

Last updated: 2 August 2014

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 de Saint Fargeau, 1845, by monotypy.

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

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

Keys: Alfieri, 1946 (Egypt); Dreisbach, 1944:268 (Michigan); Leclercq, 1955h:80 (*Ammophila rubripes* and related species); de Beaumont, 1963b:7 (Palearctic species of *nasuta* group); Tsuneki, 19967j:9 (East Asia); Myartseva, 1971 (Turkmenistan); Alayo Dalmau, 1976:11 (Cuba); Guichard, 1988a:126 (Arabian Peninsula); Menke, 2004:772 (red-legged South American species).

Revisions: Kohl, 1906b (Palearctic Ammophilini); Roth, 1928 (North African Ammophilini); Dollfuss, 2013a (Palearctic Region and India).

Nest structure: Barth, 1910.

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

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

Sleeping aggregations: Vardy, 1995.

Review of known biology: Kazenas, 20001b: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 collection, Torino). Synonymized with *Ammophila aberti* by Menke in Bohart and Menke, 1976:150. – Amarante, 2005a:14 (correction to his 2002 catalog); Pagliano, 2008:512 (holotype in M. Spinola collection, Torino).

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); Snow, 1881:96 (in checklist of Hymenoptera of Kansas: Wallace County: no specific locality); 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); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Snow, 1906:7 (Arizona); Salt, 1927:182 (stylopized specimens, as *alberti*; Arizona: Palmerlee and Tucson); 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 (in checklist of world Sphecidae); Krombein, 1979b:1589 (in cat-

alog 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); Steiner, 1986:98 (references to papers on nesting habits); Kingsley, Bailowitz, and Smith, 1987:18 (Arizona: Organ Pipe Cactus National Monument: Quitobaquito Springs area); Spofford, Kurczewski, and Downes, 1989:256 (references to publications on nest parasites *Hilarella hilarella* (Zetterstedt), *Metopia argyrocephala* (Meigen), and *Opsidia* sp., miltogrammine flies); Menke, 1994f:21 (Utah: Calf Creek Falls State Park); 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); Jiménez-Jiménez, and Placios-Cardiel, 2008:227 (Mexico: Baja California Sur: La Paz area; nesting habits); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **As *Sphex aberti***: Mickel, 1918b:403 (new combination, in catalog of Nebraskan Sphecidae, as *aberti*); Hicks, 1932b:145 (nesting habits); Fernald, 1934:80 (in revision of North American and West Indian *Ammophila*); Murray, 1938:41 (redescription); 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); Piek and Spanjer, 1986:189 (in list of Sphecidae with known prey).

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

Ammophila yarrowi Cresson, 1875:713, ♂. Lectotype: ♂, USA: Colorado: Pueblo (ANSP), designated 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*); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); G. Peckham and E. Peckham, 1905:41 (nest construction and closure); G. Carpenter, 1930b:297 (nest closure).

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

2. *abnormis* Dollfuss

Ammophila abnormis Dollfuss, 2013a:404, ♂. Holotype: ♂, Pakistan: Baluchistan: Gwal (BMNH). – Dollfuss, 2013a:402 (in key to *Ammophila* of Palearctic Region and India).

3. *acuta* (Fernald)

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

4. *adelpha* Kohl

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

Ammophila adelpha Kohl, 1901:152, ♀. Lectotype: ♀, China: Sinkiang (as Dzhungaria): no specific locality, designated by Dollfuss, 2013a:405 (NHMW). – Kohl, 1906b:343 (in revision of Palearctic Ammophilini); Gussakovskij, 1934a:6 (NW China); de Beaumont, 1957b:129 (n. Iran; diagnostic characters); Kazenas, 1968b:342 (Kazakhstan: Mangyshlak Peninsula); R. Bohart and Menke, 1976:150 (in checklist of world Sphecidae); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (type material in NHMW); Kazenas, 1992c:25 (Turkmenistan: Repetek Nature Reserve), 1998b:158 (in Sphecid Fauna of Kazakhstan); Esenbekova and Kazenas, 2000:12 (southeast Kazakhstan: 5-8 km E Bakanas); 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 Mountains), 2004d:28 (Kazakhstan: northern Caspian region), 2008a:98 (southeast Kazakhstan: 50 km E Chilik, near Kapchagay, near Bakanas); Danilov, 2010b:44 (distribution of Tethyan type); Dollfuss, 2013a:392, 393, 402, 403 (in key to *Ammophila* of Palearctic Region and India), 405 (in revision of *Ammophila* of Palearctic Region and India), 2013b:565 (locality records from Kazakhstan, Kyrgyzstan, and Uzbekistan).

5. *aellos* Menke

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

6. *afghanica* Balthasar

Ammophila afghanica Balthasar, 1957b:190, ♀, ♂ (♂ = *Ammophila sarekandana*). Holotype: ♀, Afghanistan: Badakhshan: Sarekanda (originally V. Balthasar collection, now NMPC). – R. Bohart and Menke, 1976:150 (in checklist of world Sphecidae); Dollfuss, 2013a:394, 403 (in key to *Ammophila* of Palearctic Region and India), 406 (in revision of *Ammophila* of Palearctic Region and India).

7. *albotomentosa* Morice

Ammophila albotomentosa Morice, 1900a:69, ♀, ♂. Syntypes: Algeria: Biskra (OXUM). Dollfuss (2013a) spoke of a holotype, but this cannot be regarded as designation of lectotype under Article 74.7 of the Code. – 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 *nasuta* group); R. Bohart and Menke, 1976:150 (in checklist of world Sphecidae); Gayubo, 1985b:492 (Spain: Valencia: Gillet; redescription); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:77 (in Sphecidae Fauna of Western Europe); Dollfuss, 2013a:387, 398 (in key to *Ammophila* of Palearctic Region and India), 407 (in revision of *Ammophila* of Palearctic Region and India), 2013b:566 (Tunisia: Gasfa).

8. *altigena* Gussakovskij

Ammophila altigena Gussakovskij, 1930b:73, ♂. Holotype: ♂, Tajikistan: Sary-kol Range on Chinese border of Pamir (originally ZIN, now lost?). – R. Bohart and Menke, 1976:150 (in checklist of world Sphecidae); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia); Dollfuss, 2013a:400 (in key to *Ammophila* of Palearctic Region and India), 408 (in revision of *Ammophila* of Palearctic Region and India), 2013b:566 (locality records from Kazakhstan and Uzbekistan).

9. *antenniferruginea* Yan and Li

Ammophila antenniferruginea Yan and Li, 2010:48, ♀. Holotype: ♀, China: Xingjiang Uygur Autonomous Region: Tuoli County (Academia Sinica).

10. *antropovi* Dollfuss

Ammophila antropovi Dollfuss, 2013a:409, ♂. Holotype: ♂, Tunisia: 25 km S Zarzis (OÖLM). – Dollfuss, 2013a:398 (in key to *Ammophila* of Palearctic Region and India), 2013b:566 (Tunisia: 25 km S Zarzis).

11. *aphrodite* Menke

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

12. *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 (in checklist of world Sphecidae); Genaro and Sánchez Alonso, 1990c:1 (nesting behavior); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Fernández, Sariol, Vega, Ricardo, González, and Portuondo, 2002:46 (Cuba: Provincia Granma); Portundo 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); Melander, 1903:161 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution). – *As Sphecx guerinii*: Holland, 1917:294 (new combination, Cuba: Isla de Pinos, now Isla de la Juventud: Nueva Gerona); Fernald, 1934:57 (in revision of North American and West Indian *Ammophila*).

13. *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 (in checklist of world Sphecidae).

14. *ardens* F. Smith

Ammophila ardens F. Smith, 1868b: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 (in checklist of world Sphecidae); Cardale, 1985:229 (in catalog of Australian Sphecidae).

15. *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 (in checklist of world Sphecidae).

16. *argyrocephala* Arnold

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

17. *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 collection, Torino). – 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); J. Smith, 1900:523 (in list of insects of New Jersey); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Murray *in* Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:150 (in checklist of world Sphecidae, = *Ammophila procera* or *Podalonia*); Casolari and Casolari Moreno, 1980:101 (specimens in M. Spinola collection, Torino); Pagliano, 2008:517 (unpublished lectotype in M. Spinola collection, Torino). – *As Sphecx arvensis*: J. Smith, 1910:676 (new combination, in new list of insects of New Jersey, as *arvensis* Dahlb.); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut); Rohwer *in* Viereck, 1925:682 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1012 (in catalog of New York Sphecidae).

18. asiatica Tsuneki

Ammophila asiatica Tsuneki, 1971k:166, ♀, ♂. Holotype: ♂, Mongolia: Uvs Aymag: Hödlon gol (TMB). – R. Bohart and Menke, 1976:150 (in checklist of world Sphecidae); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Nemkov, 2008b:17 and 2009b:48 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Danilov, 2010b:45 (distribution of Scythian type); Dollfuss, 2013a:394, 404 (in key to *Ammophila* of Palearctic Region and India), 410 (in revision of *Ammophila* of Palearctic Region and India), 2013b:566 (Mongolia: locality records).

19. assimilis Kohl

Ammophila assimilis Kohl, 1901d:150, ♀, ♂. Lectotype: ♀, Syria: no specific locality (NHMW), designated by Dollfuss, 2013a:411. – 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 (in checklist of world Sphecidae); 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); Murai and Amr, 2011:118 (recorded from Syria by Kohl, 1901); Dollfuss, 2013a:390, 400 (in key to *Ammophila* of Palearctic Region and India), 411 (in revision of *Ammophila* of Palearctic Region and India), 2013b:566 (locality records from Jordan and Syria); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces).

20. atlantica Roth

Ammophila nasuta var. *atlantica* Roth, 1928:199, ♀, ♂. Lectotype: ♀, Morocco: Tanger (MNHN), designated by Dollfuss, 2013a:412. – Nadig, 1933:101 (Morocco); Leclercq, 1955h:85 (bibliographic reference). – **As *Ammophila nasuta atlantica***: de Beaumont, 1951e:267 (new status; Morocco), 1963b:11 (subspecific status confirmed, in revision of *nasuta* group). – **As *Ammophila atlantica***: Bytinski-Salz *in* de Beaumont and Bytinski-Salz, 1955:38 (as full species); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Dollfuss, 2013a:387, 399 (in key to *Ammophila* of Palearctic Region and India), 412 (in revision of *Ammophila* of Palearctic Region and India), 2013b:567 (Morocco: locality records).

21. aucella Menke

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

22. aurifera R. Turner

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

23. 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); Melander, 1903:161 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); Fernald, 1934:152 (in revision of North American and West Indian *Ammophila*, 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); Steiner, 1973:25 (Canada: Northwest Territories, Yukon Territory); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Kumar, Lavigne, Lloyd, and Pfadt, 1976:51 (USA: Colorado: Pawnee National Grassland); Steiner, 1977:315 (remarkable constancy in captivity for overnight resting site); Krombein, 1979b:1590 (in catalog of North American

Hymenoptera); Finnamore, 1982:28 (in Sphecidae 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 National Monument; Arizona: Navajo County: 18 mi W Kayenta); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

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 (originally H. Fernald collection, now USNM). 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.

spp. clemente Menke

Ammophila azteca clemente Menke, 1967a:7, ♀, ♂. Holotype: ♂, USA: California: Los Angeles County: Island of San Clemente (Los Angeles County Mus.). – R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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).

24. barbara (Lepelletier de Saint Fargeau)

Cloptera barbara Lepelletier de Saint Fargeau, 1845:387, ♂. Syntypes: Algeria: Oran (originally Lepelletier de Saint Fargeau collection, 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 Sphecidae 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 sum-

mary of locality records); Giner Mari, 1945:362 (Río de Oro, now Western Sahara), 1947:18 (Río de Oro, now Western Sahara); Berland, 1950b:296 (Niger: Aïr 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), 1960e:3 (taxonomy and relationships); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Guichard, 1980:224 (Oman), 1988a:127 (Oman); Roche, 2007a:15 (first record from Egypt: Sinai Peninsula, in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Schmid-Egger, 2011b:593 (first record from United Arab Emirates: Wadi Bih), 597 (color photograph of male); Dollfuss, 2013a:394, 404 (in key to *Ammophila* of Palearctic Region and India), 413 (in revision of *Ammophila* of Palearctic Region and India), 2013b:567 (locality records from Jordan, Morocco, Syria, Tunisia, and Turkey); Schmid-Egger, 2014:615 (United Arab Emirates: Wadi Bih).

Ammophila barbara semota de Beaumont, 1967a:265, ♀. Holotype: ♀, Turkey: Ankara: Dickmen (BMNH). Synonymized with *Ammophila barbara* by Dollfuss, 2013a:413. – R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Gülmez and Tüzün, 2005:50 (Turkey: Ankara Province); Ljubomirov and Yildirim, 2008:34 (in catalog of Sphecidae of Turkey); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces).

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

25. *barbarorum* Arnold

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

26. *beaumonti* Dollfuss

Ammophila beaumonti Dollfuss, 2013a:414, ♀, ♂. Holotype: ♂, Mongolia: Gobi Aymag: 100 km NW Dalanzagdad Bayanzad (OÖLM). – Dollfuss, 2013a:389, 399 (in key to *Ammophila* of Palearctic Region and India).

27. *bechuana* (R. Turner)

Spheg 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 (in checklist of world Sphecidae).

28. *bella* Menke

Ammophila bella Menke, 1966b:27, ♀, ♂. Holotype: ♂, Mexico: Puebla: 3 mi N Petlalcingo (UCD). – R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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).

29. *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 (in checklist of world Sphecidae); 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).

30. *beniniensis* (Palisot de Beauvois)

Spheg 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 (in revision of southern African *Ammophila*), 1928:263 (in revision of southern African *Ammophila*), 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 tentative); 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: Mount 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 Mountains); Diniz, 1964c:110 (Angola: Lunda: Alto Chicapa, Andrada, Dundo, Muita-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 (in checklist of world Sphecidae); de Beaumont, 1967b:503 (South Africa, Zimbabwe); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); nec Guichard, 1980:224 (= *Ammophila panti*); 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 (probable synonym of *Ammophila beniniensis*); Brauns, 1911a:238 (South Africa, as *tennis*); Arnold, 1920:39 (in revision of southern African *Ammophila*), 1928b:263 (in revision of southern African *Ammophila*), 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: Delagoa Bay, now Maputo Bay; South Africa: Port Natal, now Durban; Zambia: 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 cyaniventris* Guérin-Méneville, 1843:9, ♂. Holotype or syntypes: ♂, Senegal: no specific locality (MSNG). Synonymized with *Sphex beniniensis* by R. Turner, 1919c:394. – Magretti, 1895:166 (Ethiopia: Ganale); Dalla Torre, 1897:398 (in catalog of world Hymenoptera, as *cyaneiventris*). – **As *Chlorion cyaniventris***: Jörgensen, 1912:285 (new combination, Argentina: Mendoza Province); Schrottky, 1913a:224 (Argentina, as *cyaneiventris*); Guiglia, 1948b:179 (type in Genova), 185 (redescription; as *cyaneiventris*). – **As *Sphex cyaniventris***: Piek and Spanjer, 1986:189 (in list of Sphecidae with known prey).
- ? *Ammophila rugicollis* Lepeletier de Saint Fargeau, 1845:373, ♂ (authorship attributed to Klug). Holotype or syntypes: ♂, South Africa: Cape of Good Hope (originally M. Spinola collection, Torino, now missing). 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, Torino); Pagliano, 2008:514 (specimens missing in M. Spinola collection, Torino).
- 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: Gauteng:Pretoria: Borea Park (TMP). 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: Gauteng: Pretoria: Borea Park (TMP). Synonymized with *Ammophila tenuis* by R. Turner, 1919c:394 and Brauns, 1917:241.

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

Ammophila sjoestedti Cameron, 1908a:267, ♂ (as *Sjostedti* incorrect original capitalization and diacritic mark). Holotype or syntypes: ♂, Tanzania: Mount 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 beninensis*, Madagascar). – As *Ammophila lugubris* var. *imerinae*: Kohl, 1909:371 (new status; Comoro Islands, Madagascar, Island of Europa in Mozambique Channel); Bischoff, 1912:220 (Zaire). – As *Ammophila beniniensis imerinae*: R. Bohart and Menke, 1976:151 (new status, in checklist of world Sphecidae); Pulawski, 2003b:795 (in checklist of Malagasy Sphecidae); Parnaudeau and Madl, 2009:459 (Island of Europa, western Indian Ocean).

As *Ammophila rubiginosa*: de Saussure, 1892:435 (Madagascar), corrected to *Sphex beninensis* 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 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae). – As *Ammophila beniniensis tomentosa*: R. Bohart and Menke, 1976:151 (new status, in checklist of world Sphecidae).

31. boharti Menke

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

32. bonaespei Lepeletier de Saint Fargeau

Ammophila bonaespei Lepeletier de Saint Fargeau, 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 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); 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); Pagliano, 2008:514 (lectotype in M. Spinola collection, Torino). – As *Sphex bonaespei*: Arnold, 1920:49 (new combination, in revision of southern African *Ammophila*), 1928b:275 (in revision of southern African *Ammophila*), 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).

33. *borealis* Li and C. Yang

Ammophila borealis Li and C. Yang, 1990:263, ♀, ♂. Holotype: ♀, China: Nei Mongol: City of Hailar (Beijing Agricultural University). – Hua, 2006:275 (in list of Chinese insects, geographic distribution); Dollfuss, 2013a:415 (original description translated from Chinese into English, in revision of *Ammophila* of Palearctic Region and India).

34. *braunsi* (R. Turner)

Sphex braunsi R. Turner, 1919c:395, ♀, ♂. Syntypes: South Africa: EasternCape Province: Willowmore (BMNH). – Arnold, 1920:42 (in revision of southern African *Ammophila*), 1928b:267 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae). – **As *Ammophila braunsi***: Leclercq, 1955h:88 (new combination, bibliographic references); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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).

35. *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); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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 (in checklist of world Sphecidae); 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); Steiner, 1986:98 (references to papers on nesting habits); 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); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **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 (in revision of North American and West Indian *Ammophila*, 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*).

36. *brevipennis* Bingham

Ammophila brevipennis Bingham, 1897:232, ♀. Holotype: ♀, India: Maharashtra: Bombay, now Mumbai (BMNH). – Giner Mari, 1945c:850 (India: Maharashtra: Khandala); Gupta, 1960:26 (India: Himalaya); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Dollfuss, 2013a:390 (in key to *Ammophila* of Palearctic Region and India), 416 (in revision of *Ammophila* of Palearctic Region and India).

37. *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 (in checklist of world Sphecidae); Krombein, 1979b:1590 (in catalog of North American Hymenoptera); Menke, 2007:37 (in review of *Ammophila pruinosus* complex).

38. *calva* (Arnold)

Sphex beniniensis var. *calvus* Arnold, 1920:38, ♀, ♂. Syntypes: Zimbabwe: Umgusa and Sawmills; South Africa: Zululand (SAM). – Arnold, 1928b:264 (in revision of southern African *Ammophila*), 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, in checklist of world Sphecidae).

39. *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); nec F. Smith, 1851c:17 and 1865b:86 (= *Ammophila pubescens*); 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: Sinków, Skala on Zbrucz River); 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); nec E. Saunders, 1880:248 (= *Ammophila pubescens*); Magretti, 1881:113 (Italy: Lombardia), 270 (in list of species discussed in this paper); 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); nec E. Saunders, 1896:88 (= *Ammophila pubescens*); 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: Island of Borkum); 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: Island of Jersey; 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 (homings); 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: Caraș-Severin: Mehadia); Schmiedeknecht, 1907:245 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Adlerz, 1909b: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 Luskopol' 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 Mountains = Gavur Dağları); E. Nielsen, 1921:323 (review of prey paralyzing); 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 (north 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); Picard, 1925b:162 (review of observations on stinging sequence), 163 (nest construction precedes hunting); Schütze, 1925:114 (Germany: Lausitz Region); 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); Berland, 1928b:175 (add Maneval, 1926, Grandi, 1926, and Crèvecoeur, 1928 to bibliography in Berland, 1925d); 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*); Pulkkinen, 1931:52 (in revision of Sphecidae of Finland); 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*); Maneval, 1932:90 (prey, spatial orientation); 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); E. Nielsen, 1935:196 (metabolism of paralyzed caterpillars is slightly above that of normal individuals), 215 (degeneration of nervous ganglia in paralyzed caterpillars); Vergne, 1935:117 (France: Auvergne: common); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:130 (Poland: Łowicz, Skarżysko); Heldmann, 1936:103 (Germany: Hessen: Bergstrasse); J. Muller, 1936:163 (Belgium); Pattri, 1936:113 (Germany: Hessen; Darmstadt area, on sandy habitats); Wnukowskij, 1936:128 (Russia: Western Siberia: railroad station Mezheninovka at 56°21'38"N 85°22'4"E); Dulac, 1937:7 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Goebel, 1937:47 (Poland: Poznań District: Głuszyna, Kobylepole, Puszczykowo, Strzeszyn, Wysogotowo); nec Richards, 1937b:104 (= *Ammophila pubescens*); Zavadil, Šustera, and Baťa, 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); Paul, 1941:48 (Germany: Pommern: common in Central- and Ostpommern, now Poland: Województwo Zachodniopomorskie); 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); Šnoflák, 1944a:144 (Czech Republic: serpentine steppe near

Mohelno); 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 (in key to Dutch *Ammophila*); Hellén, 1948:13 (*Ammophila campestris* confused with *A. adriaansei*, now *pubescens*); Leclercq, 1948:204 (less common in Belgium than *Ammophila pubescens*, locality records); Šnoflák in Zavadil and Šnoflák, 1948:100 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:7 (Portugal); Franz, 1949:13 (Austria: Hohe Tauern); nec Baerends and Baerends-van Roon, 1950:53 (= *Ammophila pubescens*); Cavro, 1950:31 (France: Département du Nord); Georgel, 1950:63 (France: Seine-et-Oise: Sucy-en-Brie); Szulczewski, 1950:108 (Poland: Wielkopolski National Park 15 km S Poznań); Kjellander, 1951:48 (specimens studied by Adlerz are *Ammophila alpicola*, collected in Sweden only in Slättö and Hälsingborg); Glowacki, 1953:521 (Poland: Konstancin near Warszawa); Heldmann, 1953:112 (Germany: Hessen: Eberstädter Düne near Darmstadt); Leininger, 1953:18 (Germany: Baden-Württemberg); Nouvel and Ribaut, 1953:176 (France: Haute-Garonne: Saint-Béat, Luchon, Hautes-Pyrénées: Cadéac, Cauterets); Bischoff and Stadler, 1954:126 (Germany: Bayern: Romberg); de Beaumont, 1954e:86 (Italy); Grandi, 1954:153 (nesting habits), 235 (Italy); Aerts, 1955:64 (Germany: Rheinland); de Beaumont, 1955:56 (effects of stylopization); Steiner, 1955:133 (France: Dordogne); nec Teschner, 1955:57 (= *Ammophila pubescens*); Vogrin, 1955:30 (Yugoslavia); Ceballos, 1956:359 (in catalog of Hymenoptera of Spain); Evans and Lin, 1956a:147 (larva's description by Grandi, 1926); Bajári, 1957a:13 (in key to Hungarian Sphecidae); Fahlander, 1957:63 (Sweden: Småland: Ryssby); Grandi, 1957:386 (Italy); Zirngiebl, 1957:185 (Germany: Rheinland-Pfalz: Birkenheide, Leistadt); Benno, 1958b:10 (in review of Dutch Sphecidae); de Beaumont, 1958c:201 (Swiss National Park); Evans, 1958e:451 (behavioral evolution); Nelson, 1958:154 (Great Britain: Island of Man), may be *Ammophila sabulosa* according to Nelson, 1981:145; de Beaumont, 1959a:7 (Italy, form?); Diniz, 1959:26 (Portugal: Serra do Gerês); Wolf, 1959b:28 (known from Germany, but not from Nassau); Čingovski, 1960:5 (Macedonia: Yakupitsa); Noskiewicz and Pulawski, 1960:37 (in key to Polish Sphecidae); Scobiola, 1960b:233 (Romania: Simleul Silvaniei Region: Giurtelec); Grandi, 1961:129 (nesting habits), 469 (description of larva); Maréchal and Petit, 1961:82 (taxonomic history, comparison with *Ammophila adriaansei* [= *pubescens*], distribution in Belgium); Hoop, 1963b:8 (Germany: Schleswig-Holstein: Lehmrade); de Beaumont, 1963:290 (Switzerland); Evans, 1963a:150 (prey specialization as distinctive character); Myartseva, 1963b:59 (Turkmenistan: lower Murgab River); de Beaumont, 1964a:290 (relation to *pubescens* and unrecognized species from Swiss Alps), 1964c:26 (in Sphecid Fauna of Switzerland); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle), 200 (in the area found only sporadically); de Beaumont, 1965a:12 (Greece); Diniz, 1965:2 (Portugal: Coimbra, Rezende); Fæster, 1965:192 (Denmark: Hansted Nature Reserve); Myartseva, 1965:84 (Turkmenistan: Akibay, Karabata, Yolotan, and Murgab district); Pulawski, 1965b:260 (structure of gastral segment I); Benno, 1967:33 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967:268 (Turkey); Gauss, 1967:550 (Germany: Baden-Württemberg); J. Heinrich, 1967:69 (Germany: Bayern: Unterfranken District); Niedl and Deneš, 1967:86 (Czech Republic: Třeboň area); H. Schulz, 1967:59 (Germany: Brandenburg: Ruhlsdorf near Potsdam); Scobiola-Palade, 1967b:36 (Romania); Benedek, 1968:70 (Hungary, floral records); Kazenas, 1968b:342 (Kazakhstan: Alma Ata and Gur'yev, now Atyraū, oblasts); Parré, 1968:122 (Germany: Sachsen-Anhalt: Staßfurt); de Beaumont, 1969:81 (Turkey); Benedek, 1969a:83 (Hungary; marshy meadow); Lefeber, 1969c:232 (Netherlands: St. Pietersberg = Montagne Saint Pierre); Romanova, 1969:133 (Russia: North Caucasus); Schmidt, 1969:161 (Germany: Rhein-Main area: Mainzer Sand); Zangheri, 1969:1699 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:96 (Hungary: Tapolca); Islamov, 1970:63, 64 (Uzbekistan: Chirchik Basin); Oehlke, 1970:672 (Democratic Germany); Wolf, 1971:374 (Italy: Trentino–Alto Adige: Alpi Siusi); Schmidt, 1971b:22 (Germany: Rheinland-Pfalz: between Gonsenheimer Wald and Mainzer Sand); Balthasar, 1972:430 (in Sphecid Fauna of Czechoslovakia); Kazenas, 1972b:98 (Kazakhstan); Oehlke, 1972:134 (Germany: Island of Hiddensee); Simon Thomas, 1972:175 (France: Landes, Lot-et-Garonne); Haeseler, 1973:53 (Germany: Schleswig-Holstein: Segrahner Berg 12 km SE Mölln); Wolf, 1973:41 (Germany: Siegerländer Hüttensand); Kazenas, 1974b:108 (feeding on flow-

