

Updated: 8 June 2018

PSENULUS

Psenulus Kohl, 1897:293. Type species: "*Mimesa fuscipennis* Dahlbom" [= *Psen fuscipennis* Dahlbom, 1843], designated by Ashmead, 1899:224.

Neofoxia Viereck, 1901b:338. Type species: *Psen atratus* of Panzer, 1806 [= *Trypoxylon atratum* Fabricius, 1804 = *Sphex pallipes* Panzer, 1798], by original designation.

Stenomellinus W. Schulz, 1911b:142. Type species: *Psen dilectus* de Saussure, 1892, by monotypy.

Eopsenulus Gussakovskij, 1934b:84. Type species: *Psenulus iwatai* Gussakovskij, 1934, by original designation.

Nipponopsen Yasumatsu, 1938a:84. Type species: *Nipponopsen anomoneurae* Yasumatsu, 1938, by original designation and monotypy.

For synonymies see also Schulz, 1911b. Zweihundert alte Hymenopteren.

Keys: Krombein, 1950c:40 (USA, as *Diodontus*); Tsuneki, 1959:27 (Japan and Korea); Leclercq, 1961a:17 (Afrotropical species); van Lith, 1962 (Indonesia, Malay Peninsula, and Philippines), 1966 and 1969 (*pulcherrimus* species group), 1974a (Afrotropical Region), 1978 (Brazil); Mingo and Gayubo, 1984a:103 (Spain); Schmid-Egger, 2016 (three Central European species).

Silk production: Florkin and Bricteux-Grégoire, 1961 (nest opercula made of silk); de Melo, 1997 (abdominal silk glands in adult females); Serrão and de Oliveira Campos, 2000:480 (abdominal silk glands in adult females).

Publications on nesting habits: Leclercq, 1984.

Review of known biology: Kazenas, 2001b:19.

1. *ajaxellus* (Rohwer)

Diodontus ajaxellus Rohwer, 1923b:600, ♂. Holotype: ♂, Philippines: Mindanao: Kolambugan (USNM). – Baltazar, 1966:338 (in catalog of Hymenoptera of Philippines). – **As *Psenulus ajaxellus***: van Lith, 1962:79 (new combination, original description copied), 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

2. *alboscuteallatus* Arnold

Psenulus reticulosus var. *alboscuteallatus* Arnold, 1945:156, ♀ (as *albo-scutellatus*, incorrect original hyphenation. Syn-types: Madagascar: Ivondro, Perinet, Ranomafana, Rogez (MNHN). – Arnold, 1945:154 (in key to *Psenulus* of Madagascar); Leclercq, 1961a:30 (Madagascar: Analandrakana, Mandaraka). – **As *Psenulus alboscuteallatus***: R. Bohart and Menke, 1976:172 (new combination, new status, in checklist of world Sphecidae); Pulawski, 2003b:798 (in checklist of Malagasy Sphecidae); Madl, 2014a:995 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records).

3. *alienus* (Krombein)

Diodontus alienus Krombein, 1950c:38, ♀. Holotype: ♀, USA: California: Eldorado County: Camino (USNM). – Krombein, 1950c:40 (in key to North American *Diodontus*, correctly: *Psenulus*); Krombein in Muesebeck et al., 1951:958 (in catalog of North American Hymenoptera). – **As *Psenulus alienus***: F. Parker and R. Bohart, 1966:94 (new combination, Nevada: Verdi, prey: adult Psyllidae); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Krombein, 1979b:1600 (in catalog of North American Hymenoptera); de Melo, 1997:4 (abdominal silk glands in adult females).

4. *alveolatus* van Lith

Psenulus alveolatus van Lith, 1974a:68, ♂. Holotype: ♂, Zimbabwe: Bulawayo (SAM). – van Lith, 1974a:97 (probable member of *turneri* species group), 98 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

5. *annamensis* van Lith

Psenulus annamensis van Lith, 1972:191, ♀. Holotype: ♀, Vietnam: Dai Lanh north of Nha Trang (Bishop Mus.). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Dollfuss, 2004a:110 (Laos: Boikhamsai Province: Kaew Nua Pass at 18°22'N 105°09'E); Pham, Kumar and Danilov, 2015:1594 (in list of Sphecidae s.l. of Vietnam).

6. *anomalus* van Lith

Psenulus anomalus van Lith, 1976b:97, ♀. Holotype: ♀, Vietnam: 15-35 km NW Phan Rang (Bishop Mus.). – Pham, Kumar and Danilov, 2015:1594 (in list of Sphecidae s.l. of Vietnam).

7. *anomoneuræ* (Yasumatsu)

Nipponopsen anomoneuræ Yasumatsu, 1938a:84, ♀, ♂. Holotype: ♂, Japan: Honshu: Yashirodani (Fukuoka Univ.). – Iwata, 1938b:28 (nesting habits). – As *Psenulus anomoneuræ*: Tsuneki, 1963f:52 (new combination, in key to Japanese *Psenulus*), 1963g:53 (transferred to *Psenulus*); Okuno, 1968:32 (Japan); Itami, 1969:48 (Japan: Niigata Prefecture); Tsuneki, 1970a:6 (nesting habits); Yamada, 1971:36 (Japan: Aichi Prefecture); van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Nambu, 1973a:151 (Japan: Saitama Prefecture), 1975b:67 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:394, 395 (in key to Sphecidae of Russian Far East); Tano, Kurokawa, Murota, and Nozaka, 2003:30 (Japan: Nagasaki Prefecture: Tsushima); Dollfuss, 2004a:111 (North Korea: Mychyang Mountains: Hyangean); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:30 (Japan: Gifu Prefecture); Suda, 2004:39 (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, 2005:44 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); Nemkov, 2005a:144 (Russia: Island of Sakhalin), 2007b:68 (Russia: Kuril Islands: islands of Kunashir and Uturup); Nemkov, 2008b:18 and 2009b:59 (in catalog of Sphecidae and Crabronidae of Asiatic Russia); J. Kim and Yang, 2010:144 (in checklist of Korean Pemphredoninae); Nemkov, 2012c:436 (in catalog of Crabronidae of Russian Far East); Terayama and Gōukon, 2012:11, 20 (in key to Psenini of Japan, in Japanese), 29 (in list of Japanese Psenini); J.-K. Kim, 2014:446 (in catalog of Sphecidae s.l. of Korean Peninsula); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

Psenulus mandibularis Tsuneki, 1959g:36, ♀, ♂. Holotype: ♀, Japan: Fukui Prefecture: Katsuyama (originally K. Tsuneki coll., now USNM). Synonymized with *Psen anomoneuræ* by Tsuneki, 1963g:53. – Tsuneki, 1959g:28, 29 (in key to *Psenulus* of Japan and Korea); Nuhn and Menke, 1994:26 (holotype transferred to USNM).

8. *araucarius* van Lith

Psenulus araucarius van Lith, 1972:187, ♀. Holotype: ♀, Indonesia: Western Papua (= Indonesian New Guinea): Sahuweri River area: Araucaria River valley (RMNH). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:111 (Papua New Guinea: Morobe Province: Mount Missim at 7°13'S 146°49'E).

9. *armipes* van Lith

Psenulus armipes van Lith, 1976b:95, ♀. Holotype: ♀, Philippines: Mindanao: Misamis Oriental.: Dinawihan Gingoog (Bishop Mus.).

10. *aurifasciatus* van Lith

Psenulus aurifasciatus van Lith, 1974a:65, ♀. Holotype: ♀, Sierra Leone: Freetown (AEI). – van Lith, 1974a:97 (member of *turneri* species group), 98 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

11. *avernus* Leclercq

Psenulus avernus Leclercq, 1961a:30, ♂. Holotype: ♂, Zaire: Northern Kivu: Rutshuru (Inst. Roy. Sci. Nat. Belgique). – Leclercq, 1961a:22 (in key to Afrotropical *Psenulus*); van Lith, 1974a:77 (redescription), 97 (member of *luctuosos* species group), 98 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

12. *aztecus* R. Bohart and Grissell

Psenulus aztecus R. Bohart and Grissell, 1969:219, ♂. Holotype: ♂, Mexico: Jalisco: 3 mi SE Plan de Barrancas (UCD). – Not listed by Bohart and Menke, 1976; van Lith, 1977:45 (Mexico: Sinaloa; description of ♀), 1978a:93 (additional description); de Melo, 1997:4 (adult females lack abdominal silk glands); Amarante, 2002:56 (in catalog of Neotropical Crabronidae); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 46 (Mexico: Tamaulipas).

13. *bakeri* (Rohwer)

Diodontus bakeri Rohwer, 1921a:312, ♀. Holotype: ♀, Philippines: Luzon: Mount Makiling (USNM). – Rohwer, 1923b:597 (Philippines: Mindanao: Iligan); Baltazar, 1966:338 (in catalog of Hymenoptera of Philippines). – **As *Psenulus bakeri***: van Lith, 1962:98 (new combination, in revision of Indo-Australian *Psenulus*, as *bakeri bakeri*), 115 (in checklist of Indoaustralian Psenini, as *bakeri bakeri*), 1972:196 (Philippines; as *bakeri bakeri*), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *bakeri bakeri*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

ssp. boholensis van Lith

Psenulus bakeri boholensis van Lith, 1962:99, ♀. Holotype: ♀, Philippines: Island of Bohol: Sierra Bullones (Bureau of Plant Industry, Entomology Research Section, Manila). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae). – **As *Diodontus bakeri boholensis***: Baltazar, 1966:338 (new combination, in catalog of Hymenoptera of Philippines).

ssp. canlaonensis van Lith

Psenulus bakeri canlaonensis van Lith, 1962:100, ♀. Holotype: ♀, Philippines: Negros: Mount Canlaon (AEI). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae). – **As *Diodontus bakeri canlaonensis***: Baltazar, 1966:338 (new combination, in catalog of Hymenoptera of Philippines).

14. *baltazarae* van Lith

Psenulus baltazarae baltazarae van Lith, 1962:31, ♀. Holotype: ♀, Philippines: Luzon: Kias (Bureau of Plant Industry, Manila). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini, as *baltazarae baltazarae*), 1972:161 (Philippines: Luzon), 198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *baltazarae baltazarae*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae). – **As *Diodontus baltazarae baltazarae***: Baltazar, 1966:338 (new combination, in catalog of Hymenoptera of Philippines).

ssp. luteus van Lith

Psenulus baltazarae luteus van Lith, 1962:32, ♀. Holotype: ♀, Philippines: Sibuyan (USNM). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae). – **As *Diodontus baltazarae luteus***: Baltazar, 1966:338 (new combination, in catalog of Hymenoptera of Philippines).

15. *bengalensis* van Lith

Psenulus bengalensis van Lith, 1972:165, ♂. Holotype: ♂, India: Bengal: Senchal Range: Darjeeling (USNM). – van Lith, 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

16. *benoiti* Leclercq

Psenulus benoiti Leclercq, 1961a:29, ♀, ♂. Holotype: ♀, Zaire: Haut-Uele: Paulis (MRAC). – Leclercq, 1961a:20 (in key to Afrotropical *Psenulus*); van Lith, 1974a:73 (redescription), 98 (reduced female pygidial plate shared with some Mexican species), 98 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

17. *berlandi* de Beaumont

As *Psen haemorrhoidalis* Berland, 1925d:131 (in Sphecid Fauna of France), corrected to *Psenulus berlandi* by de Beaumont, 1937:90.

Psenulus berlandi de Beaumont, 1937:90, ♀. Holotype: ♀, France: Nyons (MNHN). – Balthasar, 1972:254 (in Sphecid Fauna of Czechoslovakia: may be expected in the country); van Lith, 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Leclercq, 1974b:196 (France: Basses-Alpes: Peyresq); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Pulawski, 1978:238 (in key to Sphecidae of European part of former USSR); van Lith, 1979a:150 (redescription); Gayubo and Mingo, 1986:83 (first record from Spain; redescription); Dollfuss, 1991:47 (in key to Sphecidae of North and Central Europe); Asís, Gayubo, and Tormos, 1997b:198 (description of larva); Gonzales, Gayubo, and Torres, 2000:18 (Andorra: Santa Coloma); Dollfuss and Bitsch *in* Bitsch et al., 2001:45 (in Sphecid Fauna of Western Europe); Gayubo, González, Tormos, and Asís, 2002:88 (distribution in Iberian Peninsula); van der Smissen, 2010b:386 (France: Ardèche: Saint-Thomé).

18. *bicinctus* R. Turner

Psenulus bicinctus R. Turner, 1912g:363, ♀. Syntypes: India: Assam: Shillong (BMNH). – Ramakrishna Aiyar, 1916:556 (in catalog of Indian aculeates described after Bingham, 1897); van Lith, 1962:110 (diagnostic characters), 1972:159 (redescription), 198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:90 (first records from Burma; variation; male genitalia).

19. *bidentatus* Cameron

Psen bidentatus Cameron, 1908a:282, ♀. Holotype or syntypes: ♀, Tanzania: Mount Kilimanjaro: Kibonoto (NRS). – **As *Psenulus bidentatus***: Arnold, 1923c:48 (new combination, in revision of *A Psenulus*), 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1961a:21 (in key to Afrotropical *Psenulus*), 30 (bibliographic references, locality records from Zaire), 1961b:58 (Zaire: Garamba National Park); van Lith, 1974a:81 (interpretation of the species, redescription of ♀; Angola, Kenya, Zimbabwe), 97 (member of *bidentatus* species group), 98 (in list of Afrotropical *Psenulus*, as *bidentatus bidentatus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); de Melo, 1997:4 (abdominal silk glands in adult females).

ssp. pallidus

Psenulus bidentatus pallidus van Lith, 1974a:83, ♀, ♂. Holotype: ♀, Zaire: Lubumbashi (MRAC). Paratypes: Malawi, Zimbabwe, Equatorial Guinea. – van Lith, 1974a:98 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

***ssp. rubrocaudatus* Turner**

Psenulus rubrocaudatus Turner, 1912c:412, ♀. Syntypes: South Africa: KwaZulu-Natal: no specific locality (BMNH). – Arnold, 1923c:48 (as new synonym of *Psenulus bidentatus*). – Leclercq, 1961a:23 (in key to Afrotropical *Psenulus*), 33 (as new synonym of *Psenulus bidentatus*). – **As *Psenulus bidentatus rubrocaudatus***: van Lith, 1974a:84 (new status, diagnostic characters), 98 (in list of Afrotropical *Psenulus*).

20. *birganjensis* van Lith

Psenulus birganjensis van Lith, 1973b:139, ♂. Holotype: ♂, Nepal: Lothar near Birganj (CNC). – R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Sarazin, 1986:30 (holotype in CNC).

21. *bisicatus* van Lith

Psenulus bisicatus van Lith, 1972:154, ♀, ♂. Holotype: ♀, Pakistan: Baluchistan: Quetta (BMNH). – van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

22. *capensis* Brauns

Psenulus capensis Brauns, 1899:391, ♀, ♂. Syntypes: South Africa: EasternCape Province: Port Elizabeth (TMP). – Brauns, 1911a:240 (South Africa); Arnold, 1923c:47 (in revision of Afrotropical *Psenulus*), 1930:9 (in checklist of Afrotropical Sphecidae); Schouteden, 1930:93 (Zaire); Leclercq, 1961a:18 (in key to Afrotropical *Psenulus*), 30 (bibliographic references, geographic variation), 1961b:56 (Zaire, as *capensis capensis*); van Lith, 1974a:92 (diagnostic characters, nest and prey, distribution: South Africa to Sierra Leone, as *capensis capensis*), 97 (member of *capensis* species group), 99 (in list of Afrotropical *Psenulus*, as *capensis capensis*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females); Dollfuss, 2004a:111 (Benin, Kenya, Tanzania, Zimbabwe).

Psenulus pauxillus Arnold, 1947:159, ♀, ♂. Syntypes: Zambia: Abercorn, now Mbala (SAM). Synonymized with *Psenulus capensis* by Leclercq, 1961a:30.

Psenulus pauxillus laevior Arnold, 1951:163, ♂. Holotype: ♂, Ethiopia: Gambeila (BMNH). Synonymized with *Psenulus capensis* by Leclercq, 1961a:30. – **AS *Psenulus capensis laevior***: van Lith, 1974a:94 (status needs further studies); van Lith, 1974a:99 (in list of Afrotropical *Psenulus*).

Psenulus stuckenbergi Arnold, 1962:851, ♀. Holotype: ♀, Mozambique: Marromeu (SAM). Synonymized with *Psenulus capensis* by van Lith, 1974a:92. – R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

23. *carinifrons* (Cameron)

Psen carinifrons Cameron, 1902c:288, ♂. Holotype or syntypes: ♂, India: Gujarat: Deesa (BMNH). – Ramakrishna Aiyar, 1916:555 (in catalog of Indian aculeates described after Bingham, 1897); van Lith, 1959:62 (probably belongs to *Psenulus*). – **As *Psenulus carinifrons***: van Lith, 1962:103 (new combination, original description copied, comments on identity), 1966:43 (type material, variation); Tsuneki, 1963c:15 (Thailand); van Lith, 1966:47 (new subspecies?), 1969:209 (in list of species and subspecies of *pulcherrimus* species group, as *carinifrons carinifrons*), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *carinifrons carinifrons* and subsp. ?); Tsuneki, 1974b:638 (Thailand; additional description); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:118 (Pakistan: Karachi; Laos: Vientiane Province; description of ♀; as *carinifrons carinifrons*); de Melo, 1997:4 (abdominal silk glands in adult females); Yamane, Ikudome, and Terayama, 1999:492 (in Identification Guide to Crabronidae of Nansei = Ryukyu Islands, Japan); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); Terayama and Gōkun, 2012:11, 21 (in key to Psenini of Japan, in Japanese), 29 (in list of Japanese Psenini); Mokrousov, Shlyakhtenok, and Grebennikov, 2016:29 (Russia: Dagestan: 17 km SSW Artezian on Kuma River at 44.935° N 46.455° E); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:29 (first record from Turkey: Kahramanmaraş: Türkoğlu Mahallesi, as *carinifrons cainifrons*); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

ssp. bismarckensis van Lith

Psenulus carinifrons bismarckensis van Lith, 1970:103, ♀. Holotype: ♀, Papua New Guinea: New Britain: south of Cape Hoskin airstrip (Zool. Mus. Univ. Copenhagen). – van Lith, 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

ssp. iwatai (Gussakovskij)

Eopsenulus iwatai Gussakovskij, 1934b:85, ♀. Holotype: ♀, Japan: Honshu: Ikeda near Osaka (Fukuoka Univ.). – Iwata, 1938b:23 (nesting habits). – **As *Psenulus iwatai***: Tsuneki, 1956b:9 (new combination, description of ♂), 1958e:54 (Japan: city of Toyama), 1959g:27, 29 (in key to *Psenulus* of Japan and Korea), 30 (in revision of *Psenulus* of Japan and Korea), 1963f:51 (in key to Japanese *Psenulus*); van Lith, 1966:42 (diagnostic characters); Itami, 1969:48 (Japan: Niigata Prefecture); van Lith, 1969:209 (in list of species and subspecies of *pulcherrimus* species group); Tsuneki, 1970a:1 (nesting habits); Tano, 1972:24 (Japan: Ryukyu Islands); van Lith, 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Nambu, 1975b:67 (Japan: Saitama Prefecture). – **As *Psenulus carinifrons iwatai***: R. Bohart and Menke, 1976:172 (new status, in checklist of world Sphecidae); Tsuneki, 1979d:10 (Japan), 1982g:57 (Japan: know from Ryukyu archipelago); Hoshihara and Imai, 1993:467 (chromosome number $n = 8$); Kurokawa, 2003:60 (Japan: city of Fukui: Egamichou); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); H Yang and Kim, 2010:361 (first record from Korea: Incheon); Strumia, Pagliano, and Gayubo, 2012:57 (first record from Italy: Toscana: Riserva di San Rossore); J.-K. Kim, 2014:446 (in catalog of Sphecidae s.l. of Korean Peninsula).

ssp. malayanus van Lith

Psenulus carinifrons malayanus van Lith, 1969:206, ♀, ♂. Holotype: ♀, Malaysia: Sabah (= Borneo): Forest Camp 19 km N Kalabakan (Bishop Mus.). – van Lith, 1969:209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:119 (Borneo, Singapore, Malaysia: Penang, Perak); Dollfuss, 2004a:111 (Borneo, Malaysia); Pham, Kumar and Danilov, 2015:1595 (in list of Sphecidae s.l. of Vietnam).

ssp. rohweri van Lith

Psenulus carinifrons rohweri van Lith, 1962:108, ♀, ♂. Holotype: ♀, Indonesia: Java: Reserve Semarang: Tjandi (RMNH). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1966:45 (diagnostic characters, Java, Borneo), 1967:20 (Borneo, as *rowheri*), 1969:205 (diagnostic characters, Java, Philippines, Taiwan), 209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Murota, 1973b:117 (Taiwan); Tsuneki, 1973f:45 (Taiwan); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:119 (Indonesia: first record from island of Sumba); Tsuneki, 1977c:11 (Taiwan); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

ssp. scutellatus R. Turner

Psenulus scutellatus R. Turner, 1912f:54, ♀. Holotype or syntypes: ♀, Australia: Queensland: Cairns (BMNH). – **As *Neofoxia scutellata***: Turner, 1916a:128 (new combination, in key to Australian *Neofoxia*), 1917e:173 (Bangladesh: Dacca). – **As *Psenulus carinifrons scutellatus***: van Lith, 1966:43 (new combination, new status, redescription, description of ♂), 1969:203 (diagnostic characters; Papua New Guinea, Indonesia, Philippines), 209 (in list of species and subspecies of *pulcherrimus* species group), 1970:103 (Philippines: Mindanao: Sapamoro), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); van Lith, 1976b:120 (Indonesia: island of Buru); Cardale, 1985:230 (in catalog of Australian Sphecidae).

ssp. taprobanensis van Lith

Psenulus carinifrons taprobanensis van Lith, 1978b:10, ♀, ♂. Holotype: ♀, Sri Lanka: Yakkala 18 mi NE Colombo (Lund). Paratypes: India: Madras.

24. cavifrons van Lith

Psenulus cavifrons van Lith, 1962:60, ♀. Holotype: ♀, Philippines: Samar: no specific locality (USNM). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:170 (Philippines: Mindanao; characteristics of Mindanao specimens), 199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae). – **As *Diodontus cavifrons***: Baltazar, 1966:339 (new combination, in catalog of Hymenoptera of Philippines).

25. *ceylonicus* van Lith

Psenulus ceylonicus van Lith, 1972:195, ♀. Holotype: ♀, Sri Lanka: Kandy (BMNH). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1978b:9 (Sri Lanka).

26. *chariis* van Lith

Psenulus chariis van Lith, 1972:186, ♀. Holotype: ♀, Solomon Islands: Island of Choisel: Malangona (Bishop Mus.). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

27. *chevrieri* (Tournier, 1889)

Psen chevrieri Tournier, 1889:126, ♀. Holotype or syntypes: ♀, Switzerland: Peney near Genève (MHNG). Synonymized with *Psenulus fuscipennis* by W. Schulz, 1911b:138, with *Psen fuscipennis* by Berland, 1925d:132, and with *Psenulus atratus* by Harttig, 1931c:204, treated as valid species by Vikberg, 1986b:75. – Tournier, 1889:110 (in key to *Psen* of Switzerland); Dalla Torre, 1897:347 (in catalog of world Hymenoptera); Mocsáry, 1897:78 (Kingdom of Hungary: Fiume, now Rijeka in Croatia); de Gaulle, 1908:103 (in catalog of French Hymenoptera). – **As *Psenulus chevrieri***: Grandi, 1961:220 (new combination, nesting habits; as *pallipes chevrieri*); de Beaumont, 1964a:292 (as *pallipes* forme *chevrieri*); Schmidt, 1971b:40 (Germany: Rheinland-Pfalz: Mainzer Sand, as *pallipes* f. *chevrieri*), 1971c:74 (Germany: Schleswig-Holstein; as *pallipes chevrieri*); Kofler, 1972:109 (Austria: eastern Tirol; as *pallipes* f. *chevrieri*); Lefeber, 1974:77 (Netherlands: Bokhoven, as *chevrieri*); R. Bohart and Menke, 1976:176 (in checklist of world Sphecidae, as *pallipes chevrieri*); Vikberg, 1986b:75 (Finland; as good species); Artmann-Graf, 2006:6 (Switzerland: Solothurn Canton: Weidhübel in Laupersdorf commune); Vepřek and Straka, 2007:200 (in catalog of Sphecidae of Czech Republic and Slovakia), 213 (taxonomic history; Bohemia: Praha–Hloubětín); Schmid-Egger, 2016:41 (in key to Central European *Psenulus*); Mokrousov, 2017c:13 (first record from Armenia: village of Koti (formerly Kotigekh); first record from Russia: Moscow, Nizhny Novgorod, Orenburg, and Volgograd oblast's, Chuvash Republic; Crimea; first record from Ukraine: Zakarpatskaya Oblast': Kamyanița); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia); Olszewski, Twerd, and Kowalczyk, 2017: 194 (first record from Poland: Gdynia at 54°29'57" N 18°33'14"E and Nida Landscape Park at 50°25'N 20°35'E).

Psenulus brevitarsis Merisuo, 1937b:194, ♂. Syntypes: Finland and Germany: 12 localities (Helsinki). Synonymized with *Psenulus pallipes* by ... and with *Psenulus chevrieri* by Artmann-Graf, 2006:6 and Schmid-Egger, 2016:42 (as new synonymy). – Merisuo, 1938:251 and 253 (in key to Pseninae of Finland); Blüthgen, 1944:30 (not found in material from Germany: Thüringen: Hörselberg, from where it was recorded by Merisuo, 1937b), 1951:234 (Germany: Hörselberg, Naumurg), 1961:38 (comparison with *Psenulus atratus*); Grandi, 1954:241 (Italy); Hoop, 1961:65 (Germany: Schleswig-Holstein: Kronshagen); Valkeila, 1962b:66 (southwestern Finland); Merisuo, 1967b:152 (illustration of male genitalia), 153 (illustration and description of pygidial plate); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Lefeber, 1974:77 (Netherlands; Bemelen, Sint-Pietersberg; Belgium: Bassenge, Eben), 1975a:37 (Netherlands: t'Rooth), 1975b:154 (Belgium); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae, as *brevitarsis*), 628 (synonymy with *Psenulus pallipes* recorded); Lefeber, 1978:137 (Netherlands: Sint Pieter; Belgium: Vroenhoven), 1985:87 (Netherlands: southern Limburg); Dollfuss, 1991:48 (in key to Sphecidae of North and Central Europe); K. Schmidt, Schmid-Egger, and Doczkal, 1995:8 (relationship to *Psenulus pallipes* is unclear); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Schmidt and Schmid-Egger, 1997:26 (in checklist of German Sphecidae); Tschartnke, Gathmann, and Steffan-Deventer, 1998:719 (trap-nesting in Germany); Luig and Voolma, 1999:175 (Estonia: Variku); Majzlan, Rychlík, and Deván, 1999:146 (first record from Slovakia: Čenkovská Step Nature Reserve); Blösch, 2000:153 (in Sphecid Fauna of Germany); Vepřek, 2000:234 (Czech Republic: Fryšták, Moravský Písek, Šahy, Znojmo); Ohl et al., 2001:141 (distribution in Germany by provinces); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: data on endangerment missing); Deván, 2002b:204 (Slovakia: Pekelná dolina);

Steffan-Dewenter, 2002:634 (Germany: Niedersachsen: Göttingen area); Drewes, 2003:141 (Italy: Trentino: Torbole); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:69 (Germany: in catalog of wasps and bees of Bayern); Steffan-Dewenter and Leschke, 2003:1966 (Germany: Niedersachsen: orchard meadows); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Deván, 2004:147 (western Slovakia); Jakubzik, Niehuis, and Cölln, 2004:458 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Stolle et al., 2004:372 (Germany: Sachsen-Anhalt: last collected in 1951); Wiesner, 2006:237 (Germany: first record from Brandenburg: Caputh, Grünewalde, Dallgow-Döberitz, Martinskirchen, Schwarzheide); Jacobs, 2007:57, 58 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:25 (Germany: first record from Sachsen); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen), 40 (Germany: Hessen: Rockenberg, Wettenberg); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Saure, 2010a:88 (Germany: Berlin-Reinickendorf: Baumberge), 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: relatively common); van der Smissen, 2010a:350 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records, comparison with *Psenulus pallipes*), 2010b:386 (France: Ardèche: Saint-Thomé; Drôme: Dieulefit; Vaucluse: Le Beaucet-Venasque); Burger, 2011:73 (Germany: first record from Thüringen: Gotha); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Tischendorf, Frommer, Flügel et al., 2011:165 (Germany: Hessen: not endangered); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Bitsch, 2014:409 (treated as valid species by recent authors; France: Alpes-de-Haute-Provence: Lurs); U. Frommer, 2014:28 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:94 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Reder and Niehuis, 2014:8 (Germany: Osthofen, Worms); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt). – **As *Diodontus brevitarsis***: Wolf, 1959b:25 (new combination, known from Germany, but not from Nassau).

28. *chillcotti* van Lith

Psenulus chillcotti van Lith, 1973b:133, ♀, ♂. Holotype: ♀, Nepal: Kathmandu (CNC). – R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:98 (first record from Burma: Kambaiti); Sarazin, 1986:308 (holotype in CNC).

29. *clavatus* (Cameron)

Psen clavatus Cameron, 1890b:268, ♀. Holotype or syntypes: ♀, India: Maharashtra: Poona (OXUM). – Bingham, 1897:264 (original description copied); Dalla Torre, 1897:347 (in catalog of world Hymenoptera); van Lith, 1959:62 and 1962:111 (is probably a *Psenulus*); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae). – **As *Psenulus clavatus***: van Lith, 1972:197 (new combination, in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*).

