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ECTEMNIUS

The name derives from the Greek word *ἐκτέμνω*, *cut in*, according to W. Schulz, 1906:202.

Ectemnius Dahlbom, 1845:389. Type species: "*E. guttatus*, Dahlb." [= *Crabro guttatus* of Dahlbom, 1845 = *Crabro guttatus* Vander Linden, 1829], designated by Ashmead, 1899d:172.

Clytochrysus A. Morawitz, 1864:453. Type species: *Crabro chrysostomus* Lepeletier de Saint Fargeau and Brullé, 1835 [= *Crabro lapidarius* Panzer, 1803], designated by Richards, 1935a:168 (Ashmead, 1899, designation of *Crabro sexcinctus* is invalid because the species was not included in *Clytochrysus* by A. Morawitz).

Thyreocerus A. Costa, 1871b:65. Type species: *Crabro crassicornis* Spinola, 1808, by monotypy.

Mesocrabro C. Verhoeff, 1892:70. Type species: *Crabro guttatus* Vander Linden, 1829, designated by Pate, 1937c:38.

Hypocrabro Ashmead, 1899d:168. Type species: *Crabro decemmaculatus* Say, 1823, by original designation.

Nesocrabro R. Perkins in R. Perkins and Forel, 1899:25. Type species: *Crabro rubrocaudatus* Blackburn, 1887, designated by Pate, 1937c:42.

Pseudocrabro Ashmead, 1899d:169. Type species: *Crabro chrysarginus* of Lepeletier de Saint Fargeau, 1845 [= *Crabro chrysargyrus* Lepeletier de Saint Fargeau and Brullé, 1835 = *Crabro decemmaculatus* Say, 1823], by original designation.

Xestocrabro Ashmead, 1899d:169. Type species: *Crabro sexmaculatus* Say, 1823 [= *Crabro continuus* Fabricius, 1804], by original designation.

Xylocrabro Ashmead, 1899d:169. Type species: *Crabro stirpicola* Packard, 1866, by original designation.

Metacrabro Ashmead, 1899d:169. Type species: *Crabro kollari* Dahlbom, 1845 [= *Crabro lituratus* Panzer, 1804, by original designation.

Protothyreopus Ashmead, 1899d:170. Type species: *Crabro rufifemur* Packard, 1866, by original designation.

Oreocrabro R. Perkins, 1902:146. Type species: *Crabro abnormis* Blackburn, 1886, by original designation.

Hylocrabro R. Perkins, 1902:147. Type species: *Crabro tumidoventris* R. Perkins, 1899, by original designation.

Melanocrabro R. Perkins, 1902:147. Type species: *Crabro curtipes* R. Perkins, 1899, by original designation.

Xenocrabro R. Perkins, 1902:148. Type species: *Crabro unicolor* F. Smith, 1856, by original designation.

Lophocrabro Rohwer, 1916b:667. Type species: *Crabro singularis* F. Smith, 1856 [= *Vespa maculosa* Gmelin, 1790], by original designation.

Merospis Pate, 1941c:121. Type species: *Ectemnius cyanauges* Pate, 1941, by original designation and monotypy.

Apoctemnius Leclercq, 1950j:200. Type species: *Ectemnius domingensis* Leclercq, 1950, by original designation.

Cameronitus Leclercq, 1950b:14. Type species: *Ectemnius menyillus* (Cameron, 1905) [= *Crabro menyillus* Cameron, 1905], by original designation and monotypy.

Protoctemnius Leclercq, 1951j:105. Type species: *Crabro tabanica* Fischer, 1929, by original designation and monotypy.

Yanonius Tsuneki, 1956e:129. Type species: *Crabro martjanowi* F. Morawitz, 1892, by original designation and monotypy.

Policrabro Leclercq, 1958e:106. Type species: *Crossocerus krusemani* Leclercq, 1950, by original designation.

Iwataia Tsuneki, 1959e:8. Type species: *Crabro furuichii* Iwata, 1934, by original designation and monotypy.

Leocrabro Leclercq, 1968e:300. Type species: *Ectemnius leonesus* Leclercq, 1968, by original designation and monotypy. Synonymized with *Protectemnius* Leclercq, 1951:105 and by Leclercq, 1991b:26.

Ceratocrabro Tsuneki, 1970f:1. Type species: *Ectemnius shimoyamai* Tsuneki, 1958, by original designation and monotypy. Established as genus, treated as a subgenus of *Ectemnius* by Leclercq, 1999a:73

Papuacrabro Tsuneki, 1983h:22, as subgenus of *Ectemnius*. Type species: *Ectemnius papuanus* Tsuneki, 1983, by original designation and monotypy.

Metactemnius Tsuneki, 1984b:34, as subgenus of *Ectemnius*. Type species: *Ectemnius apo* Tsuneki, 1984, by original designation and monotypy.

Spadicocrabro Tsuneki, 1990b:100. Type species: *Crabro nitobei* Matsumura, 1912, by original designation and monotypy. Established as genus, treated as a subgenus of *Ectemnius* by Leclercq, 1999a:9.

Revision: R. Bohart and Kimsey, 1979 (North America), with corrections by Leclercq, 2007e:164; Leclercq, 1991b (Latin America), with corrections by Leclercq, 2007g:165; Takumi, 1999 (Hawaiian *Ectemnius*); Leclercq, 1999a (subgenera and species groups revised, key to Asian species).

Key: Alayo Dalmau, 1976:18 (Cuba); Marshakov, 1979a (Russian Far East), Jonathan, Ray, and Kundu, 2000:04 (Meghalaya State of India); Jacobs, 2006 (subgenus *Thyreocerus*).

Review of biology: Kazenas, 2001b:201.

1. *abnormis* (Blackburn)

Crabro abnormis Blackburn in Blackburn and Cameron, 1886:168, ♀, ♂ (♀ described conditionally). Holotype: ♂, Hawaiian Islands: Island of Oahu: Konahuanui (Bishop Mus.). – Dalla Torre, 1897:580 (in catalog of world Sphecidae); R. Perkins in R. Perkins and Forel, 1899:25 (redescription). – **As *Oreocrabro abnormis***: R. Perkins, 1902:146 (new generic assignment, type species of new genus *Oreocrabro*), 1910:606 (belongs in *Oreocrabro*), 1913a:689 (coloration); F. Williams, 1927:445 (nesting in wood, preying upon flies). – **As *Ectemnius abnormis***: Leclercq, 1954c:280 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:314 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Takumi, 1999:5 (summary of known prey), 30 (in revision of Hawaiian *Ectemnius*).

2. *abyssinicus* (Arnold)

Crabro abyssinicus Arnold, 1947:162, ♀. Holotype: ♀, Ethiopia: Adola (SAM). – **As *Ectemnius abyssinicus***: Leclercq, 1954c:289 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Řiha and Farkač, 2015:184 (in list of Afrotropical *Ectemnius*).

3. *adspectans* (Blackburn)

Crabro adspectans Blackburn in Blackburn and Cameron, 1886:170, ♀, ♂. Lectotype: ♀, Hawaiian Islands: Island of Maui: Haleakala (Bishop Mus.), designated by Takumi, 1999:23. – Dalla Torre, 1897:580 (in catalog of world Sphecidae). – **As *Nesocrabro adspectans***: R. Perkins in R. Perkins and Forel, 1899:29 (new generic assignment, redescription); Krauss, 1944:93 (Hawaiian Islands: Island of Molokai). – **As *Ectemnius adspectans***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Takumi, 1999:22 (in revision of Hawaiian *Ectemnius*).

Nesocrabro daemonius R. Perkins in R. Perkins and Forel, 1899:28, ♀, ♂. Lectotype: ♀, Hawaiian Islands: Island of Molokai: Molokai Mountains (BMNH), designated by Takumi, 1999:23. Synonymized with *Nesocrabro adspectans* by R. Perkins, 1910:606 and 1912:727. – R. Perkins, 1913a:689 (coloration).

4. *agycus* (Cameron)

Crabro agycus Cameron, 1904j:261, ♀. Holotype or syntypes: ♀, India: Himalayas: no specific locality (BMNH). – R. Turner, 1912g:377 (transferred to subgenus *Solenius*); Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897, as *agycus*); Leclercq, 1954c:244 (in catalog of world Crabronini). – **As *Crossocerus agycus***: Leclercq, 1950e:5 (new generic assignment). – **As *Ectemnius agycus***: Leclercq in R. Bohart and Menke, 1976:424 (new generic assignment, in checklist of world Sphecidae); Leclercq, 1982b:146 (synonymy with *Ectemnius forestus* confirmed), 1999:17 (in key to Asian *Ectemnius*), 37 (in annotated catalog of Asian and Oceanian *Ectemnius*; Philippines, Penang, Borneo, Sumatra, Sarawak); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian

subcontinent, as *agycus agycus*); Mawadda and Girish Kumar, 2023a:108 (in checklist of Crabroninae of Northern India).

Ectemnius forestus Leclercq, 1958e:110, ♀. Holotype: ♀, Indonesia: Sumatra: Mount Tanggamus southwest of Lampong (RMNH). Paratype: Malaysia. Synonymized with *Ectemnius agycus* by Leclercq in R. Bohart and Menke, 1976:424. – Leclercq, 1958e:107 (in key to selected subgenera of *Ectemnius* of southeastern Asia), 1963:35 (Philippines); Baltazar, 1966:357 (in catalog of Hymenoptera of Philippines).

Ectemnius djurodzin Tsuneki, 1984b:38, ♀, ♂ (subgenus *Cameronitus*). Holotype: ♂, Philippines: Luzon: Asin Spa 16 km of Baguio (originally K. Tsuneki coll., now USNM). Synonymized with *Ectemnius forestus* by Tsuneki, 1984f:19. – Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to T. Murota, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection), 2020:26 (holotype in USNM).

ssp. *ahanus* Leclercq

Ectemnius agycus ahanus Leclercq, 1999a:38, ♀, ♂. Holotype: ♂, Indonesia: Sulawesi: Dumoga-Bone National Park at 0°34'N 123°54'E (RMNH). – Leclercq, 1999a:18 (in key to Asian *Ectemnius*).

5. *albomaculatus* Tsuneki

Ectemnius albomaculatus Tsuneki, 1966d:9, ♀. Holotype: ♀, Amami-Oshima Islands: Yuwan-dake (Bishop Mus.). – Tsuneki, 1968g:34 (Ryukyus; in key to Crabronini of Taiwan and Ryukyus); Tsuneki and Tano, 1969:30 (distribution in Japan); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Tsuneki, 1982g:63 (known from Ryukyu archipelago); Leclercq, 1999a:33 (in key to Asian *Ectemnius*), 38 (in annotated catalog of Asian and Oceanian *Ectemnius*); Yamane, Ikudome, and Terayama, 1999:505 (in Identification Guide to Crabronidae of Nansei = Ryukyu Islands, Japan); Haneda, 2008:15 (in key to Japanese Crabroninae); S. Takahashi, Haneda, and Tano, 2009:42 (distribution in Japan).

6. *alishanus* Tsuneki

Ectemnius alishanus Tsuneki, 1968g:4, ♂. Holotype: ♂, Taiwan: Chiai Prefecture: Mount Ali (originally K. Tsuneki coll., now USNM). – Tsuneki, 1968g:33 (Taiwan; in key to Crabronini of Taiwan and Ryukyus); Leclercq, 1973c:295 (Taiwan; discussion); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Leclercq, 1999a:28 and 29 (in key to Asian *Ectemnius*), 38 (in annotated catalog of Asian and Oceanian *Ectemnius*, as full species, may be a subspecies of *menyllus*); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan). – As *Ectemnius menyllus alishanus*: Leclercq, 1982b:152 (new status); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

7. *alpheus* Pate

Ectemnius alpheus Pate, 1946c:5, ♀, ♂. Holotype: ♀, USA: California: Mariposa County: Yosemite National Park (originally ANSP, now lost?). – Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (in catalog of North American Hymenoptera); Leclercq, 1954c:273 (in catalog of world Crabronini); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:488 and 491 (in key to North American *Ectemnius*); H. Allen, 1995:15 (type missing in ANSP collection); Leclercq, 2007e:166 (California: Inyo County); Ratzlaff, 2016:25 (first record from Canada: British Columbia: Southern Interior), 34 (British Columbia: Kamloops).

8. *ammanitus* Leclercq

Ectemnius ammanitus Leclercq, 1958f:152, ♀. Holotype: ♀, Vietnam: Annam: Dalat (Inst. Roy. Sci. Nat. Belgique). – Leclercq, 1958f:145 (in key to subgenus *Cameronitus*), 1963:26 (Vietnam), 31 (in key to *nigritarsus* species group of *Ectemnius*); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Leclercq, 1982b:147 (China: Szechuan: Behluhdin; Vietnam: Tonkin: Hoabinh), 1999:30 (in key to Asian *Ectemnius*), 39 (in annotated catalog of Asian and Oceanian *Ectemnius*; Malaysia, Nepal); Hua, 2006:279 (in list of Chinese insects, geographic distribution);

Pham, Kumar and Danilov, 2015:1592 (in list of Sphecidae *sensu lato* of Vietnam); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

9. *anomalifulvus* Ch.-y Li and Q. Li

Ectemnius anomalifulvus Ch.-y Li and Q. Li, 2009:147 and 151, ♂. Holotype: ♂, China: Guangxi: Zhuang Autonomous Region: Shiwandashan Mountain (Yunnan Agricultural University, Kunming).

10. *apo* Tsuneki

Ectemnius apo Tsuneki, 1984b:34, ♂ (type species of subgenus *Metactemnius*). Holotype: ♂, Philippines: Mindanao: Mount Apo (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:19 (listed from Philippines), 41 and 42 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:26 (holotype not transferred to USNM, possibly returned to T. Murota, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection); Leclercq, 1999a:19 (in key to Asian *Ectemnius*), 39 (in annotated catalog of Asian and Oceanian *Ectemnius*), Tano, 2020:26 (holotype in USNM).

11. *apoensis* Tsuneki

Ectemnius apoensis Tsuneki, 1984b:36, ♂ (subgenus *Hypocrabro*). Holotype: ♂, Philippines: Mindanao: Mount Apo (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:25 (additional diagnostic characters), 45 (in key to Crabronini of Philippines); Tsuneki et al., 1992b:42 (Philippines: Mindanao; description of ♀); Tano, 1995:46 (holotype in K. Tsuneki collection); Leclercq, 1999a:28 (in key to Asian *Ectemnius*), 39 (in annotated catalog of Asian and Oceanian *Ectemnius*); Tano, 2020:26 (holotype in USNM).

12. *aprunatus* Leclercq

Ectemnius aprunatus Leclercq, 1968e:323, ♀, ♂. Holotype: ♀, Mexico: Veracruz: Orizaba (NHMW). – Leclercq, 1968e:311 and 312 (in key to *Ectemnius* of Latin America), 1972c:202 and 204 (in updated key to *Ectemnius* of Latin America), 217 (bibliographic reference); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Dollfuss, 1989:9 (holotype in NHMW); Leclercq, 1991b:12 and 14 (in revised key to Latin American *Ectemnius*), 19 (bibliographic references); Amarante, 2002:26 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:166 (Costa Rica: Guanacaste: Cerro el Hacha: Casa Oeste).

13. *arcuatus* (Say)

Crabro arcuatus Say, 1837:377, sex not stated. Holotype or syntypes: USA: Indiana: no specific locality (lost). – Cresson, 1862:235 (in catalog of North American Hymenoptera); Le Conte, 1859b:759 (original description copied). – **As *Ectemnius arcuatus***: Horning and Barr, 1970:106 (new generic assignment, USA: Idaho: Craters of the Moon National Monument); Steiner, 1973:29 (Canada: Northwest Territories); R. Bohart in R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae, as valid name); R. Bohart and Kimsey, 1979:488 and 491 (in key to North American *Ectemnius*); Krombein, 1979b:1679 (in catalog of North American Hymenoptera); Finnamore, 1982:178 (in Sphecidae Fauna of southern Quebec); Radović, 1985:65 (sting apparatus analyzed); Finnamore, 1997:894 (expected to occur in Yukon); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Leclercq, 2007e:164 (correction to R. Bohart and Kimsey's key, 1979), 166 (locality records from Canada and USA); Horta-Vega, Vanoye-Eligio, García-Gutiérrez, Coronado-Blanco, and Barrientos-Lozano, 2013:382 (Mexico: Tamaulipas: Ciudad Victoria: Cañón del Novillo); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Buck, 2004); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alberta, British Columbia, Northwest Territories, Nova Scotia, Ontario, Quebec, first records from Manitoba, New Brunswick, Newfoundland Island, Prince Edward Island, and Quebec: no specific locality).

Crabro packardi Cresson, 1865b:477, ♀, ♂ (♂ = *Ectemnius decemmaculatus*), as *Packardi*, incorrect original capitalization. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. Synonymized with *Crabro chrysarginus* [= *Ectemnius arcuatus*] by W. Fox, 1895a:155 and with *Ectemnius chrysargyrus*

by Pate, 1946c:9. – Packard, 1866:85 (listed); Snow, 1881:95 (in checklist of Hymenoptera of Kansas: Wallace County: no specific locality); Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado, as *Packardii*); W. Fox, 1895a:152 (in revision of North American Crabronini); Cockerell, 1898b:455 (New Mexico: Ruidoso); Kincaid, 1900a:356 (USA: Washington: Seattle); Snow, 1906:135 (Arizona: Oak Creek 20 mi. southwest of Flagstaff). – **As *Hypocrabro packardi***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey: probably in New Jersey).

Crabro honestus Cresson, 1865b:485, ♀. Lectotype: USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. Synonymized with *Crabro chrysarginus* [= *Ectemnius arcuatus*] by W. Fox, 1895a:155. – Packard, 1866:78 (listed); Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado).

Crabro villosifrons Packard, 1866: 83, ♀. Lectotype: ♀, USA: New Jersey: no specific locality (ANSP), designated by Cresson, 1928:56. Synonymized with *Crabro chrysarginus* [= *Ectemnius arcuatus*] by W. Fox, 1895a:155. – Provancher, 1882:103 and 1883b:656 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera).

Crabro nokomis Rohwer, 1908b:251, ♀. Holotype or syntypes: ♀, USA: Colorado: Florissant (USNM). Synonymized with *Ectemnius chrysargyrus* by Pate, 1946c:10. – Rohwer, 1908b:258 (in key to *Crabro* of Colorado and New Mexico), 1917a:242 (diagnostic characters, as *nokonis*).

As *Crabro chrysarginus* (present correction): Packard, 1866:82 (in revision of North American Crabroninae); W. Fox, 1895a:155 (in revision of North American Crabronini); Kincaid, 1900a:357 (USA: Washington: Olympia, Seattle); Snow, 1906:135 (Arizona: Oak Creek 20 mi. southwest of Flagstaff); H. Smith, 1908b:402 (in revision of Nebraskan Sphecidae); Brimley, 1938:449 (North Carolina: Black Mountain, Blowing Rock, Bryson City, Cruso, Raleigh, Sanford). – **As *Pseudocrabro chrysarginus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey); Harrington, 1902:218 (Canada: Ontario: Ottawa), corrected to *Ectemnius arcuatus* by Buck, 2004:76. – **As *Solenius chrysargynus***: Mickel, 1918b:376 (new generic assignment, in catalog of Nebraskan Sphecidae), corrected to *Crabro arcuatus* by R. Bohart and Menke, 1976:424; Britton, 1920:339 (in checklist of insects of Connecticut). – **As *Hypocrabro chrysarginus***: Rau and Rau, 1918:94 (nesting in wood, prey: *Musca domestica* Linnaeus, Muscidae); Strickland, 1947:127 (new generic assignment, Canada: Alberta).

As *Ectemnius ruficornis*: Blades and Marshall, 1994:276 (Canada: southern Ontario), corrected to *Ectemnius arcuatus* by Buck, 2004:77.

14. *arreptus* (Kohl)

Crabro arreptus Kohl, 1915:69, ♂. Holotype: ♂, India: Sikkim: no specific locality (BMNH). – Gussakovskij, 1934a:10 (China: Kansu Province), 1936:10 (China: southern Kansu). – **As *Ectemnius arreptus***: Leclercq, 1954c:285 (new generic assignment, in catalog of world Crabronini), 1958c:112 (in subgenus *Yanonius*, diagnostic characters); Leclercq in R. Bohart and Menke, 1976:427 (as new synonym of *Ectemnius martjanowi*); Marshakov, 1979a:101 (in key to *Ectemnius* of Russian Far East, as valid species); Leclercq, 1999a:23 (in key to Asian *Ectemnius*), 1999a:39 (in annotated catalog of Asian and Oceanian *Ectemnius*), 40 (in annotated catalog of Asian and Oceanian *Ectemnius*; Kashmir); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

Ectemnius asiaticus Leclercq, 1950c:3, ♀. Holotype: ♀, India: Sikkim: Gnatong (BMNH). – Synonymized with *Ectemnius arreptus* by Marshakov, 1979a:101. – Leclercq, 1954c:285 (in catalog of world Crabronini), 1958c:112 (additional description); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Leclercq, 1982b:147 (possibly a synonym of *Ectemnius martjanowi*).

Ectemnius tibeticus Leclercq, 1950c:2, ♂. Holotype: ♂, China: Tibet: Chumbi Valley (BMNH). Synonymized with *Ectemnius arreptus* by Leclercq, 1958e:112 and with *Ectemnius martjanowi* by Leclercq, 1982b:149. – Leclercq, 1954c:285 (in catalog of world Crabronini). – **As *Ectemnius martjanowi tibeticus***: R. Bohart and Menke, 1976:427 (new status, in checklist of world Sphecidae).

ssp. *insulicola* Tsuneki

Ectemnius arreptus insulicola Tsuneki, 1971a:2, ♂. Holotype: ♂, Taiwan: Mount Ali (originally K. Tsuneki coll., now USNM). – Nuhn and Menke, 1994:25 (holotype transferred to USNM); Leclercq, 1999a:40 (in annotated catalog of Asian and Oceanian *Ectemnius*); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan).

15. *arrogans* (Arnold)

Crabro arrogans Arnold, 1958:136, ♂. Holotype: ♂, Zimbabwe: Selukwe (SAM). – **As *Ectemnius arrogans***: present new generic assignment based on Arnold's assignment to subgenus. Not listed by Bohart and Menke (1976); Řiha and Farkač, 2015:184 (generic assignment questionable).

16. *atriceps* (Cresson)

Crabro atriceps Cresson, 1865b:483, ♀. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:102. – Packard, 1866:78 (bibliographic references); Cresson, 1887:284 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:140 (in revision of North American Crabronini); Dalla Torre, 1897:584 (in catalog of world Sphecidae). – **As *Ectemnius atriceps***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); Pate, 1946c:14 (synonymy); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (in catalog of North American Hymenoptera); Leclercq, 1954c:279 (in catalog of world Crabronini); Evans, 1957b:109 (description of larva); Horning and Barr, 1970:106 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:487 and 490 (in key to North American *Ectemnius*); Krombein, 1979b:1681 (in catalog of North American Hymenoptera); Finnermore, 1982:179 (in Sphecidae Fauna of southern Quebec); Radović, 1985:65 (sting apparatus analyzed); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Leclercq, 2007e: 164 (correction to R. Bohart and Kimsey's key, 1979), 166 (locality records from Canada and USA); Ratzlaff, 2016:25 (Canada: British Columbia: from Bohart and Kimsey, 1979 and Krombein, 1979); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, Nova Scotia, Ontario, Quebec, Yukon Territory, first record from Manitoba, New Brunswick, Northwest Territories, and Saskatchewan: no specific locality).

Crabro pauper Packard, 1866:95, ♂. Lectotype: ♀ (female not included in the original description), USA: West Virginia: no specific locality (ANSP), designated by Cresson, 1928:55. Synonymized with *Ectemnius corrugatus* by Pate, 1946c:14. – Provancher, 1882:106 and 1883b:659 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:142 (in revision of North American Crabronini), 1896b:78 (errata to 1895a); Dalla Torre, 1897:616 (in catalog of world Sphecidae). – **As *Ectemnius pauper***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey: "should occur in New Jersey"). – **As *Solenius pauper***: Rohwer, 1916b:666 (new generic assignment, in catalog of Hymenoptera of Connecticut); Rohwer in Viereck, 1925:666 (in key to Sphecidae of Connecticut).

Crabro brunneipes Packard, 1866:102, ♂. Lectotype: ♂, USA: Pennsylvania: no specific locality (ANSP), designated by Cresson, 1928:52. Synonymized with *Ectemnius atriceps* by R. Bohart in R. Bohart and Menke, 1976:424. – Cresson, 1887:284 (in catalog of North American Hymenoptera); W. Fox, 1895a:140 (in revision of North American Crabronini); Dalla Torre, 1897:585 (in catalog of world Sphecidae); Brimley, 1938:449 (North Carolina: Mount Mitchell). – **As *Solenius brunneipes***: Rohwer, 1916b:666 (new generic assignment, in catalog of Hymenoptera of Connecticut); Rohwer in Viereck, 1925:666 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1019 (in catalog of New

York Sphecidae: Ithaca). – **As *Ectemnius brunneipes***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); J.B. Smith, 1900:514 (in list of insects of New Jersey); Strickland, 1947:127 (Canada: Alberta: Athabasca, Edmonton); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (in catalog of North American Hymenoptera); Leclercq, 1954c:279 (in catalog of world Crabronini); Krombein, 1958a:52 (USA: West Virginia: Lost River State Park); Krombein, 1963f:279 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park).

Crabro corrugatus Packard, 1866:107, ♀. Lectotype: ♀, USA: West Virginia: no specific locality (ANSP), designated by Cresson, 1928:53. Synonymized with *Ectemnius atriceps* by R. Bohart and Kimsey, 1979:494. – Cresson, 1887:284 (in catalog of North American Hymenoptera); W. Fox, 1895a:141 (in revision of North American Crabronini); Dalla Torre, 1897:592 (in catalog of world Sphecidae); J.B. Smith, 1910:681 (in new list of insects of New Jersey). – **As *Solenius corrugatus***: Rohwer, 1916b:666 (new generic assignment, in catalog of Hymenoptera of Connecticut); Carter, 1925:132 (Canada: Alberta: Tofield; determination tentative); Rohwer in Viereck, 1925:666 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1019 (in catalog of New York Sphecidae: Ithaca); nec A. Brown, 1934:265 (= *Ectemnius borealis*). – **As *Ectemnius corrugatus***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); J.B. Smith, 1900:514 (in list of insects of New Jersey); nec Harrington, 1902:218 (= *Ectemnius borealis*); Pate, 1946c:14 (synonymy); Strickland, 1947:127 (Canada: Alberta); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (in catalog of North American Hymenoptera), 1954a:7 (USA: West Virginia: Lost River State Park); Leclercq, 1954c:279 (in catalog of world Crabronini); Evans, 1970:492 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Krombein, 1979b:1681 (in catalog of North American Hymenoptera).

Crabro foxii Kincaid, 1900a:356, ♂. Syntypes: ♂, USA: Washington: Olympia (ANSP). Synonymized with *Ectemnius atriceps* by Pate, 1946c:14. (Packard, 1866)

Crabro drymocallidis Rohwer, 1908b:255, ♂. Holotype or syntypes: ♂, USA: Colorado: Teller County: Topaz Butte (USNM). Synonymized with *Ectemnius corrugatus* (Packard, 1866) [= *Ectemnius atriceps* (Cresson, 1865)] by Pate, 1946c:14. – Rohwer, 1908b:259 (in key to *Crabro* of Colorado and New Mexico). – **As *Xestocrabro drymocallidis***: Carter, 1925:132 (new generic assignment, Canada: Alberta: Edmonton). – **As “*Solenius*” *drymocallidis***: Strickland, 1947:128 (new generic assignment, Canada: Alberta: Edmonton).

Crabro operus Rohwer, 1908b:247, ♀. Syntypes: ♀, USA: New Mexico: Beulah (USNM). Synonymized with *Ectemnius corrugatus* (Packard, 1866) [= *Ectemnius atriceps* (Cresson, 1865)] by Pate, 1946c:14. – Rohwer, 1908b:258 (in key to *Crabro* of Colorado and New Mexico).

17. *atripennis* (R. Perkins)

Crabro atripennis R. Perkins in R. Perkins and Forel, 1899:24, ♀, ♂. Lectotype: ♀, Hawaiian Islands: Island of Hawaii: Kau (BMNH), designated by Takumi, 1999:32. – Alfken, 1904:575 (Hawaii: Kauai: Kilauea). – **As *Xenocrabro atripennis***: R. Perkins, 1907:97 (new generic assignment, Hawaiian Islands: Island of Hawaii: Kilauea crater); Swezey and Williams, 1932:181 (Hawaiian Islands: Island of Hawaii). – **As *Ectemnius atripennis***: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini), 320 (nest and prey records); Yoshimoto, 1960:319 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Leclercq, 1999a:40 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:5 (summary of known prey), 31 (in revision of Hawaiian *Ectemnius*).

18. *auriceps* (Cresson)

Crabro auriceps Cresson, 1865a:150, ♂. Holotype: ♂, Cuba: no specific locality (ANSP). – Packard, 1866:91 (in revision of North American Crabronini); Dalla Torre, 1897:584 (in catalog of world Sphecidae); Cresson, 1916:102 (holotype in ANSP). – **As *Physoscelis auriceps***: Ashmead, 1900:305 (new generic assignment, in checklist of Caribbean Hymenoptera). – **As *Ectemnius auriceps***: Pate, 1947f:19 (new generic assignment, in revision of Caribbean Crabronini); Leclercq, 1951g:122 (in checklist of *Ectemnius auriceps* species group, Cuba), 1954c:275 (in catalog of world

Crabronini); Alayo Dalmau, 1968b:13 (in revision of Cuban Sphecidae; common in Cuba); Leclercq, 1972c:196 (Cuba); Alayo Dalmau, 1973:193 (in catalog of Cuban Hymenoptera), 1976:18 (in key to Cuban *Ectemnius*), 32 (in checklist of Cuban Sphecidae); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Elliott, Kurczewski, Claflin, and Salbert, 1979:363 (Bahama Islands: Island of San Salvador); de Zayas, 1981:80 (illustration of habitus), 81 (Cuba); Elliott, 1992:45 (in list of wasps of Bahama Islands: occurring on Island of San Salvador); Amarante, 2002:26 (in catalog of Neotropical Crabronidae); Fernández, Saríol, Vega, Ricardo, González, and Portuondo, 2002:46 (Cuba: Provincia Granma); Portuondo Ferrer and Fernández Triana, 2004:134 (Cuba: Sierra Maestra and Nipe-Sagua-Baracoa mountains); Genaro, 2006:54 (in checklist of Cuban Sphecidae and Crabronidae; also: Bahamas: Island of San Salvador); Leclercq, 2007e:166 (Bahamas: Island of San Salvador, after Elliott et al., 1979).

19. *aztecus* Leclercq

Ectemnius aztecus Leclercq, 1951g:122, ♀. Holotype: ♀, Mexico: Veracruz: Orizaba (MNHN). – Leclercq, 1954c:275 (in catalog of world Crabronini), 1968e:313 (in key to *Ectemnius* of Latin America), 324 (Brazil), 1972c:205 (in updated key to *Ectemnius* of Latin America), 219 (bibliographic reference; Brazil: Nova Teutonia; color variation); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Leclercq, 1991b:13 and 15 (in revised key to Latin American *Ectemnius*), 19 (bibliographic references; Argentina, Colombia, Ecuador); Hanson and Menke, 1996:640 (known from Costa Rica); Amarante, 2002:26 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:166 (locality records from Argentina, Brazil, Costa Rica, Ecuador, and Paraguay).

ssp. peruvianus Leclercq

Ectemnius aztecus peruvianus Leclercq, 1991b:20, ♀, ♂. Holotype: ♀, Peru: Amazonas: Chachapayas (BMNH). – Leclercq, 1991b:13 and 15 (in revised key to Latin American *Ectemnius*); Amarante, 2002:26 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:166 (locality records from Ecuador and Peru); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

ssp. salti Leclercq

Ectemnius aztecus salti Leclercq, 1991b:20, ♀, ♂. Holotype: Colombia: Santa María, Mount San Lorenzo (BMNH). – Leclercq, 1991b:13 and 15 (in revised key to Latin American *Ectemnius*); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:167 (known from Colombia and Venezuela).

20. *babanki* Řiha and Farkač

Ectemnius babanki Řiha and Farkač, 2015:181, ♂. Holotype: ♂, Cameroon: North-West Province: east of Big Babanki at 06°06.698'N 10°15.938'E (M. Řiha personal collection, Brno, Czech Republic). – Řiha and Farkač, 2015:183 (in key to Afrotropical species of subgenus *Policrabro* of *Ectemnius*), 184 (in list of Afrotropical *Ectemnius*).

21. *basiflavus* (Brèthes)

Crabro flavipennis var. *basiflavus* Brèthes, 1910a:282, sex not stated. Lectotype: ♂, Argentina: Salta: no specific locality (MACN), designated by Leclercq, 1972c:222 (as holotype). – Schrottky, 1913a:234 (Argentina: Salta); Leclercq, 1968e:321 (as synonym of *Ectemnius carinatus*), 1972c:222 (incorrectly regarded as unavailable name); Genise, 1990:26 (type material in MACN). – **As *Ectemnius basiflavus***: R. Bohart and Menke, 1976:424 (new status, in checklist of world Sphecidae); Callan, 1986:69 (nest and prey), 1991a:12 (Trinidad); Leclercq, 1991b:11 (in revised key to Latin American *Ectemnius*), 21 (bibliographic references; Mexico to Argentina; comparison with *Ectemnius scaber*); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Starr and Hook, 2003:18 (in catalog of Aculeata of Trinidad, West Indies); Dollfuss, 2004b:765 (locality records from Ecuador, Mexico, and Venezuela); Leclercq, 2007e:167 (locality records from Argentina, Bolivia, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Panama, Peru, Tobago, and Venezuela); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

Xylocrabro umbrosus Schrottky, 1914:624, ♀, ♂. Syntypes: Paraguay: Puerto Bertoni (depository unknown). Synonymized with *Ectemnius basiflavus* by Leclercq, 1972c:222. – **As *Ectemnius umbrosus***: Leclercq, 1950j:201 and 202 (in key to South American species of subgenus *Apoctemnius*), 209 (new generic assignment, Argentina: Grand Chaco; additional description), 1954c:277 (in catalog of world Crabronini), 319 (nest and prey records), 1957c:319 (locality records, recognition characters), 1968e:303 and 306 (in key to *Ectemnius* of Latin America), 318 (bibliographic references, new locality records), 1972c:206 and 208 (in updated key to *Ectemnius* of Latin America), 222 (variation, locality records).

Ectemnius cassus Leclercq, 1956f:304, ♂. Holotype: ♂, Mexico: Guerrero: Terra Colorada (BMNH). Synonymized with *Ectemnius umbrosus* by Leclercq, 1972c:222. – Leclercq, 1968e:303 (in key to *Ectemnius* of Latin America).