ers of *Tamarix* sp. in Kazakhstan), 109 (feeding on flowers of *Statice gmelini* Willd., Plumbaginaceae, *Euphorbia* spp., Euphorbiaceae, in Kazakhstan), 110 (feeding on flowers of *Daucus carota* L., Apiaceae, in Kazakhstan), 111 (feeding on flowers of *Thymus marschallianus* Willd., Lamiaceae, *Saussurea* sp., Asteraceae, and *Lepidium crassifolium* W. et K., Brassicaceae, in Kazakhstan); Kim, Yoon, and Kim, 1975:21 (Korea, as *camptotris*); Lomholdt, 1975c:80 (in Sphecidae Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Simon Thomas, 1976:3 (France: Lot-et-Garonne: Forêt de Campet); Tsuneki, 1976d:291 (taxonomy); Kolesnikov, 1977:317 (Russia: Bryansk Oblast'); Schmidt, 1977/78:55 (Germany: Rheinland-Pfalz: Mombacher Sand); Guichard, 1978:269 (Greece); Haeseler, 1978c:193 (Germany: Friesian Islands: Island of Borkum); Kazenas, 1978b:37 (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); Leclercq, Gaspar and Verstraeten, 1979:map 1404 (Belgium); Lefeber, 1979:11 (in checklist of Sphecidae of Netherlands), 20 (Netherlands: distribution map); Radović and Krunić, 1979:unpaginated foldout (nesting in hard soil, foreleg structure); Richards, 1979:400 (British Channel Islands); Schwammberger, 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: Friesian Island: Island of Amrum); Schmidt, 1981:221 (Germany: Baden-Württemberg); 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 of Hiddensee; activity depending on weather condition; determination tentative, may be *Ammophila pubescens*); Haack, Tschantke, 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: Friesian 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); Paik, 1985:197 (in list of Sphecidae of Korea); Radović, 1985:64 (sting apparatus analyzed); 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 Oblast's); Nemkov, 1986:93 (Russia: Irkutsk Oblast'); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:98 (references to papers on nesting habits); 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 Šedivy, 1989a:166 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:94 (Belarus: 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: *Calluna*-meadows); Schwammberger 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 Follatères); 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'yankovsk Oblast'); Schmid-Egger, 1994a:687 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert, 1994c:32 (records from Niedersachsen and Bremen, Germany, probably refer to *Ammophila pubescens*); 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); Negrisolo, 1995a:18 (visiting flowers of *Echinophora spinosa* L.), 22 (Italy: Veneto); Negrisolo 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); Saure and Dürrenfeld, 1995:29 (Germany: Brandenburg: Gabower Hänge near Bad Freienwalde); Scharrer, 1995:22 (Germany: Bayern: Aschaffenburg); Schmid-Egger, Risch, and Niehuis, 1995:163 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:423, 424 (Poland: pine forest in Białowieża Primeval Forest); Blösch, 1996:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Jakubzik, 1996:251 (Germany: Köln); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); Lauterbach, 1996:133 (Germany: Nordrhein-Westfalen: Bielefeld area); Minoranskiy and Shkuratov, 1996:81 (Russia: Rostov Oblast'); Saure, 1996:502 (Germany: Berlin-Pankow: sewage irrigation field); 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 Mountains); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:78 (in Sphecid Fauna of Western Europe); Celary, 1997:57 (in checklist of Animals of Poland); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); 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); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józán, 1998:310 (Hungary: Duna-Dráva National Park); Kazenas, 1998b:160 (in Sphecid Fauna of Kazakhstan); Mauss and Schindler, 1898:136 (Germany: Schleswig-Holstein: Nordfriesland District); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); N. Schneider, Olinger, and Cungs, 1998:160 (Luxemburg: Remerschen); van der Smissen, 1998:53 (Germany: Schleswig-Holstein, Niedersachsen); Anan'eva and Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); Kochetkov, 1999:6 (Russia: Ryazan Oblast': no specific locality); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: strongly endangered in Nordrhein-Westfalen); Ljubomirov, 1999b:44 (Bulgaria: Mount Vitosha near Sofia); Neumayer, Schwarz, and Bregant, 1999:223 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:107 (in catalog of Belgian aculeates); M. Schwarz, 1999:84 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:127 (in Sphecid Fauna of Germany); Cartier, 2000a:74 (France: Hauts-de-Seine: Rueil-Malmaison); Dressler, 2000:30 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:12 (southeast Kazakhstan: Aksu-Dzhabagly, 3 km NW Bakanas, 64 km W Taraz); 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); Józán, 2000:104 (Hungary: Bakony Mountains); 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); Józán, 2001:277 (Hungary: Somogy County); 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); van

der Smissen, 2001:58 (Germany: Schleswig-Holstein: strongly endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien); Bieri, 2002:72 (Liechtenstein); Józán, 2002:53 (Hungary: Mecsek Mountains); 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); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: Island of Romelsön); Drewes, 2003:132 (France, Germany: miscellaneous locality records); Józán, 2003: 226 (Hungary: Látrányi Pusztá Nature Conservation Area); Lukáš, 2003:73 (Slovakia: Bratislava: old fruit orchard); 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 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Hellrigl, 2004a:172 (Italy: Trentino-Alto Adige, as Südtirol: Vinschgau = Val Venosta: Sulden); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mountains), 2004d:28 (Kazakhstan: northern Caspian region); Shkuratov, 2004a:72 (Russia: Rostov Oblast'), 2004b:164 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Sphecidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); 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, Kargapazarý, Oltu; Kayseri: Hacýlar); Gülmez and Tüzün, 2005:50 (Turkey: Ankara Province); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Jacobs, 2005a:436 (Bulgaria); Kofler, 2005:165 (Austria: Tirol: Lienz District: Tessenberg Fronstadel-Alm in Heinfels Common, road to Stoan = Stein in Matrei Common, Lebnitztal in St. Johann Common); 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 Negrisola, 2005:66 (in Sphecid Fauna of Italy); Pijfers, 2005:49 (Netherlands: Twente: Noordelijke Manderheide); Riemann and Hohmann, 2005:543 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:13 (Germany: Berlin); Shorenko, 2005a:163 (Ukraine: Crimea); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Yildirim and Ljubomirov, 2005:1788 (Turkey: Erzurum: Aribahçe, Aşkale); Blösch, 2006:63 (specimens spend nights attached to plant stems or leave blades with their mandibles); Feitz, Gloden, Melchior, and Schneider, 2006:83 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); Shlyakhtenok, 2006:110 (Belarus': Polesye Radiological Nature Reserve); Tomarchio and Turrisi, 2006:954 (Italy: first record from Sicilia: Mount Etna); Jacobs, 2007:46, 47 (in key to Sphecidae of Germany); Józán, 2007:179 (Hungary: Zselic hills); Kazenas, 2007a:89 (Kazakhstan: Akkala Oblast': Kurgandzhin Nature Reserve and vicinity); Saure, 2007:81 (Germany: in checklist of Aculeata of Brandenburg); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:199 (in catalog of Sphecidae of Czech Republic and Slovakia); Danilov, 2008:346 (Russia: Altayskiy Krai: Barnaul area); Ljubomirov and Yildirim, 2008:34 (in catalog of Sphecidae of Turkey); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:307 (Germany: Friesian Islands); Nemkov, 2008b:17 (in catalog of Sphecidae of Asiatic Russia); Pagliano, 2008:515 (specimens in M. Spinola collection, Torino); Protsenko and Drozdovskaya, 2008:125 (Ukraine: Sumy Oblast': Mogritsa village); Theunert, 2008:7 (Germany: map of distribution in Niedersachsen and Bremen); Danilov, 2009:56 (Russia: Western Siberia: Kulundinskaya Steppe); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of

central Hessen); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Nemkov, 2009b:48 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Bitsch, 2010:106 (in supplement to vol. II of Faune de France, 1997: recent record from Sicily reported); Danilov, 2010b:45 (distribution of transpalearctic type); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Mokrousov, 2010:60 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities); Rudoiskatel', 2010:147 (Russia: central and southern Ural Mountains); Saure, 2010b:174 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:22 (in red list of Aculeata of Germany: relatively common); Shorenko and Kononov, 2010:10 (Ukraine); Smit and Wijngaard, 2010:69 (in checklist of Sphecinae of Netherlands); Baghirov, 2011b:139 (Russia: Altayskiy Kray: Savvushka); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:497 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Gogala, 2011:7 (Slovenia); Saure, 2011d:199 (Germany: Sachsen-Anhalt: conservation area "Heide südlich Burg"); Theunert, 2011a:18 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:66 (Germany: Hessen: endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:52 (Ukraine: Crimea; Russia: Irkutsk Oblast': near Bakhtay and Bolshoy Goloustnyi); Nemkov, 2012c:434 (in catalog of Sphecidae of Russian Far East); Saure, 2012b:227 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012b:91 (Belarus: Beresina National Reserve: overgrowing dry meadow); Akulov and Proshchalykin, 2013:111 (Russia: Siberia: Krasnoyarsk Kray); Bitsch, Grouet, and Savina, 2013:291 (France: Pyrénées centrales: département d'Ariège: col de Pailhères), 292 (France: Pyrénées-Orientales: col de Puymorens); Braun-Reichert, 2013:14 (Germany: Bayern: pastures between Regensburg and Nürnberg); Dollfuss, 2013a:394, 404 (in key to *Ammophila* of Palearctic Region and India), 417 (in revision of *Ammophila* of Palearctic Region and India), 2013b:567 (locality records from Austria, Czech Republic, France, Greece, Hungary, Italy, Kazakhstan, Kyrgyzstan, Romania, Russia, Serbia, Slovakia, Tunisia, and Turkey); Mokrousov, Ruchin, and Egorov, 2013:198 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Saure, 2013:17 (Berlin: Treptow-Köpenick: Gosener Wiesen); Shlyakhtenok, 2013:131 (in annotated catalog of aculeate wasps of Belarus); Wiśniowski and Szczepko, 2013:20 (Poland: Kampinos National Park near Warszawa); Hellqvist, Abenius, and Norén, 2014:90 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces). – **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); Herrich-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 Tabula Synoptica of Sphecidae); Lepeletier de Saint Fargeau, 1845:386 (in revision of world Hymenoptera); 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); F. Smith, 1853:62 (in checklist of British Hymenoptera); 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); F. Smith, 1858c:84 (in review of British Aculeata, redescription); Assmuss, 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); Jaenicke, 1867:147

(Germany: Hessen: Frankfurt area); Schenck, 1867a:357 (Germany: Nassau Region); Dietrich, 1868:364 (Switzerland: Zurich Canton); Jaenicke, 1868:9 (Germany: Hessen: Rüsselsheim); Aichinger, 1870:321 (Austria: Tirol); Thomson, 1870:230 (in revision of Swedish wasps); F. Smith, 1871b:9 (in catalog of British Aculeata); P. Ivanov, 1872:152 (Ukraine: Khar'kiv Oblast': Kupyansk 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*); Yaroshevskiy, 1881:127 (Ukraine: Khar'kiv Oblast': Khar'kiv, Kupyansk); Radoszkowski, 1887b:91 (in list of Transcaspien 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, Torino).

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 slovacica Zavadil in Zavadil, Šusterka, and Baťa, 1937:213, ♂. Holotype: ♂, Slovakia: Děvinská Kobyla (Natl. Mus. Praha). Synonymized with *Ammophila campestris* by Noskiewicz, 1939:163 and Balthasar, 1972:430. – Šnoflák in Zavadil and Šnoflák, 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 (in checklist of world Sphecidae).

40. *caprella* Arnold

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

41. *cellularis* Gussakovskij

Ammophila cellularis Gussakovskij, 1930c:203, ♀. Holotype: ♀, Russia: sw. Siberia: Pavlodar (ZIL). – R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia), 1998b:162 (in Sphecidae Fauna of Kazakhstan), 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia, as *cellularis*), 2002a:36 (geographic distribution, collecting localities in Kazakhstan); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe), 2010b:45 (distribution of Scythian type); Dollfuss, 2013a:393 (in key to *Ammophila* of Palearctic Region and India).

42. *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); Melander, 1903:161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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 to Ammophilini of Costa Rica, in revision of Ammophilini of Costa Rica); Menke and Parker, 1996:186 (Costa Rica: population largest during 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, in revision of North American and West Indian *Ammophila*).

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); Melander, 1903:161, 162 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera). – **As *Sphex consors***: Fernald, 1934:41 (new combination, in revision of North American and West Indian *Ammophila*).

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); Melander, 1903:162 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); Fernald, 1934:157 (in revision of North American and West Indian *Ammophila*, as unrecognized species).

43. *clavus* (Fabricius)

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

Sphex clavus Fabricius, 1775:348, sex not indicated (as *clauus*). 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 (redescription); Dahlbom, 1845:XX (specimens in collection Fabricius are *Ammophila holosericea*). – **As *Ammophila clavus*** 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, 1925a:381 (Indonesia: Sumatra); Sonan, 1927:132 (new combination, Taiwan, as *clvus*); Yasumatsu, 1935a:3, 22 (China: Jehol Region); Iwata, 1939b:165 (nesting habits); Sonan, 1942:134 (in revision of Ammophilini of Taiwan, as *clavus*); van der Vecht, 1961a:39 (redescription of type material, as *clavus*); Tsuneki, 1962b:25, 26 (in key to Ammophilini of Japan and Korea; synonymy); Iwata, 1964b:358 (nesting behavior in Thailand), 1965:107 (number of oocytes); Tsuneki, 1966a:21 (Japan), 1967e:2 (China: Manchuria), 1967i:383 (Ruykyu Islands and Taiwan), 1967j:5 (Taiwan), 9, 11 (in key to Ammophilini of East Asia); Okuno, 1969:63 (nesting habits); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Brockmann, 1985b:312 (nest closure summary); Cardale, 1985:229 (in catalog of Australian Sphecidae); Naumann, 1993:181 (Australia: Queensland: Heathlands area in Cape York), 1998:182 (Australia: northwest Queensland: Musselbrook area, approximately 18°40'S 138°23'E); Ohl and Linde, 2003:149 (number of ovarioles); Hua, 2006:275 (in list of Chinese insects, geographic distribution, as *clavus clavus*); Nagase, 2006b:2 (specimens collected by First Scientific Expedition to Manchoukou, 1933, now part of eastern China); Pagliano, 2008:514 (specimens in M. Spinola collection, Torino); Dollfuss, 2013a:392, 402 (in key to *Ammophila* of Palearctic Region and India), 419 (in revision of *Ammophila* of Palearctic Region and India), 2013b:568 (locality records from China, India, Indonesia, Laos, Malaysia, Thailand, and Vietnam).

Ammophila atripes F. Smith, 1852a:46, ♀. Holotype or syntypes: ♀, India: Maharashtra: Khandaly (BMNH). Synonymized with *Ammophila clavus* by Dollfuss, 2013a:419. – F. Smith, 1856:217 (in catalog of Hymenoptera in British Museum); de Motschoulsky, 1863:23 (Sri Lanka, listed); F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region), 97 (redescription); Bingham, 1896a:437 (in list of

- Aculeata of Sri Lanka, bibliographic references), 1897:229 (redescription; prey: Locustidae, probably in error); Dalla Torre, 1897:395 (in catalog of world Hymenoptera); Cameron, 1901a:25 (Malaysia); Rothney, 1903:104 (India: West Bengal: Barrackpore); 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: Kelimotoc; specimens from Timor = *Ammophila insolata auricollis*); Iwata and Yoshikawa, 1961:398 (Thailand); Tsuneki, 1963i:101 (Malaysia); Yasumatsu and Hirashima, 1965:176 (Taiwan: Tainan); Baltazar, 1966:342 (occurrence in Philippines doubtful); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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*), 1995c: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 habitus, as *atripes atripes*); Terayama and Tano, 2006:7, 14, 18 (in key to Japanese Ampulicidae and Sphecidae). – **As *Ammophila clavus atripes***: Tsuneki, 1957j:15 (new status), 1967j:9 (in key to Ammophilini of East Asia), 1974b:590 (Tailand, Malaysia). – **As *Sphex atripes***: Rohwer, 1922:671 (new combination, Philippines).
- Ammophila basalis* F. Smith, 1856:214, ♀. Syntypes: ♀, India or Pakistan: Punjab: no specific locality (BMNH). Synonymized with *Ammophila clavus* by Dollfuss, 2013a:419. – F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Bingham, 1897:231 (redescription); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Nurse, 1893a:520 (description of ♂); Rothney, 1903:104 (India: West Bengal: Barrackpore); 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 (in checklist of world Sphecidae); 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, 1871a:359 (in catalog of Oriental Aculeata), 1878b:167 (Burma: Tenasserim Province); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region), 97 (redescription); Bingham, 1897:231 (redescription); Dalla Torre, 1897:405 (in catalog of world Hymenoptera); Rothney, 1903:104 (India: West Bengal: Barrackpore); Bingham, 1905:44 (Malaysia: Sungkei); Dutt, 1912:202 (India: Pusa).
- Ammophila dimidiata* F. Smith, 1856:216, ♀, junior primary homonym of *Ammophila dimidiata* (Christ, 1791). Syntypes: ♀, India: Bombay, Madras, north Bengal (BMNH). Tentatively synonymized with *Ammophila atripes* by R. Bohart and Menke, 1976:151, synonymy confirmed by Dollfuss, 2013a:418. – F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Bingham, 1897:230 (redescription); Dalla Torre, 1897:398 (in catalog of world Hymenoptera); Rothney, 1903:104 (India: West Bengal: Barrackpore).
- Ammophila similima* F. Smith, 1856:217, ♀. Holotype or syntypes: ♀, China: Hong-Kong (BMNH). Synonymized with *Ammophila atripes* 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 pulchella* F. Smith, 1856:218, ♂. Syntypes: China: Hong Kong and Shanghai (BMNH). Synonymized with *Ammophila atripes* by Bingham, 1897:229. – Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Nomura, 1934:25 (Japan: Ryukyu Islands, as *sulchella*).
- Ammophila longiventris* de Saussure, 1867:24, ♂. Lectotype: ♂, Sri Lanka: Trincomalee (MHNG), designated by Menke in R. Bohart and Menke, 1976:151. Synonymized with *Ammophila atripes* by Bingham, 1897:229, synonymy confirmed by W. Schulz, 1911b:162. – Bingham, 1896a:437 (in list of Aculeata of Sri Lanka, bibliographic references); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Casolari and Casolari Moreno, 1980:100 (specimen in M. Spinola collection, Torino); Pagliano, 2008:510 (specimen in M. Spinola collection, Torino).
- Ammophila humbertiana* de Saussure, 1867:25, ♀. Lectotype: ♀, Sri Lanka: Trincomalee (MHNG), designated by Menke in Bohart and Menke, 1976:151. Synonymized with *Ammophila atripes* by W. Schulz, 1911b:161. – Radoszkowski, 1871:196 (China: Zheizhang Province: Ning-Po); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Bingham, 1896a:437 (in list of Aculeata of Sri Lanka, bibliographic references), 1897:230 (redescription); Dalla Torre, 1897:403 (in catalog of world Hymenoptera).
- Ammophila spinosa* F. Smith, 1873a:259, ♀. Holotype or syntypes: ♀, China: Hong Kong (BMNH). Synonymized with *Ammophila atripes* by Bingham, 1897:229. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera).
- Ammophila orientalis* Cameron, 1889c:9, ♀. Syntypes: origin not indicated, but probably India (OXUM). Synonymized with *Ammophila basalis* by Bingham, 1897:231. – Cameron, 1889c:3 (in list of Sphecidae of Oriental Region); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Dollfuss, 1989:7 (type material in NHMW).
- 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 atripes* by Bingham, 1897:229. – Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Dalla Torre, 1897:396 (in catalog of world Hymenoptera); Dollfuss, 1989:7 (type material in NHMW).

ssp. formosana Strand

- Ammophila formosana* Strand, 1913:85, ♀, ♂. Syntypes: Taiwan: many localities (DEI). – Strand, 1927:253 (in list of species described by the author); Dollfuss, 2013a: 419 (in revision of *Ammophila* of Palearctic Region and India, listed in synonymy of *Ammophila clavus*). – **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); Dollfuss, 2013a:419 (in revision of *Ammophila* of Palearctic Region and India, listed in synonymy of *Ammophila clavus*). – **As *Ammophila clavus formosana***: Tsuneki and Iida, 1969:17 (description of larva), 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 collection, now USNM). Synonymized with *Ammophila clavus formosana* by Tsuneki, 1971f:4. – Tsuneki, 1967j:9 (in key to *Ammophilini* of East Asia), 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. – Dollfuss, 2013a: 419 (in revision of *Ammophila* of Palearctic Region and India, listed in synonymy of *Ammophila clavus*); 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); Paik, 1985:197 (in list of Sphecidae of Korea); Tsuneki, 1991:199 (Korea); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:386 (in key to Sphecidae of Russian Far East); Suda, 2004:35 (Japan: Yamanashi Prefecture); Negoro, Haneda, and Tano, 2005:43 (Japan: Toyama Prefecture); N. Yamamoto,

2011:11 (Japan: Kyūshyū: mainland Nagasaki Prefecture). – **As *Ammophila clavus japonica***: Tsuneki, 1967j:9, 11 (in key to *Ammophila* of East Asia), 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 (in checklist of world Sphecidae); Dollfuss, 2013a: 419 (in revision of *Ammophila* of Palearctic Region and India, listed in synonymy of *Ammophila clavus*).

Ammophila taschenbergi Cameron, 1889c:94. Substitute name for *Ammophila erythropus* Taschenberg. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Dollfuss, 2013a: 419 (in revision of *Ammophila* of Palearctic Region and India, listed in synonymy of *Ammophila clavus*). – **As *Ammophila atripes taschenbergi***: R. Bohart and Menke, 1976:151 (new status, in checklist of world Sphecidae).

44. *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 (in checklist of world Sphecidae); 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); Spofford, Kurczewski, and Downes, 1989:258 (reference to publication on nest parasite *Senotainia littoralis* Allen, a miltogrammine fly); Menke, 1994f:21 (Utah: Calf Creek Falls State Park and Monticello area); 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); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario), 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.

45. *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); Dollfuss, 2013a:421 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

46. *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 (in checklist of world Sphecidae); Krombein, 1979b:1591 (in catalog of North American Hymenoptera).

47. *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 ♂), 1883b:616 (in revision of Canadian Hymenoptera); Taylor, 1884:80 (Canada: British Columbia: Island of Vancouver); 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); J. Smith, 1900:523 (in list of insects of New Jersey); nec Harrington, 1902:224 (= *Amophila urnaria*); Melander, 1903:159 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Murray

in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Krombein, 1979b:1591 (in catalog of North American Hymenoptera). – **As *Sphex conditor***: J. Smith, 1910:676 (new combination, in new list of insects of New Jersey); nec Faull, 1913:384 (= *Ammophila urnaria*); Fernald, 1926:8 (as new synonym of *Ammophila procera*); Krombein and Evans, 1955:233 (Florida).

48. *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: Air area, as *confusa* Smith); Leclercq, 1955h:92 (bibliographic references, as incertae sedis); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae).

49. *conifera* (Arnold)

Sphex conifer Arnold, 1920:47, ♀, ♂ (as *conifera*, incorrect original termination). Syntypes: South Africa: Eastern Cape Province: Willowmore; Zimbabwe: Bulawayo (SAM). – Arnold, 1928b:273 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae); Marshall, 1997:3 (reference to original description). – **As *Ammophila conifera***: Salt, 1927:182 (new combination, stylopized specimen; Zaire: Kabare); Leclercq, 1955h:87 (bibliographic references, locality records); de Beaumont, 1967b:504 (South Africa); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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).

50. *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); Melander, 1903:162 (in key to North American *Ammophilini*), 164 (bibliographic references, geographic distribution); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Amarante, 2002:66 (in catalog of Neotropical Sphecidae). – **As *Sphex cora***: Fernald, 1934:107 (new combination, in revision of North American and West Indian *Ammophila*).

51. *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 (in checklist of world Sphecidae); 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 (in list of Sphecidae of Oriental Region, 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).

52. *crassifemoralis* (R. Turner)

Sphex crassifemoralis R. Turner, 1919d:48, ♂. Holotype: ♂, Uganda: Mount Elgon or Nzoia River valley in N Kavirondo (BMNH). – Arnold, 1928b:261 (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 (in checklist of world Sphecidae).

53. *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 (in checklist of world Sphecidae); Reyes and Hernández, 1995:3 (holotype in Inst. Ecol. Sist., La Havana, Cuba); Amarante, 2002:66 (in catalog of Neotropical Sphecidae); Hidalgo-Gato González, Reyes Sánchez, Mestre Novoa, Fernández García, Rodríguez-León Merino, Rodríguez Velázquez, Genaro Artola, and Fontenla Rizo, 2002:29 (holotype deposited at IZAC); Portuondo and Fernández, 2004:134 (Cuba: Sierra Maestra); Genaro, 2006:51 (in checklist of Cuban Sphecidae and Crabronidae).

54. *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); Melander, 1903:161 (in key to North American *Ammophilini*), 164 (bibliographic references, geographic distribution); Fernald, 1934:155 (in revision of North American and West Indian *Ammophila*, as unrecognized species); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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).

55. *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 (in checklist of world Sphecidae); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); Kazenas, 1998b:163 (in Sphecid Fauna of Kazakhstan); 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); Kazenas, 2008a:98 (southeast Kazakhstan: 35 km N Chilik, 65 km W Bakanas); Danilov, 2010b:44 (distribution of Tethyan type); Dollfuss, 2013a:389, 399 (in key to *Ammophila* of Palearctic Region and India), 421 (in revision of *Ammophila* of Palearctic Region and India), 2013b:596 (locality records from Kazakhstan, Turkmenistan, and Uzbekistan).