30. *compactus* van Lith

Psenulus compactus van Lith, 1962:42, ♀. Holotype: ♀, Indonesia: Sumatra: Sungai Kumbang (RMNH). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

31. *concolor* (Dahlbom)

Psen concolor Dahlbom, 1843:6, ♀. Syntypes: ♀, Sweden: Gotland: Sanda and Småland: no specific locality (Lund). – Dahlbom, 1845:429 (in key to *Psen* of Europe); Wesmael, 1852:280 (Belgium: Bruxelles; additional description); F. Smith, 1856:436 (in catalog of Hymenoptera in British Museum); Ruthe and Stein, 1857:312 (Germany: Berlin area); Schenck, 1857:214 (Germany: in revision of fossorial wasps of Nassau Region); Funk, 1859:60 (Germany: Bayern: Bamberg); Schenck, 1860:149 (Germany: Nassau Region); Brischke, 1862:97 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:217 (in catalog of European Hymenoptera); Schenck, 1867a:357 (Germany: Nassau Region); Giraud, 1866:470 (nesting in stems of *Rubus*, description of larva); von Aichinger, 1870:322 (Austria: Tirol); Thomson, 1870:234 (in revision of Swedish wasps); Kohl, 1880:142 (Austria: Tirol, and Italy: Trentino–Alto

Adige), 1883e:661 (Switzerland); Ed. André, 1888:183 (in revision of Sphecidae of Europe and Algeria), 13* (bibliographic references); Brischke, 1888b:94 (Germany: Preussen Province, now Poland: Pomorze Region); Tournier, 1889:109 (in key to *Psen* of Switzerland), 112 (diagnostic characters, nesting in twigs); Radoszkowski, 1892:588 (male genitalia); C. Verhoeff, 1891b:14 (nesting habits); Wüstnei, 1891b:216 (Germany: Schleswig-Holstein: Sonderburg); Kohl, 1893a:39 (Austria: Niederösterreich); F. Morawitz, 1893a:110 (Russia: Karelian Isthmus); Sickmann, 1893:96 (Germany: Niedersachsen: Iburg); Westerlund, 1893:25 (Russia: Karelian Republic: northern shore of Lake Ladoga); Krieger, 1894:17 (Germany: Kingdom of Saxony); Borries, 1897:85 (nesting habits); Dalla Torre, 1897:347 (in catalog of world Hymenoptera); de Cobelli, 1903:106 (Italy: Province of Trentino); Aurivillius, 1904:258 (in revision of Swedish Sphecidae); Kohl, 1905c:232 (Turkey: Kayseri: Erciyes Dağı); de Gaulle, 1908:103 (in catalog of French Hymenoptera); W. Schulz, 1911b:135 (discussion of Tournier's specimens); Berland, 1925d:131 (in Sphecid Fauna of France); E. Nielsen, 1933:315 (summary of nesting habits); Bernard, 1935:66 (France: Var: Fréjus area); Vergne, 1935:118 (France: Auvergne: Clermont-Ferrand); Dulac, 1937:15 (France: Saône-et-Loire: Le Creusot, Montcenis, Savianges); Caruel, 1953:101 (France: Marne Department); Vogrin, 1955:38 (Yugoslavia). – **As *Diodontus concolor***: Hellén, 1955a:123 (new combination, in Finland occurring only on Åland Islands); Wolf, 1959b:25 (Germany: Nassau); Hoop, 1963b:7 (Germany: Schleswig-Holstein; as *concolor*); Babiý, 1964:115 (Austria: Land Salzburg); B. Klug, 1965:132 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Casolari and Casolari Moreno, 1980:122 (specimens in M. Spinola collection). – **As *Psenulus concolor***: Antiga and Bofill, 1904:6 (new combination, Spain: Cataluña Province); E. Saunders, 1906:153 (recognition characters); Schmedeknecht, 1907:249 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:26 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); W. Schulz, 1911b:140 (in key to European *Psenulus*); Schirmer, 1912:168 (Germany: Berlin area); Alfken, 1914:283 (northwestern Germany); Noskiewicz, 1918:137 (Galicia, now western Ukraine: Wulka); Dubois, 1919:96 (Belgium: Bruxelles: Uccle); O. Meyer, 1919:156 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:37 (Germany: Lower Elbe region); Dubois, 1921c:214, 215 (in key to Belgian Sphecidae); Maidl, 1922:66 (Albania: Vermosa); R. Perkins, 1924:222 (Great Britain: Devon); Strohm, 1925:212 (Germany: Baden-Württemberg: Sasbach, as *concolor*); Harttig, 1931c:204 (valid species), 207 and 209 (in key to German *Psenulus*), 209 (diagnostic characters); Pulkkinen, 1931:80 (in revision of Sphecidae of Finland); Bondroit, 1932:33 (Belgium: Solbosch); Crèvecoeur and Maréchal, 1932:71 (in catalog of Belgian Hymenoptera); Bondroit, 1933:29 (Belgium: Bruxelles); Balles, 1934:22 (Germany: Baden-Württemberg: Achern, Oberachern, Sasbachwalden); Jansson, 1934:291 (Sweden); Spooner, 1935:139 (Great Britain: Northamptonshire: Ashton Wold); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera); Blütthgen, 1937:236 (Germany: Saale River valley: Naumburg); de Beaumont, 1937:79 (in revision of Palearctic *Psenini*); Grandi, 1937:304 (nest and psyllid prey); Hallett, 1937:71 (Great Britain: Herefordshire: Tarrington, Tram Inn); Merisuo, 1937a:86 (synonymy), 89 and 90 (in key to *Psenulus* of Finland), 91 (locality records from Finland); Richards, 1937b:105 (in checklist of British aculeates); Zavadil, Šusterka, and Bat'a, 1937:218 (in catalog of Sphecidae of Czechoslovakia); Merisuo, 1938:252 and 253 (in key to *Pseninae* of Finland); A. Wagner, 1938a:124 (northwestern Germany); de Graham, 1941:99 (Great Britain: Lincolnshire); Hoop, 1941b:70 (Germany: Schleswig-Holstein: Süderhastedt); Leclercq, 1941a:68 (Belgium: Pays de Liège), 1941b:8 (Belgium: Liège area, nest. prey, nest parasite: *Cratocryptus amatorius* Gravenhorst, an ichneumonid); Paul, 1941:50 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Yasumatsu, 1942b:95 (Japan: Hokkaido and Honshu); Benno, 1943:68 (Netherlands); Giner Marí, 1943a:54 (in Sphecid Fauna of Spain); van Lith, 1943:95 (nest structure), 96 (no cocoon built for pupation); Guiglia, 1944b:31 (Italy); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Mitcheldean); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest; prey Psyllidae), 1948:139 (in revision of British *Psenini*); Zavadil in Zavadil and Šnoflak, 1948:146, 147 (in key to Sphecidae of Czechoslovakia); Chambers, 1949:226 (Great Britain: Bedfordshire); van Lith, 1949:148 (distribution in Netherlands); de Beaumont, 1951h:33 (Switzerland: Neuchâtel area); van Lith, 1951:212 (nesting habits), 216 (previously known nest parasites); Móczár, 1953:310 (Hungary); Nouvel and Ribaut, 1953:179 (France: Haute-Garonne: Saint-Béat); Fahlander, 1954:252 (Sweden: Gästrikland Region); Grandi, 1954:241 (Italy); Yarrow, 1954a:41 (in key to British *Psenulus*), 1954b:169 (Great Britain: Hampstead Heath, now part

of London); Aerts, 1955:65 (Germany: Rheinland); Ceballos, 1956:358 (in catalog of Hymenoptera of Spain); Bajári, 1957a:78, 79 (in key to Hungarian Sphecidae), 1957b:138 (first record from Hungary); Benno, 1957:144 (Netherlands: Tilburg area, nesting in stems of *Rubus*); Fahlander, 1957:62 (Sweden: Småland: Korsberga and Myresjö), 63 (in key to Swedish *Psenulus*); Zirngiebl, 1957:185 (Germany: Rheinland-Pfalz: Leistadt); Benno, 1958b:12 (in review of Dutch Sphecidae); Tsuneki, 1959g:28, 29 (in key to *Psenulus* of Japan and Korea), 38 (in revision of *Psenulus* of Japan and Korea: Hokkaido, Honshu); Noskiewicz and Puławski, 1960:56, 59 (in key to Polish Sphecidae); Grandi, 1961:220 (nesting habits); Valkeila, 1962b:66 (southwestern Finland); Felton, 1963:178 (Great Britain: Kent County); Tsuneki, 1963f:52 (in key to Japanese *Psenulus*); de Beaumont, 1964c:96 (in Sphecid Fauna of Switzerland); Mingo Pérez, 1965:159 (in revision of Spanish *Psenini*); Scobiola-Palade, 1966b:392 (Romania: Tulcea District: Tulcea); Benno, 1967:38 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:340 (Turkey); Gauss, 1967:555 (Germany: Baden-Württemberg); Lefeber, 1967c:219 (Netherlands); Merisuo, 1967b:152 (illustration of male genitalia), 153 (illustration and description of pygidial plate); Niedl and Deneš, 1967:80 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:45 (Romania); Mingo Pérez, 1968:82 (locality records from Spain and Portugal), 86 (in checklist of Iberian *Psenini*); Leclercq, 1968b:39 (Great Britain: Kent); Benedek, 1969a:84 (Hungary; marshy meadow); Lefeber, 1969b:99 (Netherlands: common), 1969c:234 (Netherlands: Sint Pietersberg = Montagne Saint Pierre); Romanova, 1969:134 (Russia: North Caucasus); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:732 (Democratic Germany); Tumšs, 1970:74 (first record from Latvia); Danks, 1971a:345 (nesting habits), 1971b:67-73 (Great Britain: Berkshire: Silwood Park), 1971c:80 (nest mortality); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology), 238 (Germany: Berlin); Felton, 1971:213 (Great Britain: Kent: Sittingbourne); Schmidt, 1971b:40 (Germany: Rheinland-Pfalz: Mainzer Sand); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Balthasar, 1972:254 (in Sphecid Fauna of Czechoslovakia); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Haeseler, 1973:54 (Germany: Schleswig-Holstein: Gudow); Hoop, 1973:47 (Germany: Schleswig-Holstein: Flemhude); Felton, 1974:406 (map of distribution in Great Britain); Leclercq, 1974b:196 (France: locality records); van Lith, 1974b:198 (aberrant wing venation; ichneumonid nest parasites: *Caenocryptus macilentus* Gravenhorst and *Perithous septemcinctorius* Thunberg); Janvier, 1975:117-142 (nesting habits, description of head, description of larva); Lefeber, 1975b:154 (Belgium); Lomholdt, 1975b:32 (Denmark: Island of Anholt), 1975c:164 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Cretin and Robert, 1976:45 (France: Doubs: Chassagne-Saint Denis); Guichard, 1977:252 (Great Britain: Surrey); Jacob-Remacle, 1976:238 (Belgium: Liège, nest structure and mortality); Kolesnikov, 1977:319 (Russia: Bryansk Oblast'); Schmidt, 1977:96 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Kazenas, 1978b:153 (in key to Sphecidae of Kazakhstan and Central Asia); Puławski, 1978:238, 241 (in key to Sphecidae of European part of former USSR); Schwammberger, 1978:418 (Germany: Württemberg); Benedek, 1979:233 (Hungary: Bakony Hills); Marchal and Leclercq, 1979:9 (Belgium: Gembloux); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Pagliano, 1980:130 (Italy: Piemonte); Richards, 1980:65 (in key to Sphecidae of British Isles); Westrich, 1980:630 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:321 (Austria: Niederösterreich: Scheibbs District); Felton, 1981:84 (Great Britain: Kent); Haeseler, 1981:52 (Germany: Friesian Island: Island of Amrum); Józán, 1981:305 (Hungary: Hortobágy National Park); Skibińska, 1981:357 (Poland: Warszawa-Białoleka); Woydak, 1981:39 (Germany: Westfalen: Hamm); Axelsson, 1982:79 (Sweden); Leclercq, 1982a:124 (Belgium: Liège); Skibińska, 1982:118, 122 (Poland: Mazovian Voivodship: Białoleka, Radość, Radziejowice, Ursynów, Wola Mrokowska, Warszawa); Dollfuss, 1983b:5 (in catalog of Sphecidae of Austria); Lefeber, 1983a:84 (Netherlands: Waddendistrict: northern coast sand dunes); Chevin and Silvestre de Sacy, 1984:6 (France: Yvelines Department); Jacob-Remacle, 1984:259 (Belgium: Liège urban center); Lefeber, 1984:29 (Netherlands: Maastricht); Mingo and Gayubo, 1984a:103 (in key to *Psenulus* of Spain); Schmidt, 1984:243 (Germany: Baden-Württemberg); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Jacob-Remacle, 1985:408 (Belgium); Józán, 1985b:55 (Hungary S Lake Balaton), 68 (map of distribution in Hungary), 83 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:63 (Germany: Südpfalz); Archer, 1986:33 (Great Britain: Yorkshire); Jacob Remacle, 1986:109 (Belgium; trap-nests); Józán, 1986:368

(Hungary: Kiskunság National Park); Skibińska, 1986b:150, 154 (Poland: suburbs of Warszawa), 157 (rural and suburban parks), 160 (gardens), 162 (urban parks), 164 (streetside green), 168 (green areas of housing estates), 173 (various green urban habitats); Vikberg, 1986b:75 (Finland); Schmidt and Westrich, 1987:367 (Germany: Mainz area); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); Dollfuss, 1988:9 (Austria: Bisamberg near Vienna); Kowalczyk, 1988b:64 (Poland: environs of Łódź); Nilsson, 1989:47 (Sweden); Haeseler, 1988:211 (Germany: Friesian Islands); Wolf, 1988b:143 (Germany: Rheinland-Westfalen); Józán, 1989:100 (Hungary: Tihany Nature Reserve); Pádr *in* Šedivý, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Skibińska, 1989a:204 (Poland: Warszawa area); Archer, 1990b:136 (England: city of Leicester), 1990c:17 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:123 (population regress in Democratic Germany after 1960), 141 (new records from Democratic Germany); Kowalczyk, 1990:290 (Poland: Góry Świętokrzyskie); Pádr, 1990:77 (Czech Republic: Praha area); Pagliano, 1990:112 (in catalog of Italian Sphecidae); Rohe, 1990:1049 (Germany: Rheinland-Pfalz: Lenneberg forest); Dollfuss, 1991:48 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991a:89 (Poland: Łódź); Jakubzik, 1991:74 (Germany: Köln); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:25 (in list of Sphecidae of Lithuania); Cölln and Jakubzik, 1992:89 (Germany: Rheinland; reared from twigs of *Rubus*); Józán, 1992c:289 (Hungary: Zselic Hills); K. Weber, 1992:88 (Germany: Bayern: Bamberg District); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Jakubzik and Cölln, 1993:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*); Józán, 1993:412 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Luig, 1993:41 (Estonia); Felton and Schneider, 1994:290 (Luxemburg); Gayubo and Borsato, 1994:203 (Italy: Veneto); Junck, Schoos, and Schoos, 1994:96 (Luxemburg: Bettendorf); Theunert, 1994c:49 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Gusenleitner, 1995:160 (Austria: Steiermark); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Papp and Józán, 1995:146 (Hungary: Sikfőkút oak forest); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Riemann, 1995:51 and 57 (Germany: Bremen); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:206 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:423, 426 (Poland: pine forest in Białowieża Primeval Forest); Yeo and Corbet, 1995:35 (in field guide to British solitary wasps); Archer, 1996b:121 (Great Britain: Yorkshire); Arens, 1996:440 (Germany: Bayern: Bayreuth area); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Gusenleitner, 1996a:6 (Austria); Harvey and Plant, 1996:75 (Great Britain: summary of records from Essex); Jakubzik, 1996:253 (Germany: Köln); Jakubzik and Cölln, 1996a:323 (Germany: nesting in stems of *Rubus*), 336 (in keys to cocoons), 1996b:400 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Voblenko, Blösch, 1996:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Woydak, 1996:16 (Germany: Westfalen: summary of distribution and nesting habits); Archer, 1997a:48 (Great Britain: Yorkshire: Burton Leonard Lime Quarries); Asís, Gayubo, and Tormos, 1997b:199 (description of larva); Celary, 1997:57 (in checklist of Animals of Poland); Riemann, 1997:50 (Germany: Achim 14 km SE Bremen); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:512 (Austria: summary of collecting records from Burgenland); Jakubzik, Schlüter, and Cölln, 1998:1182, 1184 (Germany: Rheinland-Pfalz); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Island of Harriersand in Weser River); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Salzmann-Wandeler, 1998a:98 (Switzerland: Luzern Canton: Sempach), 1998b:102 (Switzerland: Schwyz Canton: Gersau-Oberholz); Tschartke, Gathmann, and Steffan-Deventer, 1998:719 (trap-nesting in Germany); van der Smitten, 1998:67 (Germany: Schleswig-Holstein); K. Weber, 1998:148 (Germany: Bayern: Bamberg area); Cölln and Jakubzik, 1999:29 (Germany: Rheinland-Pfalz: Keuper-Scharren SW Hungerburg); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Ljubomirov, 1999b:46 (Bulgaria: Mount Vitoshka near Sofia); Luig and Voolma, 1999:176 (Estonia); Majzlan, Rychlík, and Deván, 1999:146 (first record from Slovakia: Čenkovská Step Nature Reserve); Pagliano and Scaramozzino, 1999:164 (Italy: Piemonte: Borgomale); Pauly, 1999:108 (in

catalog of Belgian aculeates); M. Schwarz, 1999:85 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:154 (in Sphecid Fauna of Germany); Flügel, 2000:46 (Germany: Hessen: Halberg near Neumorschen); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:105 (Greece); Gonzales, Gayubo, and Torres, 2000:18 (Andorra: Santa Coloma); Jacobs, 2000:9 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:105 (Hungary: Bakony Mountains); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mountains); Neumeyer, 2000:99 (Switzerland: Basel); Schmid-Egger, 2000b:276 (Germany: Baden-Württemberg: shores of Rhine River); Vepřek, 2000:234 (Slovakia: Trenčín); Zettel, 2000:25 (Austria: Langenzersdorf, Wien); Dollfuss and Bitsch *in* Bitsch et al., 2001:45 (in Sphecid Fauna of Western Europe); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józán, 2001:278 (Hungary: Somogy County); Ohl et al., 2001:141 (distribution in Germany by provinces); Salzmänn-Wandeler and Rezbanyai-Reser, 2001:157 (Switzerland: Tessin Canton: Meride area); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:68 (Austria: Wien); Archer, 2002b:122 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Bieri, 2002:78 (Liechtenstein); Gayubo, González, Tormos, and Asís, 2002:88 (distribution in Iberian Peninsula); Herrmann and Zinnert, 2002:26 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Litt, 2002:166 (Belgium); Shlyakhtenok and Skibinska, 2002:32 (Belarus': no specific locality); Wiśniowski, 2002:68 (Poland: Ojców National Park); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:63 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Flügel, 2003:9 (Germany: Hessen: Knüllwald); Haeseler, 2003:340 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kuhlmann and Quest, 2003:51 (Germany: Bayern: Bayerischer Wald National Park); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:69 (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); Schneider and Feitz, 2003:95 (gynandromorph: male head and thorax, female gaster); von der Heide and Metscher, 2003:103 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:135 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:76 (Poland: Pieniny National Park); Deván, 2004:147 (western Slovakia); Dollfuss, 2004a:111 (Czech Republic, Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:263 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Jakubzik and Cölln, 2004:274, 275 (in key to nests of Hymenoptera nesting in stems of *Rubus*); Jakubzik, Niehuis, and Cölln, 2004:458 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Schneider and Carrières, 2004:98 (Luxemburg: Bon-Pays Region); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:39 and 58 (in checklist of Polish Sphecidae); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:27 (central Switzerland); Blösch, 2005:3 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Burger, 2005:35 (Germany: Thüringen); Jacobs, 2005a:450 (Bulgaria: Dragoman); Kofler, 2005:167 (Austria: Tirol: city of Lienz); Kraatz, 2005:103 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Pagliano and Negrisoló, 2005:442 (in Sphecid Fauna of Italy); Pijfers, 2005:50 (Netherlands: Twente: Noordelijke Manderheide); Riemann and Hohmann, 2005:564 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:18 (Germany: Berlin); Shorenko, 2005a:166 (Ukraine: Crimea); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Tormos, Asís, Gayubo, Calvo, and Martin, 2005:280 (nest occupancy); Yildirim and Ljubomirov, 2005:1801 (Turkey: Konya: Sille); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:110 (Belarus': Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund), 2006c:303 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Beavis, 2007:95 (Great Britain: Tunbridge Wells and Central High Weald); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:454 (first recorded from Greece by Standfuss and Stand-

fuss, 2006); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:169 (Czech Republic: Vyšenské Kopce National Nature Reserve); Flügel, 2007:40 (Germany: Hessen: Halberg near Neumorschen); Jacobs, 2007:57, 59 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:25 (Germany: northwestern Sachsen); Józán, 2007:179 (Hungary: Zselic hills); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belarus: Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Vago, 2007:174 (France: département d'Aisne); Venne, Bleidorn, and Lauterbach, 2007:302 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:200 (in catalog of Sphecidae of Czech Republic and Slovakia); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:309 (Germany: Friesian Islands); Ljubomirov and Yildirim, 2008:169 (in catalog of Crabronidae of Turkey); Löhr, 2008:9 (Germany: Hessen: Mücke); Theunert, 2008:76 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009:24 (Great Britain: Yorkshire: Sheffield); Donie, 2009:10 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen); Guéorguiev and Ljubomirov, 2009:263 (Bulgaria: Maleshevska Planina); Livory, Chevin, Lair, Sagot, and Baldock, 2009:20 (France: Département de la Manche: Savigny); Pagliano, 2009:187 (France: Corse: Castiria); Shorenko, 2009:368 (in list of Sphecidae s.l. of Crimea); Straka, Dvořák, and Bogusch, 2009:264 (Czech Republic: Meandry Smědé Nature Reserve); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:63 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities); J. Neumayer, 2010:335 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:154 (Russia: central Ural Mountains); Saure, 2010a:88 (Germany: Berlin-Reinickendorf: Baumberge); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:139 (Germany: Bayern: collected along Main-Donau canal); van der Smissen, 2010a:351 (Germany: Schleswig-Holstein: locality records), 2010b:386 (France: départements d'Ardeche and Vaucluse); Gogala, 2011:9 (Slovenia: Podčetrtek); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Saure, 2011a:7 (Germany: Berlin: former airport Tempelhof), 2011c:199 (Germany: Berlin-Spandau: Fort Hahneberg); Shlyakhtenok, 2011:95 (Belarus: city of Minsk); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:165 (Germany: Hessen: not endangered); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012:183 (Great Britain: urban York); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Franzén, Molander, Norén, and Nilsson, 2012:27 (Sweden: Skåne: Kullaberg Peninsula); Larivière, Chapelin-Viscardi, and Maillet-Mezeray, 2012:296 (France: Essonne: Boigneville); Shlyakhtenok, 2012a:172 (Belarus', and Russia: Krasnaya Polana near Sochi: collected in private plots), 2012b:92 (Belarus: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Terayama and Gōkūn, 2012:12, 13, 23 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Flügel, 2013a:120 (Germany: Brandenburg: Pimpinellenberg near Oderberg), 1913c:303 (Germany: Hessen: Kassel); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Shlyakhtenok, 2013:141 (in annotated catalog of aculeate wasps of Belarus); U. Frommer, 2014:28 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1323 (Germany, Hessen: Roßstein); Hellqvist, Abenius, and Norén, 2014:94 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:59 (Russia: Republic of Tatarstan); Pagliano, 2014:96 (specimens in Spinola collection, Torino, are *Psenulus concolor*); Turčinavičienė, Radzevičiūtė, Budrienė, and Budrys, 2014:4 (in DNA analysis); Yildirim, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Else, Bolton, and Broad, 2016:45 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Mokrousov and Popov, 2016:589 (Russia: Krasnodarskiy Krai); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Flügel, 2017:6 (Germany: Rheinland-Pfalz: Eschkopf and Doline near Rockensüß); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia); Shorenko, 2017:79 (in Crimea collected in June).

Psen intermedius Schenck, 1857:215, ♀. Syntypes: Germany: Hessen: Weilburg (depository?). Synonymized with *Psen concolor* by Schenck, 1861:143. – Kirchner, 1867:217 (in catalog of European Hymenoptera); Kohl, 1880:142 (Italy:

Trentino–Alto Adige); Tournier, 1889:111 (in key to *Psen* of Switzerland), 111 (not occurring in Switzerland, Schenck confused two species under this name); Graeffe, 1911:49 (Italy: Trieste area); Bondroit, 1933:29 (Belgium: Bruxelles), 1934:61 (Belgium: Solbosch). – **As *Psen concolor* var. *intermedius***: Schenck, 1861:143 (new status); Dalla Torre, 1897:347 (in catalog of world Hymenoptera).

Psen ambiguus Schenck, 1857:216, ♀. Holotype: ♀, Germany: Hessen: Weilburg (depository?). Synonymized with *Psen concolor* by Schenck, 1861:143. – Kirchner, 1867:217 (in catalog of European Hymenoptera); Kohl, 1880:142 (Austria: Tirol); Tournier, 1889:111 (not occurring in Switzerland). – **As *Psen concolor* var. *ambiguus***: Schenck, 1861:143 (new status); Dalla Torre, 1897:347 (in catalog of world Hymenoptera).

32. *continentis* van Lith

Psenulus continentis van Lith, 1962:97, ♀. Holotype: ♀, Malaysia: Penang: Batu Feringgi (originally H. Pagden coll., now BMNH). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae, as *continentis*); van Lith, 1976b:115 (Singapore).

33. *corporaali* van Lith

Psenulus corporaali van Lith, 1962:76, ♀. Holotype: ♀, Indonesia: Sumatra: East Coast: Medan (Nat. Hist. Mus. Rotterdam). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:175 (additional description), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Dollfuss, 2004a:111 (Malaysia: Ipoh 5 km E Tanjong Rambutan).

34. *crabroniformis* (F. Smith)

Mellinus crabroniformis F. Smith, 1858a:107, ♀. Holotype or syntypes: ♀, Malaysia: Sarawak: no specific locality (OXUM). – F. Smith, 1863b:136 (known from Borneo), 1871a:368 (in catalog of Oriental Aculeata); Handlirsch, 1888:294 (original description copied); Dalla Torre, 1897:561 (in checklist of world Hymenoptera); Maidl and Klima, 1939:42 (in catalog of world Astatinae and Bembicinae). – **As *Psenulus crabroniformis***: van Lith, 1962:51 (new combination, in revision of Indo-Australian Psenini, as *crabroniformis crabroniformis*), 114 (in checklist of Indoaustralian Psenini, as *crabroniformis crabroniformis*), 1972:168 (Thailand; redescription; as *crabroniformis crabroniformis*), 199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *crabroniformis crabroniformis*, also as subsp.?); Tsuneki, 1974b:637 (Malaysia: Kuala Lumpur, description of ♀); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:103 (Malaysia, Thailand; as *crabroniformis crabroniformis*); Dollfuss, 2004a:111 (Laos, Malaysia).

ssp. nathani van Lith

Psenulus crabroniformis nathani van Lith, 1976b:103, ♀. Holotype: ♀, India: Kerala: Anamalai Hills: Cinchona (ZMAN).

ssp. sumatranus (Ritsema)

Psen sumatranus Ritsema, 1880:225, ♀. Holotype: ♀, Indonesia: western Sumatra: no specific locality (RMNH). – Dalla Torre, 1897:350 (in catalog of world Hymenoptera); van Lith, 1959:62 (probably belongs to *Psenulus*). – **As *Psenulus crabroniformis sumatranus***: van Lith, 1962:53 (new combination, new status, in revision of Indo-Australian Psenini), 114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); van Lith, 1976b:104 (Indonesia: West Java).

ssp. wapiensis van Lith

Psenulus crabroniformis wapiensis van Lith, 1976b:103, ♂. Holotype: ♂, Laos: Wapikhamthong Province: Wapi (Bishop Mus.).

35. *cypriacus* van Lith

Psenulus cypriacus van Lith, 1973a:117, ♀, ♂. Holotype: ♀, Cyprus: Limassol (Genova). – R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Dollfuss and Bitsch *in* Bitsch et al., 2001:46 (in Sphecidae Fauna of Western Europe).

As *Psenulus pallipes*: Guiglia, 1944a:148 (Cyprus: Limassol), corrected to *Psenulus cypriacus* by van Lith, 1973a:117.

As *Psenulus* sp.: de Beaumont, 1960a:22 (Greece: Island of Rhodes), corrected to *Psenulus cypriacus* by van Lith, 1973a:119.

36. *decipiens* van Lith

Psenulus decipiens van Lith, 1976b:91, ♂. Holotype: ♂, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.). – Dollfuss, 2004a:111 (Laos: Ban Itou area).

37. *dentatus* van Lith

Psenulus dentatus van Lith, 1962:32, 33, ♀. Holotype: ♀, Indonesia: Western Java: Mount Tjisuru: Djampang Tenga (USNM). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae).

38. *dilectus* (de Saussure)

Psen dilectus de Saussure, 1892:571, ♀. Holotype or syntypes: ♀, Madagascar: Imerina Province: no specific locality (MHNG). – Dalla Torre, 1897:347 (in catalog of world Hymenoptera). – As *Psenulus dilectus*: W. Schulz, 1911b:141 (new combination, redescription); Arnold, 1945:154 (in key to *Psenulus* of Madagascar, redescription); Leclercq, 1961a:17 (in key to Afrotropical *Psenulus*), 30 (bibliographic references), 1961d:117 (Madagascar); van Lith, 1974a:8 (diagnostic characters), 98 (member of *capensis* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Pulawski, 2003b:798 (in checklist of Malagasy Sphecidae); Madl, 2014a:996 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records).

39. *diversus* van Lith

Psenulus diversus van Lith, 1962:70, ♀. Holotype: ♀, Singapore (USNM). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:170 (Vietnam; differences with the Singapore specimen), 199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Dollfuss, 2004a:111 (Laos: Ban Itou); Pham, Kumar and Danilov, 2015:1595 (in list of Sphecidae s.l. of Vietnam).

40. *ealae* Leclercq

Psenulus ealae Leclercq, 1961a:27, ♀. Holotype: ♀, Zaire: Equateur: Eala (MRAC). – Leclercq, 1961a:22 (in key to Afrotropical *Psenulus*); van Lith, 1974a:64 (Sierra Leone; description of ♂), 97 (member of *turneri* species group), 99 (in checklist of world Sphecidae); R. Bohart and Menke, 1976:172 (in list of Afrotropical *Psenulus*); de Melo, 1997:4 (abdominal silk glands in adult females).

41. *erraticus* (F. Smith)

Psen erraticus F. Smith, 1860a:85, ♀. Holotype or syntypes: ♀, Indonesia: Sulawesi: Makasar: no specific locality (OXUM). – F. Smith, 1863b:136 (known from Sulawesi), 1871a:369 (in catalog of Oriental Aculeata); Dalla Torre, 1897:348 (in catalog of world Hymenoptera); van Lith, 1959:62 (probably belongs to *Psenulus*). – As *Psenulus erraticus*: van Lith, 1962:48 (new combination, in revision of Indo-Australian *Psenulus*, as *erraticus erraticus*), 114 (in checklist of Indoaustralian Psenini, as *erraticus erraticus*), 1970:95 (Philippines: Tawi Tawi; variation), 1972:168 (Vietnam), 199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *erraticus erraticus*); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae); Dollfuss, 2004a:111 (Laos: Ban Itou area, Ban Houyakong); Pham, Kumar and Danilov, 2015:1595 (in list of Sphecidae s.l. of Vietnam, as *erraticus erraticus*).

ssp. basilanensis (Rohwer)

Diodontus basilanensis Rohwer, 1921a:318, ♀. Holotype: ♀, Philippines: Basilan: no specific locality (USNM). – Rohwer, 1923b:595 (Borneo: Sandakan). – **As *Psenulus erraticus basilanensis***: van Lith, 1962:49 (new combination, new status, in revision of Indo-Australian *Psenulus*), 114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae); van Lith, 1976b:102 (Singapore). – **As *Diodontus erraticus basilanensis***: Baltazar, 1966:339 (new subspecific combination, in catalog of Hymenoptera of Philippines).

ssp. butuanensis van Lith

Psenulus erraticus butuanensis van Lith, 1962:50, ♂. Holotype: ♂, Philippines: Mindanao: Butuan (USNM). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae). – **As *Diodontus erraticus butuanensis***: Baltazar, 1966:339 (new combination, in catalog of Hymenoptera of Philippines).