22. *belli* Leclercq

Ectemnius belli Leclercq, 1999a:40, ♀, ♂. Holotype: ♀, India: Bombay (city or Presidency?): Guddhalli (BMNH). Paratypes: Sulawesi. Prey: tettigoniids. – Leclercq, 1999a:36 and 37 (in key to Asian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

23. *berissus* Leclercq

Ectemnius berissus Leclercq, 1972c:224, ♀, ♂. Holotype – Leclercq, 1972c:206 and 208 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Leclercq, 1991b:11 (in revised key to Latin American *Ectemnius*), 22 (bibliographic references; Argentina: Buenos Aires); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:167 (described from Argentina).

24. *besseyae* (Rohwer)

Crabro besseyae Rohwer, 1908f:419, ♀. Holotype or syntypes: ♀, USA: Colorado: Boulder (USNM). – **As *Ectemnius besseyae***: Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:274 (in catalog of world Crabronini); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 492 (in key to North American *Ectemnius*); Krombein, 1979b:1679 (in catalog of North American Hymenoptera); Leclercq, 2007e:165 (correction to R. Bohart and Kimsey's key, 1979), 167 (locality records from Arizona, California, and Colorado).

25. *birmanus* Leclercq

Ectemnius birmanus Leclercq, 1999a:42, ♀. Holotype: ♀, Burma: Kambaiti (BMNH). – Leclercq, 1999a:14 (in key to subgenera and species groups of *Ectemnius*), 30 (in key to Asian *Ectemnius*).

26. *bogorensis* Leclercq

Ectemnius bogorensis Leclercq, 1958f:151, ♀, ♂ (subgenus *Cameronitus*). Holotype: ♀, Indonesia: Java: Nongkadjadjar (RMNH). – Leclercq, 1958f:142 (in key to subgenus *Cameronitus*), 1963:26 (Philippines, southern India; geographic variation); Baltazar, 1966:356 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Tsuneki, 1977d:14 (Indonesia; redescription), 1977j:281 (Taiwan: Taihorinsho; redescription of ♀), 1984b:41 (Philippines; transferred to subgenus *Iwataia*), 1984f:26 (Philippines; discussion of diagnostic characters), 46 (in key to Crabronini of Philippines); Leclercq, 1999a:35, 36, and 37 (in key to Asian *Ectemnius*), 43 (in annotated catalog of Asian and Oceanian *Ectemnius*; correction to original description, variation; India, Sri Lanka, Singapore, Philippines, Malaysia: Sabah, Indonesia); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

Ectemnius makahambus Tsuneki, 1984f:21, ♀, ♂ (subgenus *Iwataia*). Holotype: ♀, Philippines: Island of Mindanao: Cagayan de Oro: Makahambus Cave (originally K. Tsuneki coll., now USNM). Synonymized with *Ectemnius bogorensis* by Leclercq, 1999a:43. – Tsuneki, 1984f:43 and 44 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to T. Murota, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection), 2020:26 (holotype in USNM).

27. *boletus* Leclercq

Ectemnius boletus Leclercq, 1958f:151, ♀. Holotype: ♀, Malaysia: Pahang: Gunung [= Mount] Benom (BMNH). – Leclercq, 1958f:143 (in key to subgenus *Cameronitus*); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Leclercq, 1999a:34 (in key to Asian *Ectemnius*), 45 (in annotated catalog of Asian and Oceanian *Ectemnius*, variation, prey: a tettigoniid).

ssp. bukidnon Tsuneki

Ectemnius bukidnon Tsuneki, 1984f:23, ♀, ♂ (subgenus *Iwataia*). Holotype: ♀, Philippines: Island of Mindanao: Bukidnon: Sungeo (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:43 and 44 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to H. Kurokawa, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection), 2020:26 (holotype in USNM). – As *Ectemnius boletus bukidnon*: Leclercq, 1999a:35 (new status, in key to Asian *Ectemnius*), 45 (new status).

ssp. gedehensis Leclercq

Ectemnius boletus var. *gedehensis* Leclercq, 1958f:151, ♀. Holotype: ♀, Indonesia: West Java: Gunung (= Mount) Gede: Tjibodas, now Cibodas (RMNH). – Leclercq, 1963 (Philippines, description of ♂). – As *Ectemnius boletus gedehensis*: R. Bohart and Menke, 1976:424 (new status, in checklist of world Sphecidae); Tsuneki, 1984f:26 (listed from Philippines), 46 (in key to Crabronini of Philippines); Leclercq, 1999a:35 (in key to Asian *Ectemnius*).

28. *borealis* (Zetterstedt)

Crabro borealis Zetterstedt, 1838:443, ♂. Syntypes: Norway: Alteidet, Altengaard, and Bossekop; Finland or Sweden: Calix on Botnia Gulf (Lund). – Dahlbom, 1839:81 and 1839-40:81 (in revision of Scandinavian crabronids), 1842a:15 (in review of Scandinavian aculeates). – As *Ectemnius borealis*: Leclercq, 1974d:279 (new generic assignment, identity of species, synonymy), 1975b:3 (France); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Lomholdt, 1976:333 (in Sphecid Fauna of Fennoscandia and Denmark); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald), 1977/78:57 (Germany: Rheinland-Pfalz: Mombacher Sand); Haeseler, 1978b:62 (Germany: Niedersachsen: a bog near Oldenburg), 1978c:194 (Germany: Friesian Islands: Island of Borkum); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Bohart and Kimsey, 1979:487 and 490 (in key to North American *Ectemnius*), 494 (Canada including Yukon Territory and Northwest Territory; USA: mainly in mountains); Edwards, 1979:70 (Great Britain: Sussex County); Leclercq, Gaspar, and Verstraeten, 1979:map 1469 (Belgium); Schmidt, 1979a:56 (Germany: Ost-Holstein); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Pagliano, 1980:124 (Italy: Veneto); Preuss, 1980a:24 (Germany; nesting at forest edges); Richards, 1980:53 (in key to Sphecidae of British Isles); Schmidt, 1980:379 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:323 (Austria: Niederösterreich: Scheibbs District); Thiede, 1981:46 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:45 (Germany: Westfalen: Hamm); Archer, 1982:208 (Great Britain); Axelsson, 1982:80 (Sweden); Finnamore, 1982:181 (Canada: in Sphecid Fauna of southern Quebec); Leclercq, 1982e:100 (Norway: Nord-Trøndelag: Kongsvoll, Røra); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Tsuneki, 1982b:7 (Korea), 16 (known from Korea); K. White, 1982:109 (first collected in Britain in 1938, nesting in wooden post); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Jacob-Remacle and Jacob, 1983:242 (Belgium: Liège Province: fagne de Malchamps near Spa); Riemann, 1983:87 (Germany: Bremen-Daverden area); Haack, Tschamtkke, and Vidal, 1984:128 (Germany: Hamburg area); Lefebvre, 1984:29 (Netherlands: Maastricht); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 355 (prey), 1985c:571 (Germany: Friesian Islands); Lefebvre, 1985:87 (Netherlands: southern Limburg); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:66 (Germany: Südpfalz); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Vikberg,

1986:77 (Finland); Haeseler, 1987b:668 (Germany: Ipweyer Moor near Oldenburg); Riemann, 1987a:340 (Germany: Niedersachsen: Bremen area), 1987b:38 (Germany: Niedersachsen: Nature Reserve Voßberge); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Chevin, 1988:15 (France: La Manche Department); Nilsson, 1988:98 (Sweden); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Jacobs, 1989:21 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belorussia: Berezinskiy Nature Reserve); Skibińska, 1989b:291 (Poland: moist meadow in Warszawa area); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Jacobs and Oehlke, 1990:195 (new records from Democratic Germany); Pádr, 1990:88 (Czech Republic: Praha area); Pagliano, 1990:87 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:547 (Austria: Kärnten); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:173 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:408 (Italy: Trentino: Val Daone); Kowalczyk, 1991b:121 (Poland: Augustów Forest); Negrisolo, 1991:321 (Italy: Udine Province); Pagliano, 1991b:351, 353 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Budrys, 1992:35 (in list of Sphecidae of Lithuania); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); Nilsson, 1992:54 (Sweden); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Bitsch and Leclercq, 1993:163 (in revision of Western European Crabroninae); Józán, 1993:414 (first record from Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:24 (locality records from Europe); Leclercq and Barbier, 1993:48 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Finnamore, 1994:210 (Canada: Alberta: Wagner Natural Area 8 km west of Edmonton); Pádr and Lukáš, 1994:893 (Slovakia: High Tatra Mountains); Theunert, 1994c:39 (Germany: summary of records from Niedersachsen and Bremen); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:447 (in key to Sphecidae of Russian Far East); Scharrer, 1995:26 (Austria: Kärnten: Mölltal, Niederösterreich: Bucklige Welt); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:180 (summary of records from Germany: Rheinland-Pfalz Province); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Witt, 1996:106 (Germany: Brandenburg), 108 (locality records); Woydak, 1996:78 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Else *in* R. Edwards, 1997:68 (Great Britain and Ireland: distribution, flight period, prey, nesting habits, flowers visited, map of distribution by Archer and Roberts); Finnamore, 1997:892 (Canada: Yukon); Riemann, 1997:49 (Germany: Achim 14 km southeast of Bremen); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:156 (Belorussia: Pripyatskiy National Park); Wolf, 1997a:2 (Germany: Bayern: Hirblinger Höhen near Augsburg); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Celary, 1998b:211 (Poland: Babia Góra National Park); Denton, 1998:350 (England: Hampshire, Surrey); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); 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); Petit, 1998a:110 (Belgium: Bassenge, visiting flowers of *Polygonum cuspidatum* Siebold and Zucc.); N. Schneider and Wahis, 1998:21 (Luxemburg: sandstone quarries); Sugar, Finnamore, Goulet, Cumming, Kerr, de Giusti, and Packer, 1998:16 (Canada: southern Ontario, as *borealis* Finnamore); van der Smitten, 1998:58 (Germany: Schleswig-Holstein); K. Weber, 1998:138 (Germany: Bayern: Bamberg area); Dorow, 1999:530, 573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Leclercq, 1999a:23 (in key to Asian *Ectemnius*), 46 (in annotated catalog of Asian

and Oceanian *Ectemnius*); Ljubomirov, 1999b:55 (Bulgaria: Mount Vitosha near Sofia); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:326 (in Sphecidae Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:52 (southeastern Kazakhstan: no specific locality); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Luig and Voolma, 2000:125 (first record from Estonia); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 204 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:77 (Austria: Wien); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells); Bieri, 2002:74 (Lichtenstein); Dorow, 2002:16 (Germany: Hessen: Weiherkopf Forest Reserve); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Kazenas, 2002a:105 (geographic distribution, collecting localities in Kazakhstan); Litt, 2002:166 (Belgium); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:136 (Germany: Hessen: Gießen, Lahn/Lumda/Ohm); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003a:150 (Czech Republic: Děčín Sandstone Uplands: forest district Snežnik: 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, 2003:65 (Germany: in catalog of wasps and bees of Bayern); Reemer, 2003:62 (Netherlands: Gelderland: Zaltbommel area); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Dollfuss, 2004b:765 (locality records from Finland, Russia, and Slovenia); Dorow, 2004:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefebvre in Peeters, van Achterberg et al., 2004:381 (in Wasp and Ant Fauna of Netherlands); Krivonogova and Rudoiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); G. Allen, 2005b:14 (Great Britain: Surrey County: Grayswood); Bergsten, Ekerholm, Gabrielsson, Hellquist, Petersson, Werner, Ström, Chauvet, and Dalecky, 2005:16 (Sweden: Västerbotten: Bjuröklubbs Nature Reserve); Burger, 2005:32 (Germany: Thüringen); Dubitzky, Blank, and Schönlitzer, 2005:273 (Germany: Bayern: area north of Dachau); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:180 (Austria: Tirol: Lienz District: many localities); Kraatz, 2005:103 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Nemkov, 2005a:154 (Russia: Island of Sakhalin); Pagliano and Negrisoló, 2005:264 (in Sphecidae Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:554 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Dvořák, Bogusch, and Smetana, 2006:103 (Czech Republic: Šumava = Bohemian Forest); Giles and Ascher, 2006:231 (New York:

Black Rock Forest Preserve); Ljubomirov, 2006:540 (Bulgaria: Rhodope Mountains: Orehovo Village); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Chevin, Livory, Lair, Sagot, and Baldock, 2007:30 (France: Département de la Manche); Dorow, 2007:263 (Germany: Hessen: Niddahänge and Schönbuche Forest Reserves); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Hallin, 2007b:25 (Sweden: Blekinge County); Herrmann, 2007a:52 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:151, 156 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Leclercq, 2007e:16 (*Ectemnius parvulus* and *E. proletarius* are synonyms of *E. borealis*, locality records from Canada and USA); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Shorenko, 2007b:258 (Ukraine: Crimea: Otuzy Valley); Vago, 2007:175 (France: départements de Pas-de-Calais and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Winkler, 2007:29 (Germany: Niedersachsen: eastern Friesland); Haeseler, 2008:308 (Germany: Friesian Islands); Kazenas, 2008a:104 (southeastern Kazakhstan: Zailiyskiy Alatau: localities Assy, Bolshaya Almatinka River, Maloye Almatinskoye canyon); Ljubomirov and Yildirim, 2008:274 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:33 (Germany: map of distribution in Niedersachsen and Bremen); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria, Czech Republic, Slovakia, and Slovenia reported; new French Département: Lozère: Lou Galabert); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern of France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Mokrousov, 2009:284 (Russia: Republic Mari El); Nemkov, 2009b:118 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:181 (Italy: Campania: Campitello Matese); Ruchin, Antropov, and Shibayev, 2009:169 (Russia: Republic of Mordovia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořák, and Bogusch, 2009:260 (Czech Republic: Jizerské Mountains and Frýdlant region); Ermilov and Mokrousov, 2010:89 (phoretic mite *Imparipes haeseleri* Ebermann and Hall in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:62 (Russia: Kirov and Nizhny Novgorod oblast's, Chuvash Republic, Mari El Republic, Republic of Mordovia: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:159 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:134 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Kononov, 2010:18 (Ukraine: Donetsk Oblast': Thorez); Treiber, 2010:135 (France: département du Bas-Rhin); van der Smissen, 2010a:339 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Baghirov, 2011b:146 (Russia: Altay Republic: Kuray); Gogala, 2011:20 (Slovenia); Józán, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:72 (Russia: Chuvash Republic); Novozhenov, Rudoiskatel', Kostromina, Katana, and Sibiryakov, 2011:221 (Russia: Tyumen' Oblast': Khanty Mansi Autonomous Okrug: Kondino Lakes Nature Reserve); Rudoiskatel', 2011b:69 (Russia: Republic of Bashkortostan), 2011d:244 (Russia: central Ural Mountains); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:129 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Kirov Oblast': Arkhangelskoye: collected in private plots),

2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Akulov and Proshchalykin, 2013:116 (Russia: Siberia: Krasnoyarsk Krai: 25 km south of Minusinsk); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Flügel, 2013b:57 (Germany: Hessen: Knüllköpfchen); Mokrousov, Ruchin, and Egorov, 2013:201 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:210 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Piotrowski, 2013:21 (Poland: Poleski National Park); Bitsch, 2014:401 (France: Ariège: Ascou-Pailhères; Meurthe-et-Moselle: Choley-Menillot); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roßstein); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); J.-K. Kim, 2014:428 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Ruchin and Antropov, 2014:36 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Mokrousov and Egorov, 2015:425 (Russia: Republic of Mordovia: Nature State Reserve Prisuskiy); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Shorenko, 2015:321 (in list of Sphecidae *sensu lato* of Crimea);); Blažej, Macek, and Trýzna, 2016:119 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:23 (in checklist of Aculeata of Great Britain and Ireland: England); Mokrousov and Popov, 2016:574 (Russia: Krasnodarskiy Krai); Ratzlaff, 2016:25 (Canada: British Columbia: from Buck, 2004); Saure, 2016b:49 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Dura Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols, Vallée d'Eyne); Shorenko, 2017:77 (in Crimea collected in June); Jacobs and Liebig, 2018:140 (Russia: Buryat Republic: East Sayan: 30 km northwest of Mondy; Irkutsk Oblast': Bol'shoye Goloustnoye and Sarma; Zabaykal'skiy Krai: Daur'skiy Nature Reserve; Primorskiy Krai: Poshiga; Island of Sakhalin: Lugovoye, Novoalessandrovsk); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:97 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13227 (Russia: Mordovian State Nature Reserve), 2019b:163 (common in Mordovian State Nature Reserve); Kejval, Blažej, and Erhart, 2020:99 (western Czech Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:96 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yıldırım, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:82 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Saure and Marten, 2021:135 (Germany: Sachsen-Anhalt: Nationalpark Harz); Kaplan and Yıldırım, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Alaska: no specific locality, Canada: Alberta, British Columbia, New Brunswick, Northwest Territories, Nova Scotia, Ontario, Quebec, Yukon Territory, first records from Manitoba, Newfoundland Island, Prince Edward Island, and Saskatchewan: no specific locality).

Crabro bipunctatus Zetterstedt, 1838:443, ♀, junior primary homonym of *Crabro bipunctatus* Fabricius, 1787. Syntypes: ♀, Sweden: Lapland: no specific locality; Norway: Finnmark: mount Skaaddavaara between Altengaard and Bossekop (Lund). Synonymized with *Crabro borealis* by Dahlbom, 1838:83.

Crabro nigrinus Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area). Nomen nudum (as *Nigrinus*, incorrect original capitalization).

Crabro nigrinus Herrich-Schaeffer, 1841, vol 179:15, pl. 15, ♀. Holotype or syntypes: ♀, Germany: no specific locality (depository ?). Synonymized with *Ectemnius borealis* by Leclercq, 1974d:280. – Schenck, 1857:67 (Germany: in revision of fossorial wasps of Nassau Region); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region), 1867a:350 (Germany: Nassau Region); Sparre Schneider, 1909:107 (Norway: Nordlands: Saltdalen); Alfken, 1914:271 (northwestern Germany); Kohl, 1915:96 (in revision of Palearctic Crabronini); Zilahy Kiss, 1915:80 (Hungary: Simontornya); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Stöckert, 1919:37 (Germany: Franken); Noskiewicz, 1920a:154 (Poland: Tatry Mountains: no specific locality); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:150 (in key to Belgian Sphecidae), 164 (phenology); Berland, 1925d:197 (in Sphecidae Fauna of France); Bischoff, 1925:297 (Latvia; Poland: Białowieża); K. Stroh, 1925:210 (Germany: Baden-Württemberg: Bleibach); Zavadil, 1926:31 (Czechoslovakia); Crèvecoeur and Maréchal, 1929:167 (Belgium: Sy and Uccle); Bouwman, 1930:67 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:641, 645 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:128 (in revision of Sphecidae of Finland); Bondroit, 1932:39 (Belgium: Stavelot, Uccle); Gussakovskij, 1932:17 (Russia: Primorskiy Kray and Kamchatka); Bondroit, 1934:61 (Belgium: Watermael); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:321 (Switzerland); Vergne, 1935:119 (France: Auvergne: Le Mont-Dore); Bernard, 1936a:35 (France: Hautes-Pyrénées: Pic de Néouvielle area); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Zavadil, Šusterka, and Bat'a, 1937:154 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:83 (Russia: Island of Sakhalin, Kuril Islands); A. Wagner, 1938a:116 (northwestern Germany); Struve, 1940:823 (Germany: Island of Borkum); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Paul, 1941:34 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Benno, 1943:67 (Netherlands); Giner Marí, 1943a:232 (in Sphecidae Fauna of Spain); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Tsuneki, 1947d:284 (Korea), 1947e:402 (Japan: Hokkaido), 1948c:8 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflák, 1948:117, 118 (in key to Sphecidae of Czechoslovakia); Cavo, 1950:40 (France: Département du Nord); Abrahamsen, 1951:115 (recorded from Denmark after J.C. Nielsen, 1907); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:457 (distribution in Scandinavia); Nouvel and Ribaut, 1953:183 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Orédon); de Beaumont, 1954e:95 (Italy); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:394 (in catalog of Sphecidae of Spain); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:175 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Ceballos, 1959:231 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:132, 136 (in key to Polish Sphecidae); Lehrer and Scutaru, 1963:285 (Romania: Moldova: Brodina in Suceava District); Niedl and Deneš, 1967:70 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:24 (Latvia); Balthasar, 1972:71 (in Sphecidae Fauna of Czechoslovakia). – **As *Ectemnius nigrinus***: Brischke, 1864:210 (new generic assignment, Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:226 (in catalog of European Hymenoptera); Beuthin, 1879:240 (Germany: Hamburg area); Brischke, 1888a:54 (Germany: Hela Peninsula, now Poland: Hel Peninsula), 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Coulon, 1925:125 (France: Evreux, Oise); Iwata, 1933b:11 (locality records from Japan); Schneid, 1941:1026 (Germany: Bayern: Bamberg area); Leclercq, 1950c:10 (Siberia: Lake Baikal area), 1951e:14 (bibliography of Belgian records), 1954c:278 (in catalog of world Crabronini); Aerts, 1955:59 (Germany: Rheinland); Tsuneki, 1955d:215 (Russia: Kuril Islands: Island of Etorofu); Grandi, 1957:391 (Italy: Abruzzi); Tsuneki, 1957f:60 (Korea); de Beaumont, 1958c:210 (Swiss National Park); Móczár, 1958a:265, 271 (in annotated catalog of Hungarian Crabronini, comparison with *Ectemnius guttatus*), 1958b:202 (Hungary: locality records); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge), 1959b:34 (Germany: Nassau); Tsuneki, 1960g:5 (nesting habits unknown); Hoop, 1961:63 (Germany: Schleswig-Holstein: Kronshagen); Valkeila, 1962b:68 (southwestern Finland); Babiý, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:129 (in Sphecidae Fauna of Switzerland); Benno, 1967:40 (in checklist of Sphecidae of Netherlands, as *nigrinus*); de Beaumont, 1967a:349 (Turkey); Gauss, 1967:558

- (Germany: Baden-Württemberg); Lefeber, 1969a:79 (Netherlands: Bemelen, Norg, Sint-Pietersberg, Vaals), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Petit, 1969:72 (Belgium: Mousny); Tsuneki and Tano, 1969:30 (distribution in Japan); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:758 (Democratic Germany); Hoop, 1971:83 (Germany: Schleswig-Holstein: vicinity of Rodenbek); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains); Leclercq, 1971:221 (Spain); Petit, 1971:22 (Luxemburg: Lipperscheid); Wolf, 1971:375 (Italy: Trentino–Alto Adige: Alpi Siusi); Haeseler, 1972:156, 165, 195, 200 (Germany: Schleswig-Holstein, anthropogenic habitats); Kazenas, 1972b:174 (Kazakhstan); Kofler, 1972:113 (Austria: eastern Tirol); Tsuneki, 1972a:147 (Mongolia); Else, 1974:203 (first record from Britain), 208, 209 (in key to British *Ectemnius*); Simon Thomas, 1974:57 (Netherlands: Limburg: Tienray); Lefeber, 1975b:122 (Belgium); Marshakov, 1975b:334 (Mongolia); Eck, 1976:93 (Democratic Germany); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Marion, 1978:90 (France: Hautes-Alpes Department); Marshakov, 1979a:101 (in key to *Ectemnius* of Russian Far East); Schedl, 1982:102 (Austria: Tirol: Ötztaler Alps); Nemkov, 1998a:686 (in supplementary key to *Ectemnius* of Russian Far East); de Bruyn and Sinning, 203:9 (Germany: Niedersachsen: Wümme-Nordarm northeast of Bremen).
- Crabro parvulus* Packard, 1866:108, ♀, junior primary homonym of *Crabro parvulus* Herrich-Schaeffer, 1841. Lectotype: ♀, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:55. Synonymized with *Ectemnius corrugatus* by Pate, 1946c:14 and with *Ectemnius proletarius* by R. Bohart in R. Bohart and Menke, 1976:427. – Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado, as *purvulus*); W. Fox, 1895a:142 (in revision of North American Crabronini), 1896b:78 (New Hampshire: Franconia); Dalla Torre, 1897:616 (in catalog of world Sphecidae); Kincaid, 1900a:355 (USA: Washington: Olympia, Seattle). – **As *Ectemnius parvulus***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); Kincaid, 1900b:508 (Alaska: Seldovia); Ashmead, 1902:131 (Alaska: Seldovia); Viereck, 1901a:272 (New Mexico: Las Vegas Range); Ashmead, 1910:137 (Alaska: Seldovia; distribution in North America). – **As *Solenius parvulus***: Bradley, 1926:175 (new generic assignment, New York: Lloyd-Cornell Reservation near McLean), 1928:1019 (in catalog of New York Sphecidae).
- Lindenius gredleri* Kohl, 1878:707, ♀ (as *Gredleri*, incorrect original capitalization). Holotype or syntypes: ♀, Austria: Tirol: Landeck (NHMW). Synonymized with *Crabro nigrinus* by Kohl, 1915:96 and with *Ectemnius borealis* by Leclercq in R. Bohart and Menke, 1976:424. – **As *Crabro gredleri***: Kohl, 1880:132 (new generic assignment, Austria: Tirol); Dalla Torre, 1897:603 (new generic assignment, in catalog of world Sphecidae).
- Crabro proletarius* Mickel, 1916a:426, ♂. Holotype: ♂, USA: North Dakota: Lisbon (UNL). Synonymized with *Crabro parvulus* Packard by R. Bohart in R. Bohart and Menke, 1976:427 and with *Ectemnius borealis* by R. Bohart and Kimsey, 1979:494. – Stevens, 1917:423 (North Dakota); Muma, 1952:18 (type in UNL). – **As *Ectemnius proletarius***: Krombein in Muesebeck, Krombein, and Townes, 1951:1028 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:279 (in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Krombein, 1979b:1682 (in catalog of North American Hymenoptera).
- As *Ectemnius corrugatus*: Harrington, 1902:218 (Canada: Ontario: Ottawa), corrected to *Ectemnius borealis* by Buck, 2004:76.
- As *Solenius corrugatus*: A. Brown, 1934:265 (Canada: Ontario: Timagami), corrected to *Ectemnius borealis* by Buck, 2004:77.
- As *Ceratocolus* non det., partim: Pagliano, 2011a:148 (specimens in M. Spinola collection, Torino, are *Ectemnius borealis*).
- As *Solenius lapidarius* partim: Pagliano, 2011a:151 (specimens in M. Spinola collection, Torino, are *Ectemnius borealis*).

29. *burgdorfi* Leclercq

- Ectemnius burgdorfi* Leclercq, 1968e:318, ♀. Holotype: ♀, Costa Rica: San José (NHMW). – Leclercq, 1968e:303 (in key to *Ectemnius* of Latin America), 1972c:198 (in updated key to *Ectemnius* of Latin America), 211 (bibliographic reference); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Dollfuss, 1989:9 (holotype in NHMW);

Leclercq, 1991b:8 (in revised key to Latin American *Ectemnius*), 19 (bibliographic references); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e: 165 (correction to Leclercq's key, 1991b), 167 (locality records from Costa Rica, description of ♂).

30. *carinatus* (F. Smith)

Crabro carinatus F. Smith, 1873b:103, ♀. Syntypes: Brazil: Amazonas: São Paulo de Olivença and Ega, now Tefé (BMNH). – Dalla Torre, 1897:586 (in catalog of world Sphecidae); W. Fox, 1897b:387 (Brazil: Pedra Branca and Rio de Janeiro). – **As *Ectemnius carinatus***: Leclercq, 1950j:208 and 1957c:322 (new generic assignment, as synonym of *Ectemnius flavipennis*), 1968e:305 and 307 (in key to *Ectemnius* of Latin America), 321 (valid species, variation, additional locality records), 1972c:200 and 201 (in updated key to *Ectemnius* of Latin America), 214 (bibliographic references, locality records, variation); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogllyphid mite); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Callan, 1991a:12 (Trinidad); Leclercq, 1991b:9 and 10 (in revised key to Latin American *Ectemnius*), 15 (bibliographic references; Belize to Argentina: locality records); Amarante, 1993:20 (northeastern Brazil); Leclercq, 1994b:233 (records from Chile are inaccurate); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Starr and Hook, 2003:18 (in catalog of Aculeata of Trinidad, West Indies); Dollfuss, 2004b:765 (locality records from Argentina and Ecuador); Leclercq, 2007e:165 (correction to Leclercq's key, 1991b), 168 (locality records from Argentina, Brazil, Costa Rica, Ecuador, French Guyana, Honduras, Mexico, Paraguay, Peru, and Trinidad); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru); Silvestre, Demétrio, Trad, de Oliveira Lima, Auko, and de Souza, 2014:68 (Brazil: Mato Grosso do Sul: dry forests in Bodoquena Mountain Range and Brazilian Chaco); Trad and Silvestre, 2017:5 (Brazil: Mato Grosso do Sul).

Crabro maculicornis Taschenberg, 1875:384, ♀. Holotype: ♀, Argentina: Mendoza: Mendoza (Halle). Synonymized with *Ectemnius carinatus* by Leclercq, 1968e:321. – Dalla Torre, 1897:609 (in catalog of world Sphecidae); Schrottky, 1903b:177 (in checklist of Hymenoptera of Argentina, Paraguay, and Uruguay); Jörgensen, 1912:267 (Argentina: Mendoza Province, nesting and prey); Schrottky, 1913a:234 (Argentina: Mendoza). – **As *Ectemnius maculicornis***: Leclercq, 1954c:277 (new generic assignment, in catalog of world Crabronini), 320 (nest and prey records), 1957c:323 (diagnostic characters, locality records).

Crabro saxatilis Cameron, 1891a:142, ♀, actually ♂. Lectotype: ♂, Mexico: Veracruz: Atoyac (BMNH), designated by Leclercq, 1956f:302. Synonymized with *Ectemnius carinatus* by Leclercq, 1991b:16. – Dalla Torre, 1897:624 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Ectemnius saxatilis***: Leclercq, 1954c:276 (new generic assignment, in catalog of world Crabronini), 1956f:302 (in revision of subgenus *Apoctemnius*), 1972c:200 (in updated key to *Ectemnius* of Latin America), 215 (bibliographic references; additional locality records); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Amarante, 2002:28 (in catalog of Neotropical Crabronidae), 2005a:10 (correction to his 2002 catalog).

Ectemnius domingensis var. *bahiacus* Leclercq, 1950j:206, ♀. Holotype: ♀, Brazil: Bahia: no specific locality (MNHN). Synonymized with *Ectemnius maculicornis* by Leclercq, 1954c:277 and 1957c:323.

Ectemnius domingensis var. *capricornicus* Leclercq, 1950j:206, ♀. Holotype: ♀, Argentina: no specific locality (FSAG). Synonymized with *Ectemnius maculicornis* by Leclercq, 1954c:277 and 1957c:323. – Leclercq, 2007g:194 (holotype in FSAG)

Ectemnius domingensis var. *riojacus* Leclercq, 1950j:207, ♀. Holotype: ♀, Argentina: La Rioja: no specific locality (MNHN). Synonymized with *Ectemnius maculicornis* by Leclercq, 1954c:277 and 1957c:323.

Ectemnius domingensis var. *cordillerae* Leclercq, 1950j:207, ♀. Holotype: ♀, Ecuador: Napo (MNHN). Synonymized with *Ectemnius maculicornis* by Leclercq, 1954c:277 and 1957c:322, and with *Ectemnius carinatus* by Leclercq, 1991b:16. – Amarante, 2005a:10 (correction to his 2002 catalog).

Ectemnius esterensis Leclercq, 1950j:209, ♂. Holotype: ♂, Argentina: Santiago del Estero: Icano (MNHN). Synonymized with *Ectemnius maculicornis* by Leclercq, 1957e:323. – Leclercq, 1950j:201 (in key to South American species of subgenus *Apoctemnius*), 1954c:277 (in catalog of world Crabronini); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae).

31. *cavifrons* (Thomson)

Crabro cavifrons Thomson, 1870:173, ♀, ♂. Syntypes: Sweden: no specific locality (Lund). – Thomson, 1874:284 (in revision of Hymenoptera of Scandinavia); Siebke, 1880:72 (Norway); Kohl, 1883e:650 (Switzerland); von Heyden, 1884:122 (Germany: Frankfurt am Main area); Kohl, 1888b:720 (Austria: Tirol, now Italy: Alto Adige), 1893:26 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Sickmann, 1893:52 (Germany: Niedersachsen: Iburg); Kozhevnikov, 1894:3 (Russia: Moscow Governorate); Krieger, 1894:7 (Germany: Kingdom of Saxony); Dalla Torre, 1897:586 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898b:96 (Norway); R. Perkins, 1899b:261 (diagnostic characters); Adlerz, 1901:192 (preying on flies); Strand, 1903:7 (Norway: Austad); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); Jourdain 1904:221 (Great Britain: Derbyshire: Chesterfield, as form of *Crabro cephalotes*); E. Saunders, 1906:172 (*Crabro cephalotes* of British authors is *Crabro cavifrons*); Schmiedeknecht, 1907:186 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Morley, 1909:306 (Great Britain: Isle of Wight); Šusterka, 1909:34 (Czech Republic: vicinity of Praha); Dittrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Hallett, 1912:94 (Great Britain: Glamorgan County); Birula, 1914:371 (Belorussia: Ambrosovichi near Vitebsk); Szilády, 1914:90 (Hungary: Nagyenyed); Kohl, 1915:59 (in revision of Palearctic Crabronini); Noskiewicz, 1920a:154 (Poland: Tatry Mountains: Droga pod Reglami); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:147, 148 (in key to Belgian Sphecidae), 164 (phenology, nesting habits); Berland, 1925d:200 (in Sphecidae Fauna of France); Grönblom, 1925:5 (nesting habits); Schütze, 1925:109 (Germany: Lausitz Region); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Pfohren, Sasbach); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); K. Strohm, 1926:74 (bibliographic reference to Leininger, 1922); Eidmann, 1928:486 (nesting in tree trunks); Zavadil, 1926:30 (Czechoslovakia); Berland, 1928b:181 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Jones, 1928c:45 (correction to Jones, 1928a: should be “nesting side by side with *Metacrabro quadricinctus*”); Barovskij, 1929:149 (Russia: Sankt-Petersburg); Crèvecoeur and Maréchal, 1929:167 (Belgium: La Xhavée, Loën, Oostcamp, and Wépion); Bouwman, 1930:65 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:640, 643 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Pulkkinen, 1931:122 (in revision of Sphecidae of Finland); Bondroit, 1932:39 (Belgium: Forêt de Soignes, Solbosch); Gussakovskij, 1932:15 (Russia: Primorskiy Kray); Iwata, 1933b:9 (locality records from Japan); E. Nielsen, 1933:269 (summary of nesting habits); K. Strohm, 1933:337 (Germany: Baden: Württemberg: Kaiserstuhl); Balles, 1934:15 (Germany: Baden-Württemberg: Hopfengarten); Bondroit, 1934:62 (Belgium: Solbosch); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:108 (Italy); Steck, 1935:320 (Switzerland); Vergne, 1935:120 (France: Auvergne: Lezoux); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Zavadil, Šusterka, and Bat'a, 1937:150 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:82 (Japan: Hokkaido; Russia: Island of Sakhalin, Kuril Islands); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:115 (northwestern Germany); Maréchal, 1939:341 (Belgium: Loën); Dovnar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Iwata, 1941a:4 (nest, prey: Syrphidae); Leclercq, 1941b:13 (Belgium: Liège area); Paul, 1941:33 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Giner Marí, 1943a:227 (in Sphecidae Fauna of Spain); Guiglia, 1944b:40 (Italy); de Beaumont, 1945:479 (Switzerland, correction to Steck, 1935); Hachfeld, 1945:73 (cocoon); Villiers, 1946:12 (France-Haute-Savoie: Samoëns area); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden).