56. *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 (in checklist of world Sphecidae); 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 Asiatic Russia); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe); Nemkov, 2009b:49 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Danilov, 2010b:45 (distribution of Scythian type), 2011a:189 (Russia: Primorskiy Kray: Khanka Rayon: Komissarovo), 2011b:203 (Russia: Zabaikal'skiy Kray: Daur'skiy Nature Reserve); Nemkov, 2012c:434 (in catalog of Sphecidae of Russian Far East); Akulov and Proshchalykin, 2013:111 (Russia: Siberia: Krasnoyarsk Kray); Dollfuss, 2013a:393, 403 (in key to *Ammophila* of Palearctic Region and India), 423 (in revision of *Ammophila* of Palearctic Region and India), 2013b:569 (locality records from China, Kyrgyzstan, Mongolia, and Russia: Tyva Republic).

57. *djaouak* de Beaumont

Ammophila djaouak de Beaumont, 1956a:178, ♂. Holotype: ♂, Libya: Tripolitania: Gargaesc (BMNH). – de Beaumont, 1960b:226 (Libya), 1963b:18 (in revision of *nasuta* group); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Roche, 2007a:16 (first record from Egypt, description of ♂, in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:398 (in key to *Ammophila* of Palearctic Region and India), 424 (in revision of *Ammophila* of Palearctic Region and India), 2013b:569 (Tunisia: Tataouine).

58. dolichocephala Cameron

Ammophila dolichocephala Cameron, 1910b:135, ♂. Syntypes: ♂, South Africa: Gauteng: Pretoria (TMP). – Brauns, 1917:241 (syntypes in TMP); Leclercq, 1955h:87 (bibliographic references); de Beaumont, 1967b:504 (Namibia); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae).

59. dolichodera Kohl

Ammophila dolichodera Kohl, 1884a:383, ♂. Syntypes: ♂, South Africa: Western Cape Province: Prince Albert area (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: Nyarumbugu); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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); Sakenin, Samin, and Bagriacik, 2010:17 (Iran: Kermanshah: Ravansar); Schmid-Egger, 2011b:593 (first record from United Arab Emirates: Wadi Bih, Wadi al-Helo, Wadi Maidad, Wadi Safid, Wadi Wurayah), 598 (color photograph of male); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:359 (in new catalog of Sphecidae of Saudi Arabia). – **As *Sphex dolichoderus***: R. Turner, 1919c:396 (new combination, synonymy); Arnold, 1920:48 (in revision of southern African *Ammophila*), 1928b:274 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae), 1935a:503 (South Africa: Kalahari).

Ammophila macrocola Kohl, 1884:377, ♂. Holotype or syntypes: ♂, South Africa: Western Cape Province: Prince Albert area (depository?). Synonymized with *Ammophila dolichodera* by R. Bohart and Menke, 1976:151.

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).

60. dubia Kohl

Ammophila dubia Kohl, 1901d:159, ♀, ♂. Lectotype: ♀, Egypt: no specific locality (NHMW), designated by Dollfuss, 2013a:425. – 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 (in checklist of world Sphecidae); Dollfuss, 1989:7 (type material in NHMW); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:19 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:387, 397 (in key to *Ammophila* of Palearctic Region and India), 425 (in revision of *Ammophila* of Palearctic Region and India), 2013b:569 (locality records from Morocco and Yemen); Schmid-Egger, 2014:615 (United Arab Emirates).

61. duhokensis Augul, Abdoul-Rassoul, and Kaddou

Ammophila duhokensis Augul, Abdoul-Rassoul, and Kaddou, 2013:15, ♀, ♂. Holotype: ♂, Iraq: Duhok Governorate: Mount Sheranish (Iraq Natural History Museum).

62. 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 (in checklist of world Sphecidae); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Steiner, 1986:98 (references to papers on nesting habits); 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*); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

63. *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); Dollfuss, 2013a:392, 402 (in key to *Ammophila* of Palearctic Region and India), 426 (full species status, in revision of *Ammophila* of Palearctic Region and India), 2013b:569 (Tunisia: locality records). – *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 (in checklist of world Sphecidae).

64. *elongata* Fischer de Waldheim

Ammophila elongata Fischer de Waldheim, 1843:2, ♀, ♂. Syntypes: Southern Russia: no specific locality (NHMW, ZMHU). Dollfuss (2013a) spoke of a holotype, but this cannot be regarded as designation of lectotype under Article 74.7 of the Code. – 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: Ili in Alma Ata Oblast', Aidarly in Taukum Desert); Myartseva, 1972a:86 (Turkmenistan); Kazenas, 1974b:108 (feeding on flowers of *Tamarix* sp. in Kazakhstan), 109 (feeding on flowers of *Statice gmelini* Willd., Plumbaginaceae, *Euphorbia* spp., Euphorbiaceae, in Kazakhstan), 110 (feeding on flowers of *Nitraria schoberi* L. and *Peganum harmala* L., Zygophyllaceae, in Kazakhstan), 112 (feeding on flowers of *Apocynum lancifolium* Russ., Apocynaceae, in Kazakhstan); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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, 1998b:165 (in Sphecid Fauna of Kazakhstan); Esenbekova and Kazenas, 2000:12 (southeast Kazakhstan: 3 km NW Borandysu, Chinghil'su, 10 km NW Chundzha, near Kapchagay, 5 km SW village Kazakhstan); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:36 (geographic distribution, collecting localities in Kazakhstan), 2004d:28 (Kazakhstan: northern Caspian region); Danilov, 2010b:45 (distribution of Tethyan type); Dollfuss, 2013a:391, 401 (in key to *Ammophila* of Palearctic Region and India), 2013b:569 (locality records from Iran, Kazakhstan, Mongolia, Turkey, and Turkmenistan).

65. *erminea* Kohl

Ammophila erminea Kohl, 1901d:157, ♀, ♂. Lectotype: ♀, Egypt: no specific locality (NHMW), designated by Dollfuss, 2013a:428. – 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 Marí, 1945b:362 (Morocco: Western Sahara), 1945e:219 (Western Sahara); Alfieri, 1946:140 (in revision of Egyptian *Ammophila*); Giner Marí, 1947:19 (Western Sahara); de Beaumont, 1951e:265 (Morocco; Zeitoun is in Egypt, not in Malta as accepted by Kohl; range: Sinai to Río de Oro, now Western Sahara); 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 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, as *ermenia*); Roche, 2007a:19 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Schmid-Egger, 2011b:597 (United Arab Emirates: Jebel Hafit S al-Ain, Sharjah/Tawi as-Saman oasis, Wadi Bih, Wadi Wurayah), 598 (color photograph of male); Dollfuss, 2013a:388, 397 (in key to *Ammophila* of Palearctic Region and India), 428 (in revision of *Ammophila* of Palearctic Region and India), 2013b:570 (locality records from Egypt, Iran, Jordan, Morocco, Tunisia, and Yemen); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:359 (in new catalog of Sphecidae of Saudi Arabia); Schmid-Egger, 2014:615 (United Arab Emirates).

Ammophila dantoni: Roth in Nadig, 1933:101, ♀, ♂ only (as *Dantoni*, incorrect original capitalization, ♀ = *Ammophila rubripes*). Holotype: sex not indicated, Morocco: no specific locality (originally A. Nadig collection, now Zurich). Male synonymized with *Ammophilae erminea* by Dollfuss, 2013a:428, female synonymized with *Ammophila rubripes* by Dollfuss, 2013a:480.

66. *evansi* Menke

Ammophila evansi Menke, 1964a:20, ♀, ♂. Holotype: ♂, USA: Connecticut: Litchfield County: Colebrook (MCZ) – R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); 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); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)).

67. *exsecta* Kohl

Ammophila propinqua var. *exsecta* Kohl, 1906:364, sex not indicated. Holotype: Syria: no specific locality (NHMW). – **As *Ammophila exsecta***: R. Bohart and Menke, 1976:151 (new status, in checklist of world Sphecidae); Dollfuss, 1989:7 (type material in NHMW); Murai and Amr, 2011:118 (recorded from Syria by Kohl, 1906); Dollfuss, 2013a:388, 395 (in key to *Ammophila* of Palearctic Region and India), 429 (in revision of *Ammophila* of Palearctic Region and India), 2013b:570 (Jordan: Mubalath in Jordan valley).

68. *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 *extremitator*); Melander, 1903:157 (diagnostic characters), 159, 160, 161, 162 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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 tentative); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Krombein, 1979b:1591 (in catalog of North American Hymenoptera). – **As *Sphex extremitatus***: H. Smith, 1908b:330 (new combination, in revision of Nebraskan Sphecidae); J. Smith, 1910:677 (in new list of insects of New Jersey, as *extrematata*); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut, as *extrematata*, probably in error); Mickel, 1918b:404 (in catalog of Nebraskan Sphecidae); Rohwer in Viereck, 1925:681, 682 (in key to Sphecidae of Connecticut, as *extrematata*); nec *Sphex guerinii extremitatus*: Fernald, 1934:62 (= *Ammophila fernaldi*).

69. *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 (in checklist of world Sphecidae); Cardale, 1985:229 (in catalog of Australian Sphecidae).

70. *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); Melander, 1903:160 (in key to North American Ammophilini, as *femur-rubrum*), 164 (bibliographic references, geographic distribution, as *femur-rubru*); Fernald, 1934:54 (as new synonym of *Sphex volcanicus*); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae, as valid species); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

71. *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 (Arizona: regular member of sleeping aggregation at Southwest Research Station); Evans, 1964b:241 (description of larva); Menke, 1965a:260 (species identification by Evans, 1964d:241, is correct); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Krombein, 1979b:1591 (in catalog of North American Hymenoptera); Finnamore, 1982:30 (in Sphecid 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Kathirithamby, Lechner, McMahon, Bryson, and Johnston, 2012:466 (stylopization by *Paraxenos lugubris* Pierce).

As *Sphex guerinii extremitatus*: Fernald, 1934:62 (new status, in revision of North American and West Indian *Ammophila*), corrected to *Sphex fernaldi* by Murray, 1938:19 (who referred to it as *Sphex placidus extremitatus*).

72. *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 collection, 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, 1884c: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: Limpopo Province: Waterval), 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 (in checklist of world Sphecidae, reverted to full species status); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); 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); Pagliano, 2008:514 (holotype in M. Spinola collection, Torino); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – As *Sphex ferrugineipes*: R. Turner, 1919c:396 (new combination, synonymy);

Schouteden, 1930:95 (Zaire). – **As *Sphex bonaespei* var. *ferrugineipes***: Arnold, 1920:51 (new status, in revision of southern African *Ammophila*), 1928b:276 (in revision of southern African *Ammophila*), 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, 1961:13 (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: ♂, Tanzania: Mount Kilimanjaro: Kibonoto, and Mount Meru lowlands: Ngare na nyuki (NRS). Synonymized with *Sphex ferrugineipes* by Arnold, 1928b:279.

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

73. *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), 163 (bibliographic references, geographic distribution); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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 wrightii*), 1934:41 (valid species, in revision of North American and West Indian *Ammophila*).

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 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Cresson, 1916:94 (holotype in ANSP); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:510 (specimens in M. Spinola collection, Torino). – **As *Psammophila 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).

74. *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 (in checklist of world Sphecidae, as tentative member of *Ammophila*); Roche, 2007a:139 (recorded from Egypt, is a *nomen dubium*).

75. *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 (in checklist of world Sphecidae); 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); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

76. *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 collection, now USNM). – Tsuneki, 1967j:5 (Taiwan), 10, 11 (in key to Ammophilini of East Asia); 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 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:5 (in checklist of Sphecidae of Taiwan); Dollfuss, 2013a:391, 400 (in key to *Ammophila* of Palearctic Region and India), 430 (in revision of *Ammophila* of Palearctic Region and India).

77. *ganquana* Yang and Li

Ammophila ganquana Yang and Li, 1989:105, ♀, ♂. Holotype: ♀, China: Shaanxi Province: Ganquan County: Qingquan (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); Dollfuss, 2013a:431 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

78. *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); Melander, 1903:161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Nascimento and Overal, 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 to Ammophilini of Costa Rica), 194 (in revision of Ammophilini of Costa Rica); 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, in revision of North American and West Indian *Ammophila*).

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); Melander, 1903:161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution).

79. *globifrontalis* Li and Ch. Yang

Ammophila globifrontalis Li and Ch. Yang, 1995b:574, ♀, ♂. Holotype: ♀, China: Guangxi Province: Nanning: Forestry Research Institute (Beijing Agricultural University). – Li and He, 2004:1119 (in hymenopterous fauna of Zhejiang Province, China); Dollfuss, 2013a:432 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

80. *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); Snow, 1881:96 (in check-

list of Hymenoptera of Kansas: Douglas and Wallace counties: no specific locality); Provancher, 1883b:615 (in revision of Canadian Hymenoptera); Cresson, 1887:274 (in catalog of North American Hymenoptera); Cameron, 1888a:16 (Mexico, redescription); C. Robertson, 1892:103 (visiting flowers of *Mentha canadensis* L.), 105 (visiting flowers of *Pycnanthemum lanceolatum* Ph.), 106 (visiting flowers of *Pycnanthemum muticum* Pers.), 107 (visiting flowers of *Pycnanthemum linifolium* Ph.), 1894:460 (visiting flowers of *Aster paniculatus* Lam.), 468 (visiting flowers of *Rudbeckia triloba* Linnaeus); Dalla Torre, 1897:400 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); J. Smith, 1900:523 (in list of insects of New Jersey); Melander, 1903:159, 161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Viereck, 1903d:121 (Maryland: Chestertown); G. Peckham and E. Peckham, 1905:43 (prey carrying, homing); Ducke, 1907b:90 (Brasil: Maranhão State: Alcantara); Schrottky, 1909c:210, 212 (occurring on dry sand); J. Smith, 1910:676 (in new list of insects of New Jersey); Cheesman, 1929:151 (Panama: Colón); Menke, 1965a:216 (synonymy); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Nascimento and Overal, 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); Pagliano, 2008:510 (specimens in M. Spinola collection, Torino, including ♀ holotype); Buys, 2009e:276 (Rio de Janeiro: several localities), 2011b:2 (Brazil: Rio de Janeiro: Petrópolis, Rio de Janeiro, Teresópolis); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Buys and Rodrigues, 2014:37 (Brazil: first record from State of Espírito Santo: several localities).

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, 1907:90 (Brazil: Maranhão: Alcantara, as *gracilis*, corrected to *fragilis* by Ducke, 1910:110); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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 (in revision of North American and West Indian *Ammophila*); 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 (in checklist of world Sphecidae, 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 (in checklist of world Sphecidae, as tentative synonym of *Ammophila gracilis*); Genise, 1990:26 (type material in Museo de Montevideo).

81. *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* (bib-

liographic 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*); Kruger, 1929a:21 and 1929b:56 (Libya: Cyrenaica: Giarabub); Roth, 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: Kunshan-tagh Desert); Guiglia, 1942b:229 (Libya); Giner Marí, 1945e:219 (Western Sahara); Alfieri, 1946:131 (in revision of Egyptian *Ammophila*); Giner Marí, 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), 1966:48 (preying on caterpillars), 49 (Turkmenistan: lower course of Murgab and Tedjen rivers; preying on caterpillars of *Pericyma albidentaria* Fr.); de Beaumont, 1967a:266 (Turkey); Tsuneki, 1967e:2 (China: Manchuria); Kazenas, 1968b:342 (Kazakhstan: Alma Ata and Aktyubinsk oblast's); Myartseva, 1969:50 (nest construction, prey: noctuid larvae, larval development); 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* Semenov, a chrysidid); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp. and *Statice gmelini* Willd., Plumbaginaceae, in Kazakhstan), 111 (feeding on flowers of *Astragalus* sp., Fabaceae, *Saussurea* sp., Asteraceae, and *Lepidium crassifolium* W. et K., Brassicaceae, in Kazakhstan), 112 (feeding on flowers of *Lappula spinocarpos* Aschers., Boraginaceae, and *Allium caspium* Pall., Liliaceae, in Kazakhstan); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); 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 Zalat, 1994:114 (Egypt: Sinai Peninsula); Wu and Zhou, 1996a:51 (in revision in Economic Insect Fauna of China); Kazenas, 1998b:166 (in Sphecid Fauna of Kazakhstan); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Esenbekova and Kazenas, 2000:13 (southeast Kazakhstan: six localities); 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 Mountains), 2004d:28 (Kazakhstan: northern Caspian region); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Nagase, 2006b:2 (specimens collected by First Scientific Expedition to Manchoukou, 1933, now part of eastern China); Roche, 2007a:16 (in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe), 2010b:44 (distribution of Palearctic-Ethiopian type); Schmid-Egger, 2011b:597 (first record from United Arab Emirates: Al-Ajban); Dollfuss, 2013a:389, 391, 399, 401 (in key to *Ammophila* of Palearctic Region and India), 433 (in revision of *Ammophila* of Palearctic Region and India), 2013b:570 (locality records from Algeria, Iran, Jordan, Kazakhstan, Morocco, Oman, Saudi Arabia, Syria, Tunisia, Turkmenistan, and Uzbekistan); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:359 (in new catalog of Sphecidae of Saudi Arabia); Schmid-Egger, 2014:615 (United Arab Emirates). – **As *Sphecx 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, ♀. Lectotype: ♀, Russia: Sarepta, now Krasnoarmeysk near Volgograd (NHMW), designated by Dollfuss, 2013a:433. Synonymized with *Ammophila gracillima* by Roth, 1928:188. –

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 Kohl, 1906:324. – Dalla Torre, 1897:398 (in catalog of world Hymenoptera).

Ammophila philomela Nurse, 1903a:519, ♀. Holotype or syntypes: ♀, India: Gujarat: Deesa (BMNH), synonymized with *Ammophila gracillima* by Dollfuss, 2013a:433. – Ramakrishna Aiyar, 1916:554 (in catalog of Indian aculeates described after Bingham, 1897); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae).

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

82. *guichardi* de Beaumont

Ammophila guichardi de Beaumont, 1956a:176, ♀, ♂. Holotype: ♀, Libya: n. Tripolitania: Giado, now Jadu (BMNH). – de Beaumont, 1960b:226 (Libya), 1966:211 (Egypt: Wadi Digla near Cairo); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Guichard, 1988a:127 (Saudi Arabia: Lodar); Roche, 2007a:20 (in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:386, 397 (in key to *Ammophila* of Palearctic Region and India), 434 (in revision of *Ammophila* of Palearctic Region and India); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia).

83. *gusenleitneri* Dollfuss

Ammophila gusenleitneri Dollfuss, 2013a:435, ♀, ♂. Holotype: ♂, Morocco: Oued Massa SW Tiznit (OÖLM). – Dollfuss, 2013a:387, 396 (in key to *Ammophila* of Palearctic Region and India).

84. *gussakovskii* Dollfuss

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

Ammophila gussakovskii Dollfuss, 2013a:436, substitute name for *Ammophila rugicollis* Gussakovskij, 1930. – Dollfuss, 2013a:392, 402 (in key to *Ammophila* of Palearctic Region and India), 436 (in revision of *Ammophila* of Palearctic Region and India), 2013b:570 (Kazakhstan: Ili River in Bakanas District, 6 km SE Lepsi).

85. *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 (redescription), 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); Kruger, 1929a:21 and 1929b:56 (Libya: Cyrenaica: Giarabub); 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 (in checklist of world Sphecidae); Georghiou, 1977:188 (Cyprus); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:98 (references to papers on nesting habits); 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); Roche, 2007a:16 (in checklist of Egyptian Sphecidae, as *haimatosoma haimatosoma*), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae, as *haimatosoma haimatosoma*); Sakenin, Samin, and Bagriacik, 2010:17 (Iran: Kerman: Jiroft); Schmid-Egger, 2011b:597 (first record from United Arab Emirates: Dubai/Nakhalai), 601 (color photograph of male); Dollfuss, 2013a:392, 401 (in key to *Ammophila* of Palearctic Region and India), 437 (in revision of *Ammophila* of Palearctic Region and India), 2013b:571 (locality records from Algeria, Iraq, Jordan, and Yemen); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia). – **As *Sphex haimatosoma***: R. Turner, 1918a:91 (new combination, Pakistan: Karachi).

spp. *sinaitica* Alfieri

Ammophila haimatosoma variété *sinaitica* Alfieri, 1946:128. Holotype: ♀, Egypt: Sinai Peninsula: Wadi El Ghedeirat (originally A. Alfieri collection, now USNM). – Dollfuss, 2013a:437 (listed in synonymy of *Ammophila haimatosoma*). – **As *Ammophila haimatosoma sinaitica***: R. Bohart and Menke, 1976:152 (new status, in checklist of world Sphecidae); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:16 (in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae).

86. *haladai* Dollfuss

Ammophila haladai Dollfuss, 2013a:439, ♀, ♂. Holotype: ♂, Turkey: Mut: Sertavul (OÖLM). – Dollfuss, 2013a:394, 404 (in key to *Ammophila* of Palearctic Region and India), 2013b:571 (Turkey: locality records).

87. *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); Krombein, 1958f:192 (in supplement to catalog of North American Hymenoptera: description of larva by Evans and Lin, 1956a, reported). – **As *Ammophila harti***: Murray in Muesebeck et al., 1951:975 (new combination, in catalog of North American Hymenoptera); Evans and Lin, 1956a:146 (description of larva), 1958e:451 (behavioral evolution), 1959d:459 (nesting behavior), 1963c:62 (nest closure), 1970:485 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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); Spofford, Kurczewski, and Downes, 1989:258, 260 (nest parasites: *Senotainia trilineata* (Wulp), and *Sphenometopa tergata* (Coquillett), miltogrammine flies), 260 (references to publications on nest parasites *Senotainia vigilans* Allen, a miltogrammine fly, and undetermined Miltogrammini); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1990:747, 749, 750 (nest parasites: *Senotainia trilineata* (Van der Wulp), *Senotainia vigilans* Allen, *Sphenometopa tergata* (Coquillett), and unknown species of Miltogrammini, Sarcophagidae), 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).

88. *hemilauta* Kohl

Ammophila hemilauta Kohl, 1906:360, ♀. Lectotype: ♀, Tunisia: Médenine (NHMW), designated by Dollfuss, 2013a:440. – 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 *nasuta* group); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Dollfuss, 1989:7 (type material in NHMW); Roche, 2007a:17 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:387, 398 (in key to *Ammophila* of Palearctic Region and India), 2013b:571 (Tunisia: 20 km SE Gabes, Kebili, Tataouine).

89. *hermosa* Menke

Ammophila hermosa Menke, 1966b:31, ♀, ♂. Holotype: ♂, USA: California: Mono County: Black Lake (UCD). – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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).

90. *heteroclypeola* Li and Xue

Ammophila heteroclypeola Li and Xue, 1998:181, ♀, ♂. Holotype: ♀, China: Xingjiang: Wujiagu (Zhejiang Agricult. Univ.). – Dollfuss, 2013a:441 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

91. *hevans* Menke

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

92. *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); A. Costa, 1863:65 (Italy: Calabria Ulteriore: no specific locality); 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); J. Lichtenstein, 1975b:CCII (position of nympe inside cocoon, as *Heydeini*); Frivaldszky, 1876:354 (Hungary: Temes Komitat: Grebenáčz, 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); Magretti, 1881:113 (Italy: Lombardia), 270 (in list of species discussed in this paper); Yaroshevskiy, 1881:127 (Ukraine: Khar'kiv Oblast': Khar'kiv); 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 Is-

land of Hvar, 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); Schletterer, 1894:30 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); De Stefani Perez, 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*); de Cobelli, 1903:104 (Italy: Province of Trentino); Antiga and Bofill, 1904:3 (Spain: Cataluña Province); E. Saunders, 1904c:635 (Spain); Zilahi Kiss, 1904:77 (Hungary: Nagyfalu); 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); Vángel, 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: Mehădia); 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 *heydeni*); 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 Mountains = Gavur Dağlari); 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 Ghazaouet); 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); Picard, 1925b:163 (nest provisioning of either mass type or delayed type, nest construction precedes hunting, prey: geometrid caterpillars); Rabaud, 1925:173 (a nest containing a caterpillar was open, mother *A. heydeni* visited it and disappeared, she appeared three days later, bringing second prey, the third prey was found four hours later, with an egg on it); 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); Berland, 1928b:175 (add Grandi, 1926 and Roth, 1928 to bibliography in Berland, 1925d); 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 rec-