42. erusus Leclercq

Psenulus erusus Leclercq, 1961a:26, ♀. Holotype: ♀, Zaire: Equateur: Eala (MRAC). – Leclercq, 1961a:19 (in key to Afrotropical *Psenulus*); van Lith, 1974a:62 (Sierra Leone), 97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

43. esuchus (Rohwer)

Diodontus esuchus Rohwer, 1923b:600, ♂. Holotype: ♂, Malaysia: Sabah (in Borneo): Sandakan (USNM). – **As *Psenulus esuchus***: van Lith, 1962:79 (new combination, redescription of ♂), 115 (in checklist of Indoaustralian Psenini), 1970:100 (Philippine: Balabac: Dalawan Bay), 1972:174 (description of ♀), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae); Dollfuss, 2004a:111 (Borneo: Sidas).

44. exiguus van Lith

Psenulus exiguus van Lith, 1976b:99, ♀, ♂. Holotype: ♀, Malaysia: Selangor: Ulu Langat (Bishop Mus.). – van Lith, 1978b:7 (Sri Lanka).

45. extremus van Lith

Psenulus carinifrons extremus van Lith, 1966:45, ♀, ♂. Holotype: ♀, Papua New Guinea: Eastern Highlands Province: Moife 15 km NW Okapa (Bishop Mus.). – **As *Psenulus extremus***: van Lith, 1969:206 (new status, diagnostic characters), 209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:567 (as synonym of *Psenulus carinifrons scutellatus*); van Lith, 1976b:118 (Papua New Guinea: Eastern Highlands and Morobe Provinces).

46. filicornis (Rohwer)

Diodontus filicornis Rohwer, 1923b:598, ♂. Holotype, ♂, Philippines: Basilan: no specific locality (USNM). – Baltazar, 1966:339 (in catalog of Hymenoptera of Philippines). – **As *Psenulus filicornis***: van Lith, 1962:77 (new combination, redescription of ♂), 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae); Tsuneki et al., 1992b:3 (Philippines, description of ♀).

47. formosicola Strand

Psenulus formosicola Strand, 1916a:21, ♀, ♂. Lectotype: ♀, Taiwan: Taihorin (DEI), designated by Oehlke and Wudowenz, 1974:422. – Strand, 1927:254 (in list of species described by author); Tsuneki, 1966c:12 (Taiwan; redescription), 1967f:9 and 11 (Taiwan), 1968d:56 (Taiwan); Haneda, 1971b:31 (Taiwan); Haneda, 1971b:31 (Taiwan); Tsuneki, 1971j:3 (Taiwan); van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Murota,

1973b:117 (Taiwan); R. Bohart and Menke, 1976:166 (in checklist of world Sphecidae); Tsuneki, 1977j:277 (Taiwan: Taihorinsho); Wu and Zhou, 1996a:66 (in revision in Economic Insect Fauna of China); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

48. *freetownensis* van Lith

Psenulus freetownensis van Lith, 1974a:67, ♀, ♂. Holotype: ♀, Sierra Leone: Freetown (AEI). – van Lith, 1974a:97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

49. *frontalis* (W. Fox)

Psen frontalis W. Fox, 1898:4, ♀. Lectotype: ♀, USA: Utah: no specific locality (ANSP), designated by Cresson, 1928:50. – Ashmead, 1899d:225 (in checklist of North American Crabronidae). – **As *Neofoxia frontalis***: Viereck, 1901b:342 (new combination, in checklist of North American Psenini). – **As *Diodontus frontalis***: Malloch, 1933:4 (new combination, in revision of North American Psenini); Krombein, 1950c:35 (synonymy), 40 (in key to North American *Psenulus*); Krombein in Muesebeck et al., 1951:958 (in catalog of North American Hymenoptera). – **As *Psenulus frontalis***: R. Bohart and Menke, 1976:172 (new combination, in checklist of world Sphecidae); Krombein, 1979b:1600 (in catalog of North American Hymenoptera); de Melo, 1997:2 (abdominal silk glands in adult females); Ratzlaff, 2016:27 (first record from Canada: British Columbia: Southern Interior and Southern Interior Mountains); 38 (British Columbia: locality records).

Diodontus occidentalis Malloch, 1933:5, ♀, junior primary homonym of *Diodontus occidentalis* W. Fox, 1892. Holotype: ♀, USA: California: Tallac Lake near Tahoe (USNM). Synonymized with *Diodontus frontalis* by Krombein, 1950c:35. *Diodontus hesperus* Pate, 1944c:133. Substitute name for *Diodontus occidentalis* Malloch, 1933.

50. *fulgidus* Arnold

Psenulus fulgidus Arnold, 1945:156, ♀, ♂. Syntypes: Madagascar: Behara, Bekily, Ranomafana (MNHN). – Arnold, 1945:154 (in key to *Psenulus* of Madagascar, redescription); Leclercq, 1961a:18 (in key to Afrotropical *Psenulus*), 30 (bibliographic reference, Madagascar: Fort-Dauphin); van Lith, 1974a:69 (comparison with *Psenulus reticulosus*), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:152 (in checklist of world Sphecidae); Pulawski, 2003b:798 (in checklist of Malagasy Sphecidae); Madl, 2014a:996 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records).

51. *fulvicornis* (Schenck)

Psen fulvicornis Schenck, 1857:216, ♀. Holotype: ♀, Germany: Hessen: Wiesbaden (Landesmuseum Wiesbaden). – Brischke, 1864:208 (Germany: Pommern Province, now Poland: Pomorze Region); Kirchner, 1867:217 (in catalog of European Hymenoptera); Schenck, 1971:143 (as new synonym of *Psen fuscipennis*); von Aichinger, 1870:322 (Austria: Tirol); Kohl, 1880:141 (Austria: Tirol, and Italy: Trentino – Alto Adige), 1888b:726 (Austria: Tirol, now Italy: Alto Adige); Tournier, 1889:111 (not occurring in Switzerland); W. Schulz, 1911b:136 (discussion of Tournier's specimens); de Beaumont, 1937:88 (as new synonym of *Psenulus fuscipennis*); Andert, 2010:8 (holotype in Landesmuseum Wiesbaden). – **As *Psen fuscipennis* var. *fulvicornis***: Schenck, 1861:143 (new status); Dalla Torre, 1897:348 (in catalog of world Hymenoptera). – **As *Psenulus fulvicornis***: Schmidt, 1971a:62 (new combination, redescription of holotype, comparison with *Psenulus schencki*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Jacobs and Oehlke, 1990:124 (in supplementary key to Oehlke, 1970), 141 (status of species, bibliography); Dollfuss, 1991:48 (in key to Sphecidae of North and Central Europe); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); K. Schmidt, Schmid-Egger, and Doczkal, 1995:8 (relationship to *Psenulus pallipes* is unclear); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Blösch, 2000:155 (in Sphecid Fauna of Germany); Dollfuss and Bitsch in Bitsch et al., 2001:48 (in Sphecid Fauna of Western Europe); Ohl et al., 2001:141 (distribution in Germany by provinces); Schmid-Egger, 2002:13 (confirmation of species status, redescription); Gayubo, González, Tormos, and Asís, 2002:88 (distribution in Iberian Peninsula); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain:

Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Dollfuss, 2004a:112 (Algeria, Bulgaria, Croatia, Greece, Syria, Turkey); Gayubo et al. 2004:132 (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); Kuhlmann, 2004:230 (Germany is responsible for preservation of this species on its territory); Wiśniowski, 2004:39 and 58 (in checklist of Polish Sphecidae: recorded in Poland only from former Prussia by Brischke, 1862, 1865); Burger, 2005:35 (Germany: Thüringen); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:210 (Spain: Salamanca: Masueco, Mieza); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:454 (full species status demonstrated by Schmid-Egger, 2002); Jacobs, 2007:58, 60 (in key to Crabronidae of Germany); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Józán, 2008:82 (first record from Hungary: Vámosmikola); Ljubomirov and Yildirim, 2008:170 (in catalog of Crabronidae of Turkey); González, Gayubo, Asís, and Tormos, 2009:622 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: rare); Józán, 2011:189 (in checklist of Sphecidae s.l. of Hungary); Murai and Amr, 2011:120 (recorded from Syria by Dollfuss, 2004a); Tischendorf, Frommer, Flügel et al., 2011:95 (Germany: Hessen: insufficient data to evaluate degree of endangerment); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Standfuss and Standfuss, 2012:427 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Bitsch, 2014:409 (references to Dollfuss, 2004a and Standfuss and Standfuss, 2012); U. Frommer, 2014:28 (Germany: Hessen: Lorch); Reder and Niehuis, 2014:9 (Germany: Rheinland-Pfalz: Bobenheim-Roxheim); Yıldırım, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Mokrousov and Popov, 2016:589 (first record from Russia: Krasnodarskiy Krai: Anapa); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

52. *fuscipennis* (Dahlbom)

Psen fuscipennis Dahlbom, 1843:5, ♀. Syntypes: ♀, Sweden: Scania and Småland: no specific locality; Germany: Berlin (Lund). – Dahlbom, 1842a:8 (in review of Scandinavian aculeates), 1845:428 (in key to *Psen* of Europe); F. Smith, 1856:435 (in catalog of Hymenoptera in British Museum); Wissmann, 1849:9 (Germany: Kingdom of Hannover: Münden); Ruthe and Stein, 1857:312 (Germany: Berlin area); Schenck, 1857:213 (Germany: in revision of fossorial wasps of Nassau Region); Taschenberg, 1858:79 (in key to Sphecidae of Germany); Assmuss, 1859:606 (Russia: Moscow Oblast); Schenck, 1860:149 (Germany: Nassau Region); Taschenberg, 1866:206 (in revision of Hymenoptera of Germany); Kirchner, 1867:217 (in catalog of European Hymenoptera); Schenck, 1867a:357 (Germany: Nassau Region); Wierzejski, 1868:117 (Ukraine: Podole Region); Thomson, 1870:233 (in revision of Swedish wasps); Wierzejski, 1874:258 (Ukraine: Podole Region; determination?); Taschenberg, 1875:389 (Germany: Halle); Kohl, 1880:141 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:61 (Norway); Kohl, 1883e:661 (Switzerland); von Heyden, 1884:121 (Germany: Frankfurt am Main area); Wüstnei, 1886:39 (Germany: Schleswig-Holstein: Husum); Ed. André, 1888:182 (in revision of Sphecidae of Europe and Algeria), 13* (bibliographic references); Brischke, 1888b:94 (Germany: Prussen Province, now Poland: Pomorze Region); Kohl, 1888b:726 (Austria: Tirol, now Italy: Alto Adige); Tournier, 1889:111 (in key to *Psen* of Switzerland), 131 (redescription; Switzerland: Peney near Genève; Corsica); Radoszkowski, 1892:587 (male genitalia); Kohl, 1893a:39 (Austria: Niederösterreich); F. Morawitz, 1893a:109 (Russia: Karelian Isthmus, description of ♂); Sickmann, 1893:96 (Germany: Niedersachsen: Iburg); Krieger, 1894:17 (Germany: Kingdom of Saxony); De Stefani Perez, 1895:227 (in catalog of Sicilian Hymenoptera); Dalla Torre, 1897:348 (in catalog of world Hymenoptera); Mocsáry, 1897:78 (Kingdom of Hungary, some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898b:92 (Norway); N. Arnold, 1902:90 (Russia: Mohilev Province, now Belarus); de Cobelli, 1903:106 (Italy: Province of Trentino); Aurivillius, 1904:258 (in revision of Swedish Sphecidae); Zilahi Kiss, 1904:77 (Hungary: Tasnád); Móczár and Henter, 1907:205 (Hungary: Tatatóváros); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Graeffe, 1911:49 (Italy: Trieste area); Schütze, 1916:42 (Germany: Sachsen: Rachlau, visiting flowers of parsley,

Petroselinum crispum); Fahringer, 1922:175 (Turkey); Berland, 1925d:130 (in Sphecidae Fauna of France); Coulon, 1925:113 (France: Elbeuf, Rouen, Evreux); Chevalier, 1926b:47 (nesting habits); Hémon, 1926:199 (France: Finistère: Fouesnant); Dusmet y Alonso, 1927:25 (Spain: Cataluña: Montserrat); Giordani Soika, 1932a:22 (Italy: Lido di Venezia); Maneval, 1932:96 (nesting habits); Bernard, 1935:66 (France: Var: Fréjus area); Marchand and Dulac, 1935:61 (France: Saône-et-Loire: Saint Laurent d'Andenay); Vergne, 1935:118 (France: Auvergne: common); Dulac, 1937:14 (France: Saône-et-Loire: Le Creusot, Saint-Laurent d'Andenay, Savianges); Knoerzer, 1941:937 (Germany: Bayern: Wasserburg); Ceballos, 1949:101 (Spain); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie, as *picipennis*); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:50 (France: Ardèche River basin); Vogrin, 1955:38 (Yugoslavia); Janvier, 1962:504 (nesting habits, description of larva); Casolari and Casolari Moreno, 1980:122 (specimens in M. Spinola collection); Pagliano, 2014:96 (specimens in Spinola collection, Torino, are *Psenulus pallipes*). – **As *Diodontus fuscipennis***: Wolf, 1959b:25 (new combination, Germany: Nassau); Babiy, 1964:115 (Austria: Land Salzburg); Evans, 1964b:253 (discussion of Janvier, 1962, description of larva). – **As *Psenulus fuscipennis***: Antiga and Bofill, 1904:6 (new combination, Spain: Cataluña Province); Schmiedeknecht, 1907:248 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:26 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Schirmer, 1912:168 (Germany: Berlin area); Schulz, 1911:140 (in key to European *Psenulus*); Birula, 1913:545 (Ukraine: Zhytomyr Oblast': Radomyshl'); Alfken, 1914:283 (northwestern Germany); Birula, 1914:389 (Belarus': Lusinopol' near Vitebsk); O. Meyer, 1919:156 (Germany: Posen Province, now Poland: Poznań Region); Łoziński, 1920:121 (Poland: Kraków, Lisako, Maków Podhalański); A. Wagner, 1920:37 (Germany: Lower Elbe region); Dubois, 1920:88 (Belgium: Beverloo), 1921c:215 (in key to Belgian Sphecidae); Leininger, 1924:121 (Germany: Baden-Württemberg); Bischoff, 1925:302 (Latvia; Poland: Białowieża); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); Strohm, 1925:212 (Germany: Baden-Württemberg: Burkheim); F. Werner, 1927:67 (Austria: Niederösterreich: River Kamp valley); Bouwman, 1928b:57 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:709 (in keys to Hymenoptera of North and Central Europe); Harttig, 1931c:207 and 208 (in key to German *Psenulus*), 210 (diagnostic characters); Pulkkinen, 1931:79 (in revision of Sphecidae of Finland); Bondroit, 1932:33 (Belgium: Solbosch); Crèvecoeur and Maréchal, 1932:71 (in catalog of Belgian Hymenoptera); Gussakovskij, 1932:6 (Russia: Primorskiy Krai); Balles, 1934:22 (Germany: Baden-Württemberg: Achern, Hopfengarten); Grandi, 1934:66 (nesting habits), 70 (description of mature larva), 130 (Italy: Emilia-Romagna: Cervia); Grandi, 1935a:57 (nesting habits), 111 (Italy); Forsius in Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); Harttig, 1935:5 (Germany: Niedersachsen: Oyten); Minkiewicz, 1935:196 (Poland: Kazimierz on Wisła, 51°20'N 21°58'E); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:130 (Poland: Łowicz); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg); de Beaumont, 1937:88 (in revision of Palearctic Psenini); Grandi, 1937:303 (silk production by adults); Merisuo, 1937a:85 (synonymy), 89 and 90 (in key to *Psenulus* of Finland), 91 (Finland: locality records); Zavadil, Šusterka, and Bat'a, 1937:217 (in catalog of Sphecidae of Czechoslovakia); Merisuo, 1938:251 and 253 (in key to Pseninae of Finland); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:123 (northwestern Germany); Móczár, 1939:5 (Hungary: Jászberény); Dovnar-Zapolskiy, 1940:304 (Russia: Kursk Oblast', as *fuscicornis*); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); Paul, 1941:50 (Germany: Pommern: Stettin and Gollnow, now Poland: Województwo Zachodniopomorskie: Szczecin and Goleniów); Schneid, 1941:1051 (Germany: Bayern: Bamberg area); Balthasar, 1943:42 (Czech Republic: Moravia: Zlin area); Giner Marí, 1943a:54 (in Sphecidae Fauna of Spain); van Lith, 1943:95 (nest structure), 96 (pupation inside cocoon); Guiglia, 1944b:31 (Italy); Zavadil in Zavadil and Šnoflak, 1948:146, 147 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:4 (Portugal: Lisboa); van Lith, 1949:148 (common in Netherlands); Cavro, 1950:32 (France: Département du Nord); Szulczewski, 1950:109 (Poland: Wielkopolski National Park 15 km S Poznań); de Beaumont, 1951h:33 (Switzerland: Neuchâtel area); van Lith, 1951:215 (nesting habits), 216 (nest parasite: *Peritous varius* Gravenhorst, an ichneumonid; hyperparasite: *Melittobia acasta* Walker), a eulophid); Głowacki, 1953:521 (Poland: Warszawa, Podkowa Leśna and Brwinów near Warszawa); Móczár, 1953:310 (Hungary); Nouvel and Ribaut, 1953:180 (France: Haute-Garonne: Saint-Béat); Bischoff and Stadler, 1954:126 (Germany: Bayern: Romburg); de Beaumont, 1954e:93 (Italy); Fahlander, 1954:252 (Sweden: Gästrikland Region); Grandi,

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Frommer, 2009a:29 (Germany: in checklist of Sphecidae of 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, 2009:263 (Bulgaria: Maleshevska Planina); S. Ivanov, Fateryga, and Zhidkov, 2009:218 (Ukraine: Crimea: Karadag Nature Reserve); Józán, 2009:165 (Croatia: Barban); Nemkov, 2009b:59 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:187 (Italy: Puglia: Noci: Sardegna: lake Baratz); Shorenko, 2009:368 (in list of Sphecidae s.l. of Crimea, as *fuscipennis fuscipennis*); Ermilov and Mokrousov: 2010:91 (phoretic mites *Acarus psenuli* and *Tortonia intermedia* in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:63 (Russia: Kirov, Kostroma, Nizhniy Novgorod, and Vladimir Oblast's, Mordovian Republic, Tatarstan: no specific localities); Rudoiskatel', 2010:154 (Russia: central and southern Ural Mountains); Saure, 2010a:88 (Germany: Berlin-Reinickendorf: Baumberge), 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:139 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:26 (Ukraine: Khar'kov Oblast': near Khar'kov; Lugansk Oblast': village D'yakovo; Sumy Oblast': village Ekaterinovka); van der Smissen, 2010a:351 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records), 2010b:386 (France: Ardèche and Vaucluse: locality records), 2010c:397 (Sweden: Öland: Byrums Sandvik; Södermanland: Rassa); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:497 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Gogala, 2011:9 (Slovenia); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Saure, 2011d:200 (Germany: Sachsen-Anstalt: conservation area “Heide südlich Burg”); Schüepp, Herrmann, Herzog, and Schmidt-Engling, 2011:716 (Switzerland plateau between Bern, Fribourg, and Solothurn, habitat fragmentation); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:166 (Germany: Hessen: not endangered); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Larivière, Chapelin-Viscardi, and Maillet-Mezeray, 2012:296 (France: Essonne: Maise); Nemkov, 2012c:436 (in catalog of Crabronidae of Russian Far East); Orlopp and Flügel, 2012:19 (malaxation of prey may be disinfection against bacteria and fungi); Prisiy, 2012:47 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:172 (Belarus', and Russia: Krasnaya Polana near Sochi: collected in private plots), 2012b:92 (Belarus': Beresina National Reserve: overgrowing dry meadow); Standfuss and Standfuss, 2012:428 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E: addition to flight period); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Ter-

ayama and Gōukon, 2012:12, 21 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Pankov, 2013:231 (Russia: Ivanovo Oblast'); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Shlyakhtenok, 2013:142 (in annotated catalog of aculeate wasps of Belarus'); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (Portugal: Douro International Natural Park and Serras de Aire e Candeeiros Natural Park); Wiśniowski and Szczepko, 2013:48 (Poland: Kampinos National Park near Warszawa); Bitsch, 2014:409 (France: Aveyron: Najac; Isère: Grenoble; references to Larivière et al., 2012 and Orlopp and Flügel, 2012); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); U. Frommer, 2014:28 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:94 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Martynova and Fateryga, 2014:13 (Ukraine: Crimea; main nest parasite is *Omalus sculpticollis* Abeille, a chrysidid, nest parasites and hyperparasites are *Melittobia acasta* Walker, a eulophid, and *Perithous septemcinctorius* (Thunberg), an ichneumonid; *Trichodes apiarius* (Linnaeus), a clerid, is a predator of nest content); Mokrousov and Vafin, 2014:59 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); P. Rosa and Pagliano, 2015:105 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:15 (Germany: Berlin-Lichterfelde); Mokrousov and Popov, 2016:590 (Russia: Adygea and Krasnodarskiy Krai); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Di Giovanni, Mei, and Cerretti, 2017:73 (Italy: Lombardia: Riserva Naturale Bosco della Fontana 5 km from Mantova at 45°12'N 10°44'E, found in canopy and understory); Flügel, 2017:6 (Germany: Rheinland-Pfalz: Doline near Rockensüß); Magdalou, 2017:16 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia); Shorenko, 2017:79 (in Crimea collected in June through August).

Psen nylanderi Dahlbom, 1845:428, ♀ (as *Nylanderi*, incorrect original capitalization). Holotype or syntypes: ♀, Finland: no specific locality (Lund). Synonymized with *Psenulus fuscipennis* by Harttig, 1931c:203 and 204, synonymy confirmed by de Beaumont, 1937:88. – Kirchner, 1867:217 (in catalog of European Hymenoptera); Tournier, 1889:110 (in key to *Psen* of Switzerland), 130 (redescription; Switzerland: Peney near Genève); Dalla Torre, 1897:349 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera); W. Schulz, 1911b:139 (study of Tournier's specimens); Berland, 1925d:132 (is an unrecognizable species).

Psen dufouri Dahlbom, 1845:429, ♀ (as *Dufouri*, incorrect original capitalization). Holotype or syntypes: ♀, France: no specific locality (Lund). Synonymized with *Psenulus fuscipennis* by Harttig, 1931c:203, synonymy confirmed by de Beaumont, 1937:88. – Kirchner, 1867:217 (in catalog of European Hymenoptera); Dours, 1874:151 (in catalog of Hymenoptera of France); Kohl, 1880:142 (Austria: Tirol); Tournier, 1889:111 (in key to *Psen* of Switzerland), 132 (redescription of ♀, description of ♂); Dalla Torre, 1897:347 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Berland, 1925d:132 (is an unrecognizable species); Casolari and Casolari Moreno, 1980:122 (specimens in M. Spinola collection); Pagliano, 2014:95 (specimens in Spinola collection, Torino, are *Psenulus fuscipennis*).

Psen nigratus Dahlbom: Tischbein, 1852:140 (Germany: Rheinland-Pfalz: Herrstein). Nomen nudum.

Psen nigratus Brischke, 1862:97, ♀, ♂ (authorship attributed to Dahlbom; as *nigratum*, incorrect original termination). Syntypes: Germany: Preussen Province, now Poland: Pomorze Region: no specific locality (depository?). – Synonymized with *Psen fuscipennis* by Brischke, 1864:208.

Psen procerus A. Costa, 1867c:103 and 1871b:32, ♀. Syntypes: ♀, Italy: Toscana: no specific locality (Napoli). Synonymized with ... – Tournier, 1889:111 (not occurring in Switzerland); Dalla Torre, 1897:350 (in catalog of world Hymenoptera). – **As *Mimesa procera***: Ed. André, 1888:173 (new combination, in revision of Sphecidae of Europe and Algeria), 13* (bibliographic references).

ssp. japonicus Tsuneki

Psenulus fuscipennis japonicus Tsuneki, 1959g:38, ♀, ♂. Syntypes: Korea: Keijo and Shoyozan; Japan: Hokkaido: Jozankei, Sapporo, and Nopporo; Aomori Prefecture: Towada; Fukui and Ishikawa Prefectures (originally K. Tsuneki coll., now?). – Tsuneki, 1959g:27, 29 (in key to *Psenulus* of Japan and Korea), 1963f:51, 52 (in key to Japanese *Psenu-*

lus); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Itami, 1968a:15 (Japan: Yamagata Prefecture: foot of Mount Iide); T. Iida, 1969b:281 (description of mature larva); Itami, 1969:48 (Japan: Niigata Prefecture); Tsuneki, 1970b:10 (central Japan); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Nambu, 1973a:151 (Japan: Saitama Prefecture, as *Psen shuckardi japonicus*), 1975b:67 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki, 1982b:15 (known from Korea); Paik, 1985:198 (in list of Sphecidae of Korea); Togashi, 2001:19 (Japan: Ishikawa Prefecture: Shiramine); Suda, 2004:39 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:44 (Japan: Gifu Prefecture), 2006:19 (Japan: Toyama Prefecture); S. Takahashi and Haneda, 2008b:43 (Japan: Hokkaido: Sapporo); J. Kim and Yang, 2010:144 (in checklist of Korean Pemphredoninae); J.-K. Kim, 2014:446 (in catalog of Sphecidae s.l. of Korean Peninsula).

53. *fyansensis* van Lith

Psenulus fyansensis van Lith, 1976b:112, ♂. Holotype: ♂, Vietnam: Fyan (Bishop Mus.). Paratype: Laos. – Pham, Kumar and Danilov, 2015:1595 (in list of Sphecidae s.l. of Vietnam).

54. *garambae* Leclercq

Psenulus garambae Leclercq, 1961b:57, ♀. Holotype: ♀, Zaire: Garamba National Park near Bagbele (MRAC). – van Lith, 1974a:62 (supplementary description), 97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

55. *genalis* van Lith

Psenulus genalis van Lith, 1978b:4, ♀. Holotype: ♀, Sri Lanka: Mannar District: 0.5 mi NE Kokmotte Bungalow in Wilpattu National Park (USNM).

56. *ghesquierei* Leclercq

Psenulus ghesquierei Leclercq, 1961a:34, ♀. Holotype: ♀, Zaire: Equateur: Eala (MRAC). – Leclercq, 1961a:19 (in key to Afrotropical *Psenulus*); van Lith, 1974a:87 (redescription of ♀; Uganda), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

57. *ghilarovi* Budrys

Psenulus ghilarovi Budrys, 1988:101, ♀. Holotype: ♀, Russia: Primorskiy Krai: Chuguevskiy Rayon: Novomikhailovki (ZIL). – Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:394, 396 (in key to Sphecidae of Russian Far East); Nemkov, 2008b:18 (in catalog of Crabronidae of Asiatic Russia), 2009a:64 (is an endemic of Russian Far East), 2009b:60 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2012c:436 (in catalog of Crabronidae of Russian Far East); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

58. *godavariensis* van Lith

Psenulus godavariensis van Lith, 1973b:137, ♂. Holotype: ♂, Nepal: Kathmandu: Godavari (CNC). – R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Sarazin, 1986:308 (holotype in CNC).

59. *hemicyclius* van Lith

Psenulus hemicyclius van Lith, 1962:28, ♀, ♂. Holotype: ♀, Philippines: Palawan: Tagburos near Puerto Princesa (AED). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae). – *As Diodontus hemicyclius*: Baltazar, 1966:339 (new combination, in catalog of Hymenoptera of Philippines).

60. *hidalgo* Guichard

Psenulus hidalgo Guichard, 1990a:277, ♂. Holotype: ♂, Spain: Teruel (BMNH). – Dollfuss and Bitsch in Bitsch et al., 2001:50 (in Sphecid Fauna of Western Europe).

61. *hoozanius* van Lith

Psenulus hoozanius van Lith, 1972:193, ♂. Holotype: ♂, Taiwan: Hoozan (ZMHU). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

62. *impressus* van Lith

Psenulus impressus van Lith, 1976b:107, ♂. Holotype: ♂, Philippines: Mount Montalban: Rizal: Wa-wa Dam (Bishop Mus.).

63. *improvisus* van Lith

Psenulus improvisus van Lith, 1978a:91, ♀. Holotype: ♀, Brazil: Santa Catarina: Nova Teutonia (UCD). – Amarante, 2002:56 (in catalog of Neotropical Crabronidae).

64. *interstitialis* Cameron

Psenulus ? [sic] *interstitialis* Cameron, 1906d:222, ♀. Holotype or syntypes: ♀, Indonesia: Western Papua (New Guinea): Etna Bay (ZMAN). – R. Turner, 1908:463 (New Guinea: Etna Bay); van Lith, 1962:84 (Western Papua, redescription), 115 (in checklist of Indoaustralian Psenini, as *interstitialis interstitialis*), 1972:182 (Papua New Guinea; redescription, description of ♂; as *interstitialis interstitialis*), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *interstitialis interstitialis*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:108 (Papua New Guinea: Morobe Province; as *interstitialis interstitialis*); Cardale, 1985:230 (in catalog of Australian Sphecidae); Naumann, 1993:182 (Australia: Queensland: Heathlands area in Cape York; summary of geographic distribution and nesting biology); de Melo, 1997:4 (abdominal silk glands in adult females); Mattheews, 2000a:25 (nesting habits). – **As *Neofoxia interstitialis***: R. Turner, 1916a:128 (new combination, in key to Australian *Neofoxia*).

***ssp. davanus* (Rohwer)**

Diodontus davanus Rohwer, 1923b:599, ♂. Holotype: ♂, Philippines: Mindanao: Davao (USNM). – **As *Psenulus luzonensis davanus***: van Lith, 1962:87 (new combination, new status, description of ♀), 115 (in checklist of Indoaustralian Psenini), 1972:190 (Philippines: Balabac), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*). – **As *Diodontus interstitialis davanus***: Baltazar, 1966:339 (new subspecific combination, in catalog of Hymenoptera of Philippines). – **As *Psenulus interstitialis davanus***: R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

***ssp. lutescens* (Turner)**

Psen lutescens R. Turner, 1907:273, ♀. Syntypes: ♀, Australia: Mackay and Cairns (BMNH). – R. Turner, 1908:463 (as new synonym of *Psenulus interstitialis*); R. Bohart and Menke, 1976:173 (as synonym of *Psenulus interstitialis*). – **As *Psenulus interstitialis lutescens***: van Lith, 1972:184 (new combination, new status), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*).

***ssp. luzonensis* (Rohwer)**

Diodontus luzonensis Rohwer, 1921a:313, ♀. Holotype: ♀, Philippines: Luzon: Los Baños (USNM). – **As *Psenulus luzonensis***: van Lith, 1962:86 (new combination, redescription, description of ♂), 115 (in checklist of Indoaustralian Psenini), 1972:189 (Philippines; discussion; as *luzonensis luzonensis*), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *luzonensis luzonensis*). – **As *Psenulus interstitialis luzonensis***: van Lith, 1970:100 (new status, Philippines: Tawi Tawi: Tarawakan); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females). – **As *Diodontus interstitialis luzonensis***: Baltazar, 1966:339 (in catalog of Hymenoptera of Philippines).

***ssp. pseudolineatus* van Lith**

Psenulus luzonensis pseudolineatus van Lith, 1962:88, ♂. Holotype: ♂, Philippines: Palawan: Puerto Princesa (AEI). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1970:101 (Philippines: Balabac: Dalawan Bay), 1972:190 (Pala-

wan), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Dollfuss, 2004a:112 (Laos: Khammouan Province: Bau Khoun Ngeun at 18°07'N 104°29'E and Nakai at 17°43'N 105°09'E. – **As *Psenulus interstitialis pseudolineatus***: R. Bohart and Menke, 1976:173 (new subspecific combination, in checklist of world Sphecidae).

ssp. *salomonensis* van Lith

Psenulus interstitialis salomonensis van Lith, 1972:185, ♀, ♂. Holotype: ♀, Solomon Islands: Guadalcanal: Renaru River (Bishop Mus.). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae, misspelled as *solomonensis*).