= Grisons Canton: Swiss National Park); Dulac, 1947:54 (France: Saône-et-Loire Department: Creusot area); Tsuneki, 1947d:283 (Korea), 1947e:399 (Japan: Hokkaido); de Hennin and Anciaux, 1948:74 (Belgium: between Sambre and Meuse rivers); Tsuneki, 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflak, 1948:113, 114 (in key to Sphecidae of Czechoslovakia); Maréchal, 1949:97 (Belgium: Sarte); Cavo, 1950:40 (France: Département du Nord); Fæster, 1951:457 (distribution in Scandinavia); Caruel, 1953:101 (France: Marne Department); Cleu, 1953:51 (France: Ardèche River basin); Nouvel and Ribaut, 1953:184 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:95 (Italy: Alto Adige); Atanassov, 1955:195 (first record from Bulgaria: Borovets in Rila Mountains); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirmgibl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Iwata, 1960:210 (number of ovarioles and oocytes, egg size); Noskiewicz and Puławski, 1960:131, 136 (in key to Polish Sphecidae); Hoop, 1961:63 (Germany: Schleswig-Holstein); Lehrer and Scutaru, 1963:284 (Romania: Moldova: Birnova in Iași District); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve, as *plumifrons*); Niedl and Deneš, 1967:69 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:23 (Latvia); Balthasar, 1972:59 (in Sphecidae Fauna of Czechoslovakia); Skibińska, 1981:358 (Poland: Warszawa-Białogłoka), 1982:120, 123, 124 (Poland: Mazovian Voivodship: Białogłoka, Łomna, Wola Mrokowska); Kowalczyk, 1988a:45 (Poland: Rogów), 1988b:65 (Poland: environs of Łódź). – **As *Solenius cavifrons***: Graeffe, 1911:43 (new generic assignment, Italy: Trieste area); Knoerzer, 1941:937 (Germany: Bayern: Wasserburg). – **As *Clytochrysus cavifrons***: Schirmer, 1912:163 (new generic assignment, Germany: Berlin area); R. Perkins, 1913b:386, 388 (in key to British Crabronini); Schütze, 1916:42 (Germany: Sachsen: Rachlau, visiting flowers of parseley, *Petroselinum crispum* (Mill.) Fuss, Apiaceae); R. Perkins, 1924:224 (Great Britain: Devon), 1925:151 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:302 (summary of nesting habits), 320 (list of prey); Hémon, 1926:200 (France: Finistère: Fouesnant); Stelfox, 1927:294 (Ireland: collecting localities); Jones, 1928a:5 (Great Britain: nesting in old oak-stump at Wollaton Park, Nottingham); Harttig, 1930b:7 (specimen bearing dipteran egg); Baudot, 1931:255 (characteristics of cocoon); Spooner, 1931:15 (Great Britain: Cambridge-shire); Richards, 1937b:107 (in checklist of British aculeates); Struve, 1937:149 (Germany: Island of Borkum); Hallett, 1938:72 (Great Britain: Herefordshire: Mathon, Tarrington); Guichard, 1939a:42 (Great Britain: southern Cornwall: Polperro); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1025 (Germany: Bayern: Bamberg area); Audcent, 1942:25 (parasite: *Macronychia un-gulans* Pand., Sarcopagidae); Spooner, 1942:110 (Great Britain: Bedfordshire); Boyd, 1943:163 (Great Britain: eastern Dorset); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Redland, Rodborough, Wotton); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Chambers, 1949:229 (Great Britain: Bedfordshire); Bat'a, 1952:167 (Czech Republic); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1963:178 (Great Britain: Kent County); H. Schulz, 1967:59 (Germany: Brandenburg: Ruhlsdorf near Potsdam); Guichard, 1972:244 (Great Britain: London: Bushey Park); Blagoveshchenskaya, 1994:89 (Russia: Ul'yanovsk Oblast'). – **As *Ectemnius cavifrons***: Leclercq, 1949a:13 (new generic assignment, Algeria: Mont Edough), 1949b:182 (nesting in same tree stump as *Ectemnius lapidarius*), 1951e:15 (bibliography of Belgian records); Fahlander, 1954:249 (Sweden: Gästrikland Region); Grandi, 1954:243 (Italy); Leclercq, 1954c:286 (in catalog of world Crabronini), 321 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Tsuneki, 1955d:214 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km northwest of Tokyo); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); Evans, 1957b:110 (discussion of larva's figure by Leclercq, 1954); Grandi, 1957:347 (nest, cocoon), 391 (Italy); Tsuneki, 1957f:59 (Korea); de Beaumont, 1958c:209 (Swiss National Park); Móczár, 1958b:204 (Hungary: locality records); Wolf, 1959b:34 (Germany: Nassau); Tsuneki, 1960g:5 (nesting habits); Grandi, 1961:252 (nesting habits); Valkeila, 1962b:68 (southwestern Finland); Hoop, 1963b:6 (Germany: Schleswig-Holstein); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Valkeila, Brander, and Kämpylä, 1963:42 (Finland: historical region

Lounais-Hämeen = southwest Häme); Babi, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:127 (in Sphecidae Fauna of Switzerland), 1965a:58 (Greece); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); Gauss, 1967:557 (Germany: Baden-Württemberg); Leclercq, 1967a:30 (locality records from Great Britain); Lefebvre, 1967c:220 (Netherlands: Bemelen, Sint-Pietersberg); Benedek, 1968:75 (Hungary, floral records); Haneda, 1968a:47 (Japan); Nambu, 1968b:28 (Japan: Saitama Prefecture); Okuno, 1968:30 (Japan); Scobiola-Palade, 1968c:386 (Romania: București); Tano, 1968:35 (Japan); Benedek, 1969a:84 (Hungary: marshy meadow); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:51 (Japan: Niigata Prefecture); Lefebvre, 1969b:99 (Netherlands: common), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History); Zangheri, 1969:1708 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:101 (Hungary: Tapolca); Tsuneki, 1970b:10 (central Japan); Oehlke, 1970:763 (Democratic Germany); Leclercq, 1971:216 (Spain); Petit, 1971:23 (Luxemburg: Michelau); Schmidt, 1971b:45 (Germany: Mainz area), 1971c:75 (Germany: Schleswig-Holstein); Tano, 1971:81 (Japan: Shikoku: Mount Tsurugi); Haeseler, 1972:156, 172, 200, 204 (Germany: Schleswig-Holstein, anthropogenic habitats); Kazenas, 1972b:175 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Lomholdt, 1972:122 (Denmark: Island of Læsø); Nambu, 1972e:91 (Japan: Saitama Prefecture); Oehlke, 1972:139 (Germany: Island of Hiddensee); Tsuneki, 1972a:148 (Mongolia); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogyphid mite); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Else, 1974:207 (Great Britain: Oxenbourne), 208, 209 (in key to British *Ectemnius*); Erlandsson, 1974:82 (Italy); Lefebvre and Petit, 1974:163 (Belgium: Plombières); Tsuneki, 1974a:374 (Korea); Leclercq, 1975b:3 (France); Lefebvre, 1975b:122 (Belgium); Lomholdt, 1975b:32 (Denmark: Island of Anholt); Nambu, 1975b:73 (Japan: Saitama Prefecture); Pickard, 1975:143 (*Syrphus balteatus* (De Geer), *S. ribesi* (Linnaeus), and *S. vitripennis* eigen, Syrphidae, were commonest prey, and commonest syrphid species in the environment); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Eck, 1976:94 (Democratic Germany); Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Lomholdt, 1976:318 (in Sphecidae Fauna of Fennoscandia and Denmark); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Haeseler, 1978c:194 (Germany: Friesian Islands: Island of Borkum); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammerberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1472 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:105 (in key to *Ectemnius* of Russian Far East); Richards, 1979:399 (British Channel Islands); Schmidt, 1979a:56 (Germany: Ost-Holstein); Tsuneki, 1979d:10 (Japan); Dathe, 1980:209 (Russia: northern Caucasus: Teberda); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Pagliano, 1980:123 (Italy: Piemonte); Preuss, 1980a:24 (Germany: nesting in wood, but natural habitat is reduced); Richards, 1980:54 (in key to Sphecidae of British Isles); Schmidt, 1980:380 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:51 (Germany: Friesian Island: Island of Amrum); Thiede, 1981:46 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:44 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Gayubo, 1982b:27 (Spain: Cáceres and Salamanca provinces); Leclercq, 1982a:125 (Belgium: Liège); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Tsuneki, 1982b:16 (known from Korea); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Józán, 1983:101 (Hungary); Lefebvre, 1983a:84 (Netherlands: Wadden district: northern coast sand dunes, Island of Texel); Riemann, 1983:87 (Germany: Bremen-Daverden area); Steinmann, 1983:163 (Switzerland: Graubünden Canton, nesting in wood buildings); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo, 1984b:95 (Spain: Salamanca Province); Gayubo and Tormos, 1984:18 (Spain: Valencia); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Lefebvre, 1984:29 (Netherlands: Maastricht); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Shaw, 1984:154 (Great

Britain: Scotland); Tsuneki, 1984e:59 (Russia: Sarepta, now Krasnoarmeysk); Veenendaal, 1984:19 (Netherlands: Amsterdam); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 1985c:571 (Germany: Friesian Islands); Józán, 1985b:59 (Hungary south of Lake Balaton), 70 (map of distribution in Hungary), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:66 (Germany: Südpfalz); Gayubo, 1986b:39 (Spain: Andalucía); Gayubo and Sanza, 1986:68 (Spain: Burgos); Jozán, 1986:372 (Hungary: Kiskunság National Park); Meyer-Holzappel, 1986:98 (nest parasite: *Eustalomyia festiva* Zetterstedt, Anthomyiidae); Nemkov, 1986:104 (Russia: Siberia: Irkutsk Oblast'); Skibińska, 1986b:151, 154 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 174 (various green urban habitats); Steiner, 1986:107 (references to publications on nesting habits); Vikberg, 1986:77 (Finland); Crellin, 1987:35 (Great Britain: Isle of Man); Lomholdt, 1987:94 (Denmark: western Jutland: Skallingen Peninsula); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Karsai, 1988:100 (Hungary: Kiskunság National Park); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Allen and Felton, 1989:36 (Great Britain: Kent County); Archer, 1989a:133 (Great Britain: York: found after coniferization); Bałazy, Banaszak, and Michalski, 1989:118 (Poland: Wielkopolski National Park); Jacobs, 1989:22 (Germany: Mecklenburg-Vorpommern); Józán, 1989:101 (Hungary: Tihany Nature Reserve); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belorussia: Berezinskiy Nature Reserve); Skibińska, 1989a:204 (Poland: Warszawa area); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Archer, 1990b:136 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Gayubo, Asís, and Tormos, 1990b:76 (Spain: Asturias and Cáceres Provinces); Jacobs and Oehlke, 1990:198 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Nash, Boston, and Nelson, 1990:249 (Ireland: Down County); Pádr, 1990:88 (Czech Republic: Praha area); Pagliano, 1990:87 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:547 (Austria: Kärnten); Dollfuss, 1991:173 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:408 (Italy: Piemonte: Leini); Gayubo and Torres, 1991:Table I (Spain: Salamanca; effects of urban pressure); Józán, 1991:604 (Hungary: Bátorliget Nature Reserve); Kowalczyk, 1991a:90, 93, 104 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Kuhlmann, Retzlaff, Schulze, and Wolf, 1991:89 (Germany: Senne Region); Nilsson, 1991:83 (Sweden: Lake Mälaren); Pagliano, 1991b:349, 353 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve south-east of Koblenz); Tsuneki, 1991:202 (Korea); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:35 (in list of Sphecidae of Lithuania); Józán, 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Leclercq, 1992c:208 (prey); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Archer, 1993c:39 (Great Britain: Yorkshire); Jaeschke and Lehmann, 1993:317 (nesting in polystyrene balcony box for flowers in Berlin, Germany); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:24 (locality records from Europe); Bitsch and Leclercq, 1993:157 (in revision of western European Crabroninae); Józán, 1993:414 (Hungary: Bükk National Park); Leclercq and Barbier, 1993:49 (map of distribution in France); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Pádr and Lukáš, 1994:893 (Slovakia: High Tatra Mountains); Tormos, Asís, and Gayubo, 1994:189, 215 (Spain: Albacete Province); Theunert, 1994c:39 (Germany: summary of records from Niedersachsen and Bremen); Archer, 1995a:21 (Great Britain: Yorkshire: Blaxton); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Krasnobayev, Antropov, Lyubvina, and Zabelin, 1995:138 (Russia: Zhiguli Hills northwest of Samara); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:450 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:90 (Italy: Ferrara Province); Papp and Józán, 1995:145 (Hungary: Síkfőkút oak forest); Riemann, 1995:52

(Germany: Bremen); Scharrer, 1995:26 (Austria: Karnten: Mölltal); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:180 (Germany: summary of records from Rheinland-Pfalz); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Skibińska, 1995:424, 425, 426, 427 (Poland: pine forest in Białowieża Primeval Forest); Archer, 1996b:37 (Great Britain: Nottinghamshire: Sherwood Forest); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:72 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:80 (Germany: Westfalen: summary of distribution and nesting habits); Archer, 1997a:48 (Great Britain: Yorkshire: Burton Leonard Lime Quarries) and 49 (Great Britain: Yorkshire: Cave Wold); Bičík and Láská, 1997:8 (hunting syrphid *Eupeodes luniger* (Meigen), a case of Peckhamian mimicry); Celary, 1997:59 (in checklist of Animals of Poland); Else in R. Edwards, 1997:70 (Great Britain and Ireland: distribution, flight period, prey, nesting habits, flowers visited, map of distribution by Archer and Roberts); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); Stoyanov and Ljubomirov, 1997:27 (Bulgaria: Rila Mountains); Wolf, 1997b:845 (hermaphrodite specimen); Archer, 1998b:158 (Great Britain: Lincolnshire: Gibraltar Point National Nature Reserve); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Celary, 1998b:211 (Poland: Babia Góra National Park); Dollfuss, Gusenleitner, and Bregant, 1998:518 (Austria: summary of collecting records from Burgenland); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Island of Harriersand in Weser River); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Morgan, 1998:18 (Great Britain: Wales: Carmarthenshire County); Petit, 1998a:110 (Belgium: Bassenge, visiting flowers of *Polygonum cuspidatum* Siebold and Zucc., Polygonaceae); Salzmann-Wandeler, 1998a:98 (Switzerland: Luzern Canton: Sempach); van der Smissen, 1998:58 (Germany: Niedersachsen, Schleswig-Holstein); K. Weber, 1998:138 (Germany: Bayern: Bamberg area); Archer, 1999b:82 (Great Britain: Yorkshire); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Gusenleitner, 1999:600 (Austria: Vorarlberg: Runkeline northwest of Bludesch); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Leclercq, 1999a:24 (in key to Asian *Ectemnius*), 46 (in annotated catalog of Asian and Oceanian *Ectemnius*); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Sörensen, Mauss, and Schindler, 1999:503 (Germany: Schleswig-Holstein); Yamane, Ikudome, and Terayama, 1999:506 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Archer, 2000c:115 (Great Britain: Lincolnshire); Blösch, 2000:326 (in Sphecidae Fauna of Germany); Cölln and Jakubzik, 2000:226 (Germany: Rheinland-Pfalz: Gönnersdorf); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:52 (southeastern Kazakhstan: no specific locality); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:107 (Greece); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Jacobs, 2000:7 (Germany: Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Ljubomirov, 2000:11 (Bulgaria: specimens in N. Nedelkov collection); Luig and Voolma, 2000:126 (first record from Estonia); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Jacobi, 2001:82 (prey capture and transport, copulation); Józán, 2001:280 (Hungary:

Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 204 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:52 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Tischendorf, 2001:30 (Germany: first record from Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau), 2001c:580 (in list of hermaphrodite aculeates described by author in Linzer Biologische Beiträge); Zettel, Gross, and Mazzucco, 2001:77 (Austria: Wien); Archer, 2002b:117 (Great Britain: Watsonian Yorkshire: distribution map), 2002c:38 (Great Britain: Watsonian Yorkshire), 2002e:42 (Great Britain: Watsonian Yorkshire); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area, prey: *Episyrphus balteatus* (De Geer), a syrphid fly); Bieri, 2002:75 (Lichtenstein); Esser and Cölln, 2002:1136 (south-western Germany: Eifel region); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:105 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Mokrousov, 2002:150 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Reemer and van der Meer, 2002:Bijlage 5 (Netherlands: Gelderland: Zaltbommel area); Wiśniowski, 2002:72 (Poland: Ojców National Park); Kraus and Floren, 2002:100 (Germany: Bayern: Steigerwald); Litt, 2002:166 (Belgium); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Ziska, 2002:8 (Germany: Berlin-Köpenick: Krumme Lake); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Baugnée, 2003:65 (Belgium: Namur: Ri d'Hôwisse); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: island of Romelsön); Bland, 2003:9 (prey: Syrphidae, Calliphoridae, and one cicadellid homopteran, *Iassus lanio* (L.)); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:136 (Germany: miscellaneous locality records); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003:227 (Hungary: Látványi Puszta Nature Conservation Area); 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, 2003:65 (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); Ohl and Linde, 2003:151 (number of ovarioles); Reemer, 2003:62 (Netherlands: Gelderland: Zaltbommel area); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Wiśniowski in Dylewska and Wiśniowski, 2003:170 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Aistleitner, 2004:59 (Austria: Vorarlberg: Sonntag); Archer, 2004a:47 (Great Britain: Worcestershire: Devils Spittleful Nature Reserve), 2004f:153 (Great Britain: Watsonian Yorkshire: Victorian cemetery), 2004h:44 (Great Britain: Watsonian West Norfolk: Roydon Common); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:765 (locality records from Finland, Romania, Russia, Tajikistan, and Ukraine); Dorow, 2004:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefebvre in Peeters, van Achterberg et al., 2004:381 (in Wasp and Ant Fauna of Netherlands); Litt, 2004:222 (Switzerland: Valais: Vissoie); Majzlan and Deván, 2004:30 (Slovakia: Sekule); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:80 (Russia: Rostov Oblast'); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish

Crabronidae); Szczepko and Kowalczyk, 2004:127 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Archer, 2005a:30 and 2005b:92 (Great Britain: Watsonian Yorkshire); Burger, 2005:32 (Germany: Thüringen); Dubitzky, Blank, and Schönlitzer, 2005:273 (Germany: Bayern: area north of Dachau); Hallin, 2005:16 (Sweden: Örebro County: Hällefors); Jacobs, 2005a:444 (Bulgaria: Primorsko); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:180 (Austria: Tirol: Lienz District: many localities); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Nemkov, 2005a:155 (Russia: Island of Sakhalin); Pagliano and Negrisola, 2005:267 (in Sphecidae Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:555 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:165 (Ukraine: Crimea); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Ziska and Saure, 2005:81 (Germany: Berlin: Biesenhorster Sand); 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); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Gadoum and Barbier, 2006:42 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Moussy); Gorobchishin, 2006:132 (Ukraine: Cherkasy Oblast': Kaniv Nature Reserve; Kyiv Oblast': Kyiv, village Svityl'nya); Humala, 2006:157 (Russia: Republic of Karelia: Kivach Nature Reserve); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Trigrad village, as *Ectemnius cavifrons cavifrons*); Magdalou, 2006a:7, 11 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve), 2006c:248 (Russia: Island of Moneron south of Sakhalin); N. Schneider, 2006:140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Tomarchio and Turrisi, 2006:955 (Italy: Sicilia: Mount Etna); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:94 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Livory, Lair, Sagot, and Baldock, 2007:31 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Hohestein, Niddahänge, and Schönbuche Forest Reserves); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Hallin, 2007b:25 (Sweden: Blekinge County); Herrmann, 2007a:52 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:150, 154 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic hills); Lee and Scott, 2007:21 (Great Britain: East Anglian wetlands); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); G. Turrisi and R. Turrisi, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vago, 2007:175 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Haeseler, 2008:308 (Germany: Friesian Islands); Haneda, 2008:14 (in key to Japanese Crabroninae); Kazenas, 2008a:104 (southeastern Kazakhstan: village Prosveshchenets 10 km south of Alma Ata); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:33 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Belkheir, 2009:18 (France: Pyrénées-Orientales: commune d'Eyne); Bitsch and Leclercq, 2009:222 (in supplement to vol. I of Faune de France, 1993: records on prey and mating by Jacobi, 2001, reported; records from Austria, Bulgaria, Estonia, and Sicily reported; first records from French Départements: Aveyron: Cransac; Haut-Rhin: Colmar, Munster; Vaucluse: Apt); Burguet, 2009:15 (France: Département de Puy-de-Dôme: Bois de la Comté); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); U. Frommer,

2009a:27 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Mokrousov, 2009:283 (Russia: Republic Mari El); Mokrousov, Antropov, Ruchin, and Bugayev, 2009:78 (Russia: Republic of Mordovia); Nemkov, 2009b:116 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Pagliano, 2009:181 (Italy: recorded from Sicilia by Tomarchio and Turrisi, 2006); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořák, and Bogusch, 2009:260 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi, Haneda, and Tano, 2009:50 (distribution in Japan); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Dorow, 2010:208 (Germany: Hessen: Nature Forest Reserves Goldbachsrück and Ziebachsrück); Ermilov and Mokrousov, 2010:89 (phoretic mites *Parawinterschmidia knessli* (Krausse), *Schwiebea crabronis* (Zakhvatkin), and undetermined Gamasoidea in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:93 (Great Britain: heathland sites in West Midlands region); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast', Chuvash Republic, Mari El Republic, Republic of Mordovia, Tatarstan: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve “Prisurskiy”); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Kononov, 2010:18 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská nížina); Treiber, 2010:135 (France: département du Bas-Rhin); van der Smissen, 2010a:339 (Germany: Schleswig-Holstein: locality records), 2010c:396 (Sweden: Öland: Byrums Sandvik; Södermanland: Nynäshamn, Rassa); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011c:43 (Great Britain: Watsonian Yorkshire: Lindrick area), 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor and Thorne Moor); Baghirov, 2011b:146 (Russia: Altay Republic: Artybash); Falk, 2011:65 (Great Britain: Sussex: South Downs); Gogala, 2011:20 (Slovenia); Józán, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:72 (Russia: Chuvash Republic); Rudoiskatel', 2011b:69 (Russia: Republic of Bashkortostan), 2011d:243 (Russia: central Ural Mountains); Saure, Bohrer, Venne, and Diestelhorst, 2011:225 (Germany: Rheinland-Westfalen: Nature Reserve Doberg, prefers forest biotopes); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:130 (Germany: Hessen: not endangered); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:183 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Larivière, Chapelin-Viscardi, and Maillet-Mezeray, 2012:296 (France: Essonne: Maisse); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Piguet and Dodelin, 2012:285 (France: Seine-Maritime: forêt de Brotonne); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots); Standfuss and Standfuss, 2012:427 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Akulov and Proshchalykin, 2013:115 (Russia: Siberia: Krasnoyarsk Kray); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Johansson, 2013:22 (Sweden: Gotland: island of Stora Karlsö); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia:

Republic of Mordovia: Mordovian State Nature Reserve); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:207 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:33 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain: urban and suburban gardens); Bitsch, 2014:401 (record from France by Piguët and Dodelin, 2013 noted); U. Frommer, 2014:27 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); J.-K. Kim, 2014:428 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:36 (Russia: Republic of Mordovia); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:119 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:21 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland, Isle of Man); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:574 (Russia: Abkhazia, Krasnodarskiy Krai); Saure, 2016b:49 (Germany: Sachsen-Anhalt: fruit orchards); A. Scholz, 2016:71 (Germany: Sachsen: Kleinraschützer Heide); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:46 (first record from Turkey: Artin: Kafkasör, as *Ectemnius cavifrons cavifrons*); Antropov, 2017b:231 (in catalog of Crabroninae of Russia); Burguet and Durand, 2017:9 (France: Puy-de-Dôme: basin of river Crouël); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); 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); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane, Mas Lariou, Vallée d'Eyne); Shorenko, 2017:77 (in Crimea collected in May and August); Gabel, Wolters, and Jauker, 2018:1 (length of foraging flights, prey: flies of genera *Syrphus*, *Episyrphus* and *Melanostoma*); Jacobs and Liebig, 2018:140 (Russia: Irkutsk Oblast', Primorskiy Krai, and Island of Sakhalin); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:9& (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13228 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:99 (western Czech Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:93 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Japoshvili and Ljubomirov, 2022:277 (Georgia: Lagodekhi Protected Areas); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); U. Frommer and Bahmer, 2023:194 (Germany: Hessen: Giessen: city gardens); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Gülmez, Çubuk, and Can, 2025:158 (Turkey: Çanakkale: Kelkit River Valley, as *cavifrons cavifrons*).

As *Crabro cephalotes* partim: Pagliano, 2011a:154, 156 (specimens in M. Spinola collection, Torino, are *Ectemnus cavifrons*).

ssp. *aurarius* (Matsumura)

Crabro aurarius Matsumura, 1912:171, 172, ♀. Holotype or syntypes: ♀, Japan: Hokkaido: Sapporo (depository?). – As *Ectemnius cavifrons aurarius*: Bitsch and Leclercq, 1993:157 (new generic assignment, new status); Leclercq, 1999a:24 (in key to Asian *Ectemnius*); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Suda, 2004:44 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and

T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:51 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo), 2009:24 (Japan: Hokkaido: Sapporo); N. Yamamoto, 2011:13 (Japan: Kyūshyū: mainland Nagasaki Prefecture).

Ectemnius cavifrons nipponensis Tsuneki, 1972c:6, ♀, ♂. Holotype: ♂, Japan: Fukui Prefecture: Arashi (originally K. Tsuneki coll., now Hyogo Mus.). Synonymized with *Ectemnius cavifrons aurarius* by Bitsch and Leclercq, 1993:157. – R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Tsuneki, 1982g:63 (Japan: known from Ryukyu archipelago); Tano, 1994a:7 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.).

ssp. kizanensis Tsuneki

Ectemnius cavifrons kizanensis Tsuneki, 1972c:5, ♀, ♂. Holotype: ♂, Taiwan: Pingtung Prefecture: Chihshan (originally K. Tsuneki coll., now USNM). – R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Leclercq, 1999a:24 (in key to Asian *Ectemnius*); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

32. centralis (Cameron)

Crabro centralis Cameron, 1891a:146, ♀, ♂. Syntypes: Mexico: Vera Cruz: Atoyac; Guatemala: San Gerónimo; and Panama: Bugaba (BMNH). – W. Fox, 1895a:151 (in revision of North American Crabronini; New Mexico: Las Cruces); Dalla Torre, 1897:587 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Ectemnius centralis***: Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:276 (in catalog of world Crabronini), 1956f:302 (in revision of subgenus *Apoctemnius*), 1957c:322 (geographic distribution, coloration); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: is a member of subgenus *Apoctemnius*); Gibson and Carrillo, 1959:... (...); Leclercq, 1968e:305 and 307 (in key to *Ectemnius* of Latin America), 320 (geographic distribution, diagnostic characters), 1972c:199 and 200 (in updated key to *Ectemnius* of Latin America), 213 (bibliographic references, Texas to Colombia); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogllyphid mite); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:488 and 491 (in key to North American *Ectemnius*); Krombein, 1979b:1679 (in catalog of North American Hymenoptera); Hook, 1982:75 (nesting habits in Texas); Callan, 1991a:12 (Trinidad); Leclercq, 1991b:9 and 10 (in revised key to Latin American *Ectemnius*), 17 (bibliographic references; Guatemala to Colombia and Trinidad: locality records); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Starr and Hook, 2003:19 (in catalog of Aculeata of Trinidad, West Indies); Leclercq, 2007e: 165 (correction to Leclercq's key, 1991b), 168 (sculpture of metanotum varying, costal lamella black in specimens from Arizona; locality records from Colombia, Costa Rica, Honduras, Mexico, Nicaragua, and Panama).

33. cephalotes (Olivier)

Crabro cephalotes Olivier, 1792a:513, sex not stated. Holotype or syntypes: France: Paris area (lost). Neotype: ♀, France, Versailles (MNHN), designated by Leclercq, 1974d:283. – Fabricius, 1804:308 (redescription, as *cephalotes* Panzer); Panzer, 1806:180 (in critical review of his earlier work); Jurine, 1807:211 (in checklist of species of *Crabro*); Spinola, 1808:178 (Italy: Liguria); Guérin-Méneville, 1835:pl. 71, Fig. 5 (illustration of habitus); Lepeletier de Saint Fargeau and Brullé, 1835:697 (in revision of Crabronini); Shuckard, 1836:55 (is not a parasite: carrying prey, excavating holes in decaying trees), 56 (using hindtibial spines to remove particles of wood when digging hole), 1837a:135 (in revision of British Aculeata); Dahlbom, 1839:95 and 1839-40:95 (in revision of Scandinavian Crabronini); von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg

area); Dahlbom, 1842a:16 (in review of Scandinavian aculeates); Guérin-Méneville, 1844:442 (bibliographic references); Dahlbom, 1845:XXIV (specimens in collection Fabricius examined), 408 (in revision of Sphecidae and Pompilidae), 528 (belongs to subgenus *Solenius*); Lepeletier de Saint Fargeau, 1845:100 (in revision of world Hymenoptera; as *Crabro cephalotes* Fabricius); Gistel, 1848:141 (Germany, description); Eversmann, 1849:428 (Russia: Kazan province and Ural foothills; as *cephalotes*); von Kiesenwetter, 1849:92 (Germany: Kingdom of Saxony: Dresden); F. Smith, 1849b:2551 (preying on Diptera); Wissmann, 1849:17 (Germany: Kingdom of Hannover: common); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Wesmael, 1852:617 (Belgium; interpretation of species); F. Smith, 1856:398 and 413 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1857:60 (Germany: in revision of fossorial wasps of Nassau Region); F. Smith, 1858c:147 (in review of British Aculeata, redescription); Belke, 1859:70 (Ukraine: Kamieniec Podolski); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); F. Smith, 1865b:86 (Great Britain: Dorset County: Bournemouth); Belke, 1866:512 (Ukraine: Zhytomyr Oblast': Radomyshl', as *Crabro cephalotes* Fabricius); Taschenberg, 1866:166 (in revision of Hymenoptera of Germany); A. Costa, 1867c:141 (in revision of Italian Sphecidae); Schenck, 1867a:350 (Germany: Nassau Region); Jaennicke, 1868:8 (Germany: Hessen: Königsbrunnen); Palma, 1869:41 (Italy: Sicilia settentrionale); F. Smith, 1869d:77 (Great Britain: Norfolk: Cromer); A. Costa, 1871b:70 (in revision of Italian Sphecidae); F. Smith, 1871b:15 (in catalog of British Aculeata); Dours, 1874:157 (in catalog of Hymenoptera of France); Taschenberg, 1875:385 (Germany: Halle); Frivaldszky, 1877:357 (Hungary: Temes Komitat: Grebenáč, now in Timiș District in Romania); Schlechtendal, 1876:54 (Germany: Sachsen: Zwickau); Dale, 1878:45 (Great Britain: Dorset: Glanville's Wootton, as *cephalotes* Panzer); Girard, 1879:934 (description), 935 (nesting in wood); Marquet, 1881:188 (southern France); Harwood, 1884:212 (England: Essex: Colchester area); V. Perkins, 1892:206 (Great Britain: Gloucestershire: Wotton-under-Edge); Marchal, 1893c:331 (nesting habits); Freke, 1896:41 (Ireland); R. Perkins, 1899a:11 (comparison with *Crabro planifrons*); Laboulbène, 1895:179 (preying on Diptera); Acloque, 1897:86 (in Sphecid Fauna of France and Algeria); Flamary, 1898:45 (France: Saône-et-Loire: Mâcon area); R. Bradley, 1900:13 (Great Britain: Birmingham); Nevinson, 1900:62 (Great Britain: Wales: Criccieth); Gardner, 1901:380 (Great Britain: Cheshire: Bollin River valley and Bowden); Thornley, 1901a:63 (Great Britain: Lincolnshire: Ludborough); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); E. Saunders, 1902a:53 (southwestern Ireland), 1902b:144 (British Channel Islands: Island of Guernsey); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); Aurivillius, 1904:298 (in revision of Swedish Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Jourdain 1904:221 (Great Britain: Derbyshire: Little Eaton); Orr, 1909b:242 (Ireland: Down County), 1911:76 (Ireland: Antrim County); Birula, 1913:532 (citation of Belke, 1866); Warburton, 1920:296 (nesting habits); Chambers, 1933:188 (Great Britain: Bedfordshire); Jansson, 1934:288 (Sweden); J.Ch. Bradley, 1957:46 (Lepeletier de Saint Fargeau's specimens in Turin); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection); Pagliano, 2011a:151 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes* and *E. sexcinctus*), 154 (specimens in M. Spinola collection, Torino, are *Ectemnius cavifrons*, *E. sexcinctus*, and *E. sp.*), 155 (specimens in M. Spinola collection, Torino, are *Ectemnius lituratus*), 156 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes*, *E. sexcinctus* and *E. cavifrons*). – **As *Clytochrysus cephalotes***: Borries, 1897:16 (new generic assignment, nesting habits); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Jansson, 1922:26 (Sweden: Island of Öland); Coulon, 1925:126 (France). – **As *Solenius cephalotes***: Kirchner, 1854:313 (new generic assignment, Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Taschenberg, 1858:114 (in key to Sphecidae of Germany); Brischke, 1862:108 (Germany: Preussen Province, now Poland: Pomorze Region); Jaennicke, 1867:146 (Germany: Hessen: Frankfurt area); Kirchner, 1867:225 (in catalog of European Hymenoptera); Wierzejski, 1868:118 (Poland: Kraków, Tatry Mountains), 1874:262 (Poland: Tatry Mountains, Ukraine: Podole Region: Sinków, now Sinkiv); Becker, 1880:153 (Russia: Sarepta, now Krasnoarmeysk south of Volgograd); Schmiedeknecht, 1876:186 (Germany: Thüringen: Rothensteiner Felsen); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Rudow, 1888:59 (nest structure); Chyzer, 1902:34 (Hungary); Rudow, 1912:70 (nesting in wood, preying on flies, as *cephalotes*). – **As *Ectemnius cephalotes***: van der