ords); Gussakovskij, 1934a:6 (China: Sinkiang: Kuldja, as *heydenii*); Maidl, 1934:64 (Greece: Aegean Islands); Molitor, 1934b:170 (homing), 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, Šustera, and Bat'a, 1937:212 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938a:80 (Hungary: Pótharaszt puszta), 1938c:81 (Hungary: Kőszeg Hills), 1939:5 (Hungary: Jászberény); Zavadil, 1939:121 (Czech Republic: Morava: Čejč); Guiglia, 1941c:165 (Italy: Calabria: Grande Sila), 1942a:59 (Greece: Island of Rhodes: 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); Šnoflák, 1944a:144 (Czech Republic: serpentine steppe near Mohelno); 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); Šnoflák *in* Zavadil and Šnoflák, 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); Hertzog, 1956:146 (nest construction, prey: geometrid caterpillars); 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: Island 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: Island of Crete); 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: 37 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 (Romania); Benedek, 1968:70 (Hungary, floral records); Kazenas, 1968b:342 (Kazakhstan: Alma Ata, Aktyubinsk, and Kyzyl-Orda oblast's); Scobiola-Palade, 1968b:141 (Romania: Island of Letea in delta of Danube), 1968c:382 (Romania: București, Budești, Cernica, Copăceni); de Beaumont, 1969:81 (Turkey); Schmidt, 1969:160 (Germany: record from Rhein-Main area is tentative); 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 tentative); 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 Sphecida 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); Esmaili and Rastegar, 1974:45 (Iran); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp., *Statice gmelini* Willd., Plumbaginaceae, *Cynanchum sibiricum* Willd., Asclepiadaceae, *Euphorbia* spp., Euphorbiaceae, in Kazakhstan), 110 (feeding on flowers of *Nitraria schoberi* L. and *Peganum harmala* L., Zygophyllaceae, and *Alhagi pseudalhagi* M.B. Desv., Fabaceae, in Kazakhstan), 111 (feeding on flowers of *Saussurea* sp., Asteraceae, *Lepidium crassifolium* W. et K., Brassicaceae, *Barbarea vulgaris* R. Br., Brassicaceae, and *Gypsophila trichotoma* Wend., Caryophyllaceae, in Kazakhstan), 112 (feeding on flowers of *Salsola* sp., Chenopodiaceae, and *Gallium* sp., Rubiaceae, in Kazakhstan); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Georghiou, 1977:188 (Cyprus); Kolesnikov, 1977:317 (Russia: Bryansk Oblast'); Tyrner, 1977:125 (first record from Czech Republic: Písečný vrch near Bečov); 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); Islamov and Kazenas, 1979:64 (Uzbekistan: floral records); Radović and Krunić, 1979:unpaginated foldout (nesting in coarse sand and loose soil, foreleg structure, as *Haydeni*); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, as *hegdeni*); Pagliano, 1980:111 (Italy: Piemonte); Gayubo, 1981a:139 (northern 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); Radović, 1985:64 (sting apparatus analyzed, as *heideni*); 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); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:98 (references to papers on nesting habits); 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* Šedivý, 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), 135 (unknown from Democratic Germany); Gayubo, Asís, and Tormos, 1990a:12 (Spain); 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); Negrisoló, 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: Ul'yanovsk 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); Negrisoló, 1995a:18 (visiting flowers of *Eryngium maritimum* L. and *Echinophora spinosa* L.), 22 (Italy: Veneto); Negrisoló in Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Scharrer, 1995:22 (Croatia: Istria Peninsula, Slovenia: Portorož); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); Minoranskiy and Shkuratov, 1996:81 (Russia: Rostov Oblast'); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:79 (in Sphecid Fauna of Western Europe; description of two cryptic species confused under the name of *heydeni*); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); 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); Kazenas, 1998b:168 (in Sphecid Fauna of Kazakhstan); 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 Sphecid Fauna of Germany); Esenbekova and Kazenas, 2000:13 (southeast Kazakhstan: eleven localities); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:105 (Greece); Józán, 2000:104 (Hungary: Bakony Mountains); 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); Józán, 2001:277 (Hungary: Somogy County); 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 Vitosha near Sofia); Mazzucco, 2001:203 (Austria: Niederösterreich: Steinfeld); Ohl et al., 2001:142 (recorded from Germany but not occurring there); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:37 (geographic distribution, collecting localities in Kazakhstan); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien); Shkuratov, 2002b:138 (Russia: Rostov Oblast': Rostovski 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); Józán, 2003: 226 (Hungary: Látrányi Pusztá Nature Conservation Area); Lukáš, 2003:73 (Slovakia: Bratislava: old fruit orchard); 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); Gorobchishin and Protsenko, 2004:39 (Ukraine: Kherson Oblast': Chernomorskiy Nature Reserve); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mountains), 2004d:28 (Kazakhstan: northern Caspian region); Shkuratov, 2004a:72 (Russia: Rostov Oblast'), 2004b:164 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); 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, 2005a:436 (Bulgaria); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Pagliano and Negrisoló, 2005:66 (in Sphecid 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: Magnisia Peninsula at 39°N 23°E); Baghirov, 2007:93 (Russia: southwestern Siberia); 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); Józán, 2007:179 (Hungary: Zselic hills); Kazenas, 2007a:90 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Roche, 2007a:139 (recorded from Egypt by Kohl, 1906, but not occurring there); Vepřek and Straka, 2007:199 (in catalog of Sphecidae of Czech Republic and Slovakia); Yildirim and Ljubomirov, 2007:116 (Turkey: nine localities); Danilov, 2008:346 (Russia: Altayskiy Kray: Barnaul area, as *heydeni heydeni*); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šíma, 2008:65 (Czech Republic: Hády Hill near Brno); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Kazenas, 2008b:111 (Kazakhstan: foothills of Zailiskiy Alatau: sometimes found on basis of loess cliffs), 2008c:255 (Kazakhstan: village Koktum S Lake Alakol'); Ljubomirov and Yildirim, 2008:35 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asiatic Russia); Pagliano, 2008:511 (specimens in M. Spinola collection, Torino); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe, as *heydeni heydeni*); Gayubo, González, Tormos, and Asís, 2009:362 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Józán, 2009:164 (Croatia); Nemkov, 2009b:49 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Zettel, Wagner, Zimmermann, Wiesbauer, Sorger, Ockermüller, and Seyfert, 2009:10 (Austria: Oberösterreich: Pfaffstätten); Bitsch, 2010:106 (in supplement to vol. II of Faune de France, 1997: France: first records from Loir-et-Cher: La Ferté-Imbault, Saint-Laurent-des-Eaux, and from Loiret: Beaugency); Danilov, 2010b:44 (distribution of western Palearctic type); Ghazi-Soltani, Ebrahimi, Iranipour, and Pour Abad, 2010:798 (Iran: East Azarbaijan: Tabriz: Dand mountains and Khalatpoushan; Jolfa: Shiahroud; Sarab); Mokrousov, 2010:60 (Russia: Tatarstan: no specific localities); Rudoiskatel', 2010:147 (Russia: southern Ural Mountains); Shorenko and Konovalov, 2010:10 (Ukraine); Tüzün and Yüksel, 2010:4469 (Turkey: Niğde Province); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:497 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Gogala, 2011:7 (Slovenia); Protsenko and Drozdovskaya, 2011:90 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Boillat, 2012:229 (Switzerland: in checklist of insects of Canton de Genève); Prisiy, 2012:46 (Russia: Belgorod Oblast'); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:52 (Ukraine: Crimea; Russia: Krasnodarskiy Kray: Anapa); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Yildirim, 2012:75 (Turkey: Adana, Erzurum, and Kars provinces); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Dollfuss, 2013a:387, 396 (in key to *Ammophila* of Palearctic Region and India), 442 (in revision of *Ammophila* of Palearctic Region and India), 2013b:571 (locality records from Armenia, Austria, Bulgaria, China, Croatia, Czech Republic, France, Greece, Hungary, Italy, Iran, Jordan, Kazakhstan, Kosovo, Kyrgyzstan, Moldavia, Mongolia, Portugal, Russia: Runnyi in Rostov District, Serbia, Slovakia, Spain, Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan, and Yemen); Kazenas, 2013a:34, 35 (color photographs of adult wasps, short information on geographic distribution and nesting habits); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces, as *heydeni heydeni*). – **As *Podalonia heydeni***: Bischoff, 1931:8 (new combination, Spain).
- ? *Sphecx 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* (bibliographic reference); 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: no specific locality); 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).

spp. 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 Transcaspian Hymenoptera); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976 (as tentative synonym of *Ammophila heydeni* or *quadraticollis*); Dollfuss, 2013a:442 (listed in synonymy of *Ammophila heydeni*). – 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), 1966:48 (preying on caterpillars), 1969: 51 (prey: larvae of noctuid *Mamestra sociabilis irrisor* Ersch., preimaginal development), 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)

spp. 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), 1883:57 (Italy: Sardegna: island of Asinara and Terranova), 1884b:32 (Italy: Sardegna: Gennargentu); 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); Ferton, 1908:577 (is a climate induced variety of *Ammophila heydeni*); Mantero, 1911:71 (Italy: Sardegna: Isola dell'Asinara); Ferton, 1923:138 (nest closure), 343 (females occur in Corsica together with *Ammophila heydeni*, males have coloration of *heydeni*); Georghiou, 1977:189 (Cyprus); Dollfuss, 2013a:442 (listed in synonymy of *Ammophila heydeni*). – 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); Esmaili and Rastegar, 1974:45 (Iran); 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); Negrisolo 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 Negrisolo, 2005:67 (in Sphecid Fauna of Italy).

Ammophila heydeni var. *sarda* Kohl, 1906:367, ♀. Lectotype: ♀, Italy: Sardinia: no specific locality (NHMW), designated by Dollfuss, 2013a:442. 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).

93. 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). Neotype: ♀, Morocco: 15 km SE Sefrou (OÖLM), designated by Dollfuss, 2013a:443. 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); Ghiliani, 1842:24 (listed from Italy: Sicilia after Fabricius, as *holosericia*); Dahlbom, 1843:9 (in revision of Sphecidae and Pompilidae), 1845:430 (in key to *Ammophila*); Lepeletier de Saint Fargeau, 1845:378 (in revision of world Hymenoptera); 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 Region); Taschenberg, 1869:432 (represented in Halle University collection); Aichinger, 1870:321 (Austria: Tirol, now Italy: Trentino–Alto Adige; as *holosericea* Dahlb.); P. Ivanov, 1872:152 (Ukraine: Kharkov Oblast': Kupyansk 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 Region: Dzwynograd, Skala on Zbrucz River; 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); Yaroshevskiy, 1881:127 (Ukraine: Khar'kiv Oblast': Kupyansk); Magretti, 1884a:249 (Sudan); Ed. André, 1886:70 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Cuni 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); Cuni 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); Picard, 1925b:162 (review of observations on stinging sequence, the correct name is probably *heydeni*); Roth, 1928:208 (in revision of North African *Ammophilini*), 227 (nesting habits), 1929:185 (in revision of Spanish *Ammophilini*); Giner Mari, 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); Radović and Krunić, 1979:unpaginated foldout (nesting in coarse sand and loose soil, foreleg structure); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Radović, Krunić and Brajković, 1982:28 (Yugoslavia); Radović, 1985:64 (sting apparatus analyzed); Steiner, 1986:98 (references to papers on nesting habits); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:81 (in Sphecid Fauna of Western Europe); Pagliano, 2008:511 (specimens in M. Spinola collection, Torino); Dollfuss, 2013a:387, 397 (in key to *Ammophila* of Palearctic Region and India), 443 (in revision of *Ammophila* of Palearctic Region and India), 2013b:575 (locality records from Morocco and Tunisia).

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

94. *honorei* Alfieri

Ammophila honorei Alfieri, 1946:140, ♀ (as *Honorei*, incorrect original capitalization). Holotype: ♀, Egypte: Sinai: between el Arish and Hassana (originally A. Alfieri collection, now Al Azhar University, Cairo). – de Beaumont and Bytinski-Salz, 1955:40 (Israel, description of ♂); Leclercq, 1955h:87 (bibliographic references); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Guichard, 1991a:338 (Jordan); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:16 (in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian

Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:394, 404 (in key to *Ammophila* of Palearctic Region and India), 445 (in revision of *Ammophila* of Palearctic Region and India), 2013b:575 (Jordan: S Shuna in Jordan valley, Petra).

95. *horni* von Schulthess

Ammophila horni von Schulthess, 1927:297, ♂. Holotype: ♂, Sudan: Port Sudan (DEI). – de Beaumont, 1963b:21 (se. Egypt; in revision of *nasuta* group); Oehlke and Wudowenz, 1974:423 (holotype in DEI); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Roche, 2007a:17 (in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:388, 397 (in key to *Ammophila* of Palearctic Region and India), 445 (in revision of *Ammophila* of Palearctic Region and India).

96. *hungarica* Mocsáry

Ammophila hungarica Mocsáry, 1883:25, ♀ (as *Hungarica*, incorrect original capitalization). Holotype or syntypes: ♀, Hungary: Lipótmező 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 (in checklist of world Sphecidae); 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); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:81 (in Sphecid Fauna of Western Europe); Kazenas, 1998b:170 (in Sphecid Fauna of Kazakhstan); Gusenleitner, 1999:594 (Austria: locality records); Pauly, 1999:107 (in catalog of Belgian aculeates); Józán, 2000:104 (Hungary: Bakony Mountains); Esenbekova and Kazenas, 2000:13 (southeast Kazakhstan: 37 km SW Taraz, 10 km SW Zhanatas); 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); Józán, 2002:53 (Hungary: Mecsek Mountains); 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 Mountains); Cruz-Sánchez, Gayubo, González, and Torres, 2005:219 (Spain: Salamanca: San Martín del Castañar); Gülmez and Tüzün, 2005:51 (Turkey: Ankara Province); Jacobs, 2005aa:436 (Bulgaria: Arkutino near Burgas); Pagliano and Negrisolo, 2005:67 (in Sphecid Fauna of Italy); Standfuss and Standfuss, 2006c:308 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); Vepřek and Straka, 2007:199 (in catalog of Sphecidae of Czech Republic and Slovakia: known from Moravia and Slovakia only); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and

Yildirim, 2008:35 (in catalog of Sphecidae of Turkey); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Pagliano, 2009:175 (Italy: Liguria: Villanova d'Albenga); Bitsch, 2010:106 (in supplement to vol. II of Faune de France, 1997: recent records from Austria and Bulgaria reported); Danilov, 2010b:44 (distribution of Tethyan type); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:497 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:53 (Ukraine: Crimea: near Feodosiya); Dollfuss, 2013a:390, 400 (in key to *Ammophila* of Palearctic Region and India), 446 (in revision of *Ammophila* of Palearctic Region and India), 2013b:575 (locality records from Armenia, Bulgaria, Cyprus, Greece, Iran, Jordan, Kazakhstan, Morocco, Romania, Spain, Syria, Tajikistan, Turkey, Turkmenistan, and Uzbekistan); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces).

Ammophila turcica Mocsáry, 1883:29, ♂ (as *Turcica*, incorrect original capitalization). Holotype or syntypes ♂, Turkey: Brussa, now Bursa (TMB). Synonymized with *Ammophila fallax* by Kohl, 1906:315. – 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); Schletterer, 1894:30 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); 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 Sphecid 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, Šusterka, and Baťa, 1937:213 (in catalog of Sphecidae of Czechoslovakia); Giner Mari, 1943a:70 (in Sphecid Fauna of Spain); Balthasar, 1945:115 (Czech Republic: southeastern Morava Region); de Beaumont, 1947b:382 (Cyprus); Šnoflák in Zavadil and Šnoflák, 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 Sphecid 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); Kazenas, 1968b:342 (Kazakhstan: Alma Ata Oblast'); de Beaumont, 1969:80 (Turkey), 1970a:387 (Afghanistan), 1970c:2 (Iran: Khuzestan); Balthasar, 1972:428 (in Sphecid Fauna of Czechoslovakia); Kazenas, 1972b:98 (Kazakhstan: Alma Ata, Podgornoye in Ketmen' Range); Erlandsson, 1974:57 (Spain: Málaga: Fuengirola); Georgiou, 1977:188 (Cyprus); Kazenas, 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia); Dollfuss, 1989:7 (lectotype in NHMW); Pádr in Šedivý, 1989a:166 (in checklist of Czechoslovakian Sphecidae); Guichard, 1991a:338 (Jordan).

97. *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 (in checklist of world Sphecidae); Krombein, 1979b:1591 (in catalog of North American Hymenoptera).

98. *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, 1998b:172. Substitute name for *Ammophila tsunekii* Kazenas, 1978. – Kazenas, 2008a:98 (southeast Kazakhstan: Ili River valley: Barokhudzir, Kalkan); Danilov, 2010b:45 (distribution of Tethyan type); Dollfuss, 2013a:388, 397 (in key to *Ammophila* of Palearctic Region and India), 447 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Russian into English).

Ammophila iliensis Kazenas, 2001b:18. Unnecessary 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.

99. *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 (in checklist of world Sphecidae); 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); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae).

100. *induta* Kohl

Ammophila induta Kohl, 1901d:158, ♀. Lectotype: ♀, Turkmenistan: Repetek (NHMW), designated by Dollfuss, 2013a:448. – Kohl, 1906b:345 (in revision of Palearctic Ammophilini); Kazenas, 1968b:342 (Kazakhstan: Alma Ata Oblast'); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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); Danilov, 2010b:45 (distribution of Tethyan type); Dollfuss, 2013a:389, 399 (in key to *Ammophila* of Palearctic Region and India), 448 (in revision of *Ammophila* of Palearctic Region and India).

101. *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 (central Japan: no specific locality); Matsumura and Uchida, 1926:41 (Okinawa); Gussakovskij, 1932:4 (Russia: Primorskiy Krai); Yasumatsu, 1934c:63 (Japan: Island of Yakushima); Baba, 1935:84 (Japan: Island of Sado); Yasumatsu, 1935a:7, 22 (China: Jehol Region); Iwata, 1936a:121 (nesting habits); Masaki, 1936:259 (Korea); Yasumatsu, 1937c:67 (Japan: Island of Tsushima); 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); Miyamoto, 1959:34 (visiting flowers of *Torilis anthriscus* Gmel., Apiaceae), 36 (visiting flowers of *Astilbe japonica* Miq., Saxifragaceae); R. Bohart and Menke, 1976:628 (in checklist of world Sphecidae, is a full species); Tsuneki, 1982b:1 (Korea; reversed to full species status), 1982g:56 (known from the Ryukyu archipelago); Paik, 1985:197 (in list of Sphecidae of Korea); Tsuneki, 1991:199 (Korea); Hashimoto, 1996:342 (skeletal muscular modifications of anterior abdominal segments); Yamane, Ikudome, and Terayama, 1999:479 (in Identification Guide to Sphecidae of Nansei = Ryukyu Islands, Japan); Haneda, 2003:3 (Japan: Nagasaki Prefecture: Tsushima); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi in City of Obama); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:30 (Japan: Gifu Prefecture); Suda, 2004:35 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, and H. and T. Murota, 2005:63 (Japan: Fukui Pre-

fecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:43 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005: 29 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:44 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa and Murota, 2006a:18 (Japan: Toyama Prefecture); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Nagase, 2006b:2 (specimen collected by First Scientific Expedition to Manchoukou, 1933, now part of eastern China); Terayama and Tano, 2006:7, 15, 18 (in key to Japanese Ampulicidae and Sphecidae); Nemkov, 2008b:17 (in catalog of Sphecidae of Asiatic Russia), 2009b:49 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:235 (Russia: Primorskiy Krai: Lazovsky Nature Reserve); Danilov, 2010b:45 (distribution of eastern Palearctic type); Okhusa and Tajima, 2010:11 (Japan: Island of Honshu: Shiga Prefecture); Dollfuss, 2013a:390, 400 (in key to *Ammophila* of Palearctic Region and India), 449 (in revision of *Ammophila* of Palearctic Region and India), 2013b:576 (Japan: locality records). – **As *Spheg infesta***: Okamoto, 1924:203 (new combination, Korea: Island of Quelpart, now Island of Cheju). – **As *Ammophila sabulosa infesta***: Tsuneki, 1962b:25, 26 (in key to Ammophilini of Japan and Korea), 1962c:29 (new status); Tsuneki and Shimoyama, 1963:48 (Japan: Towada Prefecture); Tano, 1964:38 (Japan: Kyushu: Island of Yakushima); Tsuneki, 1967e:2 (China: Manchuria; also Harbin: *sabulosa infesta* forma B), 1967g:44 (Japan: Mount Hyonoson; forma A), 1967j:10, 12 (in key to Ammophilini of East Asia), 20 (comparison of lowland and montane populations, the former named *Ammophila sabulosa nipponica* on p. 23); 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 (comparison of lowland and montane populations, the former is *Ammophila sabulosa nipponica*); Haneda, 1969:69 (Japan: Yamanashi Prefecture); T. Iida, 1969a:272 (description of mature larva); Itami, 1969:46 (Japan: Niigata Prefecture); Tsuneki, 1969e:24 (Japan), 1970b:9 (central Japan); Tano, 1971:82 (Japan: Shikoku: Mount Tsurugi); Yamada, 1971:34 (Japan: Aichi Prefecture); Nambu, 1973a: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 (in checklist of world Sphecidae); Tsuneki, 1982b:14 (known from Korea), 1982g:56 (known from Ryukyu archipelago); Sk. Yamane and Ikudome, 1990:102 (Japan: distribution in Ryukyu Islands); Q. Li, J. Li, and J. Yang, 1994:290 (China: in revision of *Ammophila* of Shandong Province); 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); Q. Li and He, 2004:1119 (in hymenopterous fauna of Zhejiang Province, China); Q. Li and L. Yang, 2005:883 (China: Gansu: Quinling Range and South Mountains); Q. 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); Nemkov, 2012c:434 (in catalog of Sphecidae of Russian Far East).

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 (Japan: Yokohama); Kohl, 1906b:373 (original description copied).

102. *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 Cuílo); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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); Dollfuss, 2013a:387, 396, 397 (in key to *Ammophila* of Palearctic Region and India), 450 (in revision of *Ammophila* of Palearctic Region and India), 2013b:576 (locality records from Algeria, Israel, Jordan, Oman, and Yemen). – **As *Spheg 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 Leclercq, 1955:82 – **As *Sphex egregia* race *transvaalensis***: Arnold, 1920:53 (new combination, new status, original description copied), 1928b:270 (in revision of southern African *Ammophila*) 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).

Ammophila egregia Mocsáry, 1881b:327, ♀, ♂. Syntypes: Lebanon: Beirut (TMB). Synonymized with *Ammophila insignis* by Dollfuss, 2013a:451. – 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 (*Ammophila egregia* is a synonym of *insignis* F. Smith); Arnold, 1931:207 (Turner's synonymy reported); Guiglia, 1939c:184 (Libya: Tassili 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, in checklist of world Sphecidae); 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); Roche, 2007a:20 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Schmid-Egger, 2011b:597 (first record from United Arab Emirates: Wadi Wurayah); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia).

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 (in revision of southern African *Ammophila*). – **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, in checklist of world Sphecidae); 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, 1960a:83 (South Africa: Natal: Drakensberg Mountains: Little Berg Summits (SAMC). Synonymized with *Ammophila insignis litoralis* by Bohart and Menke, 1976:152.

103. *insolata* F. Smith

Ammophila insolata F. Smith, 1858b:14, ♀, ♂. Syntypes: Indonesia: Celebes, now Sulawesi: no specific locality (OXUM). – F. Smith, 1863a:34 (Indonesia), 1863b:134 (known from Sulawesi and Timor), 1871a:359 (in catalog of Oriental Aculeata); 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 (in checklist of world Sphecidae, as *insolata*); Dollfuss, 2013b:576 (Indonesia: West Timor: Buraen: 50 km S Kupang; Sumba: 5 km W Lewas). – **As *Sphex insolata***: F. Smith, 1863b:134 (new combination, known from Sulawesi).

ssp. argyropleura van der Vecht

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

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 (in checklist of world Sphecidae).

ssp. ruficoxa van der Vecht

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

104. 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 (in checklist of world Sphecidae); Cardale, 1985:229 (in catalog of Australian Sphecidae).

Ammophila impatiens F. Smith, 1868b:247, ♀, actually ♂. Holotype or syntypes: ♂, Australia: Western Australia: Champion Bay, now Geraldton (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).

105. 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); Melander, 1903:157 (diagnostic characters), 161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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 (Arizona: regular member of sleeping aggregations at Southwest Research Station.); Evans, 1963:62 (nest closure); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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 National Monument), 1994f:21, 22 (Utah: Wind Whistle Campground in Monticello area); Spofford, Kurczewski, and Downes, 1989:258 (reference to publication on nest parasite *Senotainia littoralis* Allen, a miltogrammine fly); 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 (in revision of North American and West Indian *Ammophila*); Dreisbach, 1944:269, 270 (in key to *Ammophila* of Michigan), 273 (Michigan: locality records); Krombein, 1958f:192 (in supplement to catalog of North American Hymenoptera: description of larva by Evans and Lin, 1956a, reported).

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); Melander, 1903:161 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); Fernald, 1931a:449 (as new synonym of *Sphex placidus*).

106. *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 (in checklist of world Sphecidae).

107. *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 (in checklist of world Sphecidae); 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).

108. *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); C. Robertson, 1892:103 (visiting flowers of *Mentha canadensis* L.), 105 (visiting flowers of *Pycnanthemum lanceolatum* Ph.), 106 (visiting flowers of *Pycnanthemum muticum* Pers.), 115 (visiting flowers of *Blephilia hirsuta* Benth.), 1894:453 (visiting flowers of *Eupatorium serotinum* Michx.), 455 (visiting flowers of *Solidago missouriensis* Nutt. and *S. canadensis* Linnaeus), 457 (visiting flowers of *Solidago nemoralis* Ait.), 460 (visiting flowers of *Aster paniculatus* Lam.), 461 (visiting flowers of *Erigeron philadelphicus* Linnaeus), 472 (visiting flowers of *Coreopsis palmata* Nutt.); Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); J. Smith, 1900:524 (in list of insects of New Jersey); Melander, 1903:157 (diagnostic characters), 160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); G. Peckham and E. Peckham, 1905:18 (common in sandy areas of Milwaukee); Snow, 1906:7 (Arizona: 20 mi SW Flagstaff, Humphrey's Peak); Hart, 1907:255 (Illinois); Rohwer, 1917a:241 (California: Tahoe); Viereck, 1903a:68 (New Mexico: Beulah); Johnson and Ledig, 1918:24 (California: Claremont); Salt, 1927:182 (stylopized specimen; Illinois: Carlinville, Florida: Inverness). – **As *Sphex vulgaris***: H. Smith, 1908b:330 (new combination, in revision of Nebraskan Sphecidae); J. Smith, 1910:677 (in new list of insects of New Jersey); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:404 (in catalog of Nebraskan Sphecidae); Rohwer *in* Viereck, 1925:682 (in key to Sphecidae of Connecticut); 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: Island of Penikese); Horning and Barr, 1970:104 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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); Spofford, Kurczewski, and Downes, 1989:258 (nest parasite: *Senotainia rubriventris*

Macquart, a miltogrammine fly); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1990:747 (nest parasite: *Senotainia rubriventris* Macquart, Sarcophagidae), 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

109. *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 (in checklist of world Sphecidae).

110. *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 (in checklist of world Sphecidae); Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Menke, 2004:770 (redescription); Rasmussen and Asenjo, 2009:15 (in checklist of Crabronidae of Peru).

Ammophila chilensis Reed, 1894:621, ♀, ♂. Syntypes: Chile: central provinces: no specific locality (CAS). Synonymized with *Ammophila laeviceps* by Bohart and Menke, 1976:143 (tentatively) and Menke, 2004:770 (definitely). – Gazulla and Ruiz Pereira, 1929:299 (Chile: Hacienda de "Las Mercedes"); Chiappa, 2012:8 (Chile: Región de Valparaíso: no specific locality). – **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 (in checklist of world Sphecidae).

111. *laevicollis* Ed. André

Ammophila laevicollis Ed. André, 1886:77, ♀ (as *Laevicollis*, incorrect original capitalization). Syntypes: Spain, southern France: no specific locality (not in MNHN, see Dollfuss, 2013a:451). – Ed. André, 1888:3* (b); 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 Sphecid Fauna of France); Picard, 1925b:163 (nest construction precedes hunting); 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 Sphecid Fauna of Spain); de Andrade, 1949:6 (Portugal); Hertzog, 1954:99 (France: Bouches-du-Rhône: Camargue); Leclercq, 1955h:85 (bibliographic references); Hertzog, 1956:147 (presence of psammophore on head and forelegs); 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 *nasuta* group); Ceballos, 1964:87 (in supplement to catalog of Spanish Sphecidae); Diniz, 1965:2 (Portugal: 25 localities); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Marion, 1978:85 (France); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); 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); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); 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 (description of 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); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:83 (in Sphecid 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 Sphecid Fauna of Italy); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas Larrieu Nature Reserve near Argelès-sur-Mer); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia), 2009:362 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Bitsch, 2010:106 (in supplement to vol. II of Faune de France, 1997: biological observations by Ferton, 1921, reported; France: first records from département d’Hérault: Ceilhes-et-Rocozels, and from Var: Aiguines, Cotignac); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:497 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Dollfuss, 2013a:387, 398 (in key to *Ammophila* of Palearctic Region and India), 451 (in revision of *Ammophila* of Palearctic Region and India), 2013b:577 (locality records from France, Portugal, and Spain).