65. *jacoti* van Lith

Psenulus jacoti van Lith, 1974a:77, ♀. Holotype: South Africa: Eastern Cape Province: Hilton Farm 18 km WNW Grahamstown at 33°16'S 26°21'E (AMG). – van Lith, 1974a:97 (member of *luctuosos* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

66. *kashmirensis* Nurse

Psen kashmirensis Nurse, 1903a:520, ♀, ♂. Lectotype: ♀, India: Kashmir: no specific locality (BMNH), designated by Budrys, 2000:65. – Ramakrishna Aiyar, 1916:555 (in catalog of Indian aculeates described after Bingham, 1897); van Lith, 1959:61 (member of subgenus *Mimumesa*), 1965:65 (closely related to *Mimumesa unicolor*, bibliographic references), 1968:133 (in list of *Mimumesa*). – **As *Mimumesa kashmirensis***: R. Bohart and Menke, 1976:164 (new combination, in checklist of world Sphecidae). – **As *Psenulus kashmirensis***: Budrys, 2000:65 (new combination; paralectotypes = *Mimumesa littoralis*).

? *Psen montanus* Cameron, 1907d:89, ♀, junior primary homonym of *Psen montanus* A. Costa, 1861. Holotype or syntypes: ♀, India: Himachal Pradesh: Simla (BMNH). Tentatively synonymized with *Psenulus kashmirensis* by Budrys, 2000:65. – Ramakrishna Aiyar, 1916:556 (in catalog of Indian aculeates described after Bingham, 1897); van Lith, 1959:62 and 1962:111 (probably belongs to *Psenulus*), 1973b:133 (comparison with *Psenulus orinus*). – **As *Psenulus montanus***: van Lith, 1972:197 (tentative new combination, in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); S. Gupta, 1997:102 (India: Uttar Pradesh: Nanda Devi Biosphere Reserve).

67. *kohli* Arnold

Psenulus kohli Arnold, 1923c:50, ♀ (as *Kohli*, incorrect original capitalization). Holotype: ♀, Zimbabwe: Bulawayo (SAM). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1961a:18 (in key to Afrotropical *Psenulus*), 30 (bibliographic reference); van Lith, 1974a:74 (supplementary description), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

68. *laevigatus* (Schenck)

Psen laevigatus Schenck, 1857:215, ♀. Holotype: ♀, Germany: Hessen: Weilburg (depository?). – Schenck, 1861:143 (as new synonym of *Psen atratus*); Kirchner, 1867:217 (in catalog of European Hymenoptera); Kohl, 1880:141 (Austria: Tirol: Wilten); von Heyden, 1884:121 (Germany: Frankfurt am Main area); Tournier, 1889:109 (in key to *Psen* of Switzerland), 115 (Switzerland: Beau Lac near Vaud, Nyon); Kohl, 1893a:39 (Austria: Niederösterreich: Bisamberg and Piesting); Krieger, 1894:17 (Germany: Kingdom of Saxony); Dalla Torre, 1897:348 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Berland, 1925d:131 (in Sphecid Fauna of France). – **As *Psen atratus* var. *laevigatus***: Schenck, 1861:143 (new status, as new synonym of *Psen atratus*). – **As *Diodontus laevigatus***: Wolf, 1959b:25 (new combination, Germany: Nassau); Babiy, 1964:115 (Austria: Land Salzburg). – **As *Psenulus laevigatus***: Schulz, 1911:136 (new combination, synonymy), 140 (in key to European *Psenulus*); Blüthgen, 1925:166 (Germany: Saale River valley: Naumburg), 1929:83 (Germany: Saale River valley: Naumburg); Schmiedeknecht, 1930:709 (in keys to Hymenoptera of North and Central Europe); Harttig, 1931c:208 and 209 (in key to German *Psenulus*), 210 (diagnostic character); Crèvecoeur and Maréchal, 1932:71 (in catalog of Belgian Hymenoptera); Balles, 1934:22 (Germany: Baden-Württemberg: Sasbachwalden); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera);

Maredsous); de Beaumont, 1937:83 (in revision of Palearctic *Psenini*); Zavadil, Šustera, and Bat'a, 1937:218 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:124 (northwestern Germany); Móczár, 1939:5 (Hungary: Jászberény); Paul, 1941:50 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Bat'a, 1942:86 (Czech Republic); Zavadil, 1946:9 (Czech Republic: Ostrava area); de Hennin and Anciaux, 1948:76 (Belgium: between Sambre and Meuse rivers); Zavadil in Zavadil and Šnoflak, 1948:146 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:32 (France: Département du Nord); Bat'a, 1952:167 (Czech Republic); Aerts, 1955:65 (Germany: Rheinland); Bajári, 1957a:78, 79 (in key to Hungarian Sphecidae); Zirngiebl, 1957:185 (Germany: Rheinland-Pfalz: Pfalz region); Noskiewicz and Puławski, 1960:57, 58 (in key to Polish Sphecidae); de Beaumont, 1964c:95 (in Sphecid Fauna of Switzerland); Benno, 1967:38 (in checklist of Sphecidae of Netherlands); Gauss, 1967:555 (Germany: Baden-Württemberg); Merisuo, 1967b:152 (illustration of male genitalia), 153 (illustration and description of pygidial plate); Niedl and Deneš, 1967:80 (Czech Republic: Třeboň area); Schmidt, 1969:164 (Germany: Rhein-Main area: Darmstadt, Frankfurt, Lorch); Oehlke, 1970:733 (Democratic Germany); Dathe, 1971:234, 238 (Germany: Berlin Zoological Garden; phenology); Lefebvre, 1971b:222 (Netherlands: Iitteren); Balthasar, 1972:255 (in Sphecid Fauna of Czechoslovakia); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Leclercq, 1974b:197 (Belgium, France, and Austria: locality records); Lefebvre, 1974:77 (Netherlands: Bunde); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Cretin and Robert, 1976:45 (France: Doubs: Chassagne-Saint Denis); Lefebvre, 1976:152 (Netherlands: Hulshorst); Eck, 1976:92 (Democratic Germany); Schmidt, 1977/78:56 (Germany: Rheinland-Pfalz: Gonsenheimer Wald); Pulawski, 1978:238, 239 (in key to Sphecidae of European part of former USSR); Schwammberger, 1978:418 (Germany: Württemberg); Benedek, 1979:232 (Hungary: Bakony Hills); Dollfuss and Ressler, 1981:321 (Austria: Niederösterreich: Scheibbs District); Skibińska, 1981:357 (Poland: Warszawa-Białoleka), 1982:118, 122 (Poland: Mazovian Voivodship: eight localities); Dollfuss, 1983b:5 (in catalog of Sphecidae of Austria); Jacob-Remacle, 1984:259 (Belgium: urban center of Liège); Schmidt, 1984:2431 (Germany: Baden-Württemberg); Józán, 1985b:55 (Hungary S Lake Balaton), 68 (map of distribution in Hungary), 83 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Skibińska, 1986b:150, 153 (Poland: suburbs of Warszawa), 157 (rural and suburban parks), 160 (gardens), 162 (urban parks), 164 (streetside green), 168 (green areas of housing estates), 173 (various green urban habitats); Schmidt and Westrich, 1987:367 (Germany: Mainz area); Dollfuss, 1988:9 (Austria: Bisamberg near Vienna); Pádr in Šedivy, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:204 (Poland: Warszawa area), 1989b:291 (Poland: moist meadow in Warszawa area); Jacobs and Oehlke, 1990:142 (Democratic Germany: new locality records); Pádr, 1990:77 (Czech Republic: Praha area); Pagliano, 1990:112 (in catalog of Italian Sphecidae: first record from Italy); Schwammberger and Priesner, 1990:534 (Austria: Kärnten); Dollfuss, 1991:48 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:74 (Germany: Köln); Józán, 1991:602 (Hungary: Bátorliget Nature Reserve); Kowalczyk, 1991a:89, 93 (Poland: Łódź); van der Smissen, 1991:97 (northwestern Germany); Budrys, 1992:25 (in list of Sphecidae of Lithuania); Cölln and Jakubzik, 1992:87 (nest parasite: ichneumonid *Perithous divinator* Rossi); Józán, 1992b:172 (Hungary: Boronka-melléki Protected Area); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Kuhlmann, 1993:76 (Germany: known from Westfalen); Luig, 1993:42 (Estonia); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); van der Smissen, 1993:130 (northwestern Germany); Felton and Schneider, 1994:290 (Luxemburg); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Kowalczyk, 1994:73 (Poland: Łagiewniki forest in Łódź); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:395 (in key to Sphecidae of Russian Far East); Negrisola in Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Papp and Józán, 1995:146 (Hungary: Sikfökút oak forest); Riemann, 1995:52 and 57 (Germany: Bremen); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:206 (summary of records from Germany: Rheinland-Pfalz Province); Skibińska, 1995:423, 425, 426 (Poland: pine forest in Białowieża Primeval Forest); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Jakubzik, 1996:253 (Germany: Köln); Jakubzik and Cölln, 1996a:323 (Germany: nesting in stems of *Rubus*), 336 (in keys to cocoons), 1996b:400 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered);

Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg), 110 (locality records); Woydak, 1996:18 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:57 (in checklist of Animals of Poland); de Melo, 1997:4 (abdominal silk glands in adult females); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:512 (Austria: summary of collecting records from Burgenland); Jakubzik, Schlüter, and Cölln, 1998:1182, 1184 (Germany: Rheinland-Pfalz); Józán, 1998:311 (Hungary: Duna-Dráva National Park); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); N. Schneider and Wahis, 1998:23 (Luxemburg: sandstone quarries); van der Smissen, 1998:67 (Germany: Schleswig-Holstein); Kuhlmann, Wolf, and Woydak, 1999:568 (Germany: endangered in Nordrhein-Westfalen because of low population level); Ljubomirov, 1999b:46 (Bulgaria: Mount Vitoshka near Sofia); Luig and Voolma, 1999:176 (Estonia); Pauly, 1999:108 (in catalog of Belgian aculeates); Salzmann-Wandeler and Rezbanyai-Reser, 1999:101 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:85 (Austria: Oberösterreich: city of Linz area); Theunert, 1999:138 (Germany: Niedersachsen); Blösch, 2000:160 (in Sphecidae Fauna of Germany); Jacobs, 2000:9 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:105 (Hungary: Bakony Mountains); Schmid-Egger, 2000b:276 (Germany: Baden-Württemberg: shores of Rhine River); Zettel, 2000:25 (Austria: Wien); Dollfuss and Bitsch *in* Bitsch et al., 2001:50 (in Sphecidae Fauna of Western Europe); Józán, 2001:278 (Hungary: Somogy County); Ohl et al., 2001:141 (distribution in Germany by provinces); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:187 (Poland: Kampinos National Park near Warszawa); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: extremely rare); Zettel, Gross, and Mazzucco, 2001:68 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Esser and Cölln, 2002:1137 (SW Germany: Eifel region); Gayubo, González, Tormos, and Asís, 2002:88 (Andorra: Santa Coloma); Kowalczyk, Szczepko, and Świątek, 2002:152 (Poland: Kampinos National Park near Warszawa); Litt, 2002:166 (Belgium); Shlyakhtenok and Skibinska, 2002:32 (Belarus: no specific locality); Wiśniowski, 2002:68 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:63 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Haeseler, 2003:340 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003: 226 (Hungary: Látrányi Pusztas Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:69 (Germany: in catalog of wasps and bees of Bayern); Schneider and Feitz, 2003:96 (gynandromorph: male head and thorax, female gaster); von der Heide and Metscher, 2003:103 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:136 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:76 (Poland: Pieniny National Park); Dollfuss, 2004a:112 (Bulgaria, Czech Republic, Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:263 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:30 (Japan: Gifu Prefecture); Jakubzik and Cölln, 2004:274, 275 (in key to nests of Hymenoptera nesting in stems of *Rubus*); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Suda, 2004:39 (Japan: Yamanashi Prefecture); Szczepko and Kowalczyk, 2004:125 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:40 and 58 (in checklist of Polish Sphecidae); Burger, 2005:35 (Germany: Thüringen); Haneda, Inoue, Nozaka, Tano, Kurokawa, and H. and T. Murota, 2005:64 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:44 (Japan: Gifu Prefecture); Kofler, 2005:167 (Austria: Tirol: Lienz District: Ort in Lavant Common, Lienzer Klause in Leisach Common, city of Lienz, Huben Kienburg in Matrei Common; Nörsach in Nikolsdorf Common); Kowalczyk and Kurzac, 2005:106 (Poland: Botanical Garden in Łódź); Nemkov, 2005a:144 (Russia: Island of Sakhalin); Pagliano and Negrisola, 2005:444 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:564 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:18 (Germany: Berlin); Shoreenko, 2005a:166 (Ukraine: Crimea); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Yildirim and Ljubomirov, 2005:1801 (first record from Turkey: Erzurum: Aşkale); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:210 (Spain: Cantabria: Matienzo de Ruesga; Vizcaya: Ibarranguelua); Haneda, Nozaka, Tano, Kurokawa and Murota, 2006a:19 (Japan: Toyama Prefecture); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); N. Schneider, 2006:134, 142 (Luxemburg: anthropogenic habitats); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Bitsch,

- Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:454 (recorded from Spain by Gayubo et al., 2002, 2006); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:169 (Czech Republic: Vyšenské Kopce National Nature Reserve); Jacobs, 2007:56, 59 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:26 (Germany: northwestern Sachsen); Józán, 2007:173, 179 (Hungary: Zselic hills); Nemkov, 2007b:68 (Russia: Kuril Islands: Island of Kunashir); Sawoniewicz and Wiśniowski, 2007:31 (nest parasite: *Hoplocryptus quadriguttatus* (Gravenhorst), Ichneumonidae); Vago, 2007:174 (France: département du Nord); Venne, Bleidorn, and Lauterbach, 2007:303 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:200 (in catalog of Sphecidae of Czech Republic and Slovakia); Ljubomirov and Yildirim, 2008:171 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:18 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008b:43 (Japan: Hokkaido: Sapporo); S. Tanaka, 2008:38 (Japan: Yamaguchi Prefecture); Theunert, 2008:77 (Germany: map of distribution in Niedersachsen and Bremen); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen); Nemkov, 2009b:60 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Shorenko, 2009:368 (in list of Sphecidae s.l. of Crimea); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); J. Kim and Yang, 2010:144 (in checklist of Korean Pemphredoninae); Mokrousov, 2010a:63 (Russia: Nizhniy Novgorod Oblast': no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast': no specific localities), 2010c:108 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy" and National Park "Chavash varmane"); Okhusa and Tajima, 2010:12 (Japan: Honshu Island: Shiga Prefecture); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:139 (Germany: Bayern: collected along Main-Donau canal); van der Smissen, 2010a:351 (Germany: Schleswig-Holstein: locality records); Gogala, 2011:10 (Slovenia: Podčetrtek); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Mokrousov, Berezin, and Egorov, 2011:81 (Russia: Chuvash Republic); Saure, 2011a:7 (Germany: Berlin: former airport Tempelhof); Shlyakhtenok, 2011:95 (Belarus': city of Minsk); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:166 (Germany: Hessen: not endangered); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Nemkov, 2012c:436 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012a:172 (Belarus': collected in private plots); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Terayama and Gōukon, 2012:12, 13, 21 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Shlyakhtenok, 2013:143 (in annotated catalog of aculeate wasps of Belarus'); Wiśniowski and Szczepko, 2013:48 (Poland: Kampinos National Park near Warszawa); U. Frommer, 2014:28 (Germany: Hessen: Lorch); J.-K. Kim, 2014:446 (in catalog of Sphecidae s.l. of Korean Peninsula); Okhusa, 2014a:32 (Japan: city of Toyota: Sizen-Kansatsu-no-Mori); Yildirim, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Mokrousov and Popov, 2016:590 (Russia: Krasnodarskiy Krai); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:29 (Turkey: Erzurum: Oltu: Başaklı Mountain); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia); Shorenko, 2017:79 (in Crimea collected in June).
- Psen distinctus* Chevrier, 1870:269, ♀. Syntypes: ♀, Switzerland: Vaud: Nyon (MHNG). Synonymized with *Psenulus laevigatus* by W. Schulz, 1911b:136, and Harttig, 1931c:204, synonymy confirmed by de Beaumont, 1937:83. – Girard, 1879:961 (description of this species recorded); Kohl, 1883e:661 (Switzerland, synonymy with *Psen laevigatus* supposed); Ed. André, 1888:185 (in revision of Sphecidae of Europe and Algeria), 14* (bibliographic references).
- Psenulus fuscipes* Tsuneki, 1959g:33, ♀, ♂. Holotype: ♀, Japan: Fukui Prefecture: Sakatani (originally K. Tsuneki coll., now Hyogo Mus.) Synonymized with *Psenulus laevigatus* by Budrys in Nemkov, Kazenas, Budrys, and Antropov, 1995:393. – Tsuneki, 1959g:27, 29 (in key to *Psenulus* of Japan and Korea), 1963f:51, 52 (in key to Japanese *Psenulus*); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1966a:24 (Japan), 1969e:26 (Japan: specimens in Osaka Museum of Natural History); Haneda, 1970:12 (Japan: Akita Prefecture); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Tsuneki, 1973l:70 (nesting habits), 1974a:367 (Korea); Nambu, 1975b:67 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Kazenas, 1980e:88 (Russia: Primorskiy Krai); Tsuneki, 1982b:15 (known from Korea); Paik, 1985:198 (in list of Sphecidae of

Korea); Tsuneki, 1991:200 (Korea); Tano, 1994a:4 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.)

69. *laevis* Gussakovskij

Psenulus laevis Gussakovskij, 1930b:74, ♀, ♂. Syntypes: Uzbekistan: Osh area in Fergana valley (ZIN). – de Beaumont, 1937:91 (citation); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Kazenas, 1978b:153 (in key to Sphecidae of Kazakhstan and Central Asia); Islamov, 1985:530 (Uzbekistan: Tashkent Oblast'); Esenbekova, 1995:47 (nest and prey), 1997:143 (preying on aphids in southeastern Kazakhstan), 1999:201 (southeastern Kazakhstan: nesting in artificial nests); Esenbekova and Kazenas, 2000:16 (southeastern Kazakhstan: 3 km S and 2 km SW Alma Ata, near lake Biylikul', Zhabagly); Kazenas, 2000e:63 (in Sphecid Fauna of Kazakhstan), 2001:20 (in checklist of Sphecidae of Kazakhstan and Central Asia), 121 (nesting habits); Kazenas and Esenbekova, 2001:133 (Kazakhstan: Almatinskiy Nature Reserve); Esenbekova and Kazenas, 2003:6, 10, and 54 (Kazakhstan: foothills of Zailiyskiy Alatau: nesting in artificial nests), 60 (nest structure in artificial nest); Dollfuss, 2004a:112 (Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan); Kazenas, 2004b:100 (Kazakhstan: western Tien Shan), 2013a:41, 42 (color photograph of adults, short information on geographic distribution and nesting habits), 2014a:133 (Kazakhstan: Karatau Mountain Range).

70. *lamprus* van Lith

Psenulus lamprus van Lith, 1972:190, ♀. Holotype: ♀, Indonesia: Sulawesi: Bonthain: Wawa Karaeng (ZMHU). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

71. *laosensis* van Lith

Psenulus laosensis van Lith, 1976b:93, ♂. Holotype: ♂, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.).

72. *latiannulatus* (Cameron)

Psen latiannulatus Cameron, 1908a:281, ♀, actually ♂ (van Lith, 1974a:94). Holotype or syntypes: ♀, Tanzania: Mount Kilimanjaro: Kibonoto (NRS). – **As *Psenulus latiannulatus***: R. Turner, 1912c:413 (new combination, Nigeria); Arnold, 1923c:50 (original description copied), 1930:9 (in checklist of Afrotropical Sphecidae); van Lith, 1974a:93 (valid species), 94 (redescription, as *latiannulatus latiannulatus*), 97 (member of *capensis* species group), 99 (in list of Afrotropical *Psenulus*, as *latiannulatus latiannulatus*); de Melo, 1997:4 (abdominal silk glands in adult females); Dollfuss, 2004a:113 (Central African Republic: Kembe at 4.29°N 21.53°E). – **As *Psenulus capensis latiannulatus***: Leclercq, 1961a:18 (in key to Afrotropical *Psenulus*), 32 (new status, Zaire, Nigeria), 1961b:57 (Zaire: Garamba National Park); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains);.

ssp. basilewskyi Leclercq

Psenulus basilewskyi Leclercq, 1955i:420, ♂. Holotype: ♂, Rwanda: Biumba (MRAC). – **As *Psenulus capensis basilewskyi***: Leclercq, 1961a:32 (new status, Zaire: Upemba National Park); R. Bohart and Menke, 1976:172 (in checklist of Afrotropical Sphecidae). – **As *Psenulus latiannulatus basilewskyi***: van Lith, 1974a:96 (new subspecific combination, redescription), 99 (in list of Afrotropical *Psenulus*).

73. *leoninus* van Lith

Psenulus leoninus van Lith, 1974a:72, ♀. Holotype: ♀, Sierra Leone: Freetown (AEI). – van Lith, 1974a:99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

74. *leucognathus* van Lith

Psenulus leucognathus van Lith, 1976b:117, ♂. Holotype: ♂, India: Kerala: Walayar Forest (USNM).

75. *limbatus* van Lith

Psenulus limbatus van Lith, 1976b:107, ♀. Holotype: ♀, Laos: Vientiane Province: Gi Sion Vill.: de Tha Ngone (Bishop Mus.).

76. *lubricus* Pérez

Psen lubricus Pérez, 1905a:150, ♀. Holotype: ♀, Japan: Tokyo area (MNHN). – Pérez, 1905a:25 (in list of species collected). – **As *Psenulus lubricus***: Gussakovskij, 1934b:83 (new combination, redescription); Yasumatsu, 1934a:23 (nesting habits, mature larva); de Beaumont, 1937:84 (in revision of Palearctic *Psenini*); Iwata, 1938b:25 (nesting habits); Tsuneki, 1959g:27, 29 (in key to *Psenulus* of Japan and Korea), 31 (in revision of *Psenulus* of Japan and Korea; description of ♂), 1962e:70 (*Psenulus lubricus* in Iconographia Insectorum Japonicorum, Ed. II is actually *Psenulus pallipes yamatonis*), 1963f:51, 52 (in key to Japanese *Psenulus*); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture; as *rubricus*); Haneda, 1968a:44 (Japan); Okuno, 1968:31 (Japan, as *rubricus*); Tano, 1968:32 (Japan); T. Iida, 1969b:282 (description of mature larva); Itami, 1969:48 (Japan: Niigata Prefecture); Tsuneki, 1969e:26 (Japan: specimens in Osaka Museum of Natural History; as *rubricus*); Tano, 1971:81 (Japan: Shikoku: Mount Tsurugi); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Suda, 1973:122 (Japan: Yamanashi Prefecture); Tsuneki, 1973l:72 (nesting habits; as *rubricus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki, 1979d:10 (Japan; as *rubricus*); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:394, 395 (in key to Sphecidae of Russian Far East); de Melo, 1997:4 (abdominal silk glands in adult females); Ohl and Linde, 2003:149 (number of ovarioles); Dollfuss, 2004a:113 (China: Yunnan: Dali, Baishui at 27°08'N 100°14'E in Yulongshan Mountains); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:31 (Japan: Gifu Prefecture); Suda, 2004:39 (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, 2005:44 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); Nemkov, 2005a:144 (Russia: Island of Sakhalin); Haneda, Nozaka, Tano, Kurokawa and Murota, 2006a:19 (Japan: Toyama Prefecture); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Nemkov, 2007b:68 (Russia: Kuril Islands: Island of Kunashir), 2008b:18 (in catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008b:43 (Japan: Hokkaido: Sapporo); S. Tanaka, 2008:38 (Japan: Yamaguchi Prefecture); Nemkov, 2009b:60 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2012c:436 (in catalog of Crabronidae of Russian Far East); Terayama and Gōkun, 2012:12, 21 (in key to *Psenini* of Japan, in Japanese), 30 (in list of Japanese *Psenini*); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

77. *luctuosus* Arnold

Psenulus luctuosus Arnold, 1929c:405, ♀. Holotype: ♀, Zimbabwe: Umtali in Vumbu Mountains (SAM). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1961a:23 (in key to Afrotropical *Psenulus*), 30 (bibliographic reference); van Lith, 1974a:75 (supplementary description), 97 (member of *luctuosos* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

78. *lusingae* Leclercq

Psenulus lusingae Leclercq, 1961a:33, ♀. Holotype: ♀, Zaire: Upemba National Park: Lusinga (MRAC). – Leclercq, 1961a:20 (in key to Afrotropical *Psenulus*); van Lith, 1974a:97 (member of *luctuosos* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

79. *luteopictus* (Rohwer)

Diodontus luteopictus Rohwer, 1921a:319, ♀. Holotype: ♀, Philippines: Luzon: Mount Makiling (USNM). – Baltazar, 1966:340 (in catalog of Hymenoptera of Philippines, as *luteopictus luteopictus*). – **As *Psenulus luteopictus***: van Lith, 1962:71 (new combination, as *luteopictus luteopictus*), 114 (in checklist of Indoaustralian *Psenini*, as *luteopictus luteopictus*), 1972:172 (description of ♂; as *luteopictus luteopictus*), 199 (in list of Palearctic, Indo-Australian, and West-

ern Pacific *Psenulus*, as *luteopictus luteopictus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

ssp. calapanensis van Lith

Psenulus luteopictus calapanensis van Lith, 1962:73, ♀. Holotype: ♀, Philippines: Mindoro: Calapan (AEI). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae). – As *Diodontus luteopictus calapanensis*: Baltazar, 1966:340 (new combination, in catalog of Hymenoptera of Philippines).

80. maai van Lith

Psenulus maai van Lith, 1967:18, ♂. Holotype: ♂, Malaysia: Sarawak: Kapit District: Merirai (T.T. Maa coll., now?). – van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

81. macrodentatus van Lith

Psenulus macrodentatus van Lith, 1962:41, ♀. Holotype: ♀, Indonesia: Sumatra: Fort de Kock, now Bukittinggi (ZMA). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Dollfuss, 2004a:113 (Laos: Ban Itou area).

82. maculatus van Lith

Psenulus maculatus van Lith, 1962:61, ♀ (as *maculatus maculatus*). Holotype: ♀, Malaysia: Penang: 25 mi Sungai Pinang Hills (H.T. Pagden coll., now?). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini, as *maculatus maculatus*), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *maculatus maculatus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:104 (Singapore; as *maculatus maculatus*).

ssp. javanensis van Lith

Psenulus maculatus javanensis van Lith, 1962:62, ♀, ♂. Holotype: ♀, Indonesia: Java: West Java: Mount Tjisuru: Djampang Tengah (RMNH). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

ssp. keiseri van Lith

Psenulus maculatus keiseri van Lith, 1978b:7, ♀. Holotype: ♀, Sri Lanka: Southern Province: Tanamalwila (MHNB).

83. maculicornis Budrys

Psenulus maculicornis Budrys, 1988:104, ♂. Holotype: ♂, India: Tamil Nadu: Kodaikanal (ZMK).

84. maculipes Tsuneki

Psenulus maculipes Tsuneki, 1959g:34, ♀, ♂. Holotype: ♀, Japan: Fukui Prefecture: Koike (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1959g:28, 29 (in key to *Psenulus* of Japan and Korea), 1963f:52 (in key to Japanese *Psenulus*); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1966a:24 (Japan), 1969e:26 (Japan: specimens in Osaka Museum of Natural History); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Tsuneki, 1973l:67 (nesting habits); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Hoshihara and Imai, 1993:467 (chromosome number $n = 21$); Tano, 1994a:4 (holotype in K. Tsuneki collection); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:394, 395 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Togashi, 2001:19 (Japan: Ishikawa Prefecture: Shiramine); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:31 (Japan: Gifu Prefecture); Suda, 2004:39 (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, 2005:45 (Japan: Gifu Prefecture), 2006:20 (Japan: Toyama Prefecture); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Nemkov,

2007b:69 (Russia: Kuril Islands: Island of Kunashir), 2008b:18 and 2009b:60 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2011:95 (known only from Kuril Islands and Japan), 2012c:436 (in catalog of Crabronidae of Russian Far East); Terayama and Gōukon, 2012:11, 23 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

85. *major* van Lith

Psenulus major van Lith, 1976b:90, ♂. Holotype: ♂, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.).

86. *mauriti* van Lith

Psenulus mauriti van Lith, 1969:210, ♀. Holotype: ♀, Malaysia: Kedah: Kedah Peak (RMNH). – van Lith, 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

87. *maurus* (Rohwer)

Diodontus maurus Rohwer, 1921:316, ♂. Holotype: ♂, Philippines: Luzon: Mount Makiling (USNM). – Baltazar, 1966:340 (in catalog of Hymenoptera of Philippines). – **As *Psenulus maurus***: van Lith, 1962:60 (new combination, in revision of Indo-Australian *Psenulus*), 114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

88. *mayorum* R. Bohart and Grissell

Psenulus mayorum R. Bohart and Grissell, 1969:216, ♀. Holotype: ♀, Mexico: Tabasco: Jalapa (UCD). – Not listed by Bohart and Menke, 1976; van Lith, 1977:47 (Honduras, Venezuela, description of ♂), 1978a:93 (Trinidad, additional description); Hanson and Menke, 1995:638 (known from Costa Rica); de Melo, 1997:4 (adult females lack abdominal silk glands); Amarante, 2002:56 (in catalog of Neotropical Crabronidae); Cambra, 2005:103 (Panamá).

89. *melanonotus* van Lith

Psenulus melanonotus van Lith, 1969:203, ♂. Holotype: ♂, Indonesia: Sumba (ZMHU). – van Lith, 1969:209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:117 (first record from Flores).