Vecht, 1961a:71 (new generic assignment, valid name for species); de Beaumont, 1964c:126 (in Sphecidae Fauna of Switzerland), 1965a:58 (Greece); Gauss, 1966c:240 (specimen bearing dipteran egg); de Beaumont, 1967a:348 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:79 (Germany: Bayern: Aschaffenburg, Kahl); Leclercq, 1967a:30 (Great Britain: locality records); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); Lefebvre, 1969a:79 (Belgium: Lanaye), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Stritt, 1969:131 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1970:74 (Germany: Schleswig-Holstein: city of Kiel); Oehlke, 1970:760 (Democratic Germany); Leclercq, 1971:216 (Spain); Lefebvre, 1971a:18 (Belgium: Caestert); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1972:156 (Germany: Schleswig-Holstein, anthropogenic habitats); Kofler, 1972:111 (Austria: eastern Tirol); Scobiola-Palade, 1972b:254 (Romania); Else, 1974:207 (Great Britain: Oxenbourne), 210 (in key to British *Ectemnius*); Erlandsson, 1974:82 (Italy); Leclercq, 1974d:283 (synonymy); Lefebvre, 1974:77 (Netherlands: Asperen); Leclercq, 1975b:4 (France); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae); Lomholdt, 1976:312 (in Sphecidae Fauna of Fennoscandia and Denmark); Banaszak, 1977:112 (Poland: Rogalin near Poznań); Guichard, 1977:253 (Great Britain: Surrey); Erlandsson, 1978a:205 (Canary Islands); Lefebvre, 1978:138 (Netherlands: Nieuw-Milligen); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); R. Bohart and Kimsey, 1979:488, 490 (in key to North American *Ectemnius*); Krombein, 1979b:1677 (in catalog of North American Hymenoptera); Leclercq, Gaspar, and Verstraeten, 1979:map 1476 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Schmidt, 1979a:56 (Germany: Ost-Holstein); Preuss, 1980a:24 (Germany: nesting in wood, but natural habitat is reduced); Richards, 1980:54 (in key to Sphecidae of British Isles); Schmidt, 1980:380 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:323 (Austria: Niederösterreich: Scheibbs District); Axelsson, 1982:80 (Sweden); Donath, 1982:214 (Germany: Cottbus Bezirk); Finnamore, 1982:182 (in Sphecidae Fauna of Southern Quebec); Gayubo, 1982b:27 (Spain: Salamanca: Béjar); Leclercq, 1982a:125 (Belgium: Liège); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:19 (in catalog of Sphecidae of Austria); Kvamme and Axelsson, 1983:58 (Norway); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo, 1984b:96 (Spain: previously recorded from Salamanca Province); Haack, Tschamtker, and Vidal, 1984:128 (Germany: Hamburg area); Lefebvre, 1985:87 (Netherlands: southern Limburg); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:66 (Germany: Südpfalz); Gayubo, 1986d:118 (Spain: Zamora Province); Gayubo and Heras, 1986:57 (Spain: Segovia Province, floral records); Gayubo and Sanza, 1986:68 (Spain: Burgos); Gayubo and Tormos, 1986a:15 (Spain: Castellón de la Plana); Skibińska, 1986b:154 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 163 (urban parks), 165 (streetside green), 168 (green areas of housing estates); Vikberg, 1986:77 (Finland); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford), 1988b:27 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:16 (France: La Manche Department); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Allen and Felton, 1989:36 (Great Britain: Kent County); Jacobs, 1989:22 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Archer, 1990b:137 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Gayubo, Asís, and Tormos, 1990b:76 (Spain: Palencia and Salamanca Provinces); Jacobs and Oehlke, 1990:200 (new records from Democratic Germany); Pagliano, 1990:87 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:548 (Austria: Kärnten); Dollfuss, 1991:173 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:408 (Italy); Gayubo and Torres, 1991:Table I (Spain: Salamanca; effects of urban pressure); Józán, 1991:604 (Hungary: Bátorliget Nature Reserve); Kowalczyk, 1991a:90, 99, 102, 104 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Nilsson, 1991:83 (Sweden: Lake Mälaren); Pagliano, 1991b:347, 354 (in key to Italian Crabroninae); van der Smissen, 1991:96 (northwestern Germany); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:35 (in list of Sphecidae of Lithuania); Gayubo, Borsato, and Osella, 1992:286 (Greece: Euboea); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), 1992c:289 (Hungary: Zselic Hills); Leclercq, 1992c:208

(prey); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Archer, 1993a:45 (Great Britain: Channel Islands), 1993c:39 (Great Britain: Yorkshire); Bitsch and Leclercq, 1993:175 (in revision of western European Crabroninae); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:24 (locality records from Europe); Leclercq and Barbier, 1993:50 (map of distribution in France); Schuberth and Schönlitzer, 1993:264 (facial fovea present); van der Smissen, 1993:128 (northwestern Germany); Felton and Schneider, 1994:290 (Luxemburg); Gayubo and Borsato, 1994:212 (Italy: Toscana); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen), 1994d:277 (Germany: Niedersachsen: Braunschweig); Archer, 1995a:21 (Great Britain: Yorkshire: Blaxton); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Pagliano and Pesarini, 1995:90 (Italy: Ferrara Province); Scharrer, 1995:26 (Austria: Niederösterreich: Bucklige Welt, Wienerberg); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:180 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:424, 425 (Poland: pine forest in Białowieża Primeval Forest); Archer, 1996a:58 (Great Britain: Channel Islands); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:73 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: may be endangered); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:83 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:518 (Austria: summary of collecting records from Burgenland); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E, as *cephalotus*); Morgan, 1998:19 (Great Britain: Wales: Carmarthenshire County); Sugar et al., 1998:16 (Canada: southern Ontario); van der Smissen, 1998:58 (Germany: Niedersachsen, Schleswig-Holstein); K. Weber, 1998:138 (Germany: Bayern: Bamberg area); Anan'eva and Kochetkov, 1999:7 (Russia: Ryazan' Oblast': no specific locality); Archer, 1999b:82 (Great Britain: Yorkshire); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: strongly endangered in Nordrhein-Westfalen); Leclercq, 1999a:19 (in key to Asian *Ectemnius*), 46 (in annotated catalog of Asian and Oceanian *Ectemnius*, unknown east of Ural Mountains and Turkey); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Mandery, 1999:105 (Germany: Bayern: Coburg area); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:328 (in Sphecidae Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:52 (southeastern Kazakhstan: 2 km southwest and 3 km south of Alma Ata); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:107 (Greece); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Ljubomirov, 2000:12 (Bulgaria, specimens in N. Nedelkov collection); Luig and Voolma, 2000:126 (first record from Estonia); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Smit, 2000:176 (Madeira); Vicidomini, 2000b:24 (Italy: previously recorded from Campania); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 205 (review of biology); Ohl et al., 2001:139

(distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Archer, 2002b:118 (Great Britain: Watsonian Yorkshire: distribution map), 2002e:42 (Great Britain: Watsonian Yorkshire); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:106 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Reemer and van der Meer, 2002:Bijlage 5 (Netherlands: Gelderland: Zaltbommel area); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); van der Meer, 2002:15 (Netherlands: costal dunes at Meijendel); Wiśniowski, 2002:72 (Poland: Ojców National Park); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Baugnée, 2003:65 (Belgium: Namur: Ri d'Hôwisse); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Flügel, 2003:8 (Germany: Hessen: Knüllwald); González, Gayubo, Asís, Tormos, and García, 2003:62 (Spain: Soria: Chavaler); Józán, 2003:227 (Hungary: Látványi Pusztá Nature Conservation Area); Kuhlmann and Quest, 2003:50 (Germany: Bayern: Bayerischer Wald National Park); Kula and Tyrner, 2003b:203 (Northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (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); Reemer, 2003:62 (Netherlands: Gelderland: Zaltbommel area); Tischendorf and Treiber, 2003:120 (Germany: Hessen: 15 km southwest of Frankfurt am Main: nesting under high power lines); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: endangered); Wiśniowski *in* Dylewska and Wiśniowski, 2003:170 (Poland: Ojców National Park); Archer, 2004f:153 (Great Britain: Watsonian Yorkshire: Victorian cemetery); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:765 (locality records from Bulgaria, Morocco, Syria, and Ukraine); Dorow, 2004:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:102 (Spain: Madrid: Monte de El Pardo); Klein and Lefebvre *in* Peeters, van Achterberg et al., 2004:380 (in Wasp and Ant Fauna of Netherlands); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:80 (Russia: Rostov Oblast'), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Szczepko and Kowalczyk, 2004:127 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Archer, 2005a:30 (Great Britain: Watsonian Yorkshire); Burger, 2005:32 (Germany: Thüringen); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Gayubo and Özbek, 2005:30 (Turkey: ten localities); Jacobs, 2005a:444 (Bulgaria); Kofler, 2005:180 (Austria: Tirol: Lienz District: Amlach, Burgfrieden in Leisach Common); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Mokrousov and Selivanova, 2005:753 (Russia: Voronezh Oblast'); Pagliano and Negrisoló, 2005:269 (in Sphecidae Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Robinson, 2005:36 (Great Britain: Cumbria County); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98

(Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Yildirim and Ljubomirov, 2005:1795 (Turkey: Erzurum: Tortum); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Gadoum and Barbier, 2006:43 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Haravilliers); Gorobchishin, 2006:132 (Ukraine: Cherkasy Oblast': Cherkasy, Kaniv Nature Reserve; Kyiv Oblast': Kyiv, village Svityl'nya); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:540 (Bulgaria: earlier records from Rhodope Mountains summarized); Magdalou, 2006a:7, 11 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); N. Schneider, 2006:133, 140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belarus: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Baghirov, 2007:93 (Russia: southwestern Siberia); Chevin, Livory, Lair, Sagot, and Baldock, 2007:31 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge Forest Reserve); Jacobs, 2007:148, 153 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: north-western Sachsen); Józán, 2007:180 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Leclercq, 2007e:169 (Canada: Quebec: Parc des Ursulines); Lee and Scott, 2007:21 (Great Britain: East Anglian wetlands); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Sipos and Móczár, 2007:205 (Hungary: Bács-Kiskun megye: vicinity of Foktő); G. Turrisi and R. Turrisi, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vago, 2007:175 (France: départements du Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Gayubo, González, Tormos, and Asís, 2008:138 (Spain: Salamanca: Parque Natural de Las Batuecas–Sierra de Francia); Kazenas, 2008a:104 (southeastern Kazakhstan: 2-3 km south and 2 km southwest of Alma Ata); Ljubomirov and Yildirim, 2008:280 (in catalog of Crabronidae of Turkey); Theunert, 2008:34 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:224 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria, Estonia, Greece, and Spain reported); Burguet, 2009:15 (France: Département de Puy-de-Dôme: Bois de la Comté); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Mokrousov, 2009:285 (Russia: Republic Mari El); Mokrousov, Antropov, Ruchin, and Bugayev, 2009:78 (Russia: Republic of Mordovia); Ruchin, Antropov, and Shibayev, 2009:169 (Russia: Republic of Mordovia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořák, and Bogusch, 2009:260 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); Dorow, 2010:208 (Germany: Hessen: Nature Forest Reserves Goldbachsrück and Ziebachsrück); Ermilov and Mokrousov, 2010:89 (phoretic mites *Calvolia* sp., *Crabrovidia popovi* (Zachvatkin), *Imparipes haeseleri* Ebermann and Hall, *Parawinterschmidtia kneissli* (Krausse), and *Schwiebea crabronis* (Zachvatkin) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:93 (Great Britain: heathland sites in West Midlands region); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Kirov, Nizhniy Novgorod, and Vladimir oblast's, Chuvash Republic, Mari El Republic, Republic of Mordovia, Tatarstan: no specific localities); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Shorenko and Konovalov, 2010:19 (Ukraine); van der Smissen, 2010a:339 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Archer, 2011a:42

(Great Britain: Yorkshire: Strensall Common); Burger, 2011a:287 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:499 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Falk, 2011:65 (Great Britain: Sussex: South Downs); Feoktistov, 2011:85 (Russia: Mordovian Nature Reserve); Gogala, 2011:21 (Slovenia); Józán, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:73 (Russia: Chuvash Republic); Murai and Amr, 2011:119 (recorded from Syria by Dollfuss, 2004b); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Tyuinsk village) Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof); Shlyakhtenok, 2011:95 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:130 (Germany: Hessen: not endangered); Archer, 2012b:183 (Great Britain: urban York); Hellrigl, 2012:129 (Italy: Provincia Autonoma di Bolzano-Alto Adige, as Südtirol); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Burguet in Durand and Burguet, 2012:3, fiche 8 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Japoshvili and Ljubomirov, 2012:96 (Turkey: Isparta: Gölcük Nature Park 8 km southwest of city of Isparta); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Kirov Oblast': Arkhangelskoye, and Krasnaya Polana near Sochi: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Mokrousov, Ruchin, and Egorov, 2013:201 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:214 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park and Serras de Aire e Candeeiros Natural Park); Wiśniowski and Szczepko, 2013:33 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain: urban and suburban gardens); Ebrahimi, 2014:35 (Iran: Kermānshāh: Eslāmābād-e Gharb); U. Frommer, 2014:27 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Kazenas, 2014a:137 (Kazakhstan: Karatau Mountain Range); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:36 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); P. Rosa and Pagliano, 2015:100 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Shoreenko, 2015:323 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:119 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Else, Bolton, and Broad, 2016:25 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:576 (Russia: Krasnodarskiy Kray); Ratzlaff, 2016:25 (Canada: first record from British Columbia: Georgia Depression), 34 (British Columbia: Vancouver); Saure, 1916c:205 (Germany: center of Berlin: Großer Tiergarten Park); A. Scholz, 2016:71 (Germany: Sachsen: Kleinraschützer Heide); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yıldırım, Ljubomirov, Özbek, and Yüksel, 2016:48 (Turkey: Erzincan, Erzurum, Kars, and Tunceli provinces); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Burguet and Durand, 2017:9 (France: Puy-de-Dôme: basin of river Crouël); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); 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, 2017:5 (Germany: Hessen: Doline near Rockensüß); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:48 (Iran: known from Kermanshah Province); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes);

Forêt de la Massane); Shorenko, 2017:77 (in Crimea collected in June through August), 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ruchin and Antropov, 2019a:13228 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:99 (western Czech Republic); Poláček, 2020:59 (Czech Republic: Opava District: Jakartovice: occurring on mine spoil heaps); Rezaei, Fallahzadeh, Dousti, and Saghaei, 2020b:11 (Iran: Fars: Shiraz: Bustan-e Jannat at 29°36'52"N 52°28'09"E); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:105 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:35 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:52 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Japoshvili and Ljubomirov, 2022:277 (Georgia: Lagodekhi Protected Areas); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); U. Frommer and Bahmer, 2023:194 (Germany: Hessen: Giessen University Botanical Garden); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:78 (Ukraine: Rivno Nature Reserve); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: British Columbia, Manitoba, Ontario, Quebec, first records from Alberta, New Brunswick, Newfoundland Island, Nova Scotia, and Prince Edward Island: no specific locality).

Crabro floralis Olivier, 1792a:517, sex not stated. Holotype or syntypes: France: Paris area (lost). Neotype: ♂, France: Yvelines: Feucherolles (MNHN), designated by Leclercq, 1974d:283. Synonymized with *Ectemnius cephalotes* by Leclercq, 1974d:283. – Lepeletier de Saint Fargeau and Brullé, 1835:808 (discussion of species identity); Dalla Torre, 1897:600 (in catalog of world Sphecidae).

Crabro geniculatus Olivier, 1792a:517, sex not stated. Holotype or syntypes: France: Paris area (lost). Neotype: ♀, France: Versailles (MNHN), designated by Leclercq, 1974d:283. Synonymized with *Ectemnius cephalotes* by Leclercq, 1974d:283. – Dalla Torre, 1897:602 (in catalog of world Sphecidae); W. Schulz, 1906:207 (may be a variety of *Crabro vagus* according to Lepeletier de Saint Fargeau and Brullé, 1835:808).

Crabro cephalotes Panzer, 1799, Heft 62:16, [♀], junior primary homonym of *Crabro cephalotes* Olivier, 1792. Holotype or syntypes: ♀, Germany: Bayern: Norimbergae = Nürnberg (depository?). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:42. – Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects); Peets, 1909-1911:66 (*Crabro cephalotes* of Panzer = *Crabro sexcinctus*).

Crabro subinterruptus Stephens, 1829a:365, by indication (Article 12.2.1: reference to Panzer, 1804). Replacement name for *Crabro lituratus* of Panzer, 1804. Synonymized with *Crabro lindenius* by F. Smith, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).

Crabro striatus Lepeletier de Saint Fargeau and Brullé, 1835:707, ♀, ♂. Syntypes: France: Paris and Bordeaux areas (M. Spinola collection, Torino). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:43. – Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:110 (in revision of world Hymenoptera); Dahlbom, 1845:527 (unknown to author, but belonging to subgenus *Cerato-colus*); Wesmael, 1852:622 (Belgium); Schenck, 1857:52 (Germany: in revision of fossorial wasps of Nassau Region); Taschenberg, 1858:116 (in key to Sphecidae of Germany); Funk, 1859:57 (Germany: Bayern: Bamberg); Siła-Nowicki, 1864:54 (Ukraine: L'viv Oblast': Pieniaki in Złoczów District, now Zolochiv), 1865:54 (western Ukraine: Galicia region: no specific locality); Taschenberg, 1866:165 (in revision of Hymenoptera of Germany); A. Costa, 1867c:146 (in revision of Italian Sphecidae); Jaennicke, 1867:146 (Germany: Hessen: Frankfurt area); Kirchner, 1867:226 (in catalog of European Hymenoptera); Schenck, 1867a:350 (Germany: Nassau Region); Jaennicke, 1868:8 (Germany: Hessen: Königsbrunnen); Wierzejski, 1868:118 (Poland: Kraków area; Ukraine: Podole Region: Pieniaki); von Aichinger, 1870:311 (Austria: Tirol; as *Crabro striatus* H. Sch.); A. Costa, 1871b:75 (in revision of Italian

- Sphecidae); P. Ivanov, 1872:151 (Ukraine: Khar'kov Oblast': Kupyansk area); Dours, 1874:158 (in catalog of Hymenoptera of France); Wierzejski, 1874:262 (Poland: Kraków, Mogilany; Ukraine: Bukovina Region: Kalinowce; Podole Region: Pieniaki, Skała); Beuthin, 1876:229 (Germany: Hamburg area); Marquet, 1881:188 (France: Hautes-Pyrénées); Friese, 1883:200 (Germany: Sachsen-Anhalt: Weissenfels); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); Lange, 1898:70 (Germany: Sachsen: Annaberg-Buchholz); Baldini, 1894:72 (Italy: Modena area); Rudow, 1896:329 (Germany: Brandenburg: no specific locality); Chyzer, 1902:34 (Hungary); J.Ch. Bradley, 1957:46 (type in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:156 (specimens in M. Spinola collection, Torino, including lectotype, are *Ectemnius cephalotes*). – **As *Ceratocolus striatus***: Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Acloque, 1897:88 (in Sphecidae Fauna of France and Algeria); Pagliano, 2011a:149 (specimens in M. Spinola collection, Torino, are *Ectemnius lituratus*).
- Crabro ornatus* Lepeletier de Saint Fargeau and Brullé, 1835:709, ♀. Holotype or syntypes: ♀, France: Paris area (M. Spinola collection, Torino). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:43. – Dahlbom, 1845:385 (original description copied), 528 (unknown to author, but probably belonging to *Crabro* s.s.); Lepeletier de Saint Fargeau, 1845:112 (in revision of world Hymenoptera); F. Smith, 1856:401 (in catalog of Hymenoptera in British Museum); Dours, 1874:158 (in catalog of Hymenoptera of France); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); J.Ch. Bradley, 1957:46 (type in Turin); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:156 (specimens in M. Spinola collection, Torino, including lectotype, are *Ectemnius cephalotes*).
- Ceratocolus striatus* Lepeletier de Saint Fargeau and Brullé, 1835:744, ♂. Secondary homonym in *Ectemnius* of *Crabro striatus* Lepeletier de Saint Fargeau and Brullé, 1835:707. Holotype or syntypes: ♂, France: Paris area (M. Spinola coll., Torino). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:43. – Lepeletier de Saint Fargeau, 1845:149 (in revision of world Hymenoptera); J.Ch. Bradley, 1957:46 (type in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino). – **As *Crabro striatus***: Dahlbom, 1845:381 (new generic assignment, original description copied), 527 (in key to *Crabro*, unknown to author); Brischke, 1891:56 (Germany: Steegen 1 mi off Karthaus, now Poland: 1 mi off Kartuzy); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia).
- Blepharipus striatulus* Lepeletier de Saint Fargeau and Brullé, 1835:737, ♀. Holotype or syntypes: ♀, France: Paris area (lost). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:43.
- Crabro lindenius* Shuckard, 1837a:143, ♀, ♂ (as *Lindenius*, incorrect original capitalization). Syntypes: Britain: London area and Surrey: Ripley (depository unknown). Synonymized with *Crabro striatus* Lepeletier de Saint Fargeau and Brullé, 1835:707 by Wesmael, 1852:622. – von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); F. Smith, 1851c:27 (Great Britain: Hamstead, now part of London, Kent: Plumstead Wood), 1853:64 (in checklist of British Hymenoptera), 1856:400 (in catalog of Hymenoptera in British Museum), 1857d:40 (Great Britain: no specific locality), 1858c:157 (in review of British Aculeata, redescription); Taschenberg, 1858:157 (in key to Sphecidae of Germany); Inchbald, 1859:199 (Great Britain: York, nests and prey, as *lindensis*, quoted as *Lindenii* by Dalla Torre, 1897:621); Schenck, 1860:145 (Germany: Nassau Region); Dietrich, 1868:363 (Switzerland: Zürich Canton); F. Smith, 1871b:16 (in catalog of British Aculeata); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county by Inchbald, 1859); D. Baker, 1998:172 (type origin and depository).
- Crabro shuckardi* Dahlbom, 1839:98 and 1839-40:98, ♀, ♂ (as *Shuckardi*, incorrect original capitalization). Syntypes: Sweden: Östergötland and Skåne: no specific localities (Lund). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:43. – Dahlbom, 1842a:16 (in review of Scandinavian aculeates).
- Crabro interruptus* Dahlbom, 1845:418, junior primary homonym of *Crabro interruptus* Fabricius, 1787 (now in *Palarus*). Unnecessary substitute name for *Crabro shuckardi* Dahlbom. Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Thomson, 1870:174. – Dahlbom, 1845:528 (is a member of *Crabro* s.s.); Eversmann, 1849:429 (Russia: Ural foothills); von Kiesenwetter, 1849:92 (Germany: Kingdom of Saxony: Dresden);

Wissmann, 1849:17 (Germany: Kingdom of Hannover: Münden); Tischbein, 1852:141 (Germany); Ruthe and Stein, 1857:316 (Germany: Berlin area); Assmuss, 1859:620 (Russia: Moscow Governorate); von Frauenfeld, 1861:103 (Croatia: Dalmatia: no specific locality); Brischke, 1862:108 (Germany: Preussen Province, now Poland: Pomorze Region); A. Costa, 1866:27 (specimen from France in Museo Zoologico di Napoli); Kirchner, 1867:224 (in catalog of European Hymenoptera); Palma, 1869:41 (Italy: Sicilia settentrionale); Taschenberg, 1875:386 (specimen in Halle University collection); E. Saunders, 1880:296 (in revision of British Aculeata, as *interruptus* De Geer); Yaroshevskiy, 1881:122 (Ukraine: Khar'kiv Oblast': Khar'kiv area and Kupyansk); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); V. Perkins, 1892:206 (Great Britain: Gloucestershire: Wotton-under-Edge, as *interruptus* De Geer); E. Saunders, 1896:144 (in revision of British Aculeata); Martineau, 1897a:95 (Great Britain: West Midlands: Solihull); R. Bradley, 1900:13 (Great Britain: Birmingham); Sladen, 1900:265 (Great Britain: Kent: Ripple near Walamer); Gardner, 1901:381 (Great Britain: Cheshire: on coast; as *interruptus* De Geer); Hocking, 1901:68 (Great Britain: Surrey, as *interruptus* De Geer); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); von Heyden, 1905:83 (Germany: Hessen: Frankfurt); Haines, 1914:130 (Great Britain: Dorset, as *interruptus* De Geer); Britton, 1920:339 (in checklist of insects of Connecticut, as *interruptus* LePeletier); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:156 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes*). – **As *Solenius interruptus***: Pagliano, 2011a:157 (specimen in M. Spinola coll., Torino, is a North American *Ectemnius* sp.).

Crabro fargeii Smith, 1856:410 (as *Fargeii*, incorrect original capitalization). Substitute name for *Ceratocolus striatus* Lepeletier de Saint Fargeau and Brullé.

Crabro aciculatus Provancher, 1882:108, ♀, ♂. Lectotype: ♀, Canada: Quebec: Cap Rouge or Saint-Hyacinthe (Laval Univ.), designated by Gahan and Rohwer, 1917:391. Synonymized with *Ectemnius quadricinctus* (correctly: *Ectemnius cephalotes*) by Pate, 1945b:42. – Cresson, 1887:284 (in catalog of North American Hymenoptera); W. Fox, 1895a:160 (in revision of North American Crabronini); Dalla Torre, 1897:580 (in catalog of world Sphecidae); Faull, 1913:384 (Canada: Toronto region); Gibson, 1914:124 (Canada: Ontario: Ottawa; Quebec: Montreal). – **As *Solenius aciculatus***: Krombein, 1939:143 (new generic assignment, New York State).

Crabro aciculatus Provancher, 1883:661, ♀, ♂. Objective synonym of *Crabro aciculatus* Provancher, 1882.

Crabro ruthenicus F. Morawitz, 1892:174, ♀. Holotype or syntypes: ♀, Russia: Tver' Oblast': Ostashkov (ZIN). Synonymized with *Crabro quadricinctus* (correctly: *Ectemnius cephalotes*) by Kohl, 1915:44. – Dalla Torre, 1897:624 (in catalog of world Sphecidae).

As *Crabro quadricinctus* (misinterpretation): Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects); nec Dahlbom, 1845:526 (= *Crossocerus*); A. Morawitz, 1864:453 (Russia: Sankt-Petersburg), 1866a:272 and 1866b:349 (specimens in E. Eversmann collection); Thomson, 1870:174 (in revision of Swedish Crabroninae), 1874:286 (in revision of Hymenoptera of Scandinavia); Taschenberg, 1875:382 (Germany: Halle); Kohl, 1880:115 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:72 (Norway, as *4-cinctus*); Kohl, 1883e:652 (Switzerland, as *4-cinctus*); von Heyden, 1884:122 (Germany: Frankfurt am Main area); Wüstnei, 1886:32 (Germany: Schleswig-Holstein: Sonderburg); Gasperini, 1887: 13 (cited from Dalmatia, now Croatia, by Frauenfeld, 1861); Kohl, 1888b:721 (Austria: Tirol, now Italy: Alto Adige), 1893:26 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Sickmann, 1893:59 (Germany: Niedersachsen: Iburg); Krieger, 1894:7 (Germany: Kingdom of Saxony); Westerlund, 1896:28 (Finland: no specific locality, as *4-cinctus*); Borries, 1897:23 (nesting habits); Kozhevnikov, 1897:15 (Russia: Moscow Governorate); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898a:82 (Norway: Lyngör), 1898b:96 (Norway); de Cobelli, 1903:116 (Italy: Trentino: Mori, Rovereto); Antiga and Bofill, 1904:25 (Spain: Cataluña Province); Aurivillius, 1904:298 (in revision of Swedish Sphecidae); W. Schulz, 1904b:99 (Czechoslovakia); Kubes, 1905:84 (Czech Republic: Kolín, Sušice); Mantero, 1905:71 (Italy: Toscana: Isola del Giglio); Mosolov, 1905b:19 (Russia: Moscow Governorate: Mikhailovskoye); Schmiedeknecht, 1907:185 (in key to Hymenoptera of Central Europe); de

Gaulle, 1908:122 (in catalog of French Hymenoptera); Cavo, 1910:685 (France: Département du Nord); Dittrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:43 (Italy: Trieste area); Schirmer, 1912:163 (Germany: Berlin area); Kohl, 1913b:16 (Russia: Voronezh Oblast': Valuyki at 50°14'N 38°08'E); Birula, 1914:371 (Belorussia: Ambrosovich near Vitebsk); Szilády, 1914:90 (Hungary: Nagyenyed); Kohl, 1915:42 (in revision of Palearctic Crabronini); Kerenskiy, 1919:32 (Russia: Penza Governorate); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Stöckert, 1919:37 (Germany: Franken historical region); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:147 (in key to Belgian Sphecidae), 164 (phenology, nesting habits); Strand, 1921:33 (Germany: Bayern: Kulmbach); Fahringer, 1922:182 (Turkey); Strand, 1922:197 (Germany: Bayern: Kulmbach); Leininger, 1924:120 (Germany: Baden-Württemberg: Karlsruhe); Berland, 1925d:202 (in Sphecidae Fauna of France); Bischoff, 1925:296 (Latvia; Poland: Białowieża); Coulon, 1925:125 (France; Morocco: Tanger); Schütze, 1925:109 (Germany: Lausitz Region); Shestakov, 1925:35 (Russia: Yaroslavl' area); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Ihringen); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:146 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Hémon, 1926:200 (France: Finistère: Fouesnant); Zavadil, 1926:29 (Czechoslovakia); Berland, 1928b:182 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Eidmann, 1928:486 (nesting in tree trunks), 460 (illustration of larval cell), 492 (illustration of preimaginal stages); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Bouwman, 1930:64 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:638, 643 (in keys to Hymenoptera of North and Central Europe); Baudot, 1931:255 (characteristics of cocoon); Pulkkinen, 1931:121 (in revision of Sphecidae of Finland); Bondroit, 1932:39 (Belgium: Solbosch); Giordani Soika, 1932a:23 (Italy: Lido di Venezia); Bernard, 1933:62 (France: Drôme: Dieulefit); Bondroit, 1933:32 (Belgium: Bruxelles); E. Nielsen, 1933:269 (summary of nesting habits); K. Strohm, 1933:337 (Germany: Baden-Württemberg: Kaiserstuhl); Grandi, 1934:128 (Italy: Emilia-Romagna: Bologna); Jansson, 1934:288 (Sweden); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:108 (Italy); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Minkiewicz, 1935:215, 219, 221 (Poland: Lake Garbaś 20 km west of Suwałki); Steck, 1935:319 (Switzerland); Vergne, 1935:120 (France: Auvergne: Clermont-Ferrand); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Łowicz, Opatów); Pattri, 1936:113 (Germany: Hessen; Darmstadt area, on sandy habitats); Dulac, 1937:24 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Goebel, 1937:37 (Poland: Poznań District: Sławie); Zavadil, Šustera, and Baťa, 1937:149 (in catalog of Sphecidae of Czechoslovakia); Maréchal, 1938b:208 (nest and prey); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:115 (northwestern Germany), 1939b:74 (an eastern species in northwestern Germany); Dvornar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Paul, 1941:32 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Benno, 1943:67 (Netherlands: Babberich); Giner Mari, 1943a:225 (in Sphecidae Fauna of Spain); Móczár, 1947a:60 (Hungary: Bars comitatus: Nagysalló, now in Slovakia: historical region Tekov: Tekovské Lužany); Guiglia, 1948c:202 (Italy: Sardegna: Cagliari); Zavadil in Zavadil and Šnoflak, 1948:111 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:24 (Portugal); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavo, 1950:41 (France: Département du Nord, as *4-cinctus*); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Szulczewski, 1950:103 (Poland: Wielkopolski National Park 15 km south of Poznań); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:457 (distribution in Scandinavia); Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (in catalog of North American Hymenoptera); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:51 (France: Ardèche River basin); Głowacki, 1953:518 (Poland: Warszawa); Nouvel and Ribaut, 1953:184 (France: Haute-Garonne: Saint-Béat); de Beaumont, 1954e:95 (Italy); Atanasov, 1955:194 (Bulgaria: nine localities); Steiner, 1955:142 (France: Dordogne); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Zirmiebl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Diniz, 1959:32 (Portugal: Lisboa); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Noskiewicz and Puławski, 1960:129, 133 (in key to

Polish Sphecidae); Wengris, 1962:206 (Lithuania: Vilnius area); van der Zanden, 1963:59 (Netherlands: Utrecht); Niedl and Deneš, 1967:68 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:21 (Latvia); Balthasar, 1972:52 (in Sphecidae Fauna of Czechoslovakia); Levi, Sysoletina, and Shernin, 1974:269 (Russia: Kirov Oblast': Kirov, as *quadricinctus*); Skibińska, 1981:358 (Poland: Warszawa-Białoleka); 1982:123 (Poland: Warszawa area); Kowalczyk, 1988a:45 (Poland: Rogów); Blagoveshchenskaya, 1994:89 (Russia: Ul'yanovsk Oblast'). – **As *Metacrabro quadricinctus***: R. Perkins, 1913b:387, 388 (new generic assignment, in key to British Crabronini), 1924:224 (Great Britain: Devon), 1925:151 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:306 (summary of nesting habits), 321 (list of prey); Jones, 1928a:5 (Great Britain: nesting in old oak-stump at Wollaton Park, Nottingham), 1928c:45 (correction to Jones, 1928a: should be “nesting side by side with *Crabro cavifrons*”); Spooner, 1931:15 (Great Britain: Cambridgeshire), 1934a:48 (Great Britain: Devon: Dartmoor near Plympton; prey flies ejected from nests during construction of new burrows); Richards, 1936a:171 (the name *Crabro quadricinctus* should continue to be applied to this species), 1937b:107 (in checklist of British aculeates); Guichard, 1939a:42 (Great Britain: southern Cornwall: Polperro); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1024 (Germany: Bayern: Bamberg area); Spooner, 1942:110 (Great Britain: Bedfordshire); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Rodborough, Stroud, Walham); Hallett: 1945:129 (Great Britain: Herefordshire: The Lea); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Chambers, 1949:230 (Great Britain: Bedfordshire); Felton, 1963:179 (Great Britain: Kent County); Guichard, 1972:244 (Great Britain: London: Bushey Park); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district). – **As *Ectemnius quadricinctus***: Leclercq, 1949a:16 (new generic assignment, miscellaneous locality records); Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (in catalog of North American Hymenoptera); Leclercq, 1951e:16 (bibliography of Belgian records); Fahlander, 1954:249 (Sweden: Gästrikland Region); Leclercq, 1954c:289 (in catalog of world Crabronini), 322 (nest and prey records); Aerts, 1955:60 (Germany: Rheinland); Grandi, 1957:392 (Italy: Abruzzi); Leclercq, 1958e:115 (in key to selected subgenera of *Ectemnius* of southeastern Asia); Móczár, 1958b:205 (Hungary: locality records); Nouvel and Ribaut, 1958:17 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Wolf, 1959b:35 (Germany: Nassau); Valkeila, 1962b:68 (southwestern Finland); Babić, 1964:119 (Austria: Land Salzburg); Benedek, 1968e:75 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae); Scobiola-Palade, 1968c:387 (Romania: Comana); Benedek, 1969a:84 (Hungary: marshy meadow), 1979:234 (Hungary: Bakony Hills); Romanova, 1969:135 (Russia: North Caucasus); Benedek, 1970:101 (Hungary: Tapolca); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie).