112. *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); F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); de Saussure, 1892:436 (Madagascar); Bingham, 1896a:437 (in list of Aculeata of Sri Lanka: Pundaloya, bibliographic references), 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 1982 record from Madagascar is unreliable); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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); Dollfuss, 2013a:388, 396 (in key to *Ammophila* of Palearctic Region and India), 452 (in revision of *Ammophila* of Palearctic Region and India), 2013b:577 (locality records from Laos, Nepal, India, Thailand, and Vietnam).

Ammophila laevigata ab. *bicellularis* Strand, 1915:97, ♂. Holotype: ♂, Sri Lanka: Vurelia (DEI). Synonymized with *Ammophila laevigata* by R. Bohart and Menke, 1976:152. – Strand, 1927:253 (in list of species described by the author); Oehlke and Wudowenz, 1974:421 (holotype in DEI).

113. *lampei* Strand

Ammophila chilensis var. *nigripes* Reed, 1894:622, ♀, junior primary homonym of *Ammophila nigripes* F. Smith, 1856. Holotype: ♀, Chile: Valparaiso (MCZ). Synonymized with *Ammophila lampei* by Menke, 1964b:150.

Ammophila lampei Strand, 1910b:13, ♀ (as *Lampey*, incorrect original capitalization). Lectotype: ♀, Bolivia (as “Peru”): Guaqui (Städtisches Mus. Wiesbaden), designated by Menke, 1964b:150. – Strand, 1927:253 (in list of species

described by the author); Menke, 1964b:150 (new synonym of and valid name for *Sphex chilensis nigripes* Reed, 1894); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Ch. Porter, 1987:43 (Chile: Tarapacá Region); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Rasmussen and Asenjo, 2009:15 (in checklist of Crabronidae of Peru); Chiappa, 2012:8 (Chile: Región de Valparaíso: no specific locality).

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

114. *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 (in checklist of world Sphecidae).

115. *lativalvis* Gussakovskij

Ammophila lativalvis Gussakovskij, 1928a:9, ♀, ♂. Syntypes: Uzbekistan: Ak-mechet, Ravat, Khiva area (ZIL). – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia), 1998b:173 (in Sphecid Fauna of Kazakhstan), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 110 (nesting behavior), 2002a:38 (geographic distribution, collecting localities in Kazakhstan); Danilov, 2010b:45 (distribution of Tethyan type); Dollfuss, 2013a:389, 399 (in key to *Ammophila* of Palearctic Region and India), 454 (in revision of *Ammophila* of Palearctic Region and India).

116. *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 Sphecid Fauna of Western Europe); Dollfuss, 2013a:390 (in key to *Ammophila* of Palearctic Region and India), 455 (in revision of *Ammophila* of Palearctic Region and India).

117. *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 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); O'Brien, 1989b:211 (distribution in Michigan).

118. *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); Snow, 1906:7 (Arizona: 20 mi SW Flagstaff); 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 (in checklist of world Sphecidae); 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*).

119. *marshi* Menke

Ammophila marshi Menke, 1964a:13, ♀, ♂. Holotype: ♂, USA: California: Tuolumne County: Strawberry (UCD). – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

120. *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 (in checklist of world Sphecidae); 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).

121. *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); Melander, 1903:162 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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); Steiner, 1973:26 (Canada: Northwest Territories, Yukon Territory); R. Bohart and Menke, 1876:152 (in checklist of world Sphecidae); 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **As *Sphex mediatas***: 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).

122. *menghaiana* Q. Li and C. Yang

Ammophila menghaiana Q. 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); Dollfuss, 2013a:455 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

123. *menkei* Dollfuss

Ammophila menkei Dollfuss, 2013a:456, ♂. Holotype: ♂, Tunisia: 56 km S Tataouine (OÖLM). – Dollfuss, 2013a:398 (in key to *Ammophila* of Palearctic Region and India), 2013b:577 (Tunisia: 56 km S Tataouine).

124. *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); Dollfuss, 2013a:396 (in key to *Ammophila* of Palearctic Region and India), 457 (in revision of *Ammophila* of Palearctic Region and India).

125. *mescalero* Menke

Ammophila mescalero Menke, 1966b:33, ♀, ♂. Holotype: ♂, Mexico: Puebla: Cacaloapán (UCD). – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Menke, 1986c:36 (Arizona: Gila County: Carrizo), 37 (Arizona: Cochise County: Naco), 1994f:21 (Arizo-

na: 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).

126. *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 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera).

127. *mitlaensis* Alfieri

Ammophila mitlaensis Alfieri, 1961:139, ♀. Holotype: ♀, Egypt: Sinai: Wadi Mitla (originally A. Alfieri collection, now USNM, but Al Azhar University, Cairo, according to Roche 2007a:21). – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:21 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:390, 400 (in key to *Ammophila* of Palearctic Region and India), 458 (in revision of *Ammophila* of Palearctic Region and India), 2013b:577 (Israel: locality records).

128. *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 Mari, 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: 10 localities); Esmaili and Rastegar, 1974:46 (Iran); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); 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); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Bitsch, 2010:106 (in supplement to vol. II of Faune de France, 1997: recent records from Spain reported); Dollfuss, 2013a:390, 400 (in key to *Ammophila* of Palearctic Region and India), 459 (in revision of *Ammophila* of Palearctic Region and India), 2013b:577 (Spain: locality records).

129. *moenkopi* Menke

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

130. *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).

131. *mongolensis* Tsuneki

Ammophila mongolensis Tsuneki, 1971k:163, ♀, ♂. Holotype: ♂, Mongolia: Central Aymag: 3 km E Somon Nalajah (TMB). – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:387 (in key to Sphecidae of Russian Far East); Nemkov, 2008b:17 and 2009b:50 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Dollfuss, 2013a:394, 403 (in key to *Ammophila* of Palearctic Region and India), 460 (in revision of *Ammophila* of Palearctic Region and India), 2013b:578 (locality records from China, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, and Turkey).

132. *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 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Menke, 1994d:15 (California: Monterey County: Parkfield area).

133. *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.

134. *nasalis* Provancher

Ammophila nasalis Provancher, 1895:111, ♂. Holotype or syntypes: ♂, USA: California: Los Angeles (Laval Univ.). – Melander, 1903:160 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); 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 observations by Hicks, 1935); Menke, 1965b:259 (identity of *Ammophila craspedotus* of Hicks, 1935); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae); Gwynne, 1977:335 (nesting behavior); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)). – *As Sphex nasalis*: Fernald, 1934:77 (new combination, in revision of North American and West Indian *Ammophila*).

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).

135. *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: Island of Akeek, 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 de Saint Fargeau's specimens in Turin); Diniz, 1959:27 (Portugal: no specific locality); de Beaumont, 1963b:9, 12 (in

revision of *nasuta* group); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Pagliano, 2008:512 (lectotype in M. Spinola collection, Torino); Dollfuss, 2013a:387, 398 (in key to *Ammophila* of Palearctic Region and India), 461 (in revision of *Ammophila* of Palearctic Region and India), 2013b:578 (Algeria: Sidi Feeredj).

136. *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 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); 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 (in checklist of world Sphecidae); 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).

137. *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 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera).

138. *nigricans* Dahlbom

Ammophila nigricans Dahlbom, 1843:14, ♂. Holotype or syntypes: USA: South Carolina: no specific locality (Lund). – Dahlbom, 1845:430 (in key to *Ammophila*); 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); Melander, 1903:157 (diagnostic characters), 161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Finnamore, 1982:33 (in Sphecid Fauna of Southern Quebec); Steiner, 1986:98 (references to papers on nesting habits); 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 (Canada: in checklist of Sphecidae of Ontario), 29 (distribution within Ontario), 34 (first record from Ontario: list of localities); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **As *Sphex nigricans***: H. Smith, 1908b:330 (new combination, in revision of Nebraskan Sphecidae); Mickel, 1918b:402 (in catalog of Nebraskan Sphecidae); Rau, 1926:211 (Missouri: Wickes: sheltered clay bank); Fernald, 1934:98 (in revision of North American and West Indian *Ammophila*); 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); Piek and Spanjer, 1986:189 (in list of Sphecidae with known prey).

Ammophila intercepta Lepeletier de Saint Fargeau, 1845:378, ♀ (authorship attributed to Klug). Holotype or syntypes: ♀, North America: no specific locality (M. Spinola collection, Torino). Tentatively synonymized with *Ammophila nigricans* by Murray in Muesebeck et al., 1951:976, and definitely by R. Bohart and Menke, 1976:152. – 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); C. Robertson, 1892:105 (visiting flowers of *Pycnanthemum lanceolatum* Ph.), 106 (visiting flowers of *Pycnanthemum muticum* Pers.), 107 (visiting flowers of *Pycnanthemum linifolium* Ph.), 114 (visiting flowers of *Blephilia ciliata* Raf.), 116 (visiting flowers of *Lophanthus nepetoides* Benth.), 1894:453 (visiting

flowers of *Eupatorium serotinum* Michx.), 455 (visiting flowers of *Solidago missouriensis* Nutt.), 460 (visiting flowers of *Aster paniculatus* Lam.), 464 (visiting flowers of *Parthenium integrifolium* Linnaeus), 467 (visiting flowers of *Rudbeckia hirta* Linnaeus), 469 (visiting flowers of *Lepachys pinnata* Torr. and Gray), 470 (visiting flowers of *Helianthus strumosus* Linnaeus), 472 (visiting flowers of *Verbesina helianthoides* Michx. and of *Coreopsis palmata* Nutt.), 473 (visiting flowers of *Coreopsis aristosa* Michx.), 475 (visiting flowers of *Helenium autumnale* Linnaeus), 1896:72 (visiting flowers of *Polygonum pennsylvanicum* Linnaeus); 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); J. Smith, 1900:524 (in list of insects of New Jersey); Casolari and Casolari Moreno, 1980:100, 101 (specimens in M. Spinola collection, Torino); Pagliano, 2008:512 (holotype in M. Spinola collection, Torino), 515 (specimens in M. Spinola collection, Torino). – **As *Sphex intercepta*** [sic]: J. Smith, 1910:677 (new combination, in new list of insects of New Jersey).

139. *nigrina* F. Morawitz

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:320 (in synonymy of *Ammophila campestris*), 321 (as a variety of *Ammophila campestris*), 373 (original description copied); Dollfuss, 2013a:394 (in key to *Ammophila* of Palearctic Region and India), 462 (valid species, in revision of *Ammophila* of Palearctic Region and India).

140. *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 (in checklist of world Sphecidae).

141. *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 (in checklist of world Sphecidae); 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).

142. *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); Dollfuss, 2013a:462 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

143. *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, in checklist of world Sphecidae).

144. *occipitalis* F. Morawitz

Ammophila occipitalis F. Morawitz, 1890:583, ♀, ♂. Lectotype: ♂, Turkmenistan: Tedjen (NHMW), designated by Dollfuss, 2013a:463. – 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); Kazenas, 1968b:342 (Kazakhstan: Aktyubinsk and Gur'yev, now

Atyraū, oblasts); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan), 1972a:86 (Turkmenistan); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp. in Kazakhstan); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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 and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); Kazenas, 1998b:175 (in Sphecid Fauna of Kazakhstan); Nazarova, 1998:40 (Tajikistan: Tigrovaya 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 Mountains), 2004d:28 (Kazakhstan: northern Caspian region); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe), 2010b:44 (distribution of Tethyan type); Dollfuss, 2013a:391, 401 (in key to *Ammophila* of Palearctic Region and India), 463 (in revision of *Ammophila* of Palearctic Region and India), 2013b:578 (locality records from Iran, Jordan, Turkmenistan, and Uzbekistan). – **As *Sphex occipitalis***: Derwesh, 1965:71 (new combination, Iraq: no specific locality).

Ammophila ruficollis F. Morawitz, 1890:586, ♀. Holotype: Turkmenistan: Tedjen (ZIL). Synonymized with *Ammophila occipitalis* by Dollfuss, 2013a:463. – Dalla Torre, 1897:407 (in catalog of world Hymenoptera); Kohl, 1906b:374 (original description copied); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia).

145. *ohli* Dollfuss

Ammophila ohli Dollfuss, 2013a: 464, ♀. Holotype: ♀, Uzbekistan: Zeravshan Mountains: Aman-Kutan Pass (OÖLM). – Dollfuss, 2013a:391 (in key to *Ammophila* of Palearctic Region and India).

146. *pachythoracalis* Yang and Q. Li

Ammophila pachythoracalis Yang and Q. 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); Dollfuss, 2013a:465 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

147. *pakistanana* Dollfuss

Ammophila pakistanana Dollfuss, 2013a:466, ♂. Holotype: ♂, Pakistan: Quetta (BMNH). – Dollfuss, 2013a:396 (in key to *Ammophila* of Palearctic Region and India).

148. *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 (in checklist of world Sphecidae); 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).

149. *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 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:98 (references to papers on nesting habits); Menke, 1994d:15 (California: Monterey County: Parkfield area).

150. *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 (in checklist of world Sphecidae); 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

151. *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 (in checklist of world Sphecidae).

152. *persica* Dollfuss

Ammophila persica Dollfuss, 2013a:466, ♂. Holotype: ♂, Iran: Kohgiluyeh and Boyer-Ahmad: Kuh Gol near Sisakut at 30.84°N 51.53°E (OÖLM). – Dollfuss, 2013a:401 (in key to *Ammophila* of Palearctic Region and India), 2013b:578 (Iran: Kohgiluyeh and Boyer-Ahmad: Kuh Gol near Sisakut).

153. *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); Melander, 1903:162 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); Fernald, 1934:158 (original description copied); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Krombein, 1979b:1592 (in catalog of North American Hymenoptera); Hanson and Menke, 1995:637 (known from Costa Rica); Menke, 1996e:192 (in key to Ammophilini of Costa Rica), 194 (in revision of Ammophilini of Costa Rica); Menke and Parker, 1996:186 (Costa Rica: population largest during 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); Melander, 1903:162 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution).

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); Melander, 1903:162 (in key to North American Ammophilini, as *voltanica*), 164 (bibliographic references, geographic distribution, as *voltanica*); 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, in revision of North American and West Indian *Ammophila*)

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); Melander, 1903:161 (in key to North American Ammophilini), 164 (biblio-

graphic references, geographic distribution); Fernald, 1934:134 (in revision of North American and West Indian *Ammophila*); Murray in Muesebeck et al., 1951:975 (in catalog of North American Hymenoptera).

154. *pictipennis* Walsh

Ammophila pictipennis Walsh, 1869:164, ♀, ♂. Syntypes: USA: southern Illinois and Colorado: no specific locality (depository?). – Cresson, 1873:210 (Texas); Riley, 1873:149 (...); Cresson, 1876:208 (Iowa: Davenport), 1887:274 (in catalog of North American Hymenoptera); C. Robertson, 1892:105 (visiting flowers of *Pycnanthemum lanceolatum* Ph.), 106 (visiting flowers of *Pycnanthemum muticum* Pers.), 114 (visiting flowers of *Blephilia ciliata* Raf.); Viereck, 1893e:132 (New Jersey: Riverton; New York: Staten Island); C. Robertson, 1894:455 (visiting flowers of *Solidago missouriensis* Nutt.), 457 (visiting flowers of *Solidago nemoralis* Ait.); 462 (visiting flowers of *Erigeron strigosus* Muhl.), 467 (visiting flowers of *Rudbeckia hirta* Linnaeus), 469 (visiting flowers of *Lepachys pinnata* Torr. and Gray), 472 (visiting flowers of *Verbesina helianthoides* Michx. and of *Coreopsis palmata* Nutt.); Ashmead, 1899d:354 (in checklist of North American Sphecidae); W. Fox, 1895c:266 (Mexico: Baja California Sur); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Bridwell, 1899:209 (Kansas: Baldwin); J. Smith, 1900:524 (in list of insects of New Jersey); Rohwer, 1916b:686 (in catalog of sphecids of Connecticut); Salt, 1927:182 (styloized specimens; Virginia: Falls Church and Great Falls); Fernald, 1931a:449 (as new synonym of *Sphex placidus*); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Brockmann, 1985b:312 (nest closure summary); Steiner, 1986:98 (references to papers on nesting habits); O'Brien, 1989b:212 (distribution in Michigan); Spofford, Kurczewski, and Downes, 1989:256, 260 (references to publications on nest parasites *Hilarella hilarella* (Zetterstedt), a miltogrammine fly, and undetermined Miltogrammini), 258 (nest parasite: *Senotainia rubriventris* Macquart, a miltogrammine fly); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1990:747 (nest parasite: *Senotainia rubriventris* Macquart, Sarcophagidae), 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); Ruiz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Buck, 2004:24 (Canada: in checklist of Sphecidae of Ontario), 29 (distribution within Ontario), 35 (first record from Canada: Ontario: list of localities); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)); Ardila-Garcia, Umphrey, and Gregory, 2010:339 (genome size dataset); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Kathirithamby, Lechner, McMahon, Bryson, and Johnston, 2012:466 (styloization by *Paraxenos lugubris* Pierce. – As *Ammophila extremitata* var. *pictipennis*: Melander, 1903:161 (new status, in key to North American Ammophilini). – As *Sphex extremitata* var. *pictipennis*: Viereck, 1903d:121 (new combination, Maryland: no specific locality); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut); Rohwer in Viereck, 1925:681, 682 (in key to Sphecidae of Connecticut). – As *Sphex pictipennis*: Rau and Rau, 1918:207 (nesting habits); 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: Dictricto Federal: no specific locality (USNM). – Fernald, 1931a:449 (as new synonym of *Sphex placidus*, also misspelled as *longispinus*); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae, as tentative synonym of *Ammophila pictipes*).

155. pilimarginata Cameron

Ammophila pilimarginata Cameron, 1912a:429, [♂]. Holotype or syntypes: ♂, Guiana: Demerara: no specific locality (BMNH). – Richards, 1937a:102 (as synonym of *Ammophila fragilis*); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Amarante, 2002:67 (in catalog of Neotropical Sphecidae, listed in error as synonym of *Ammophila gracilis*), 2005a:14 (correction to his 2002 catalog).

156. 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); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Murray in Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera); K. Cooper, 1953:34 (Massachusetts: Island of Penikese); 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 (in checklist of world Sphecidae); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Brockmann, 1985b:312 (nest closure summary); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Spofford, Kurczewski, and Downes, 1989:256, 257 (references to publications on nest parasites *Hilarella hilarella* (Zetterstedt) and *Opsidia* sp., miltogrammine flies); 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 guerinii placidus***: Fernald, 1934:59 (new combination, new status, in revision of North American and West Indian *Ammophila*). – **As *Sphex placidus***: Fernald, 1931a:449 (synonymy); Krombein, 1936:98 (New York: Buffalo; floral records); Brimley, 1938:444 (North Carolina: statewide); Rau, 1938b:541 (sleeping habits, as *placidens*); Strandmann, 1945a:310 (nest and prey); Spencer and Wellington, 1948:10 (British Columbia); Krombein and Evans, 1954:233 (Florida), 1955:233 (Florida). – **As *Sphex placidus placidus***: Fernald, 1943a:290 (Florida); Dreisbach, 1944:270 (in key to *Ammophila* of Michigan), 274 (Michigan: locality records).

As *Sphex 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).

157. platensis Brèthes

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

158. poecilocnemis Morice

Ammophila poecilocnemis Morice, 1900a:67, ♀, ♂. Lectotype: ♂, Algeria: Biskra (OXUM), designated by Dollfuss, 2013a:67. – Kohl, 1906b:358 (in revision of Palearctic Ammophilini); Morice, 1911:74 (Algeria: Biskra); Storey, 1916:107 (Egypt: widely distributed); von Schulthess, 1926b:209 (Tunisia); Roth, 1928:208 (in revision of North African Ammophilini); Maidl, 1933b:122 (Morocco); Giner Marí, 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 (in checklist of world Sphecidae); Guichard, 1988a:128 (Saudi Arabia); Gadallah and Assery, 2004a:224 (in catalog of Sphecidae of Saudi Arabia); Roche, 2007a:21 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Schmid-Egger, 2011b:599 (United Arab Emirates: Jebel Hafit S al-Ain, Wadi Bih, Wadi Hayl, Wadi al-Helo, Wadi Madaq, Wadi Shawkah, Wadi Wurayah), 600 (color photograph of female); Dollfuss, 2013a:387, 397 (in key to *Ammophila* of Palearctic Region

and India), 467 (in revision of *Ammophila* of Palearctic Region and India), 2013b:578 (locality records from Jordan, Morocco, Tunisia, and Yemen); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia); Schmid-Egger, 2014:621 (United Arab Emirates).

159. *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); G. Peckham and E. Peckham, 1900:91 (nesting habits); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); G. Peckham and E. Peckham, 1905:18 (common in sandy areas of Milwaukee), 50 (praying carrying, nest); 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 (in checklist of world Sphecidae); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Blow Sand Mountains); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); 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 (*Ammopohila nearctica* Kohl is a synonym), 1934:49 (in revision of North American and West Indian *Ammophila*); Dreisbach, 1944:268, 270 (in key to *Ammophila* of Michigan); Strickland, 1947:129 (Canada: Alberta: Lethbridge); Spencer and Wellington, 1948:10 (British Columbia).

160. *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, 1996:194 (as holotype, Article 74b). – Dahlbom, 1845:430 (in key to *Ammophila*); 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); C. Robertson, 1892:105 (visiting flowers of *Pycnanthemum lanceolatum* Ph.), 106 (visiting flowers of *Pycnanthemum muticum* Pers.), 114 (visiting flowers of *Blephilia ciliata* Raf.); 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); J. Smith, 1900:524 (in list of insects of New Jersey: “probable in New Jersey”); Melander, 1903:158 (diagnostic characters), 159, 160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Viereck, 1903d:121 (Maryland: Chestertown); Hartman, 1905:11 (nesting habits); Hart, 1907:255 (Illinois); 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 (description of larva); Evans, 1958e:451 (behavioral evolution), 1959d:451 (nesting behavior); Evans and Linsley, 1960:32 (Arizona: casual member of sleeping aggregation at Southwest Research Station); 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 (in checklist of world Sphecidae); Krombein, 1979b:1593 (in catalog of North American Hymenoptera); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); 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); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:99 (references to papers on nesting habits); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills); O'Brien, 1989b:213 (distribution in Michigan); Spofford, Kurczewski, and Downes, 1989:256, 260, 261 (references

- to publications on nest parasites *Metopia lateralis* (Macquart) and *Senotainia vigilans* Allen, miltogrammine flies, and undetermined Miltogrammini); 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 to Ammophilini of Costa Rica), 194 (in revision of Ammophilini of Costa Rica); 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); 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); Pagliano, 2008:512 (specimens in M. Spinola collection, Torino, including lectotype); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **As *Sphex procerus***: H. Smith, 1908b:328 (new combination, in revision of Nebraskan Sphecidae); J. Smith, 1910:676 (in new list of insects of New Jersey, as *procera*); 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 and Rau, 1918:215, 226, 237 (nesting habits); Rau, 1922:24 (Missouri: Silica, Wickes, digging nest); Criddle, 1924:121 (nesting habits, as *procera*); Rohwer *in* Viereck, 1925:681, 682 (in key to Sphecidae of Connecticut, as *procera*); Fernald, 1926:8 (influence of climate on coloration); Rau, 1926:211 (Missouri: Wickes: sheltered clay bank; preying on noctuid caterpillars); J.Ch. Bradley, 1928:1012 (in catalog of New York Sphecidae); Hendrickson, 1930:159 (Iowa); Fernald, 1934:44 (in revision of North American and West Indian *Ammophila*); Peckham, 1934b:259 (floral records); Brimley, 1938:444 (North Carolina: Robeson and Wake counties); 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), 1958f:192 (in supplement to catalog of North American Hymenoptera: list of known prey, description of larva by Evans and Lin, 1956a, reported); 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), designated 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); Melander, 1903:160 (in key to North American Ammophilini); Murray *in* Muesebeck et al., 1951:976 (in catalog of North American Hymenoptera), 163 (bibliographic references, geographic distribution); 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, 1883b: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); C. Robertson, 1894:452 (visiting flowers of *Eupatorium purpureum* Linnaeus), 457 (visiting flowers of *Solidago nemoralis* Ait.), 460 (visiting flowers of *Aster paniculatus* Lam.), 472 (visiting flowers of *Verbesina helianthoides* Michx. and of *Coreopsis palmata* Nutt.), 473 (visiting flowers of *Coreopsis tripteris* Linnaeus), 475 (visiting flowers of *Helenum autumnale* Linnaeus); Pergande, 1895:168 (prey carrying); J. Smith, 1900:524 (in list of insects of New Jersey); Howard, 1901:pl. V fig. 15 (...); Harrington, 1902:224 (Canada: Ontario: Ottawa); Snow, 1906:7 (Arizona: 20 mi SW Flagstaff); 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); Melander, 1903:159 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); 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); Melander, 1903:159 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution).

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); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution).

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); Melander, 1903:160 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution).

161. *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 (in checklist of world Sphecidae); 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); Roche, 2007a:22 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:389, 399 (in key to *Ammophila* of Palearctic Region and India), 468 (in revision of *Ammophila* of Palearctic Region and India), 2013b:579 (locality records from Jordan, Kyrgyzstan, Tunisia, and Yemen); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia).

Ammophila divina Kohl, 1901d:157, ♀. Holotype: ♀, origin unknown, could be Egypt, Kordofan, Middle East, Mesopotamia, south Iran, or Siberia (NHMW). Synonymized with *Ammophila producticollis* by Kohl, 1906b:347.

Ammophila argentina Gussakovskij, 1930c:202, ♀, ♂. Syntypes: Turkmenistan: Ashkhabad, 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).

162. *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 (in checklist of world Sphecidae).

163. *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); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Snow, 1906:7 (Arizona); 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 (description of 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 (in checklist of world Sphecidae); 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); Ruíz 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); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)). – **As *Sphex pruinus***: Mickel, 1918b:404 (new combination, in catalog of Nebraskan Sphecidae). – **As *Sphex breviceps pruinus***: Fernald, 1934:87 (new status, in revision of North American and West Indian *Ammophila*).