90. *meridionalis* de Beaumont

Psenulus pallipes var. *meridionalis* de Beaumont, 1937:88, ♀, ♂. Syntypes: France: Pyrénées-Orientales: Salses (Lauzanne). – **As *Psenulus atratus* var. *meridionalis***: Bajári, 1957a:78, 79 (new subspecific combination, in key to Hungarian Sphecidae). – **As *Psenulus meridionalis***: Morel, Nouvel, and Ribaut, 1956:339 (full species status, France: Département des Pyrénées-Orientales); de Beaumont, 1961c:51 (Greece: Island of Crete), 1961e:5 (Iraq), 1965a:56 (Greece), 1967a:340 (Turkey; diagnostic characters); Benedek, 1969a:84 (Hungary; marshy meadow); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Pulawski, 1978:238, 239 (in key to Sphecidae of European part of former USSR); van Lith, 1979a:150 (members of *pallipes* group, distribution); Mingo and Gayubo, 1984a:103 (in key to *Psenulus* of Spain), 104 (redescription, first record from Spain: Madrid: San Fernando de Henares, Toledo: Alberche); Gayubo and Sanza, 1986:34 (Spain: Segovia); Dollfuss, 1991:49 (in key to Sphecidae of North and Central Europe), 1994:103 (endangered in Austria); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve), 1996:53 (Ukraine: Kanev Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Schnee, 1997:98 (first record from Germany: Sachsen: Nature Reserve Pressler Heidewald- und Moorgebiet); Schmidt and Schmid-Egger, 1997:27 (first record from Germany: Sachsen: Dübner Heide); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); Blösch, 2000:160 (in Sphecid Fauna of Germany); Zettel, 2000:25 (Austria: Apetlon); Dollfuss and Bitsch *in* Bitsch et al., 2001:51 (in Sphecid Fauna of Western Europe); Ohl et al., 2001:141 (distribution in Germany by provinces); Gayubo, González, Tormos, and Asís,

2002:88 (distribution in Iberian Peninsula); Deván, 2004:147 (western Slovakia); Dollfuss, 2004a:113 (Bulgaria, Greece, Iran, Italy, Jordan, Slovakia, Serbia, Syria, Turkey, Ukraine); Majzlan and Deván, 2004:33 (Slovakia: Malacky-Široké); Shkuratov, 2004a:79 (Russia: Rostov Oblast': Ol'ginskaya); Burger, 2005:35 (Germany: Thüringen); Ebrahimi, 2005:132 (in key to selected Iranian Sphecidae); Gayubo and Özbek, 2005:35 (Turkey: Bitlis: Tatvan; Erzurum: Dutçu, Pazaryolu; Kars: Sarýkamyş, Karakurt at 40°07'5"N 42°29'9"E); Herrmann, 2005:6 (Germany: Baden-Württemberg: Wollmatinger Ried Nature Reserve near Konstanz and Öhndwiesen, first record from Switzerland: St Gallen Canton: Bannriet near Altstätten); Jacobs, 2005a:450 (Bulgaria: Dragoman, Smolyan); Yildirim and Ljubomirov, 2005:1801 (Turkey: Erzurum: Ilica, Narman, Şenkaya); Artmann-Graf, 2006:5 (Switzerland: Luzern Canton: Ried Gross Seebach in Wolhusen commune); Standfuss and Standfuss, 2006c:303 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:454 (first recorded from Switzerland and southwestern Germany by Harrmann, 2005, also found in Germany: Bayern); Bürger, 2007:59 (Germany: Thüringen: Auleben); Jacobs, 2007:57, 59 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:26 (Germany: northwestern Sachsen); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:200 (in catalog of Sphecidae of Czech Republic and Slovakia, known from Bohemia and Slovakia only), 213 (first recorded from Slovakia by Deván, 2004, and from Czech Republic by Vepřek, 2006; Bohemia: Černousy, Habrovany); Ljubomirov and Yildirim, 2008:171 (in catalog of Crabronidae of Turkey); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of Hessen), 40 (Hessen: Rockenberg Protected Area); Gayubo, González, Tormos, and Asís, 2009:362 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); Józán, 2009:165 (Croatia: Most-Raša); Straka, Dvořák, and Bogusch, 2009:264 (Czech Republic: Černousy-V Poli); Mokrousov, 2010a:63 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: rare); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:102 (Western Slovakia: recorded from Borská nížina); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Mokrousov, Berezin, and Egorov, 2011:82 (Russia: Chuvash Republic); Murai and Amr, 2011:113, 120 (first record from Syria: Al Thawrah Nature Reserve at 35°51'N 28°38'E); Tischendorf, Frommer, Flügel et al., 2011:167 (Germany: Hessen: not endangered); Reder, 2012c:735 (Germany: first record from Rheinland-Pfalz: Nature Reserve Erdekaut near Eisenberg and Hettenleidelheim); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:79 (Turkey: Adıyaman, Erzincan, and Iğdır provinces); Olszewski, Wiśniowski, Kostro-Ambroziak, Pawlikowski, Piekarska-Boniecka, 2013:40 (first records from Poland: Biebrza National Park, Gorzyczki, Milicz); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Ebrahimi, 2014:45 (Iran: Alborz and Tehrān provinces); Mokrousov and Vafin, 2014:59 (Russia: Republic of Tatarstan); Yildirim, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Mokrousov and Popov, 2016:590 (Russia: Krasnodarskiy Krai); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2016:431 (Iran: Fars Province); Schmid-Egger, 2016:41, 42 (in key to Central European *Psenulus*), 43 (diagnostic characters); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:30 (Turkey: Antalya, Bingöl, Erzincan, Erzurum, and Kars provinces); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:76 (Iran: known from East Azerbaijan and Kerman provinces); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

91. *morawitzi* Budrys

Psenulus morawitzi Budrys, 1988:103, ♀. Holotype: ♀, Kazakhstan: Zaisan (ZIN).

92. *multipictus* (Rohwer)

Diodontus multipictus Rohwer, 1921a:314, ♀. Holotype: ♀, Philippines: Luzon: Mount Banahao (USNM). – Baltazar, 1966:340 (in catalog of Hymenoptera of Philippines). – As *Psenulus multipictus* van Lith, 1962:90 (new combination, original description copied, comments on identity), 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Pa-

learctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

93. *nasicornis* van Lith

Psenulus nasicornis van Lith, 1972:163, ♀. Holotype: ♀, Indonesia: Sulawesi: Mont Tangke Salokko (ZMHU). – van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

94. *neptunus* van Lith

Psenulus neptunus van Lith, 1972:179, ♀. Holotype: ♀, Indonesia: Sulawesi: Ile Ile (ZMHU). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

95. *nietneri* van Lith

Psenulus nietneri van Lith, 1972:167, ♀. Holotype: ♀, Sri Lanka: no specific locality (ZMHU). – van Lith, 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1978b:5 (reference to the original description).

96. *nigeriae* Leclercq

Psenulus nigeriae Leclercq, 1961a:34, ♀. Holotype: ♀, Sierra Leone: Njala (BMNH). – Leclercq, 1961a:20 (in key to Afrotropical *Psenulus*); van Lith, 1974a:85 (redescription of ♀), 97 (member of *bidentatus* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females); Dollfuss, 2004a:113 (Uganda: SW Hioma Rwera).

97. *nigrolateralis* van Lith

Psenulus nigrolateralis van Lith, 1976b:113, ♀. Holotype: ♀, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.).

98. *nigrolineatus* (Cameron)

Mellinus nigrolineatus Cameron, 1907b:22, ♀. Holotype or syntypes: ♀, Malaysia: Island of Borneo: Kuching (BMNH). – **As *Psenulus nigrolineatus***: R. Turner, 1920a:267 (new combination; Sri Lanka: Kandy); van Lith, 1962:63 (original description copied, description of ♀ and ♂ from Borneo), 114 (in checklist of Indoaustralian Psenini, as *nigrolineatus nigrolineatus*), 1970:98 (Philippines: Tawi Tawi: Tarawakan), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*; as *nigrolineatus nigrolineatus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Dollfuss, 2004a:114 (Laos: Khammouan Province: Ban Khoun Ngeun at 18°07'N 104°29'E).

ssp. ajax (Rohwer)

Diodontus ajax Rohwer, 1921a:320, ♀. Holotype: ♀, Philippines: Luzon: Mount Makiling (USNM). – Rohwer, 1923:597 (Singapore). – **As *Psenulus nigrolineatus ajax***: van Lith, 1962:65 (new combination, new status, original description copied, relations to *nigrolineatus nigrolineatus*), 114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*). – **As *Diodontus nigrolineatus ajax***: Baltazar, 1966:340 (in catalog of Hymenoptera of Philippines).

ssp. dubius van Lith

Psenulus nigrolineatus dubius van Lith, 1962:67, ♀. Holotype: ♀, Philippines: Mindanao: Butuan (USNM). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki et al., 1992b:3 (Philippines: Palawan). – **As *Diodontus nigrolineatus dubius***: Baltazar, 1966:340 (new combination, in catalog of Hymenoptera of Philippines).

ssp. *flavicornis* van Lith

Psenulus nigrolineatus flavicornis van Lith, 1962:65, ♀. Holotype: Philippines: Sibuyan: no specific locality (USNM). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae). – **As *Diodontus nigrolineatus flavicornis***: Baltazar, 1966:340 (new combination, in catalog of Hymenoptera of Philippines).

ssp. *sulphureus* van Lith

Psenulus nigrolineatus sulphureus van Lith, 1962:67, ♀. Holotype: ♀, Indonesia: Sumatra: Anai cleft (RMNH). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

99. *nigromaculatus* (Cameron)

Mellinus nigromaculatus Cameron, 1907b:23, ♀. Holotype or syntypes: ♀, Malaysia: Island of Borneo: Kuching (BMNH). – **As *Psenulus nigromaculatus***: R. Turner, 1920a:267 (new combination, as new synonym of *Psenulus nigrolineatus*); van Lith, 1962:89 (original description copied, comments on identity), 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

100. *nikkoensis* Tsuneki

Psenulus nikkoensis Tsuneki, 1959g:39, ♀, ♂. Holotype: ♀, Japan: Tochigi Prefecture: Nikko (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1959g:28, 29 (in key to *Psenulus* of Japan and Korea), 1963f:51, 52 (in key to Japanese *Psenulus*); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1964c:10 (Japan: Kyushu); Itami, 1969:48 (Japan: Niigata Prefecture); Tsuneki, 1969e:26 (Japan: specimens in Osaka Museum of Natural History), 1970b:10 (central Japan); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Tsuneki, 1973l:71 (nesting habits); Nambu, 1975b:67 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tano, 1994a:4 (holotype in K. Tsuneki collection); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:394 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi in City of Obama); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:31 (Japan: Gifu Prefecture); Suda, 2004:39 (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, 2005:45 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); Nambu, 2006:247 (Japan: Tokyo: Imperial Palace garden); Nemkov, 2007b:68 (Russia: Kuril Islands: Island of Kunashir), 2008b:18 (in catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008b:43 (Japan: Hokkaido: Sapporo); Nemkov, 2009b:61 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Okhusa and Tajima, 2010:12 (Japan: Honshu: Shiga Prefecture); N. Yamamoto, 2011:12 (Japan: Kyūshū: mainland Nagasaki Prefecture); Nemkov, 2011:95 (known only from Kuril Islands and Japan), 2012c:436 (in catalog of Crabronidae of Russian Far East); Terayama and Gōkon, 2012:11 (in key to Psenini of Japan, in Japanese); Terayama and Gōkon, 2012:11, 22 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

101. *nipponensis* Yasumatsu

Psenulus nipponensis Yasumatsu, 1942b:96, ♀. Holotype: ♀, Japan: Honshu: Minoo in Settsu Province (Kyushu Univ.). Paratype: north Korea. – Iwata, 1941c:12 (nesting habits); Tsuneki, 1959g:28 (in key to *Psenulus* of Japan and Korea), 35 (Korea, Japan; original description translated from French into English), 1963f:52 (in key to Japanese *Psenulus*); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki, 1982b:15 (known from Korea); Paik, 1985:198 (in list of Sphecidae of Ko-

rea); Terayama and Gōukon, 2012:12, 23 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); J.-K. Kim, 2014:446 (in catalog of Sphecidae s.l. of Korean Peninsula).

102. *noonadanius* van Lith

Psenulus noonadanius van Lith, 1970:92, ♀, ♂. Holotype: ♀, Philippines: Balabac: Dalawan Bay (ZMK). – van Lith, 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

103. *ogasawaranus* Tsuneki

Psenulus ogasawaranus Tsuneki, 1984a:1, ♀, ♂. Holotype: ♂, Japan: Ogasawara (= Bonin) Islands: Chichidzima: Mount Chuo (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1994a:4 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Takahashi, 2010:18 (Japan: in list of Hymenoptera of Ogasawara = Bonin islands); Terayama and Gōukon, 2012:11, 23 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini).

104. *okinawanus* Tsuneki

Psenulus okinawanus Tsuneki, 1990a:81, ♀, ♂. Holotype: ♀, Japan: Okinawa: Mount Otoha (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1994a:4 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Yamane, Ikudome, and Terayama, 1999:492 (in Identification Guide to Crabronidae of Nansei = Ryukyu Islands, Japan); Terayama and Gōukon, 2012:11, 23 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini).

105. *oweni* van Lith

Psenulus oweni van Lith, 1974a:89, ♀, ♂. Holotype: ♀, Sierra Leone: Freetown (AEI). – van Lith, 1974a:99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females, as *oweni*).

106. *orinus* van Lith

Psenulus orinus van Lith, 1973b:131, ♀, ♂. Holotype: ♀, Nepal: 28°00'N 85°00'E (CNC). – R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:90 (Nepal, male genitalia); Sarazin, 1986:308 (holotype in CNC).

107. *ornatus* (Ritsema)

Psen ornatus Ritsema, 1876:185, ♀ (actually ♂: van Lith, 1962:92). Holotype: ♂, Indonesia: Java: Eastern Java: Mount Ardojoens (RMNH). – Dalla Torre, 1897:349 (in catalog of world Hymenoptera); van Lith, 1959:62 (is probably a *Psenulus*). – **As *Psenulus ornatus***: Strand, 1916a:21 (new combination, description of ♂); van Lith, 1962:92 (redescription), 115 (in checklist of Indoaustralian Psenini); Tsuneki, 1966c:1 (listed from Taiwan); van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

ssp. baliensis van Lith

Psenulus luzonensis baliensis van Lith, 1962:88, ♀. Holotype: ♀, Indonesia: Bali: no specific locality (NHMW). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*). – **As *Psenulus interstitialis baliensis***: R. Bohart and Menke, 1976:173 (new subspecific combination, in checklist of world Sphecidae). – **As *Psenulus ornatus baliensis***: van Lith, 1976b:112 (new subspecific combination).

ssp. elegans van Lith

Psenulus elegans van Lith, 1962:96, ♂. Holotype: ♂, Java: West Java: Bolang Tjilangkap (RMNH). – van Lith, 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:172 (in checklist of world Sphecidae). – **As *Psenulus ornatus elegans***: Tsuneki, 1971j:3

(new combination, new status); van Lith, 1976b:112 (subspecific status recognized); Dollfuss, 2004a:114 (Laos: Ban Itou area).

ssp. kankauensis Strand

Psenulus ornatus var. *kankauensis* Strand, 1916a:21, ♂. Holotype: ♂, Taiwan: Kankau, now Hengchun, see Tsuneki, 1971j:3 (DEI). – Strand, 1927:254 (in list of species described by author); Oehlke and Wudowenz, 1974:423 (holotype in DEI). – **As *Psenulus ornatus kankauensis***: Tsuneki, 1971j:3 (new status); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:112 (subspecific status recognized); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

ssp. pempuchiensis Tsuneki

Psenulus ornatus pempuchiensis Tsuneki, 1971j:3, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Pempuchi (originally K. Tsuneki coll., now USNM). – Tsuneki, 1977c:11 (Taiwan: Nantou Prefecture: Lih-yueh-tan; color variation), 1977j:278 (Taiwan: Taihorinsho; description of ♀); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

ssp. sumbaensis van Lith

Psenulus ornatus sumbaensis van Lith, 1976b:111, ♀. Holotype: ♀, Indonesia: West Sumba: Rua (MHNB).

ssp. tristis van Lith

Psenulus tristis van Lith, 1962:91, ♂. Holotype: ♂, Philippines: Palawan: Puerto Princesa (AEI). – van Lith, 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*). – **As *Diodontus tristis***: Baltazar, 1966:341 (new combination, in catalog of Hymenoptera of Philippines). – **As *Psenulus ornatus tristis***: Tsuneki, 1971j:3 (new status); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:112 (subspecific status recognized).

108. pagdeni van Lith

Psenulus pagdeni van Lith, 1962:81, ♀. Holotype: ♀, Malaysia: Penang: Batu Feringgi catchment (originally H.T. Pagden coll., now BMNH). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1972:174 (N Borneo; additional description), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

109. pallidicollis van Lith

Psenulus pallidicollis van Lith, 1972:177, ♀. Holotype: ♀, Borneo: Sarawak: Mount Duli (BMNH). – van Lith, 1972:1200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

110. pallipes (Panzer)

Spheg pallipes Panzer, 1798, Heft 52:22, [♀]. Holotype or syntypes: ♀, Germany: Norimbergae = Nürnberg (depository ?). – Dahlbom, 1844:241 (belongs in *Diodontus*); Harttig, 1931c:206 (unrecognizable species of *Psenulus*). – **As *Cemonus pallipes***: Billberg, 1820:106 (new combination, specimens from Germany in collection Billberg). – **As *Diodontus pallipes***: nec Dahlbom, 1844:250 (new combination redescription) and 1845:506 (in key to European *Diodontus*) = *Diodontus tristis*; Kiesenwetter, 1849:90 (Germany: Kingdom of Saxony); Wissmann, 1849:14 (Germany: Kingdom of Hannover: Münden); Tischbein, 1850:6, 9 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Kirschbaum, 1853:47 (Germany: Herzogtum Nassau: Weilburg and Wiesbaden); Kirchner, 1854:312 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Ruthe and Stein, 1857:315 (Germany: Berlin area); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:95 (Germany); Assmuss, 1859:615 (Russia: Moscow Oblast'); Siła-Nowicki, 1864:54 (Ukraine: L'viv), 1865:54 (western Ukraine: Galicia region: no specific locality); Taschenberg, 1866:187 (in revision of Hymenoptera of Germany); Kirchner, 1867:222 (in catalog of European Hy-

menoptera); Schenck, 1867a:353 (Germany: Nassau Region); Jaenicke, 1868:8 (Germany: Hessen: Frankfurter Wald); Wierzejski, 1868:117 (Ukraine: L'viv and Podole Region), 1874:260 (Poland: Kraków; Ukraine: L'viv, and Bukowina Region: Kalinowce); Beuthin, 1876:230 (Germany: Hamburg area); Friese, 1883:201 (Germany: Sachsen-Anhalt: Weissenfels); Schirmer, 1912:166 (Germany: Berlin area); Bradley, 1957:48 (Lepeletier's specimens in Turin); Hoop, 1961:65 (Germany: Schleswig-Holstein); Babi, 1964:115 (Austria: Land Salzburg); Hoop, 1967b:45 (Germany: Niedersachsen: Island of Helgoland), 1970:60 (Germany: Schleswig-Holstein: Hochwacht); Casolari and Casolari Moreno, 1980:120 (specimens in M. Spinola collection); Pagliano, 2014:76 (specimens in Spinola collection, Torino, are *Diodontus tristis*, *Diodontus* spp., and *Passaloecus singularis*). – **As *Pemphredon pallipes***: Lepeletier de Saint Fargeau, 1845:95 (new combination, in revision of world Hymenoptera); P. Ivanov, 1872:152 (Ukraine: Khar'kov Oblast': Kupyansk area); Yaroshevskiy, 1881:123 (Ukraine: Khar'kiv Oblast': Kupyansk); Acloque, 1897:85 (in Sphecidae Fauna of France and Algeria). – **As *Psen pallipes***: Spinola, 1806:94 (new combination, Italy: Liguria: Genova); F. Smith, 1856:435 (in catalog of Hymenoptera in British Museum), 1858c:181 (in review of British Aculeata, redescription); E. Saunders, 1880:264 (in revision of British Aculeata); Ed. André, 1888:183 (in revision of Sphecidae of Europe and Algeria), 13* (bibliographic references); Tournier, 1889:109 (in key to *Psen* of Switzerland), 115 (Switzerland, nesting in twigs); V. Perkins, 1892:203 (Great Britain: Gloucestershire: Wotton-under-Edge); Medina, 1894a:260 (Spain: Mallorca); Freke, 1896:40 (Ireland); E. Saunders, 1896:104 (in revision of British Aculeata); Dalla Torre, 1897:349 (in catalog of world Hymenoptera, as *pallidipes*); Flamary, 1898:38 (France: Saône-et-Loire: Mâcon area); R. Bradley, 1900:13 (Great Britain: Birmingham); Gardner, 1901:378 (Great Britain: Cheshire: Birkenhead and Bowdende, and Lancashire: Manchester); Cobelli, 1903:106 (Italy: Province of Trentino); Aurivillius, 1904:258 (in revision of Swedish Sphecidae); Jourdain 1904:221 (Great Britain: Derbyshire: Burton); de Gaulle, 1908:103 (in catalog of French Hymenoptera); W. Schulz, 1911b:137 (study of Tournier's specimens); Adlerz, 1912:55 (nesting habits); Descy, 1922:94 (smell plays no role in nest finding); Berland, 1925d:131 (in Sphecidae Fauna of France); Hémon, 1926:199 (France: Finistère: Fouesnant); Crèvecoeur, 1927:308 (sleeping aggregation); Benoist, 1928:410 (France: Hautes-Alpes); Berland, 1928b:178 (Crèvecoeur, 1927 recorded sleeping agglomeration of males); Micheli, 1930:56 (nesting habits, description of larva); Dulac, 1933a:38 (France: Saône-et-Loire: Savianges); Bernard, 1935:66 (France: Var: Fréjus area); Marchand and Dulac, 1935:61 (France: Saône-et-Loire: Saint Laurent d'Andenay); Vergne, 1935:118 (France: Auvergne: common); Dulac, 1937:14 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:50 (France: Ardèche River basin); Lehrer, 1955:26 (Romania: Moldova: Dealul Pleșu in Iași District); Janvier, 1962:509 (nesting habits, description of larva). – **As *Psenulus pallipes***: Antiga and Bofill, 1904:6 (new combination, Spain: Cataluña Province); E. Saunders, 1907a:67 (Great Britain: Porthcawl); Morley, 1909:305 (Great Britain: Isle of Wight, as *pallidipes*); Hallett, 1912:94 (Great Britain: Glamorgan County); Dusmet, 1915:87 (Spain: Aragón); R. Perkins, 1924:221 (Great Britain: Devon); Stelfox, 1924:16 (Ireland: Wicklow County: Avondale), 1927:290 (Ireland: list of localities); Grandi, 1929:267 (prey: adult psyllid *Arytaina genistae* Latreille, determination tentative), 1929:288 (Italy: Toscana: valle della Limentra, determination tentative); Bischoff, 1931:8 (Spain); Spooner, 1931:14 (Great Britain: Cambridgeshire); Pulkkinen, 1931:80 (in revision of Sphecidae of Finland); Bondroit, 1932:33 (Belgium: Uccle); Giordani Soika, 1932a:22 (Italy: Lido di Venezia; determination tentative); Bondroit, 1933:28 (Belgium: Uccle; two forms recognized); Stelfox, 1933:51 (Ireland: Dublin County: Tolka valley and Queen County: near Emo Park); Balles, 1934:22 (Germany: Baden-Württemberg: Achern); Jansson, 1934:290 (Sweden); Forsius in Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); Grandi, 1935a:111 (Italy); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera); de Beaumont, 1937:85 (in revision of Palearctic Psenini); Hallett, 1937:71 (Great Britain: Herefordshire: Mathon, West Malvern, Tarrington); Merisuo, 1937a:85 (synonymy), 89 and 90 (in key to *Psenulus* of Finland), 91 (Finland: locality records); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve); Giordani Soika, 1939a:74 (Italy: Venezia); Móczár, 1939:5 (Hungary: Jászberény); Leclercq, 1941a:68 (Belgium: Pays de Liège), 1941b:10 (Belgium: Liège area); Paul, 1941:50 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Guiglia, 1942a:61 (Greece: Island of Rhodes: Villanova); Yasumatsu, 1942c:113

(China: Beijing); Guiglia, 1943b:72 (Albania: Kopliku); nec Guiglia, 1944a:148 (= *Psenulus cypriacus*); Guiglia, 1944b:31 (Italy); Villiers, 1946:12 (France-Haute-Savoie: Samoëns area); Carl and de Beaumont, 1947:68 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Guiglia, 1948c:202 (Italy: Sardegna: Cagliari); Pittioni, 1950:26 (Cyprus); de Beaumont, 1951h:33 (Switzerland: Neuchâtel area); de Beaumont, 1954e:93 (Italy); Kjellander, 1954b:247 (Sweden); Tjeder, 1954:68 (Sweden: eastern Skåne: Äsperöd); Aerts, 1955:65 (Germany: Rheinland); Steiner, 1955:143 (France: Dordogne); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Ceballos, 1956:358 (in catalog of Hymenoptera of Spain); Grandi, 1957:390 (Italy: Abruzzi); Zirngiebl, 1957:185 (Germany: Rheinland-Pfalz: Pfalz region); de Beaumont, 1958c:206 (Swiss National Park); Pulawski, 1958a:186 (Bulgaria: Kniazhevo near Sofia, Nesebar, Sandanski); Compte Sart, 1959:130 (Spain: Mayorca); de Beaumont, 1959a:31 (Italy); Suárez, 1959:59 (Spain: Almería Province); Tsuneki, 1959g:41 (in revision of *Psenulus* of Japan and Korea); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben near Linz); Noskiewicz and Puławski, 1960:58, 59 (in key to Polish Sphecidae); de Beaumont, 1962b:27 (Spain); Grandi, 1962:58 (sleeping aggregation); Wengris, 1962:204 (Lithuania: Vilnius area); Ceballos, 1964:86 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1964a:291 (taxonomic problems), 1964c:92 (in Sphecid Fauna of Switzerland); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Mingo Pérez, 1965:160 (in revision of Spanish Psenini); de Beaumont, 1965a:56 (Greece); Roberti, Frilli, and Pizzaghi, 1965:110 (Italy: Emilia-Romagna: Montalbo, Pianello, and Vernasca in Piacenza Province); Bonelli, 1966c:219 (Italy: Trentino–Alto Adige: Cavalese); Gauss, 1966c:240 (specimen bearing dipteran egg); de Beaumont, 1967a:340 (Turkey); Gauss, 1967:555 (Germany: Baden-Württemberg); Scobiola-Palade, 1967b:45 (Romania); Benedek, 1968:74 (Hungary, visiting flowers of *Angelica silvestris* L. and *Pastinaca sativa* L.); Leclercq, 1968b:39 (Great Britain: Kent); Lefeber, 1968b:95 (Netherlands: Sint Pietersberg); Mingo Pérez, 1968:82 (locality records from Spain and Portugal), 86 (in checklist of Iberian Psenini); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube, list of prey); Benedek, 1969a:84 (Hungary; marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena pruni* (Geoffroy)); Dathe, 1969:440 (Germany: Berlin Zoological Garden); Benedek, 1970:99 (Hungary: Tapolca); Oehlke, 1970:734 (Democratic Germany); Tumšs, 1970:74 (Latvia); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Petit, 1971:22 (Luxemburg: Bourscheid); Schmidt, 1971c:74 (Germany: Schleswig-Holstein; as *pallipes pallipes*); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Balthasar, 1972:253 (in Sphecid Fauna of Czechoslovakia); Kazenas, 1972b:118 (Kazakhstan); Kofler, 1972:109 (Austria: eastern Tirol); Lomholdt, 1972:122 (Denmark: Island of Læsø); Erlandsson, 1974:77 (Italy, Greece); Kazenas, 1974b:109 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan); Leclercq, 1974b:197 (Belgium: all provinces: locality records.); Simon Thomas, 1974:57 (Netherlands: Limburg: Tienray); Frilli and Pizzaghi, 1975:76 (Italy: Piacenza); Lomholdt, 1975c:166 (in Sphecid Fauna of Fennoscandia and Denmark); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Georgiou, 1977:191 (Cyprus); Kolesnikov, 1977:319 (Russia: Bryansk Oblast); Schmidt, 1977:96 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Guichard, 1978:271 (Greece); Kazenas, 1978b:153 (in key to Sphecidae of Kazakhstan and Central Asia); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:238, 239 (in key to Sphecidae of European part of former USSR); Schwammberger, 1978:418 (Germany: Württemberg); Benedek, 1979:232 (Hungary: Bakony Hills); Schmidt, 1979a:55 (Germany: Ost-Holstein); Marchal and Leclercq, 1979:9 (Belgium: Gembloux); Dathe, 1980:208 (Russia: northern Caucasus: Teberda); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:116 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Pagliano, 1980:130 (Italy: Piemonte); Richards, 1980:65 (in key to Sphecidae of British Isles); Westrich, 1980:630 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:321 (Austria: Niederösterreich: Scheibbs District); Gayubo, 1981a:143 (northern Spain: Sierra de Béjar); Haeseler, 1981:52 (Germany: Friesian Islands: Island of Amrum); Skibińska, 1981:357 (Poland: Warszawa-Białoleka); Woydak, 1981:39 (Germany: Westfalen: Hamm); Axelsson, 1982:79 (Sweden); Leclercq, 1982a:124 (Belgium: Liège); Skibińska, 1982:122 (Poland: Warszawa area); Józán, 1983:100 (Hungary); Dollfuss, 1983b:5 (in catalog of Sphecidae of Austria); Riemann, 1983:82 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:6 (France: Yvelines De-

partment); Haack, Tschardtke, and Vidal, 1984:132 (Germany: Hamburg area); Jacob-Remacle, 1984:259 (Belgium: urban center of Liège); Gayubo, 1984a:166 (Spain: Salamanca Province); Lefebber, 1984:29 (Netherlands: Maastricht); Mingo and Gayubo, 1984a:103 (in key to *Psenulus* of Spain), 104 (Spain: locality records); Nilsson, 1984:104 (Sweden: Västmanland Province); Schmidt, 1984:244 (Germany: Baden-Württemberg); Archer, 1985:96 (Great Britain: Suffolk); Haeseler, 1985c:571 (Germany: Friesian Islands); Jacob-Remacle, 1985:408 (Belgium: second occupant in a composite nest); Józán, 1985b:55 (Hungary: S Lake Balaton), 77 (floral records), 83 (ecological and zoogeographic characteristics); Lefebber, 1985:87 (Netherlands: southern Limburg); Radović, 1985:64 (sting apparatus analyzed); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Tyrner, 1985:9 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:63 (Germany: Südpfalz); Cloudsley-Thompson, 1986:122 (Great Britain: Essex; nocturnal aggregation of males); Gayubo, 1986c:31 (Spain: Zamora Province); Gayubo and Sanza, 1986:35 (Spain: Burgos); Jacob-Remacle, 1986:109 (Belgium: trap-nests); Józán, 1986:368 (Hungary: Kiskunság National Park); Nemkov, 1986:94 (Russia: Siberia: Irkutsk Oblast'); Skibińska, 1986a:62 (population level increasing in urbanized habitats), 1986b:150, 153 (Poland: suburbs of Warszawa), 157 (rural and suburban parks), 160 (gardens), 162 (urban parks), 164 (streetside green), 168 (green areas of housing estates), 173 (various green urban habitats); Schmidt and Westrich, 1987:367 (Germany: Mainz area; as *pallipes* forma *chevrieri*); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); Dollfuss, 1988:10, 21 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Karsai, 1988:99 (Hungary: Kiskunság National Park); Kowalczyk, 1988a:44 (Poland: Rogów), 1988b:64 (Poland: environs of Łódź); Wolf, 1988b:143 (Germany: Rheinland-Westfalen); Bałazy, Banaszak, and Michalski, 1989:119 (Poland: Wielkopolski National Park); Jacobs, 1989:6 (Germany: Mecklenburg-Vorpommern); Józán, 1989:100 (Hungary: Tihany Nature Reserve); Pádr in Šedivy, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:96 (Belarus: Berezinskiy Nature Reserve); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Skibińska, 1989a:204 (Poland: Warszawa area); Weiffenbach, 1989:107 (Germany: Hessen: Gießen area); Jacobs and Oehlke, 1990:142 (Democratic Germany: new locality records); Kowalczyk, 1990:290 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:21 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:77 (Czech Republic: Praha area); Pagliano, 1990:112 (in catalog of Italian Sphecidae); Rohe, 1990:1049 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammbberger and Priesner, 1990:535 (Austria: Kärnten); von der Heide and Witt, 1990:64 (Germany: Niedersachsen); Dollfuss, 1991:49 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:397 (Italy); Gayubo and Torres, 1991:Table I and p. 81 (Spain: Salamanca; effects of urban pressure); Jakubzik, 1991:74 (Germany: Köln); Józán, 1991:602 (Hungary: Bátorliget Nature Reserve); Kowalczyk, 1991a:89, 93, 104 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Negrisolo, 1991:317 (Italy: Treviso Province); Nilsson, 1991:83 (Sweden: Lake Mälaren); N. Schneider, 1991:93 (Luxemburg); Schembri, 1991:181 (first record from Malta); Scobiola-Palade, 1991:220 (Romania: Danube delta); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve SE Koblenz); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:25 (in list of Sphecidae of Lithuania); Cölln and Jakubzik, 1992:87 (nest parasites: ichneumonids *Perithous divinator* Rossi, *Perithous mediator* Fabricius, *Perithous septemcinctorius* Thunberg, and chrysidid *Trichrysis cyanea* (Linnaeus)), 89 (Germany: Rheinland; reared from twigs of *Rubus*); Delarze, 1992:68 (Switzerland: Valais: Les Follatères); Józán, 1992a:228 (Hungary: Béda-Karapanca Protected Area), 1992b:172 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nilsson, 1992:54 (Sweden); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:88 (Germany: Bayern: Bamberg District); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Archer, 1993c:39 (Great Britain: Yorkshire); Jakubzik and Cölln, 1993:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*); Józán, 1993:412 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Luig, 1993:41 (Estonia); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife bei Altenahr); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Gathman, Greiler, and Tschardtke, 1994:10 (Germany: colonization of set-aside fields); Gayubo and Borsato, 1994:203 (Italy: Veneto, Lazio); Theunert, 1994c:50 (Germany: summary of records from Niedersachsen and Bremen); Tormos, Asís, and Gayubo, 1994:187, 198 (Spain: Albacete Province); Kowalczyk, 1994:73 (Poland: Łagiewniki forest

