Val Cadino, Val di Cembra); Benno, 1967:33 (in checklist of Sphecidae of Netherlands); Gauss, 1967:551 (Germany: Baden-Württemberg); J. Heinrich, 1967:69 (Germany: Bayern: Unterfranken District); Niedl and Deneš, 1967:86 (Czech Republic: Třeboň area); Lefeber, 1969c:232 (Netherlands: St. Pietersberg = Montagne Saint Pierre); Oehlke, 1970:674 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology), 237 (Germany: Berlin); Schmidt, 1971b:22 (Germany: Mainz area); Tsuneki, 1971k:163 (Mongolia); Balthasar, 1972:430 (in Sphecida Fauna of Czechoslovakia); Kofler, 1972:105 (Austria: eastern Tirol); Lomholdt, 1972:122 (Denmark: Læsø Island); Oehlke, 1972:134 (Germany: Hiddensee Island); Haeseler, 1973:53 (Germany: Schleswig-Holstein: Lauenburg); Lomholdt, 1975b:31 (Denmark: Anholt Island), 1975c:78 (in Sphecida Fauna of Fennoscandia and Denmark); Baerends, 1976:726 (functional organization of behavior); R. Bohart and Menke, 1976:153 (listed); Eck, 1976:90 (Democratic Germany); Tsuneki, 1976d:289 (China: Manchuria); Guichard, 1977:252 (Great Britain: Surrey); Kolesnikov, 1977:317 (Russia: Bryansk Oblast'); Haeseler, 1978c:193 (Germany: Frisian Islands: Borkum); Petit, 1978:85 (Belgium: Kalenberg); Pulawski, 1978:182 (in key to Sphecidae of European part of former USSR); Lefeber, 1979:11 (in checklist of Sphecidae of Netherlands), 21 (Netherlands: distribution map); Leclercq, Gaspar and Verstraeten, 1979:map 1406 (Belgium); Richards, 1979:400 (British Channel Islands); Schwammlberger, 1979:114 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Merisuo and Perrakinen, 1980:43 (parasitized by *Paraxenos sphecidarum* in Sweden: Gotland Island); Richards, 1980:76 (in key to Sphecidae of British Isles); Donath, 1982:211 (Germany: Cottbus Bezirk); Dollfuss, 1983b:3 (in catalog of Sphecidae of Austria); Janzon, 1983:171 (Sweden: Öland); Lefeber, 1983a:84 (Netherlands: Waddendistrict: Ameland and Vlieland islands); Riemann, 1983:81 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:6 (France: Yvelines Department); Haack, Tschardtke, and Vidal, 1984:124 (Germany: Hamburg area); Janzon and Svensson, 1984:183 (Sweden: Öland Island); Brockmann, 1985b:312 (nest closure summary); Haeseler, 1985c:571 (Germany: Frisian Islands); Lefeber, 1985:86 (Netherlands: southern Limburg); Brechtel, 1986:57 (Germany: Südpfalz); Vikberg, 1986b:75 (Finland); Lomholdt, 1987:93 (Denmark: western Jutland: Skallingen Peninsula); Schmidt and Westrich, 1987:357 (Germany: Mainz area); Kowalczyk, 1988b:63 (Poland: environs of Łódź); Riemann, 1988:222 (Germany: Bremen area); Jacobs, 1989:5 (Germany: Mecklenburg-Vorpommern); Nilsson, 1989:47 (Sweden); Pádr *in* Šedivý, 1989a:166 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:94 (Belorussia: Berezinskiy Nature Reserve); Jacobs and Oehlke, 1990:135 (new records from Democratic Germany); Pagliano, 1990:61 (in catalog of Italian Sphecidae); Schwammlberger and Priesner, 1990:533 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xii (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:33 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991b:119 (Poland: Augustów Forest); Kuhlmann et al., 1991:87 (Germany: Senne Region); H.-J. Schulz, 1991:29 (Germany: Oberlausitz: 5 km SW Wittichenau); van der Smissen, 1991:96 (nw. Germany); Hamon, Tussac, and Fonfria, 1992:407, 410 (in key to French Ammophilini), 412 (distribution in France); Nemkov, 1992b:244 (Russia: Far East: Khingan Nature Reserve); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Gorobchishin, 1993:46 (Ukraine: Kanev Nature Reserve);

Kuhlmann, 1993:75 (Germany: known from Westfalen); Luig, 1993:40 (Estonia); van der Smissen, 1993:128 (nw. Germany); Bonelli and Demattio Martinelli, 1994a:101 (nesting behavior); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Negrisolò *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Schmid-Egger, Risch, and Niehuis, 1995:163 (summary of records from Germany: Rheinland-Pfalz Province); Skibińska, 1995:423, 424, 426 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:440 (Germany: Bayern: Bayreuth area); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Jakubzik, 1996:251 (Germany: Köln); Lauterbach, 1996:133 (Germany: Nordrhein-Westfalen: Bielefeld area); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Schmid-Egger, Schmidt, and D. Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg), 106 (locality records); Woydak, 1996:11 (Germany: Westfalen: summary of distribution and nesting habits); Wu and Zhou, 1996a:52 (in revision in Economic Insect Fauna of China); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:86 (in Sphecidae Fauna of Western Europe); Schmidt and Schmid-Egger, 1997:5 (in checklist of German Sphecidae); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km WSW Hamburg); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); Mauss and Schindler, 1898:136 (Germany: Schleswig-Holstein: Nordfriesland District); K. Weber, 1998:133 (Germany: Bayern: Bamberg area); van der Smissen, 1998:53 (Germany: Schleswig-Holstein, Niedersachsen); K. Weber, 1998:133 (Germany: Bayern: Bamberg area); Kuhlmann, Wolf, and Woydak, 1999:569 (strongly endangered in Nordrhein-Westfalen State of Germany); Ljubomirov, 1999b:45 (Bulgaria: Mt. Vitosha near Sofia); Pauly, 1999:107 (in catalog of Belgian aculeates); Riemann, 1999:834 (Germany: Niedersachsen: sand pits near Bremen); M. Schwarz, 1999:84 (Austria: Oberösterreich: city of Linz area); Sörensen, Mauss, and Schindler, 1999:503 (Germany: Schleswig-Holstein); Wickl, 1999a:103 (Germany: Bayern: Oberpfalz area); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Blösch, 2000:130 (in Sphecidae Fauna of Germany); Dressler, 2000:30 (Germany: Hessen: Darmstadt area); Jacobs, 2000:6, 17 (Germany: Land Mecklenburg-Vorpommern: vulnerable); Wiśniowski, 2000:161 (Poland: Bieszczady Mts., as *pubescens*); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 110 (review of known biology); Ohl et al., 2001:137 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien, last collected circa 1880); Kazenas, 2002a:38 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:152 (Poland: Kampinos National Park near Warszawa); Shlyakhtenok and Skibinska, 2002:32 (Belarus: no specific locality); von der Dunk and Amos, 2002:158 (Germany: Bayern: Schwaig near Nürnberg); Whiteley, 2002:54 (occurrence in Clipstone Railway Cutting, Nottinghamshire, Great Britain, confirmed); Ziska, 2002:7 (Germany: Berlin-Köpenick: Krumme Lake); Drewes, 2003:133 (France: Savoie, Germany: Bayern); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:63 (in catalog of wasps and bees of Bayern, Germany); Tischendorf and Treiber, 2003:120, 124 (Germany: Hessen: 15 km SW Frankfurt am Main: nesting under high power lines); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: endangered); Archer, 2004:47 (Great Britain: Worcestershire: Devils Spittleful Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (in checklist of Sphecidae of Nordrhein-Westfalen State of Germany); Field and Brace, 2004:651 (female stops provisioning if the nest is contaminated with maggots of *Metopia*); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Wiśniowski, 2004:39 and 58 (in checklist of Polish Sphecidae); Blösch, 2005:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolò, 2005:68 (in Sphecidae Fauna of Italy); Shoreenko, 2005a:163 (Ukraine: Crimea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Blösch, 2006:63 (specimens spend nights attached to plant stems or leave blades with their mandibles); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Jacobs,

- 2007:46, 47 (in key to Sphecidae of Germany); Yildirim and Ljubomirov, 2007:116 (first record from Turkey: Erzurum: Arıbahçe, Umudum Yalası, Şenkaya), 121 (diagnostic characters, status of species, geographic distribution); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Ljubomirov and Yildirim, 2008:36 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia). – **As *Sphex pubescens***: Valkeila, 1962b:67 (new combination, southwestern Finland).
- Miscus arvensis* Dahlbom, 1843:8, ♂. Holotype: ♂, USA: Pennsylvania: no specific locality (Lund). Synonymized with *Ammophila pubescens* by Menke, 1964b:153. – **As *Sphex arvensis***: Fernald, 1931a:446 (new combination, study of type), 1932:124 (prey carrying), 1934:118 (revision); nec A. Brown, 1934:264 (= *Ammophila azteca*); Brimley, 1938:444 (North Carolina: Mt. Mitchell); Murray, 1938 (redescription); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records); Strickland, 1947:129 (Canada: Alberta); Krombein, 1952b:181 (USA: West Virginia: Lost River State Park), 1954a:6 (West Virginia: Lost River State Park). – **As *Ammophila arvensis***: Lepelletier de Saint Fargeau, 1845:384 (new combination, revision); Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae);
- Ammophila susterai* Šnoflak, 1943a:1, ♀, ♂ (as *šusterai*, incorrect original diacritic mark). Holotype: sex not indicated: Czech Republik: locality not specified (originally J. Šnoflak coll., now PRAHA NATL. MUS.). Synonymized with *Ammophila pubescens* by Balthasar, 1958:339. – Šnoflak in Zavadil and Šnoflak, 1948:100 (in key to Sphecidae of Czechoslovakia); Blüthgen, 1951:234 (diagnostic characters, occurs in many places in Germany); Bat'a, 1952:167 (Czech Republic); Blüthgen, 1954:140 (probably a junior synonym of *Ammophila pubescens*); Bajári, 1957a:13 (in key to Hungarian Sphecidae, not yet found in Hungary).
- Ammophila campestris* var. *alpicola* de Beaumont, 1945:468, ♀, ♂. Holotype: ♂, Switzerland: Sierre (Lausanne). Synonymized with *Ammophila pubescens* by Richards, 1946:235. – **As *Ammophila alpicola***: Kjellander, 1951:48 (new status, widely distributed in Sweden, studied by Adlerz under the name of *Ammophila campestris*); Fahlander, 1954:253 (Sweden: Gästrikland Region); Tjeder, 1954:68 (Sweden: eastern Skåne: Löderup, Målarhusen, Sandhammaren).
- Ammophila adriaansei* Wilcke, 1945:277, ♀, ♂. Syntypes: sex not indicated, Netherlands: no specific locality (Amsterdam Mus., Wageningen Inst., and A. Wilcke coll.). Synonymized with *Ammophila pubescens* by Richards, 1946:235. – Adriaanse, 1947:1 (nesting behavior, comparison with that of *Ammophila campestris*); Wilcke, 1947:118 (in key to Dutch *Ammophila*); Hellén, 1948:13 (taxonomic history); Teschner, 1959:417 (feeding), 418 (male behavior and mating), 426 (nesting sites), 431 (nest structure), 436 (nest closure), 440 (nest number and location), 441 (visiting nest without prey), 446 (prey spectrum), 453 (entering prey into nest); Maréchal and Petit, 1961:82 (taxonomic history, comparison with *Ammophila campestris*, distribution in Belgium).
- As *Ammophila campestris* (corrected to *Ammophila pubescens* by Richards, 1946:...): Shuckard, 1837a:82 (in revision of British Aculeata) and 251 (placement in *Miscus* confirmed); Stephens, 1846:15 (in revision of British insects); F. Smith, 1849b:2550 (preying on caterpillars, nesting in soil); Morice, 1900c:210 (Great Britain: Surrey: Cobham); Barnes, 1902:266 (Great Britain: Berkshire: Wellington College in Crowthorne); E. Saunders, 1903a:16 (Great Britain: Woking); Morley, 1919:209 (Great Britain: Hampshire: New Forest); Hobby, 1931b:108 (prey of spider *Philodromus aureolus* Clerck); Spooner, 1931:14 (Great Britain: Cambridgeshire); Hobby, 1932a:4 (caterpillar prey, a noctuid, parasitized by braconid *Zele chlorophthalma* Nees); Yarrow, 1939:15 (Great Britain: Dorset: Lytchett Minster); Baerends, 1941a:483 and 1941b:68 (nesting habits), corrected to *Ammophila pubescens* by Baerends, 1976:726; Adriaanse, 1943:69 (nest closure); Spooner, 1943:71 (Great Britain: Parley Heath); Adriaanse, 1944:150 (nesting habits, partly *Ammophila campestris*); Baerends and Baerends-van Roon, 1950:53 (egg development, development ecology), corrected to *Ammophila pubescens* by Baerends and Baerends-van Roon, 1976:726; Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster), corrected to *Ammophila pubescens* by Teschner, 1955:56.
- As *Miscus campestris*: Adlerz, 1901:170 (nesting habits), present correction.

158. *pulawskii* Tsuneki

Ammophila pulawskii Tsuneki, 1971k:175, ♀, ♂. Holotype: ♂, Mongolia: Bayanhongor Aymag: Ehingol oasis (TMB). – R. Bohart and Menke, 1976:153 (listed).

159. *punctata* F. Smith

Ammophila punctata F. Smith, 1856:218, ♀. Holotype or syntypes: ♀, northern India: no specific locality, may be Pakistan (BMNH). – Cameron, 1889c:93 (listed); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Paiva, 1907:15 (India: Bhim Tal, Kumaon, Mussoorie; Nepal: Soondrijal, Nagarkote, Chitlong); R. Turner, 1918a:91 (may be a synonym of *sabulosa*; Tibet: Gyantse); S. Gupta, 1995:85 (India: Uttar Pradesh); V. Gupta, 1960:25 (India: Himalaya); R. Bohart and Menke, 1976:153 (listed); Jha and Farooqi, 1994:8 (description and illustration of male genitalia); S. Gupta, 1997: 101 (India: Uttar Pradesh: Nanda Devi Biosphere Reserve), 2004:25 (India: Uttaranchal: Uttarkashi District).