164. *pseudoheydeni* Q. Li and He

Ammophila pseudoheydeni Q. Li and He, 2000d:337, ♀, ♂. Holotype: ♀, China: Xinjiang: Wulumuqi at 43.8°N 87.6°E (Zhejiang Agricultural Univ.). – Dollfuss, 2013a:470 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

165. *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 (originally H. Bytinski-Salz collection, now Tel Aviv Univ.). – de Beaumont, 1963b:17 (in revision of *nasuta* group); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:18 (in checklist of Egyptian Sphecidae), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Dollfuss, 2013a:398 (in key to *Ammophila* of Palearctic Region and India), 471 (in revision of *Ammophila* of Palearctic Region and India), 2013b:579 (Israel: Nizzanim 8 km NNE Ashqelon at 31°45'N 34°37'E).

166. *pubescens* Curtis

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

Ammophila pubescens Curtis, 1836: explanation of pl. 604, ♀, ♂ (as junior synonym of *Ammophila campestris*, but available following Article 11.6.1 of the Code). Syntypes: Great Britain: no specific locality (depository?). – Richards, 1946:235 (in key to distinguish it 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); Olberg, 1959:27 (photographs of specimen visiting flowers of *Epilobium angustifolium*), 34 (photographs of specimens licking honedew from dry pine needles), 35 (photograph of specimen licking sweet from author's leg), 298-302 (photographs of females building nests), 303-304 and 307 (photographs of females carrying prey), 305-306 and 308-309 (photographs of females closing nests), 311 (photograph of larva and caterpillar prey); 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, Hansted-reservatet, Læsø, Sjælland, Skagen, Stensbæk planatage); Erlandsson, 1963:66 (Denmark: Island of Bornholm); 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 Sphecid 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); Schmidt, 1969:161 (Germany: Rhein-Main area: Köln-Wahner Heide); Oehlke, 1970:674 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology), 237 (Germany: Berlin); Schmidt, 1971b:22 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Tsuneki, 1971k:163 (Mongolia); Balthasar, 1972:430 (in Sphecid Fauna of Czechoslovakia); Kofler, 1972:105 (Austria: eastern Tirol); Lomholdt, 1972:122 (Denmark: Island of Læsø); Oehlke, 1972:134 (Germany: Island of Hiddensee); Haeseler, 1973:53 (Germany: Schleswig-Holstein: Lauenburg); Lomholdt, 1975b:31 (Denmark: Island of Anholt), 1975c:78 (in Sphecid Fauna of Fennoscandia and Denmark); Baerends, 1976:726 (functional organization of behavior); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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: Friesian Islands: Island of 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); Schwammberger, 1979:114 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Merisuo and Perrakinen, 1980:43 (parasitized by *Paraxenos sphecidarum* in Sweden: Island of Gotland); Richards, 1980:76 (in key to Sphecidae of British Isles); Schmidt, 1981:222 (Germany: Baden-Württemberg); 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: islands of Ameland and Vlieland); 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: Island of Öland); Brockmann, 1985b:312 (nest closure summary); Haeseler, 1985c:571 (Germany: Friesian Islands); Lefeber, 1985:86 (Netherlands: southern Limburg); Brechtel, 1986:57 (Germany: Südpfalz); Steiner, 1986:99 (references to papers on nesting habits); 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* Šedivy, 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); Schwammler 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); Wickl and Wickl, 1994:193 (Germany: Bayern: Oberpfalz); Theunert, 1994c:33 (summary of records from Niedersachsen and Bremen, Germany); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Negrisola *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); Scharrer, 1995:22 (Bayern: Aschaffenburg, Nordrhein-Westfalen: Altenberg); Schmid-Egger, Risch, and Niehuis, 1995:163 (summary of records from Germany: Rheinland-Pfalz State); Skibińska, 1995:423, 424, 426 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:440 (Germany: Bayern: Bayreuth area); Blösch, 1996:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); 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); Saure, 1996:502 (Germany: Berlin-Pankow: sewage irrigation field); 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 Sphecid Fauna of Western Europe); Celary, 1997:57 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:5 (in checklist of German Sphecidae); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km WSW Hamburg); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); N. Schneider and Wahis, 1998:19 (Luxemburg: sandstone quarries); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); Kazenas, 1998b:176 (in Sphecid Fauna of Kazakhstan); Mauss and Schindler, 1998:136 (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); Anan'eva and Kochetkov, 1999:6 (Russia: Ryazan Oblast: no specific locality); Kuhlmann, Wolf, and Woydak, 1999:569 (strongly endangered in Nordrhein-Westfalen State of Germany); Ljubomirov, 1999b:45 (Bulgaria: Mount Vitosha near Sofia); Mandery, 1999:104 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:223 (Austria: in checklist of Sphecidae of Land Kärnten); 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 Sphecid Fauna of Germany); Dressler, 2000:30 (Germany: Hessen: Darmstadt area); Jacobs, 2000:6, 17 (Germany: Land Mecklenburg-Vorpommern: vulnerable); Wiśniowski, 2000:161 (Poland: Bieszczady Mountains, 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); van der Smissen, 2001:58 (Germany: Schleswig-Holstein: strongly endangered);

Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien, last collected circa 1880); Archer and Edwards, 2002:103 (Great Britain: West Sussex: Ambersham and Iping commons); Kazenas, 2002a:38 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:152 (Poland: Kampinos National Park near Warszawa); Mokrousov, 2002:147 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); 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); Abenius, 2004:40 (Sweden: Norrbottens: Luleå area); 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*); Hellrigl, 2004a:172 (Italy: Trentino-Alto Adige, as Südtirol: Vinschgau = Val Venosta: Kortsch); Majzlan and Deván, 2004:32 (Slovakia: Malacky-Široké); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Sphecidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); 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); Kofler, 2005:165 (Austria: Osttirol: many localities); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolò, 2005:68 (in Sphecid Fauna of Italy); Pijfers, 2005:49 (Netherlands: Twente: Noordelijke Manderheide); Reder, 2005:948 (Germany: Rheinland-Pfalz: Eisenberg); Riemann and Hohmann, 2005:543 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:13 (Germany: Berlin); Shorenko, 2005a:163 (Ukraine: Crimea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); 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); N. Schneider, 2006:143 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:110 (Belarus': Polesye Radiological Nature Reserve); Vepřek, 2006:508 (Czech Republic: Kokořínsko area); Baghirov, 2007:93 (Russia: southwestern Siberia); Field, Turner, Fayle, and Foster, 2007:445 (costs of egg-laying and offspring provisioning); Jacobs, 2007:46, 47 (in key to Sphecidae of Germany); Saure, 2007:81 (in checklist of Aculeata of Brandenburg Land, Germany); Shlyakhtenok, 2007a:298 (Belarus': Berezinsky Nature Reserve); Vepřek and Straka, 2007:199 (in catalog of Sphecidae of Czech Republic and Slovakia); Yildirim and Ljubomirov, 2007:116 (first record from Turkey: Erzurum: Arıbahçe, Umudum Yalası, Şenkaya), 121 (diagnostic characters, status of species, geographic distribution); Haeseler, 2008:307 (Germany: Friesian Islands); Danilov, 2008:346 (Russia: Altayskiy Krai: Barnaul area); 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 Asiatic Russia); Theunert, 2008:8 (Germany: map of distribution in Niedersachsen and Bremen); Danilov, 2009:58 (Russia: Western Siberia: Kulundinskaya Steppe); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Józán, 2009:164 (Croatia: Vranja); Nemkov, 2009b:50 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:235 (Russia: Primorskiy Krai: Lazovsky Nature Reserve); Ruchin, Antropov, and Shibayev, 2009:168 (Russia: Republic of Mordovia); Bitsch, 2010:107 (in supplement to vol. II of Faune de France, 1997: records from Bulgaria and Lithuania reported); Danilov, 2010b:45 (distribution of transpalearctic type); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:92 (Great Britain: heathland sites in West Midlands region); Johansson, 2010:121

- (Sweden: Småland: upper Emå river valley); Mokrousov, 2010:60 (Russia: Yaroslavl', Kirov, Vladimir, and Nizhniy Novgorod Oblast', Chuvash republic and Tatarstan: no specific localities); Rudoiskatel', 2010:147 (Russia: central and southern Ural Mountains); Sakenin, Samin, and Bagriacik, 2010:17 (Iran: East Azarbayjan: Masragheh, Tabriz); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge), 2010b:174 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:22 (in red list of Aculeata of Germany: rare); Smit and Wijngaard, 2010:68 (in checklist of Sphecinae of Netherlands); Tüzün and Yüksel, 2010:4469 (Turkey: Niğde Province); Baghirov, 2011b:139 (Russia: Altayskiy Kray: Savvushka); Danilov, 2011b:204 (Russia: Zabaikal'skiy Kray: Daur'skiy Nature Reserve); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Gogala, 2011:7 (Slovenia); Mokrousov, Berezin, and Egorov, 2011:64 (Russia: Chuvash Republic); Saure, 2011c:197 (Germany: Berlin-Spandau: Fort Hahneberg); Theunert, 2011a:18 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:67 (Germany: Hesse: endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Nemkov, 2012c:434 (in catalog of Sphecidae of Russian Far East); Prisniy, 2012:46 (Russia: Belgorod Oblast'); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:53 (Russia: Irkutsk Oblast': near Bolshoye Goloustnoye); Shlyaktenok, 2012b:91 (Belarus: Beresina National Reserve: overgrowing dry meadow); Srba and Heneberg, 2012:559 (nesting in hard soils); Akulov and Proshchalykin, 2013:111 (Russia: Siberia: Krasnoyarsk Kray: Krasnoyarsk, Minusinsk); Danilov and Odintseva, 2013:332 (Russia: Western Siberia: 65 km NNE Tobol'sk at 58°45'N 68°74'E); Dollfuss, 2013a:394, 403 (in key to *Ammophila* of Palearctic Region and India), 471 (in revision of *Ammophila* of Palearctic Region and India), 2013b:579 (locality records from Austria, Czech Republic, Finland, France, Kazakhstan, Mongolia, Russia (Asiatic part), Spain, and Turkey); Flügel, 2013a:120 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Mokrousov, Ruchin, and Egorov, 2013:198 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Shlyakhtenok, 2013:132 (in annotated catalog of aculeate wasps of Belarus'); Wiśniowski and Szczepko, 2013:20 (Poland: Kampinos National Park near Warszawa); Hellqvist, Abenius, and Norén, 2014:90 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Ruchin and Antropov, 2014:35 (Russia: Republic of Mordovia); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces). – ***As Spheg pubescens***: Valkeila, 1962b:67 (new combination, southwestern Finland).
- Miscus arvensis* Dahlbom, 1843:8, ♂. Holotype: ♂, USA: Pennsylvania: no specific locality, but Europe according to Menke 1964b:154 (Lund). Synonymized with *Ammophila pubescens* by Menke, 1964b:153. – ***As Spheg 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: Mount 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***: Lepeletier 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); Melander, 1903:160 (in key to North American Ammophilini).
- Ammophila susterai* Šnoflák, 1943a:1, ♀, ♂ (as *šusterai*, incorrect original diacritic mark). Holotype: sex not indicated: Czech Republic: locality not specified (originally J. Šnoflák collection, now Praha Natl. Mus.). Synonymized with *Ammophila pubescens* by Balthasar, 1958:339. – Šnoflák in Zavadil and Šnoflák, 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, Mälarhusen, Sandhammaren).

Ammophila adriaansei Wilcke, 1945:277, ♀, ♂. Syntypes: sex not indicated, Netherlands: no specific locality (Amsterdam Mus., Wageningen Inst., and A. Wilcke collection). 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, 1946:235): 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), 1851c:17 (Great Britain: Dorsetshire: Blackwater Hants, New Forest, Weybridge), 1865b:86 (Great Britain: Dorset County: Bournemouth), 91 (other collecting localities), 1868a:96 (Great Britain: Mousehold Heath near Norwich, as *Miscus campestris*); E. Saunders, 1880:248 (in revision of British Aculeata), 1896:88 (in revision of British Aculeata); 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); Richards, 1937b:104 (in checklist of British aculeates); 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.

Ammophila arnaudi Tsuneki, 1976d:289, ♂. Holotype: ♂, China: Heilongjiang Sheng: Estsentientze 65 km E Harbin (CAS). Synonymized with *Ammophila pubescens* by Dollfuss, 2013a:472. – Pulawski, 1994:27 (CAS holotype no. 12,546); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

As *Miscus campestris*: Adlerz, 1901:170 (nesting habits), present correction.

167. *pulawskii* Tsuneki

Ammophila pulawskii Tsuneki, 1971k:175, ♀, ♂. Holotype: ♂, Mongolia: Bayanhongor Aymag: Ehingol oasis (TMB). – R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Dollfuss, 2013a:388, 397 (in key to *Ammophila* of Palearctic Region and India), 473 (in revision of *Ammophila* of Palearctic Region and India), 2013b:580 (Mongolia: Chatan Bulag in Domogov Region).

168. *punctata* F. Smith

Ammophila punctata F. Smith, 1856:218, ♀. Holotype or syntypes: ♀, northern India: no specific locality, may be Pakistan (BMNH). – Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Dalla Torre, 1897:406 (in catalog of world Hymenoptera); Rothney, 1903:104 (India: West Bengal: Barrackpore); 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 (in checklist of world Sphecidae); 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); Dollfuss, 2013a:390, 399 (in key to *Ammophila* of Palearctic Region and India), 473 (in revision of *Ammophila* of Palearctic Region and India), 2013b:580 (locality records from India, Iran, and Nepal).

169. punctaticeps (Arnold)

Sphex punctaticeps Arnold, 1920:52, ♀, ♂. Syntypes: Zimbabwe: Salisbury, now Harare, and Shiloh; South Africa: Shiluvane and Algoa Bay (SAM). – Arnold, 1928b:277 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae); Marshall, 1997:3 (reference to original description). – As *Ammophila punctaticeps*: 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 (in checklist of world Sphecidae); S. Gess, 1996:276, 301 (floral records).

170. 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); Dollfuss, 2013a:392, 396, 399, 401 (in key to *Ammophila* of Palearctic Region and India), 475 (in revision of *Ammophila* of Palearctic Region and India), 2013b:580 (locality records from Yemen); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia).

171. quadratcollis A. Costa

Ammophila quadratcollis A. Costa, 1893a:99, ♀. Holotype or syntypes: ♀, Tunisia: no specific locality (Napoli). – Dalla Torre, 1897:406 (in catalog of world Hymenoptera, as *quadricollis*); Kohl, 1906b:353 (in revision of Palearctic Ammophilini, original description copied); von Schulthess, 1909:440 (Libya: Derna, Tripoli); Morice, 1911:73 (Algeria: Bône, now Annaba, La Calle, now El Kala, Le Tarf, now El 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, description of ♂); 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 (in checklist of world Sphecidae); Dollfuss, 2013a:388, 398 (in key to *Ammophila* of Palearctic Region and India), 476 (in revision of *Ammophila* of Palearctic Region and India, as full species), 2013b:580 (Tunisia: 30 km E Medenine at 32°24'N 10°50'E, 14 km SE Houmt Souk in island of Djerba at 33°50'N 11°00'E). – As *Ammophila nasuta quadratcollis*: de Beaumont, 1963b:13 (new status, in revision of *nasuta* group); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:17 (in checklist of Egyptian Sphecidae, redescription of ♂), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae).

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

172. rauschi Dollfuss

Ammophila rauschi Dollfuss, 2013a: 477, ♀, ♂. Holotype: ♂, Kyrgyzstan: Talasskaya Oblast': Talass Mountains, river Ara-Byik at 42°23'28"N 70°58'34" (OÖLM). – Dollfuss, 2013a:393, 404 (in key to *Ammophila* of Palearctic Region and India), 2013b:580 (Kyrgyzstan: locality records).

173. regina Menke

Ammophila regina Menke, 1964a:25, ♀, ♂. Holotype: ♂, USA: California: Tuolumne County: Strawberry (UCD). – R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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).

174. roborovskyi Kohl

Ammophila roborovskyi Kohl, 1906b:368, ♀ (as *Roborovskyi*, incorrect original capitalization). Lectotype: Mongolia: Sa-Chou oasis, river Dau-khe (=Tau-ho) south of Sa-Chou (NHMW), designated by Dollfuss, 2013a:478. –

Gussakovskij, 1933b:274 (Iran); Tsuneki, 1971k:175 (Mongolia); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Kazenas, 1978b:38 (in key to Sphecidae of Kazakhstan and Central Asia); Danilov, 2010b:45 (distribution of Tethyan type); Dollfuss, 1989:7 (type material in NHMW), 2013a:388 (in key to *Ammophila* of Palearctic Region and India, as *roborowskyi*).

175. *rubigena* Q. Li and C. Yang

Ammophila rubigena Q. Li and C. Yang, 1990:260, ♀, ♂. Holotype: ♀, China: Nei Mongol: Jungar Banner, Ih Ju League: Mount Shenshan (Beijing Agricultural University). – Dollfuss, 2013a:479 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

176. *rubiginosa* Lepeletier de Saint Fargeau

Ammophila rubiginosa Lepeletier de Saint Fargeau, 1845:372, ♀ (authorship attributed to Klug). Holotype or syntypes: ♀, South Africa: Cape of Good Hope (M. Spinola collection, 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 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimen in M. Spinola collection, Torino); Pagliano, 2008:512 (specimen in M. Spinola collection, Torino), 514 (holotype of *Ammophila rubiginosa* under the name of *Ammophila rubricollis*).

177. *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, 1884a: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, Muíta-Luembe, Posto de Cacolo at Rio Cavuemba); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); 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); Roche, 2007a:22 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Pagliano, 2008:511 (specimens in M. Spinola collection, Torino, including lectotype and paralectotype); Murai and Amr, 2011:118 (recorded from Syria by Mocsáry, 1883); Schmid-Egger, 2011b:599 (United Arab Emirates: Al-Ajban), 601 (color photograph of male); Dollfuss, 2013a:388, 396 (in key to *Ammophila* of Palearctic Region and India), 480 (in revision of *Ammophila* of Palearctic Region and India), 2013b:581 (locality records from Egypt, Jordan, Morocco, Oman, Saudi Arabia, and Yemen); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia); Schmid-Egger, 2014:621 (United Arab Emirates).

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 Calatrava, 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 (Alge-

ria: 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 Marí, 1945b:362 (Western Sahara: Um at Sfaia), 1945e:219 (Western Sahara); Alfieri, 1946:138 (in revision of Egyptian *Ammophila*); Giner Marí, 1947:19 (Western Sahara); de Beaumont, 1950f:396 (Algeria), 1951e:266 (Morocco; taxonomic problems); Berland, 1952b:276 (boundary of Ivory Coast, Guinea, and Liberia: Mount 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 *Ammophila propinqua* by Kohl, 1906:363. – 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).

Ammophila dantoni Roth *in* Nadig, 1933:101, ♀, ♂ (as *Dantoni*, incorrect original capitalization, ♂ = *Ammophila erminea*). Holotype: sex not indicated, Morocco: no specific locality (originally A. Nadig collection, now Zurich). Female synonymized with *Ammophila rubripes* by Dollfuss, 2013a:480, male synonymized with *Ammophila erminea* by Dollfuss, 2013a:428. – de Beaumont, 1951:265 (Morocco, as *dantani*); Leclercq, 1955h:84 (bibliographic references); R. Bohart and Menke, 1976:151 (in checklist of world Sphecidae, as *dantani*).

178. *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); E. Reed, 1894:623 (as synonym of *Ammophila rufipes*); Dalla Torre, 1897:407 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Sielfeld, 1981b:72 (in checklist of Chilean Sphecidae); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Menke, 2004:771 (redescription, Argentina, Bolivia); Pagliano, 2008:513 (holotype in M. Spinola collection, Torino).

179. *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); E. Reed, 1894:622 (Chile, analysis of original description); 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 (in checklist of world Sphecidae); Casolari and Casolari Moreno, 1980:100 (specimen in M. Spinola collection, Torino); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:99 (references to papers on nesting habits); Amarante, 2002:67 (in catalog of Neotropical Sphecidae); Menke, 2004:769 (redescription); Pagliano, 2008:513 (specimens in M. Spinola collection, Torino); Rasmussen and Asenjo, 2009:15 (in checklist of Crabronidae of Peru); Chiappa, 2012:8 (Chile: Región de Valparaíso: no specific locality). – **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 Marí, 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).

180. *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. – Müller, 1764:72 (Denmark: Zealand: Fridrichsdal near Copenhagen); 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); Schrank, 1781:379 (in revision of insects of Austria); Retzius, 1783:65 (description); Fabricius, 1787:273 (redescription); de Villers, 1789:219 (redescription); Gmelin, 1790:2723 (redescription); Rossi, 1790:60 (Italy: in revision of insects of Etruria, now Toscana); Christ, 1791:311 (redescription); Fabricius, 1793:198 (redescription), 1796:156 (in Index to his Entomologia Systematica, 1793); Panzer, 1799, Heft 65:12 (in revision of German insects, illustration of habitus); Roth von Schreckenstein, 1802:30 (Germany: Baden-Württemberg); Schrank, 1802:319 (in revision of insects of Bayern (= Bavaria), Germany); Latreille, [1805]:292 (redescription); Panzer, 1806:124 (in critical review of his earlier work); 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); Rogenhofer and Dalla Torre, 1892:599 (*Sphex sabulosa* of Scopoli, 1763 = *Ammophila sabulosa*); Okamoto, 1924:203 (Korea: Island of Quelpart, now Island of Cheju); R. Perkins, 1924:221 (Great Britain: Devon), 1925:149 (Great Britain: Somersetshire); Stelfox, 1927:289 (records from Ireland are erroneous); Spooner, 1933:203 (Great Britain: Bedfordshire: Sandy), 1934b:278 (Great Britain: Devon: Braunton 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); Kåpylä, 1974:64 (Finland: diurnal activity); 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 system); Dahlbom, 1942a:8 (in review of Scandinavian aculeates), 1843:9 (in revision of Sphecidae and Pompilidae), 1845:430 (in key to *Ammophila*); Lepeletier de Saint Fargeau, 1845:376 (in revision of world Hymenoptera); 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); F. Smith, 1851c:16 (Great Britain: in sandy situations); Wesmael, 1852:82 (Belgium); F. Smith, 1853:62 (in checklist of British Hymenoptera); 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); F. Smith, 1858c:81 (in review of British Aculeata, redescription); Taschenberg, 1858:61 (in key to Sphecidae of Germany); Assmuss, 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); A. Costa, 1863:65 (Italy: Calabria Ulteriore: no specific locality); Siła-Nowicki, 1864:55 (Ukraine: L'viv), 1865:55 (western Ukraine: Galicia region: no specific locality); F. Smith, 1865b:86 (Great Britain: Dorset: Bournemouth); 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); Jaenicke, 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); Jaenicke, 1868:9 (Germany: Hessen: Frankfurt and Offenbach area); Wierzejski, 1868:117 (Poland: Kraków area, and Ukraine: L'viv area, Podole region: common everywhere); F. Smith, 1869d:77 (Great Britain: Norfolk: Cromer); Taschenberg, 1869:433 (Germany); Aichinger, 1870:321 (Austria: Tirol); Thomson, 1870:230 (in revision of Swedish wasps); Radoszkowski, 1871:195 (Himalayas: no specific locality); F. Smith, 1871b:9 (in catalog of British Aculeata); P. 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Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); 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); Basset, 2001:77 (France: Département de Gironde); Casiraghi, Andrietti, Bonasoro, and Martinoli, 2001:299 (an ichneumonid, *Buathra tarsoleuca* (Schrank), is a nest parasite); Casiraghi, Martinoli, Bosco, Preatoni, and Andrietti, 2001:299 (single provisioning and multiple provisioning of nest, stinging mainly in caterpillar's throat and abdominal segments II and III); Cungs and Jakubzik, 2001:122, 123 (Luxembourg); Deván, 2001:165 (Slovakia: Krasin Nature Reserve in Biele Karpaty Mountains); Dorow, 2001:135 (Germany: Hessen: Niddahänge Forest Reserve); Ivanov and Ljubomirov, 2001:210 (Bulgaria: Kresna Gorge at 41°48'N 23°10'E); Józán, 2001:277 (Hungary: Somogy County); Kazenas, 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 112 (review of known biology); Kazenas and Esenbekova, 2001:133 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:137 (distribution in Germany by provinces); Shlyakhtenok and Agunovich, 2001:144 (Belorussia: Berezinskiy Nature Reserve); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:187 (Poland: Kampinos National Park near Warszawa); van der Smissen, 2001:58 (Germany: Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:67 (Austria: Wien); Archer, 2002b:126 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:103 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:111 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:72 (Liechtenstein); Deván, 2002a:200 (Slovakia: Kobela Nature Reserve near Nové Mesto); Esser and Cölln, 2002:1136 (SW Germany: Eifel region); Józán, 2002:53