in Łódź); Archer, 1995a:23 (Great Britain: Yorkshire: frequency); Budrys *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:395, 396 (in key to Sphecidae of Russian Far East); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Krasnobayev et al., 1995:139 (Russia: Zhiguli Hills northwest of Samara); Negrisola *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Pagliano and Pesarini, 1995:84 (Italy: Ferrara Province); Papp and Józán, 1995:146 (Hungary: Sikfökút oak forest); Riemann, 1995:52 (Germany: Bremen); Scharrer, 1995:23 (Germany: Bayern: Hösbach); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:207 (Germany: summary of records from Rheinland-Pfalz); K. Schmidt, Schmid-Egger, and Doczkal, 1995:8 (relationship to *Psenulus brevitarsis* is unclear); Shlyakhtenok, 1995:194 (Belarus: Berezinsky Nature Reserve); Skibińska, 1995:423, 426 (Poland: pine forest in Białowieża Primeval Forest); Yeo and Corbet, 1995:35 (in field guide to British solitary wasps); Archer, 1996b:121 (Great Britain: Yorkshire); Arens, 1996:440 (Germany: Bayern: Bayreuth area); Chaubet, 1996:115 (France: Bretagne: Corps-Nuds); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:75 (Great Britain: summary of records from Essex); Jakubzik, 1996:253 (Germany: Köln); Jakubzik and Cölln, 1996a:323 (Germany: nesting in stems of *Rubus*), 324 (nest parasites: *Perithous divinator* Rossi and *septemcinctorius* Thunberg, ichneumonids), 325 (nest parasite *Chrysis cyanea* Linnaeus), 336 (in keys to cocoons), 1996b:400 (Germany: Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Pawlikowski and Kruszyński, 1996:87 (Poland: Toruń Basin); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:304 (Belarus: Berezinsky Nature Reserve); Tormos, Asís, Gayubo, and Mingo, 1996: 61 (nest parasite: *Trichrysis cyanea* (Linnaeus), Chrysididae); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:18 (Germany: Westfalen: summary of distribution and nesting habits); Asís, Gayubo, and Tormos, 1997b:200 (description of larva); Celary, 1997:57 (in checklist of Animals of Poland); de Melo, 1997:4 (abdominal silk glands in adult females); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Riemann, 1997:50 (Germany: Achim 14 km SE Bremen); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:153 (Belarus: Pripyatskiy National Park); Stoyanov and Ljubomirov, 1997:26 (Bulgaria: Rila Mountains); Celary, 1998b:210 (Poland: Babia Góra National Park); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); Józán, 1998:311 (Hungary: Duna-Dráva National Park); Tschardtke, Gathmann, and Steffan-Deventer, 1998:719 (trap-nesting in Germany); Weislo, 1998:181 (proportions of antennae in relations to parasitic/non-parasitic behavior); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km WSW Hamburg); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1182, 1184 (Germany: Rheinland-Pfalz); Kuhlmann, 1998:71 (parasite: *Lackerbaueria* sp., an acarid); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); van der Smissen, 1998:68 (Germany: Mecklenburg-Vorpommern, Niedersachsen, Schleswig-Holstein); K. Weber, 1998:148 (Germany: Bayern: Bamberg area); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Generani, Pagliano, Scaramozzino, and Strumia, 1999:80 (Italy: Toscana: Isola di Montecristo); Gusenleitner, 1999:598 (Austria: Vorarlberg: Tufers S Rankweil); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Luig and Voolma, 1999:176 (Estonia); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Neumayer, Schwarz, and Bregant, 1999:225 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:108 (in catalog of Belgian aculeates); M. Schwarz, 1999:85 (Austria: Oberösterreich: city of Linz area); Archer, 2000c:115 (Great Britain: Lincolnshire); Blösch, 2000:160 (in Sphecid Fauna of Germany); Canovai et al., 2000:78 (Italy: Toscana: Isola di Montecristo); Dressler, 2000:34 (Germany: Hessen: Darmstadt area); Flügel, 2000:46 (Germany: Hessen: Halberg near Neumorschen); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:105 (Greece); Gonzales, Gayubo, and Torres, 2000:18 (Andorra: Santa Coloma); Jacobs, 2000:9 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:105 (Hungary: Bakony Mountains); Kazenas, 2000e:64 (in Sphecid Fauna of Kazakhstan); Ljubomirov, 2000:8 (Bulgaria, specimens in N. Nedelkov collection); Schmid-Egger, 2000b:276 (Germany: Baden-Württemberg: shores of Rhine River); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire); Dillier and

Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Dollfuss and Bitsch *in* Bitsch et al., 2001:51 (in Sphecidae Fauna of Western Europe); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:20 (in checklist of Sphecidae of Kazakhstan and Central Asia), 122 (review of known biology); Ljubomirov, 2001b:47 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:141 (distribution in Germany by provinces); Salzmann-Wandeler and Rezbanyai-Reser, 2001:157 (Switzerland: Tessin Canton: Meride area); Skibińska, 2001:219 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:187 (Poland: Kampinos National Park near Warszawa); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:68 (Austria: Wien); Archer, 2002b:122 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Bieri, 2002:79 (Liechtenstein); Deván, 2002b:204 (Slovakia: Pekelná dolina and Prepadlisko); Józán, 2002:53 (Hungary: Mecsek Mountains); Kowalczyk, Szczepko, and Świątek, 2002:152 (Poland: Kampinos National Park near Warszawa); Kruess and Tschardt, 2002:1576 (Germany: Schleswig Holstein: number of specimens higher on ungrazed and extensively grazed grassland); Martínez de Murguía, Vázquez, and Nieves Aldrey, 2002:202 (Spain: Navarra: Artikutza Forest Reserve at 43°09'28"–43°14'52"N 0°1'45'35"–01°49'30"E); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:32 (Belarus: no specific locality); Wiśniowski, 2002:68 (Poland: Ojców National Park); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:63 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:142 (Italy: Trentino: Torbole); Flügel, 2003:9 (Germany: Hessen: Knüllwald); Generani, Pagliano, Scaramozzino, and Strumia, 2003:66 (Italy: Arcipelago Toscano); González, Gayubo, Asís, Tormos, and García, 2003:62 (Spain: Soria: Chavaler); Haeseler, 2003:340 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003: 226 (Hungary: Látrányi Pusztá Nature Conservation Area); Kuhlmann and Quest, 2003:51 (Germany: Bayern: Bayerischer Wald National Park); Kula and Tyrner, 2003a:150 (Czech Republic: Děčín Sandstone Uplands: forest district Snežník: birch stands in air-polluted area), 2003b:203 (Northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:69 (Germany in catalog of wasps and bees of Bayern); Schmid-Egger, 2003:757 (Italy: Sicilia: Castelammare, Dobra); von der Heide and Metscher, 2003:103 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:136 (Poland: Ojców National Park); Buck, 2004:24 (in checklist of Sphecidae of Ontario, Canada); Budrienė, Budrys, and Nevronytė, 2004:22 (Lithuania: nesting in trap nests); Deván, 2004:147 (western Slovakia); Dollfuss, 2004a:114 (China, Greece, Italy, Portugal, Turkey, Ukraine: locality records); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:263 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik and Cölln, 2004:274, 275 (in key to nests of Hymenoptera nesting in stems of *Rubus*); Jakubzik, Niehuis, and Cölln, 2004:458 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Majzlan and Deván, 2004:30 (Slovakia: Sekule), 33 (Slovakia: Malacky-Široké); Salzmann-Wandeler and Rezbanyai-Reser, 2004:27 (central Switzerland); Schneider and Carrières, 2004:98 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:79 (Russia: Rostov Oblast'); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); Suda, 2004:39 (Japan: Yamanashi Prefecture, as *pallipes pallipes*); Szczepko and Kowalczyk, 2004:125 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:40 and 58 (in checklist of Polish Sphecidae); Burger, 2005:35 (Germany: Thüringen); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Gayubo and Özbek, 2005:35 (Turkey: Erzurum: Oltu, Pasinler, Pazaryolu, Turnalı); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:45 (Japan: Gifu Prefecture); Jacobs, 2005a:450 (Bulgaria: Rosan, Starosel near Hissarya); Kofler, 2005:167 (Austria: Tirol: Lienz District: Sonnseite in Heinfels Common, Lavant, city of Lienz, Nußdorf-Debant, Oblas and Wairer in St. Johann Common); Kowalczyk and Kurzac, 2005:106 (Poland: Botanical Garden in Łódź); Kraatz, 2005:103 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); Nemkov, 2005a:144 (Russia: Island of Sakhalin); Pagliano and Negrisoló, 2005:444 (in Sphecidae Fau-

na of Italy); Riemann and Hohmann, 2005:564 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:37 (Great Britain: Cumbria County); Saure, 2005:18 (Germany: Berlin); Schmalz, 2005:58 (references to XIXth century authors); Shorenko, 2005b:99 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Venne and Bleidorn, 2005:44 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Yildirim and Ljubomirov, 2005:1801 (Turkey: Erzurum: Tortum); Archer, 2006a:21 (Great Britain: Lincolnshire: Rauceby Warren National Park); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Haneda, Nozaka, Tano, Kurokawa and Murota, 2006a:20 (Japan: Toyama Prefecture); Liebig, 2006:39 (Germany: Sachsen: Muskauer Heide); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas Larrieu Nature Reserve near Argelès-sur-Mer); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); N. Schneider, 2006:134, 140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:110 (Belarus': Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006c:303 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Beavis, 2007:95 (Great Britain: Tunbridge Wells and Central High Weald); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:454 (nesting habits described by Harduin, 1942); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:169 (Czech Republic: Vyšenské Kopce National Nature Reserve); Flügel, 2007:40 (Germany: Hessen: Halberg near Neumorschen); Guldmond, Pijfers, and den Belder, 2007:203 (Netherlands: Gelderland: dairy farm in de Graafschap); Hallin, 2007b:24 (Sweden: Blekinge Province); Jacobs, 2007:57, 59 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:26 (Germany: northwestern Sachsen); Józán, 2007:179 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:284 (Poland: Łódź: railway areas); Nemkov, 2007b:69 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Sawoniewicz and Wiśniowski, 2007:32 (nest parasite *Demopheles corruptor* (Taschenberg), Ichneumonidae); Shlyakhtenok, 2007a:299 (Belarus': Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Vago, 2007:174 (France: départements du Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:303 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:200 (in catalog of Sphecidae of Czech Republic and Slovakia); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:309 (Germany: Friesian Islands); Ljubomirov and Ban-Calefariu, 2008:204 (Romania: Maramureş District: Vişeu Valley); Ljubomirov and Yildirim, 2008:172 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:18 (in catalog of Crabronidae of Asiatic Russia); Protsenko and Drozdovskaya, 2008:126 (Ukraine: Sumy Oblast': Mogritsa village); S. Takahashi and Haneda, 2008b:43 (Japan: Hokkaido: Sapporo); Theunert, 2008:77 (Germany: map of distribution in Niedersachsen and Bremen); Belkheir, 2009:18 (France: Pyrénées-Orientales: commune d'Eyne); Donie, 2009:10 (Germany: Niedersachsen: Oldenburg); Dvořák, Bogusch, and Smetana, 2009:82 (Czech Republic: Králický Sněžník National Nature Reserve); Fluck *in* Renker et al., 2009:928, 930 (Germany: Rheinland-Pfalz: Eich-Gimbsheimer Altrhein); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of 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, 2009:263 (Bulgaria: Maleshevska Planina); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Józán, 2009:165 (Croatia: Mošćenice, Sveta Jelena); Livory, Chevin, Lair, Sagot, and Baldock, 2009:21 (France: Département de la Manche: Bolleville and Jullouville Lézeaux); Mokrousov, 2009:294 (Russia: Republic Mari El); Nemkov, 2009b:61 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:187 (Italy: Molise: Campolieto); Ruchin, Antropov, and Shibayev, 2009:169 (Russia: Republic of Mordovia); Shorenko, 2009:368 (in list of Sphecidae s.l. of Crimea, as *pallipes pallipes*); Sobek, Tscharnke, Scherber, Schiele, and Steffan-Dewenter, 2009:614 (Germany: Thüringen: Nationalpark Hainich: nesting mostly in canopy); Venne, 2009:111 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Ermilov and Mokrousov: 2010:91 (phoretic mite *Acarus psenuli* in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:94 (Great Britain: heathland sites in West Midlands region); Ghazi-Soltani, Ebrahimi, Iranipour, and Pour Abad, 2010:798 (Iran: East Azarbaijan:

Marand: Yam); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:63 (Russia: Kirov, Nizhniy Novgorod, and Yaroslavl' Oblast's, Mari El Republic, Mordovian Republic, Tatarstan: no specific localities); Okhusa and Tajima, 2010:12 (Japan: Honshu Island: Shiga Prefecture); Rudoiskatel', 2010:154 (Russia: central and southern Ural Mountains); Saure, 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:139 (Germany: Bayern: collected along Main-Donau canal); Shoreiko and Kononov, 2010:26 (Ukraine); van der Smissen, 2010a:350 (comparison with *Psenulus brevitarsis*), 351 (Germany: Schleswig-Holstein: locality records), 2010b:386 (France: Ardèche and Vaucluse: locality records), 2010c:397 (Sweden: Öland: Byrums Sandvik; Södermanland: Rassa); Baghirov, 2011b:153 (Russia: Altayskiy Krai: Savvushka; Altay Republic: Chemal); Gogala, 2011:10 (Slovenia); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Mokrousov, Berezin, and Egorov, 2011:82 (Russia: Chuvash Republic); Saure, 2011a:7 (Germany: Berlin: former airport Tempelhof); Schmid-Egger, 2011a:39 (France: Parc National du Mercantour: La Bollène); Schreven, 2011:17 (Netherlands: Foerpot in Groesbeek); Shlyakhtenok, 2011:95 (Belarus': city of Minsk); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:168 (Germany: Hessen: not endangered); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012:183 (Great Britain: urban York); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Krinkler, 2012:25 (Germany: Nordrhein-Westfalen: Leverkusen); Di Giovanni and Mei, 2012:42 (Italy: Lazio: Roma: San Paolo Fuori le Mura); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Larivière, Chapelin-Viscardi, and Maillat-Mezeray, 2012:296 (France: Loiret: Erceville, and Essonne: Boigneville and Maise); Nemkov, 2012c:436 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:47 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:172 (Belarus', and Russia: Krasnaya Polana near Sochi: collected in private plots), 2012b:92 (Belarus': Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Terayama and Gōkōn, 2012:12, 13, 22 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Yildirim, 2012:79 (Turkey: Tunceli: Mazgirt: Kalaycı); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Pankov, 2013:231 (Russia: Ivanovo Oblast'); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (Portugal: Douro International Natural Park and Paúl do Boquilobo Nature Reserve); Wiśniowski and Szczepko, 2013:48 (Poland: Kampinos National Park near Warszawa); Baldock, 2014:359 (Spain: Island of Mallorca); Bitsch, 2014:410 (recorded from France by Vago, 2007); Ebrahimi, 2014:45 (Iran: Kermān: Kermān); U. Frommer, 2014:28 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1323 (Germany, Hessen: Roßstein); Hellqvist, Abenius, and Norén, 2014:94 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:59 (Russia: Republic of Tatarstan); Turčinavičienė, Radzevičiūtė, Budrienė, and Budrys, 2014:4 (in DNA analysis); Yildirim, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); MacIvor, 2015:4 (Canada: Ontario: Toronto: nesting on vegetated roofs); P. Rosa and Pagliano, 2015:105 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:15 (Germany: Berlin-Lichterfelde); Simon, Lorthiois, and Macé, 2015:55 (France: alluvial terraces in Eure Department: Courcelle-sur-Seine and Seine-Maritime Department: Anneville-Ambourville); Else, Bolton, and Broad, 2016:45 (in checklist of Aculeata of Great Britain and Ireland: England, Wales, Ireland); Mokrousov and Popov, 2016:590 (Russia: Abkhazia, Krasnodarskiy Krai); Schmid-Egger, 2016:41, 42 (in key to Central European *Psenulus*), 43 (variation, probably several species involved); Schmid-Egger, Dandria, and Xuereb, 2016:81 (in checklist of Crabronidae of Maltese Islands); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:30 (Turkey: Antalya, Erzurum, Kars, and Tunceli provinces, as *pallipes pallipes*); Di Giovanni, Mei, and Cerretti, 2017:73 (Italy: Lombardia: Riserva Naturale Bosco della Fontana 5 km from Mantova at 45°12'N 10°44'E, found in canopy and understory); Magdalou, 2017:16 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane, Mas Larrieu, Julos,

Vallée d'Eyne); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia); Shorenko, 2017:79 (in Crimea collected in March and April and June through October).

Trypoxylon atratum Fabricius, 1804:182, sex not indicated. Syntypes: ♀, ♂, Germany: no specific locality (ZMK). Synonymized with *Sphex pallipes* by Panzer, 1806:109. – Panzer, 1805, Heft 98:15 (in revision of German insects); Spinola, 1806:66 (Italy: Liguria); Lucas, 1849:244 (Algeria: Bône, Constantine). – **As *Psen atratus***: Vander Linden, 1829:105 (new combination, bibliographic references, redescription, Belgium: Bruxelles, Germany, Italy); Shuckard, 1837a:227 (in revision of British Aculeata); Herrich-Schaeffer, 1840:292 (Germany: Bayern: Regensburg area); Dufour, 1841a:507 and 1841b:243 (digestive tract), 1841a:508 and 1841b:244 (male reproductive system), 1841a:509 and 1841b:245 (female reproductive system); Dahlbom, 1942a:8 (in review of Scandinavian aculeates), 1843:5 (in revision of European Sphecidae and Pompilidae), 1845:428 (in key to *Psen* of Europe); Lepeletier de Saint Fargeau, 1845:42 (in revision of world Hymenoptera); Eversmann, 1849:362 (Russia: southern Ural Mountains); Kiesenwetter, 1849:87 (Germany: Kingdom of Saxony); Wissmann, 1849:9 (Germany: Kingdom of Hannover: Hannover, Münden); Tischbein, 1850:7 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:40 (Great Britain: no specific locality); Wesmael, 1852:279 (Belgium); F. Smith, 1853:65 (in checklist of British Hymenoptera); Kirchner, 1854:310 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Kawall, 1857:23 (Kurland, now Latvia); Ruthe and Stein, 1857:312 (Germany: Berlin area); Schenck, 1857:212 (Germany: in revision of fossorial wasps of Nassau Region); A. Costa, 1858a:19 (Italy: Campania: Monti Partenii in Benevento Region), 1858b:22 (in revision of Sphecidae of Kingdom of Naples); Goureau, 1858:XL (nesting in dry stems of *Rubus*); Taschenberg, 1858:79 (in key to Sphecidae of Germany); Assmuss, 1859:605 (Russia: Moscow Oblast'); Funk, 1859:60 (Germany: Bayern: Bamberg); Schenck, 1860:149 (Germany: Nassau Region); A. Costa, 1861:35 (color of male); Brischke, 1862:97 (Germany: Preussen Province, now Poland: Pomorze Region); Brown, 1863:182 (Great Britain: Burton-on-Trent); Taschenberg, 1866:206 (in revision of Hymenoptera of Germany); A. Costa, 1867c:101 (in revision of Italian Sphecidae); Jaennicke, 1867:147 (Germany: Hessen: Frankfurt area); Kirchner, 1867:217 (in catalog of European Hymenoptera); Schenck, 1867a:357 (Germany: Nassau Region); Jaennicke, 1868:9 (Germany: Hessen: Kelsterbach); Wierzejski, 1868:117 (Poland: Kraków area and Ukraine: L'viv and Podole Region: common everywhere); von Aichinger, 1870:322 (Austria: Tirol); Thomson, 1870:233 (in revision of Swedish wasps); A. Costa, 1871b:30 (in revision of Italian Sphecidae); Puton, 1871:95 (sexual dimorphism); P. Ivanov, 1872:152 (Ukraine: Khar'kiv Oblast': Kupyansk area); Schlechtendal, 1872:37 (Germany: Sachsen: Zwickau); Dours, 1874:151 (in catalog of Hymenoptera of France); Wierzejski, 1874:258 (Ukraine: Lviv and Podole Region: Bucyki near Grzymałów and Skala on Zbrucz River); Marquet, 1875:209 (France: Haute-Garonne: Toulouse); Taschenberg, 1875:389 (Germany: Halle); Beuthin, 1876:232 (Germany: Hamburg area); Frivaldszky, 1876:356 (Hungary: Oravicza, now Romania: Caraș-Severin District: Oravița); Daly, 1878:47 (Great Britain: Dorset: Glanville's Wootton, as *atratus* Vander Linden); Girard, 1879:941 (nesting habits); Kohl, 1880:141 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:61 (Norway); Gribodo, 1881a:145 (Italy: Calabria: Casino Corso); Magretti, 1881:111 (Italy: Lombardia), 270 (in list of species discussed in this paper); Marquet, 1881:177 (southern France); Yaroshevskiy, 1881:126 (Ukraine: Khar'kiv Oblast': Kupyansk); Fabre, 1882:227 (nesting in bramble stems); Kohl, 1883e:661 (Switzerland); Sickmann, 1883:80 (Germany: Niedersachsen: Wellingholthausen); A. Costa, 1884b:33 (Italy: Sardegna: Fonni); von Heyden, 1884:121 (Germany: Frankfurt am Main area); Wüstnei, 1886:39 (Germany: Schleswig-Holstein: Emmelsbüll, Husum, Sonderburg); Gasperini, 1887:14 (Croatia: Split, San Giorgio, now Sućuraj on Island of Hvar); Brischke, 1888b:94 (Germany: Preussen Province, now Poland: Pomorze Region); Kohl, 1888b:726 (Austria: Tirol, now Italy: Alto Adige); Brischke, 1889:204 (Germany: Steegen east of Danzig, now Poland: Stegna east of Gdańsk); Kohl, 1889a:27 (should not be regarded as synonym of *Psen pallipes*); C. Verhoeff, 1891b:14 (nesting habits); Kohl, 1893a:39 (Austria: Niederösterreich); F. Morawitz, 1893a:109 (Russia: Karelian Isthmus); Sickmann, 1893:96 (Germany: Niedersachsen: Iburg); Krieger, 1894:17 (Germany: Kingdom of Saxony); Schletterer, 1894:31 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); Meunier, 1896:274 (Belgium: Bruxelles area); Acloque, 1897:82 (in Sphecid Fauna of France and Algeria); Borries, 1897:86 (review of known nesting habits); Mocsáry, 1897:78 (Kingdom of Hungary, some localities are in today's Croatia, Romania, and Slovakia); Lange, 1898:70 (Germany: Sachsen: Annaberg Buchholz);

Strand, 1898b:92 (Norway); Baer, 1901:161 (description of nest, prey); J. Nielsen, 1901a:269 (nesting habits); Chyzer, 1902:34 (Hungary); Zilahi Kiss, 1904:77 (Hungary: Hadad, Tasnád); Kubes, 1905:83 (Czech Republic: Kolín, Obora u Žiželic); Mantero, 1905:66 (Italy: Toscana: Isola del Giglio); Graeffe, 1911:49 (Italy: Trieste area); W. Schulz, 1911b:139 (identity of Chevrier's specimen); Szilády, 1913:88 (Hungary: Crkvenica, Hadrév, Miriszló, Nagyenyed); Chevalier, 1922:46 (nest parasite: *Pachyophthalmus signatus* (Meigen), a calliphorid, as *atratus* Latreille), 1925a:41 (nesting habits); Friese, 1926:165 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); E. Nielsen, 1933:315 (summary of nesting habits); Richards, 1935a:166 (study of type); Hardouin, 1942:28 (nesting habits); Ceballos, 1949:101 (Spain, mistakenly placed in *Pison*); Vogrin, 1955:38 (Yugoslavia); Bradley, 1957:49 (Lepeletier's specimens in Turin); Benno, 1967:38 (in checklist of Sphecidae of Netherlands); Tsuneki, 1973:134 (*Psenulus atratus* is a junior synonym of *pallipes*); Casolari and Casolari Moreno, 1980:122 (specimens in M. Spinola collection); Pagliano, 2014:94 (specimens in Spinola collection, Torino, are *Psenulus pallipes*). – **As *Diodontus atratus***: Evans, 1959b:145 (new combination, discussion of larval description by Micheli, 1930,), 1964b:253 (discussion of Janvier, 1962, description of larva, as *atratus atratus*); Wolf, 1959b:25 (Germany: Nassau); B. Klug, 1965:132 (Germany: Baden-Württemberg: Freiburg im Breisgau area). – **As *Psenulus atratus***: Schmiedeknecht, 1907:249 (new combination, in key to Hymenoptera of Central Europe); Dittrich, 1911b:26 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); M. Müller, 1911:114 (Germany: Brandenburg: no specific locality, nesting in galls of *Lipara*, determination tentative); Popovici-Bazosanu, 1911:XCXV (nesting habits, description of larva); W. Schulz, 1911b:137 (taxonomic history), 140 (in key to European species); Schirmer, 1912:168 (Germany: Berlin area); Alfken, 1914:283 (NW Germany, as *atratus*); Birula, 1914:368 (Ukraine: Zhytomyr Oblast: Radomyshl'), 389 (Belarus: Ambrosovich near Vitebsk); Dubois, 1919:96 (Belgium: Bruxelles: Uccle); O. Meyer, 1919:156 (Germany: Posen Province, now Poland: Poznań Region); R. Robertson, 1919:60 (Great Britain: Kent: Faversham area, as *atratinus*); Łoziński, 1920:122 (Poland: Maków Podhalański); A. Wagner, 1920:37 (Germany: Lower Elbe region); Dubois, 1921c:215 (in key to Belgian Sphecidae); Maidl, 1922:66 (Croatia, Albania); Leininger, 1924:121 (Germany: Baden-Württemberg: Karlsruhe); Bouwman, 1928b:57 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:709 (in keys to Hymenoptera of North and Central Europe); Crèvecoeur and Maréchal, 1932:71 (in catalog of Belgian Hymenoptera); Goebel, 1937:48 (Poland: Poznań); Richards, 1937b:105 (in checklist of British aculeates); Móczár, 1938c:81 (Hungary: Kőszeg Hills); P. Freeman, 1938:2 (nest and prey); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Fairbourne and Wilmslow); Schneid, 1941:1051 (Germany: Bayern: Bamberg area); J. Perkins, 1942:197 (Sweden: Skåne: Höör and Degaberga); Boyd, 1943:163 (Great Britain: eastern Dorset); van Lith, 1943:96 (no cocoon built for pupation); Spooner, 1943:73 (Great Britain: G. Wootton); T. Fletcher, 1945:53 (Great Britain: Gloucestershire); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); van Lith, 1947:107 (Netherlands); de Hennin and Anciaux, 1948:76 (Belgium: between Sambre and Meuse rivers); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Spooner, 1948:133 (in revision of British Psenini); Zavadil in Zavadil and Šnoflak, 1948:147, 148 (in key to Sphecidae of Czechoslovakia); Chambers, 1949:226 (Great Britain: Bedfordshire); van Lith, 1949:148 (distribution in Netherlands); Cavro, 1950:32 (France: Département du Nord); Graham, 1950:348 (eggs of unknown insect deposited on thorax); van Lith, 1951:214 (nesting habits), 216 (previously known nest parasites); Głowacki, 1953:521 (Poland: Podkowa Leśna near Warszawa); Móczár, 1953:310 (Hungary); Nouvel and Ribaut, 1953:179 (France: Haute-Garonne: Saint-Béat); Yarrow, 1954a:42 (in key to British *Passaloecus*); Ceballos, 1956:358 (in catalog of Hymenoptera of Spain); Bajári, 1957a:78, 79 (in key to Hungarian Sphecidae); Fahlander, 1957:62 (Sweden: locality records), 63 (in key to Swedish *Psenulus*); Yeo, 1957:19 (England: Middlesex, now in London); Benno, 1958b:12 (in review of Dutch Sphecidae, as *astratus*); Lundblad, 1958:48 (Sweden: Gotland); Blüthgen, 1961:39 (comparison with *Psenulus brevitarsis*); van der Vecht, 1961a:27 (type material of Fabricius discussed); Balthasar, Hrubant, and Hrubant, 1967:170 (Bulgaria: Slanchev Bryag near Nessebar); Lefeber, 1967c:219 (Netherlands: Bemelen, Sint Pietersberg, Wolder); Merisuo, 1967b:152 (illustration of male genitalia), 153 (illustration and description of pygidial plate); Niedl and Deneš, 1967:81 (Czech Republic: Třeboň area); Lefeber, 1969b:99 (Netherlands: Kanne, Sint Pietersberg; Belgium: Lanaye), 1969c:234 (Netherlands: Sint Pietersberg = Montagne Saint Pierre); Felton, 1971:213 (Great Britain: Kent: Sit-