160. *puncticeps* (Arnold)

Sphex puncticeps Arnold, 1920:52, ♀, ♂. Syntypes: Zimbabwe: Salisbury, now Harare, and Shiloh; South Africa: Shiluvane and Algoa Bay (SAM). – Arnold, 1928b:277 (revision), 1930:17 (in checklist of Afrotropical Sphecidae); Marshall, 1997:3 (reference to original description). – **As *Ammophila puncticeps***: Arnold, 1951:141 (new combination, Mali: Tillembeya); Leclercq, 1955h:78 (bibliographic references), 1955i:406 (Rwanda), 1961b:55 (Zaire), 1962a:394 (Tanzania: Kilimanjaro; Kenya: Molo); de Beaumont, 1967b:504 (South Africa); R. Bohart and Menke, 1976:153 (listed); S. Gess, 1996:276, 301 (floral records).

161. *punti* Guichard

As *Ammophila beninensis*: Guichard, 1980:224 (Oman), corrected to *Ammophila punti* by Guichard, 1988a:129.
Ammophila punti Guichard, 1988a:129, ♀, ♂. Holotype: ♀, Saudi Arabia: Fayfa 60 km N Gizan (BMNH). – Gadallah and Assery, 2004a:224 (in catalog of Sphecidae of Saudi Arabia).

162. *regina* Menke

Ammophila regina Menke, 1964a:25, ♀, ♂. Holotype: ♂, USA: California: Tuolumne County: Strawberry (UCD). – R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

163. *roborovskyi* Kohl

Ammophila roborovskyi Kohl, 1906b:368, ♀ (as *Roborovskyi*, incorrect original capitalization). Syntypes: Mongolia: Sa-Chou oasis, river Dau-khe (=Tau-ho) south of Sa-Chou, and eastern Iran: no specific locality (NHMW). – Gussakovskij, 1933b:274 (Iran); Tsuneki, 1971k:175 (Mongolia); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (type material in NHMW).

164. *rubigenen* Li and C. Yang

Ammophila rubigenen Li and C. Yang, 1990:260, ♀, ♂. Holotype: ♀, China: Nei Mongol: Jumgar Banner, Ih Ju League: Mt. Shenshan (Beijing Agricultural University).

165. *rubiginosa* Lepeletier

Ammophila rubiginosa Lepeletier de Saint Fargeau, 1845:372, ♀ (authorship attributed to Klug). Holotype or syntypes: ♀, South Africa: Cape of Good Hope (TORINO). – F. Smith, 1856:212 (in catalog of Hymenoptera in British Museum); A. Costa, 1864b:111 (specimen from Senegal in Museo Zoologico di Napoli); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); nec Friederichs, 1918:43 and von Schulthess in Friederichs, 1918a:48 (= *Ammophila beniniensis imerinae*); R. Bohart and Menke, 1976:153 (listed); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).

166. *rubripes* Spinola

Ammophila rubripes Spinola, 1839:465, ♀. Lectotype: ♀, Egypt: no specific locality (TORINO), designated by de Beaumont, 1952e:45. – F. Smith, 1856:211 (in catalog of Hymenoptera in British Museum); Walker, 1871:17 (Sinai Peninsula: Wadi Gennah; Africa: Red Sea coast: Massowah); Magretti, 1883:249 (Sudan); Ed. André, 1886:76 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Magretti, 1899:601 (Somalia: Brava); Kohl, 1906b:374 (original description copied); Magretti, 1906:20 (Eritrea); Innes Bey, 1912:110 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected at Wadi Genneh); Guiglia, 1950:246 (Ethiopia: Gamo Gofa: Asile, Gondaraba at 4°58'N 36°49'E, Murle Omo); de Beaumont and Bytinski-Salz, 1955:39 (Israel); Leclercq, 1955h:77 (bibliographic references, locality records mainly from Zaire), 1962a:394 (Tanzania: Longido, diagnostic characters); Diniz, 1964c:110 (Angola: Lunda: Alto Cuílo, Andrada, Dundo, Luaco, Macondo, Muita-Luembe, Posto de Cacolo at Rio Cavuemba); R. Bohart and Menke, 1976:153 (listed); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Guichard, 1980:224 (Oman); Roche, 1981:2 (in checklist of Sphecidae of United Arab Emirates); Guichard, 1988a:128 (Arabian Peninsula); Al-Houty, 1989:158 (Kuwait: Abdelli, Sulabiya); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Gadallah and Assery, 2004a:217 (in key to Sphecidae of Jeddah Region, Saudi Arabia), 224 (in catalog of Sphecidae of Saudi Arabia: Hadasham 120 km E Jeddah).

Ammophila propinqua Taschenberg, 1869:433, ♂. Holotype or syntypes: ♂, Sudan: Khartum (HALLE). Synonymized with *Ammophila rubripes* by Guiglia, 1948a:32, synonymy confirmed by de Beaumont, 1952e:45. – Ed. André, 1886:74 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Medina, 1894a:259 (Spain: Carmona and Pozuelo de Altrava, records questionable for geographic reasons); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Kohl, 1906b:363 (in revision of Palearctic *Ammophilini*); Morice, 1911:74 (Algeria: Biskra); von Schulthess, 1926b:209 (Morocco, Tunisia); Roth, 1928:207 (in revision of North African *Ammophilini*); Guiglia, 1932d:468 (Libya: Gialo); Nadig, 1933:101 (Morocco: Agadir, Marrakech); Guiglia, 1934b:293 (Libya: bibliography and summary of locality records); Giordani Soika, 1939c:105 (Eritrea: Keren); Guiglia, 1939d:72 (Ethiopia: Sidamo: Neghelli, now Negele), 1943c:76 (Ethiopia: Gamo Gofa: Sagan – Omo region); Giner Mari, 1945b:362 (Western Sahara: Um at Sfaia), 1945e:219 (Western Sahara); Alfieri, 1946:138 (in revision of Egyptian *Ammophila*); Giner Mari, 1947:19 (Western Sahara); de Beaumont, 1950f:396 (Algeria), 1951e:266 (Morocco; taxonomic problems); Berland, 1952b:276 (boundary of Ivory Coast, Guinea, and Liberia: Mt. Nimba); Ceballos, 1956:360 (in catalog of Hymenoptera of Spain); de Beaumont, 1956a:180 (Chad: Tibesti), 1965b:772 (Chad: Ennedi). – **As *Sphex propinqua***: Arnold, 1928b:277 (new combination, original description translated into English), 1930:17 (in checklist of Afrotropical Sphecidae); Scott *in* Arnold, 1933a:370 (described from Ethiopia).

Ammophila syriaca Mocsáry, 1883:30, ♀ (as *Syriaca*, incorrect original capitalization). Holotype: ♀, Syria: no specific locality (TMB). Synonymized with ... – Ed. André, 1886:75 (in revision of Sphecidae of Europe and Algeria), 1888:3* (bibliographic references); Dalla Torre, 1897:410 (in catalog of world Hymenoptera).

167. *ruficollis* F. Morawitz

Ammophila ruficollis F. Morawitz, 1890:586, ♀. Holotype: Turkmenistan: Tedjen (ZIL). – Dalla Torre, 1897:407 (in catalog of world Hymenoptera); Kohl, 1906b:374 (original description copied); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia).

168. *ruficosta* Spinola

Ammophila ruficosta Spinola, 1851a:394, ♀. Holotype or syntypes: ♀, Chile: central provinces: no specific locality (TORINO). – F. Smith, 1856:220 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:153 (listed); Casolari and Casolari Moreno, 1980:100

(specimens in M. Spinola collection); Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Menke, 2004:771 (redescription, Argentina, Bolivia).

169. *rufipes* Guérin-Méneville

Ammophilus rufipes Guérin-Méneville, 1831:pl. 9, fig. 1, ♀. Holotype: ♀, Peru: Lima (MSNG). – **As *Ammophila rufipes***: Guérin-Méneville, 1838:262 (new combination, description); Spinola, 1851a:393 (in revision of Chilean Hymenoptera); F. Smith, 1856:220 (in catalog of Hymenoptera in British Museum); Reed, 1894:622 (Chile, revision); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); Brèthes, 1918a:124 (Peru: Lima); Janvier, 1928:173 (nesting habits); Guiglia, 1948b:179 (type in Genova Mus.); R. Bohart and Menke, 1976:153 (listed); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Menke, 2004:769 (redescription). – **As *Sphex rufipes***: Zapata, 1974:37 (new combination, Chile: Lampa near Santiago).

Ammophila rufipes Guérin Méneville, 1838:262. Objectif synonym of *Ammophila rufipes* Guérin Méneville, 1831.

Ammophila variolosa Giner Mari, 1944:351, ♀, ♂. Lectotype: ♂, Peru: Lima (Mus. Barcelona), designated by Menke, 1964b:151. Synonymized with *Ammophila rufipes* by Menke, 1964b:151 (tentatively) and 2004:769 (definitely). – Amarante, 2005a:14 (correction to his 2002 catalog).

170. *rugicollis* Gussakovskij (preoccupied)

Ammophila rugicollis Gussakovskij, 1930c:203, ♀, ♂, junior primary homonym of *Ammophila rugicollis* Lepeletier, 1845. Syntypes: Azerbaijan: village Karadonly in Arax valley (ZIL). – de Beaumont, 1970c:3 (Iran: Baluchistan); R. Bohart and Menke, 1976:153 (listed); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia).

171. *sabulosa* (Linnaeus)

Sphex sabulosus Linnaeus, 1758:569, sex not indicated (as *sabulosa*, incorrect original termination). Lectotype: ♂, Europe: no specific locality (Zool. Society London), designated by Day, 1979:72. – Forster, 1770:14 (in catalog of British insects); Linnaeus, 1771:12 (Sweden: Södermanland: Ryby at 59°28'N 15°46'E); Fabricius, 1775:346 (redescription); Fueßlin, 1775:50 (Switzerland); Fabricius, 1781:442 (redescription), 1787:273 (redescription); de Villers, 1789:219 (redescription); Gmelin, 1790:2723 (redescription); Rossi, 1790:60 (in revision of insects of Etruria, now Toscana, Italy); Christ, 1791:311 (redescription); Fabricius, 1793:198 (redescription), 1796:156 (in Index to his Entomologia Systematica, 1793); Roth von Schreckenstein, 1802:30 (Germany: Baden-Württemberg); Latreille, [1805]:292 (redescription); Spinola, 1806:71 (Italy: Liguria); Illiger, 1807b:90 (synonymy, redescription); Jurine, 1807:128 (listed); Billberg, 1820:105 (specimens in Museum Billberg); Dahlbom, 1831:41 (redescription); Zetterstedt, 1838:435 (in revision of insects of Lapland); Dahlbom, 1845:XX (specimens in collection Fabricius are *Ammophila sabulosa*); Gistel, 1848:142 (Germany, description); Belke, 1866:512 (Ukraine: Kamieniec Podolski); Okamoto, 1924:203 (Korea: Quelpart Island, now Cheju Island); R. Perkins, 1924a:221 (Great Britain: Devon); Stelfox, 1927:289 (records from Ireland are erroneous); Spooner, 1933:203 (Great Britain: Bedfordshire: Sandy), 1934b:278 (Great Britain: Devon: Branton Burrows); Stelfox, 1936b:203 (Ireland: West Mayo); Stiles, 1936:215 (proposed selection as type species of *Ammophila*); Hallett, 1937:71 (Great Britain: Herefordshire: Mathon); Stelfox, 1939b:203 (prey, *Nyssia zonaria*, confirmed); Valkeila, 1962b:67 (southwestern Finland); Day and Fitton, 1978:193 (recuration of Linnean type material). – **As *Podalonia sabulosa***: Bischoff, 1931:8 (new combination, Spain). – **As *Psammophila sabulosa***: Zimmermann, 1935:282 (new combination, Germany: Island of Sylt: Kampen). – **As *Ammophila sabulosa***: Vander Linden, 1827:355 (new combination, synonymy, distribution); Lepeletier de Saint Fargeau and Audinet-Serville, 1828:452 (redescription); Brullé, 1933:92 (Canary Islands); Shuckard, 1837a: 75 (in revision of British Aculeata); von Siebold, 1839:47 (Germany: Danzig, now Poland: Gdańsk); Herrich-Schaeffer, 1840:297 (Germany: Bayern: Regensburg area); Dufour, 1841a:513 and 1841b:245 (digestive tract), 1841a:515 and 1841b:251 (male reproductive system), 1841a:517 and 1841b:253 (female reproductive sys-