As *Crabro vespiformis* Stephens, 1829a:365 (in catalog of British insects) and 1829b:33 (in checklist of British insects), corrected to *Crabro lindenius* by F. Smith, 1855:99.

As *Blepharipus striatulus*: Pagliano, 2011a:146 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes*).

As *Crabro striatus*: Pagliano, 2011a:156 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes*).

34. *chagrinator* Leclercq

Ectemnius chagrinator Leclercq, 1950e:12, ♀, ♂. Holotype: ♂, Ecuador: Quito (MNHN). – Leclercq, 1954c:285 (in catalog of world Crabronini), 1968e:301 (in key to *Ectemnius* of Latin America), 317 (bibliographic references), 1972c:198 (in updated key to *Ectemnius* of Latin America), 211 (bibliographic references, variation); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Leclercq, 1991b:8 (in revised key to Latin American *Ectemnius*), 19 (bibliographic references; Ecuador); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Dollfuss, 2004b:766 (Ecuador: Tungurahua: Baños); Leclercq, 2007e: 165 (correction to Leclercq's key, 1991b), 169 (mandible with yellow spot in specimen here studied; locality records from Costa Rica, Colombia, Ecuador, Panama, Peru, and Venezuela).

ssp. cayerae Leclercq

Ectemnius chagrinatus cayerae Leclercq, 1968e:317, ♂. Holotype: ♂, Argentina: Tucumán: Tafi Viejo: La Cayera (IML). – Leclercq, 1968e:301 (in key to *Ectemnius* of Latin America), 1972c:198 (in updated key to *Ectemnius* of Latin America), 211 (bibliographic reference); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Leclercq, 1991b:8 (in revised key to Latin American *Ectemnius*), 19 (bibliographic references; Argentina); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e: 165 (correction to Leclercq's key, 1991b), 169 (described from Argentina).

35. chrysites (Kohl)

Crabro chrysites Kohl, 1892:197, ♀. Holotype or syntypes: ♀, ?Sikkim: no specific locality (NHMW). – Dalla Torre, 1897:588 (in catalog of world Sphecidae); W. Schulz, 1906:205 (omitted by Bingham, 1897); Kohl, 1915:46 (in revision of Palearctic Crabronini; Taiwan); Gussakovskij, 1932:15 (Russia: Primorskiy Kray); Iwata, 1933b:8 (locality records from Japan), Yasumatsu, 1942a:87 (Japan: Amami-Oshima Islands); Tsuneki, 1947d:283 (Korea). – **As *Ectemnius chrysites***: Leclercq, 1954c:288 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1957f:59 (Korea); Leclercq, 1958c:115 (in key to selected subgenera of *Ectemnius* of southeastern Asia); Tsuneki, 1960g:20 (nesting habits unknown), 1962a:7 (Japan: Ryukyu Islands: Island of Amami-Oshima), 1966d:1 (in list of Crabronini known from Taiwan), 2 (in list of Crabronini known from Ryukyus), 1968g:1 (Taiwan), 33: (Taiwan; in key to Crabronini of Taiwan and Ryukyus); Tsuneki and Tano, 1969:30 (distribution in Japan); Tsuneki, 1971a:2 (Taiwan); Murota, 1973b:118 (Taiwan); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Tsuneki, 1977j:280 (Taiwan: Taihorinsho); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Leclercq, 1982b:147 (China: Kwantung, Szechuan; discussion of Philippine females); Tsuneki, 1982g:62 (known from Ryukyu archipelago), 1984f:20 (Philippines), 41 and 42 (in key to Crabronini of Philippines); Dollfuss, 1989:9 (type material in NHMW); Wu and Zhou, 1996a:120 (in revision in Economic Insect Fauna of China); Leclercq, 1999a:20 (in key to Asian *Ectemnius*), 46 (in annotated catalog of Asian and Oceanian *Ectemnius*, relationships to *Ectemnius mindanaonis*); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Yamane, Ikudome, and Terayama, 1999:504 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Jonathan, Ray, and Kundu, 2000:205 (India: previously recorded from Meghalaya: East Khasi Hills); Q. Li and He, 2004:1088 (China: in hymenopterous fauna of Zhejiang Province); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Haneda, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2007:54 (Japan: Ryukyu Archipelago: Amami Oshima Islands); Haneda, 2008:17 (in key to Japanese Crabroninae); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Murota and Kurokawa, 2009:15 (Japan: Ryukyu Archipelago: Amami Oshima Islands); Nemkov, 2009b:121 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); S. Takahashi, Haneda, and Tano, 2009:42, 50 (distribution in Japan); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); J.-K. Kim, 2014:429 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Tano and Kurokawa, 2015:26 (first record from Vietnam: central Vietnam: Bach Ma); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

Crabro auricomus Bingham, 1897:327, ♀. Holotype or syntypes: ♀, India: Assam: no specific locality (BMNH). Synonymized with *Ectemnius chrysites* by Leclercq, 1954c:288. – R. Turner, 1912g:376 (belongs to *Crabro fossorius* species group); Ramakrishna Aiyar, 1916:559 (bibliographic reference to synonymy by Turner, 1912g:376). – **As *Ectemnius auricomus***: Leclercq, 1950c:10 (new generic assignment, additional description).

Crabro khasianus Cameron, 1902d:61, ♀, ♂. Syntypes: India: Assam: Khasia Hills (OXUM). Synonymized with *Crabro auricomus* by R. Turner, 1912g:376.

Ectemnius butuani Leclercq, 1963:33, ♂. Holotype: ♂, Philippines: Mindanao: Butuan (USNM). Synonymized with *Ectemnius chrysites* by Leclercq in R. Bohart and Menke, 1976:425. – Baltazar, 1966:357 (in catalog of Hymenoptera of Philippines).

ssp. *chosenensis* Tsuneki

Ectemnius chrysites chosenensis Tsuneki, 1974a:372, ♀. Holotype: ♀, Korea: Mount Pakyon 27 km northeast of Kaesong (TMB). – R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Tsuneki, 1982b:16 (known from Korea); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea).

Ectemnius (*Metacrabro*) ssp. n.: Tsuneki, 1991:202 (Korea: Mount Pakyon 27 km northeast of Kaesong).

ssp. *irianus* Leclercq

Ectemnius chrysites irianus Leclercq, 1999a:47, ♀. Holotype: ♀, Indonesia: Western Papua (= Indonesian New Guinea): Weigeu, Camp Nok (BMNH). – Leclercq, 1999a:20 (in key to Asian *Ectemnius*).

36. *clearei* Leclercq

Ectemnius clearei Leclercq, 1964c:451, ♀. Holotype: ♀, Guyana: Mabaruma (BMNH). – Leclercq, 1968e:311 (in key to *Ectemnius* of Latin America), 1972c:204 (in updated key to *Ectemnius* of Latin America), 219 (bibliographic reference); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Leclercq, 1991b:14 (in revised key to Latin American *Ectemnius*), 22 (bibliographic references); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:169 (known from Guyana).

37. *compactus* (R. Perkins)

Nesocrabro compactus R. Perkins in R. Perkins and Forel, 1899:25, ♀, ♂. Lectotype: ♂, Hawaiian Islands: Island of Kauai: Waimea (BMNH), designated by Takumi, 1999:25. – Giffard, 1914:26 (Hawaiian Islands: first record from Island of Hawaii: Kau). – **As *Ectemnius compactus***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini), 320 (nest and prey records); Yoshimoto, 1960:309 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Takumi, 1999:5 (prey: *Dyscritomyia* sp., a calliphorid fly), 24 (in revision of Hawaiian *Ectemnius*).

Nesocrabro compactus var. *lanaiensis* R. Perkins in R. Perkins and Forel, 1899:26, ♀, ♂. Lectotype: ♂, Hawaiian Islands: Island of Lanai: Mount Kotele (BMNH), designated by Takumi, 1999:25. Synonymized with *Ectemnius compactus* by Yoshimoto, 1960:310 and by Takumi, 1999:24 (as new synonym). – F. Williams, 1927:445 (Perkins's description of nest reported).

38. *confinis* (Walker)

Crabro confinis Walker, 1871:27, ♀, ♂. Syntypes: Egypt: Cairo (lost). Neotype: ♂, Egypt: no specific locality (MNHN), designated by Leclercq, 1974d:276. – Dalla Torre, 1897:592 (in catalog of world Sphecidae); Innes Bey, 1912:112 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected at unknown locality); Kohl, 1915:79 (original description translated into German); Storey, 1916:108 (Egypt: Cairo, Ghiza, Maadi, Marg). – **As *Ectemnius confinis***: Leclercq, 1975b:3 (new generic assignment, France); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Schwammberger, 1978:419 (Germany: Württemberg); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Pagliano, 1980:123 (Italy: Puglia); Schmidt, 1980:381 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Tsuneki, 1982b:16 (known from Korea; as *confinus*), 1982g:62 (known from Ryukyu archipelago); Dollfuss, 1983b:19 (in catalog of Sphecidae of Austria); Józán, 1985b:59 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics, as *confinus*); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Westrich and Schmidt, 1985b:111 (Germany: endangered in Baden-Württemberg); Gayubo, 1986d:118 (Spain: Zamora Province); Józán, 1986:372 (Hungary: Kiskunság National Park); Scobiola-Palade, 1987:64 (Romania: Dobrogea); Dollfuss, 1988:17 (Austria: Bisamberg); Karsai, 1988:100 (Hungary: Kiskunság National Park); Borsato, 1989:201 (Italy: Lombardia: Busatello marsh); Jacobs, 1989:22 (Germany: Mecklenburg-Vorpommern); Józán, 1989:101 (Hungary: Tihany Nature Reserve); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Gayubo, Asís, and Tormos, 1990b:76 (Spain: Toledo Province); Jacobs and Oehlke, 1990:197 (new records from Democratic Germany); Pagliano, 1990:87 (in catalog of Italian Sphecidae); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss,

1991:174 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:408 (Italy: Lombardia, Veneto); Józán, 1991:604 (Hungary: Bátorliget Nature Reserve); Negrisolo, 1991:321 (Italy: Gorizia and Udine Provinces); Pagliano, 1991b:351, 355 (in key to Italian Crabroninae); Schembri, 1991:182 (first record from Malta); van der Smissen, 1991:96 (northwestern Germany); Gusenleitner, 1992:688 (Austria: Steiermark); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area); Bitsch and Leclercq, 1993:168 (in revision of western European Crabroninae); Leclercq, 1993c:24 (locality records from Mediterranean Basin and Iran); Leclercq and Barbier, 1993:51 (map of distribution in France); Luchetti, 1993:105 (Italy: Sardegna: Maddalena archipelago); Mochi and Luchetti, 1993:105 (France: Corse); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Dollfuss, 1994:101 (endangered in Austria); Gayubo and Borsato, 1994:213 (Italy: Sardegna); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Gusenleitner, 1995:163 (Austria: Steiermark); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); **Schmid-Egger**, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:180 (Germany: summary of records from Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Stoyanov, 1996:15 (first record from Bulgaria: 4 km northeast of Burgas; nesting in reed stems, preying on *Nemotelus bipunctatus* Loew, Stratiomyidae); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Witt, 1996:106 (Germany: Brandenburg), 108 (locality records); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 36 (probably endangered); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Nazarova, 1998:41 (Tajikistan: Tigrovaya Balka Nature Reserve); van der Smissen, 1998:58 (Germany: Schleswig-Holstein: Schreyahn); Wiśniowski and Kowalczyk, 1998:220 (first record from Poland: Łódź-Lublinek); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Leclercq, 1999a:26 and 27 (in key to Asian *Ectemnius*), 48 (in annotated catalog of Asian and Oceanian *Ectemnius*, new locality records); Yamane, Ikudome, and Terayama, 1999:505 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Blösch, 2000:329 (in Sphecidae Fauna of Germany); Esenbekova and Kazenas, 2000:52 (southeastern Kazakhstan: 20 km west of Alma Ata, near Bakanas, 5 km south of Talgar); Jacobs, 2000:7, 17 (Germany: Land Mecklenburg-Vorpommern: probably endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Zettel, 2000:30 (Austria: Wien); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 205 (description of nest, review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:139 (distribution in Germany by provinces); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: strongly endangered); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Deván, 2002b:204 (Slovakia: Pekelná dolina); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:106 (geographic distribution, collecting localities in Kazakhstan); Generani, Pagliano, Scaramozzino, and Strumia, 2003:65 (Italy: Arcipelago Toscano); Józán, 2003:227 (Hungary: Látányi Pusztá Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (Germany: in catalog of wasps and bees of Bayern); Schmid-Egger, 2003:753 (Italy: Sicilia: Castelammare); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: endangered); Dollfuss, 2004b:766 (locality records from Bulgaria, Czech Republic, France, Greece, Hungary, Italy, Jordan, Kazakhstan, Kyrgyzstan, Montenegro, Romania, Slovakia, Slovenia, Tunisia, Turkey, Turkmenistan, Ukraine, and Uzbekistan); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains), 2004d:34 (Kazakhstan: Khar'kino); Shkuratov, 2004a:80 (Russia: Rostov Oblast'); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: in red list of Sphecidae of Sachsen-Anhalt); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Gayubo and Özbek, 2005:30 (Turkey: twelve localities); Jacobs,

2005a:444 (Bulgaria: Melnik); Kofler, 2005:180 (Austria: Tirol: Lienz District: no new record since 1964); Pagliano and Negrisoló, 2005:260 (in Sphecidae Fauna of Italy); Saure, 2005:15 (Germany: Berlin); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Straka, 2005a:397 (critically endangered in Czech Republic); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Feitz, Gloden, Melchior, and Schneider, 2006:82 (first record from Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas-Larrieu Nature Reserve near Argelès-sur-Mer), 2006c:8 (France: Pyrénées-Orientales: Réserve Naturelle du Mas-Larrieu); Schneider and Feitz, 2006:67 (male with only three tarsomeres in right hindtarsus); Standfuss and Standfuss, 2006b:99 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Jacobs, 2007:152, 156 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:172, 180 (Hungary: Zselic hills); Roche, 2007a:104 and 2007b:7 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Theunert, 2007c:96 (Germany: Niedersachsen: Telgter Schachtberg); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Ljubomirov and Ban-Calefariu, 2008:206 (Romania: Maramureş District: Borşa); Ljubomirov and Yildirim, 2008:276 (in catalog of Crabronidae of Turkey); Theunert, 2008:34 (Germany: map of distribution in Niedersachsen and Bremen); Zettel, Zimmermann, Sorger, and Wiesbauer, 2008:5 (Austria: Wien); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria, Czech Republic, Greece, Hungary, Slovakia, and Slovenia reported; new French Département: Haut-Rhin: Colmar); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen), 33 (locality records from Hessen, nesting not exclusively in stems of *Phragmites*, Poaceae); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- und Ottmaringer Tal); Rudoiskatel', 2010:159 (Russia: southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: rare); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:19 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:89 (Western Slovakia: Borská Nížina), 101 (Western Slovakia: recorded from Borská Nížina); Treiber, 2010:135 (France: département du Bas-Rhin); van der Smissen, 2010a:339 (Germany: Schleswig-Holstein: Schreyahn, Walkenkrug); Burger, 2011a:287 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:21 (Slovenia); Józán, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:131 (Germany: Hessen: not endangered); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Standfuss and Standfuss, 2012:428 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E: addition to flight period); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:81 (Turkey: Adıyaman and Erzurum provinces); Kazenas, 2013b:497 (southeastern Kazakhstan: Ili River valley); Olszewski, Wiśniowski, Pawlikowski, and Szpila, 2013:131 (Poland: Krzyżanowice); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:212 (in annotated catalog of aculeate wasps of Belorussia); Baldock, 2014:357 (Spain: Island of Mallorca); Dunford, Turbyville, and Leavengood, 2014:9 (listed as medically important in Afghanistan); J.-K. Kim, 2014:429 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Yildirim, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Atbaei, Fallahzadeh, and Ljubomirov, 2015:11 (Iran: Fars Province); Bogusch, Astapenkova, and Heneberg, 2015:6 (Czech Republic: reared from galls of *Lipara* sp., Chloropidae); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Mokrousov and Zryanin, 2015:42 (Uzbekistan: Kashkadarya Oblast'); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Weber, 2015:62, 64 (Germany: Bayern: Nature Reserve Börsting near Hallstadt); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen:

Trages circa 20 km south of Leipzig); Mokrousov and Popov, 2016:575 (Russia: Krasnodarskiy Kray); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:46 (Turkey: Antalya, Erzurum, and Tunceli provinces); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Jahan-tigh, Rakhshani, Mokhtari, and Ramroodi, 2017:48 (Iran: known from Alborz, Mazandaran, Sistan-o Baluchestan, and West Azerbaijan provinces); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Mas Larrieu); Shorenko, 2017:77 (in Crimea collected in July); Twerd, Krzyżyński, Waldon-Rudzionek, and Olszewski, 2017:7 (Poland: Inowrocław and Janikowo: nesting in postindustrial soda ash dumping sites, as *Ectemnius confinis* (Thomson)); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Kejval, Blažej, and Erhart, 2020:99 (western Czech Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Ben Khedher, Yildirim, and Braham, 2021a:56 (Tunisia: Kebili: Douz: West Douz at 33°27'4.1"N 9°1'4.5"E); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:100 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:82 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent), 213 (in key to subgenus *Hypocrabro* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:108 (in checklist of Crabroninae of Northern India); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution); Gülmez, Çubuk, and Can, 2025:158 (Turkey: Çanakkale: Kelkit River Valley).

Ectemnius laevigatus De Stefani Perez, 1884:220, ♂. Holotype or syntypes: ♂, Italy: Sicilia: Santa Ninfa (depository unknown). Synonymized with *Ectemnius confinis* by Leclercq, 1974d:276. – Leclercq, 1949a:12 (miscellaneous locality records); Grandi, 1954:243 (Italy); Leclercq, 1954c:271 (in catalog of world Crabronini), 318 (nest and prey records); de Beaumont, 1956c:186 (Switzerland); Grandi, 1957:350 (nesting habits), 391 (Italy: Sardegna; new subsp.); Móczár, 1958a:265, 271 (in annotated catalog of Hungarian Crabronini, color and sculpture variation), 1958b:201 (Hungary: locality records); de Beaumont, 1959a:35 (Italy); Suárez, 1959:59 (Spain: Almería Province); Wolf, 1959b:34 (known from Germany, but not from Nassau); de Beaumont, 1960a:22 (Greece: Island of Rhodes); Tsuneki, 1960g:22 (occurrence in Japan doubtful, nesting habits unknown); de Beaumont, 1961c:52 (Greece: Island of Crete), 1961e:5 (Iraq); Grandi, 1961:250 (nesting habits), 1962:59 (nest structure, cocoon); Leclercq, 1963:32 (India: Himachal Pradesh: Simla); Myartseva, 1963b:61 (Turkmenistan: lower Murgab River, as *Crabro variegatus*); de Beaumont, 1964c:128 (in Sphecidae Fauna of Switzerland), 1965a:59 (Greece); Myartseva, 1965:95 (Turkmenistan: Akibay and Murgab district, as *variegatus*); Tsuneki, 1966d:2 (records from Ryukyus listed; identification tentative); de Beaumont, 1967a:349 (Turkey); Tsuneki, 1967e:2 (China: Manchuria; identification tentative); Benedek, 1968:75 (Hungary, floral records); Scobiola-Palade, 1968c:386 (Romania: București); Benedek, 1969a:84 (Hungary: marshy meadow); Tsuneki and Tano, 1969:30 (distribution in Japan); Zangheri, 1969:1708 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:102 (Hungary: Tapolca); de Beaumont, 1970a:403 (Afghanistan); Oehlke, 1970:763 (Democratic Germany); Leclercq, 1971:220 (Spain); Kazenas, 1972b:174 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Myartseva, 1972a:94 (Turkmenistan); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman), 1972b:254 (Romania); de Beaumont, Bytinski-Salz, and Pulawski, 1973:23 (Israel); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogylyphid mite); Erlandsson, 1974:83 (Italy); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp., Tamaricaceae, in Kazakhstan), 110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, and *Silaum besserii* L., Apiaceae, in Kazakhstan); Scobiola-Palade, 1974:145 (Romania: Sărăturile sandbank in delta of Danube); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Marion, 1978:89 (France: Pyrénées-Orientales Department); Benedek, 1979:234 (Hungary: Bakony Hills); Haack, Tschamtker, and Vidal, 1984:128 (Germany: Hamburg area); Islamov, 1986:532 (Uzbekistan: Tashkent Oblast'); Nazarova and Gafarov, 1986:71 (Tajikistan, preying on Syrphidae); Steiner, 1986:108 (references to publications on nesting habits); Pádr,

- 1989a:170 (in checklist of Czechoslovakian Sphecidae); Ohl and Linde, 2003:151 (number of ovarioles). – **As *Crabro laevigatus***: Dalla Torre, 1897:608 (new generic assignment, in catalog of world Sphecidae); Kohl, 1915:77 (in revision of Palearctic Crabronini); Berland, 1925d:198 (in Sphecidae Fauna of France), 1928b:181 (France: Charente-Inférieure: Royan); Noskiewicz, 1930:93 (Poland: Podole Region: Bucyki, now Ukraine); Schmiedeknecht, 1930:642, 644, 645 (in keys to Hymenoptera of North and Central Europe); Zavadil, 1932:94 (Czechoslovakia); Bernard, 1934b:250 (prey: a fly, probably a tachinid); Grandi, 1934:128 (Italy: Sardegna: Cagliari); Nadig, 1934:31 (France: Corse: Ajaccio); Zavadil, 1934:187 (Slovakia); Zavadil, Šusterka, and Bat'a, 1937:152 (in catalog of Sphecidae of Czechoslovakia); Kuntze and Noskiewicz, 1938:376 (in Poland known only from Podole region, now Ukraine); Móczár, 1939:5 (Hungary: Jászberény); Yasumatsu, 1939e:15 (China: Manchuria: Hsinking); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Guiglia, 1942a:62 (Greece: Island of Rhodes: Kremasti, Villanova); Yasumatsu, 1942a:88 (China: Harbin; Korea; Japan: Amami-Oshima Islands); Giner Marí, 1943a:229 (in Sphecidae Fauna of Spain); Guiglia, 1944a:151 (Cyprus: Cherkas, Limassol); de Beaumont, 1945:479 (first record from Switzerland), 1947b:397 (Cyprus); Tsuneki, 1947d:284 (Korea); Balthasar, 1948:140 (Czech Republic: Moravia: Vizovice); Guiglia, 1948c:202 (Italy: Sardegna: Cagliari); Zavadil in Zavadil and Šnoflák, 1948:115, 116 (in key to Sphecidae of Czechoslovakia); Pittioni, 1950:27 (Cyprus); Móczár, 1953:311 (Hungary); de Beaumont, 1954e:95 (Italy); Bichara, 1954:319 (damage to cotton plants due to stem boring); Hertzog, 1954:102 (France: Bouches-du-Rhône: Camargue); Steiner, 1955:142 (France: Dordogne); Vogrin, 1955:43 (Yugoslavia); Bytinski-Salz, 1956:227 (Turkey: Fethiye, Istanbul, Kemer); Ceballos, 1956:394 (in catalog of Sphecidae of Spain); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg; identification by de Beaumont); Ceballos, 1959:231 and 1964:94 (in supplements to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:133, 137 (in key to Polish Sphecidae); Puławski, 1964:145 (Egypt: Kom Osheim); Balthasar, 1972:63 (in Sphecidae Fauna of Czechoslovakia); Georgioui, 1977:190 (Cyprus); Józán, 1981:306 (Hungary: Hortobágy National Park). – **As *Solenius laevigatus***: Bernard, 1935:67 (new generic assignment, France: Var: Fréjus area), 1936c:288 (France: Aude: Ile Sainte-Lucie; Var: Fréjus); Blüthgen, 1951:232 (Germany: Halle and Mecklenburg: Waren).
- Crabro flavicollis* F. Morawitz, 1892:172, ♂. Holotype: ♂, Turkmenistan: Germab (ZIN). Synonymized with *Crabro laevigatus* by Kohl, 1915:77. – Dalla Torre, 1897:600 (in catalog of world Sphecidae).
- Crabro hannonis* Gribodo, 1896:15, ♀ (as *Hannonis*, incorrect original capitalization). Holotype or syntypes: ♀, Tunisia: Tunis (MSNG). Synonymized with *Crabro laevigatus* by Kohl, 1915:77. – Zavattari, 1913a:4 (omitted from Dalla Torre's catalog, 1897); de Beaumont, 1950e:265 (study of type, synonymy confirmed); Penati and Mariotti, 2015:12 (reference to unpublished manuscript by Gribodo), 64 (in list of Hymenoptera described by G. Gribodo).
- As *Crabro balucha* (part of syntypes): Nurse, 1903b:16 (Pakistan: Quetta), corrected to *Ectemnius laevigatus* by Leclercq, 1954c:271.
- Crabro subtilis* Pérez: Antiga and Bofill, 1904:26, nomen nudum (as *Subtilis*, incorrect original capitalization). Synonymized with *Crabro laevigatus* by Kohl, 1915:77.
- Crabro subtilis* Pérez, 1905b:88, ♀. Holotype or syntypes: ♀, Spain: Barcelona (MNHN?). Synonymized with *Crabro laevigatus* by Kohl, 1915:77.
- As *Solenius vagus* partim: Pagliano, 2011a:151, 152 (specimens in M. Spinola collection, Torino, are *Ectemnius confinis*).

39. *conglobatus* (R. Turner)

- Crabro conglobatus* R. Turner, 1908:533, ♀, ♂. Syntypes: ♀, Australia: Queensland: Mackay (BMNH). – R. Turner, 1912f:63 (placed in subgenus *Solenius*), 1915a:93 and 94 (in key to Australian *Crabro* subgenus *Solenius*, now *Ectemnius*). – **As *Ectemnius conglobatus***: Leclercq, 1951i:196 (new generic assignment), 1954c:284 (in catalog of world Crabronini); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Cardale, 1985:277 (in catalog

of Australian Sphecidae); Leclercq, 1999a:31 (in key to Asian *Ectemnius*), 48 (in annotated catalog of Asian and Oceanian *Ectemnius*, comparison with *Ectemnius palitoides*).

40. *continuus* (Fabricius)

Crabro continuus Fabricius, 1804:312, sex not stated. Holotype: ♀, Morocco: Tanger (ZMUC). – Bischoff, 1921b:4 (may be a senior synonym of *Crabro hypsae*); Iwata, 1938d:83 (Japan: Hokkaido, Honshu; Russia: Island of Sakhalin, Kuril Islands); Stelfox, 1939:41 (Great Britain: Scotland: Garelochhead); de Beaumont, 1947b:397 (Cyprus); Tsuneki, 1947d:283 (Korea), 1947e:402 (Japan: Hokkaido); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); Tsuneki, 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflak, 1948:114, 116 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:24 (Portugal); de Beaumont, 1950f:411 (Algeria); Pittioni, 1950:27 (Cyprus); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Nouvel and Ribaut, 1953:183 (France: Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:95 (Italy); Steiner, 1955:142 (France: Dordogne); Bytinski-Salz, 1956:227 (Turkey: Kalkan); Zirngiebl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Diniz, 1959:31 (Portugal: Lisboa); Noskiewicz and Puławski, 1960:132, 137 (in key to Polish Sphecidae); Ceballos, 1964:94 (in supplement to catalog of Spanish Sphecidae); Lehrer and Scutaru, 1963:285 (Romania: Moldova: Mircești and Pașcani in Iași District); Pulawski, 1964:145 (Egypt: Cairo); Fæster, 1965:193 (Denmark: Hansted Nature Reserve); Scobiola-Palade, 1966b:392 (Romania: Tulcea District: C.A. Rosetti, Periprava, Sulina); Niedl and Deneš, 1967:69 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:24 (Latvia); Georgiou, 1977:190 (Cyprus); Józán, 1981:306 (Hungary: Hortobágy National Park); Skibińska, 1981:358 (Poland: Warszawa-Białoleka), 1982:120, 124 (Poland: Mazovian Voivodship: Białoleka, Jelonki, Łomna, Ursynów, Warszawa); Kowalczyk, 1988a:45 (Poland: Rogów), 1988b:65 (Poland: environs of Łódź). – **As *Hypocrabro continuus***: Strickland, 1947:127 (new generic assignment, Canada: Alberta). – **As *Solenius continuus***: Richards, 1935a:168 (new generic assignment, *Solenius continuus* is the correct name for *Crabro vagus* of authors nec Linnaeus), 1937b:107 (in checklist of British aculeates); Callan, 1939:22 (Great Britain: reared from stumps of *Salix viminalis* L., Salicaceae, collected at Batford near Harpenden); Guichard, 1939a:42 (Great Britain: southern Cornwall: Polperro); Kloet, 1941:235 (Great Britain: Wales: Cardiff and Fairbourne); Schneid, 1941:1025 (Germany: Bayern: Bamberg area); J. Perkins, 1942:198 (Sweden: Skåne: Höör and Löderup); Richards, 1944a:118 (Great Britain: Wales: Cardigan); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Chalford, Haresfield, Rodborough, Sheppardine, Stroud); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Blair, 1949:185 (preying on *Stomorhina lunata* F., a calliphorid); Chambers, 1949:230 (Great Britain: Bedfordshire); Richards, 1950:79 (Great Britain: Wales: Pembrokeshire: Cwm-yr-Eglwys); Hallett, 1952:44 (Great Britain: West Sussex: Bosham Hoe); Richards, 1952:142 (Great Britain: Anglesea); Yeo, 1957:20 (Great Britain: Middlesex, now in London); Felton, 1963:179 (Great Britain: Kent County); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district). – **As *Ectemnius continuus***: Pate, 1946c:10 (new generic assignment, synonymy), 1947f:12 (Cuba; in revision of Caribbean Crabronini); Leclercq, 1949a:11 (miscellaneous locality records, including Iran, Algeria, USA, and Guatemala); Graham, 1950a:37 (Great Britain: Lincolnshire: Woodhall Spa); Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (in catalog of North American Hymenoptera); Leclercq, 1951b:67 (yellow body pigments are pterines), 1951e:13 (bibliography of Belgian records); Krombein, 1952b:184 (USA: West Virginia: Lost River State Park); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Grandi, 1954:243 (Italy); Leclercq, 1954c:269 (in catalog of world Crabronini), 317 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Tsuneki, 1955d:215 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955a:67 (Japan: Nikko, 12 km northwest of Tokyo); Leclercq, 1956g:326 (Greece), 1956i:133 (Luxemburg); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); de Beaumont, 1957a:151 (Morocco; geographic variation), 1957b:137 (northern Iran); Grandi, 1957:391 (Italy); Tsuneki, 1957f:60 (Korea); de Beaumont, 1958c:210 (Swiss National Park); Móczár,

1958a:265 (in annotated catalog of Hungarian Crabronini), 1958b:200 (Hungary: locality records); Nouvel and Ribaut, 1958:17 (France: Pyrénées-Orientales: Banyuls-sur-Mer); de Beaumont, 1959a:34 (Italy: geographic variation); Olberg, 1959:32 (visiting almost exclusively flowers of Umbelliferae, now Apiaceae; photograph of specimen on flowers of *Daucus carota* Linnaeus, Apiaceae), 366-371 (photographs of entering nest, flying with prey, and of nesting site); Suárez, 1959:59 (Spain: Almería Province); Wolf, 1959b:34 (Germany: Nassau); de Beaumont, 1960a:22 (Greece: Island of Rhodes); Tsuneki, 1960g:23 (nesting habits); de Beaumont, 1961e:5 (Iraq); Hoop, 1961:63 (Germany: Schleswig-Holstein: Brandsbek, Flemhude, Kronshagen); van der Vecht, 1961a:69 (study of holotype); Krombein, 1961b:65 (prey); de Beaumont, 1962b:27 (Spain); Valkeila, 1962b:68 (southwestern Finland); Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); Leclercq, 1963:31 (Russia: southwestern Siberia: Kolpakovo); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Valkeila, Brander, and Kämpylä, 1963:42 (Finland: historical region Lounais-Hämeen = southwest Häme); Babić, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:128 (in Sphecid Fauna of Switzerland); Evans, 1964b:295 (description of larva); Krombein, 1964b:120 (nest and prey); Tsuneki, 1964c:10 (Japan: Kyushu); de Beaumont, 1965a:58 (Greece); B. Klug, 1965:142 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Leclercq, 1965b:387 (Belgium: city of Liège); Roberti, Frilli, and Pizzaghi, 1965:110 (Italy: Emilia-Romagna: Bobbio in Piacenza Province, Casteggio in Pavia Province); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:349 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:80 (Germany: Bayern: Unterfranken District); Leclercq, 1967a:31 (Great Britain: locality records); Tsuneki, 1967g:44 (Japan: Mount Hyonosen); Alayo Dalmau, 1968b:11 (probably not occurring in Cuba); Benedek, 1968:75 (Hungary, floral records); Haneda, 1968a:47 (Japan); Leclercq, 1968b:39 (Great Britain: Kent); Nambu, 1968b:29 (Japan: Saitama Prefecture); Okuno, 1968:29 (Japan); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube), 1968c:386 (Romania: Budești); Tano, 1968:35 (Japan); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:84 (Hungary, marshy meadow); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:53 (Japan: Niigata Prefecture); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Petit, 1969:72 (Belgium: Mousny); Romanova, 1969:135 (Russia: North Caucasus); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History), 1969i:61 (Japan: Fukui Prefecture: Taichōdō temple); Benedek, 1970:101 (Hungary: Tapolca); Evans, 1970:492 (Wyoming: Jackson Hole); Haneda, 1970:13 (Japan: Akita Prefecture); Hoop, 1970:60 (Germany: Schleswig-Holstein: Weißenhaus); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:761 (Democratic Germany); Dathe, 1971:234, 238 (Germany: Berlin Zoological Garden, phenology); Leclercq, 1971:216 (Spain, Portugal); Petit, 1971:23 (Luxemburg: Bourscheid, Echternach, Michelau, Lellingen, Schronndweiler, Schuttbouurg); Schmidt, 1971b:45 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Suda, 1971:84 (Japan: Kanagawa Prefecture); Tano, 1971:81 (Japan: Shikoku: Mount Tsurugi); Yamada, 1971:36 (Japan: Aichi Prefecture); Haeseler, 1972:156, 175, 200 (Germany: Schleswig-Holstein, anthropogenic habitats); Kazenas, 1972b:174 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Lomholdt, 1972:122 (Denmark: Island of Læsø); Nambu, 1972e:91 (Japan: Saitama Prefecture); Oehlke, 1972:139 (Germany: Island of Hiddensee); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman); Simon Thomas, 1972:185 (France: Lot-et-Garonne); Tsuneki, 1972a:147 (Mongolia); Alayo Dalmau, 1973:193 (in catalog of Cuban Hymenoptera: occurrence in Cuba doubtful); de Beaumont, Bytinski-Salz, and Pulawski, 1973:23 (Israel); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogllyphid mite); Nambu, 1973a:153 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Else, 1974:207 (Great Britain: Oxenbourne), 208, 210 (in key to British *Ectemnius*); Erlandsson, 1974:82 (Malta, Spain, Yugoslavia); Kämpylä, 1974:64 (Finland: diurnal activity); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp., Tamaricaceae, in Kazakhstan), 110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan); Leclercq, 1974d:276 (synonymy), 277 (North Africa; recognition of subspecies *Ectemnius continuus continuus*, *E. continuus punctatus* and *E. continuus rufipes*); Lomholdt, 1974:199 (map of distribution in Fennoscandia and Denmark); Tsuneki, 1974a:372 (Korea); Leclercq, 1975b:3 (France); Lefeber, 1975b:156 (Belgium); Marshakov,