- tingbourne); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Felton, 1974:406 (map of distribution in Great Britain); Lefeber, 1975b:154 (Belgium); Guichard, 1977:252 (Great Britain: Surrey); Radović and Krunić, 1979:unpaginated foldout (nesting in wood, foreleg structure); Felton, 1981:84 (Great Britain: Kent); Józán, 1981:30. (Hungary: Hortobágy National Park); Archer, 1989a:131 (Great Britain: York: found before coniferization), 1990b:136 (England: city of Leicester), 1992b:21 (Great Britain: Yorkshire: Skipwith Common), 1996b:37 (Great Britain: Nottinghamshire: Sherwood Forest).
- Psen aterrimus* Stephens, 1829:362, British Isles, nomen nudum. Synonymized with *Psen atratus* by F. Smith, 1855:99.
- Psen caliginosus* Stephens, 1829:362, British Isles, nomen nudum. Synonymized with *Psen atratus* by F. Smith, 1855:99.
- Psen montanus* A. Costa, 1861:34, ♂. Holotype or syntypes: ♂, Italy: Sile (Napoli). Tentatively synonymized with *Psenulus pallipes* by de Beaumont, 1937:85. – Kirchner, 1867:217 (in catalog of European Hymenoptera); Dalla Torre, 1897:348 (in catalog of world Hymenoptera).
- Psen haemorrhoidalis* A. Costa, 1867c:102 and 1871b:31 ♀, actually ♂. Syntypes: ♂, Italy: Piemonte (Napoli). Synonymized with *Psenulus pallipes* by de Beaumont, 1937:85. – Ed. André, 1888:182 (in revision of Sphecidae of Europe and Algeria), 13* (bibliographic references); nec Berland, 1925d:131 (= *Psenulus berlandi*); Bischoff, 1931:8 (Spain). – **As *Psen pallipes* var. *haemorrhoidalis***: Tournier, 1889:109 (new status); Dalla Torre, 1897:349 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera); de Beaumont, 1937:85. – **As *Psenulus haemorrhoidalis***: Ceballos, 1956:358 (new combination, in catalog of Hymenoptera of Spain); Romanova, 1969:134 (Russia: North Caucasus).
- Psen minutus* Tournier, 1889:125, ♀. Holotype or syntypes: ♀, Switzerland: Peney near Genève (MHNG). Synonymized with *Psenulus fuscipennis* by W. Schulz, 1911b:138, with *Psen fuscipennis* by Berland, 1925d:132, and with *Psenulus atratus* by Harttig, 1931c:204. – Tournier, 1889:110 (in key to *Psen* of Switzerland); Dalla Torre, 1897:348 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera). – **As *Psenulus minutus***: Blüthgen, 1937:235 (new combination, Germany: Saale River valley: Jena area, Naumburg); Nouvel and Ribaut, 1953:179 (France: Dordogne: Bergerac, Haute-Garonne: Saint-Béat, Haute-Saône: Port-sur-Saône), 1958:15 (France: Pyrénées-Orientales: Banyuls-sur-Mer area).
- Psen nigricornis* Tournier, 1889:127, ♀. Holotype or syntypes: ♀, Switzerland: Peney near Genève (MHNG). Synonymized with *Psenulus fuscipennis* by W. Schulz, 1911b:138, with *Psen fuscipennis* by Berland, 1925d:132, and with *Pallipes atratus* by Harttig, 1931c:204. – Tournier, 1889:110 (in key to *Psen* of Switzerland); Dalla Torre, 1897:349 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera).
- Psen pygmaeus* Tournier, 1889:129, ♀, ♂. Syntypes: Switzerland: Peney near Genève (MHNG). Synonymized with *Psenulus fuscipennis* by W. Schulz, 1911b:138, with *Psen fuscipennis* by Berland, 1925d:132, and with *Psenulus atratus* by Harttig, 1931c:204. – Tournier, 1889:110 (in key to *Psen* of Switzerland); Dalla Torre, 1897:350 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera); Grandi, 1954:241 (Italy; as *pallipes pygmaeus*); de Beaumont, 1964a:293 (as *pallipes* forme *pygmaea*; discussion); R. Bohart and Menke, 1976:173 (as *pallipes pygmaeus*, in checklist of world Sphecidae); Pagliano, 1990:113 (in catalog of Italian Sphecidae, as *pallipes pygmaeus*).
- Psenulus rubicola* Harttig, 1931c:206, ♀, ♂. Substitute name for *Sphex pallipes* Panzer, 1798. Synonymized with *Psenulus atratus* by Richards, 1935a:166, and with *Psenulus pallipes* by de Beaumont, 1937:85. – Harttig, 1931c:208 (in key to German *Psenulus*), 210 (diagnostic characters), 1933:3 (nesting habits); Grandi, 1934:74 (nesting habits), 130 (Italy: Emilia-Romagna: Cervia); Minkiewicz, 1935:216 (Poland: Lake Garbaś 20 km W Suwałki); Zavadil, Šusterka, and Baťa, 1937:217 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:124 (northwestern Germany); Giner Marí, 1943a:54 (in Sphecid Fauna of Spain);.
- Psenulus puncticeps* Gussakovskij, 1932:6, ♀, junior secondary homonym of *Psenulus puncticeps* (Cameron, 1907). Syntypes: ♀, Russia: Kamchatka or Ussuri area (Stockholm), Tomsk, Kursk (ZIN). – Gussakovskij, 1934a:8 (China: Szechuan Province), 1934b:84 (Sakhalin: Toyohara); de Beaumont, 1937:85 (as synonym of *Psenulus pallipes*); Merisuo, 1937a:86 (synonymy), 88 (description of ♂), 89 and 90 (in key to *Psenulus* of Finland), 91 (locality records from Finland), 1938:251 and 253 (in key to Pseninae of Finland); Valkeila, 1962b:66 (southwestern Finland); Merisuo,

1967b:152 (illustration of male genitalia), 153 (illustration and description of pygidial plate); Romanova, 1969:134 (Russia: North Caucasus); Tsuneki, 1973t:134 (*Psenulus puncticeps* Gussakovskij, a junior homonym = *gussakovskiji* van Lith). – **As *Psenulus pallipes puncticeps***: Tsuneki, 1959g:28, 29 (in key to *Psenulus* of Japan and Korea), 41 (new status, in revision of *Psenulus* of Japan and Korea), 1963f:51, 52 (in key to Japanese *Psenulus*). – **As *Psenulus atratus puncticeps***: van Lith, 1972 (new subspecific combination, in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*).

Psenulus gussakovskij [sic] van Lith, 1973:116. Substitute name for *Psenulus puncticeps* Gussakovskij, 1932. Synonymized with *Psenulus pallipes* by Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:45. – Vikberg, 1986b:75 (Finland; as good species); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:31 (Japan: Gifu Prefecture); Terayama and Gōukon, 2012:12, 13, 22 (in key to *Psenini* of Japan, in Japanese). – **As *Psenulus pallipes gussakovskiji***: van Lith, 1979a:151 (new status, emendation, faunal records, diagnostic characters); Tsuneki, 1974a:367 (Korea); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Kazenas, 1980e:88 (Russia: Primorskiy Krai); Tsuneki, 1982b:15 (known from Korea); Paik, 1985:198 (in list of Sphecidae of Korea); Tsuneki, 1991:200 (Korea); Nemkov, 1992b:244 (Russia: Far East: Khingan Nature Reserve); Togashi, 2001:19 (Japan: Ishikawa Prefecture: Shiramine, as *gussakovskii*); J. Kim and Yang, 2010:144 (in checklist of Korean Pemphredoninae, as *pallipes gussakovskij*); J.-K. Kim, 2014:446 (in catalog of Sphecidae s.l. of Korean Peninsula, as *pallipes gussakovskij*).

As *Psen compressicornis* Latreille: Stephens, 1829a:361 (in catalog of British insects), and 1829b:33 (in checklist of British insects), corrected to *Psen atratus* by F. Smith, 1855:199.

ssp. *parenosus* (Pate)

As *Diodontus trisulcus* Malloch, 1933:4 (new combination, in revision of North American *Psenini*), corrected to *Diodontus parenosus* by Pate, 1944c:133.

Diodontus parenosus Pate, 1944c:133. Lectotype: ♀, USA: District of Columbia: Washington (USNM), designated by Krombein, 1950c:37 (USNM) – **As *Diodontus atratus parenosus***: Krombein, 1950c:36 (new status, discussion of characters), 40 (in key to North American *Psenulus*); Krombein in Muesebeck et al., 1951:958 (in catalog of North American Hymenoptera); Krombein, 1955a:15 (prey), 1958b:22 (prey), 1958f:188 (in supplement to catalog of North American Hymenoptera: prey); E. Baker, 1962:5 (parasite: *Lackerbaueria krombeini*, new species, an acarid); Krombein, 1962b:13 (infestation by acarid *Lackerbaueria krombeini* E. Baker); Evans, 1959b:144 (description of larva); Krombein, 1963f:274 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:146 (Pennsylvania: Presque Isle State Park); Krombein, 1967b:232 (nesting habits observed in artificial nests). – **As *Psenulus pallipes parenosus***: R. Bohart and Menke, 1976:173 (new combination, in checklist of world Sphecidae); Krombein, 1979b:1600 (in catalog of North American Hymenoptera); Finnamore, 1982:62 (in Sphecid Fauna of Southern Quebec); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County) Ahlstrom, 1995:108 (in checklist of insects of North Carolina); Sugar et al., 1998:15 (Canada: southern Ontario).

ssp. *yamatonis* Tsuneki

Psenulus pallipes yamatonis Tsuneki, 1959g:42, ♀, ♂. Holotype: ♀, Japan: Fukui Prefecture: Sakatani (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1959g:28 (in key to *Psenulus* of Japan and Korea), 1963f:51, 52 (in key to Japanese *Psenulus*); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Haneda, 1968a:44 (Japan), 1968b:55 (Japan: Nagano Prefecture: Ina District); T. Iida, 1968:21 (Japan); Itami, 1968a:15 (Japan: Yamagata Prefecture: foot of Mount Iide, as *pallipes yamato*); Okuno, 1968:31 (Japan); Tano, 1968:32 (Japan); Haneda, 1969:69 (Japan: Yamanashi Prefecture); Itami, 1969:48 (Japan: Niigata Prefecture); Tsuneki, 1969i:60 (Japan: Fukui Prefecture: Taichōdzi temple), 1969k:64 (Japan: Mount Hyonosen), 1970a:4 (nesting habits), 1970b:10 (central Japan); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*; as *atratus yamatonis*); Nambu, 1973a:151 (Japan: Saitama Prefecture); Suda, 1973:122 (Japan: Yamanashi Prefecture); Tsuneki, 1973l:72 (nesting habits); Nambu, 1975b:67 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tano, 1994a:4 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Museum); To-

gashi, 2001:19 (Japan: Ishikawa Prefecture: Shiramine); Suda, 2004:39 (Japan: Yamanashi Prefecture). – **As *Psenulus yamatonis***: Haneda, Inoue, Nozaka, Tano, Kurokawa, and H. and T. Murota, 2005:64 (new status, Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:45 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:45 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa and Murota, 2006a:20 (Japan: Toyama Prefecture).

111. *pan de Beaumont*

Psenulus pan de Beaumont, 1967a:340, ♀, ♂. Holotype: ♀, Turkey: Ankara: Kavaklıdere (BMNH). – van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*), 1979a:151 (first recorded from Lebanon and Iran); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Dollfuss, 2004a:114 (Iran, Kazakhstan, Syria, Turkey); Ljubomirov and Yildirim, 2008:172 (in catalog of Crabronidae of Turkey); Murai and Amr, 2011:120 (recorded from Syria by Dollfuss, 2004a); Yıldırım, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Rezaei and Fallahzadeh, 2015:12 (Iran: Fars: Dasht e Arzhan at 29°38'N 51°58'E, Kaftarak at 29°34'N 52°41'E, and Shiraz at 29°36'N 52°28'E); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:76 (Iran: known from Fars Province).

Psenulus tobiasi Budrys, 1988:103, ♀. Holotype: ♀, Georgia: Tbilisi (ZIL). Paratype: Azerbaijan: Baku. Synonymized with *Psenulus pan* by Budrys, 2000:67

112. *parvidentatus van Lith*

Psenulus parvidentatus van Lith, 1972:162, ♀. Holotype: ♀, Taiwan: Taihorin (ZMHU). – van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

113. *patei Arnold*

Psenulus patei Arnold, 1940:132, ♀ (as *Patei*, incorrect original capitalization). Holotype: ♀, Zimbabwe: Bulawayo or Khami (SAM). – Leclercq, 1961a:22 (in key to Afrotropical *Psenulus*), 29 (bibliographic reference, Zimbabwe: Matobo); van Lith, 1974a:63 (supplementary description), 97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); de Melo, 1997:4 (abdominal silk glands in adult females); Dollfuss, 2004a:114 (Kenya: Voi, Zimbabwe: Ngezi Recreational Park at Kwekwe). Not listed by Bohart and Menke (1976).

114. *paulisae Leclercq*

Psenulus paulisae Leclercq, 1961a:23, ♀, ♂. Holotype: ♀, Zaire: Haut-Uele: Paulis (MRAC). – Leclercq, 1961a:10 (in key to Afrotropical *Psenulus*); van Lith, 1974a:61 (supplementary description), 97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females); Dollfuss, 2004a:114 (Kenya: Voi).

115. *penangensis (Rohwer)*

Diodontus penangensis Rohwer, 1923b:593, ♀. Holotype: ♀, Malaysia: Penang: Island of Penang: no specific locality (USNM). – **As *Psenulus penangensis***: van Lith, 1962:46 (new combination, in revision of Indo-Australian *Psenulus*), 114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

116. *pendleburyi van Lith*

Psenulus pendleburyi van Lith, 1962:38, ♀. Holotype: ♀, British Borneo, now Malaysia: Sabah: Mount Kinabalu: Lumu Lumu (BMNH). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

117. *peterseni* van Lith

Psenulus peterseni van Lith, 1970:101, ♀. Holotype: ♀, Philippines: Tawi Tawi: Tarawakan (ZMUC). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Dollfuss, 2004a:114 (Laos: Ban Itou).

118. *philippinensis* (Rohwer)

Diodontus philippinensis Rohwer, 1921:317, ♀. Holotype: ♀, Philippines: Luzon: Los Baños (USNM). – Baltazar, 1966:340 (in catalog of Hymenoptera of Philippines, as *philippinensis philippinensis*). – **As *Psenulus philippinensis***: van Lith, 1962:54 (new combination, in revision of Indo-Australian *Psenulus*, as *philippinensis philippinensis*), 114 (in checklist of Indoaustralian Psenini, as *philippinensis philippinensis*), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *philippinensis philippinensis*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:104 (Philippines: Luzon; as *philippinensis philippinensis*); de Melo, 1997:4 (abdominal silk glands in adult females).

spp. *dapitanensis* (Rohwer)

Diodontus dapitanensis Rohwer, 1923b:594, ♀. Holotype: ♀, Philippines: Mindanao: Dapitan (USNM). – **As *Psenulus philippinensis dapitanensis***: van Lith, 1962:56 (new combination, new status, in revision of Indo-Australian *Psenulus*), 114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:104 (Philippines: Biliran, Negros). – **As *Diodontus philippinensis daitanensis***: Baltazar, 1966:340 (in catalog of Hymenoptera of Philippines).

119. *pictus* van Lith

Psenulus pictus van Lith, 1976b:110, ♂. Holotype: ♂, Papua New Guinea: Morobe Province: Wau (Bishop Mus.).

120. *pseudajax* van Lith

Psenulus pseudajax van Lith, 1962:93, ♂. Holotype: ♂, Indonesia: Java: Central Java: Siluwok Sawangan (RMNH). – van Lith, 115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*; as *pseudajax pseudajax*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki et al., 1992b:3 (Philippines, variation).

spp. *holtmanni* van Lith

Psenulus pseudajax holtmanni van Lith, 1972:181, ♂. Holotype: ♂, Philippines: Island of Culion (Bishop Mus.). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

121. *pulcherrimus* (Bingham)

Psen pulcherrimus Bingham, 1896c:443, ♀. Holotype or syntypes: ♀, Burma: Tenasserim: Amherst (BMNH). – Bingham, 1897:263 (redescription); van Lith, 1959:62 (belongs to *Diodontus*). – **As *Psenulus pulcherrimus***: van Lith, 1962:101 (new combination, original description copied, comments on identity, as *pulcherrimus pulcherrimus*), 111 (twig nesting), 115 (in checklist of Indoaustralian Psenini, as *pulcherrimus pulcherrimus*), 1966:41 (bibliographic references), 1969:200 (Vietnam, as *pulcherrimus pulcherrimus*), 209 (in list of species and subspecies of *pulcherrimus* species group, as *pulcherrimus pulcherrimus*), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *pulcherrimus pulcherrimus*), 1973b:140 (Nepal, characteristics of local population); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:115 (first records from Laos, Singapore, and Thailand; variation), 1978b:9 (first recorded from Sri Lanka); Dollfuss, 2004a:115 (Laos, Malaysia, Thailand); Pham, Kumar and Danilov, 2015:1595 (in list of Sphecidae s.l. of Vietnam, as *pulcherrimus pulcherrimus*).

spp. *eburneus* van Lith

Psenulus pulcherrimus eburneus van Lith, 1969:200, ♀. Holotype: ♀, India: Bengal: Ranchi (UDE, this abbreviation is not explained). – van Lith, 1969:209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of

Palaearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

ssp. *projectus* van Lith

Psenulus pulcherrimus projectus van Lith, 1962:102, ♀, ♂. Holotype: ♀, Indonesia: Java: East Java: Malang (RMNH). – van Lith, 1962:111 (preying on cicadellids), 115 (in checklist of Indoaustralian Psenini), 1966:42 (bibliographic references), 1969:200 (Island of Kangean), 209 (in list of species and subspecies of *pulcherrimus* species group), 1972:196 (Java), 201 (in list of Palaearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki et al., 1992b:2 (Philippines).

122. *puncticeps* (Cameron)

Psen puncticeps Cameron, 1907:91, ♀. Holotype or syntypes: India: Himachal Pradesh: Simla (BMNH). – van Lith, 1959:62 and 1962:111 (probably belongs to *Psenulus*). – **As *Psenulus puncticeps***: van Lith, 1972:197 (new combination, in list of Palaearctic, Indo-Australian, and Western Pacific *Psenulus*), 1973a:116 (new combination), 1973b:136 (Nepal, characteristic of local population); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1997b:99 (first record from Laos: Sayaboury; and from Flores), 1978b:6 (first record from Sri Lanka, India: Nilgiri Hills); de Melo, 1997:4 (abdominal silk glands in adult females); Dollfuss, 2004a:115 (Laos: Khammouan Province: Nakai at 17°43'N 105°09'E, Malaysia: Ipoh 5 km E Tanjung Rambutan).

Diodontus antennatus Rohwer, 1923b:595, ♂. Junior secondary homonym of *Diodontus antennatus* (Mickel, 1916:348) R. Bohart and Menke, 1976:179. Holotype: ♂, Singapore (USNM). Synonymized with *Psenulus puncticeps* by van Lith, 1973b:136. – **As *Psenulus antennatus***: van Lith, 1962:44 (new combination, in revision of Indo-Australian *Psenulus*), 111 (twig nesting), 113 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palaearctic, Indo-Australian, and Western Pacific *Psenulus*), 1973b:136 (type locality: Bombay, not Simla).

ssp. *rufipes* van Lith

Psenulus puncticeps rufipes van Lith, 1976b:99, ♂. Holotype: ♂, Indonesia: Sumba: Pogobina (MHNB).

123. *quadridentatus* van Lith

Psenulus quadridentatus van Lith, 1962:37, ♀, ♂. Holotype: ♀, Malaysia: Pahang: Cameron Highlands Ringlet (originally H.T. Pagden coll., now BMNH). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:162 (Vietnam), 198 (in list of Palaearctic, Indo-Australian, and Western Pacific *Psenulus*), 1973b:133 (Nepal, characteristic of local population); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); van Lith, 1976b:98 (Malaysia: Pahang: Cameron Heights); Dollfuss, 2004a:115 (Laos: Louangnantha Province: Nantha-Muang Sing at 21°09'N 10°10'E, Malaysia: Perak: Gerik area and Pahang: Tanah Rata area); Pham, Kumar and Danilov, 2015:1590 (in list of Sphecidae s.l. of Vietnam).

ssp. *formosanus* Tsuneki

Psenulus quadridentatus formosanus Tsuneki, 1966c:12, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Sangkang (Entomological Laboratory, Kyushu Univ.). – Tsuneki, 1968d:56 (Taiwan); van Lith, 1972:198 (in list of Palaearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan).

124. *reticulosus* Arnold

Psenulus reticulosus Arnold, 1945:154, ♀, ♂. Syntypes: Madagascar: Perinet, Rogez (MNHN). – Arnold, 1945:154 (in key to *Psenulus* of Madagascar); Leclercq, 1961a:18 (in key to Afrotropical *Psenulus*), 30 (bibliographic references, Madagascar: Mandaraka), 1961d:117 (Madagascar); van Lith, 1974a:70 (supplementary description), 97 (closely related to *Psenulus sapobaensis*), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Pulawski, 2003b:798 (in checklist of Malagasy Sphecidae); Madl, 2014a:996 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records).

125. rufobalteatus (Cameron)

Psen rufobalteatus Cameron, 1904d:219, ♀ (as *rufobalteata*, incorrect original hyphenation and termination). Holotype or syntypes: ♀, India: Assam: Khasia Hills (OXUM). – Ramakrishna Aiyar, 1916:556 (in catalog of Indian aculeates described after Bingham, 1897); van Lith, 1959:62 and 1962:111 (probably belongs to *Psenulus*). – **As *Psenulus rufobalteatus***: van Lith, 1965:59 (new combination, location and identity of type), 1972:157 (redescription), 198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

126. rugifrons van Lith

Psenulus rugifrons van Lith, 1974a:80, ♀. Holotype: ♀, Ethiopia: Jimma (USNM). – van Lith, 1974a:99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

127. rugosus van Lith

Psenulus rugosus van Lith, 1962:35, ♀. Holotype: ♀, Philippines: Mindanao: Dapitan (USNM). – van Lith, 1962:113 (in checklist of Indoaustralian Psenini), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae). – **As *Diodontus rugosus***: Baltazar, 1966:341 (new combination, in catalog of Hymenoptera of Philippines, junior secondary homonym of *Diodontus rugosus* W. Fox, 1892).

128. saltitans Arnold

Psenulus saltitans Arnold, 1958:135, ♀. Syntypes: Zimbabwe: Cashel (SAM). – Leclercq, 1961a:22 (in key to Afrotropical *Psenulus*), 29 (bibliographic reference); van Lith, 1974a:63 (supplementary description), 97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains).

129. sandakanensis (Rohwer)

Diodontus sandakanensis Rohwer, 1923b:597, ♂. Holotype: ♂, Malaysia: Sabah (in Borneo): Sandakan (USNM). – **As *Psenulus sandakanensis***: van Lith, 1962:73 (new combination, in revision of Indo-Australian *Psenulus*), 114 (in checklist of Indoaustralian Psenini), 1967:20 (Borneo), 1972:173 (N Borneo; comments), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

130. sapobaensis van Lith

Psenulus sapobaensis van Lith, 1974a:70, ♀. Holotype: ♀, Nigeria: Sapoba (CNC). – van Lith, 1974a:97 (closely related to *Psenulus reticulosus*), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Sarazin, 1986:308 (holotype in CNC).

131. schencki (Tournier)

Psen schencki Tournier, 1889:112, ♀ (as *Schencki*, incorrect original capitalization). Holotype or syntypes: ♀, Switzerland: Peney near Genève (MHNG). – Tournier, 1889:109 (in key to *Psen* of Switzerland); Kohl, 1893a:39 (Austria: Niederösterreich); Dalla Torre, 1897:350 (in catalog of world Hymenoptera, as *schenkii*); Schletterer, 1901:218 (Croatia: southern Istria Peninsula); Kubes, 1905:83 (Czech Republic: Kolín); Mantero, 1905:66 (Italy: Toscana: Isola del Giglio); de Gaulle, 1908:103 (in catalog of French Hymenoptera); W. Schulz, 1911b:136 (as new synonym of *Psenulus atratus*); Berland, 1925d:131 (in Sphecidae Fauna of France); Vergne, 1955:5 (France: Auvergne); Vogrin, 1955:38 (Yugoslavia). – **As *Diodontus schencki***: Wolf, 1959b:25 (new combination, Germany: Nassau); Babiý, 1964:115 (Austria: Land Salzburg). – **As *Psenulus schencki***: Harttig, 1931c:204 (new combination, valid species), 207 and 209 (in key to German *Psenulus*), 209 (diagnostic characters); Crèvecoeur and Maréchal, 1932:71 (first records from Belgium: Chaudfontaine and Sy); Grandi, 1934:75 (nest in a gallery of *Trochilium tipuliforme* Clerck, a sesiid), 130 (Italy: Emilia-Romagna: vicinity of Bologna); Harttig, 1935:5 (Germany: Niedersachsen: Heiligenberg); Crèvecoeur and Maréchal, 1936:249 (in catalog of Belgian Hymenoptera, Barvaux-sur-Ourthe); de Beaumont, 1937:81 (in revision of Palearctic

Psenini); van Lith, 1937a:35 (first record from Netherlands: Bemelen); Zavadil, Šustera, and Bat'a, 1937:218 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:124 (northwestern Germany); Leclercq, 1941b:10 (Belgium: Liège area, nest parasite: *Eurytoma nodularis* Boheman); Paul, 1941:50 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Bat'a, 1942:86 (Czech Republic); Balthasar, 1943:42 (Czech Republic: Moravia: Zlin area); Benno, 1943:68 (Netherlands); van Lith, 1943:95 (nest structure), 96 (pupation inside cocoon), 148 (distribution in Netherlands); Carl and de Beaumont, 1947:68 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); van Lith, 1947:107 (Netherlands); Balthasar, 1948:144 (Slovakia: Kovačov); Zavadil in Zavadil and Šnoflak, 1948:146, 147 (in key to Sphecidae of Czechoslovakia); Noskiewicz and Chudoba, 1949:425 (Poland: Dolny Śląsk: Kamieniec Żąbkowicki); 1950b:23 (Germany: Rheinland-Pfalz: Lorelei); van Lith, 1951:213 (nesting habits), 216 (previously known nest parasites); Bat'a, 1952:167 (Czech Republic); Nouvel and Ribaut, 1953:179 (first record from France: Haute-Garonne: Saint-Béat); Fahlander, 1954:252 (Sweden: Gästrikland Region); Yarrow, 1954a:41 (first record from Great Britain: Surrey); Aerts, 1955:65 (Germany: Rheinland); Bajári, 1957a:78, 79 (in key to Hungarian Sphecidae), 1957b:138 (first record from Hungary); Benno, 1957:144 (Netherlands: Tilburg area, nesting in stems of *Rubus*); Grandi, 1957:390 (Italy: Abruzzi); Benno, 1958b:12 (in review of Dutch Sphecidae); de Beaumont, 1958c:206 (Swiss National Park), 1959a:30 (Italy); Felton, 1959:244 (Great Britain: Surrey: Woking); Noskiewicz and Puławski, 1960:57, 59 (in key to Polish Sphecidae); Grandi, 1961:221 (nesting habits), Hoop, 1963b:7 (Germany: Schleswig-Holstein); de Beaumont, 1964c:95 (in Sphecid Fauna of Switzerland), 1965a:56 (Greece); Benno, 1967:38 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:340 (Turkey); Gauss, 1967:555 (Germany: Baden-Württemberg); J. Heinrich, 1967:77 (Germany: Bayern, Aschaffenburg, Kahl); Merisuo, 1967b:152 (illustration of male genitalia), 153 (illustration and description of pygidial plate); Niedl and Deneš, 1967:80 (Czech Republic: Třeboň area); Benedek, 1968:74 (Hungary, visiting flowers of *Anthriscus silvestris* (L.) Hoffm.); Lefeber, 1968b:95 (Netherlands: Kannerbos, Sint Pietersberg); Benedek, 1969a:84 (Hungary; marshy meadow); Danks, 1969:224 (Great Britain: Surrey: Surbiton); Lefeber, 1969c:234 (Netherlands: Sint Pietersberg = Montagne Saint Pierre); Schmidt, 1969:165 (Germany: Rhein-Main area: previous record from Köln-Rösrath refers to *Psenulus pallipes*); Oehlke, 1970:735 (Democratic Germany); Danks, 1971a:346 (nesting habits), 1971c:80 (nest mortality); Felton, 1971:213 (England: Kent: Sittingbourne); Schmidt, 1971a:63 (comparison with *Psenulus fulvicornis*); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Balthasar, 1972:256 (in Sphecid Fauna of Czechoslovakia); Kofler, 1972:109 (Austria: eastern Tirol); Niedl and Deneš, 1972:152 (Czech Republic: Třeboň area); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Erlandsson, 1974:77 (Yugoslavia); Gauss, 1974:199 (Germany: Baden-Württemberg: Witte Valley, ♀ corresponding to *fulvicornis* found in copula with normal ♂); Leclercq, 1974b:197 (locality records from France, Czechoslovakia, and Slovenia); Lefeber and Petit, 1974:163 (Belgium: Plombières); Lefeber, 1975b:154 (Belgium); Lomholdt, 1975c:168 (in Sphecid Fauna of Fennoscandia and Denmark); Merisuo, 1975a:78 (gynandromorph specimen); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Eck, 1976:92 (Democratic Germany); Guichard, 1977:252 (Great Britain: Surrey); Haeseler, 1977a:26 (Germany: Friesian Islands: Island of Norderney); Kolesnikov, 1977:319 (Russia: Bryansk Oblast'); Schmidt, 1977/78:56 (Germany: Rheinland-Pfalz: Gonsenheimer Wald); Puławski, 1978:238 (in key to Sphecidae of European part of former USSR); Schmidt, 1977/78:56 (Germany); Schwammberger, 1978:418 (Germany: Württemberg); Benedek, 1979:232 (Hungary: Bakony Hills); Edwards, 1979:70 (Great Britain: Sussex County; as *schenki*); Pagliano, 1980:130 (Italy: San Rossore); Richards, 1980:65 (in key to Sphecidae of British Isles); Westrich, 1980:630 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressel, 1981:321 (Austria: Niederösterreich: Scheibbs District); Felton, 1981:84 (Great Britain: Kent); Gayubo, 1981a:143 (first record from Spain: Sierra de Béjar: Palomares de Béjar); Józán, 1981:305 (Hungary: Hortobágy National Park, as *schenki*); Axelsson, 1982:79 (Sweden); Skibińska, 1982:118, 122 (Poland: Mazovian Voivodship: Jelonki, Ursynów, Warszawa); Dollfuss, 1983b:5 (in catalog of Sphecidae of Austria); Janzon, 1983:171 (Sweden: Öland); Riemann, 1983:82 (Germany: Bremen-Daverden area); Gayubo, 1984a:168 (Spain: previously recorded from Salamanca Province); Mingo and Gayubo, 1984a:104 (redescription, Spain: Madrid: Alcalá de Henares; Salamanca); Haack, Tschartke, and Vidal, 1984:132 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Schmidt,