(Hungary: Mecsek Mountains); Kazenas, 2002a:38 (geographic distribution, collecting localities in Kazakhstan); Konno et al., 2002:310 (bradykinins not found in venom); Kowalczyk, Szczepko, and Świątek, 2002:152 (Poland: Kampinos National Park near Warszawa); Litt, 2002:166 (Belgium); Mokrousov, 2002:147 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Ronayne, 2002:138 (Ireland: Mayo County: Mullet Peninsula); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shkuratov, 2002b:138 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Shlyakhtenok and Skibinska, 2002:32 (Belarus: no specific locality); van der Meer, 2002:15 (Netherlands: costal dunes at Meijndel); von der Dunk and Amos, 2002:158 (Germany: Bayern: Schwaig near Nürnberg); Wiśniowski, 2002:68 (Poland: Ojców National Park); Ziska, 2002:7 (Germany: Berlin-Köpenick: Krumme Lake); Casiraghi, Polidori, Ferreri, Preatoni, Andrietti, and Martinoli, 2003:329 (closely spaced nests are more likely to be parasitized by conspecific females); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: Island of Romelsön); Cölln, Esser, and Jakubzik, 2003:61 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:133 (Croatia, France, Germany, Greece, Hungary, Italy, Sweden: miscellaneous locality records); Esser and Jakubzik, 2003:290 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); González, Gayubo, Asís, Tormos, and García, 2003:61 (Spain: Soria: Chavalero); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003: 226 (Hungary: Látrányi Pusztá Nature Conservation Area); Kula and Tyrner, 2003a:150 (Czech Republic: Děčín Sandstone Uplands: forest district Snežník: birch stands in air-polluted area); Lukáš, 2003:73 (Slovakia: Bratislava: old fruit orchard); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:63 (Germany: in catalog of wasps and bees of Bayern); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Island of Malyi Tataru in Danube delta at 45.21°N 29.00°E); Tischendorf and Treiber, 2003:120 (Germany: Hessen: 15 km SW Frankfurt am Main: nesting under high power lines); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:132 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:76 (Poland: Pieniny National Park); Aistleitner, 2004:59 (Liechtenstein: Balzers); Abenius, 2004:40 (Sweden: Norrbottens: Luleå area); Archer, 2004:47 (Great Britain: Worcestershire: Devils Spittleful Nature Reserve); Bergsten, Nilsson, and Hellquist, 2004:7 (Sweden: Västerbotten: Nordmaling); Deván, 2004:146 (western Slovakia); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Field and Brace, 2004:651 (the female does not respond to *Metopia* maggots in the nest); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Hellrigl, 2004a:172 (Italy: Trentino-Alto Adige, as Südtirol: Tschöggglberg, Vöran); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'8"E); Majzlan and Deván, 2004:30 (Slovakia: Sekule), 32 (Slovakia: Malacky-Široké); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mountains); Litt, 2004:222 (Switzerland: Valais: Nava); Nazarova, 2004:105 (Tajikistan: Badakhshan Region: village Langar in Shakh dara River valley); Shkuratov, 2004a:72 (Russia: Rostov Oblast'), 2004b:164 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Sphecidae); Szczepko and Kowalczyk, 2004:125 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:39 and 58 (in checklist of Polish Sphecidae); Blösch, 2005:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Cruz-Sánchez, Gayubo, González, and Torres, 2005:219 (Spain: Salamanca: San Martín del Castañar); Fuhrmann, 2005:89 (Germany: Nordrhein-Westfalen: Grubengelände Littfeld Nature Reserve); Gayubo and Özbek, 2005:13 (Turkey: many localities); Gülmez and Tüzün, 2005:51 (Turkey: Ankara Province); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Jacobs, 2005a:437 (Bulgaria); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:165 (Austria: Tirol: Lienz District: many localities); Kowalczyk and Kurzac, 2005:104 (Poland: Botanical Garden in Łódź);

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 Negrisola, 2005:69 (in Sphecidae Fauna of Italy); Pijfers, 2005:49 (Netherlands: Twente: Noordelijke Manderheide); Quest and Kuhlmann, 2005:32 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:544 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:13 (Germany: Berlin); Shoreenko, 2005a:163 (Ukraine: Crimea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Archer, 2006a:21 (Great Britain: Lincolnshire: Rauceby Warren National Park), 2006c:217 (Great Britain: Staffordshire: Highgate Common); Blösch, 2006:63 (specimens spend nights attached to plant stems or leave blades with their mandibles); Dathe, 2006:37, 38 (*Sphex sabulosa* and *Mellinus sabulosus* recorded from Plauenscher Grund near Dresden, Germany, by von Block, 1799, are now *Ammophila sabulosa*); Feitz, Gloden, Melchior, and Schneider, 2006:83 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Gadoum and Barbier, 2006:42 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Saint-Martin-la-Garenne); Kroupa, 2006b:26 (Germany: Bayern: Oberfranken Region); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); 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); Shlyakhtenok, 2006:110 (Belarus: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund), 2006c:308 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Terayama and Tano, 2006:7, 15, 18 (in key to Japanese Ampulicidae and Sphecidae); Tezcan, Yildirim, Anlaş, and Beyaz, 2006:58 (Turkey: Manisa: Turgutlu: Çıkrıkçı, on flowers of *Coridothymus capitatus*); Vepřek, 2006:508 (Czech Republic: Kokořínsko area); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge), 2007c:152 (Great Britain: South Devon coast); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:97 (Great Britain: Tunbridge Wells and Central High Weald); Dorow, 2007:263 (Germany: Hessen: Schönbuche Forest Reserve); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:167 (Czech Republic: Vyšenské Kopce National Nature Reserve); Fateryga, Ivanov, and Novikov, 2007:149 (feeding on flowers of *Scrophularia umbrosa* Dumort. in Crimea); Jacobs, 2007:46, 47 (in key to Sphecidae of Germany); Józán, 2007:179 (Hungary: Zselic hills); Kazenas, 2007a:90 (Kazakhstan: Akmalá Oblast': Kurgandzhin Nature Reserve and vicinity); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Saure, 2007:81 (in checklist of Aculeata of Brandenburg Land, Germany); Shlyakhtenok, 2007a:298 (Belarus: Berezinsky Nature Reserve); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:199 (in catalog of Sphecidae of Czech Republic and Slovakia); Yildirim and Ljubomirov, 2007:116 (Turkey: Erzurum: Aşkale); Archer, 2008b:145 (Great Britain: South Essex: West Tilbury); Danilov, 2008:346 (Russia: Altayskiy Kray: Barnaul area); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:65 (Czech Republic: Hády Hill near Brno); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:307 (Germany: Friesian Islands); Kazenas, 2008b:111 (Kazakhstan: foothills of Zailiskiy Alatau: infrequently found on loess cliffs); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey); Nemkov, 2008b:17 (in catalog of Sphecidae of Asiatic Russia); Pagliano, 2008:513 (specimens in M. Spinola collection, Torino); Theunert, 2008:8 (Germany: map of distribution in Niedersachsen and Bremen); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe, as *sabulosa sabulosa*); Fallahzadeh, Ostovan, and Saghaei, 2009:235 (Iran: Fars: Marvdasht, Shiraz), 239 (color photograph); Flügel, 2009b:63 (Germany: Hessen: Borken, in inactive open brown coal mine); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Gayubo, González, Tormos, and Asís, 2009:362 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Józán, 2009:164 (Croatia); Mokrousov, Antropov, Ruchin, and Bugayev, 2009:78 (Russia: Republic of Mordovia); Nemkov, 2009b:50 (in new catalog of Sphecidae and

Crabronidae of Asiatic Russia, as *sabulosa sabulosa*); Ruchin, Antropov, and Shibayev, 2009:168 (Russia: Republic of Mordovia); Straka, Dvořák, and Bogusch, 2009:257 (Czech Republic: Jizerské Mountains and Frýdlant region); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Zettel, Wagner, Zimmermann, Wiesbauer, Sorger, Ockermüller, and Seyfert, 2009:10 (Austria: Oberösterreich: Pfaffstätten); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren), 2010b:99 (Great Britain: Watsonian Staffordshire: Cannock Chase Country Park); Bitsch, 2010:107 (in supplement to vol. II of Faune de France, 1997: recent record from Ireland reported); Danilov, 2010b:45 (distribution of transpalearctic type); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:92 (Great Britain: heathland sites in West Midlands region); Ghazi-Soltani, Ebrahimi, Iranipour, and Pour Abad, 2010:798 (Iran: East Azarbaijan: village Beiragh, Maragheh: Khormazard, Tabriz: Bostanabad); Ghazi-Soltani, Khaghaninia, and Shahim, 2010:638 (Iran: East Azerbaijan: Horand Forests); Hable, von der Dunk, and Knipfer, 2010:63 (Germany: Bayern: vicinity of Dietfurt); Howe, Knight, and Clee, 2010:100 (United Kingdom: occurring on coastal sand dunes); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010:60 (Russia: Yaroslavl', Kirov, Nizhniy Novgorod, and Vladimir Oblast's, Chuvash Republic, Mariy El Republic, Mordoviya, and Tatarstan: no specific localities); Rudoiskatel', 2010:147 (Russia: central and southern Ural Mountains); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge), 2010b:174 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:22 (in red list of Aculeata of Germany: relatively common); Shorenko and Kononov, 2010:10 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:100 (Western Slovakia: recorded from Borská Nižina); Smit and Wijngaard, 2010:69 (in checklist of Sphecinae of Netherlands); Tüzün and Yüksel, 2010:4469 (Turkey: Niğde Province); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011b:54 (Great Britain: North Norfolk sand dunes); Baghirov, 2011b:139 (Russia: Altayskiy Kray: Savvushka); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:497 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Danilov, 2011b:204 (Russia: Zabaikal'skiy Kray: Daur'skiy Nature Reserve, as *sabulosa sabulosa*); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Gogala, 2011:7 (Slovenia); Mokrousov, Berezin, and Egorov, 2011:64 (Russia: Chuvash Republic); Murai and Amr, 2011:108, 118 (first record from Syria: Al Thawrah Nature Reserve at 35°51'N 28°38'E); Protsenko and Drozdovskaya, 2011:90 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Saure, 2011c:197 (Germany: Berlin-Spandau: Fort Hahnberg), 2011d:199 (Germany: Sachsen-Anhalt: conservation area "Heide südlich Burg"); Shlyakhtenok, 2011:94 (Belarus': city of Minsk); Theunert, 2011a:18 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:108 (Germany: Hessen: not endangered); von der Dunk, 2011:184 (Germany: Bayern: Kaiserburg in Nürnberg); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Boillat, 2012:229 (Switzerland: in checklist of insects of Canton de Genève); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Japoshvili and Ljubomirov, 2012:96 (Turkey: Isparta: Gölcük Nature Park 8 km SW city of Isparta, as *sabulosa sabulosa*); Nemkov, 2012c:434 (in catalog of Sphecidae of Russian Far East, as *sabulosa sabulosa*); Prisniy, 2012:46 (Russia: Belgorod Oblast'); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:53 (Ukraine: Crimea, Kiyev); Saure, 2012b:227 (Germany: Berlin-Spandau: Spandauer Forst); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Shlyakhtenok, 2012a:171 (Russia: Kirov Oblast': Arkhangelskoye: collected in private plots), 2012b:91 (Belarus': Beresina National Reserve: overgrowing dry meadow); Srba and Heneberg, 2012:559 (nesting in loose soils); Yildirim, 2012:75 (Turkey: Bayburt, Erzurum, and Tunceli provinces); Akulov and Proshchalykin, 2013:111 (Russia: Siberia: Krasnoyarsk Kray, as *sabulosa sabulosa*); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Bitsch, Grouet, and Savina, 2013:291 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Danilov and Odintseva, 2013:332 (Russia: Western Siberia: 65 km NNE Tobol'sk at 58°45'N 68°74'E); Dollfuss, 2013a:390, 400 (in key to *Ammophila* of Palearctic Region and India), 2013b:581 (locality records from Austria, Bulgaria, Croatia, Czech Republic, France, Greece, Hungary, Italy, Iran, Kazakhstan, Kyrgyzstan, Lithuania, Moldova, Mongolia, Nepal, Portugal, Romania, Russia, Serbia, Slovakia, Spain,

- Sweden, Turkey, Ukraine, and Uzbekistan); Flügel, 2013a:120 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Kazenas, 2013a:36, 37 (color photographs of adult wasps, short information on geographic distribution and nesting habits); Mokrousov, Ruchin, and Egorov, 2013:198 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Saure, 2013:17 (Berlin: Treptow-Köpenick: Gosener Wiesen); Shlyakhtenok, 2013:132 (in annotated catalog of aculeate wasps of Belarus'); Wiśniowski and Szczepko, 2013:21 (Poland: Kampinos National Park near Warszawa); Zettel, Zimmermann, and Wiesbauer, 2013:12 (Austria: Wien: Donaupark); Hellqvist, Abenius, and Norén, 2014:90 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Ruchin and Antropov, 2014:35 (Russia: Republic of Mordovia); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces, as *sabulosa sabulosa*).
- Sphex hortensis* Poda, 1761:106. Synonymized with *Ammophila sabulosa* by Kohl, 1906:335.
- Ichneumon frischii* Geoffroy in Fourcroy, 1785:415, sex not indicated (as *Frischii*, incorrect original capitalization). Holotype or syntypes: France: Paris (lost). Synonymized with *Ammophila sabulosa* by Kohl, 1906:336.
- Sphex dimidiatus* Christ, 1791:313, sex not indicated (as *dimidiata*, incorrect original termination), junior primary homonym of *Sphex dimidiatus* De Geer, 1773. Holotype or syntypes: origin not indicated. Synonymized with *Ammophila sabulosa* by Kohl, 1906:336. – 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?). Synonymized with *Ammophila sabulosa* by Lepeletier de Saint Fargeau, 1845:377. – Stephens, 1829a:361 (in catalog of British insects), 1829b:33 (in checklist of British insects).
- Ammophila pulvillata* Sowerby, 1806:67, [♂]. Holotype or syntypes: Great Britain: Berkshire County: Reading (depository?). Synonymized with *Ammophila sabulosa* by F. Smith, 1855:99 and Menke in R. Bohart and Menke, 1976:153. – Stephens, 1829a:361 (in catalog of British insects), 1829b:33 (in checklist of British insects).
- 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, 1889:94 (in list of Sphecidae of Oriental Region); 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 tentative 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 (in checklist of world Sphecidae).
- As *Sphex lutarius* (which actually is *Mimesa lutaria*): Panzer, 1799, Heft 65:14 (in revision of German insects, illustration of habitus).
- 181. *sarekandana* Balthasar**
- Ammophila sarekandana* Balthasar, 1957b:192, ♀. Holotype: ♀, Afghanistan: Badakhshan: Sarekanda (originally V. Balthasar collection, now EONM). – R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Dollfuss, 2013a:393, 403 (in key to *Ammophila* of Palearctic Region and India), 483 (in revision of *Ammophila* of Palearctic Region and India), 2013b:583 (locality records from Kyrgyzstan).

As *Ammophila afghanica*: Balthasar, 1957:192, ♂ only (Afghanistan: Badakhshan: Sarekanda), corrected to *Ammophila sarekandana* by Dollfuss, 2013a:483.

182. *sareptana* Kohl

Ammophila sareptana Kohl, 1884a:378, ♂. Lectotype: ♂, Russia: Sarepta, now Krasnoarmeysk near Volgograd (NHMW), designated by Dollfuss, 2013a:484. – 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 ♀, Ukraine: Crimea; Russia: Stavropol Kray; Kazakhstan: N Alma Ata); Bytinski-Salz, 1956:223 (Turkey: Kuşehir); de Beaumont, 1967a:266 (Turkey); Kazenas, 1968b:342 (Kazakhstan: Alma Ata Oblast'), 1972b:100 (Kazakhstan); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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, 1998b:181 (in Sphecid Fauna of Kazakhstan); Esenbekova and Kazenas, 2000:14 (southeast Kazakhstan: 10 km NW Chemolgan, 12 km N Sary-Ozek); 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), 2004:72 (Russia: Rostov Oblast'); Shoreiko, 2005a:163 (Ukraine: Crimea), 2005b:97 (Ukraine: Crimea: Karadagh Nature Reserve); Kazenas, 2008a:98 (southeast Kazakhstan: Arkharly, Malaysary, Kzyl-Agach, 12 km S Sary-Ozek, 5-10 km NW Chemolgan); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey); Danilov, 2010b:44 (distribution of Tethyan type); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:54 (Ukraine: Crimea); Dollfuss, 2013a:393, 403 (in key to *Ammophila* of Palearctic Region and India), 484 (in revision of *Ammophila* of Palearctic Region and India), 2013b:584 (locality records from Kazakhstan, Kyrgyzstan, and Turkey); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces).

183. *saussurei* (du Buysson)

Coloptera saussurei du Buysson, 1898a:357, ♀ (as *Saussurei*, incorrect original capitalization). Holotype or syntypes: ♀, South Africa: Gauteng: Hamanskraal (MNHN). – As *Sphex saussurei*: Arnold, 1920:32 (new combination, in revision of southern African *Ammophila*), 1928b:259 (in revision of southern African *Ammophila*), 1930:16 (in checklist of Afrotropical Sphecidae). – As *Ammophila saussurei*: Leclercq, 1955h:93 (new combination, bibliographic references); R. Bohart and Menke, 1976:259 (in checklist of world Sphecidae).

184. *schmideggeri* Dollfuss

Ammophila schmideggeri Dollfuss, 2013a:485, ♀, ♂. Holotype: ♀, Israel: Negev Desert 45 km S Beer Sheva and 5 km SSE Sede Boqer: Wadi N'Aqef at 34°48'N 30°49'E (coll. Schmid-Egger, Berlin). – Dollfuss, 2013a:392, 401 (in key to *Ammophila* of Palearctic Region and India), 485 (in revision of *Ammophila* of Palearctic Region and India).

185. *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); Myartseva, 1971:77 (in key to *Ammophila* of Turkmenistan) Kazenas, 1972b:101 (Kazakhstan); Myartseva, 1972a:86 (Turkmenistan); Kazenas, 1974b:109 (feeding on flowers of *Statice gmelini* Willd., Plumbaginaceae, in Kazakhstan), 111 (feeding on flowers of *Thymus marschallianus* Willd., Lamiaceae, and *Saussurea* sp., Asteraceae, in Kazakhstan); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae, 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); Danilov, 2010b:45 (distribution of Tethyan type); Dollfuss, 2013a:394, 404 (in key to *Ammophila* of Palearctic Region and India), 486 (in revision of *Ammophila* of Palearctic Region and India), 2013b:584 (locality records from Kazakhstan and Turkmenistan).

186. *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 (in checklist of world Sphecidae); Krombein, 1979b:1594 (in catalog of North American Hymenoptera).

187. *sickmanni* Kohl

Ammophila sickmanni Kohl, 1901d:151, ♀. Lectotype: ♀, China: Tientsin or Kalgan (NHMW), designated by Dollfuss, 2013a:487. – Kohl, 1906b:340 (in revision of Palearctic Ammophilini); Gussakovskij, 1938:3 (China: Kiangsu Province); Tsuneki, 1967j:10, 11 (in key to Ammophilini of East Asia; as *sickmanni sickmanni*), 15 (description of ♂, Korea), 1974a:360 (Korea); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Tsuneki, 1982b:14 (known from Korea); Paik, 1985:197 (in list of Sphecidae of Korea); Tsuneki, 1991:199 (Korea); Q. Li, Ji. Li, and J. 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*); Q. Li and J. He, 2004:1121 (in hymenopterous fauna of Zhejiang Province, China, as *sickmanni sickmanni*); Q. 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 and 2009b:50 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Danilov, 2010b:45 (distribution of eastern Palearctic type); Nemkov, 2012c:434 (in catalog of Sphecidae of Russian Far East); Dollfuss, 2013a:389, 394, 400 (in key to *Ammophila* of Palearctic Region and India), 487 (in revision of *Ammophila* of Palearctic Region and India), 2013b:584 (locality records from China and Mongolia).

Ammophila subassimilis Strand, 1913a:86, ♀, ♂. Lectotype: Taiwan: Taihorin (DEI), designated by Dollfuss, 2013a:487. Synonymized with *Ammophila sickmanni* by Dollfuss, 2013a:487. – Strand, 1927:253 (in list of species described by the author); Sonan, 1942:133 (as new synonym of *Ammophila vagabunda*); nec Tsuneki, 1967i:383 (= *Ammophila formosensis*); Tsuneki, 1967j:5 (Taiwan), 10, 11 (in key to Ammophilini of East Asia), 17 (comparison with *Ammophila sickmanni wusheensis*); Oehlke and Wudowenz, 1974:425 (syntypes in DEI); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

Ammophila sjoestedti Gussakovskij, 1934a:6, ♀ (as *sjöstedti*, incorrect diacritic mark), junior primary homonym of *Ammophila sjoestedti* Cameron, 1910. Holotype: ♀, China: Gansu Province: no specific locality (NRS). Synonymized with *Ammophila sickmanni* by Dollfuss, 2013a:487. – R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Q. Li and L. Yang, 2005:884 (China: Gansu: Quinling Range and South Mountains); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

ssp. *wusheensis* Tsuneki

Ammophila sickmanni wusheensis Tsuneki, 1967j:16, ♀, ♂. Holotype: ♀, Taiwan: Nantou Prefecture: Chienching (originally K. Tsuneki collection, now USNM). – Tsuneki, 1967j:5 (Taiwan), 10, 11 (in key to Ammophilini of East Asia), 1971f:5 (Taiwan; discussion); Murota, 1973b:116 (Taiwan); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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); Dollfuss, 2013a:487 (listed in synonymy of *Ammophila sickmanni*).

188. *silvestris* Kirkbride

Ammophila silvestris Kirkbride, 1982:457, ♀, ♂. Holotype: ♂, USA: Idaho: Idaho County: 21 mi W Lolo Pass (Univ. Idaho, Moscow). Paratypes: Montana, Wyoming. – Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

189. *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', now Semey); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); 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, 1998b:182 (in Sphecid Fauna of Kazakhstan), 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 Asiatic Russia); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe); Nemkov, 2009b:51 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Danilov, 2010b:45 (distribution of Scythian type); Yildirim, 2012:75 (Turkey: Erzurum: Tortum: Derekapı); Akulov and Proshchalykin, 2013:111 (Russia: Siberia: Krasnoyarsk Krai: Minusinsk); Dollfuss, 2013a:391, 488 (in key to *Ammophila* of Palearctic Region and India), 2013b:584 (locality records from China and Mongolia); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces).

Ammophila planicollaris Li and C. Yang, 1990:259, ♂. Holotype: ♂, China: Nei Mongol: Junggar Banner, Ih Ju Leage: Mount Sheshan (Beijing Agricultural University). Synonymized with *Ammophila sinensis* by Dollfuss, 2013a:488. – Hua, 2006:275 (in list of Chinese insects, geographic distribution).

190. *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 collection, now BMNH?). – F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889:94 (in list of Sphecidae of Oriental Region); 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 (in checklist of world Sphecidae); Jha and Farooqi, 1994:9 (description and illustration of male genitalia); Dollfuss, 2013a:388, 397 (in key to *Ammophila* of Palearctic Region and India), 490 (in revision of *Ammophila* of Palearctic Region and India).

191. *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 (in checklist of world Sphecidae); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Dawes County: N Crawford); G. Ferguson, 1984a:299 (prey of *Philanthus zebratus*); Rosenheim, 1987:740 (California: Nevada County: Sagehen Creek near Hobart Mills); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

192. *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); Melander, 1903:157 (diagnostic characters), 161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Viereck, 1903a:68 (New Mexico: Beulah); Snow, 1906:7 (Arizona: Baboquivari, 20 mi SW Flagstaff); 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); Steiner, 1973:26 (Canada: Northwest Territories); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1983b:21 (Nebraska: Dawes County: SE Crawford), 1986c:35 (Utah: San Juan County: SE Natural Bridges National Monument), 1994d:15 (California: Monterey County: Parkfield area); Fimmamore, 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – *As Sphex strenuus*: J. Smith, 1910:677 (new combination, in new list of insects of New Jersey); Mickel, 1918b:405 (in catalog of Nebraskan Sphecidae); Fernald, 1934:136 (in revision of North American and West Indian *Ammophila*).

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 Menke, 1967a:3.

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

193. *striata* Mocsáry

Ammophila striata Mocsáry, 1879:200, ♀. 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 (in checklist of world Sphecidae); 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, 1998b:184 (in Sphecid Fauna of Kazakhstan), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:39 (geographic distribution, collecting localities in Kazakhstan), 2007a:90 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Kazenas, 2008a:98 (southeast Kazakhstan: Kurday Pass in Zailiyskiy Alatau); Ljubomirov and Yildirim, 2008:37 (in catalog of Sphecidae of Turkey); Danilov, 2010b:44 (distribution of Tethyan type); Dollfuss, 2013a:391, 402 (in key to *Ammophila* of Palearctic Region and India), 491 (in revision of *Ammophila* of Palearctic Region and India); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces, as *strata striata*).

ssp. nadigi Roth

Ammophila nadigi Roth, 1932:82, ♀ (as *Nadigi*, incorrect original capitalization). Holotype: ♀, Morocco: Ifran (originally A. Nadig collection, now Zurich). – 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 (in checklist of world Sphecidae); Dollfuss, 2013a:491 (in revision of *Ammophila* of Palearctic Region and India).

194. *striaticollis* F. Morawitz

Ammophila striaticollis F. Morawitz, 1889a:127, ♀. Holotype or syntypes: ♀, China: Hutoho (ZIN). – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Kohl, 1906b:376 (original description copied), 320 (as new synonym

of *Ammophila campestris*); Dollfuss, 2013a:393 (in key to *Ammophila* of Palearctic Region and India), 492 (in revision of *Ammophila* of Palearctic Region and India).

195. *strumosa* Kohl

Ammophila quadraticollis var. *strumosa* Kohl, 1906:355, ♀. Lectotype: ♀, Palestine: Jericho (NHMW), designated by Dollfuss, 2013a:492. – 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 Marí, 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 *nasuta* group); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Roche and Zalut, 1994:114 (Egypt: Sinai Peninsula); Roche, 2007a:18 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Murai and Amr, 2011:118 (recorded from Syria by Kohl, 1906); Dollfuss, 2013a:388, 397 (in key to *Ammophila* of Palearctic Region and India), 492 (in revision of *Ammophila* of Palearctic Region and India), 2013b:584 (locality records from Morocco and Tunisia).

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

196. *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 (in checklist of world Sphecidae); Kazenas, 1978b:36 (in key to Sphecidae of Kazakhstan and Central Asia), 1998b:185 (in Sphecid Fauna of Kazakhstan), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:39 (geographic distribution, collecting localities in Kazakhstan), 2008a:98 (southeast Kazakhstan: lower course of Kurta River: village Kazakhstan); Danilov, 2010b:44 (distribution of Tethyan type); Dollfuss, 2013a:389, 391, 399, 401 (in key to *Ammophila* of Palearctic Region and India), 493 (in revision of *Ammophila* of Palearctic Region and India), 2013b:584 (locality records from Kazakhstan and Uzbekistan).