tem); Dahlbom, 1942a:8 (in review of Scandinavian aculeates), Dahlbom, 1843:9 (in revision of Sphecidae and Pompilidae), 1845:430 (in key); Lepeletier de Saint Fargeau, 1845:376 (revision); Eversmann, 1849:364 (Russia: common everywhere); Kiesenwetter, 1849:87 (Germany: Kingdom of Saxony); F. Smith, 1849b:2550 (preying on caterpillars, not spiders); Wissmann, 1849:10 (Germany: Kingdom of Hannover: common); Tischbein, 1850:7 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Wesmael, 1852:82 (Belgium); Kirchner, 1854:310 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); F. Smith, 1856:207 (in catalog of Hymenoptera in British Museum); Kawall, 1857:23 (Kurland, now Latvia); Ruthe and Stein, 1857:312 (Germany: Berlin area); Schenck, 1857:202 (in revision of fossorial wasps of Nassau Region, Germany); A. Costa, 1858a:19 (Italy: Campania: Monti Partenii in Benevento Region), 1858b:18 (in revision of Sphecidae of Kingdom of Naples); Taschenberg, 1858:61 (in key to Sphecidae of Germany); Assmus, 1859:606 (Russia: Moscow Oblast'); Belke, 1859:71 (Ukraine: Kamieniec Podolski); Funk, 1859:59 (Germany: Bayern: Bamberg); Schenck, 1860:149 (Germany: Nassau Region); A. Costa, 1861:35 (variation in shape of third submarginal cell); Sichel, 1861:751 (Italy: Sicilia); Brischke, 1862:98 (Germany: Preussen Province, now Poland: Pomorze Region); Belke, 1866:512 (Ukraine: Kamieniec Podolski); A. Costa, 1866:24 (specimen from France in Museo Zoologico di Napoli); Taschenberg, 1866:208 (in revision of Hymenoptera of Germany); A. Costa, 1867b:77 and 1867c:21 (in revision of Italian Sphecidae); Jaennicke, 1867:147 (Germany: Hessen: Frankfurt area); Kawall, 1867:121 (prey, ants attacking a nesting female); Kirchner, 1867:217 (in catalog of European Hymenoptera); Palma, 1867:37 (Italy: Sicilia settentrionale); Schenck, 1867a:356 (Germany: Nassau Region); Dietrich, 1868:364 (Switzerland: Zurich Canton); Jaennicke, 1868:9 (Germany: Hessen: Frankfurt and Offenbach area); Wierzejski, 1868:117 (common everywhere); Taschenberg, 1869:433 (Germany); Aichinger, 1870:321 (Austria: Tirol); Thomson, 1870:230 (in revision of Swedish wasps); Radoszkowski, 1871:195 (Himalayas: no specific locality); Ivanov, 1872:152 (Ukraine: Kharkov area); Schlechtendal, 1872:37 (Germany: Sachsen: Zwickau); Beletskiy, 1873:81 (Ukraine: vicinity of Khar'kov); Dours, 1874:141 (in catalog of Hymenoptera of France); Mocsáry, 1874:120 (Siebenbürgen, now Romania: Transylvania: no specific locality); Thomson, 1874:175 (in revision of Hymenoptera of Scandinavia); Wierzejski, 1874:258 (Poland: Kraków; Ukraine: Lvov); Marquet, 1875:208 (France: Languedoc); Beuthin, 1876:231 (Germany: Hamburg area); Schmiedeknecht, 1876:186 (Germany: Thüringen: Rothensteiner Felsen); Girard, 1878:242 (France: Calvados: Lion-sur-Mer, coastal sand dunes); Fabre, 1879:207 (nesting habits); Girard, 1879:968, 969 (morphology and habits); Kohl, 1880:183 (Austria: Tirol, and Italy: Trentino-Alto Adige), 236 (variation in wing venation); Siebke, 1880:60 (Norway); Magretti, 1881:112 (Italy: Lombardia), 270 (listed); Marquet, 1881:177 (southern France); A. Costa, 1883a:57 (Italy: Sardegna); Friese, 1883:203 (Germany: Sachsen-Anhalt: Kösen, Weissenfels); Kohl, 1883e:675 (Switzerland); Sickmann, 1883:86 (Germany: Niedersachsen: Wellingholthausen, prey: *Noctua chrysitis*, *Anarta myrtilli*); Harwood, 1884:211 (England: Essex: Colchester area); Kohl, 1884a:381 (comparison with *Ammophila fallax*); von Heyden, 1884:116 (Germany: Frankfurt am Main); Ed. André, 1886:59 (in revision of Sphecidae of Europe and Algeria); Wüstnei, 1886:43 (Germany: Schleswig-Holstein); Gasperini, 1887:18 (Dalmatia: Lissa and Brusije, now Croatia: Vis Island and Brusje on Hvar Island); Radoszkowski, 1887b:91 (in list of Transcaspian Hymenoptera); Ed. André, 1888:1* (bibliographic references); Brischke, 1888a:54 (Germany: Hela Peninsula, now Poland: Hel Peninsula); Brischke, 1888b:94 (Germany: Preussen Province, now Poland: Pomorze Region); Kohl, 1888b:729 (Austria: Tirol, now Italy: Alto Adige); Brischke, 1889:204 (Germany: Steegen E Danzig, now Poland: Stegna E Gdańsk); Radoszkowski, 1892:579 (male genitalia); de Saussure, 1892:436 (Réunion Island, record improbable for geographic reasons); Alfken, 1893:121 (Germany: Frisian Islands: Juist Island); Kohl, 1893a:35 (Austria: Niederösterreich); F. Morawitz, 1893a:108 (Russia: Karelian Isthmus), 1893b:408 (Tajikistan); Sickmann, 1893:95 (Germany: Niedersachsen: Iburg); Westerlund, 1893:23 (Russia: Karelian Republic: northern shore of Lake Ladoga); Baldini, 1894:47 (Italy: Modena area); Krieger, 1894:13 (Germany: Kingdom of Saxony); Sickmann, 1894:216 (China: Hopei Province: Tientsin); De Stefani Perez, 1895:226 (in catalog of Sicilian Hymenoptera); Laboulbène, 1895:180 (preying on spiders according to Shuckard); nec Sickmann, 1895:216 (= *Ammophila sabulosa nipponica*); Chrétien, 1896:411 (preying on caterpil-

lars of *Mamestra brassicae* L. and *Plusia gamma* L.); Meunier, 1896:273 (Belgium: Bruxelles area); Acloque, 1897:96 (in Sphecid Fauna of France and Algeria); Borries, 1897:98 (nesting habits); Dalla Torre, 1897:409 (in catalog of world Hymenoptera); Lüderwaldt, 1897b:30 (Germany: Gollnow, now Poland: Pomorze Region: Goleniów); Martineau, 1897b:275 (Great Britain: Wyre Forest); Meunier, 1897a:350 (Bulgaria: Sofia area); Mocsáry, 1897:79 (Kingdom of Hungary: common everywhere); Flamary, 1898:38 (France: Saône-et-Loire: Mâcon area); Lange, 1898:70 (Germany: Sachsen: Annaberg-Buchholz); Medina, 1898:153 (Portugal: Mamede); O. Schneider, 1898:103 (Germany: Borkum Island); Sorhagen, 1898:346 (nesting behavior); Strand, 1898b:92 (Norway: Lærdal); Adlerz, 1901:163 (nesting habits); Hocking, 1901:68 (Great Britain: Surrey county); N. Arnold, 1902:90 (Russia: Mohilev Province, now Belarus'); Barnes, 1902:266 (Great Britain: Berkshire: Wellington College in Crowthorne); Chyzer, 1902:33 (Hungary); Friese, 1902:477 (occurring in Lapland according to Zetterstedt, 1838); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); E. Saunders, 1902b:143 (Great Britain: Jersey, Guernsey, and Alderney Island; France: Bretagne: St. Briac); de Cobelli, 1903:103 (Italy: Province of Trentino); Gadeau de Kerville, 1903:306 (France: Eure and Manche Departments); Höppner, 1903:37 (prey and nesting behavior); E. Saunders, 1903a:16 (Great Britain: Woking); Strand, 1903:7 (Norway); Adlerz, 1904:99 (nesting habits); Antiga and Boffill, 1904:4 (Spain: Cataluña Province); Aurivillius, 1904:254 (in revision of Swedish Sphecidae); E. Saunders, 1904c:635 (Spain); W. Schulz, 1904b:93 (miscellaneous faunal records); Zilahi Kiss, 1904:77 (Hungary: Hadad, Nagyfalu); Ferton, 1905:97 (homing); Kubes, 1905:83 (Czech Republic: Kolín, Obora, Sušice); Mosolov, 1905:19 (Russia: Moscow Government: Mikhailovskoye); W. Schulz, 1905b:33 (Algeria); von Heyden, 1905:81 (Germany: Hessen: Frankfurt); Vängel, 1905:167 (Hungary); Kohl, 1906b:335 (in revision of Palearctic Ammophilini); Scholz, 1906:202 (fighting between males); W. Schulz, 1906:43 (Greece: Crete); Strand, 1906:101 (Norway: Aal); Móczár and Henter, 1907:205 (Hungary: Hatvan, Visegrád; Romania: Caraș-Severin: Mehadia); Schmiedeknecht, 1907:246 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Maigre, 1909:1 (nesting behavior, role of stinging); Scholz, 1909a:23 (habitat and nesting behavior), 182 (nest parasites, use of head in nest closure); Cavro, 1910:685 (France: Département du Nord: mont Cassel); Dittrich, 1911b:25 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:48 (Italy: Trieste area); Zavattari, 1911:3 (Italy: Piemonte: Valle del Maira); Birula, 1912:532 (citation of Belke, 1866), 545 (Ukraine: Zhytomyr Oblast': Radomyshl'); Schirmer, 1912:168 (Germany: Berlin area); Kohl, 1913b:15 (Russia: Voronezh Oblast': Valuyki at 50°14'N 38°08'E); Szilády, 1913:89 (Hungary: eight localities); Torka, 1913:35 (Germany: Provinz Posen, now Poland: Poznań Region); Alfken, 1914:283 (NW Germany); Birula, 1914:388 (Belarus': Ambrosovichi and Luskinopol' near Vitebsk); Hallett, 1914:56 (Great Britain: Cardiff County); Strand, 1918:3 (Germany: Bayern: Kulmbach); Descy, 1919a:86 (experiments with prey removal and substitution), 1919b:123 (nesting habits), 1919c:136 (hunting prey), 1919d:147 (speculations on instinct and intelligence); Dubois, 1919:96 (Belgium: Bruxelles: Uccle); Kerenskiy, 1919:35 (Russia: Penza Government); O. Meyer, 1919:156 (Germany: Posen Province, now Poland: Poznań Region); Strand, 1920:23 (Germany: Berlin-Dahlem); A. Wagner, 1920:35 (Germany: Lower Elbe region); Balles, 1921:136 (nesting habits); Berland, 1921:533 (Greece); Dubois, 1921c:213 (in key to Belgian Sphecidae); Fahringer and Friese, 1921:160 (Turkey: Erzurum: Chanziri in Amanus Mts. = Gavur Dağları); Descy, 1922:95 (only visual clues play role in nest finding, as *salrelosa*); Fahringer, 1922:176 (Turkey); Gennerich, 1922:40 (cleaning apparatus); Hedicke, 1922:272 (Germany: Brandenburg: Gross Machnower Weinberg); Jansson, 1922:23 (Sweden: Öland Island); Maidl, 1922:67 (Albania, Montenegro); Strand, 1922:197 (Germany: Bayern: Kulmbach), 198 (Austria: Niederösterreich: Guntramsdorf); Ferton, 1923:394 (easily finds nest when carrying prey); Alfken, 1924:231 (n. Germany); Lundblad, 1924:21 (Sweden: Lapland: Lycksele); Berland, 1925d:28 (in Sphecid Fauna of France); Bischoff, 1925:301 (Latvia: Borkowitz, Grobin, Wezkukkul; Poland: Białowieża and Grajewo area); Coulon, 1925:115 (France); Grandi, 1925a:90 (Italy: Emilia: Gaggio Montano); Shestakov, 1925:37 (Russia: Yaroslavl' area); K. Strohm, 1925:212 (Germany: Baden-Württemberg: common); Friese, 1926:167 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Grandi, 1926:281 (Italy: Toscana: Monte Stanco); Hémon, 1926:199 (France: Finistère: Fouesnant);