1984:244 (Germany: Baden-Württemberg); Haeseler, 1985c:571 (Germany: Friesian Islands); Lefeber, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:63 (Germany: Südpfalz); Skibińska, 1986a:157 (Poland: Warszawa area: rural and suburban parks), 160 (gardens), 162 (urban parks), 164 (streetside green), 168 (green areas of housing estates), 174 (various green urban habitats); Schmidt and Westrich, 1987:367 (Germany: Mainz area); M. Cooper, 1988b:206 (Great Britain: Oxford); Dollfuss, 1988:10, 21 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Kowalczyk, 1988a:44 (Poland: Rogów); Wolf, 1988b:143 (Germany: Rheinland-Westfalen); Jacobs, 1989:6 (Germany: Mecklenburg-Vorpommern); Józán, 1989:100 (Hungary: Tihany Nature Reserve); Pádr *in* Šedivy, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:96 (Belarus: Berezinskiy Nature Reserve); Skibińska, 1989b:291 (Poland: moist meadow in Warszawa area); Jacobs and Oehlke, 1990:124 (in supplementary key to Oehlke, 1970); Kowalczyk, 1990:290 (Poland: Góry Świętokrzyskie); Pádr, 1990:77 (Czech Republic: Praha area); Pagliano, 1990:113 (in catalog of Italian Sphecidae); Rohe, 1990:1049 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:535 (Austria: Kärnten); Day, 1991:xviii (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:49 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991a:89, 93, 104 (Poland: Łódź); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve SE Koblenz); Józán, 1992b:172 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nilsson, 1992:54 (Sweden); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); Wolf, 1992c:23 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Asís, Gayubo, and Tormos, 1993:55 (description of larva); Jakubzik and Cölln, 1993:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*); Józán, 1993:412 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife bei Altenahr); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Felton and Schneider, 1994:290 (Luxemburg); Junck, Schoos, and Schoos, 1994:96 (Luxemburg: Bettendorf); Kowalczyk, 1994:73 (Poland: Łagiewniki forest in Łódź); Theunert, 1994c:50 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Negrisola *in* Minelli, Ruffo, and La Posta, 1995b:11 (in catalog of Italian fauna); Papp and Józán, 1995:146 (Hungary: Síkfökút oak forest); Schmid-Egger, 1995:64 (Germany: NW Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:207 (summary of records from Germany: Rheinland-Pfalz Province); K. Schmidt, Schmid-Egger, and Doczkal, 1995:8 (relationship to *Psenulus fulvicornis*); Wolf, 1995:16 (Germany: Rheinland-Pfalz: near Lorelei Rock on Rhein River); Yeo and Corbet, 1995:35 (in field guide to British solitary wasps); Arens, 1996:440 (Germany: Bayern: Bayreuth area); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:75 (Great Britain: summary of records from Essex); Jakubzik, 1996:253 (Germany: Köln); Jakubzik and Cölln, 1996a:323 (Germany: nesting in stems of *Rubus*), 336 (in keys to cocoons), 1996b:401 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:378 (Germany: Baden-Württemberg: not endangered); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg), 110 (locality records); Woydak, 1996:19 (Germany: Westfalen: summary of distribution and nesting habits); Asís, Gayubo, and Tormos, 1997b:200 (description of larva); Celary, 1997:57 (in checklist of Animals of Poland); Riemann, 1997:50 (Germany: Achim 14 km SE Bremen); Schmidt and Schmid-Egger, 1997:27 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); Georgiev, Luvchiev, Ljubomirov, Markova, and Bochev, 1998:20 (nesting in galleries of sesiid *Paranthrene tabaniformis* Rottentburg); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1182, 1184 (Germany: Rheinland-Pfalz); Józán, 1998:311 (Hungary: Duna-Dráva National Park); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); van der Smissen, 1998:68 (Germany: Schleswig-Holstein); K. Weber, 1998:148 (Germany: Bayern: Bamberg area); Cölln and Jakubzik, 1999:29 (Germany: Rheinland-Pfalz: Keuper-Scharren SW Hungerburg); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Kuhlmann, Wolf, and Woydak, 1999:570 (Germany: endangered in Nordrhein-Westfalen); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Neumayer,

Schwarz, and Bregant, 1999:225 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:108 (in catalog of Belgian aculeates); M. Schwarz, 1999:85 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:161 (in Sphecidae Fauna of Germany); Dressler, 2000:34 (Germany: Hessen: Darmstadt area); Gayubo, González, and Torres, 2000:184 (Spain: Salamanca Province); Gonzáles, Gayubo, and Tormos, 2000:18 (Andorra: Santa Coloma); Georgiev and Ljubomirov, 2000:42 (reared from larval galleries of cerambycid *Saperda populnea* L.); Jacobs, 2000:9 (Germany: Mecklenburg-Vorpommern: not endangered); Józán, 2000:105 (Hungary: Bakony Mountains); Schmid-Egger, 2000b:276 (Germany: Baden-Württemberg: shores of Rhine River); Zettel, 2000:25 (Austria: Wien); Dollfuss and Bitsch *in* Bitsch et al., 2001:54 (in Sphecidae Fauna of Western Europe); Józán, 2001:278 (Hungary: Somogy County); Ljubomirov, 2001b:47 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:141 (distribution in Germany by provinces); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:63 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:68 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Shlyakhtenok and Skibinska, 2002:32 (Belarus': no specific locality); Wiśniowski, 2002:69 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:63 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Generani, Pagliano, Scaramozzino, and Strumia, 2003:66 (Italy: Arcipelago Toscano); Haeseler, 2003:340 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003: 226 (Hungary: Látrányi Puszta Nature Conservation Area); Kowalczyk and Kurzac, 2003:209 (Poland: Łódź: Botanical Garden); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:69 (Germany: in catalog of wasps and bees of Bayern); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biológica de El Ventorrillo in Sierra de Guadarrama); von der Heide and Metscher, 2003:103 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:136 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:76 (Poland: Pieniny National Park); Deván, 2004:148 (western Slovakia); Dollfuss, 2004a:115 (locality records from Georgia, Greece, Morocco, Turkey, Ukraine); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:263 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:132 (Spain: Madrid: Estación Biológica de El Ventorrillo in Sierra de Guadarrama); Georgiev et al., 2004:239 (nesting in old galleries of cerambycid *Saperda populnea* (L.) in Bulgaria); Jakubzik and Cölln, 2004:274 (in key to nests of Hymenoptera nesting in stems of *Rubus*); Jakubzik, Niehuis, and Cölln, 2004:458 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Majzlan and Deván, 2004:30 (Slovakia: Sekule), 33 (Slovakia: Malacky-Široké); Salzman-Wandeler and Rezbanyai-Reser, 2004:27 (central Switzerland); Schneider and Carrières, 2004:98 (Luxemburg: Bon-Pays Region); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:357 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:32 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:40 and 58 (in checklist of Polish Sphecidae); Burger, 2005:35 (Germany: Thüringen); Gayubo and Özbek, 2005:36 (Turkey: Erzurum: Oltu, Pasinler); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:167 (Austria: Tirol: Lienz District: Lavant, city of Lienz); Kowalczyk and Kurzac, 2005:106 (Poland: Botanical Garden in Łódź); Kraatz, 2005:103 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Pagliano and Negrisoló, 2005:445 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:565 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:18 (Germany: Berlin); Theunert, 2005a:18 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Józán, 2006a:286 (Hungary: Béda-Karapanca section of Duna-Drava National Park), 2006b:179 (Hungary: Zselic hills); Liebig, 2006:40 (Germany: Sachsen: Muskauer Heide); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:110 (Belarus': Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006c:303 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:511 (Czech Republic: Kokořínsko area); Beavis, 2007:95 (Great Britain: Tunbridge Wells and Central High Weald); Jacobs, 2007:58, 60 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:26 (Germany: northwestern Sachsen); Saure, 2007:83 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belarus': Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Shorenko, 2007b:257 (Ukraine: Crimea: Feodosiya); Vago, 2007:174 (France: département du Nord); Venne, Bleidorn, and Lauterbach, 2007:303 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:200

(in catalog of Sphecidae of Czech Republic and Slovakia); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Řiha, Smetana, Straka, and Šima, 2008:67 (Czech Republic: Hády Hill near Brno); Gayubo, González, Tormos, and Asís, 2008:140 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:309 (Germany: Friesian Islands); Ljubomirov and Yildirim, 2008:172 (in catalog of Crabronidae of Turkey); Theunert, 2008:78 (Germany: map of distribution in Niedersachsen and Bremen); Donie, 2009:10 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:29 (Germany: in checklist of Sphecidae of 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, 2009:263 (Bulgaria: Maleshevska Planina); Pagliano, 2009:187 (Italy: Molise: Campolieto; Sardegna: lake Baratz; Valle d'Aosta: Paradisia); Shorenko, 2009:368 (in list of Sphecidae s.l. of Crimea); Straka, Dvořák, and Bogusch, 2009:265 (Czech Republic: Jizerské Mountains and Frýdlant region); Baghirov, 2010:679 (Russia: Altai Territories: village Savvushka); Esser, Fuhrmann, and Venne, 2010:38 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Jakubzik, Kinkler, and Cölln, 2010:155 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Mokrousov, 2010a:63 (Russia: Chuvash Republic, Mordovian Republic: no specific localities), 2010b:100 (Russia: Mordovian Republic: no specific localities); Schmid-Egger, 2010a:18 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:139 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Kononov, 2010:27 (Ukraine); van der Smissen, 2010a:352 (Germany: Schleswig-Holstein: locality records), 2010b:386 (France: Ardèche and Vaucluse: locality records); Baghirov, 2011b:153 (Russia: Altayskiy Krai: Savvushka); Gogala, 2011:10 (Slovenia: Ljubljana); Józán, 2011:180 (in checklist of Sphecidae s.l. of Hungary); Saure, 2011a:7 (Germany: Berlin: former airport Tempelhof); Shlyakhtenok, 2011:95 (Belarus': city of Minsk); Theunert, 2011a:21 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:168 (Germany: Hessen: not endangered); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Boillat, 2012:228 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Krinkler, 2012:25 (Germany: Nordrhein-Westfalen: Leverkusen); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Shlyakhtenok, 2012a:172 (Belarus', and Russia: Krasnaya Polana near Sochi: collected in private plots), 2012b:92 (Belarus': Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:57 (Italy: Toscana: Riserva di San Rossore); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Saure, 2013:21 (Berlin: Treptow-Köpenick: Gosener Wiesen); Shlyakhtenok, 2013:144 (in annotated catalog of aculeate wasps of Belarus'); Bitsch, 2014:410 (recorded from France by van der Smissen, 2010b and Larivière et al., 2012); U. Frommer, 2014:28 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1323 (Germany, Hessen: Roßstein); Hellqvist, Abenius, and Norén, 2014:94 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Ruchin and Antropov, 2014:35 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:9 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Saure, 2015:15 (Germany: Berlin-Lichterfelde); Else, Bolton, and Broad, 2016:46 (in checklist of Aculeata of Great Britain and Ireland: England); Mokrousov and Popov, 2016:590 (Russia: Krasnodarskiy Krai); Stolle and Saure, 2016:925 (Germany: in list of Sphecidae s.l. of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:30 (Turkey: Diyarbakır, Erzurum, and Kars provinces); Di Giovanni, Mei, and Cerretti, 2017:73 (Italy: Lombardia: Riserva Naturale Bosco della Fontana 5 km from Mantova at 45°12'N 10°44'E, found in canopy and understory); Fresno, 2017:147 (Spain: León: Sena de Luna); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia); Shorenko, 2017:79 (in Crimea collected in June and July).

Psen simplex Tournier, 1889:114, ♀. Holotype or syntypes: ♀, Switzerland: Peney near Genève (MHNG). Synonymized with *Psenulus atratus* by W. Schulz, 1911b:136, with *Psen schencki* by Berland, 1925d:132, and with *Psenulus schencki* by Harttig, 1931c:204, synonymy confirmed by de Beaumont, 1937:81. – Tournier, 1889:109 (in key to *Psen* of Switzerland); de Gaulle, 1908:103 (in catalog of French Hymenoptera).

Psen longulus Tournier, 1889:128, ♀, ♂. Syntypes: Switzerland: Peney near Genève (MHNG). Synonymized with *Psenulus atratus* by W. Schulz, 1911b:136, with *Psen fuscipennis* by Berland, 1925d:132, and with *Psenulus schencki* by

Hartig, 1931c:204, synonymy confirmed by de Beaumont, 1937:81. – Tournier, 1889:110 (in key to *Psen* of Switzerland); Dalla Torre, 1897:348 (in catalog of world Hymenoptera); de Gaulle, 1908:103 (in catalog of French Hymenoptera).

132. *scutatus* (Rohwer)

Diodontus scutatus Rohwer, 1921a:310, ♀, ♂. Holotype: ♀, Philippines: Luzon: Los Baños (USNM). – Rohwer, 1923:596 (key to varieties); Baltazar, 1966:341 (in catalog of Hymenoptera of Philippines, as *scutatus scutatus*). – **As *Psenulus scutatus***: van Lith, 1962:23 (new combination, redescription; as *scutatus scutatus*, Philippines), 113 (in checklist of Indoaustralian *Psenini*), 1972:161 (additional description; as *scutatus scutatus*), 198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *scutatus scutatus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae); Tsuneki, 1984b:49 (Philippines; as *scutatus scutatus*); de Melo, 1997:4 (abdominal silk glands in adult females).

ssp. borneensis Rohwer

Diodontus scutatus var. *borneensis* Rohwer, 1923b:596, ♀. Holotype: ♀, Indonesia: Sabah (in Borneo): Sandakan (USNM). – **As *Psenulus scutatus borneensis***: van Lith, 1962:113 (new combination, new status, in checklist of Indoaustralian *Psenini*), 1967:15 (redescription), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

ssp. mindanaoensis Rohwer

Diodontus scutatus var. *mindanaoensis* Rohwer, 1923b:596, ♀. Holotype: ♀, Philippines: Mindanao: Iligan (USNM). – **As *Diodontus scutatus mindanaoensis***: Baltazar, 1966:341 (in catalog of Hymenoptera of Philippines). – **As *Psenulus scutatus mindanaoensis***: van Lith, 1962:27 (new combination, new status, in revision of Indo-Australian *Psenulus*), 113 (in checklist of Indoaustralian *Psenini*), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae).

ssp. sibuyanensis van Lith

Psenulus scutatus sibuyanensis van Lith, 1962:27, ♂. Holotype: ♂, Philippines: Sibuyan (USNM). – van Lith, 1962:113 (in checklist of Indoaustralian *Psenini*), 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:173 (in checklist of world Sphecidae). – **As *Diodontus scutatus sibuyanensis***: Baltazar, 1966:341 (new combination, in catalog of Hymenoptera of Philippines).

133. *segrex* van Lith

Psenulus segrex van Lith, 1972:187, ♀. Holotype: ♀, Indonesia: Sulawesi: Bonthain: Wawa Karaeng (ZMHU). – van Lith, 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

134. *separatus* van Lith

Psenulus separatus van Lith, 1962:38, ♀. Holotype: ♀, Indonesia: Java: Western Java: Sukanegara (RMNH). – van Lith, 1962:113 (in checklist of Indoaustralian *Psenini*), 1967:19 (Borneo, redescription), 1972:162 (Borneo), 198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

135. *sinclairei* Lal

Psenulus sinclairei Lal, 1939:49, ♀ (actually ♂: van Lith, 1966:46). Holotype: ♂, India: Maharashtra: Bombay: Padageon (Pusa coll.). – van Lith, 1966:46 (original description copied, discussion of diagnostic characters), 1969:209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

136. *singularis* van Lith

Psenulus singularis van Lith, 1962:47, ♀. Holotype: ♀, Philippines: Luzon: Sierra Madre Mounts: Nueva Ecija (AEI). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae). –As *Diodontus singularis*: Baltazar, 1966:341 (new combination, in catalog of Hymenoptera of Philippines).

137. *sogatophagus* Pagden

Psenulus sogatophagus Pagden, 1933:97, ♀, ♂. Holotype: ♂, Malaysia: Perak: Bagan Serai (BMNH). – van Lith, 1962:109 (in revision of Indo-Australian *Psenulus*), 111 (summary of nesting habits), 115 (in checklist of Indoaustralian Psenini), 1966:42 (diagnostic characters, Thailand, India: Assam), 1969:209 (in list of species and subspecies of *pulcherrimus* species group), 1972:201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); van Lith, 1976b:120 (first record from Laos).

138. *stevensoni* Arnold

Psenulus stevensoni Arnold, 1940:133, ♀, ♂ (as *Stevensoni*, incorrect original capitalization). Syntypes: Zimbabwe: Bulawayo (SAM). – Leclercq, 1961a:17 (in key to Afrotropical *Psenulus*), 30 (bibliographic reference); van Lith, 1974a:75 (supplementary description of ♀), 97 (member of *luctuosos* species group), 99 (in list of Afrotropical *Psenulus*); Dollfuss, 2004a:115 (Kenya: Voi). Not listed by Bohart and Menke (1976).

139. *sudaorum* Tsuneki

Psenulus sudaorum Tsuneki, 1986:28, ♂. Holotype: ♂, Japan, Yamanashi Prefecture: Kitakoma-gun: Shikkawa Sumata (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1994a:4 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Suda, 2004:39 (Japan: Yamanashi Prefecture); Terayama and Gōkoun, 2012:13, 23 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini).

140. *suifuensis* van Lith

Psenulus suifuensis van Lith, 1972:155, ♀. Holotype: ♀, China: Szechwan: Suifu (USNM). – van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); Budrys, 1988:105 (description of ♂); Dollfuss, 2004a:116 (China: Yunnan: Heishui 35 km N Jijang at 27°13'N 100°19'E); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

141. *suluensis* van Lith

Psenulus suluensis van Lith, 1970:96, ♀, ♂. Holotype: ♀, Philippines: Tawi Tawi: Tarawakan (ZMUC). – van Lith, 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

142. *sungconis* Tsuneki

Psenulus sungconis Tsuneki in Tsuneki et al., 1992b:4, ♂. Holotype: ♂, Philippines: Mindanao: Bukidnon, Sungeo (USNM). – Nuhn and Menke, 1994:26 (holotype in USNM).

143. *suturalis* van Lith

Psenulus suturalis van Lith, 1976b:101, ♂. Holotype: ♂, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.).

144. *taihorinis* Strand

Psenulus taihorinis Strand, 1916a:20, ♀. Holotype: ♀, Taiwan: Taihorin (DEI). – Strand, 1927:254 (in list of species described by author); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *taihorinus*); Oehlke and Wudowenz, 1974:425 (holotype in DEI); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae, as *taihorinus*); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan, as *taihorinus*); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

145. *tanakai* Tsuneki

Psenulus tanakai Tsuneki, 1959g:45, ♀. Holotype: ♀, Japan: Tochigi Prefecture: Nikko: Kuriyama (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1959g:27 (in key to *Psenulus* of Japan and Korea), 1963f:51 (in key to Japanese *Psenulus*); T. Iida, 1968:21 (Japan); Nambu, 1968:22 (Japan); Tsuneki, 1969j:62 (description of ♂), 1970b:10 (central Japan); van Lith, 1972:197 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); Nambu, 1973a:151 (Japan: Saitama Prefecture), 1975b:67 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); Budrys in Nemkov, Kazenas, Budrys, et Antropov, 1995:395 (in key to Sphecidae of Russian Far East); de Melo, 1997:4 (abdominal silk glands in adult females); Tano, 1994a:4 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Togashi, 2001:19 (Japan: Ishikawa Prefecture: Shiramine); Suda, 2004:39 (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, 2005:45 (Japan: Gifu Prefecture), 2006:20 (Japan: Toyama Prefecture); Nemkov, 2008b:18 and 2009b:61 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2012c:436 (in catalog of Crabronidae of Russian Far East); Terayama and Gōkon, 2012:12, 13 (in key to Psenini of Japan, in Japanese), 30 (in list of Japanese Psenini); Mokrousov, 2017e:252 (in catalog of Pemphredoninae of Russia).

146. *tectus* van Lith

Psenulus tectus van Lith, 1976b:♀. Holotype: ♀, Laos: Savannakhet Province: Savannakhet (Bishop Mus.).

147. *thaianus* Tsuneki

Psenulus thaianus Tsuneki, 1974b:638, ♂. Holotype: ♂, Thailand: Ayuttaya (T. Tano coll., Fukui); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

148. *trevirus* Leclercq

Psenulus trevirus Leclercq, 1961a:34, ♂. Holotype: ♂, Zaire: Equateur: Bokuma (MRAC). – Leclercq, 1961a:21 (in key to Afrotropical *Psenulus*); van Lith, 1974a:88 (redescription of ♂), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

149. *trimaculatus* van Lith

Psenulus trimaculatus van Lith, 1962:80, ♂. Holotype: ♂, Malaysia: Penang: S. Batu Feringgi (originally H.T. Pagden coll., now BMNH). – van Lith, 1962:115 (in checklist of Indoaustralian Psenini), 1972:200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); van Lith, 1976b:106 (Singapore, Malaysia; variation, comparison with *Psenulus peterseni*).

150. *trisulcus* (W. Fox)

Psen trisulcus W. Fox, 1898:5, ♀. Holotype: ♀, USA: New Hampshire: no specific locality (ANSP). – Ashmead, 1899d:225 (in checklist of North American Crabronidae); Harrington, 1902:220 (Canada: Ontario: Ottawa); Rohwer, 1916b:658 (in catalog of Hymenoptera of Connecticut); J.Ch. Bradley, 1928:1013 (in catalog of New York Sphecidae); Cresson, 1928:51 (holotype in ANSP). – *As Neofoxia trisulca*: Viereck, 1901b:342 (new combination, in checklist of North American Psenini). – *As Diodontus trisulcus*: J.Ch. Bradley, 1928:1013 (new combination, in catalog of New York Sphecidae, recorded for the second time in a different genus); nec Malloch, 1933:4 (= *Psenulus parenosus*); Brimley, 1938:445 (North Carolina: Raleigh); Krombein, 1950c:37 (synonymy), 40 (in key to North American *Diodontus*, now *Psenulus*), 1951a:143 (Virginia: Dunn Loring; visiting tulip-tree honeydew); Krombein in Muesebeck et al., 1951:958 (in catalog of North American Hymenoptera); Krombein, 1952a:94 (USA: Virginia: Westmoreland State Park), 1952b:178 (USA: West Virginia: Lost River State Park). – *As Psenulus trisulcus*: Viereck, 1916:658 (new combination, in guide to the insects of Connecticut); Rohwer in Viereck, 1925:658 (in key to Sphecidae of Connecticut, not yet found in the State); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); Krombein, 1979b:1600 (in catalog of North American Hymenoptera); Finnamore, 1982:63 (in Sphecid Fauna of Southern Quebec); Ahlstrom, 1995:108 (in checklist of insects of North Carolina); de Melo, 1997:4 (abdominal silk glands in adult females); Buck,

2004:24 (in checklist of Sphecidae of Ontario, Canada), 29 (distribution within Ontario), 37 (first record from Ontario: list of localities).

Diodontus corusanigrens Rohwer, 1920b:228, ♂. Holotype: ♂, USA: Missouri: St. Louis (USNM). Synonymized with *Diodontus trisulcus* by Krombein, 1950c:37. – Rau, 1922:21 (USA: Missouri: St. Louis); Malloch, 1933:5 (in revision of North American Psenini).

Diodontus sulcatus Malloch, 1933:6, ♀. Holotype: ♀, USA: Pennsylvania: Harrisburg (USNM). Synonymized with *Diodontus trisulcus* by Pate, 1944c:133. – Brimley, 1938:445 (North Carolina: Highlands); Krombein, 1939:140 (New York State).

151. *tuberculifrons* (Rohwer)

Diodontus tuberculifrons Rohwer, 1921a:315, ♀. Holotype: ♀, Philippines: Luzon: Los Baños (USNM). – Baltazar, 1966:341 (in catalog of Hymenoptera of Philippines, as *tuberculifrons tuberculifrons*) – As *Psenulus tuberculifrons*: van Lith, 1962:57 (new combination, as *tuberculifrons tuberculifrons*), 114 (in checklist of Indoaustralian Psenini, as *tuberculifrons tuberculifrons*), 1972:170 (Philippines: Luzon, as *tuberculifrons tuberculifrons*), 199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *tuberculifrons tuberculifrons*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

ssp. decoratus van Lith

Psenulus tuberculifrons decoratus van Lith, 1962:59, ♀. Holotype: ♀, Philippines: Sibuyan: no specific locality (USNM). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:199 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae). – As *Diodontus tuberculifrons decoratus*: Baltazar, 1966:341 (new combination, in catalog of Hymenoptera of Philippines).

152. *turneri* Arnold

Psenulus turneri Arnold, 1927:121, ♀ (as *Turneri*, incorrect original capitalization). Holotype: ♀, South Africa: Cape Province: Mossel Bay (BMNH). – Arnold, 1930:9 (in checklist of Afrotropical Sphecidae); Leclercq, 1961a:22 (in key to Afrotropical *Psenulus*), 26 (comparison with *paulisae*); van Lith, 1974a:59 (supplementary description), 97 (member of *turneri* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); de Melo, 1997:4 (abdominal silk glands in adult females).

153. *uelleburgi* van Lith

Psenulus uelleburgi van Lith, 1974a:91, ♀. Holotype: ♀, Equatorial Guinea: Uelleburg (ZMHU). – van Lith, 1974a:98 (probable member of *capensis* species group), 99 (in list of Afrotropical *Psenulus*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

154. *varius* van Lith

Psenulus varius van Lith, 1962:69, ♂. Holotype: ♂, Malaysia: Selangor: Kuala Lumpur (originally H.T. Pagden coll., now BMNH). – van Lith, 1962:114 (in checklist of Indoaustralian Psenini), 1972:176 (description of ♀), 200 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); van Lith, 1976b:106 (Malaysia: Penang); Dollfuss, 2004a:116 (Laos, Malaysia: locality records).

155. *vaneuensis* van Lith

Psenulus vaneuensis van Lith, 1976b:986. Holotype: ♂, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.).

156. *vientianensis* van Lith

Psenulus vientianensis van Lith, 1976b:114, ♂. Holotype: ♂, Laos: Vientiane Province: Ban Van Eue (Bishop Mus.).

157. *xanthognathus* Rohwer

Psenulus xanthognathus Rohwer, 1910c:660, ♂. Holotype: ♂, Philippines: Luzon: Manila (USNM). – Rohwer, 1923b:601 (faunal records); van Lith, 1966:44 (full species status, Philippines: collecting localities), 1969:206 (Philippines; as *xan-*

thognathus xanthognathus), 209 (in list of species and subspecies of *pulcherrimus* species group, as *xanthognathus xanthognathus*), 1972:196 (Philippines: Luzon; as *xanthognathus xanthognathus*), 201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, as *xanthognathus xanthognathus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); van Lith, 1976b:120 (Philippines: Luzon; as *xanthognathus xanthognathus*); Tsuneki, 1984b:49 (Philippines); Tsuneki et al., 1992b:1 (Philippines, variation). – **As *Diodontus xanthognathus***: Rohwer, 1921:312 (Philippines), 1923b:601 (new combination, Singapore; Malaysia: Penang Island and Sabah (in Borneo): Sandakan; Philippines: Mindanao: Bukidnon); de Melo, 1997:4 (abdominal silk glands in adult females). – **As *Diodontus carinifrons xanthognathus***: van Lith, 1962:104 (new status, in revision of Indo-Australian *Psenulus*, description of ♀), 115 (in checklist of Indoaustralian Psenini); Baltazar, 1966:338 (in catalog of Hymenoptera of Philippines).

ssp. *centralis* van Lith

Psenulus xanthognathus centralis van Lith, 1969:207, ♂. Holotype: ♂, Philippines: Luzon: Mount Iriga: Camarines del Sur (Bishop Mus.). – van Lith, 1969:209 (in list of species and subspecies of *pulcherrimus* species group), 1970:104 (Philippines, recognition characters), 1972:196 (Philippines: Island of Culion), 201 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*, also form A and form B); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); Tsuneki, 1984b:49 (Philippines); Tsuneki et al., 1992b:1 (Philippines: Palawan); Haneda, 2011:43 (Philippines: Palawan: Baheli and Puerto Princesa).

158. *xanthonotus* van Lith

Psenulus xanthonotus van Lith, 1969:202, ♀. Holotype: ♀, Taiwan: Taihorin (ZMHU). – van Lith, 1969:209 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*), 1972:201 (in list of species and subspecies of *pulcherrimus* species group); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:6 (in checklist of Sphecidae of Taiwan); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

159. *yingfeng* Tsuneki

Psenulus yingfeng Tsuneki, 1982e:25, ♀. Holotype: ♀, Taiwan: Nantou Prefecture: Yingfeng (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1995:43 (holotype in K. Tsuneki collection; Hashimoto and Nakanishi, 1997:27 (holotype transferred to Hyogo Mus.); Hua, 2006:282 (in list of Chinese insects, geographic distribution).

160. *yoshimotoi* van Lith

Psenulus yoshimotoi van Lith, 1969:211, ♀. Holotype: ♀, Malaysia: Sabah (= Borneo): Forest Camp 19 km N Kalabakan (Bishop Mus.). – van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

ssp. *pontilis* van Lith

Psenulus yoshimotoi pontilis van Lith, 1970:92, ♀. Holotype: ♀, Philippines: Tawi Tawi: Tarawakan (ZMUC). – van Lith, 1972:198 (in list of Palearctic, Indo-Australian, and Western Pacific *Psenulus*); R. Bohart and Menke, 1976:174 (in checklist of world Sphecidae).

sp.

Sickmann, 1894:222 (China: Hopei Province: Tientsin, as *Psen*); Bischoff, 1931:8 (Spain); de Beaumont, 1950f:410 (Algeria); Bytinski-Salz, 1956:227 (Turkey: Akşehir, Aydın, Istanbul); de Beaumont, 1960a:22 (Greece: Island of Rhodes, also occurring in Cyprus), 1961e:5 (Iraq); de Beaumont, Bytinski-Salz and Pulawski, 1973 (Israel; near *Psen fuscipennis*); Hilchie, 1982:107 (Canada: Alberta: Empress); Schubert and Schönlitzer, 1993:264 (facial fovea not found); Smit, 2000:174 (Madeira); Gonzáles, Gayubo, and Tormos, 2000:18 (Andorra: Santa Coloma); Kazenas, 2000e:75 (sp. aff. *ammobius*, Kazakhstan); Schmid-Egger, 2000b:276 (Germany, near *fulvicornis*); Serrão and de Oliveira Campos, 2000:480 (abdominal silk glands in adult females); S. Gess and F. Gess, 2003:100 (Namibia: visiting flowers of *Deverra denudata* (Viv.) Pfisterer and Podl., Apiaceae); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama).

ma; sp. aff. *schencki*); Starr and Hook, 2003:21 (in catalog of Aculeata of Trinidad, West Indies); Dollfuss, 2004a:116 (Thailand, Laos, Kenya); Gayubo et al. 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Magdalou, 2006a:6, 9 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane; *pallipes* group); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 46 (Mexico: Tamaulipas); Ljubomirov and Yildirim, 2008:173 (in catalog of Crabronidae of Turkey); Haneda, 2011:44 (Philippines: Palawan: Baheli, San Rafael); Vieira, Oliveira, Brewster, and Gayubo, 2013:19 (sp. aff. *schencki*; Portugal: Douro International Natural Park and Serras de Aire e Candeeiros Natural Park).

NOMINA NUDA IN PSENULUS

Psenulus bilobatus van Lith: Dollfuss, 1989:12 (holotype in NHMW).

Psenulus jalapensis R. Bohart and Grissell, 1969: Bohart and Menke, 1976:173 (lapsus for *Psenulus mayorum* R. Bohart and Grissell, 1969. – Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:667 (in checklist of Mexican Sphecidae).

onewi de Melo, 1997:4 (abdominal silk glands in adult females).

SPECIES DESCRIBED IN PSENULUS AND TRANSFERRED TO OTHER GENERA

brevipetiolatus Rohwer, 1910 = *Pluto*

sayi Rohwer, 1910 = *Pluto*

townsendi Cockerell, 1911 = *Pluto*