1975b:334 (Mongolia); Nambu, 1975b:74 (Japan: Saitama Prefecture); D. Peters, 1975:118 (Sweden: Lappland: Messaure at 66°41'N 20°20'E); Alayo Dalmau, 1976:18 (in key to Cuban *Ectemnius*), 32 (in checklist of Cuban Sphecidae); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Lomholdt, 1976:325 (in Sphecidae Fauna of Fennoscandia and Denmark); Simon Thomas, 1976:6 (France: Lot-et-Garonne: Forêt de Campet); Tsuneki, 1976d:302 (China: Heilungkiang: Maoershan 100 km east of Harbin; color variation); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Haeseler, 1978b:62 (Germany: Niedersachsen: a bog near Oldenburg), 1978c:194 (Germany: Friesian Islands: Island of Borkum); Marion, 1978:89 (France: Nièvre Department); Petit, 1978:87 (Belgium: Côte Saint-Germain, Wollersheim); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); R. Bohart and Kimsey, 1979:489 and 492 (in key to North American *Ectemnius*); Krombein, 1979b:1679 (in catalog of North American Hymenoptera, nesting sites, list of prey); Leclercq, Gaspar, and Verstraeten, 1979:map 1467 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:105 (in key to *Ectemnius* of Russian Far East); Radović and Krnić, 1979:unpaginated foldout (nesting in wood, foreleg structure); Richards, 1979:399 (British Channel Islands); Schmidt, 1979a:56 (Germany: eastern Holstein); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Tsuneki, 1979d:10 (Japan); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:118 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Pagliano, 1980:123 (Italy: Piemonte); Preuss, 1980a:24 (Germany: occurring in numbers in old beech stands); Richards, 1980:54 (in key to Sphecidae of British Isles); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Thiede, 1981:47 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:44 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Donath, 1982:214 (Germany: Cottbus Bezirk); Finnamore, 1982:183 (in Sphecidae Fauna of Southern Quebec); Gayubo, 1982b:26 (Spain: Ávila, Cáceres, and Salamanca provinces), 1882e:105 (Spain: Cádiz Province); Leclercq, 1982a:125 (Belgium: Liège), 1982b:148 (China: Sunkiang and Szechuan Provinces); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Tsuneki, 1982b:7 (Korea), 16 (known from Korea); Dollfuss, 1983b:19 (in catalog of Sphecidae of Austria); Józán, 1983:101 (Hungary); Lefebvre, 1983a:84 (Netherlands: Wadden district: northern coast sand dunes, islands of Texel, Terschelling, and Ameland); Riemann, 1983:87 (Germany: Bremen-Daverden area); Schmidt and Westrich, 1983:124 (Greece); Steinmann, 1983:163 (Switzerland: Graubünden Canton, nesting in wood buildings); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Gayubo, 1984b:95 (Spain: Salamanca Province); Gayubo and Tormos, 1984:19 (Spain: Valencia); Haack, Tschartke, and Vidal, 1984:128 (Germany: Hamburg area); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Janzon and Svensson, 1984:183 (Sweden: Island of Öland); Lefebvre, 1984:29 (Netherlands: Maastricht); Sagvolden, 1984:19 (Norway: Buskerud: Rollag); Tsuneki, 1984e:59 (Ukraine: Borisovka); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Veenendaal, 1984:19 (Netherlands: Amsterdam); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 1985c:571 (Germany: Friesian Islands); Józán, 1985a:181 (Hungary), 1985b:59 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Plachter, 1985:60 (Germany: Bayern: lower Brombach valley); Radović, 1985:65 (sting apparatus analyzed); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Gayubo, 1986a:63 (Spain: Ciudad Real Province), 1986b:39 (Spain: Andalucía), 1986d:118 (Spain: Zamora Province), 1986e:994 (teratological specimen); Gayubo and Heras, 1986:57 (Spain: Segovia Province; floral records); Gayubo and Sanza, 1986:68 (Spain: Burgos); Islamov, 1986:532 (Uzbekistan: Tashkent Oblast); Józán, 1986:373 (Hungary: Kiskunság National Park); Nazarova and Gafarov, 1986:71 (Tajikistan, preying of Syrphidae); Skibińska, 1986b:151, 154 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 165 (streetside green), 168 (green areas of housing estates), 174 (various green urban habitats); Steiner, 1986:107 (references to publications on nesting habits); Vikberg, 1986:77 (Finland); Asís and Jiménez,

1987:27 (Spain: Castellón Province); Haeseler, 1987b:668 (Germany: Ipweiger Moor near Oldenburg); Tormos and Jiménez, 1987a:126 (Spain: Valencia); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford), 1988b:27 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:17, 28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Haeseler, 1988:211 (Germany: Friesian Islands); Karsai, 1988:100 (Hungary: Kiskunság National Park); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Allen and Felton, 1989:36 (Great Britain: Kent County); Archer, 1989a:131, 133 (Great Britain: York: found before and after coniferization); Borsato, 1989:201 (Italy: Lombardia: Busatello marsh); Coldwell, 1989:250 (Great Britain: Yorkshire); Józán, 1989:101 (Hungary: Tihany Nature Reserve); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Skibińska, 1989a:204 (Poland: Warszawa area), 1989b:291 (Poland: moist meadow in Warszawa area); Spofford, Kurczewski, and Downes, 1989:256, 259 (nest parasite *Senotainia trilineata* (Wulp), a miltogrammine fly, and references to publications on nest parasitess *Hilarella hilarella* (Zetterstedt) and *Macronychia aurata* (Coquillett), miltogrammine flies); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Archer, 1990b:137 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Barbier, Rasmont, and Wahis, 1990:32 (Belgium: Hainaut); Gayubo, Asís, and Tormos, 1990b:76 (Spain); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetsova, 1990:24 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:88 (Czech Republic: Praha area); Pagliano, 1990:88 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:548 (Austria: Kärnten); Spofford and Kurczewski, 1990:745, 748 (nest parasites: *Hilarella hilarella* (Zetterstedt) and *Senotainia trilineata* (Van der Wulp), Sarcophagidae); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:409 (Italy, aberrant specimens); Gayubo and Torres, 1991:Table I and p. 81 (Spain: Salamanca; effects of urban pressure); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 93, 97, 99, 102, 104 (Poland: Łódź), 1991b:121 (Poland: Augustów Forest); Kuhlmann et al., 1991:89 (Germany: Senne Region); Negrisol, 1991:321 (northeastern Italy); Nilsson, 1991:83 (Sweden: Lake Mälaren); Pagliano, 1991b:349, 354 (in key to Italian Crabroninae); Schembri, 1991:182 (first record from Malta); Tsuneki, 1991:202 (Korea); von der Heide, 1991:63 (Germany: peat bog near Oldenburg); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:35 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Gayubo, Borsato, and Osella, 1992:286 (Greece, Turkey); Jakubzik and Cölln, 1992:121 (Germany: Rheinland-Pfalz; reared from artificial nests); Józán, 1992a:229 (Hungary: Béda-Karapanca Protected Area), Józán, 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); Nilsson, 1992:54 (Sweden); N. Schneider, 1992:178 (Luxemburg); Spofford and Kurczewski, 1992:999 (species of miltogrammine parasites listed); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); Wolf, 1992b:92 (Germany: Nordrhein-Westfalen: Olpe), 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Archer, 1993c:39 (Great Britain: Yorkshire); Bitsch and Leclercq, 1993:169 (in revision of western European Crabroninae, recognition of subspecies); Józán, 1993:414 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:25 (locality records from North Africa and Balearic Islands for *Ectemnius continuus continuus*); Negrisol and Pagliano, 1993:92 (Italy: Sardegna); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Finnamore, 1994:210 (Canada: Alberta: Wagner Natural Area 8 km west of Edmonton, as *continuus continuus*); Gayubo and Borsato, 1994:213 (Italy: Lombardia, Piemonte, Trentino, Veneto, Emilia); Junck, Schoos, and Schoos, 1994:96 (Luxemburg: Bettendorf); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Pádr and Lukáš, 1994:893 (Slovakia: High Tatra Mountains); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Tormos, Asís, and Gayubo, 1994:189, 216 (Spain: Albacete Province); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Archer, 1995b:269 (prey); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Krasnobayev et al., 1995:138 (Russia: Zhiguli Hills northwest of Samara); Negrisol, 1995a:18 (visiting flowers of *Echinophora spinosa* L., Apiceae), 19 (visiting flowers of *Limonium bellidifolium* (Gouan) Dumort, Plumbaginaceae), 22 (Italy: Veneto); Negrisol in

Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:451 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:90 (Italy: Ferrara Province); Scharer, 1995:26 (Austria: Niederösterreich: Bucklige Welt; Caspian Sea area: Talysh Mountains; Germany: Bayern: Hasenkopf, Karlstadt, Lohr; Thüringen: Altenburg); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:180 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:424, 425 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:72 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Kuhlmann, 1996:220 (Portugal: Serra de Estrela); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Miyatake, 1996:102 (specimens in Hiroshi Aoki collection); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Wu and Zhou, 1996a:120 (in revision in Economic Insect Fauna of China); Celary, 1997:59 (in checklist of Animals of Poland); Finnermore, 1997:891 (Canada: Yukon, as *Ectemnius continuus continuus*); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Petit, 1997:351 (Belgium: Liège Province: Lanaye: colonization of new habitat); Riemann, 1997:49 (Germany: Achim 14 km south-east of Bremen); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:156 (Belorussia: Pripyatskiy National Park); Stoyanov and Ljubomirov, 1997:27 (Bulgaria: Rila Mountains); Wolf, 1997a:2 (Germany: Bayern: Hirblinger Höhen near Augsburg); Archer, 1998b:158 (Great Britain: Lincolnshire: Gibraltar Point National Nature Reserve); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Celary, 1998b:211 (Poland: Babia Góra National Park); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings), 1998b:54 (Ukraine: Sumy Oblast': Vakalivshchina); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Morgan, 1998:19 (Great Britain: Wales: Carmarthenshire County); Petit, 1998a:110 (Belgium: Bassenge, visiting flowers of *Polygonum cuspidatum* Siebold and Zucc., Polygonaceae); Salzmänn-Wandeler, 1998b:102 (Switzerland: Schwyz Canton: Gersau-Oberholz); N. Schneider and Wahis, 1998:21 (Luxemburg: sandstone quarries); Sugar et al., 1998:16 (Canada: southern Ontario); Tscharrnke, Gathmann, and Steffan-Deventer, 1998:718 (trap-nesting in Germany); van der Smissen, 1998:59 (Germany: Mecklenburg-Vorpommern, Niedersachsen, Schleswig-Holstein); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); Archer, 1999a:9 (Great Britain: Lancashire); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Gusenleitner, 1999:600 (Austria: Vorarlberg: Runkeline northwest of Bludesch); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:16 (in improved key to *Ectemnius* of Benelux); Leclercq, 1999a:25 (in key to Asian *Ectemnius*), 49 (in annotated catalog of Asian and Oceanian *Ectemnius*, new locality records); Löhner, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Mandery, 1999:105 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Podgorbunskikh and Rudoiskatel', 1999:142 (Russia: Chelyabinsk Oblast': Il'men Nature Reserve); Riemann, 1999:835 (Germany: Niedersachsen: sand pits near Bremen); Salzmänn-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Srba, 1999:181 (Czech Republic: Chomutov); Beavis, 2000:64 (Great Britain: Isles of Scilly); Blösch, 2000:330 (in Sphecidae Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:52 (southeastern Kazakhstan);

6-10 km southwest and 8 km south of Alma Ata, near Bakanas, 70 km northwest of Kapchagay, 2 km southwest of Rayevka, 3-8 km south of Talgar); Grace, Yates, and Triplet, 2000:20 (Great Britain: East Sussex: Rye Bay area); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Ljubomirov, 2000:11 (Bulgaria, specimens in N. Nedelkov collection); Luig and Voolma, 2000:125 (Estonia: many localities); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Neumeyer, 2000:99 (Switzerland: Basel); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Vicidomini, 2000b:24 (Italy: previously recorded from Campania); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire), 2001b:14 (Great Britain: Watsonian Yorkshire); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Deván, 2001:165 (Slovakia: Krasin Nature Reserve in Biele Karpaty Mountains); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 205 (description of nest, review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:52 (Bulgaria: Mount Vitosha near Sofia); Mazzucco, 2001:203 (Austria: Niederösterreich: Steinfeld); Ohl et al., 2001:139 (distribution in Germany by provinces); Reemer and van der Meer, 2001:16 (Netherlands: along Almelo-Nordhorn canal); Salzmann-Wandeler and Rezbanyai-Reser, 2001:156 (Switzerland: Tessin Canton: Meride area); Schmid-Egger, 2001:17 (France: Alsace: Bollenbergs); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Archer, 2002b:118 (Great Britain: Watsonian Yorkshire: distribution map), 2002d:11 (Great Britain: Worcestershire: Hartlebury Common 17 km north of Worcester); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:75 (Lichtenstein); Dorow, 2002:16 (Germany: Hessen: Weiherkopf Forest Reserve); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:106 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Litt, 2002:166 (Belgium); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shkuratov, 2002b:142 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Vischer, 2002:288 (Germany: Sachsen-Anhalt: vineyards in Saale-Unstrut area); Wiśniowski, 2002:72 (Poland: Ojców National Park); Ziska, 2002:8 (Germany: Berlin-Köpenick: Krumme Lake); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: Island of Romelsön); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); de Bruyn and Sinning, 2003:9 (Germany: Niedersachsen: Wümme-Nordarm northeast of Bremen); Drewes, 2003:137 (France, Germany, Hungary, Italy: miscellaneous locality records); Ebermann and Hall, 2003:368 (parasite: new species of acarid mite, *Imparipes haeseleri*); Generani, Pagliano, Scaramozzino, and Strumia, 2003:65 (Italy: Arcipelago Toscano); Gorobchishin, 2003:48 (Ukraine: Kiev: botanical garden); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Haneda, 2003:4 (Japan: Nagasaki Prefecture: Tsushima); Józán, 2003:227 (Hungary: Látványi Puszta Nature Conservation Area); 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, 2003:65 (Germany: in catalog of wasps and bees of Bayern); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El

Ventorrillo in Sierra de Guadarrama); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Island of Malyi Tataru in delta of Danube at 45.21°N 29.00°E); Reemer, 2003:62 (Netherlands: Gelderland: Zaltbommel area); Tischendorf and Treiber, 2003:120 (Germany: Hessen: 15 km southwest of Frankfurt am Main: nesting under high power lines); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:170 (Poland: Ojców National Park); Aistleitner, 2004:59 (Austria: Vorarlberg: Sonntag); Archer, 2004h:44 (Great Britain: Watsonian West Norfolk: Roydon Common); Bergsten, Nilsson, and Hellquist, 2004:7 (Sweden: Västerbotten: Nordmaling); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:767 and 768 (locality records from Bulgaria, China, Croatia, Finland, France, Hungary, Italy, Jordan, Kazakhstan, Kyrgyzstan, Mongolia, Morocco, Romania, Russia, Spain, Slovenia, Syria, Tajikistan, Turkey, Turkmenistan, and Ukraine); Dorow, 2004:127 (Germany: Hessen: Schönbusche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains), 2004d:34 (Kazakhstan: Khar'kino); Klein and Lefebvre *in* Peeters, van Achterberg et al., 2004:382 (in Wasp and Ant Fauna of Netherlands); Krivonogova and Rudoiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Majzlan and Deván, 2004:30 (Slovakia: Sekule), 32 (Slovakia: Malacky-Široké); Raemakers, van den Eijnde, and Kleukers, 2004:292 (Netherlands: Tungelerwalle near Weert); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Shkuratov, 2004a:80 (Russia: Rostov Oblast'), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska *in* Bogdanowicz, Chudzińska, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:45 (Japan: Yamanashi Prefecture); Szczepko and Kowalczyk, 2004:127 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Archer, 2005c:56 (Great Britain: Suffolk County); Bergsten, Ekerholm, Gabrielsson, Hellquist, Petersson, Werner, Ström, Chauvet, and Dalecky, 2005:16 (Sweden: Västerbotten: Bjuröklubb's Nature Reserve); Beavis, 2005:195 (Great Britain: Islands of Scilly); Burger, 2005:32 (Germany: Thüringen); Dubitzky, Blank, and Schönlitz, 2005:273 (Germany: Bayern: area north of Dachau); Ebermann and Hall, 2005:190 (parasite: scutacarid mite *Imparipes apicola* (Banks, 1914)); Fuhrmann, 2005:89 (Germany: Nordrhein-Westfalen: Grubengelände Littfeld Nature Reserve); Gayubo and Özbek, 2005:30 (Turkey: many localities); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Hallin, 2005:17 (Sweden: Örebro County: Hällefors); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture); Hallin, 2005:29 (Sweden: Örebro County: Nydalen); Jacobs, 2005a:444 (Bulgaria); Kofler, 2005:181 (Austria: Tirol: Lienz District: many localities); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Kraatz, 2005:103 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Landeck, Wöhler, and Landgraf, 2005:18 (Germany: Lausitz Region; visiting flowers of *Reseda luteola* Linnaeus, Resedaceae); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Mokrousov and Selivanova, 2005:753 (Russia: Voronezh Oblast'); Negoro, Haneda, and Tano, 2005:48 (Japan: Toyama Prefecture); Nemkov, 2005a:156 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:261 (in Sphecidae Fauna of Italy); Pijfers, 2005:50 (Netherlands: Twente: Noordelijke Manderheide); Riemann and Hohmann, 2005:555 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:36 (Great Britain: Cumbria County); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Yildirim and Ljubomirov, 2005:1795 (Turkey: Erzurum and Kars provinces); Ziska and Saure, 2005:81 (Germany: Berlin: Biesenhorster Sand); Feitz, Gloden, Melchior, and Schneider,

2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Gorobchishin, 2006:133 (Ukraine: several localities); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Humala, 2006:157 (Russia: Republic of Karelia: Kivach Nature Reserve); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); Ljubomirov, 2006:540 (Greece: earlier records from Rhodope Mountains by Schmidt and Westrich, 1983, reported); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve), 2006c:248 (Russia: Island of Moneron south of Sakhalin); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); N. Schneider, 2006:140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund), 2006b:99 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:94 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Ivory, Lair, Sagot, and Baldock, 2007:32 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge and Schönbuche Forest Reserves); Guldemon, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap); Hallin, 2007b:25 (Sweden: Blekinge County); Herrmann, 2007a:52 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:152, 156 (in key to Crabronidae of Germany); Józán, 2007:180 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Lee and Scott, 2007:21 (Great Britain: East Anglian wetlands); Nemkov, 2007b:74 (Russia: Kuril Islands: islands of Iturup and Kunashir); Roche, 2007a:105 and 2007b:7 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Smit and Megens, 2007:17 (Netherlands: Noort Brabant: vicinity of Leende); Vago, 2007:175 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Winkler, 2007:29 (Germany: Niedersachsen: eastern Friesland); Yildirim and Ljubomirov, 2007:120 (Turkey: Konya: Çumra: Beylerce); Archer, 2008a:144 (Great Britain: Cumbria: Sandscale Haws); Danilov, 2008:349 (Russia: Altayskiy Kray: Barnaul area); Danilov and Tshernyshev, 2008:42 (Russia: Novosibirsk Oblast': Karasuk area); Gayubo, González, Tormos, and Asís, 2008:138 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:308 (Germany: Friesian Islands); Haneda, 2008:17 (in key to Japanese Crabroninae); Ljubomirov and Ban-Calefariu, 2008:206 (Romania: Maramureş District: Vişeu Valley); Ljubomirov and Yildirim, 2008:276 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Protsenko and Drozdovskaya, 2008:128 (Ukraine: Sumy Oblast': Mogritsa village); Tannert and von der Dunk, 2008:181 (Germany: Bayern: west of Ernhofen and Weissenbrunn); Theunert, 2008:35 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); Fallahzadeh, Ostovan, and Saghaei, 2009:237 (Iran: Fars: Dasht-e Arzhan, Firoz Abad, Shiraz), 244 (color photograph); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Hessling, 2010:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Józán, 2009:166 (Croatia: Lindar, Most-Raša); Kowalczyk, Kurzac, and Nadolski, 2009:62 (Poland: between Warta and Widawka rivers); Mokrousov, 2009:284 (Russia: Republic Mari El); Nemkov, 2009b:119 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Ruchin, Antropov, and Shibayev, 2009:169 (Russia: Republic of Mordovia); Shorenko, 2009:368 (in list of

Sphecidae *sensu lato* of Crimea); Straka, Dvořák, and Bogusch, 2009:261 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:50 (distribution in Japan); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Venne, 2009:111 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren), 2010b:99 (Great Britain: Watsonian Staffordshire: Cannock Chase Country Park); Ardila-Garcia, Umphrey, and Gregory, 2010:339 (genome size dataset); Ermilov and Mokrousov, 2010:90 (phoretic mites *Crabrovidia popovi* (Zachvatkin) and undetermined Uropodoidea in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:93 (Great Britain: heathland sites in West Midlands region); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Kirov, Nizhniy Novgorod, and Vladimir oblast's, Chuvash Republic, Mari El Republic, Mordovian Republic, Tatarstan: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve “Prisurskiy” and National Park “Chavash varmane”); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:159 (Russia: central and southern Ural Mountains); Archer, 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor and Thorne Moor); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof), 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:19 (Ukraine); Treiber, 2010:135 (France: départements du Bas-Rhin and du Haut-Rhin); van der Smissen, 2010a:339 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records), 2010c:396 (Sweden: Öland and Södermanland: locality records); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Chemal, Chike-Taman); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:499 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Falk, 2011:65 (Great Britain: Sussex: South Downs); Gogala, 2011:21 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:73 (Russia: Chuvash Republic); Murai and Amr, 2011:119 (recorded from Syria by Dollfuss, 2004b); Novozhenov, Rudoiskatel', Kostromina, Katana, and Sibiryakov, 2011:221 (Russia: Tyumen' Oblast': Khanty Mansi Autonomous Okrug: Kondino Lakes Nature Reserve); Protsenko and Drozdovskaya, 2011:91 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Okhansk), 2011b:69 (Russia: Republic of Bashkortostan), 2011d:244 (Russia: central Ural Mountains); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg), 2011d:199 (Germany: Sachsen-Anhalt: conservation area “Heide südlich Burg”); Schmid-Egger, 2011c:555 (Austria: Tirol: Tiroler Lech Nature Park); Shlyakhtenok, 2011:95 (Belorussia: city of Minsk); Schwarz, Link, Pöll, Ambach, and Rabitsch, 2011:255 (Austria: Oberösterreich: Welser Heide); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:131 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:183 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Hellrigl, 2012:129 (Italy: Provincia Autonoma di Bolzano-Alto Adige, as Südtirol); Klimsa, 2012:69 (Germany: Bayern: Schwandorf District); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Krasnaya Polana

near Sochi: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Zettel, 2012:78 (Austria: Niederösterreich: Golitsch); Akulov and Proshchalykin, 2013:116 (Russia: Siberia: Krasnoyarsk Krai); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Braun-Reichert, 2013:14 (Germany: Bayern: pastures between Regensburg and Nürnberg); Danilov and Odintseva, 2013:333 (Russia: Western Siberia: 65 km north-north-east of Tobol'sk at 58°45'N 68°74'E); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg), 2013b:57 (Germany: Hessen: Knüllköpfchen); Johansson, 2013:22 (Sweden: Gotland: island of Stora Karlsö); Kazenas, 2013a:94, 95 (color photograph of male, short information on geographic distribution and nesting habits), 2013b:497 (southeastern Kazakhstan: foothills, low mountains, Ili River valley); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:213 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park, Serras de Aire e Candeeiros Natural Park, and Paúl do Boquilobo Nature Reserve); Wiśniowski and Piotrowski, 2013:21 (Poland: Poleski National Park); Wiśniowski and Szczepko, 2013:33 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain: urban and suburban gardens); Baldock, 2014:357 (Spain: Island of Mallorca); Ebrahimi, 2014:35 (Iran: Markazi: Khomein: College of Agriculture campus); Flügel, 2014:254 (Brandenburg: Hangelsberger Heide); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roßstein); Ghahari, Hayat, Lavigne, and Ostovan, 2014:1408 (prey of asilid fly *Saropogon platynotus* (Loew)); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); Kazenas, 2014a:137 (Kazakhstan: Karatau Mountain Range); J.-K. Kim, 2014:429 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:36 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces, as *Ectemnius continuus continuus*); Archer, 2015:202 (Great Britain: English coastal sand dunes); Atbaei, Fallahzadeh, and Ljubomirov, 2015:11 (Iran: Fars Province, as *Ectemnius continuus continuus*); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Lett, 2015:5 (France: Loir-et-Cher: Gièvres); Mokrousov and Egorov, 2015:424 (Russia: Republic of Mordovia: Nature State Reserve Priskuskiy); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Peeters, Klein, van Kemenade, and Spijkers, 2015:59 (Netherlands: Noord-Brabant: Kaaistoep Nature Reserve); Rezaei and Fallahzadeh, 2015:5 (Iran: Fars: Shiraz at 29°36'N 52°28'E); P. Rosa and Pagliano, 2015:100 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Simon, Lorthiois, and Macé, 2015:54 (France: alluvial terraces in Seine-Maritime Department: Anneville-Ambourville); Weber, 2015:62 (Germany: Bayern: Nature Reserve Börsting near Hallstadt); Blažej, Macek, and Trýzna, 2016:119 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:24 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland); Mokrousov and Popov, 2016:575 (Russia: Krasnodarskiy Krai); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Buck, 2004); Saure, 2016a:8 (Germany: Brandenburg: Uckermark District: dry slopes near Altgalow-Stützkow), 2016b:49 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yıldırım, Ljubomirov, Özbek, and Yüksel, 2016:46 (Turkey: Bitlis, Erzurum, Giresun, and Kars provinces, as *Ectemnius continuus continuus*); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); 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); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:48 (Iran: known from Alborz, Ardabil, Bushehr, Chahmahal-o Bakhtiari, East Azerbaijan, Fars, Golestan,

Guilan, Hamadan, Ilam, Isfahan, Kermanshah, Khorasan-e Razavi, Khuzestan, Kohgiluyeh-va Boyerahmad, Kordestan, Lorestan, Markazi, Mazandaran, North Khorasan, Qazvin, Semnan, South Khorasan, Tehran, West Azerbaijan, Yazd, Zanzan provinces); Shorenko, 2017:77 (in Crimea collected in May through August); Twerd, Krzyżyński, Waldon-Rudziońek, and Olszewski, 2017:7 (Poland: Inowrocław and Janikowo: nesting in postindustrial soda ash dumping sites); Jacobs and Liebig, 2018:140 (Russia: Buryat Republic: East Sayan: 30 km northwest of Mondy; Irkutsk Oblast': Bol'shoje Goloustnoye and Sarma; Primorskiy Kray: Zabaikal'skiy Kray: Daur'skiy Nature Reserve; Primorskiy Kray and Island of Sakhalin: several localities); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Lett, 2018:203 (France: Loir-et-Cher: Gièvres at 47°16'39"N 1°41'52"E); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ljubomirov, 2019:101 (Bulgaria: Vratsanska Planina, as *continuum continuum*); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:97 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13228 (Russia: Mordovian State Nature Reserve), 2019b:163 (common in Mordovian State Nature Reserve); Shorenko, 2019:211 (among the commonest sphecids species in Crimea); Saure, 2020:276 (Germany: Sachsen-Anhalt: sand dunes); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Ben Khedher, Yildirim, and Braham, 2021a:56 (Tunisia: Monastir: Bakalta: Hamedet Younes at 35°37'39.5"N 11°0'11.2"E); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:100 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:51 (in catalog of Crabronidae of Turkey, as *continuum continuum*); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:82 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Jakubzik and Cölln, 2022:11 (Germany: Rheinland-Pfalz: Moselle River valley between Drohn and Kattenes); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey, as *continuum continuum*); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution); Pytel-Huta and Franchuk, 2024:78 (Ukraine: Rivno Nature Reserve); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Alaska: no specific locality, Canada: Alberta, British Columbia, Nova Scotia, Ontario, Quebec, Yukon Territory, first records from Manitoba, New Brunswick, Newfoundland Island, Northwest Territories, Prince Edward Island, and Quebec: no specific locality); Gülmez, Çubuk, and Can, 2025:158 (Turkey: Çanakkale: Kelkit River Valley, as *continuum continuum*).

Crabro sexmaculatus Say, 1824:341, ♀ (as *6-maculatus*, incorrect original spelling), junior primary homonym of *Crabro sexmaculatus* Olivier, 1792. Holotype or syntypes: ♀, USA: Pennsylvania: no specific locality (destroyed). Synonymized with *Ectemnius continuum* by Pate, 1946c:10. – F. Smith, 1856:418 (in catalog of Hymenoptera in British Museum); Le Conte, 1859a:230 (original description copied); Cresson, 1862:236 (in catalog of North American Hymenoptera), 1865b:485 (Colorado, color variation); Packard, 1866:91 (in revision of North American Crabronini, description of ♂); Provancher, 1882:102 and 1883b:655 (in revision of Canadian Hymenoptera; as *6-maculatus*); Cresson, 1887:285 (in catalog of North American Hymenoptera, as *6-maculatus*); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado, as *6-maculatus*); W. Fox, 1895a:146 (in revision of North American Crabronini); C. Robertson, 1896:72 (visiting flowers of *Polygonum pennsylvanicum* Linnaeus, Polygonaceae); Dalla Torre, 1897:62 (in catalog of world Sphecidae); Bridwell, 1899:209 (Kansas: Baldwin, as *6-maculatus*); Kincaid, 1900a:3551 (USA: Washington: Olympia, Seattle); G. Peckham and E. Peckham, 1905:97 (nest, prey); Rohwer, 1908b:246 (USA: Colorado), 259 (in key to *Crabro* of Colorado and New Mexico); H. Smith, 1908b:403 (in revision of Nebraskan Sphecidae); Stevens, 1917:423 (North Dakota). – **As *Xestocrabro sexmaculatus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey); Viereck, 1901a:272 (New Mexico: Las Vegas Range); Harrington, 1902:218 (Canada: Ontario: Ottawa); Viereck, 1903a:66 (New Mexico: Beulah). – **As *Crossocerus sexmaculatus***: Steiner, 1986:107 (new generic assignment, in error; references to publications on nesting habits).

- Crabro agrestis* Stephens, 1829a:365, nomen nudum (in catalog of British insects). Synonymized with *Ectemnius continuus* (Fabricius, 1804) by F. Smith, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).
- Crabro divisus* Stephens, 1829a:365, nomen nudum (in catalog of British insects). Synonymized with *Ectemnius continuus* (Fabricius, 1804) by F. Smith, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).
- Crabro fuscitarsus* Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area). Nomen nudum (as *Fuscitarsus*, incorrect original capitalization).
- Crabro fuscitarsis* Herrich-Schaeffer, 1841:... Tentatively synonymized with *Crabro vagus* by Kohl, 1915:86. – Schenck, 1857:70 (Germany: in revision of fossorial wasps of Nassau Region, as *fuscitarsus*); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); Schenck, 1867a:350 (Germany: Nassau Region, as *fuscitarsus*); Jaennicke, 1868:8 (Germany: Hessen: Schwanheim); Kohl, 1880:108 (Austria: Tirol, and Italy: Trentino–Alto Adige), 1883e:651 (Switzerland, as *fuscitarsus*); Sickmann, 1883:68 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:122 (Germany: Frankfurt am Main area, as *fuscitarsus*); Kohl, 1888b:721 (Austria: Tirol, now Italy: Alto Adige), 1893:25 (Austria: Niederösterreich, as *fuscitarsus*); Sickmann, 1893:55 (Germany: Niedersachsen: Iburg, analysis of color variation); Krieger, 1894:6 (Germany: Kingdom of Saxony, as *fuscitarsus*); Westerlund, 1896:28 (Finland: no specific locality, as *fuscitarsus*); Dalla Torre, 1897:602 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia, Romania, and Slovakia); Schletterer, 1901:219 (Croatia: southern Istria Peninsula, as *fuscitarsus*); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia); de Cobelli, 1903:115 (Italy: Trentino: Dietropozzo, Mori, Rovereto); Antiga and Bofill, 1904:25 (Spain: Cataluña Province); Kubes, 1905:84 (Czech Republic: Kolín, Sušice); Mosolov, 1905a:28 and 1905b:19 (Russia: Moscow Governorate: Mikhailovskoye); Vängel, 1905:167 (Hungary); Móczár and Henter, 1907:206 (Hungary: Tiszaalpár); Schmiedeknecht, 1907:187 (in key to Hymenoptera of Central Europe, as *fuscitarsus*); Dittrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Alfken, 1914:271 (northwestern Germany: Grasberg, as *fuscitarsus*); Schütze, 1925:109 (Germany: Lausitz Region); K. Stroh, 1925:210 (Germany: Baden-Württemberg: Achkarren); Friese, 1926:147 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Cavo, 1950:40 (France: Département du Nord); Vogrin, 1955:43 (Yugoslavia). – **As *Ectemnius fuscitarsis***: Kirchner, 1867:226 (in catalog of European Hymenoptera, as *fuscitarsus*); Wierzejski, 1874:262 (new generic assignment, Poland: Mogilany, Tatry Mountains; Ukraine: Podole Region: Mielnica). – **As *Solenius fuscitarsis***: De Stefani Perez, 1895:228 (new generic assignment, in catalog of Sicilian Hymenoptera); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Graeffe, 1911:43 (Italy: Trieste area); Schirmer, 1912:163 (Germany: Berlin area, as *fuscitarsus*); Haupt, 1913:50 (Germany: Sachsen-Anhalt: Zörbig in Halle area); Coulon, 1925:125 (France); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley).
- Crabro vagatus* F. Smith, 1869c:208, ♀. Holotype or syntypes: ♀, Japan: no specific locality (BMNH). Synonymized with *Crabro vagus* by Kohl, 1915:86. – Dalla Torre, 1897:633 (in catalog of world Sphecidae).
- Crabro granulatus* Walker, 1871:26, ♂. Holotype or syntypes: ♂, Egypt: Cairo (lost). Neotype: ♂: Egypt: Cairo (originally W. Pulawski collection, now CAS), designated by Leclercq, 1974d:277. Synonymized with *Ectemnius continuus* by Leclercq, 1974d:277. – Dalla Torre, 1897:603 (in catalog of world Sphecidae); Innes Bey, 1912:112 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected in unknown locality); Kohl, 1915:79 (original description translated into German).
- Crabro rugosopunctatus* Taschenberg, 1875:385, ♂ (as *rugoso-punctatus*, incorrect original hyphenation). Holotype: ♂, Venezuela: no specific locality (Halle). Synonymized with *Ectemnius continuus* by Leclercq, 1968e:300. – Dalla Torre, 1897:624 (in catalog of world Sphecidae); Leclercq, 1991b:22 (synonymy confirmed).
- Crabro validus* De Stefani Perez, 1884b:218, ♂. Holotype or syntypes: ♂, Italy: Sicilia: Santa Ninfa (depository unknown). Synonymized with *Crabro vagus* by Kohl, 1915:86. – De Stefani Perez, 1886:172 (Italy: Sicilia: monte di Renda near Palermo), 1895:228 (in catalog of Sicilian Hymenoptera). – **As *Crabro vagus form validus***: Bischoff, 1921b:4 (new status, Portugal).
- Crabro vagans* Fokker, 1887:XX, sex not stated (nesting habits). Synonymized with *Crabro vagus* by Kohl, 1915:87.