Maneval, 1926:82 (prey carrying); K. Strohm, 1926:74 (reference to Rehmann, 1830, and Leininger, 1922); Bouwman, 1927:112 (in revision of Sphecidae of Netherlands); Kuznetsov-Ugamskij, 1927:249 (Kazakhstan: Kizil valley in w. Tian-Shan on upper Ugam River); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Benoist, 1928:408 (France: Alpes-Maritimes, Basses-Alpes); Grandi, 1928d:263 (wings worn in older specimens); Jones, 1928b:14 (Great Britain: Hampshire: Milford-on-Sea); Roth, 1928:193 (in revision of North African Ammophilini); Crèvecoeur, 1929:366 (evacuation of material during nest excavation); Gaunitz, 1929:199 (Sweden: Lapland); Grandi, 1929:287 (Italy: Toscana: valle della Limentra); Maneval, 1929a:26 (parasite: *Hilarella stictica* Meigen, a tachinid); Micheli, 1929:37 (nesting habits); Roth, 1929:184 (in revision of Spanish Ammophilini); G. Carpenter, 1930b:292 (nest closure); Grandi, 1930:340 (Italy: Toscana: Maremma); Schmiedeknecht, 1930:706 (in keys to Hymenoptera of North and Central Europe); Dusmet y Alonso, 1931:7 (Portugal: Bussaco); Grandi, 1931:56 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Minkiewicz, 1931b:197 (nesting behavior); Spooner, 1931:14 (Great Britain: Cambridgeshire); Thomas, 1931:263 (stinging of prey); Bondroit, 1932:33 (Belgium: Campine); Giordani Soika, 1932a:20 (Italy: Lido di Venezia); Drogoszewski, 1933:118 (Poland: Łowicz, Włocławek); Dulac, 1933b:39 (France: Saône-et-Loire: Montsarin and Saint-Leu near Le Creusot); Merisuo, 1933a:59 (Finland: city of Turku); Minkiewicz, 1933:110 (nesting behavior); E. Nielsen, 1933:307 (summary of nesting habits); Balles, 1934:21 (Germany: Baden-Württemberg: Achern, Mannheim-Rheinau, Oberachern); Bernard, 1934b:249 (prey: a geometrid caterpillar, probably *Crocallis elinguaris*); Grandi, 1934:130 (Italy: Toscana: San Vincenzo, and Trentino-Alto Adige: Vallesinella); Jansson, 1934:290 (Sweden); Minkiewicz, 1934:222 (nesting behavior); Nadig, 1934:33 (France: Corse: Monte d'Oro, Vizzavona); Bernard, 1935:60 (France: Var: Fréjus area); Forsius in Forsius and Hellén, 1935:12 (in checklist of Hymenoptera of Finland); Grandi, 1935a:111 (Italy); Gussakovskij, 1935:414 (Tajikistan: Ravat-Say); Minkiewicz, 1935:194 (Poland: Kazimierz on Wisła, 51°20'N 21°58'E), 211, 213 (Poland: Piaski-Gardzienice, 51°05'N 22°50'E), 216 (Poland: Lake Garbaś 20 km W Suwałki); Vergne, 1935:117 (France: Auvergne: common everywhere); Zimmermann, 1935:282 (Germany: Island of Sylt: Rantum); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera); Minkiewicz, 1936:11 (male of inspecteur à la ronde type); Roller, 1936:315 (Austria: loess cliffs at Bisamberg near Vienna); Dulac, 1937:7 (France: Saône-et-Loire: Le Creusot, Saint-Laurent d'Andenay); Goebel, 1937:47 (Poland: Poznań District: ten localities); Molitor, 1937:35 (records of Minkiewicz observations of nest closure and list of prey); Zavadil, Šusterka, and Bat'a, 1937:213 (in catalog of Sphecidae of Czechoslovakia); Guichard, 1938:72 (Great Britain: Norfolk coast); Guiglia, 1938b:9 (Italy: Sardegna); A. Wagner, 1938a:123 (northwestern Germany); Guichard, 1939a:42 (Great Britain: southern Cornwall: Polperro), 1939b:77 (Great Britain: Surrey: Limpsfield Common); Yarrow, 1939:15 (Great Britain: Dorset: Lytchett Minster); Dovnar-Zapolskiy, 1940:304 (Russia: Kursk Oblast'); Priemel, 1940:528 (nesting habits); Balthasar, 1941b:112 (Czech Republic: eastern Morava); de Graham, 1941:99 (Great Britain: Lincolnshire); Guiglia, 1941c:165 (Italy: Calabria: Grande Sila); Leclercq, 1941b:7 (Belgium: Liège area); Schneid, 1941:1050 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); Audcent, 1942:25 (parasite: *Metopia leucocephala* Rossi); J. Perkins, 1942:197 (Sweden: Skåne: Löderup); Boyd, 1943:163 (Great Britain: eastern Dorset); Giner Marí, 1943a:71 (in Sphecid Fauna of Spain); Guiglia, 1943a:46 (corrections to a book by G. Malagóla on apiculture); Spooner, 1943:71 (Great Britain); Guiglia, 1944b:4 (Italy); T. 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(France: Ardèche River basin); Głowacki, 1953:521 (Poland: Podkowa Leśna, Brwinów, Ożarów, Konstancin, Warszawa); Móczár, 1953:309 (Hungary); Nouvel and Ribaut, 1953:176 (France: Haute-Garonne: Saint-Béat, Luchon, Hautes-Pyrénées: Cauterets, Orédon); Bischoff and Stadler, 1954:126 (Germany: Bayern: Romberg); de Beaumont, 1954e:86 (Italy); Fahlander, 1954:253 (Sweden: Gästrikland Region); Grandi, 1954:156 (nesting habits), 235 (Italy); Hertzog, 1954:99 (France: Bouches-du-Rhône: Camargue); Macko and Noskiewicz, 1954:180 (Poland: Dolny Śląsk: Stolec at 50°35'N 16°53'E); Tjeder, 1954:68 (Sweden: eastern Skåne: Klammersbäck, Löderup, Vitemölla); Aerts, 1955:64 (Germany: Rheinland; nesting habits); de Beaumont, 1955c:55 (effects of stylopization); Harant and Leclercq, 1955:251 (France: Hérault: Avèze, Celleneuve); Leclercq, 1955h:75 (bibliographic references, locality records from Africa); Steiner, 1955:132 (France: Dordogne); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vogrin, 1955:31 (Yugoslavia); Ceballos, 1956:360 (in catalog of Hymenoptera of Spain); Morel, Nouvel, and Ribaut, 1956:336 (France: Département des Pyrénées-Orientales); Bytinski-Salz, 1956:224 (Turkey: Altıkütahya, Uludagh); F. Schremmer, 1956:79 (photograph of sleeping individual); Bajári, 1957a:14 (in key to Hungarian Sphecidae); de Beaumont, 1957b:129 (n. Iran); Fahlander, 1957:63 (Sweden); Grandi, 1957:341 (prey: *Notodonta* sp.), 386 (Italy); Yeo, 1957:19 (England: Middlesex, now in London); Zirngiebl, 1957:185 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:10 (in review of Dutch Sphecidae); de Beaumont, 1958a:290 (illustration of genitalia), 1958c:201 (Swiss National Park); Lundblad, 1958:48 (Sweden: Gotland); Nouvel and Ribaut, 1958:8 (France: Pyrénées-Orientales: Banyuls-sur-Mer area); Pulawski, 1958a:163 (Bulgaria: Vitosha Mtn. near Sofia); van der Zanden, 1958b:90 (France: Andorra); de Beaumont, 1959a:6 (Italy); Diniz, 1959:27 (Portugal: 14 localities); Grandi, 1959b:287 (Italy: Trento: Brusasgo); Suárez, 1959:52 (Spain: Almería Province); Teschner, 1959:417 (feeding), 418 (male behavior and mating), 420 (nesting sites), 427 (nest structure), 432 (nest closure), 440 (nest number and location), 443 (visiting nest without prey), 445 (prey spectrum), 447 (prey paralyzing), 454 (entering prey into nest), 459 (number of prey per nest); Wolf, 1959b:28 (Germany: Nassau); Čingovski, 1960:5 (Macedonia: several localities); Noskiewicz and Pulawski, 1960:38 (in key to Polish Sphecidae); Scobiola, 1960b:235 (Romania: Craiova Region: Braniște, Roman Region: Stanița; male genitalia illustrated); Grandi, 1961:104 (structure of gastral segment I, illustration), 139 (nesting habits); Hoop, 1961:66 (Germany: Schleswig-Holstein); Atanassov, 1962:126 (Bulgaria: Petrich area); de Beaumont, 1962b:18 (Spain); Grandi, 1962:97 (Italy); Felton, 1963:177 (Great Britain: Kent County); Hoop, 1963a:73 (Germany: Schleswig-Holstein: Reher Kratt); Myartseva, 1963b:59 (Turkmenistan: lower Murgab River); Babi, 1964:116 (Austria: Land Salzburg); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1964c:25 (in Sphecidae Fauna of Switzerland); de Schädlich, 1964:257 (nesting habits); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle); Richards, 1964:25 (heath-lands in southern England); de Beaumont, 1965a:11 (Greece); Diniz, 1965:2 (Portugal: thirteen localities); Myartseva, 1965:86 (Turkmenistan: Akibay, Krasnovodsk); B. Klug, 1965:136 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Pulawski, 1965b:260 (structure of gastral segment I); Roberti, Frilli, and Pizzaghi, 1965:109 (Italy: Emilia-Romagna: Bobbio in Piacenza Province); Scobiola-Palade, 1965:112 (Romania); Bonelli, 1966a:15 (nesting habits), 1966c:217 (Italy: Trentino-Alto Adige: six localities); Scobiola-Palade, 1966b:391 (Romania: Tulcea District: Periprava); Benno, 1967:33 (in checklist of Sphecidae of Netherlands); Balthasar, Hrubant, and Hrubant, 1967:175 (Bulgaria: Slanchev Bryag near Nessebar); Bonelli, 1967:291 (nesting habits, cocoon construction); de Beaumont, 1967a:268 (Turkey); Gauss, 1967:550 (Germany: Baden-Württemberg); J. Heinrich, 1967:69 (Germany: Bayern: Unterfranken District); Leclercq, Simon, and Verstraeten, 1967:261 (France: Landes: Seignosse, collected in resin pot); Maidhof and Maschwitz, 1967:86 (Italy: Foreste Demaniali Casentinensi); Niedl and Deneš, 1967:86 (Czech Republic: Třeboň area); H. Schulz, 1967:59 (Germany: Brandenburg: Ruhlsdorf near Potsdam); Scobiola-Palade, 1967a:160 (Romania: Constanța District: Băneasa, Dumbrăveni, Hagieni), 1967b:36 (Romania); Tsuneki, 1967j:10, 12 (in key; as *sabulosa sabulosa*); de Beaumont, 1968a:254 (previous records from Canary Islands, actual presence doubtful); Benedek, 1968:70 (Hungary, floral records); Leclercq, 1968b:39 (Great Britain: Kent), 1968d:109 (Belgium: city of Liège); Parré, 1968:122 (Germany: Sachsen-Anhalt: Staßfurt); Scobiola-Palade,

1968b:141 (Romania: Island of Letea in delta of Danube), 1968c:382 (Romania: Andronache, Băneasa, Budești, București, Cernica, Comana, Herăstrău, Păsarea); Wolf, 1968:11 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:83 (Hungary: marshy meadow); Bonelli, 1969b:165 (nesting habits); Dathe, 1969:440 (Germany: Berlin Zoological Garden); Lefeber, 1969c:232 (Netherlands: St. Pietersberg = Montagne Saint Pierre); Retzlaff and Woydak, 1969:3 (Germany: Nordrhein-Westfalen); Romanova, 1969:133 (Russia: North Caucasus); Zangheri, 1969:1699 (Italy: in catalog of flora and fauna of Romagna Region); Oehlke, 1970:674 (Democratic Germany); Benedek, 1970:96 (Hungary: Tapolca); Hoop, 1970:61 (Germany: Schleswig-Holstein: Hochwacht, Wendtorfer sluice); Lefeber and Petit, 1970:130 (Belgium: Plombières); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Oeser, 1971:33 (structure of gastropropodeal articulation and of gastral segment I); Petit, 1971:21 (Luxemburg: Bourscheid, Echternach, Helmsange, Lellingen); Schmidt, 1971b:21 (Germany: Mainz area); Tsuneki, 1971k:173 (Mongolia); Atanassov, 1972a:192 (Bulgaria: Stara Planina Mountains), 1972b:32, 48, 51 (Bulgaria: Stara Planina Mountains); Balthasar, 1972:427 (in Sphecidae Fauna of Czechoslovakia); Guichard, 1972:245 (not found in England: London: Bushey Park); Haeseler, 1972:154, 170, 175, 200 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:99 (Kazakhstan); Kofler, 1972:105 (Austria: eastern Tirol); Lomholdt, 1972:122 (Denmark: Læsø Island); Oehlke, 1972:135 (Germany: Hiddensee Island); Scobiola-Palade, 1972a:148 (Romania: delta of Danube: Caraorman), 1972b:251 (Romania); Simon Thomas, 1972:174 (France: Gironde, Landes, Lot-et-Garonne); Gericke, 1973:19 (nesting habits); Wolf, 1973:41 (Germany: Siegerländer Hüttensand); Erlandsson, 1974:56 (France, Greece, Italy, Spain, Yugoslavia); Käpylä, 1974:64 (diurnal activity); Simon Thomas, 1974:56 (Netherlands: Limburg); Lomholdt, 1975b:31 (Denmark: Anholt Island), 1975c:76 (in Sphecidae Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:153 (listed); Cretin and Robert, 1976:45 (France: Doubs: Chassagne-Saint Denis); Haeseler, 1976b:72 (Germany: Frisian Islands: Amrum Island); Leclercq, Gaspar, Lajoinie, and Thirion, 1976:178 (Belgium); Simon Thomas, 1976:3 (France: Lot-et-Garonne); Simon Thomas and Wiering, 1976:109 (Netherlands); Wolf, 1976:30 (Germany: Nordrhein-Westfalen: Victoria Mine near Littfeld); Guichard, 1977:252 (Great Britain: Surrey); Kolesnikov, 1977:317 (Russia: Bryansk Oblast); Báez and Ortega, 1978:191 (Canary Islands); Guichard, 1978:269 (Greece); Haeseler, 1978c:193 (Germany: Frisian Islands: Borkum Island); Haeseler, 1978b:62 (Germany: Niedersachsen: a bog near Oldenburg); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Marion, 1978:85 (France: Nièvre Department); Petit, 1978:85 (Belgium: Kalenberg); Pulawski, 1978:182 (in key to Sphecidae of European part of former USSR); Benedek, 1979:227 (Hungary: Bakony Hills); Lefeber, 1979:11 (in checklist of Sphecidae of Netherlands), 23 (Netherlands: distribution map); Schwammberger, 1978:416 (Germany: Württemberg); Leclercq, Gaspar and Verstraeten, 1979:map 1407 (Belgium); Richards, 1979:400 (British Channel Islands); Schwammberger, 1979:113 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Marchal and Leclercq, 1979:9 (Belgium: Gembloux); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Jacob-Remacle and Leclercq, 1980:194 (Belgium: gardens in Liège); Merisuo and Perrakinen, 1980:43 (stylopized by *Paraxenos sphecidarum* in Sweden: Gotland Island); Pagliano, 1980:111 (Italy: Piemonte); Richards, 1980:76 (in key to Sphecidae of British Isles); Dollfuss and Ressler, 1981:321 (Austria: Niederösterreich: Scheibbs District); Gayubo, 1981a:141 (N Spain: Sierra de Béjar); Haeseler, 1981:50 (Germany: Frisian Island: Amrum Island); Józán, 1981:304 (Hungary: Hortobágy National Park); Skibińska, 1981:357 (Poland: Warszawa-Białoleka); Woydak, 1981:36 (Germany: Westfalen: Hamm); Axelsson, 1982:79 (Sweden); Skibińska, 1982:122 (Poland: Warszawa area); Dollfuss, 1983b:3 (in catalog of Sphecidae of Austria); Gayubo, 1983a:126 (stylopized specimen) Gayubo, 1983c:234 (Spain: Salamanca Province: El Maillo, Orbada); Józán, 1983:98 (Hungary); Kvamme and Axelsson, 1983:58 (Norway); Lefeber, 1983a:84 (Netherlands: Waddendistrict: northern coast sand dunes and West Frisian Islands); Riemann, 1983:81 (Germany: Bremen-Daverden area); Steinmann, 1983:164 (Switzerland: Graubünden Canton, nesting next to wood buildings); Chevin and Silvestre de Sacy, 1984:6 (France: Yvelines Department); Gayubo and Tormos, 1984:12 (Spain: Valencia); Haack, Tscharncke, and Vidal, 1984:124 (Germany: Hamburg area); Janzon and Svensson, 1984:183 (Sweden: Öland Island); Pagliano, 1984:368 (Italy); Schmidt and Westrich, 1984:240