197. *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); Kuznetzov-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); Móczár, 1938a:80 (Hungary: Pótharasz puszta); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); 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); Hertzog, 1956:144 (prey: geometrid caterpillars); 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); Kazenas, 1968b:342 (Kazakhstan: Alma Ata Oblast'); 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: Forêt de Campet); Kolesnikov, 1977:317 (Russia: Bryansk Oblast'); Marion, 1978:85 (France); Schmidt, 1981:223 (Germany: specimen recorded from Kaiserstuhl by Miotk, 1979 is *Podalonia affinis*); 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), 1974b:109 (feeding on flowers of *Tamarix* sp., *Statice gmelini* Willd., Plumbaginaceae, *Euphorbia* spp., Euphorbiaceae, in Kazakhstan), 110 (feeding on flowers of *Nitraria schoberi* L., *Peganum harmala* L., Zygophyllaceae, and *Daucus carota* L., Apiaceae, in Kazakhstan), 111 (feeding on flowers of *Lepidium crassifolium* W. et K., Brassicaceae, in Kazakhstan), 112 (feeding on flowers of *Salsola* sp., Chenopodiaceae, in Kazakhstan); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae); Báez and Ortega, 1978:191 (Canary Islands); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:115 (Russia: Siberia: Altayskiy Kray: basin of Aley River); 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 Barquin, 1993:199 (detailed records from Canary Islands); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Negrisoló 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); Kazenas, 1998b:186 (in Sphecid Fauna of Kazakhstan), 187 (as *terminata terminata*); Anan'eva and Kochetkov, 1999:6 (Russia: Ryazan Oblast': no specific locality); 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); Esenbekova and Kazenas, 2000:14 (southeast Kazakhstan: 8 km E Bakanas, 3 km NE Borandysu, 10 km NW Chemolgan, 10 km NW Chundzha, near Kapchagay); 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': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Shlyakhtenok and Skibinska, 2002:32

(Belarus': no specific locality); Hellrigl, 2004a:172 (Italy: Trentino-Alto Adige, as Südtirol: Vinschgau = Val Venosta: St. Martin in Kofel); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan Mountains), 2004d:28 (Kazakhstan: northern Caspian region); Majzlan and Deván, 2004:32 (Slovakia: Malacky-Široké); Shkuratov, 2004a:72 (Russia: Rostov Oblast'), 2004b:164 (Russia: Rostov Oblast': Gosudarstvennyi Muzey-Zapovednik M.A. Sholokhova); 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, 2007a:90 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Vepřek and Straka, 2007:199 (in catalog of Sphecidae of Czech Republic and Slovakia, known from Moravia and Slovakia only), 211 (record from Bohemia by Zavadil, 1937, is unreliable and not accepted; vaucher specimen could not be located); Danilov, 2008:346 (Russia: Altayskiy Kray: Barnaul area); Danilov and Tshernyshev, 2008:41 (Russia: Novosibirsk Oblast': Karasuk area); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Řiha, Smetana, Straka, and Šima, 2008:65 (Czech Republic: Hády Hill near Brno); Nemkov, 2008b:17 (in catalog of Sphecidae of Asiatic Russia); Danilov, 2009:57 (Russia: Western Siberia: Kulundinskaya Steppe); Nemkov, 2009b:51 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Danilov, 2010b:45 (distribution of transpalearctic type); Rudoiskatel', 2010:147 (Russia: southern Ural Mountains); Shorenko and Konovalov, 2010:10 (Ukraine: Khar'kov, Zaporozhskaya, and Luganskaya Oblast's); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:100 (Western Slovakia: recorded from Borská Nížina); Tüzün and Yüksel, 2010:4469 (Turkey: Niğde Province); Baghirov, 2011b:139 (Russia: Altay Republic: Onguday); Danilov, 2011b:205 (Russia: Zabaikal'skiy Kray: Daur'skiy Nature Reserve); Boillat, 2012:229 (Switzerland: in checklist of insects of Canton de Genève); Prismaniy, 2012:46 (Russia: Belgorod Oblast'); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:54 (Ukraine: Crimea); Akulov and Proshchalykin, 2013:111 (Russia: Siberia: Krasnoyarsk Kray: Minusinsk); Dollfuss, 2013a:392, 393, 402, 403 (in key to *Ammophila* of Palearctic Region and India), 494 (in revision of *Ammophila* of Palearctic Region and India), 2013b:585 (locality records from China, Czech Republic, France, Hungary, Kazakhstan, Kyrgyzstan, Mongolia, Portugal, Slovakia, Spain, Tunisia, and Turkey); Kazenas, 2013a:15 (color photograph of male, short information on geographic distribution and nesting habits); Shlyakhtenok, 2013:134 (in annotated catalog of aculeate wasps of Belarus'); .

Ammophila mocsaryi Frivaldszky, 1876:352, [♀, ♂] (as *Mocsáryi*, incorrect original capitalization and diacritic mark). Syntypes: Hungary: Budapest and Temes Komitat (now: Romania: Timiș District): Grebenác (TMB). Synonymized with *Ammophila apicalis* Brullé by Kohl, 1906:331, synonymy confirmed by Dollfuss, 2013a:331. – 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); Šnoflák in Zavadil and Šnoflák, 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 (in checklist of world Sphecidae); 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); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:2 (in catalog of Italian fauna); Józán, 1998:310 (Hungary: Duna-Dráva National Park); 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); Józán, 2001:277 (Hungary: Somogy County); Drewes, 2003:133 (Italy: Bolzano–Alto Adige, Spain: Figueras); Gayubo and Özbek, 2005:13 (Turkey: Erzurum: University campus, Tortum); Józán, 2003: 226 (Hungary: Látrányi Pusztá Nature Conservation Area); Pagliano and Negrisolo, 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); Gayubo, González, Tormos, and Asís, 2009:362 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Yildirim, 2012:75 (Turkey: Bayburt: Kop Mountain; Kars: Sarıkamış: Karakurt); 2014:30 (Turkey: distribution by biogeographic provinces).

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, ♀. Lectotype: ♀, Austria: St. Justina and Vierglberge near Bozen, now Italy: Alto Adige: Bolzano area (NHMW), designated by Dollfuss, 2013a:495. 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 kirgisica F. Morawitz, 1891a:203, ♀, ♂. Syntypes: European Kazakhstan: Ryn-Peski, Kirgizskaya (ZIN). Synonymized with *Ammophila apicalis* by Kohl, 1906:332, synonymy confirmed by Dollfuss, 2013a:495. – Dalla Torre, 1897:403 (in catalog of world Hymenoptera); R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae, as tentative synonym of *Ammophila terminata mocsaryi*).

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, synonymy confirmed by Dollfuss, 2013a:494. – R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Wu and Zhou, 1996a:50 (in revision in Economic Insect Fauna of China).

ssp. turanica Kazenas

Ammophila terminata turanica Kazenas, 1998b:188, ♀, ♂. Holotype: ♀, Kazakhstan: near Ayak-Kalkan in Ili River valley 35 km NE Chilik (ZIN). – Dollfuss, 2013a:495 (listed in synonymy of *Ammophila terminata*).

Ammophila terminata turanica Kazenas, 2000d:18, ♀, ♂. Objective synonym of *Ammophila terminata turanica* Kazenas, 1998b:188.

ssp. turkestanica Kohl

Ammophila apicalis var. *turkestanica* Kohl, 1906:332, sex not indicated. Holotype or syntypes: Turkestan, now Tajikistan, Turkmenistan, or Uzbekistan (depository unknown, not in NHMW: Dollfuss 2013a:296). – Kohl, 1906:254 (in key to Palearctic Ammophilini, misspelled *turkestanica*). – **As *Ammophila terminata turkestanica***: R. Bohart and Menke, 1976:154 (new status, in checklist of world Sphecidae); Kazenas, 1978b:37 (in key to Sphecidae of Kazakhstan and Central Asia, misspelled *turkestanica*), 1998b:188 (in Sphecidae Fauna of Kazakhstan), 2001b:18 (in checklist of Sphecidae of Kazakhstan and Central Asia); Dollfuss, 2013a:392, 402 (in key to *Ammophila* of Palearctic Region and India), 495 (in revision of *Ammophila* of Palearctic Region and India: Kazakhstan: 10 km E Djambul), 2013b:585 (locality records from China and Kazakhstan).

198. *theryi* (Gribodo)

Coloptera theryi Gribodo, 1894a:3, ♀, ♂ (as *Theryi*, incorrect original capitalization). Lectotype: ♂, Algeria: Biskra (Genoa), designated by Dollfuss, 2013a:196. – 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 (in checklist of world Sphecidae, as full species); Dollfuss, 2013a:395, 404 (in key to *Ammophila* of Palearctic Region and India), 496 (in revision of *Ammophila* of Palearctic Region and India), 2013b:586 (locality records from Jordan, Morocco, and Syria).

Ammophila judaeorum Kohl, 1901d:149, ♀, ♂. Lectotype: ♀, Palestine: Jericho (NHMW), designated by Dollfuss, 2013a:496. Synonymized with *Ammophila theryi* by Dollfuss, 2013a:496. – 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 (in checklist of world Sphecidae); Dollfuss, 1989:7 (type material in NHMW). – **As *Ammophila barbara judaeorum***: de Beaumont, 1960e:4 (new status); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula); Ljubomirov and Yildirim, 2008:33 (in catalog of Sphecidae of Turkey); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces). Nec *Ammophila judaeorum* (= *Ammophila barbara*): W. Schulz, 1905b:32; Morice, 1911:73; Giner Marí, 1945b:362, 1947:18.

Ammophila barbara var. *airensis* Berland, 1950:296, ♀. Holotype: ♀, Niger: Aïr: Agadez (MNHN). Synonymized with *Ammophila theryi* by Dollfuss, 2013a:496.– de Beaumont, 1960e:4 (diagnostic characters). – **As *Ammophila airensis***: R. Bohart and Menke, 1976:150 (new status; in checklist of world Sphecidae).

199. *touareg* Ed. André

Ammophila touareg Ed. André, 1886:65, ♀, ♂ (as *Touareg*, incorrect original capitalization). Syntypes: Algeria: Sebdo in Oran Province (MNHN). – Ed. André, 1888:2* (bibliographic reference); Kohl, 1889a:20 (as new synonym of *Ammophila sabulosa*); Dollfuss, 2013a:391, 400 (in key to *Ammophila* of Palearctic Region and India), 497 (in revision of *Ammophila* of Palearctic Region and India, as full species), 2013b:586 (Algeria: Bouira, Morocco: Ifrane). – **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), 222 (habitat), 231 (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 (in checklist of world Sphecidae).

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

200. *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. – Dollfuss, 2013a:393, 403 (in key to *Ammophila* of Palearctic Region and India), 498 (in revision of *Ammophila* of Palearctic Region and India), 2013b:586 (locality records from Mongolia).

201. *tuberculiscutis* (Turner)

Sphex tuberculiscutis Turner, 1919c:396, ♀, ♂. Syntypes: Kenya: Kibwei, Masongaleni, Mtito Andei [as Mitto Andei], and Tanzania: Ukamba (BMNH). – Arnold, 1928b:260 (in revision of southern African *Ammophila*), 1930:16 (in checklist of Afrotropical Sphecidae). – As *Ammophila tuberculiscutis*: Leclercq, 1955h:94 (new combination, bibliographic references); R. Bohart and Menke, 1976:154 (in checklist of world Sphecidae).

202. *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 (in checklist of world Sphecidae).

203. *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 (in checklist of world Sphecidae); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Menke, 1994f:21 (Utah: Calf Creek Falls State Park and Monticello area).

204. *untumoris* Yang and Q. Li

Ammophila untumoris Yang and Li, 1989:108, ♀. Holotype: ♀, China: Shaanxi Province: Ganquan County: Qingquan (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution); Dollfuss, 2013a:499 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese into English).

205. *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 to *Ammophila*); 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); G. Peckham and E. Peckham, 1898:6 (nesting habits); Ashmead, 1899d:354 (in checklist of North American Sphecidae); J. Smith, 1900:524 (in list of insects of New Jersey); Melander, 1903:157 (diagnostic characters), 161 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); Viereck, 1903d:121 (Maryland: Chestertown); G. Peckham and E. Peckham, 1905:18 (popular account of nesting habits); Barth, 1910:119 (nest structure); E. Nielsen, 1921:325 (review of the Peckhams observation on prey paralyzing); Picard, 1925b:161 (review of observations on stinging sequence); 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 (in checklist of world Sphecidae); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); 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); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:99 (references to papers on nesting habits); O'Brien, 1989b:213 (distribution in Michigan); Spofford, Kurczewski, and Downes, 1989:256, 260, 261

- (nest parasites: *Hilarella hilarella* (Zetterstedt), *Senotainia vigilans* Allen, and *Sphenometopa tergata* (Coquillett), miltogrammine flies, and undetermined Miltogrammini); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1990:745, 749, 750 (nest parasites: *Hilarella hilarella* (Zetterstedt), *Senotainia vigilans* Allen, *Sphenometopa tergata* (Coquillett), and unknown species of Miltogrammini, Sarcophagidae), 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); Miller, Pearce, and O'Neill, 2009:3 (known to be parasitized by *Paraxenos lugubris* (Pierce)); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **As *Sphex urnarius***: J. Smith, 1910:677 (new combination, in new list of insects of New Jersey, as *urnaria* Klug); J. Parker, 1915:75 (nesting habits); Rohwer, 1916b:682 (in catalog of Hymenoptera of Connecticut, as *urnaria* Klug); Mickel, 1918b:402 (in catalog of Nebraskan Sphecidae); Rohwer *in* Viereck, 1925:682 (in key to Sphecidae of Connecticut); Hendrickson, 1930:159 (Iowa); G. Carpenter, 1930b:292 (nest closure); Fernald, 1931a:447 (as new synonym of *Sphex arvensis*), 1934:121 (in revision of North American and West Indian *Ammophila*); 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), 1958f:192 (in supplement to catalog of North American Hymenoptera: description of larva by Evans and Lin, 1956a, reported), as *urnarius urnarius*, 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); J. Smith, 1900:524 (in list of insects of New Jersey); 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 collection, now USNM). Synonymized with *Ammophila urnaria* by R. Bohart and Menke, 1976:154. – 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.

206. *vagabunda* F. Smith

- Ammophila vagabunda* F. Smith, 1856:218, ♀. Syntypes: China: Tei-tung and Foo-chou-foo; Indonesia: Sumatra: no specific locality; and northern India: no specific locality (BMNH). – F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889:94 (in list of Sphecidae of Oriental Region); Bingham, 1897:231 (redescription); Dalla Torre, 1897:411 (in catalog of world Hymenoptera); Sonan, 1942:132 (in revision of Ammophilini of Taiwan); Dollfuss, 2013a:389, 390, 400 (in key to *Ammophila* of Palearctic Region and India), 500 (in revision of *Ammophila* of Palearctic Region and India, as full species), 2013b:586 (locality records from China, Japan, Korea, Mongolia, Russia: Vladivostok, Tajikistan, and Turkey). – **As *Ammophila sabulosa vagabunda***: R. Bohart and Menke, 1976:153

(new status, in checklist of world Sphecidae); Zhou and Wu, 1993a:670 (China: Wuling Mountains), 1993b:725 (China: Longqi Mountain Nature Reserve); Li and C. Yang, 1995b:573 (China: Zhejiang Province: Baishanzu Mountain), 1995c: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 (China: in hymenopterous fauna of Zhejiang Province); Hua, 2006:275 (in list of Chinese insects, geographic distribution).

Ammophila solowiofkae Matsumura, 1911:111, ♀. Syntypes: Russia: Sakhalin: Solovievka and Galkinovraskoye, now Dolinsk (depository?). Synonymized with *Ammophila vagabunda* by Dollfuss, 2013a:500. – R. Bohart and Menke, 1976:153 (in checklist of world Sphecidae, possibly senior synonym of *Ammophila sabulosa nipponica*). – **As *Ammophila sabulosa solowiofkae***: Nemkov, 2005a:141 (new status, Russia: Island of Sakhalin), 2006b:166 (Russia: Primorskiy Krai: Kedrovaya Pad' Nature Reserve); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Nemkov, 2007b (Russia: Kuril Islands: Island of Kunashir), 2007c:997 (in Appendix to Key to identification of Sphecidae of Far East of Russia); Nemkov, 2009b:50 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:235 (Russia: Primorskiy Krai: Lazovsky Nature Reserve), 2012c:434 (in catalog of Sphecidae of Russian Far East).

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

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

Ammophila sabulosa nipponica Tsuneki, 1967j:23, ♀, ♂. Holotype: ♀, Japan: Fukui Prefecture: Ohno (originally K. Tsuneki collection, now?). Synonymized with *Ammophila sabulosa solowiofkae* by Nemkov, 2005a:141.– Tsuneki, 1967j:11, 12 (in key to Ammophilini of East Asia); Haneda, 1968a:45 (Japan); Tsuneki, 1968i:3 (nesting habits), 1968j:1 (diagnostic characters), 1968k:8 (nesting habits), 1968l:50 (s. Korea: Island of Quelpart, now Island of Cheju), 1969e:24 (Japan), 1969i:59 (Japan: Fukui Prefecture: Taichôdzi temple); Tano, 1971:82 (Japan: Shikoku: Mount 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 Ryukyu archipelago); Paik, 1985:197 (in list of Sphecidae of Korea); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Steiner, 1986:99 (references to papers on nesting habits); Sk. Yamane and Ikudome, 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); Haneda, 2003:3 (Japan: Nagasaki Prefecture: Tsushima); Haneda and Tano, 2003:11 (Japan: Nagasaki Prefecture: Tsushima); Kurokawa, 2003:60 (Japan: city of Fukui: Egamichou); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:30 (Japan: Gifu Prefecture); Suda, 2004:36 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, and H. and T. Murota, 2005:64 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:43 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:29 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:43 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa and Murota, 2006a:18 (Japan: Toyama Prefecture), 2006b:47 (Japan: Nagasaki Prefecture: Tsushima); Okhisa and Tajima, 2008:74 (Japan: central Honshu: Aichi Prefecture), 2010:11 (Japan: Island of Honshu: Shiga Prefecture); N. Yamamoto, 2011:11 (Japan: Kyūshū: mainland Nagasaki Prefecture).

207. *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, rede-

scription); 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); Snow, 1906:7 (Arizona: 20 mi SW Flagstaff, Humphrey's Peak); 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 (in checklist of world Sphecidae); 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 variipes* 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); Melander, 1903:160 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution).

208. *vetuberosa* Q. Li and J. Yang

Ammophila vetuberosa Q. Li and J. Yang in Q. Li, J. Li, and J. Yang, 1994:290, ♂. Holotype: ♂, China: Shandong Province: Dongying City: Xianhe Town (Shandong Agricult. Univ.). – Dollfuss, 2013a:403 (in key to *Ammophila* of Palearctic Region and India), 501 (in revision of *Ammophila* of Palearctic Region and India, China: Nei Mongol: Ordos).

209. *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 (in checklist of world Sphecidae); 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); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini). – **As *Sphex vulcania***: Arnold, 1920:35 (new combination, in revision of southern African *Ammophila*, description of ♀), 1928b:262 (in revision of southern African *Ammophila*), 1930:17 (in checklist of Afrotropical Sphecidae).

210. *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 (in checklist of world Sphecidae). – **As *Sphex wahlbergi***: Arnold, 1920:25 (new combination, unrecognizable species).

211. *wrightii* (Cresson)

Cloptera 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 key to North American Ammophilini), 164 (bibliographic references, geographic distribution); 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, in revision of North American and West Indian *Ammophila*); Hicks, 1934b:150 (nesting habits). – **As *Ammophila wrightii***: Dalla Torre, 1897:412 (new combination, in catalog of world Hymenoptera); Melander, 1903:162 (in key to North

American Ammophilini); 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 (in checklist of world Sphecidae); Kumar, Lavigne, Lloyd, and Pfadt, 1976:51 (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); Steiner, 1986:99 (references to papers on nesting habits); Menke, 1994f:21 (Arizona: Snowflake); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:669 (in checklist of Mexican Sphecidae); Ohl and Linde, 2003:149 (number of ovarioles); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini).

212. *xinjiangana* Q. Li and Ch. Yang

Ammophila xinjiangana Q. Li and Ch. Yang, 1989:34, ♂, China: Xinjiang Province: Urumqi (Beijing Agricult. Univ.). – Hua, 2006:275 (in list of Chinese insects, geographic distribution); Dollfuss, 2012a:501 (in revision of *Ammophila* of Palearctic Region and India, original description translated from Chinese to English).

213. *xanthoptera* Cameron

Ammophila xanthoptera Cameron, 1888a:8, ♀. Holotype or syntypes: Guatemala: Calderas (BMNH). – W. Fox, 1895c:266 (Mexico: Baja California Sur); Melander, 1903:160 (in key to North American Ammophilini), 163 (bibliographic references, geographic distribution); R. Bohart and Menke, 1976:154 (in checklist of world Sphecidae); Krombein, 1979b:1594 (in catalog of North American Hymenoptera); Brockmann, 1985b:312 (nest closure summary); Steiner, 1986:99 (references to papers on nesting habits); 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); Snow, 1906:7 (Arizona: 20 mi SW Flagstaff); 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); Ruíz 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 R. Bohart and Menke, 1976:154. – Dalla Torre, 1897:410 (in catalog of world Hymenoptera); Ashmead, 1899d:354 (in checklist of North American Sphecidae); Melander, 1903:162 (in key to North American Ammophilini), 164 (bibliographic references, geographic distribution); 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, in revision of North American and West Indian *Ammophila*).

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 (in revision of North American and West Indian *Ammophila*).

214. *zimmermannae* Dollfuss

Ammophila zimmermannae Dollfuss, 2013a:502, ♀, ♂. Holotype: ♂, Kazakhstan: Darbaza 40 km N Tashkent (OÖLM). – Dollfuss, 2013a:388, 396 (in key to *Ammophila* of Palearctic Region and India).

sp.

C. Robertson, 1892:104 (visiting flowers of *Lycopus sinuatus* Ell.); 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: Island of Barro Colorado); de Beaumont, 1953a:172 (Mauritania, sp. aff. *rubripes*); Bytinski-Salz, 1956:223 (Turkey: Uludagh, sp. aff. *campestris*); de Beaumont, 1961e:2 (Iraq; sp. near *propinqua*), 1964a:290 (Swiss Alps, sp. near *campestris*); Powell, 1964b:256 (species 1b of Menke, nest construction, nest closure, prey: geometrid caterpillars, progressive provisioning); de Beaumont, 1967a:266 (sp. aff. *gracillima*), 268 (Turkey, sp. aff. *campestris* and sp. aff. *terminata*), 1967b:504 (South Africa), 1969:81 (Turkey); I. Robertson, 1969:480 (Tanzania: Ilonga, sp. near *ferrugineipes*); de Beaumont, 1970a:388 (Afghanistan, sp. aff. *heydeni*, sp. aff. *gracillima*), 1970c:2 (Iran: Baluchistan, sp. aff. *gracillima*), 3 (Iran: Baluchistan, sp. aff. *heydeni*); Kazenas, 1972b:101 (Kazakhstan); Esmaili and Rastegar, 1974:46 (Iran); Simon Thomas, 1976:3 (France: Lot-et-Garonne: Forêt de Campet, sp. aff. *heydeni*); Báez and Ortega, 1978:191 (Canary Islands, sp. aff. *concolor*); Guichard, 1980:225 (Oman); Hilchie, 1982:107 (Alberta: Empress); Kingsley, Bailowitz, and Smith, 1987:18 (Arizona: Organ Pipe Cactus National Monument: Quitobaquito Springs area); F. Fernández, 1990:24 (Colombia: Meta: Parque Nacional Natural La Macarena); Amarante, 1993:19 (ne. Brazil); Naumann, 1998:182 (Australia: northwest Queensland: Musselbrook area, approximately 18°40'S 138°23'E, sp. near *aurifera*); Meagher and Mitchell, 1999:368 (collected in pheromone- and synthetic floral volatile-baited traps), Esenbekova and Kazenas, 2000:14 (southeast Kazakhstan, sp. aff. *tekkensis*); Skevington et al., 2001:127 (Canada: Ontario: Lambton County); Q. Li and He, 2004:1119 (in hymenopterous fauna of Zhejiang Province, China); Gayubo and Özbek, 2005:13 (Turkey, *gracillima* group); Ruíz 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); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia, sp. near *rubriventris*); Ljubomirov and Yildirim, 2008:39 (in catalog of Sphecidae of Turkey); Gayubo, González, Tormos, and Asís, 2009:362 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero, near *rubriventris*).

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).

Ammophila argentalatera: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:514 (specimens in M. Spinola collection, Torino).

Ammophila caetিনosa: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:510 (specimen in M. Spinola collection, Torino, is a *Podalonia*).

- Ammophila coromandelica*: Pagliano, 2008:514 (specimen in M. Spinola collection, Torino).
- Ammophila cretica*: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:514 (specimens in M. Spinola collection, Torino).
- Ammophila cyanigastra*: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:512 (specimens in M. Spinola collection, Torino).
- Ammophila chalybeata*: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:510 (specimens in M. Spinola collection, Torino).
- Ammophila cubensis*: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:513 (specimens in M. Spinola collection, Torino).
- Ammophila eurystoma* Kohl: Dollfuss, 1989:7 (type material in NHMW).
- Ammophila flavipennis*: Pagliano, 2008:513 (specimens in M. Spinola collection, Torino)
- 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, Torino); Pagliano, 2008:511 (specimens in M. Spinola collection, Torino).
- 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 (specimen in M. Spinola collection, Torino); Pagliano, 2008:510 (specimen in M. Spinola collection, Torino, is a *Podalonia*).
- 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, Torino); Pagliano, 2008:511 (specimen in M. Spinola collection, Torino).
- 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, Torino); Pagliano, 2008:514 (specimens in M. Spinola collection, Torino).
- 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, Torino); Pagliano, 2008:514 (specimen in M. Spinola collection, Torino).
- Ammophila waltlii*: Casolari and Casolari Moreno, 1980:100 (specimens in M. Spinola collection, Torino); Pagliano, 2008:512 (specimens in M. Spinola collection, Torino).

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 = *Eremnophila opulenta* (Guérin Méneville, 1838)
bocandei Spinola, 1831 = *Chalybion*
bolanica Nurse, 1903 = *Podalonia hirsuta mervensis* (Radoszkowski, 1887)
brasiliانا Brèthes, 1909 = *Eremnophila binodis* (Fabricius, 1798)
caelebs Kohl, 1901 = *Parapsammophila algira* Kohl, 1901
cementaria F. Smith, 1856 = *Podalonia violaceipennis* (Lepeletier de Saint Fargeau, 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 de Saint Fargeau, 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 de Saint Fargeau, 1845)
eximia Lepeletier de Saint Fargeau, 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 de Saint Fargeau, 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 Cameron, 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)
strenua Walker, 1871, junior primary homonym of *Ammophila strenua* Cresson, 1865 = ? *Podalonia dispar* (Taschenberg, 1869)
robusta Cresson, 1865 = *Podalonia*
sonorensis Cameron, 1888 = *Podalonia*
suspiciosa F. Smith = *Podalonia*
trimaculigera Strand, 1910 = *Eremnophila eximia* (Lepeletier de Saint Fargeau, 1845)
turcestanica Dalla Torre, 1897:411 = *Podalonia*
valida Cresson, 1865 = *Podalonia*
violaceipennis Cameron, 1889 = ? *Parapsammophila erythrocephala* (Fabricius, 1782)
violaceipennis Lepeletier de Saint Fargeau, 1845 = *Podalonia*
walkeri Dalla Torre, 1897 = *Podalonia dispar* (Taschenberg, 1869)