- Xylocrabro slossonae* Ashmead: Slosson, 1902:5, nomen nudum (New Hampshire: Mount Washington). Synonymized with *Ectemnius continuus* by Pate, 1946c:10.
- Crabro bisexmaculatus* Viereck in J. Smith, 1910:681. Substitute name for *Crabro sexmaculatus* Say. – Viereck, 1911:98 (*Crabro bisexmaculatus* in J. Smith, 1910:681, should be replaced by *Crabro sayi* Cockerell).
- Crabro sayi* Cockerell, 1910:61. Substitute name for *Crabro sexmaculatus* Say. – **As *Solenius sayi***: Rohwer, 1916b:667 (new generic assignment, in catalog of Hymenoptera of Connecticut); Mickel, 1918b:375 (in catalog of Nebraskan Sphecidae); Britton, 1920:339 (in checklist of insects of Connecticut); Carter, 1925:132 (Canada: Alberta); Rohwer in Viereck, 1925:667 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1926:175 (New York: Lloyd-Cornell Reservation near McLean), 1928:1019 (in catalog of New York Sphecidae); Brimley, 1938:449 (North Carolina: Dillsboro, Blowing Rock); Strickland, 1947:128 (Canada: Alberta). – **As *Xestocrabro sayi***: Washburn, 1919:218 (new generic assignment, in list of Hymenoptera of Minnesota); E. Reinhard, 1929:229 (nest and dipterous prey).
- Solenius giffardi* Rohwer, 1917a:242, ♀, ♂. Holotype: ♀, USA: California: Alameda County: no specific locality (USNM). Synonymized with *Ectemnius continuus* by Pate, 1946c:10.
- As *Spheg vagus* (misidentification: *Spheg vagus* Linnaeus is a junior synonym of *Mellinus arvensis*): Scopoli, 1763:295 (redescription; Slovenia: Idria, now Idrija); de Villers, 1789:238 (redescription). – **As *Crabro vagus***: Fabricius, 1775:375 (new generic assignment, redescription), 1781:296 (redescription); Rossi, 1790:91 (in revision of insects of Etruria, now Toscana, Italy); Olivier, 1792a:515 (redescription); Fabricius, 1793:298 (redescription); Panzer, 1797, Heft 46:10 (in revision of German insects); Roth von Schreckenstein, 1802:32 (Germany: Baden-Württemberg); Fabricius, 1804:313 (redescription); Latreille, [1805]:324 (redescription); Panzer, 1806:183 (in critical review of his earlier work); Spinola, 1806:105 (Italy: Liguria); Illiger, 1807b:150 (synonymy, redescription); Jurine, 1807:212 (in checklist of species of *Crabro*); Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects); Vander Linden, 1829:59 (bibliographic references, all Europe, description of ♂); Lepeletier de Saint Fargeau and Brullé, 1835:722 (in revision of Crabronini); Shuckard, 1837a:145 (in revision of British Aculeata); Dahlbom, 1839:88 and 1839-40:88 (in revision of Scandinavian Crabronini); Zetterstedt, 1838:442 (in revision of insects of Lapland); von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Dufour, 1841a:497 and 1841b:236 (digestive tract), 1841a:503 and 1841b:239 (male reproductive system), 1841a:507 and 1841b:243 (female reproductive system); Dahlbom, 1842a:16 (in review of Scandinavian aculeates), 1845:XXV (specimens in collection Fabricius examined), 392 (in revision of Sphecidae and Pompilidae), 528 (belongs to subgenus *Ectemnius*); Lepeletier de Saint Fargeau, 1845:126 (in revision of world Hymenoptera); Eversmann, 1849:426 (Russia: Kazan, Orenburg, Saratov, and Simbirsk provinces); von Kiesenwetter, 1849:92 (Germany: Kingdom of Saxony: Dresden); F. Smith, 1849b:2551 (preying on Diptera); Wissmann, 1849:173 (Germany: Kingdom of Hannover: common); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:28 (Great Britain: decaying willows, etc.); Wesmael, 1852:613 (Belgium); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:402 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1857:68 (Germany: in revision of fossorial wasps of Nassau Region); F. Smith, 1858c:155 (in review of British Aculeata, redescription); Belke, 1859:70 (Ukraine: Kamieniec Podolski); Funk, 1859:57 (Germany: Bayern: Bamberg); A. Morawitz, 1864:454 (Russia: Sankt-Petersburg), 1866a:272 and 1866b:350 (specimens in Eversmann collection); Taschenberg, 1866:170 (in revision of Hymenoptera of Germany); A. Costa, 1867c:143 (in revision of Italian Sphecidae); Schenck, 1867a:350 (Germany: Nassau Region); Dietrich, 1868:362 (Switzerland: Zurich Canton); Jaennicke, 1868:8 (Germany: Hessen: Kelsterbach); Palma, 1869:41 (Italy: Sicilia settentrionale); von Aichinger, 1870:312 (Austria: Tirol); Bold, 1870:150 (Great Britain: Northumberland and Durham); Thomson, 1870:172 (in revision of Swedish Crabroninae); A. Costa, 1871b:72 (in revision of Italian Sphecidae); F. Smith, 1871b:16 (in catalog of British Aculeata); Thomson, 1874:283 (in revision of Hymenoptera of Scandinavia); Taschenberg, 1875:385 (Germany: Halle); Radoszkowski, 1877:78 (Uzbekistan: Zaravshan valley; Kyrgyzstan: Shahshimardan; also: Hodja-Chiburgan and Uzghent); Dale, 1878:45 (Great Britain: Dorset: Glanville's Wootton, as *cephalotes* Panzer); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county:

Wakefield, by F. Smith, 1858); Girard, 1879:934 (description of habitus), 934 and 937 (nesting habits); Kohl, 1880:104 (Austria: Tirol, and Italy: Trentino–Alto Adige); E. Saunders, 1880:295 (in revision of British Aculeata); Kohl, 1883e:651 (Switzerland); Siebke, 1880:72 (Norway); Marquet, 1881:188 (France: Gironde: Bordeaux; Hérault: Béziers); Schøyen, 1881:12 (correction to Siebke, 1880); Sickmann, 1883:68 (Germany: Niedersachsen: Wellingholthausen); Harwood, 1884:212 (England: Essex: Colchester area); von Heyden, 1884:122 (Germany: Frankfurt am Main area); De Stefani Perez, 1886:172 (Italy: Sicilia: monte di Renda near Palermo); Wüstnei, 1886:32 (Germany: Schleswig-Holstein); Fokker, 1887:XX (nesting habits, as *vagans*); Gasperini, 1887:14 (Dalmatia: San Giorgio, now Croatia: Island of Hvar: Sućuraj); Brischke, 1892:28 (Germany: Radaue River valley west of Danzig, now Poland: Radunia River west of Gdańsk); V. Perkins, 1892:206 (Great Britain: Gloucestershire: Wotton-under-Edge); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s. s.); A. Costa, 1893b:8 (Tunisia); Kohl, 1893a:25 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus), 1893b:426 (Tajikistan: Kshstut in Zeravschan River valley; China: Sinkiang Uighur: Artuch 20 km north of Kashgar); Baldini, 1894:71 (Italy: Modena area); Sickmann, 1893:53 (Germany: Niedersachsen: Iburg, analysis of color variation, prey); Krieger, 1894:6 (Germany: Kingdom of Saxony); F. Morawitz, 1894:362 (Turkmenistan: Tedzhen); Schletterer, 1894:34 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); Freke, 1896:41 (Ireland); Meunier, 1896:269 (Belgium: Bruxelles area); E. Saunders, 1896:142 (in revision of British Aculeata); Dalla Torre, 1897:633 (in catalog of world Sphecidae); Meunier, 1897b:353 (Belgium: coastal sand dunes at Blankenberge); Mocsáry, 1897:84 (Kingdom of Hungary: common everywhere); Flamary, 1898:45 (France: Saône-et-Loire: Mâcon area); Strand, 1898b:96 (Norway); R. Bradley, 1900:13 (Great Britain: Evesham); W. Evans, 1900:265 (Great Britain: Scotland: Aberfoyle, near Edinburgh); Nevinson, 1900:62 (Great Britain: Wales: Criccieth, Towyn); A. Carter, 1901a:67 (Great Britain: Scotland: Perthshire: Comrie); Strand, 1901:7 (Norway: Aal); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia); Friese, 1902:478 (occurring in Lapland according to Zetterstedt, 1838); Kozhevnikov, 1902 (Russia: Moscow Governorate); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); E. Saunders, 1902a:53 (southwestern Ireland); de Cobelli, 1903:115 (Italy: Province of Trentino); Antiga and Bofill, 1904:25 (Spain: Cataluña Province); Aurivillius, 1904:297 (in revision of Swedish Sphecidae); E. Saunders, 1904c:608 (Spain: Island of Mayorca); Strand, 1904c:608 (Spain: Mayorca); W. Schulz, 1904b:99 (Azerbaijan, Altai, Czechoslovakia, France; Spain); Zilahi Kiss, 1904:77 (Hungary: Peér, Tasnád); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); Mosolov, 1905b:19 (Russia: Moscow Governorate: Mikhailovskoye); von Heyden, 1905:83 (Germany: Hessen: Frankfkurt); Adlerz, 1906:40 (Sweden, nesting habits); Graeffe, 1906:455 (Tunisia: Tunis area); Planet, 1906:187 (description of pupa); W. Schulz, 1906:46 (Greece: Island of Crete); Clerc and Clerc, 1907:79 (Russia: Ekaterinburg District); Móczár and Henter, 1907:206 (Romania: Mehadia); Schmiedeknecht, 1907:187 (in key to Hymenoptera of Central Europe); E. Saunders, 1907a:67 (Great Britain: Porthcawl); Morley, 1909:306 (Great Britain: Isle of Wight); Peets, 1909-1911:66 (*Crabro vagus* of Panzer = *Crabro vagus*); Sparre Schneider, 1909:110 (Norway, from Zetterstedt, 1838); Cavo, 1910:685 (France: Département du Nord); Höppner, 1910a:211 (nesting habits), 1910b:163 (mixed nest of *Crabro vagus*, *Odynerus laevipes* Shuckard, *Prosopis annulata* Linnaeus = *Hylaeus annulatus*, and *Odynerus trifasciatus* Panzer); Dittrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Hallett, 1912:94 (Great Britain: Glamorgan County); Alfken, 1914:271 (northwestern Germany); Birula, 1914:372 (Belorussia: Ambrosovich, Korolevo, and Luskinopol' near Vitebsk); Haines, 1914:130 (Great Britain: Dorset); Szilády, 1914:90 (Hungary: Gyilkos-tó, Nagyenyed); Kohl, 1915:85 (in revision of Palearctic Crabronini); Friese, 1917:79 (nest); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Strand, 1920:14 (Germany: Mecklenburg-Vorpommern: Rostock); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:149 (in key to Belgian Sphecidae); Fahringer, 1922:183 (Turkey); Hedicke, 1922:269 (Germany: Brandenburg: Gross Machnower Weinberg); Maidl, 1922:74 (Albania, Croatia); Strand, 1922:197 (Germany: Bayern: Kulmbach); Lundblad, 1924:23 (Sweden: Lapland: Lycksele); Berland, 1925d:195 (in Sphecidae Fauna of France); Bischoff, 1925:297 (Latvia, north-eastern Poland); Grönblom, 1925:5 (nesting habits); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); Shesta-

kov, 1925:35 (Russia: Yaroslavl' area); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Kaiserstuhl, Rhein-vorland); Schütze, 1925:109 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:147 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); K. Strohm, 1926:74 (bibliographic reference to Roth von Schreckenstein, 1802); Zavadil, 1926:30 (Czechoslovakia); Kokujev, 1927:72 (Russia: Siberia: Lake Baikal); Berland, 1928b:181 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Gaunitz, 1929:199 (Sweden: Lapland); Bouwman, 1930:65 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:641, 645 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Grandi, 1931:58 (Italy: Emilia-Romagna: Gabellina); Pulkkinen, 1931:125 (in revision of Sphecidae of Finland); Bondroit, 1932:40 (Belgium: Boitsfort, Solbosch, Uccle); Gussakovskij, 1932:15 (Russia: Primorskiy Kray and Kamchatka); Nadig, 1933:76 (Morocco: Goundafa); Balles, 1934:15 (Germany: Baden-Württemberg: 10 localities); Bondroit, 1934:62 (Belgium: Ostende); Grandi, 1934:128 (Italy: Friuli-Venezia Giulia: Selva di Tarnova); Jansson, 1934:288 (Sweden); Nadig, 1934:31 (France: Corse: Bastia); Baba, 1935:84 (Japan: Island of Sado); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Steck, 1935:321 (Switzerland); Vergne, 1935:119 (France: Auvergne: common); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Wnukowskij, 1936:127 (Russia: Western Siberia: railroad station Mezheninovka at 56°21'38"N 85°22'4"E); Dulac, 1937:23 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Zavadil, Šusterka, and Bat'a, 1937:153 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve); A. Wagner, 1938a:115 (northwestern Germany); Dvornar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Leclercq, 1941b:15 (Belgium: Liège area); Paul, 1941:33 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Guiglia, 1942a:62 (Greece: Rhodes: Kremasti); Giner Marí, 1943a:231 (in Sphecid Fauna of Spain); Giordani Soika, 1944:8 (Italy: Sicily: Messina); Guiglia, 1944a:150 (Cyprus: Limassol), 1944b:37 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Guiglia, 1947a:28 (Italy: Piano Maiuri); Móczár, 1947b:90 (Hungary: Siebenbürgen: Székelykeresztúr, now Romania: Transylvania: Cristuru Secuiese); Guiglia, 1948c:202 (Italy: Sardegna: Cagliari); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavro, 1950:40 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Fæster, 1951:457 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:51 (France: Ardèche River basin); Móczár, 1953:311 (Hungary); Hertzog, 1954:101 (France: Bouches-du-Rhône: Camargue); Tjeder, 1954:69 (Sweden: eastern Skåne: Sandhammaren, Vitemölla); Teschner, 1955:56 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vogrin, 1955:43 (Yugoslavia); Ceballos, 1956:396 (in catalog of Sphecidae of Spain); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Compte Sart, 1959:138 (Spain: Mayorca); Ceballos, 1964:95 (in supplement to catalog of Spanish Sphecidae); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Bonelli, 1966c:220 (Italy: Trentino-Alto Adige: Fiemme); Atanassov, 1972a:190 (Bulgaria: Stara Planina Mountains), 1972b:32, 41, 50 (Bulgaria: Stara Planina Mountains); Balthasar, 1972:64 (in Sphecid Fauna of Czechoslovakia); Blagoveshchenskaya, 1994:89 (Russia: Ul'yanovsk Oblast'). – **As *Solenius vagus***: Dufour and Perris, 1840:28 (new generic assignment, nesting in stems of *Rubus*); Perris, 1840:407 (nesting habits); Lucas, 1849:245 (Oran according to Lepeletier de Saint Fargeau, 1845); P. Ivanov, 1872:151 (Khar'kov Oblast': Kupyansk area); Dours, 1874:157 (in catalog of Hymenoptera of France); Fabre, 1882:227 (nesting in bramble stems); Marchal, 1893c:337 (nest and prey); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera); Acloque, 1897:87 (in Sphecid Fauna of France and Algeria); Cuní y Martorell, 1897:332 (Spain: Cataluña: villa de Calella); Borries, 1897:27 (nesting habits); J. Nielsen, 1901a:259 (nesting habits), 1903:110 (nesting habits); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Graeffe, 1911:43 (Italy: Trieste area); Schirmer, 1912:163 (Germany: Berlin area); J.Ch. Bradley, 1919a:67 (*Solenius vagus* is the type species of *Solenius*); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz); Haines, 1922:14 (Great Britain: Dorset: common); Jansson, 1922:25 (Sweden: Island of Öland); R. Perkins,

1924:224 (Great Britain: Devon); Coulon, 1925:125 (France); R. Perkins, 1925:151 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:305 (summary of nesting habits), 321 (list of prey); Hémon, 1926:200 (France: Finistère: Fouesnant); Kuznetsov-Ugamskij, 1927:246 (Kazakhstan: Berkara at 47°47'N 80°42'E 70 km west of Aulie-Ata = Dzhambul); Stelfox, 1927:296 (Ireland: collecting localities); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Richards, 1930:134 (Great Britain: nesting in rotten posts at Bagley Wood near Oxford); Baudot, 1931:255 (characteristics of cocoon); Butterfield and Fordham, 1931:156 (Great Britain: Yorkshire); Spooner, 1931:15 (Great Britain: Cambridgeshire); Jones, 1932b:233 (Great Britain: Wicken Fen); Iwata, 1933b:11 (locality records from Japan); Routledge, 1933:89 (England: Cumberland); Bernard, 1935:67 (France: Var: Fréjus area); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Spooner, 1935:139 (Great Britain: Huntingdonshire: Wood Walton, and Northamptonshire: Ashton Wold); Struve, 1937:149 (Germany: Island of Borkum); Yasumatsu, 1937c:68 (Japan: Island of Tsushima); Hallett, 1938:72 (Great Britain: Herefordshire: Mathon, Ross-on-Wye, West Malvern); Niesiołowski, 1950:225 (Poland: Lubasz 40 km north of Tarnów); Szulczewski, 1950:103 (Poland: Wielkopolski National Park 15 km south of Poznań, as *vagans*); J.Ch. Bradley, 1957:46 (Lepeletier de Saint Fargeau's specimens in Turin); Hamann, 1960:196, 198 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:151 (specimens in M. Spinola collection, Torino, are *Ectemnius continuus*), 152 (specimens in M. Spinola collection, Torino, are *Ectemnius continuus*, *E. rubicola*, and *E. confinis*), 153 (specimens in M. Spinola collection, Torino, are *Ectemnius continuus*, *E. rubicola*, and *E. hypsae*). – **As *Crossocerus vagus***: de Motschoulsky, 1859:500 (Russia: eastern Siberia: between Shilka and Nikolayevsk: no specific locality). – **As *Xestocrabro vagus***: R. Perkins, 1913b:387, 388 (new generic assignment, in key to British Crabronini). – **As *Ectemnius vagus***: Kirchner, 1854:313 (new generic assignment, as *vagans*, Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Ruthe and Stein, 1857:316 (Germany: Berlin area); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:113 (in key to Sphecidae of Germany); Assmuss, 1859:619 (Russia: Moscow Governorate); Brischke, 1862:107 (Germany: Preussen Province, now Poland: Pomorze Region); Jaenicke, 1867:146 (Germany: Hessen: Frankfurt area); Kirchner, 1867:226 (in catalog of European Hymenoptera); Wierzejski, 1868:118 (Poland: Kraków, Tatry Mountains; Ukraine: Podole Region); Radoszkowski, 1871:198 (Iran: Astrabad, now Gorgan); Moczáry, 1874:120 (Siebenbürgen, now Romania: Transylvania: no specific locality); Wierzejski, 1874:262 (Poland: Kraków area and Ukraine: Podole Region: common everywhere); Beuthin, 1876:230 (Germany: Hamburg area); Schmiedeknecht, 1876:186 (Germany: Thüringen: Rothensteiner Felsen); Yaroshevskiy, 1881:122 (Ukraine: Khar'kiv Oblast': Khar'kov area, Kupyansk); A. Costa, 1883:58 (Italy: Sardegna); Friese, 1883:200 (Germany: Sachsen-Anhalt: Weissenfels); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); Chyzer, 1902:34 (Hungary); Wnukowski, 1927:32 (Russia: Western Siberia: village Kornilovo at 53°57'N 81°10'E); Fahlander, 1954:249 (Sweden: Gästrikland Region); Fain, 1973:161 (parasite: *Crabrovidia gussakovskii* (Zachvatkin), a saprogllyphid mite).

As *Crabro serripes* Stephens, 1829a:365 (in catalog of British insects) and 1829b:33 (in checklist of British insects), corrected to *Crabro continuus* by F. Smith, 1855:99.

ssp. *punctatus* (Lepeletier de Saint Fargeau and Brullé)

Solenius punctatus Lepeletier de Saint Fargeau et Brullé, 1835:720, ♂. Holotype or syntypes: ♂, France: Paris area (lost). Neotype: ♂, France: Yonne: Mauny (MNHN), designated by Leclercq, 1974d:276. – Lepeletier de Saint Fargeau, 1845:126 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:157 (in catalog of Hymenoptera of France); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera); Acloque, 1897:87 (in Sphecidae Fauna of France and Algeria). – **As *Ceratocolus punctatus***: Dours, 1874:156 (new generic assignment, in catalog of Hymenoptera of France); Acloque, 1897:88 (in Sphecidae Fauna of France and Algeria). – **As *Crabro punctatus***: Dahlbom, 1845:388 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*), 528 (unknown to author, but probably belonging to *Crabro*

s.s.); F. Smith, 1856:402 (in catalog of Hymenoptera in British Museum); Becker, 1880:151 (Russia: Sarepta, now Krasnoarmeysk south of Volgograd); Gasperini, 1887:14 (Croatia: Brusije on Island of Hvar); Radoszkowski, 1887b:97 (in list of Transcaspian Hymenoptera); Dalla Torre, 1897:619 (in catalog of world Sphecidae); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); Mantero, 1905:71 (Italy: Toscana: Isola del Giglio, as *Crabro punctatus* H. Schaeff.). – **As *Ectemnius punctatus***: H.-J. Schulz, 1991:31 (new generic assignment, Germany: Oberlausitz: 5 km southwest of Wittichenau). – **As *Ectemnius continuus* var. *punctatus***: van Achterberg and Peeters, 2004:31 (new status, in checklist of Sphecidae of Netherlands). – **As *Ectemnius continuus punctatus***: Leclercq, 1974d:278 (new status, taxonomy); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald), 1980:381 (Germany: Baden-Württemberg); Brechtel, 1986:67 (Germany: Südpfalz); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Riemann, 1988:223 (Germany: Bremen area); Jacobs, 1989:22 (Germany: Mecklenburg-Vorpommern); Jacobs and Oehlke, 1990:198 (new locality records from Democratic Germany); Schembri, 1991:182 (first record from Malta); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:170 (in revision of western European Crabroninae); Leclercq, 1993c:26 (locality records from western Palearctic); Leclercq and Barbier, 1993:52 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Woydak, 1996:76 (Germany: Westfalen: summary of distribution and nesting habits); Petit, 1999:114 (Netherlands: Doel, Nieuw-Namen); Blösch, 2000:330 (in Sphecidae Fauna of Germany); Basset, 2001:83 (France: Département de Gironde); Gadoum and Barbier, 2006:42 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Boissy-l'Aillerie and Guernes); Magdalou, 2006a:7, 11 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Burguet, 2007:unnumbered p. 17 (France: Puy-de-Dôme: sands Girauds-Faures in Orléat commune); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Leclercq, 2007e:169 (locality records from British Columbia and USA); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Ljubomirov and Yildirim, 2008:277 (in catalog of Crabronidae of Turkey); Burguet in Durand and Burguet, 2010:28 (France Département d'Ardèche: Ardèche Gorges); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská Nížina); Burguet in Durand and Burguet, 2012:3 (France: Puy-de-Dôme: sands Girauds-Faures in Orléat commune); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d' Ariège: Ascou-Pailhères); Zettel, Zimmermann, and Wiesbauer, 2013:12 (Austria: Wien: Donaupark); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Doline near Rockensüß); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane); Kejval, Blažej, and Erhart, 2020:99 (western Czech Republic); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:101, 102 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:35 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:51 (in catalog of Crabronidae of Turkey); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Gülmez, Çubuk, and Can, 2025:158 (Turkey: Çanakkale: Kelkit River Valley).

Ceratocolus punctatus Lepeletier de Saint Fargeau et Brullé, 1835:749, ♀, ♂. Syntypes: France: Paris area (lost). Neotype: ♀, France: Yvelines, Bullion (MNHN), designated by Leclercq, 1974d:277. Synonymized with *Ectemnius continuus* by Leclercq, 1974d:277. – Lepeletier de Saint Fargeau, 1845:154 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Crabro impressus F. Smith, 1856:401. Substitute name for *Crabro punctatus* (Lepeletier de Saint Fargeau et Brullé, 1835:749) nec *Crabro punctatus* (Lepeletier de Saint Fargeau et Brullé, 1835:720).

ssp. rufitarsis (Dalla Torre)

Crabro rufipes Brullé, 1839:91, ♂, junior secondary homonym of *Crabro rufipes* (Lepeletier de Saint Fargeau et Brullé, 1835) Dahlbom, 1845. Holotype: ♂, Canary Islands: no specific locality (MNHN).. – **As *Ectemnius continuus rufipes***: Leclercq, 1974d:277 (new generic assignment, new status, synonymy); de Beaumont, 1968a:274 (Canary Islands: Islands of Tenerife and Gomera); Báez and Ortega, 1978:192 (Canary Islands); Erlandsson, 1978a:206 (Canary Islands); Smit, 2000:177 (Madeira).

Crabro rufitarsis Dalla Torre, 1897:624. Substitute name for *Crabro rufipes* Brullé. – Kohl, 1915:191 (original description of *Crabro rufipes* translated into German). – **As *Ectemnius continuus rufitarsis***: R. Bohart and Menke, 1976:425 (new generic assignment, new status, in checklist of world Sphecidae); Hohmann, La Roche, Ortega, and Barquín, 1993:245 (detailed records from Canary Islands).

ssp. sulphureipes (F. Smith)

Crabro sulphureipes F. Smith, 1856:415, ♂. Holotype or syntypes: ♂, Italy: Sicily: no specific locality (BMNH). Synonymized with *Crabro vagus* (correctly: *Ectemnius continuus*) by Kohl, 1915:86. – Kirchner, 1867:226 (in catalog of European Hymenoptera, as *sulfureipes*); Radoszkowski, 1886a:37 (Turkmenistan); De-Stefani, 1895:228 (in catalog of Sicilian Hymenoptera, as *sulphuripes*); Dalla Torre, 1897:631 (in catalog of world Sphecidae). – **As *Crabro vagus* var. *sulphuripes*** [sic]: Ceballos, 1956:396 (new status, in catalog of Sphecidae of Spain). – **As *Ectemnius continuus sulphureipes***: Bitsch and Leclercq, 1993:170 (new generic assignment, new status, in revision of western European Crabroninae); Leclercq, 1993c:27 (locality records from Sicily and Malta); Schmid-Egger, 2003:753 (Italy: Sicily: Randazzo); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:101, 102 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area).

41. cooperi Leclercq

Ectemnius cooperi Leclercq, 1991b:26, ♂. Holotype: ♂, Colombia: Putamayo: Villa Garzon (BMNH). – Leclercq, 1991b:8 (in revised key to Latin American *Ectemnius*); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:169 (known from Colombia).

42. corporaali Leclercq

Ectemnius corporaali Leclercq, 1950c:5, ♀. Holotype: ♀, Indonesia: central Sumatra: Fort de Kock (Zool. Mus. Amsterdam). – Leclercq, 1954c:285 (in catalog of world Crabronini); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Leclercq, 1999a:29 (in key to Asian *Ectemnius*), 50 (in annotated catalog of Asian and Oceanian *Ectemnius*).

43. corvidus Leclercq

Ectemnius corvidus Leclercq, 1961h:76, ♀. Holotype: ♀, Malaysia: Pahang: Fraser's Hill (BMNH). Paratype: India: Assam. – R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Leclercq, 1999a:25 (in key to Asian *Ectemnius*), 50 (in annotated catalog of Asian and Oceanian *Ectemnius*, discussion of relationships); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent), 213 (in key to subgenus *Hypocrabro* of Indian subcontinent).

44. craesus (Lepeletier de Saint Fargeau and Brullé)

Solenius craesus Lepeletier de Saint Fargeau and Brullé, 1835:727, ♀, ♂. Syntypes: Cuba: no specific locality (M. Spinola collection, Torino). – Lepeletier de Saint Fargeau, 1845:132 (in revision of world Hymenoptera); Cresson, 1862:236 (in catalog of North American Hymenoptera); J.Ch. Bradley, 1957:46 (study of type in Turin). – **As *Crabro craesus***: Dahlbom, 1845:388 (new generic assignment, original description copied), 528 (unknown to the author, but

probably belonging to *Crabro* s.s., as *croesus*); F. Smith, 1856:424 (in catalog of Hymenoptera in British Museum, as *croesus*); Cresson, 1865a:152 (Cuba, as *croesus*); Packard, 1866:73 (in key to North American Crabronini); Dewitz, 1881:200 (Puerto Rico, as *croesus*); W. Fox, 1891d:343 (Jamaica, as *croesus*); Dalla Torre, 1897:595 (in catalog of world Sphecidae, as *croesus*); Ashmead, 1900:305 (in checklist of Caribbean Hymenoptera); W. Schulz, 1903:478 (Haiti); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino, as *croesus*). – **As *Ectemnius craesus***: Pate, 1947f:12 (new generic assignment, in revision of Caribbean Crabronini); Wolcott, 1951:839 (in review of insects of Puerto Rico); Leclercq, 1954c:276 (in catalog of world Crabronini); Alayo Dalmau, 1968b:12 (in revision of Cuban Sphecidae; ubiquitous in Cuba); Leclercq, 1972c:196 (Cuba, Dominican Republic, Jamaica, Puerto Rico); Alayo Dalmau, 1973:193 (in catalog of Cuban Hymenoptera); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saproglyphid mite); Alayo Dalmau, 1976:18 (in key to Cuban *Ectemnius*), 32 (in checklist of Cuban Sphecidae); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Snelling, 1992:14 (British Virgin Islands: Island of Guana); Snelling, 1993a:18 (British Virgin Islands: Island of Guana); Fernández, Garcés, Portuondo, Valdés and Expósito, 2001:1022 (Cuba: collected on weed flowers in Botanical Garden of Santiago de Cuba); Fernández, Saríol, Vega, Ricardo, González, and Portuondo, 2002:46 (Cuba: Provincia Granma); Portuondo and Fernández, 2004:134 (Cuba: Sierra Maestra); Snelling, 2005:290 (British Virgin Islands: Island of Guana); Genaro, 2006:54 (in checklist of Cuban Sphecidae and Crabronidae; also: Jamaica, Hispaniola, Island of Mona, Island of Guana, Puerto Rico); Leclercq, 2007e:170 (locality records from British Virgin Islands, Dominican Republic, Jamaica, and Puerto Rico); Perez-Gelabert, 2008:240 (in list of arthropods of island of Hispaniola).