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- mea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Archer, 2006a:21 (Great Britain: Lincolnshire: Rauceby Warren National Park); Blösch, 2006:63 (specimens spend nights attached to plant stems or leave blades with their mandibles); Magdalou, 2006a:6, 9 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane), 2006b:109 (France: Pyrénées-Orientales: Mas Larrieu Nature Reserve near Argelès-sur-Mer); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund), 2006c:308 (Greece: Thessalia: Magnissa Peninsula at 39°N 23°E); Tezcan, Yildirim, Anlaş, and Beyaz, 2006:58 (Turkey: Manisa: Turgutlu: Çıkrıkçı, on flowers of *Coridothymus capitatus*); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge), 2007c:152 (Great Britain: South Devon coast); Dorow, 2007:263 (Germany: Hessen: Schönbuche Forest Reserve); Jacobs, 2007:46, 47 (in key to Sphecidae of Germany); Kazenas, 2007:90 (Kazakhstan: Akkala Oblast': Kurgandzhin Nature Reserve and vicinity); Yildirim and Ljubomirov, 2007:116 (Turkey: Erzurum: Aşkale); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).
- Sphex hortensis* Poda, 1761:... Synonymized with ...
- Ichneumon frischii* Geoffroy in Fourcroy, 1785:415, sex not indicated (as *Frischii*, incorrect original capitalization). Holotype or syntypes: France: Paris (lost). Synonymized with ...
- Sphex dimidiatus* Christ, 1791:... (as *dimidiata*, incorrect original termination, junior primary homonym of *Sphex dimidiatus* De Geer, 1773. Holotype or syntypes: ... Synonymized with *Ammophila sabulosa* by ... – Gimmerthal, 1836:448 (Latvia).
- Ammophila vulgaris* W. Kirby, 1798:202, [♀], not available (published as synonym of *Sphex sabulosa*, Article 11.6). Syntypes: ♀, Great Britain: Suffolk and Norfolk (depository?).
- Ammophila pulvillata* Sowerby, 1805:... Synonymized with *Ammophila sabulosa* by Menke in Bohart and Menke, 1976:153.
- Sphex mucronatus* Jurine, 1807:128 and pl. 8, Fig. 5, ♀ (as *mucronata*, incorrect original termination). Holotype or syntypes: ♀, Europe, probably Switzerland (MHNG). Synonymized with *Ammophila sabulosa* by Frei-Gessner, Kohl, and Kriechbauer, 1882:393. – Vander Linden, 1827:356 (bibliographic references). – **As *Ammophila mucronata***: Lepeletier de Saint Fargeau, 1845:384 (new combination, discussion of identity).
- Ammophila cyanescens* Dahlbom, 1845:430, sex not indicated. Holotype: ♂, Germany: Glogau, now Poland: Głogów (Lund). Synonymized with *Ammophila sabulosa* by de Beaumont, 1953h:194. – Kirchner, 1854:310 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice; as *cyanescens* Zeller). – **As *Ammophila sabulosa* var. *cyanescens***: Kiesenwetter, 1849:87 (new status; Germany: Kingdom of Saxony); Beuthin, 1876:231 (Germany: Hamburg area); Chyzer, 1902:33 (Hungary); Schirmer, 1912:168 (Germany: Berlin area).
- ? *Ammophila vischu* Cameron, 1889:98, ♀, ♂. Syntypes: India: Uttar Pradesh: Mussoorie and Pakistan: North-West Province: no specific locality (OXUM). – Cameron, 1889c:94 (listed); Bingham, 1897:233 (as junior synonym of *Ammophila punctata*); Dalla Torre, 1897:411 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:153 (as questionable synonym of *Ammophila sabulosa*).
- Ammophila sabulosa kamtschatica* Gussakovskij, 1932:4, ♀. Syntypes: ♀, Russia: Kamchatka: Elisovo (Stockholm). Synonymized with *Ammophila sabulosa* by Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:388 – R. Bohart and Menke, 1976:153 (listed).

ssp. solowiofkae Matsumura

Ammophila solowiofkae Matsumura, 1911:111, ♀. Syntypes: Russia: Sakhalin: Solovievka and Galkinowraskoye, now Dolinsk (depository?). – R. Bohart and Menke, 1976:153 (listed, possibly senior synonym of *Ammophila sabulosa nipponica*). – **As *sabulosa solowiofkae***: Nemkov, 2005a:141 (new status, Russia: Sakhalin Island), 2006b:166 (Russia: Primorskiy Krai: Kedrovaya Pad' Nature Reserve); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Nemkov, 2007b (Russia: Kuril Islands: Kunashir Island), 2007c:997 (in Appendix to Key to identification of Sphecidae of Far East of Russia).

As *Ammophila sabulosa*: Sickmann, 1895:216 (China: Tientsing), corrected to *Ammophila sabulosa nipponica* by Tsuneki, 1971m:2.

As *Ammophila infesta*: Yasumatsu, 1942:103 (...), corrected to *Ammophila sabulosa nipponica* by Tsuneki, 1971m:2.

Ammophila sabulosa nipponica Tsuneki, 1967j:23, ♀, ♂. Holotype: ♀, Japan: Fukui Prefecture: Ohno (K. Tsuneki coll.). Synonymized with *Ammophila sabulosa solowiofkae* by Nemkov, 2005a:141.– Tsuneki, 1967j:11, 12 (in key); Haneda, 1968a:45 (Japan); Tsuneki, 1968i:3 (nesting habits), 1968j:1 (taxonomy), 1968k:8 (nesting habits), 1968l:50 (s. Korea: Quelpart Island, now Cheju), 1969e:24 (Japan), 1969i:59 (Japan: Fukui Prefecture: Taichōdzi temple); Tano, 1971:82 (Japan: Shikoku: Mt. Tsurugi, as *Ammophila sabulosa japonica*); Tsuneki, 1971m:2 (China: Peking: Tiendang), 1974a:360 (North Korea); Nambu, 1975b:70 (Japan: Saitama Prefecture); Tsuneki, 1976d:288 (China: Manchuria), 1979d:9 (Japan); Kazenas, 1980e:81 (Russia: Far East); Tsuneki, 1982b:2 (Korea; status confirmed), 14 (known from Korea), 1982g:56 (known from the Ryukyu archipelago); Sk. Yamane and Iku-dome, 1990:102 (distribution in Ryukyu Islands, Japan); Tsuneki, 1991:199 (Korea); Nemkov, 1992b:244 (Russia: Far East: Khingan Nature Reserve); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Wu and Zhou, 1996a:54 (in revision in Economic Insect Fauna of China); Okusa and Tajima, 2008:74 (Japan: central Honshu: Aichi Prefecture).

ssp. touareg Ed. André

Ammophila touareg Ed. André, 1886:65, ♀, ♂ (as *Touareg*, incorrect original capitalization). Syntypes: Algeria: Seb-dou in Oran Province (MNHN). – Ed. André, 1888:2* (listed); Kohl, 1889a:20 (as new synonym of *Ammophila sabulosa*). – **As *Ammophila sabulosa* var. *touareg***: Nadig, 1933:100 (new status, Morocco: Ifrane). – **As *Ammophila sabulosa touareg***: Roth, 1928:193 (new status, in revision of North African Ammophilini, new status), 222 (habitat), 2231 (nocturnal resting); Giner Marí, 1945b:359 (e. Morocco: Ain Zorah); de Beaumont, 1950f:396 (Morocco), 1951e:265 (Morocco); Giner Marí, 1959:387 (Morocco); Suárez in Giner Marí, 1959:400 (name correctly used by Giner Marí, 1959:387); R. Bohart and Menke, 1976:153 (listed).

Ammophila oraniensis Roth, 1928:194, ♀. Holotype: ♀, Algeria: Oran (MNHN). Synonymized with ... – Leclercq, 1955h:76 (bibliographic references).

ssp. vagabunda F. Smith

Ammophila vagabunda F. Smith, 1856:218, ♀. Syntypes: China: Tei-tung and Foo-chou-foo; Indonesia: Indonesia: Sumatra: no specific locality; and northern India: no specific locality (BMNH). – Cameron, 1889:94 (listed); Bingham, 1897:231 (redescription); Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Sonan, 1942:132 (in revision of Ammophilini of Taiwan). – **As *Ammophila sabulosa vagabunda***: R. Bohart and Menke, 1976:153 (new status, listed); Zhou and Wu, 1993a:670 (China: Wuling Mountains), 1993b:725 (China: Longqi Mountain Nature Reserve); Li and C. Yang, 1995c:573 (China: Zhejiang Province: Baishanzu Mountain), 1995d:271 (China: Zhejiang Province: Gutianshan); Wu and Zhou, 1996a:54 (in revision in Economic Insect Fauna of China); Porter, Stange, and Wang, 1999:5 (in checklist of Sphecidae of Taiwan); Li and He, 2001:755 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E), 2004:1121 (in hymenopterous fauna of Zhejiang Province, China); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

172. sarekandana Balthasar

Ammophila sarekandana Balthasar, 1957b:192, ♀. Holotype: ♀, Afghanistan: Badakhshan: Sarekanda (originally V. Balthasar coll., now Prague Museum). – R. Bohart and Menke, 1976:153 (listed).

173. sareptana Kohl

Ammophila sareptana Kohl, 1884a:378, ♂. Syntypes: ♂, Russia: Sarepta, now Krasnoarmeysk near Volgograd (NHMW). – Ed. André, 1886:58 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Kohl, 1906b:333 (in revision of Palearctic Ammophilini); Gussakovskij, 1930c:205 (description of ♀, Crimea, Stavropol Kray, Kazakhstan: N Alma Ata); Bytinski-Salz, 1956:223 (Turkey: Kışehir); de Beaumont, 1967a:266 (Turkey); Kazenas, 1972b:100 (Kazakhstan); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:181 (in key to Sphecidae of European part of former USSR); Dollfuss, 1989:7 (type material in NHMW); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:39 (geographic distribution, collecting localities in Kazakhstan); Shkuratov, 2002b:138 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Shorenko, 2005a:163 (Ukraine: Crimea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey).

174. saussurei (du Buysson)

Coloptera saussurei du Buysson, 1897:357, ♀ (as *Saussurei*, incorrect original capitalization. Holotype or syntypes: ♀, South Africa: Cape Province: Hamanskraal (MNHN). – *As Spheg saussurei*: Arnold, 1920:32 (new combination, revision), 1928b:259 (revision), 1930:16 (in checklist of Afrotropical Sphecidae). – *As Ammophila saussurei*: Leclercq, 1955h:93 (new combination, bibliographic references); R. Bohart and Menke, 1976:259 (listed).

175. separanda F. Morawitz

Ammophila separanda F. Morawitz, 1891a:204, ♀, ♂. Syntypes: European Kazakhstan: Ryn-Peski (ZIN). – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Kohl, 1906b:321 (as a variety of *Ammophila campestris*), 375 (original description copied); Kazenas, 1972b:101 (Kazakhstan); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan), 1972a:86 (Turkmenistan); R. Bohart and Menke, 1976:153 (listed, as tentative synonym of *Ammophila campestris*); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:182 (in key to Sphecidae of European part of former USSR); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve).

176. shoshone Menke

Ammophila shoshone Menke, 1967a:5, ♀, ♂. Holotype: ♂, USA: Wyoming: Horse Creek Camp in Shoshone National Forest (Cornell Univ.). – R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera).

177. sickmanni Kohl

Ammophila sickmanni Kohl, 1901d:151, ♀. Syntypes: ♀, China: Tientsin, Kalgan (NHMW). – Kohl, 1906b:340 (in revision of Palearctic Ammophilini); Gussakovskij, 1938:3 (China: Kiangsu Province); Tsuneki, 1962b:26 (in key), 1967j:10, 11 (in key; as *sickmanni sickmanni*), 115 (description of ♂, Korea), 1974a:360 (Korea); R. Bohart and Menke, 1976:153 (listed); Tsuneki, 1982b:14 (known from Korea), 1991:199 (Korea); Li, Li, and Yang, 1994:290 (in revision of *Ammophila* of Shandong Province, China, as *sickmanni sickmanni*); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Wu and Zhou, 1996a:55 (in revision in Economic Insect Fauna of China, as *sickmanni sickmanni*); Li and He, 2004:1121 (in hymenopterous fauna of Zhejiang Province, China, as *sickmanni sickmanni*); Li and L. Yang, 2005:883 (China: Gansu: Quinling Range and South Mountains, as *sickmanni sickmanni*); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).

ssp. *wusheensis* Tsuneki

Ammophila sickmanni wusheensis Tsuneki, 1967j:16, ♀, ♂. Holotype: ♀, Taiwan: Nantou Prefecture: Chienching (originally K. Tsuneki coll., now USNM). – Tsuneki, 1967j:5 (Taiwan), 10, 11 (in key), 1971f:5 (Taiwan; discussion); Murota, 1973b:116 (Taiwan); R. Bohart and Menke, 1976:153 (listed); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:5 (in checklist of Sphecidae of Taiwan); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

178. *silvestris* Kirkbride

Ammophila silvestris Kirkbride, 1982:457, ♀, ♂. Holotype: ♂, USA: Idaho: Idaho County: 21 mi W Lolo Pass (Univ. Idaho, Moscow). Paratypes: Montana, Wyoming.

179. *sinensis* Sickmann

Ammophila sinensis Sickmann, 1894:17, ♀. Syntypes: China: Hopei Province: Tientsin (Münster). – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Kohl, 1906b:334 (in revision of Palearctic Ammophilini); Gussakovskij, 1930c:207 (Russia: Chita and Stavropol Oblasts; Kazakhstan: Semipalatinsk Oblast'); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:386 (in key to Sphecidae of Russian Far East); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:39 (geographic distribution, collecting localities in Kazakhstan); Yildirim and Ljubomirov, 2005:1788 (first record from Turkey: Erzurum: Güngörmez); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Yildirim and Ljubomirov, 2007:116 (Turkey: Erzincan: Kemaliye: Başpınar; Erzurum: Dutçu: Komyolu); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).

180. *sjoestedti* Gussakovskij (preoccupied)

Ammophila sjoestedti Gussakovskij, 1934a:6, ♀ (as *sjöstedti*, incorrect diacritic mark), junior primary homonym of *Ammophila sjoestedti* Cameron, 1910. Syntypes: ♀, China: Gansu Province: no specific locality (NRS). – R. Bohart and Menke, 1976:153 (listed); Li and L. Yang, 2005:884 (China: Gansu: Quinling Range and South Mountains); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

181. *smithii* F. Smith

Ammophila smithii F. Smith, 1856:217, ♀ (as *Smithii*, incorrect original capitalization; authorship attributed to Baly). Holotype or syntypes: ♀, India: no specific locality (originally J.S. Baly's coll., now BMNH?). – Cameron, 1889:94 (listed); Bingham, 1897:232 (original description copied); Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Nurse, 1903a:518 (redescription); Ramakrishna Aiyar, 1916:554 (reference to Nurse, 1903); R. Bohart and Menke, 1976:153 (listed); Jha and Farooqi, 1994:9 (description and illustration of male genitalia).

182. *stangei* Menke

Ammophila stangei Menke, 1964a:15, ♀, ♂. Holotype: ♂, USA: California: Nevada County: Boca (UCD). – Evans, 1970:486 (Wyoming: Jackson Hole); Horning and Barr, 1970:105 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Dawes County: N Crawford); G. Ferguson, 1984a:299 (prey of *Phlanthus zebratus*); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills).

183. *strenua* Cresson

Ammophila strenua Cresson, 1865b:459, ♀. Holotype: ♀, USA: Colorado Territory: no specific locality (ANSP). – Cresson, 1887:274 (in catalog of North American Hymenoptera); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Viereck, 1903a:68 (New Mexico: Beulah); Cresson, 1916:94 (holotype in ANSP); Murray *in* Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera); Evans, 1970:486 (Wyoming:

Jackson Hole); Horning and Barr, 1970:105 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:153 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Dawes County: SE Crawford); Menke, 1986c:35 (Utah: San Juan County: SE Natural Bridges National Monument), 1994d:15 (California: Monterey County: Parkfield area); Finnamore, 1997:894 (expected to occur in Yukon); Weissmann and Kondratieff, 1999:77 (Colorado: Great Sand Dunes National Monument); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae). – **As *Sphex strenuus***: Mickel, 1918b:405 (new combination, in catalog of Nebraskan Sphecidae); Fernald, 1934:136 (revision).

Sphex dubius Fernald, 1934:139, ♂, junior secondary homonym of *Ammophila dubia* Kohl, 1901. Holotype: ♂, USA: either Arizona: Flagstaff, or Colorado, or New Mexico (ANSP). Synonymized with *Ammophila strenua* by ...

Ammophila denningi Murray in Muesebeck et al., 1951:975. Substitute name for *Sphex dubius* Fernald, 1934. Synonymized with *Ammophila strenua* by Menke, 1967a:3.

184. *striata* Mocsáry

Ammophila striata Mocsáry, 1878 (or 1979?):200, ♀. Holotype: ♀, Russia: Siberia: no specific locality (TMB). – nec Kohl, 1884a:382 (= *Ammophila adelpha*); Ed. André, 1886:66 (in revision of Sphecidae of Europe and Algeria); Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Kohl, 1906b:329 (in revision of Palearctic Ammophilini); Gussakovskij, 1930c:204 (description of ♂; Russia: Primorskiy Krai); de Beaumont, 1960:4 (Turkey: Ak Chehir, Lake Wan; diagnostic characters), 1967a:267 (Turkey); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1986:237 (rare in Kazakhstan, needs protection); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:87 (in Sphecid Fauna of Western Europe, recorded from Spain: Albarracin in Teruel Province); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:39 (geographic distribution, collecting localities in Kazakhstan), 2007:90 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey).

spp. nadigi Roth

Ammophila nadigi Roth, 1932:82, ♀ (as *Nadigi*, incorrect original capitalization). Holotype: ♀, Morocco: Ifran (A. Nadig coll.). – Nadig, 1933:101 (Morocco: Ifrane; original description copied); Leclercq, 1955h:76 (bibliographic references); Giner Mari, 1959:387 (Morocco). – **As *Ammophila striata nadigi***: de Beaumont, 1960e:5 (new status; diagnostic characters; Morocco, Spain: Albarracin); R. Bohart and Menke, 1976:153 (listed).

185. *strumosa* Kohl

Ammophila quadraticollis var. *strumosa* Kohl, 1906:355, ♀. Holotype (or syntypes?): ♀, Israel: Jericho (NHMW). – von Schulthess, 1926b:209 (Tunisia). – **As *Ammophila strumosa***: Roth, 1928:200 (new status; revision, description of ♂); Alfieri, 1946:133 (in revision of Egyptian *Ammophila*); Giner Mari, 1945b:362 (Western Sahara: Aserifa), 1947:18 (Western Sahara); de Beaumont, 1951e:267 (Morocco); de Beaumont and Bytinski-Salz, 1955:38 (Israel); Leclercq, 1955h:86 (bibliographic references); de Beaumont, 1958a:290 (illustration of genitalia); Grandi, 1959b:287 (Algeria: Goriana in Hodna district); de Beaumont, 1963b:19 (in revision of the *nasuta* group); R. Bohart and Menke, 1976:153 (listed); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula).

As *Ammophila hemilauta*: Bischoff, 1933:6 (Morocco: Marrakech), corrected to *Ammophila strumosa* by de Beaumont, 1963b:20.

186. *subassimilis* Strand

Ammophila subassimilis Strand, 1913a:86, ♀, ♂. Syntypes: Taiwan: Taihorin (DEI). – Sonan, 1942:133 (as new synonym of *Ammophila vagabunda*); nec Tsuneki, 1967i:383 (= *Ammophila formosensis*); Tsuneki, 1967j:5 (Taiwan), 10, 11 (in key), 17 (discussion); Oehlke and Wudowenz, 1974:425 (syntypes in DEI); R. Bohart and Menke, 1976:153 (listed); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

187. *tekkensis* Gussakovskij

Ammophila tekkensis Gussakovskij, 1930c:206, ♀, ♂. Syntypes: ♀, ♂, Turkmenistan: Kara Kum desert, and Uzbekistan: Khiva (ZIL). – Gussakovskij, 1933b:274 (Iran); R. Bohart and Menke, 1976:153 (listed); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:39 (geographic distribution, collecting localities in Kazakhstan).

188. *terminata* F. Smith

Ammophila apicalis Brullé, 1839:92, sex not indicated, junior primary homonym of *Ammophila apicalis* Guérin-Méneville, 1835. Holotype or syntypes: Canary Islands: no specific locality (MNHN?). – Brullé, 1840:pl. 3 fig.22 (illustration of whole specimen); Kohl, 1893a:35 (Austria: Niederösterreich: Arnsdorf and Oberweiden); Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Antiga and Bofill, 1904:3 (Spain: Cataluña Province); Saunders, 1904a:202 (Canary Islands: Tenerife); Kohl, 1906b:331 (in revision of Palearctic Ammophilini); Schmiedeknecht, 1907:246 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Honoré, 1919:268 (France: Seine-et-Oise: Lardy); Noskiewicz, 1922a:9 (Ukraine: Lviv area); Berland, 1925d:29 (in Sphecid Fauna of France); Coulon, 1925:115 (Canary Islands); Kuznetsov-Ugamskij, 1927:249 (Kazakhstan: Auliye-Ata, now Dzhambul); Roth, 1928:192 (common in southern Europe, but very rare in North Africa), 223 (nesting habits, as var. *mocsaryi*), 1929:182 (in revision of Spanish Ammophilini); Schmiedeknecht, 1930:706 (in keys to Hymenoptera of North and Central Europe); Guiglia, 1932c:3 (Italy: Valle d'Aosta: Parco Nazionale del Gran Paradiso); Grandi, 1934:130 (Italy: Abruzzi: Campo Pericoli); Zavadil, 1932:96 (Czechoslovakia, forma *mocsaryi*), 1934:187 (Slovakia); Bernard, 1935:60 (France: Var: Fréjus area), 1936c:287 (France: Bouches-du-Rhône: Port-de-Bouc; Var: Fréjus); Crèvecoeur and Maréchal, 1936:249 (Belgium: Lanaecken and Laeken); J. Muller, 1936:163 (first record from Belgium); Bischoff, 1937b:1 (Canary Islands); Zavadil, Šusterka, and Bat'a, 1937:213 (in catalog of Sphecidae of Czechoslovakia); Balthasar, 1941b:112 (Czech Republic: eastern Morava); Giner Marí, 1943a:71 (in Sphecid Fauna of Spain); de Andrade, 1949:7 (Portugal); Móczár, 1953:309 (Hungary); Nouvel and Ribaut, 1953:176 (France: Hautes-Pyrénées: Cauterets); de Beaumont, 1954b:2 (Canary Islands); Hertzog, 1954:99 (France: Bouches-du-Rhône: Camargue); de Beaumont, 1955c:56 (effects of stylopization); Harant and Leclercq, 1955:250 (France: Hérault: Palavas-les-Flots); Leclercq, 1955h:87 (bibliographic references); Vogrin, 1955:30 (Yugoslavia); Bytinski-Salz, 1956:224 (Turkey: Altinkum, Keşis, Pendik, Ulu Dag); Ceballos, 1956:359 (in catalog of Hymenoptera of Spain); Morel, Nouvel, and Ribaut, 1956:336 (France: Département des Pyrénées-Orientales); Bajári, 1957a:14 (in key to Hungarian Sphecidae); Morel, Nouvel, and Ribaut, 1958:8 (France: Pyrénées-Orientales: Banyuls-sur-Mer area); Pulawski, 1958a:163 (Bulgaria: Sandanski); de Beaumont, 1958c:201 (Swiss National Park); de Beaumont, 1959a:7 (Italy); Scobiola Palade, 1959:498 (first record from Romania: Constanța Region: Eforia, description and illustration of male genitalia); Noskiewicz and Pulawski, 1960:38 (in key to Polish Sphecidae, not yet found in Poland); Scobiola, 1960b:235 (Romania: several localities); Atanassov, 1962:126 (Bulgaria: Petrich area); de Beaumont, 1962:19 (Spain), 1964c:25 (in Sphecid Fauna of Switzerland); Menke, 1964:151 (nomenclatural history); de Beaumont, 1968:254 (Canary Islands); Benedek, 1969a:83 (Hungary; marshy meadow); Zangheri, 1969:1699 (Italy: in catalog of flora and fauna of Romagna Region); Balthasar, 1972:428 (in Sphecid Fauna of Czechoslovakia); Simon Thomas, 1972:174 (France: Gironde, Landes, Lot-et-Garonne), 1976:3 (France: Lot-et-Garonne); Kolesnikov, 1977:317 (Russia: Bryansk Oblast'); Marion, 1978:85 (France); Mingo and Gayubo, 1983:163 (Spain); Pádr *in* Šedivý, 1989a:166 (in checklist of Czechoslovakian Sphecidae), 1990:68 (Czech Republic: Praha area).

Ammophila terminata F. Smith, 1856:210. Substitute name for *Ammophila apicalis* Brullé, 1839. – Menke, 1964b:151, 152 (synonymy); de Beaumont, 1967a:268 (Turkey), 1968a:254 (Canary Islands: Lanzarote, Fuerteventura, Gran Canaria, Tenerife); Simon Thomas, 1969a:120 (Canary Islands: Tenerife); Kazenas, 1972b:100 (Kazakhstan); R. Bohart and Menke, 1976:153 (listed); Báez and Ortega, 1978:191 (Canary Islands); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1983a:75 (endangered in Niederösterreich, Austria), 1983b:3

(in catalog of Sphecidae of Austria), 1988:21 (Austria: Niederösterreich: Oberweiden); Chinin, 1991:111 (Russia: Samara Oblast'); Day, 1991:xii (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:33 (in key to Sphecidae of North and Central Europe); Gorobchishin, 1993:46 (Ukraine: Kanev Nature Reserve); Hohmann, La Roche, Ortega, and Barquín, 1993:199 (detailed records from Canary Islands); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Minoranskiy and Shkuratov, 1996:80 (Russia: Rostov Oblast'); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:89 (in Sphecid Fauna of Western Europe); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Blösch, 2000:137 (in Sphecid Fauna of Germany: may occur in Germany); Shkuratov, 2000:54 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Zettel, 2000:24 (Austria: Drösing); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 114 (review of known biology); Kazenas and Esenbekova, 2001:133 (Kazakhstan: Almatinskiy Nature Reserve); Kazenas, 2002a:39 (geographic distribution, collecting localities in Kazakhstan); Shkuratov, 2002b:138 (Russia: Rostov Oblast': Rostovski Nature Reserve at 46°27'N 42°41'E); Shlyakhtenok and Skibinska, 2002:32 (Belarus: no specific locality); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mts.); Gülmez and Tüzün, 2005:51 (Turkey: Ankara Province); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Jacobs, 2007:46, 47 (in key to Sphecidae of Germany, not yet found in Germany); Kazenas, 2007:90 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Nemkov, 2008b:17 (in catalog of Sphecidae of Asian part of Russia).

Ammophila gegen Tsuneki, 1971k:171, ♂, ♀. Holotype: ♂, Mongolia: Central Gobi Aymag: Delgerhangay ul (TMB). Synonymized with *Ammophila terminata* by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:387. – R. Bohart and Menke, 1976:152 (listed); Wu and Zhou, 1996a:50 (in revision in Economic Insect Fauna of China).

***ssp. electa* Kohl**

Ammophila electa Kohl, 1901d:155, ♀, ♂. Lectotype: ♀, Algeria: Sidi Maklouf (MNHN), designated by Menke *in* Bohart and Menke, 1976:154. – Kohl, 1906b:330 (in revision of Palearctic Ammophilini); von Schulthess, 1926b:208 (Tunisia); Roth, 1928:192 (in revision of North African Ammophilini); Guiglia, 1934b:292 (Libya: bibliography and summary of locality records), 1937:184 (Libya: Cyrenaica: Agheila, Mechili), 1942b:229 (Libya). – **As *apicalis electa***: de Beaumont, 1951e:264 (new status; Morocco), 1956a:180 (Libya), 1960:226 (Libya). – **As *terminata electa***: R. Bohart and Menke, 1976:153 (listed).

***ssp. mocsaryi* Frivaldszky**

Ammophila mocsaryi Frivaldszkyi, 1876:352, [♀, ♂] (as *Mocsáryi*, incorrect original capitalization and diacritic mark). Syntypes: Hungary: Budapest and Temes Komitat (now: Romania: Timiș District): Grebenác (TMB). – Kohl, 1880:183 (Austria: Bozen area, now Italy: Trentino–Alto Adige Bolzano), 1880:237 (description of ♂); Marquet, 1881:177 (southern France, as *Moksari*); Sajó, 1882:5 (Hungary); Kohl, 1883e:675 (Switzerland); von Heyden, 1884:116 (Germany: Frankfurt am Main); Ed. André, 1886:68 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Medina, 1894a:259 (Spain: Pozuelo de Calatrava); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Mocsáry, 1897:79 (Kingdom of Hungary, some localities are in today's Romania and Slovakia); Medina, 1898:153: (Portugal (Mamede); Ferton, 1905:97 (homing); Olivier, 1910:163 (Algeria: Bou Saâda); Strand, 1915:97 (Italy: Calabria: Aspromonte); Ferton, 1923:80 (malaxation of prey), 111 (material from nest is evacuated in flight and deposited on narrow area), 294 (easily finds nest when carrying prey). – **As *Podalonia apicalis* var. *mocsaryi***: Bischoff, 1931:8 (new combination, new status, Spain). – **As *Ammophila apicalis* var. *mocsaryi***: Bischoff, 1933:6 (Morocco); Šnoflak *in* Zavadil and Šnoflak, 1948:99 (in key to Sphecidae of Czechoslovakia); Ceballos, 1956:359 (in catalog of Hymenoptera of Spain); Diniz, 1959:26 (Portugal: Lisboa, Quinta do Mato). – **As *Ammophila apicalis mocsaryi***: de Andrade, 1949:7 (new status, Portugal);

Ceballos, 1964:86 (in supplement to catalog of Spanish Sphecidae); Diniz, 1965:2 (Portugal: seven localities); Suárez, 1969:27 (Spain: Almería Province); Benedek, 1979:227 (Hungary: Bakony Hills). – **As *Ammophila terminata mocsaryi***: R. Bohart and Menke, 1976:153 (listed); Gayubo, 1981a:142 (N Spain: Sierra de Béjar), 1983c:234 (Spain: Salamanca Province); Pagliano, 1984:368 (Italy); Chevin and Chevin, 1985:38 (France: Aude); Gayubo, 1985c:167 (Spain: Valladolid: Puenteduro, San Miguel de Arroyo, Traspinedo); Józán, 1985a:180 (Hungary), 1985b:55 (Hungary S Lake Balaton), 76 (floral records), 83 (ecological and zoogeographic characteristics); Pagliano, 1985:16 (Italy); Gayubo, 1986b:37 (Spain: Andalucía), 1986c:30 (Spain: Zamora Province); Gayubo and Heras, 1986:33 (Spain: Segovia Province; floral records); Gayubo and Sanza, 1986:33 (Spain: Burgos); Gayubo and Tormos, 1986a:10 (Spain: Castellón de la Plana); Józán, 1986:368 (Hungary: Kiskunság National Park); Asís and Jiménez, 1987:25 (Spain: Castellón Province); Karsai, 1988:99 (Hungary: Kiskunság National Park); Gayubo, Asís, and Tormos, 1990a:13 (Spain); Pagliano, 1990:61 (in catalog of Italian Sphecidae); Gayubo, Borsato, and Osella, 1991:396 (Italy: Calabria), 1991:280 (Greece); Józán, 1991:602 (Hungary: Bátorliget Nature Reserve); Hamon, Tussac, and Fonfria, 1992:407, 410 (in key to French Ammophilini), 412 (distribution in France); Józán, 1992b:171 (Hungary: Boronka-melléki Protected Area); Torregrosa, Gayubo, Tormos, and Asís, 1993:11 (Spain: Alicante Province); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Negrisoló *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); González, Gayubo, and Torres, 1999:354 (Spain: Valladolid: Viana de Cega); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); Drewes, 2003:133 (Italy: Bolzano–Alto Adige, Spain: Figueras); Gayubo and Özbek, 2005:13 (Turkey: Erzurum: University campus, Tortum); Pagliano and Negrisoló, 2005:69 (in Sphecid Fauna of Italy); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas Larrieu Nature Reserve near Argelès-sur-Mer); Ljubomirov and Yildirim, 2008:39 (in catalog of Sphecidae of Turkey).

Ammophila minuta Frivaldszkyi, 1877:352 (as Mocsáry's MS name), not available (proposed in synonymy of *Ammophila mocsaryi*, Article 11e).

Ammophila rhaetica Kohl, 1879:400, ♀. Syntypes: ♀, Austria: St. Justina and Vierglberge near Bozen, now Italy: Alto Adige: Bolzano area (NHMW). Synonymized with *Ammophila mocsaryi* by Kohl, 1880:183. – Ed. André, 1886:67 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Kohl, 1889a:20 (as valid species).

Ammophila julii Fabre, 1879:322, [♀] (as *Julii*, incorrect original capitalization). Syntypes: France: no specific locality (MNHN). Synonymized with *Ammophila apicalis* by Dalla Torre, 1897:404. – von Dalla Torre, 1881:155 (original description translated into German); Fauvel, 1883:162 (original description copied); Berland, 1923a:173 (*Ammophila julii* is a synonym of *apicalis*).

? *Ammophila kirgisisica* F. Morawitz, 1891a:203, ♀, ♂. Syntypes: European Kazakhstan: Ryn-Peski, Kirgizskaya (ZIN). – Dalla Torre, 1897:403 (in catalog of world Hymenoptera). – **As tentative synonym of *Ammophila terminata mocsaryi***: R. Bohart and Menke, 1976:153 (listed).

ssp. *turanica* Kazenas

Ammophila terminata turanica Kazenas, 2000d:18, ♀, ♂. Holotype: ♀, Kazakhstan: near Ayak-Kalkan in Ili River valley 35 km NE Chilik (ZIN).

ssp. *turkestanica* Kohl

Ammophila apicalis var. *turkestanica* Kohl, 1906:332, sex not indicated. Holotype or syntypes: Turkestan, now Tajikistan, Turkmenistan, or Uzbekistan (NHMW). – Kohl, 1906:254 (in key to *Palaearctic* Ammophilini, misspelled *turkestanica*). – **As *Ammophila terminata turkestanica***: R. Bohart and Menke, 1976:154 (new status, listed); Kazenas, 1978b:37 (new status, in key to Sphecidae of Kazakhstan and Central Asia, misspelled *turkestanica*), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia).

189. *tsunekii* Menke

Ammophila tomentosa Tsuneki, 1971k:174, ♀, junior secondary homonym of *Ammophila tomentosa* (Arnold, 1920).

Holotype: ♀, Mongolia: Central Gobi Aymag: Hoot bulag (TMB).

Ammophila tsunekii Menke in Bohart and Menke, 1976:154. Substitute name for *Ammophila tomentosa* Tsuneki.

190. *tuberculiscutis* Turner

Ammophila tuberculiscutis Turner, 1919c:396, ♀, ♂. Syntypes: former British East Africa: several localities (BMNH).

– Leclercq, 1955h:94 (bibliographic references); R. Bohart and Menke, 1976:154 (listed). – **As *Sphex tuberculiscutis***: Arnold, 1928b:260 (new combination, revision), 1930:16 (in checklist of Afrotropical Sphecidae).

191. *tyrannica* Cameron

Ammophila tyrannica Cameron, 1890:pl. IX, Fig. 11. ♀. Holotype: ? India: no specific locality (BMNH or OXUM). –

Dalla Torre, 1897:411 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:154 (listed).

192. *unita* Menke

Ammophila unita Menke, 1966b:35, ♀, ♂. Holotype: ♂, USA: Colorado: Moffat County: Castle Park in Dinosaur

National Monument (USNM). – R. Bohart and Menke, 1976:154 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1994f:21 (Utah: Calf Creek Falls State Park and Monticello area).

193. *untumoris* Yang and Li

Ammophila untumoris Yang and Li, 1989:108, ♀. Holotype: ♀, China: Shaanxi Province: Ganquan County: Qu-
ingquan (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

194. *urnaria* Dahlbom

Ammophila urnaria Dahlbom, 1843:14, ♀, ♂ (authorship attributed to Klug). Syntypes: USA: Pennsylvania and South Carolina: no specific localities (ZMHU). – Dahlbom, 1845:430 (in key); F. Smith, 1856:223 (in catalog of Hymenoptera in British Museum); Cresson, 1863:319 (in catalog of North American Hymenoptera); A. Costa, 1864b:111 (specimen from Carolina, USA, in Museo Zoologico di Napoli); Taschenberg, 1869:433 (Illinois); Cresson, 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Viereck, 1903d:121 (Maryland: Chestertown); Barth, 1910:119 (nest structure); G. Carpenter, 1930b:292, 295, 297 (nest closure); Frisch, 1940:345 (use of tool described by the Peckhams, 1898, is not unique to this species and is innate, instinctive act); Murray in Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera); Evans and Lin, 1956a:146 (description of larva); Evans, 1959d:462 (nesting behavior, as *urnaria urnaria*), 1963a:153 (photograph of female with prey), 1963c:fig. 7 after p. 38 (photograph of female with prey), 58 (homing); Kurczewski and Kurczewski, 1963:147 (Pennsylvania: Presque Isle State Park, as *urnarius*); Evans, 1975a:264 (slow colonizer of new habitats); R. Bohart and Menke, 1976:154 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection); Finnamore, 1982:36 (in Sphecid Fauna of Southern Quebec); Menke, 1983b:21 (Nebraska: Cherry County: Valentine and Nenzel areas, and Dawes County: SE Crawford); Brockmann, 1985b:312 (nest closure summary); O'Brien, 1989b:213 (distribution in Michigan); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1992:996 (species of miltogrammine parasites listed), 1002 (counter-cleptoparasitic behavior: freeze-stop and face-off, diversionary flight), 1003 (chasing flight), 1004 (post-larvipositional counter-cleptoparasitic behavior: abandon burrow), 1005 (abandon prey, clean burrow); Ahlstrom, 1995:107 (in checklist of insects of North Carolina); Kurczewski, 1998d:250 (pine barrens in upstate New York); Kurczewski and Spofford, 1998:99 (alternative nesting strategies); Sugar et al., 1998:15 (Canada: southern Ontario); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada). – **As *Sphex urnarius***: J. Parker, 1915:75 (new combination, nesting habits); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut, as *urnaria* Klug); Mickel, 1918b:402 (in catalog of Nebraskan Sphecidae); Hendrickson, 1930:159 (Iowa); G. Carpenter, 1930b:292 (nest closure); Fernald, 1931a:447 (as new synonym of *Sphex arvensis*), 1934:121

(revision); Krombein, 1936:98 (New York: Buffalo; floral records); Brimley, 1938:444 (North Carolina: statewide, as *urnaria*); Murray, 1938:30 (redescription); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 274 (Michigan: locality records); Strickland, 1947:129 (Canada: Alberta); Krombein, 1952a:94 (USA: Virginia: Westmoreland State Park); Krombein and Evans, 1954:234 (Florida); Krombein, 1958a:52 (USA: West Virginia: Lost River State Park), 1963f:276 (Maryland: Plummers Island near Washington, D.C.).

Ammophila inepta Cresson, 1873:209, ♀. Lectotype: ♀, Texas: no specific locality (ANSP), designated by Cresson, 1916:94. Synonymized with *Ammophila urnaria* by Murray, 1938:30. – Cresson, 1887:274 (in catalog of North American Hymenoptera); Dalla Torre, 1897:403 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Fernald, 1931a:447 (as new synonym of *Sphex arvensis*).

Sphex arvensis floridensis Fernald, 1933:236. Nomen nudum (prey carrying).

Sphex floridensis Fernald, 1934:126, ♀, ♂. Holotype: ♀, USA: Florida: Orlando (originally H. Fernald coll., now ...?). Synonymized with *Ammophila urnaria* by ... – Fernald, 1943a:290 (Florida). – **As *Sphex urnarius floridensis***: Murray, 1938:36 (new status); Krombein and Evans, 1954:234 (Florida: Paradise Key), 1955:233 (Florida). – **As *Ammophila urnaria floridensis***: Murray in Muesebeck et al., 1951:977 (new combination, in catalog of North American Hymenoptera).

As *Ammophila conditor*: Harrington, 1902:224 (Canada: Ontario: Ottawa), corrected to *Ammophila urnaria* by Buck, 2004:75.

As *Sphex conditor*: Faull, 1913:384 (new combination, Canada: Toronto region), corrected to *Ammophila urnaria* by Buck, 2004:75.

195. *varipes* Cresson

Ammophila varipes Cresson, 1865b:457, ♀, ♂. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:95. – Cresson, 1868:378 (New Mexico), 1875:714 (Colorado, New Mexico), 1876:208 (Utah: Spring Lake), 1887:274 (in catalog of North American Hymenoptera); Cameron, 1888a:19 (Mexico, redescription); Ashmead, 1890:34 (in checklist of Hymenoptera of Colorado); W. Fox, 1893d:9 (Mexico: Baja California); Dalla Torre, 1897:411 (in catalog of world Hymenoptera, as *variipes*); Ashmead, 1899d:354 (in checklist of North American Sphecidae, as *variipes*); Viereck, 1903a:68 (New Mexico: Beulah); Strand, 1910:13 (Texas, as *variipes*); Hendrickson, 1930:159 (Iowa); Fernald, 1931a:448 (as new synonym of *Sphex breviceps*); Murray in Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:154 (listed); Kumar, Lavigne, Lloyd, and Pfadt, 1976:51 (USA: Colorado: Pawnee National Grassland); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Hooker County: Mullen area, and Dawes County: N Crawford), 1994f:21 (Arizona: Snowflake); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

Ammophila comanche Cameron, 1888a:19, sex not indicated. Holotype or syntypes: Mexico: northern Sonora: no specific locality (BMNH). Synonymized with *Ammophila varipes* by Fernald, 1931a:448 and Menke, 1967a:3 (as new synonym). – Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae).

196. *vetuberosa* Li and C. Yang

Ammophila vetuberosa Li and C. Yang in Li, Li, and Yang, 1994:290, ♂. Holotype: ♂, China: Shandong Province: Dongying City: Xianhe Town (Shandong Agricult. Univ.).

197. *vulcania* du Buysson

Ammophila vulcania du Buysson, 1897:256, ♂. Holotype or syntypes: South Africa: Gauteng: Makapan near Johannesburg (MNHN). – Guiglia, 1943c:76 (Ethiopia: Gamo Gofa: Sagan – Omo region), 1950:245 (Ethiopia: Gamo Gofa: Caschei); Leclercq, 1955h:88 (bibliographic references); R. Bohart and Menke, 1976:154 (listed); Gess,

1981:19 (South Africa: 18 km WNW Grahamstown; nesting in friable soils); Weaving, 1988:327-349 (prey selection), 1989a:1-16 (South Africa; nesting habits: one large caterpillar per cell), 1989b:847-871 (habitat selection and nest construction). – **As *Sphex vulcania***: Arnold, 1920:35 (new combination, revision, description of ♀), 1928b:262 (revision), 1930:17 (in checklist of Afrotropical Sphecidae).

198. *wahlbergi* Dahlbom

Ammophila wahlbergi Dahlbom, 1845:431, sex not indicated (as *Wahlbergi*, incorrect original capitalization). Holotype or syntypes: South Africa: Port Natal, now Durban (Lund). – Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Leclercq, 1955h:93 (bibliographic references, as incertae sedis); R. Bohart and Menke, 1976:154 (listed). – **As *Sphex wahlbergi***: Arnold, 1920:25 (new combination, unrecognizable species).

199. *wrightii* (Cresson)

Coloptera wrightii Cresson, 1868:378, ♀ (as *Wrightii*, incorrect original capitalization). Holotype: ♀, USA: New Mexico: no specific locality (ANSP). – Cresson, 1887:274 (in catalog of North American Hymenoptera); Schwarz, 1896:24 (sleeping aggregations); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Melander, 1903:162 (in synopsis of North American *Ammophila*); H. Smith, 1908b:328 (in revision of Nebraskan Sphecidae); Cresson, 1916:95 (holotype in ANSP); Mickel, 1918b:400 (in revision on Nebraskan Sphecidae). – **As *Sphex wrightii***: Fernald, 1934:38 (new combination, revision); Hicks, 1934b:150 (nesting habits). – **As *Ammophila wrightii***: Dalla Torre, 1897:412 (new combination, in catalog of world Hymenoptera); Murray *in* Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera); Powell, 1964b:242 (review of Hicks, 1934, observations); Menke, 1965b:259 (Hicks, 1934b, correctly identified this species); Hurd and Linsley, 1975:116 (Arizona: Cochise County: Douglas; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:154 (listed); Kumar, Lavigne, Lloyd, and Pfadt, 1976:51 (USA: Colorado: Pawnee National Grassland); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Blow Sand Mountains); Brockmann, 1985b:312 (nest closure summary); Menke, 1986c:35 (Arizona: Navajo County: Hopi Reservation), 36 (Arizona: Cochise County: 3 mi E Willcox), 1994f:21 (Arizona: Snowflake); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Ohl and Linde, 2003:149 (number of ovarioles).

200. *xinjiangana* Li and C. Yang

Ammophila xinjiangana Li and C. Yang, 1989:34, ♂, China: Xinjiang Province: Urumqi (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

201. *xanthoptera* Cameron

Ammophila xanthoptera Cameron, 1888a:8, ♀. Holotype or syntypes: Guatemala: Calderas (BMNH). – W. Fox, 1895c:266 (Mexico: Baja California Sur); R. Bohart and Menke, 1976:154 (listed); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Brockmann, 1985b:312 (nest closure summary); Menke, 1994f:20 (New Mexico: Zuni). – **As *Ammophila xanthoptera***: Dalla Torre, 1897:412 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray *in* Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera); Evans, 1959d:465 (biological observations by Hicks, 1932); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

Ammophila trichiosoma Cameron, 1888a:11, ♂. Holotype or syntypes: ♂, Guatemala: Capetillo (BMNH). Synonymized with *Ammophila xanthoptera* by ... – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Murray *in* Muesebeck et al., 1951:977 (in catalog of North American Hymenoptera); Amarante, 2005a:14 (correction to his 2002 catalog). – **As *Sphex trichiosomus***: Fernald, 1934:105 (new combination, revision).

Ammophila xanthoptera Cameron, 1900:xi. Unjustified emendation of *Ammophila xanthoptera*. – As *Sphex xanthopterus*: nec Hicks, 1932c:193, 1933c:49, and 1934a:39 = *Ammophila placida*; Fernald, 1934:63 (revision).

sp.

W. Fox, 1894c:101 (Mexico: Baja California); Sickmann, 1894:216 (China: Hopei Province: Tientsin); Ducke, 1908b:82 (Brazil: Ceará State); Titus, 1909:319 (Michigan: Lake Superior: Isle Royale); C. Turner, 1911:13 (nesting habits); R. Turner, 1911b:369 (Seychelles Islands); Hungerford and Williams, 1912:245 (Kansas, nesting habits); Ferton, 1912a:367 (presence of foreign egg in nest); Ferton, 1912a:366 (unusual prey: a hairy caterpillar); Poulton, 1918:xxxvi (Brazil, prey); Rau, 1933:183 (Panama: Barro Colorado Island); de Beaumont, 1953a:172 (sp. aff. *rubripes*; Mauritania); Bytinski-Salz, 1956:223 (sp. aff. *campestris*; Turkey: Uludagh); de Beaumont, 1961e:2 (Iraq; sp. near *propinqua*), 1964a:290 (sp. near *campestris*, Swiss Alps); Powell, 1964b:256 (species 1b of Menke, nest construction, nest closure, prey: geometrid caterpillars, progressive provisioning); de Beaumont, 1967a:266 (sp. aff. *gracillima*), 268 (sp. aff. *campestris* and sp. aff. *terminata*; Turkey), 1967b:504 (South Africa), 1969:81 (Turkey); I. Robertson, 1969:480 (Tanzania: Ilonga, sp. near *ferrugineipes*); de Beaumont, 1970a:388 (sp. aff. *heydeni*, sp. aff. *gracillima*; Afghanistan), 1970c:2 (sp. aff. *gracillima*; Iran: Baluchistan), 3 (sp. aff. *heydeni*; Iran: Baluchistan); Kazenas, 1972b:101 (Kazakhstan); Simon Thomas, 1976:3 (sp. aff. *heydeni*; France: Lot-et-Garonne); Báez and Ortega, 1978:191 (sp. aff. *concolor*; Canary Islands); Guichard, 1980:225 (Oman); Hilchie, 1982:107 (Alberta: Empress); Kingsley, Bailowitz, and Smith, 1987:18 (Arizona: Organ Pipe Cactus National Monument: Quitobaquito Springs area); Amarante, 1993:19 (ne. Brazil); Meagher and Mitchell, 1999:368 (collected in pheromone- and synthetic floral volatile-baited traps), Skevington et al., 2001:127 (Canada: Ontario: Lambton County); Li and He, 2004:1119 (in hymenopterous fauna of Zhejiang Province, China); Gayubo and Özbek, 2005:13 (Turkey, *gracillima* group); Ruiz Cancino, Coronado Blanco, and Horta Vega, 2005:170 (Mexico: recorded from Tamaulipas State); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 47 (Mexico: Tamaulipas); Ljubomirov and Yildirim, 2008:39 (in catalog of Sphecidae of Turkey).

SPECIES OF UNCLEAR IDENTITY

Ammophila arenaria: Cabrera La Rosa, 1993:72 (Peru: La Molina).

FOSSIL AMMOPHILA

***amnosa* Heer**

Ammophila amnosa Heer, 1865:... Miocene. Nomen nudum?

***antiquella* Cockerell**

Ammophila antiquella Cockerell, 1906: 49, sex not indicated. Holotype: USA: Colorado: Florissant, Lower Oligocene (MCZ).

***inferna* Heer**

Ammophila inferna Heer, 1865:... Miocene.

NOMINA NUDA IN AMMOPHILA

Ammophila argentea: Brullé, 1839:93. – F. Smith, 1856:211 (listed as a synonym of *Ammophila argentea* Lepeletier de Saint Fargeau); Dours, 1874:141 (in catalog of Hymenoptera of France).

Amophila argentilatera: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).

Ammophila caetিনosa: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).

- Ammophila cretica*: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila cyanigastra: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila chalybeata: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila cubensis: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila eurystoma Kohl: Dollfuss, 1989:7 (type material in NHMW).
Ammophila fulvicaulis Harris. Catalog of the insects of Massachusetts, 2nd edit. – Cresson, 1863:318 (in catalog of North American Hymenoptera).
Ammophila guatemalensis Cameron: Dollfuss, 1989:7 (type material in NHMW).
Ammophila impressicollis Kohl: Dollfuss, 1989:7 (type material in NHMW).
Ammophila lateralis: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila lineatocollis Cameron: Brauns, 1917:241.
Ammophila lugubris Harris. Catalogue of the insects of Massachusetts, 2nd edit. – Cresson, 1863:318 (in catalog of North American Hymenoptera).
Ammophila melicena: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila minor Lepeletier de Saint Fargeau: R. Bohart and Menke, 1976:152. Lepeletier (1845:379) used the word “Minor” in the Latin diagnosis as a size descriptor of a variety, translating it “Plus petit” in French.
Ammophila punctuosa Kohl: Dollfuss, 1989:7 (type material in NHMW).
Ammophila reichei: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Ammophila rubra Dours, 1874:141 (in catalog of Hymenoptera of France: Corse).
Ammophila rubricollis: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).
Miscus stygicus Harris. Catalogue of the insects of Massachusetts, 2nd edition. – Cresson, 1863:317 (in catalog of North American Hymenoptera).
Ammophila vestita: Casolari and Casolari Moreno, 1980:101 (specimens in M. Spinola collection).
Ammophila waltlii: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection).

SPECIES DESCRIBED IN *AMMOPHILA* AND TRANSFERRED TO OTHER GENERA

- algira* Kohl, 1901 = *Parapsammophila*
alpestris Cameron, 1888 = *Podalonia*
andrei F. Morawitz, 1889 = *Podalonia*
apicata Bingham, 1897 = *Isodontia*
argentata Lepeletier de Saint Fargeau 1845 = *Podalonia tydei argentata*
argentifrons Cresson, 1865 = *Podalonia*
atriceps F. Smith, 1856 = *Podalonia*
aureonotata Cameron, 1888 = *Eremnophila*
bimaculigera Strand, 1910 = *opulenta* (Guérin Méneville, 1838)
bocandei Spinola, 1831 = *Chalybion*
bolanica Nurse, 1903 = *Podalonia hirsuta mervensis* (Radoszkowski, 1887)
brasiliانا Brèthes, 1909 = *Eremnophila binodis* (Fabricius, 1798)
cementaria F. Smith, 1856 = *Podalonia violaceipennis* (Lepeletier, 1845)
clypeata Mocsáry, 1883 = *Hoplammophila*
communis Cresson, 1865 = *Podalonia atriceps* F. Smith, 1856
concolor Brullé, 1839 = *Podalonia affinis concolor*
confalonierii Guiglia, 1932 = *Podalonia minax* (Kohl, 1901)
cyanea Cameron, 1908 = *Chalybion ammophiloides* Hensen, 1988

cyanipennis Lepeletier, 1845 = *Parapsammophila*
durga Nurse, 1903 = *Podalonia*
ebenina Spinola, 1839 = *Podalonia*
elegans F. Smith, 1856 = *Eremochares dives* (Brullé, 1833)
erythrocephala F. Smith, 1856 = *Parapsammophila*
erythropus F. Smith, 1856 = *Podalonia*
eugenia F. Smith, 1856 = *Eremnophila eximia* (Lepeletier, 1845)
eximia Lepeletier, 1845 = *Eremnophila*
festiva F. Smith, 1856 = *Eremochares dives* Brullé, 1833
foeniformis Perty, 1833, in *Ammophilus* = *Penepodium*
foleyi de Beaumont, 1956 = *Parapsammophila*
friedrichi Schrottky, 1909 = *Eremnophila eximia* (Lepeletier, 1845)
fumigata Perty, 1833 = *Podium*
funerea Nurse, 1903 = *Parapsammophila*
fuscipennis F. Smith, 1870 = *Parapsammophila*
gibba Alfieri, 1961 = *Parapsammophila algira* (Kohl, 1901)
grandis Gistel, 1857 = *Hoplammophila armata* (Illiger, 1807)
grossa Cresson, 1872 = *Podalonia*
guiana Cameron, 1912 = *Eremnophila binodis* (Fabricius, 1798)
hirticeps Cameron, 1889 = *Podalonia*
hirticeps F. Morawitz, 1893 = *Podalonia turcestanica* (Dalla Torre, 1897)
iridipennis Cameron, 1888 = ? *Eremnophila melanaria* (Dahlbom, 1843)
jason Caameron, 1888 = *Podalonia*
klugii Lepeletier de Saint Fargeau, 1845 = *Podalonia tydei* (Le Guillou, 1841)
limbata Kriechbaumer, 1869 = *Eremochares dives* Brullé, 1833
lanuginosa Marquet, 1879 = *Podalonia tydei* (Le Guillou, 1841)
longipilosella Cameron, 1908 = *Podalonia canescens* (Dahlbom, 1843)
luctuosa F. Smith, 1856 = *Podalonia*
ludovicus F. Smith, 1856 = *Parapsammophila*
mandibulata W.F. Kirby, 1889 = *Podalonia*
melanaria Dahlbom, 1843 = *Eremnophila*
melanopus Lucas, 1849 = *Eremochares dives* Brullé, 1833
mexicana de Saussure, 1867 = *Podalonia*
miliaris Cameron, 1888 = ? *Eremnophila melanaria* (Dahlbom, 1845)
montana Cameron, 1888 = *Podalonia*
morrisoni Cameron, 1888 = *Podalonia*
nigra Brullé, 1839 = *Podalonia affinis concolor* (Brullé, 1839)
nigritaria Walker, 1871 = *Eremochares dives* (Brullé, 1833)
nigrohirta Kohl, 1888 = *Podalonia*
opulenta Guérin-Méneville, 1838 = *Eremnophila*
piceiventris Cameron, 1888 = ? *Podalonia atriceps* (F. Smith, 1856)
ponderosa Gerstaecker, 1871 = *Parapsammophila*
psilocera Kohl, 1888 = *Podalonia*
quadridentata Cameron, 1888 = *Podalonia*
reticollis A. Costa, 1864 = *Parapsammophila cyanipennis* (Lepeletier de Saint Fargeau, 1845)
rhinoceros Strand, 1913 = *Hoplammophila aemulans* (Kohl, 1901)

- spinipes* F. Smith, 1878 = ? *Podalonia tydei* (Le Guillou, 1841)
robusta Cresson, 1865 = *Podalonia*
sonorensis Cameron, 1888 = *Podalonia*
suspiciosa F. Smith = *Podalonia*
turcestanica Dalla Torre, 1897:411 = *Podalonia*
valida Cresson, 1865 = *Podalonia*
violaceipennis Cameron, 1889 = ? *Parasammophila erythrocephala* (Fabricius, 1782)
violaceipennis Lepeletier de Saint Fargeau, 1845 = *Podalonia*
walkeri Dalla Torre, 1897 = *Podalonia dispar* (Taschenberg, 1869)