45. *crassicornis* (Spinola)

Crabro crassicornis Spinola, 1808:262, ♂. Holotype or syntypes: ♂, Italy: Liguria (lost: de Beaumont, 1952e:44). – Vander Linden, 1829:61 (bibliographic references, Italy: Genova); A. Morawitz, 1866a:272 and 1866b:349 (specimens in E. Eversmann collection); A. Costa, 1867c:136 and 1871b:65 (in revision of Italian Sphecidae); Kohl, 1883e:653 (Switzerland); Dalla Torre, 1897:593 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Hungary: Budapest); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); Kohl, 1915:101 (in revision of Palearctic Crabronini); Maidl, 1922:74 (Croatia); Berland, 1925d:193 (in Sphecid Fauna of France); Gussakovskij, 1930b:75 (Tajikistan: Pamir); Schmiedeknecht, 1930:638, 642 (in keys to Hymenoptera of North and Central Europe); Giner Marí, 1934:136 (Spain); Gussakovskij, 1935:433 (Tajikistan); Steck, 1935:322 (Switzerland); Bernard, 1936c:288 (France: Hérault: Valras; Var: Fréjus); Zavadil, 1937a:71 (eastern Slovakia); Zavadil, Šustera, and Bat'a, 1937:154 (in catalog of Sphecidae of Czechoslovakia); Zavadil, 1939:121 (Slovakia: Parkan); Guiglia, 1942a:62 (Island of Rhodes: Kremasti, Villanova); Giner Marí, 1943a:233 (in Sphecid Fauna of Spain); Guiglia, 1943b:72 (Albania: Kopliku), 1944b:37 (Italy); de Beaumont, 1945:479 (occurrence in Switzerland doubtful); Balthasar, 1952:66 (Slovakia); de Beaumont, 1954e:96 (Italy); Vogrin, 1955:43 (Yugoslavia); Šnoflak in Zavadil and Šnoflak, 1948:118 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Balthasar, 1958:337 (Slovakia: Gbelce); Pulawski, 1958a:188 (Bulgaria: Aytos); Scobiola-Palade, 1959:497 (first record from Romania: Constanța Region: Agigea, description and illustration of male antenna); Noskiewicz and Puławski, 1960:128, 122 (in key to Polish Sphecidae, not yet found in Poland); Ceballos, 1964:94 (in supplement to catalog of Spanish Sphecidae); Balthasar, Hrubant, and Hrubant, 1967:169 (Bulgaria: Slanchev Bryag near Nesebar); Islamov, 1970:63 (Uzbekistan: Chirchik Basin); Balthasar, 1972:72 (in Sphecid Fauna of Czechoslovakia). – **As *Thyreocerus crassicornis***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera); Bernard, 1935:67 (France: Var: Fréjus area). – **As *Lestica crassicornis***: Pádr, 1989a:170 (new generic assignment, in checklist of Czechoslovakian Sphecidae). – **As *Ectemnius crassicornis***: Leclercq, 1949a:10 (new generic assignment, Spain: Barcelona); Grandi, 1954:243 (Italy); Leclercq, 1954c:280 (in catalog of world Crabronini); Móczár, 1958b:203 (Hungary: locality records); Nouvel and Ribaut, 1958:16 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Grandi, 1962:98 (Italy); de Beaumont, 1959a:36 (Italy), 1960a:23 (Greece: Island of Rhodes), 1961c:52 (Greece: Crete),

1962b:28 (Spain), 1965a:59 (Greece), 1967a:350 (Turkey); Scobiola-Palade, 1967a:162 (Romania: Constanța District: Comarova); Benedek, 1968:76 (Hungary, visiting flowers of *Daucus carota* L., Apiaceae); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube), 1968c:387 (Romania: București); de Beaumont, 1969:93 (Turkey); Suárez, 1969:34 (Spain: Almería Province); Leclercq, 1971:218 (Spain); Kazenas, 1972b:175 (Kazakhstan); de Beaumont, Bytinski-Salz and Pulawski, 1973:24 (Israel); Kazenas, 1974b:110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan); Leclercq, 1975b:3 (France); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Guichard, 1978:272 (Greece); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Benedek, 1979:234 (Hungary: Bakony Hills); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:118 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Pagliano, 1980:123 (Italy: Liguria); Gayubo, 1982b:28 (Spain: Ávila, Cáceres, and Salamanca provinces), 1984b:95 (Spain: Salamanca Province), 1984c:377 (Portugal: El Algarve Province); Józán, 1985b:60 (Hungary: Pécs: Tetytye), 80 (floral records), 84 (ecological and zoogeographic characteristics); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Gayubo, 1986a:63 (Spain: Ciudad Real Province), 1986d:118 (Spain: Zamora Province); Gayubo and Sanza, 1986:68 (Spain: Burgos); Gayubo and Tormos, 1986a:15 (Spain: Castellón de la Plana); Islamov, 1986:532 (Uzbekistan: Tashkent Oblast'; as *crossicornis*); Steiner, 1986:108 (references to publications on nesting habits); Asís and Jiménez, 1987:27 (Spain: Castellón Province); Józán, 1989:101 (Hungary: Tihany Nature Reserve); Pagliano, 1990:88 (in catalog of Italian Sphecidae); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Gayubo and Torres, 1991:Table I (Spain: Salamanca; effects of urban pressure); Pagliano, 1991b:349, 354 (in key to Italian Crabroninae); Gayubo, Borsato, and Osella, 1992:286 (Greece: Island of Euboea); Bitsch and Leclercq, 1993:1183 (in revision of western European Crabroninae); Leclercq, 1993c:27 (locality records from Spain, Greece, Romania, Yugoslavia, Turkey, Daghestan, Israel, Iraq, Kazakhstan: Alma Ata); Leclercq and Barbier, 1993:53 (map of distribution in France); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Gayubo and Borsato, 1994:213 (Italy: Toscana); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Scharer, 1995:26 (Croatia: Island of Krk); Kuhlmann, 1996:220 (Portugal: Serra de Estrela); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Leclercq, 1999a:21 (in key to Asian *Ectemnius*), 50 (in annotated catalog of Asian and Oceanian *Ectemnius*, locality records); Tüzün, Gülmez, and Bağrıaçık, 1999:384 (Turkey: Aegean Region); Esenbekova and Kazenas, 2000:53 (southeastern Kazakhstan: 5 and 18-20 km west, 2-6 km southwest, and 3-8 km south of Alma Ata, 5 km west of Lake Biylikul', 4-5 km south of Talgar); Gayubo, González, and Torres, 2000:186 (Spain: Salamanca Province); Ivanov and Ljubomirov, 2001:212 (Bulgaria: Kresna Gorge at 41°48'N 23°10'E); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 206 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Tüzün, 2001:44 (Turkey); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:107 (geographic distribution, collecting localities in Kazakhstan); Schmid-Egger, 2003:753 (Italy: Sicilia: six localities); Dollfuss, 2004b:768 (locality records from Azerbaijan, Bulgaria, Croatia, Czech Republic, Greece, Iran, Israel, Italy, Jordan, Kazakhstan, Kyrgyzstan, Romania, Slovakia, Spain, Syria, Tajikistan, Turkey, Turkmenistan, Ukraine, and Uzbekistan); Gorobchishin and Protsenko, 2004:39 (first record from Ukraine: Kherson Oblast': Chernomorskiy Nature Reserve); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains); Shkuratov, 2004a:81 (Ukraine: Donetsk Oblast': 2 km southeast of Donetsk; Russia: Rostov Oblast': Migulinskaya), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Gayubo and Özbek, 2005:30 (Turkey: many localities); Jacobs, 2005a:444 (Bulgaria: Begovitsa in Pirin Mountains, Nesebar); Pagliano and Negrisolo, 2005:259 (in Sphecidae Fauna of Italy); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Straka, 2005a:394 (extinct in Czech Republic); Yildirim and Ljubomirov, 2005:1795 (Turkey: Balıkesir, Erzurum, Konya, and Niğde provinces); Jacobs, 2006:107 (in key to

subgenus *Thyreocerus*), 108 (synonyms, two forms of antenna in Central Asia, geographic distribution); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Peshtera); Standfuss and Standfuss, 2006b:99 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Baghirov, 2007:93 (Russia: southwestern Siberia); Kazenas, 2007a:92 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); G. Turrisi and R. Turrisi, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia, known from Moravia and Slovakia only); Yildirim and Ljubomirov, 2007:121 (Turkey: İçel: Aydıncık; Konya: Çumra: Dinlendik); Gayubo, González, Tormos, and Asís, 2008:138 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and Yildirim, 2008:282 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:224 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria, Croatia, Greece, Turkey, and Uzbekistan reported); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castromuñoz – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Pagliano, 2009:182 (Italy: Molise: Castelpetroso); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Rudoiskatel', 2010:158 (Russia: recorded from Ural Mountains); Shorenko and Kononov, 2010:20 (Ukraine); Tüzün and Yüksel, 2010:4472 (Turkey: Niğde Province); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:499 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wild-fire); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Murai and Amr, 2011:111, 119 (first record from Syria: Al Thawrah Nature Reserve at 35°51'N 28°38'E); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:81 (Turkey: Adana and Erzurum provinces); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Kazenas, 2013b:497 (southeastern Kazakhstan: foothills, low mountains, Ili River valley); Protsenko and Gorobchishin, 2013:34 (in revision of subgenus *Thyreocerus*); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park); Józán, 2014:132 (Croatia: Prezid pass); Kazenas, 2014a:137 (Kazakhstan: Karatau Mountain Range); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Rezaei and Fallahzadeh, 2015:5 (Iran: Fars: Dasht e Arzhan at 29°38'N 51°58'E); Shorenko, 2015:324 (in list of Sphecidae *sensu lato* of Crimea); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:48 (Turkey: Erzurum, Iğdır, Kars, and Tunceli provinces); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:49 (Iran: known from Fars Province); Shorenko, 2017:77 (in Crimea collected in July through September); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:11 (Azerbaijan: Nakhichevan Autonomous Republic); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2019a:262 (Iran: Fars: Jahrom); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:110 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:52 (in catalog of Crabronidae of Turkey); Can, 2022a:222 (supernumerary vein in forewing); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution, as *crassicornis*); Gülmez, Çubuk, and Can, 2025:158 (Turkey: Çanakkale: Kelkit River Valley).

Crabro hybridus Eversmann, 1849:425, ♂. Holotype: ♂, Russia: Ural foothills: no specific locality (ZIN). Synonymized with *Crabro crassicornis* by Kohl, 1915:101.

Ectemnius punctulatus De-Stefani, 1884b:219, ♀. Holotype or syntypes: ♀, Italy: Sicilia: Santa Ninfa (NHMW). Synonymized with *Crabro crassicornis* by Kohl, 1915:101. – Dollfuss, 1989:9 (type material in NHMW). – **As *Crabro punctulatus***: Dalla Torre, 1897:620 (new generic assignment, in catalog of world Sphecidae).

Ectemnius siculus De Stefani Perez, 1884b:221, ♀ (as *Siculus*, incorrect original capitalization). Holotype or syntypes: ♀, Italy: Sicilia: Santa Ninfa (depository unknown). Synonymized with *Crabro crassicornis* by Kohl, 1915:101. – Dollfuss, 1989:9 (type material in NHMW). – **As *Crabro siculus***: Dalla Torre, 1897:628 (new generic assignment, in catalog of world Sphecidae).

46. *crippsi* (Arnold)

Thyreopus crippsi Arnold, 1927:128, ♀ (as *Crippsi*, incorrect original capitalization). Holotype: ♀, Zimbabwe: Umtali in Vumbu Mountains (SAM). – Arnold, 1930:13 (in checklist of Afrotropical Sphecidae). – **As *Crabro crippsi***: Arnold, 1940:136 (new generic assignment, description of ♂). – **As *Ectemnius crippsi***: Leclercq, 1954c:289 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Řiha and Farkač, 2015:184 (in list of Afrotropical *Ectemnius* s, as *Ectemniuscrippsi crippsi*).

ssp. *mozambicus* (Arnold)

Crabro crippsi mozambicus Arnold, 1960b:475, ♀ (as *mozambica*, incorrect original termination). Holotype: ♀, Mozambique: Mount Gorongosa (SAM). – **As *Ectemnius crippsi mozambicus***: R. Bohart and Menke, 1976:425 (new generic assignment, in checklist of world Sphecidae); Řiha and Farkač, 2015:184 (in list of Afrotropical *Ectemnius*).

47. *crudator* Leclercq

Ectemnius crudator Leclercq, 1968e:323, ♀. Holotype: ♀, Argentina: Salta: Molinos (IML). – Leclercq, 1968e:312 (in key to *Ectemnius* of Latin America), 1972c:202 and 203 (in updated key to *Ectemnius* of Latin America), 216 (bibliographic references, new records from Brazil and Argentina, description of ♂); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Leclercq, 1991b:12 and 14 (in revised key to Latin American *Ectemnius*), 22 (bibliographic references; Argentina); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:170 (Argentina: Cordoba: Chiquita; Salta: Cayafate, Sumalao).

48. *cuernosi* Leclercq

Ectemnius cuernosi Leclercq, 1963:36, ♀, ♂. Holotype: ♂, Philippines: Negros: Mount Cuernos (USNM). – Baltazar, 1966:357 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Tsuneki, 1984f:19 (listed from Philippines), 40 (in key to Crabronini of Philippines); Leclercq, 1999a:22 (in key to Asian *Ectemnius*), 50 (in annotated catalog of Asian and Oceanian *Ectemnius*).

49. *curictensis* (Mader)

Crabro curictensis Mader, 1940:107, ♀. Holotype: ♀, Croatia: Island of Krk (originally L. Mader coll., now Niederösterreichisches Landesmuseum, St. Poelten, Austria). – Šnoflak in Zavadil and Šnoflak, 1948:100 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); Balthasar, 1972:73 (in Sphecidae Fauna of Czechoslovakia, not yet found in country). – **As *Ectemnius curictensis***: Leclercq, 1954c:280 (new generic assignment, in catalog of world Crabronini); Móczár, 1958b:203 (known only from Island of Krk); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae, incorrectly dated 1939); Pulawski, 1978:270 (in key to Sphecidae of European part of USSR); Bitsch and Leclercq, 1993:184 (in revision of western European Crabroninae); Leclercq, 1993c:27 (known from the holotype); Jacobs, 2006:108 (geographic distribution, probably a variety of *Ectemnius crassicornis*); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:111 (in revision of Sphecidae *sensu lato* of Europe, may be a synonym of *E. crassicornis*).

50. *curtipes* (R. Perkins)

Crabro curtipes R. Perkins in R. Perkins and Forel, 1899:24, ♂. Lectotype: ♂, Hawaiian Islands: Island of Hawaii: Olaa (BMNH), designated by Takumi, 1999:33. – **As *Melanocrabro curtipes***: R. Perkins, 1902:147 (new generic assignment, type species of new genus *Melanocrabro*), 1910:606 (belongs in *Melanocrabro*). – **As *Xenocrabro curtipes***: R. Perkins, 1907:97 (new generic assignment, Hawaiian Islands: Island of Hawaii: Kilauea crater). – **As *Ectemnius curtipes***: Pate, 1944b:381 (new generic assignment); Leclercq, 1954c:281 (in catalog of world Crabronini); Yoshimoto, 1960:317 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Takumi, 1999:5 (prey: *Chrysomya megacephala* (Fabricius), a calliphorid fly), 33 (in revision of Hawaiian *Ectemnius*).

51. *cyanauges* Pate

Ectemnius cyanauges Pate, 1941c:123, ♂. Holotype: ♂, Cuba: Pinar del Río: San Vicente (MCZ). – Pate, 1947f:26 (in revision of Caribbean Crabronini); Leclercq, 1954c:290 (in catalog of world Crabronini); Alayo Dalmau, 1968b:16 (in revision of Cuban Sphecidae), 1973:194 (in catalog of Cuban Hymenoptera), 1976:18 (in key to Cuban *Ectemnius*), 33 (in checklist of Cuban Sphecidae); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Portundo and Fernández, 2004:134 (Cuba: Sierra Maestra); Genaro, 2006:54 (in checklist of Cuban Sphecidae and Crabronidae); Leclercq, 2007e:170 (known from Cuba).

52. *dartanus* Leclercq

Ectemnius dartanus Leclercq, 1968e:323, ♀. Holotype: ♀, Argentina: Santa Fé: Rosario (FSAG). – Leclercq, 1968e:309 and 312 (in key to *Ectemnius* of Latin America), 1972c:201 and 203 (in updated key to *Ectemnius* of Latin America), 215 (locality records from Argentina); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Dollfuss, 1989:9 (paratype in NHMW); Leclercq, 1991b:11 (in revised key to Latin American *Ectemnius*), 22 (bibliographic references; Argentina, Brazil, Paraguay); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Dollfuss, 2004b:770 (Argentina); Leclercq, 2007e:170 (records from Argentina by Dollfuss, 1989), 2007g:194 (holotype in FSAG).

53. *dayi* Leclercq

Ectemnius dayi Leclercq, 1999a:51, ♀. Holotype: ♀, Brunei: Badas (BMNH). – Leclercq, 1999a:35 (in key to Asian *Ectemnius*).

54. *decemmaculatus* (Say)

Carabro[sic] decemmaculatus Say, 1823:78, sex not stated (as *10-maculatus*, incorrect original hyphenation). Holotype or syntypes: USA, Missouri: no specific locality (destroyed). – Le Conte, 1859a:167 (original description copied); Cresson, 1862:235 (in catalog of North American Hymenoptera); Packard, 1866:79 (in revision of North American Crabronini); Cresson, 1873:226 (Texas), 1887:284 (in catalog of North American Hymenoptera, as *10-maculatus*); C. Robertson, 1894:455 (visiting flowers of *Solidago canadensis* Linnaeus, Asteraceae, as *10-maculatus*), 458 (visiting flowers of *Solidago lanceolata* Linnaeus, Asteraceae, as *10-maculatus*); W. Fox, 1895a:151 (in revision of North American Crabronini); Dalla Torre, 1897:595 (in catalog of world Sphecidae); Snow, 1906:135 (Arizona: Oak Creek 20 mi. southwest of Flagstaff); J. Smith, 1910:681 (in new list of insects of New Jersey); Brimley, 1938:449 (North Carolina: Aberdeen, Elizabeth City, Overhills, Raleigh, Swannanoa, Tarboro, Terra Ceia). – **As *Hypocrabro decemmaculatus***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey). – **As *Solenius decemmaculatus***: Rohwer, 1916b:668, 669 (new generic assignment, in catalog of Hymenoptera of Connecticut); Mickel, 1918b:376 (in catalog of Nebraskan Sphecidae); Britton, 1920:339 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:668, 669 (in key to Sphecidae of Connecticut; New Haven); J.Ch. Bradley, 1928:1020 (in catalog of New York Sphecidae). – **As *Ectemnius decemmaculatus***: Pate, 1946c:8 (new generic assignment, synonymy, as *Ectemnius 10-maculatus 10-maculatus*); Krombein, 1950a:272 (North Carolina: Dare County); Krombein in Muesebeck, Krombein, and Townes, 1951:1026

(in catalog of North American Hymenoptera, as *10-maculatus*); Krombein, 1953a:295 (visiting foliage of *Pinus serotina* Michx, Pinaceae), 297 (visiting foliage of *Liquidambar styraciflua* L., Altingiaceae), 338 (North Carolina), 1953b:122 (visiting foliage of *Quercus marilandica* Münchhausen, Fagaceae), 134 (North Carolina: Kill Devil Hills, as *10-maculatus*); Leclercq, 1954c:272 (in catalog of world Crabronini), 1972c:205 and 207 (in updated key to *Ectemnius* of Latin America, as *decimmaculatus*), 220 (bibliographic references, as *decimmaculatus*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); R. Miller, 1976:261 (color forms in Floridan populations); L. Davis, 1978:216 (North Carolina: Kill Devil Hills, data from Krombein, 1953a); R. Bohart and Kimsey, 1979:488 and 491 (in key to North American *Ectemnius*), 494 (color variation); Krombein, 1979b:1679 (in catalog of North American Hymenoptera); Leclercq, 1991b:22 (bibliographic references); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario), 30 (distribution within Ontario), 59 (first record from Canada: Ontario: collecting localities); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Leclercq, 2007e:164 (correction to R. Bohart and Kimsey's key, 1979), 170 (locality records from USA); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Ontario: no specific locality).

Crabro chrysargyrus Lepeletier de Saint Fargeau and Brullé, 1835:711, ♀. Holotype or syntypes: USA: Pennsylvania: Philadelphia (M. Spinola collection, Torino). Synonymized with *Ectemnius decemmaculatus* by R. Bohart in R. Bohart and Menke, 1976:425. – Dahlbom, 1845:386 (original description copied, as *chrysargurus*), 528 (unknown to the author, but probably belonging to *Crabro* s.s., as *chrysargurus*); Lepeletier de Saint Fargeau, 1845:114 (in revision of world Hymenoptera, as *chrysarginus*); F. Smith, 1856:420 (in catalog of Hymenoptera in British Museum, as *chrysarginus*); Cresson, 1862:235 (in catalog of North American Hymenoptera), 1887:284 (in catalog of North American Hymenoptera, as *chrysarginus*); Robertson, 1894:454 (visiting flowers of *Solidago missouriensis* Nutt., Asteraceae, as *chrysarginus*); nec W. Fox, 1895a:155 (as *chrysarginus* = *Ectemnius arcuatus*); Dalla Torre, 1897:587 (in catalog of world Sphecidae); Bridwell, 1899:209 (Kansas: Baldwin, as *chrysarginus*, may be *Ectemnius arcuatus*); nec Kincaid, 1900a:357 (= *Ectemnius arcuatus*); nec H. Smith, 1908b:402 (= *Ectemnius arcuatus*); J. Smith, 1910:681 (in new list of insects of New Jersey); Stevens, 1917:423 (North Dakota); Krombein and Evans, 1955:234 (Florida); J.Ch. Bradley, 1957:46 (type in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:155 (specimens in M. Spinola collection, Torino, are *Ectemnius decemmaculatus* and *Ectemnius* sp., holotype of *Crabro chrysargyrus*). – **As *Solenius chrysargyrus*:** Rohwer, 1916b:668, 669 (new generic assignment, in catalog of Hymenoptera of Connecticut); Carter, 1925:132 (Canada: Alberta: Edmonton); Rohwer in Viereck, 1925:668, 669 (in key to Sphecidae of Connecticut; Short Beach; as *chrysargynus*); J.Ch. Bradley, 1928:1020 (in catalog of New York Sphecidae). – **As *Ectemnius chrysargyrus*:** Pate, 1946c:9 (new generic assignment, synonymy); Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (in catalog of North American Hymenoptera); Leclercq, 1954c:273 (in catalog of world Crabronini); G. Bohart, Nye, and Hawthorn, 1970:48 (Utah: Logan, onion pollinator); Evans, 1970:492 (Wyoming: Jackson Hole).

Crabro collinus F. Smith, 1856:420, ♂. Holotype or syntypes: ♂, USA: Florida: Duval County: Saint John's Bluff, now Jacksonville (BMNH). Synonymized with *Crabro decemmaculatus* by W. Fox, 1895a:151. – Cresson, 1862:235 (in catalog of North American Hymenoptera); Packard, 1866:115 (bibliographic references); Cresson, 1887:284 (in catalog of North American Hymenoptera).

Crabro aurifrons F. Smith, 1856:420, ♀. Holotype or syntypes: USA: Georgia: no specific locality (BMNH). Synonymized with *Crabro decemmaculatus* by W. Fox, 1895a:151. – Cresson, 1862:235 (in catalog of North American Hymenoptera); Packard, 1866:80 (in revision of North American Crabronini); Cresson, 1887:284 (in catalog of North American Hymenoptera).

As *Crabro packardi*: Cresson, 1865:477 (♂ only), corrected to *Crabro chrysarginus* by W. Fox, 1895a:152, 153.

Crabro novanus Rohwer, 1911b:564, ♀. Holotype: ♀, Mexico: Chihuahua: Meadow Valley 6 mi west of Colonia García (USNM). Synonymized with *Ectemnius decemmaculatus* by Pate, 1946c:8, synonymy confirmed by Leclercq, 1972c:220.

Crabro 10-maculatus tequesta Pate, 1946c:9, ♀, ♂. Holotype: ♀, USA: Florida: Dade County: Miami (ANSP). Synonymized with *Ectemnius decemmaculatus* by R. Bohart in R. Bohart and Menke, 1976:425. – Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (in catalog of North American Hymenoptera); Krombein and Evans, 1955:234 (Florida); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); H. Allen, 1995:15 (type in ANSP); Deyrup and Eisner, 2003:522 (a Floridian, red-marked subspecies); Leclercq, 2007e:170 (known from Florida).

55. *dilectus* (Cresson)

Crabro dilectus Cresson, 1865b:478, ♀, ♂. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. – Packard, 1866:85 (in revision of North American Crabronini); Cresson, 1887:284 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:156 (in revision of North American Crabronini); Dalla Torre, 1897:596 (in catalog of world Sphecidae); Kincaid, 1900a:357 (USA: Washington: Almota, Pasco, Wawai); Snow, 1906:135 (Arizona: Oak Creek 20 mi. southwest of Flagstaff); Rohwer, 1908b:245 (Colorado: color variation), 250 (in key to *Crabro* of subgenus *Protothyreopus*), 258 and 259 (in key to *Crabro* of Colorado and New Mexico), 1909c:147 (in key to *Ectemnius bigeminus*, *E. dilectiformis*, and *E. dilectus*); Stevens, 1917:423 (North Dakota); Brimley, 1938:449 (North Carolina: Flat Rock). – **As *Solenius dilectus***: Mickel, 1918b:375 (new generic assignment, in catalog of Nebraskan Sphecidae); Carter, 1925:132 (Canada: Alberta). – **As *Protothyreopus dilectus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); Strickland, 1947:128 (Canada: Alberta). – **As *Ectemnius dilectus***: Pate, 1946c:2 (new generic assignment, synonymy); Krombein in Muesebeck, Krombein, and Townes, 1951:1024 (in catalog of North American Hymenoptera); Leclercq, 1954c:267 (in catalog of world Crabronini), 1972c:197 (in updated key to *Ectemnius* of Latin America); G. Bohart, Nye, and Hawthorn, 1970:48 (Utah: Logan, onion pollinator); Evans, 1970:492 (Wyoming: Jackson Hole, as *Ectemnius dilectus dilectus*); Horning and Barr, 1970:106 (USA: Idaho: Craters of the Moon National Monument, as *Ectemnius dilectus dilectus*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:487 and 490 (in key to North American *Ectemnius*); Krombein, 1979b:1676 (in catalog of North American Hymenoptera); G. Scudder, 1994:75 (in checklist of rare and endangered invertebrates of British Columbia); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Blades and Maier, 1996:72 (Canada: British Columbia: Osoyoos–Mount Kobau area at 119°40'W 49°05'N); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario), 30 (distribution within Ontario), 60 (first record from Ontario: collecting localities); Leclercq, 2007e:170 (locality records from Canada, Mexico, and USA); Ratzlaff, 2016:25 (Canada: British Columbia: from Scudder, 1994); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, Ontario, Saskatchewan, first record from Manitoba and Quebec: no specific locality).

Crabro bigeminus Patton, 1879b:213, ♀, ♂. Syntypes: USA: Connecticut: Waterbury (depository unknown). Synonymized with *Ectemnius dilectus* by Pate, 1946c:2. – Cresson, 1887:284 (in catalog of North American Hymenoptera); W. Fox, 1895a:157 (in revision of North American Crabronini); Dalla Torre, 1897:584 (in catalog of world Sphecidae); Rohwer, 1908b:250 (in key to *Crabro* subgenus *Protothyreopus*); H. Smith, 1908b:403 (in revision of Nebraskan Sphecidae); Rohwer, 1909c:147 (in key); J. Smith, 1910:681 (in new list of insects of New Jersey); Brimley, 1938:449 (North Carolina: Marion). – **As *Protothyreopus bigeminus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey); Strickland, 1947:128 (Canada: Alberta: Lethbridge, Medicine Hat). – **As *Solenius bigeminus***: Rohwer, 1916b:668 (new generic assignment, in catalog of Hymenoptera of Connecticut); Britton, 1920:338 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:668 (in key to Sphecidae of Connecticut; New Haven, Sachem's Head). – **As *Ectemnius***

dilectus bigeminus: Krombein in Muesebeck, Krombein, and Townes, 1951:1024 (new generic assignment, new status, in catalog of North American Hymenoptera).

Crabro megacephalus Rohwer, 1908b:249, ♀, junior primary homonym of *Crabro megacephalus* Rossi, 1790. Holotype or syntypes: ♀, USA: Colorado: Florissant (USNM). Synonymized with *Ectemnius dilectus* by Pate, 1946c:2. – Rohwer, 1908b:250 (in key to females of *Crabro* subgenus *Protothyreopus*), 258 (in key to *Crabro* of Colorado and New Mexico), 1909c:148 (description of ♂).

Crabro dilectiformis Rohwer, 1909c:148, ♀. Holotype: ♀, USA: Wisconsin: Milwaukee (Public Mus. Milwaukee). Synonymized with *Ectemnius dilectus* by Pate, 1946c:2.

Crabro crassiceps Mickel, 1916a:425, ♀. Holotype: ♀, USA: Colorado: Ute Creek (UNL). Synonymized with *Ectemnius dilectus* by Pate, 1946c:2. – Muma, 1952:18 (type in UNL).

56. *discrepans* (Giffard)

Melanocrabro [sic] *discrepans* Giffard, 1915:115, ♂. Lectotype: ♂, Hawaiian Islands: Island of Kauai: Kaholuamanu (Bishop Mus.), designated by Takumi, 1999:35. – Swezey, 1921b:522 (Hawaiian Islands: Island of Kauai); Williams, 1927:446 (nesting in wood, preying on Dolichopodidae). – **As *Ectemnius discrepans***: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:326 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Steiner, 1986:108 (references to publications on nesting habits); Takumi, 1999:5 (summary of known prey), 34 (in revision of Hawaiian *Ectemnius*).

57. *distinctus* (F. Smith)

Crabro distinctus F. Smith, 1856:422, ♀. Neotype: ♀, USA: Sandwich Islands, now Hawaiian Islands: no specific locality (BMNH), designated by Takumi, 1999:36. – Cameron in Blackburn and Cameron, 1886:166 (redescription); Dalla Torre, 1897:596 (in catalog of world Sphecidae); R. Perkins, 1913a:688 (coloration); Bridwell, 1917d:289 (Hawaiian Islands: Island of Oahu: common near Diamond Head in April, but absent in the fall). – **As *Xenocrabro distinctus***: Giffard, 1914:26 (new generic assignment, Hawaiian Islands: first record from Island of Hawaii: Kau); F. Williams, 1927:446 (prey catching), 447 (egg). – **As *Ectemnius distinctus***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:328 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Takumi, 1999:35 (in revision of Hawaiian *Ectemnius*).

Crabro notostictus R. Perkins in R. Perkins and Forel, 1899:20, ♂. Lectotype: ♂, Hawaiian Islands: Island of Oahu: Waianae Mountains (BMNH) designated by Takumi, 1999:36. Synonymized with *Crabro distinctus* by R. Perkins, 1901:264. – R. Perkins, 1906:43 (Hawaiian Islands: mount Tantalus in Honolulu).

58. *dives* (Lepeletier de Saint Fargeau and Brullé)

Solenius dives Lepeletier de Saint Fargeau and Brullé, 1835:716, ♀, ♂. Syntypes: France: Paris (lost). Neotype: ♀, France: Versailles (MNHN), designated by Leclercq, 1974d:280. – Lepeletier de Saint Fargeau, 1845:122 (in revision of world Hymenoptera); Dours, 1874:157 (in catalog of Hymenoptera of France); De-Stefani, 1895:228 (in catalog of Sicilian Hymenoptera); Acloque, 1897:87 (in Sphecidae Fauna of France and Algeria); Lange, 1898:70 (Germany: Sachsen: Annaberg-Buchholz); Dominique, 1901a:505 (France: Loire-Inférieure, now Loire-Atlantique: Sainte-Marie-de-Pornic); Graeffe, 1911:43 (Italy: Trieste area); Berland, 1925d:196 (in Sphecidae Fauna of France); Hémon, 1926:200 (France: Finistère: Fouesnant). – **As *Crabro dives***: Herrich-Schaeffer, 1840:293 (new generic assignmentn, Germany: Bayern: Regensburg area); von Siebold, 1844:132 (Germany: Preussen: vicinity of Danzig, now Poland: Gdańsk); Dahlbom, 1845:387 (original description copied), 396 (in revision of Sphecidae and Pompilidae), 528 (unknown to author, but probably belonging to *Crabro* s.s.); Eversmann, 1849:427 (Russia: Orenburg province and Ural foothills; Kazakhstan); Wissmann, 1849:17 (Germany: Kingdom of Hannover: Münden); Wesmael, 1852:616 (Belgium); F. Smith, 1856:399 (in catalog of Hymenoptera in British Museum); Kwall, 1857:26 (Kurland, now Latvia); Schenck, 1857:63 (Germany: in revision of fossorial wasps of Nassau Region); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); A. Morawitz, 1866a:272 and 1866b:349 (specimens in E. Eversmann collection); Taschenberg, 1866:170 (in revision of Hymenoptera of Germany); A. Costa, 1867c:145

(in revision of Italian Sphecidae); Schenck, 1867a:350 (Germany: Nassau Region); von Aichinger, 1870:312 (Austria: Tirol), 327 (nova varietas); Thomson, 1870:172 (in revision of Swedish Crabroninae); A. Costa, 1871b:74 (in revision of Italian Sphecidae); Thomson, 1874:283 (in revision of Hymenoptera of Scandinavia); Taschenberg, 1875:385 (Germany: Halle); Kohl, 1880:111 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:71 (Norway); Friese, 1883:200 (Germany: Sachsen-Anhalt: Kösen); Kohl, 1883e:652 (Switzerland); Sickmann, 1883:69 (Germany: Niedersachsen: Wellingholthausen); C. Verhoeff, 1892a:70 (member of subgenus *Mesocrabro*); Kohl, 1893a:25 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Sickmann, 1893:57 (Germany: Niedersachsen: Iburg, analysis of color variation); Baldini, 1894:71 (Italy: Modena area); Krieger, 1894:6 (Germany: Kingdom of Saxony); Meunier, 1896:269 (Belgium: Bruxelles area); Westerlund, 1896:28 (Finland: no specific locality); Dalla Torre, 1897:596 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898b:96 (Norway); Nordenström, 1901:206 (Sweden: Småland: Vernamo); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia); de Cobelli, 1903:116 (Italy: Trentino: Mori, Rovereto); Antiga and Bofill, 1904:25 (Spain: Cataluña Province); Aurivillius, 1904:297 (in revision of Swedish Sphecidae); W. Schulz, 1904b:99 (Czechoslovakia, France); Zilahi Kiss, 1904:77 (Hungary: Peér, Tasnád); Kubes, 1905:84 (Czech Republic: Kolín, Obora, Sušice, Veltruby); Schmiedeknecht, 1907:188 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:18 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1913:535 (Ukraine: Zhytomyr Oblast: Radomyshl'); Alfken, 1914:271 (northwestern Germany); Birula, 1914:372 (Belorussia: Ambrosovich near Vitebsk); Szilády, 1914:90 (Hungary: Nagyenyed); Kohl, 1915:94 (in revision of Palearctic Crabronini); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Lindemans, 1920:203 (first record from Netherlands: Vorden); Noskiewicz, 1920a:154 (Poland: Tatry Mountains: Toporowa Cyrhla); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921a:19 (Belgium), 1921b:149, 150 (in key to Belgian Sphecidae), 164 (phenology, nesting habits); Fahringer, 1922:182 (Turkey); Maidl, 1922:74 (Albania, Croatia); Bischoff, 1925:297 (Poland: Białowieża); Schütze, 1925:109 (Germany: Lausitz Region); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Istein, Grißheim); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:147 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Zavadił, 1926:30 (Czechoslovakia); Benoist, 1928:411 (France: Basses-Alpes, Hautes-Alpes); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Bouwman, 1930:66 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:641, 644 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:127 (in revision of Sphecidae of Finland); Bondroit, 1932:39 (Belgium: recorded from Bruxelles area by Wesmael); Crèvecoeur and Maréchal, 1932:67 (in catalog of Belgian Hymenoptera: Martinrive); Gussakovskij, 1932:16 (Russia: Primorskiy Kray); Bondroit, 1933:32 (first record from Belgium: Forêt de Soignes); Drogoszewski, 1933:117 (Poland: Łowicz); Balles, 1934:16 (Germany: Baden-Württemberg: Hopfengarten, Neudenu, Oberachern, Ortenberg); Bondroit, 1934:61 (Belgium: Watermael); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Nixon, 1935:57 (first record from Great Britain: Tulse Hill southeast of London); Steck, 1935:321 (Switzerland); Vergne, 1935:119 (France: Auvergne); Crèvecoeur et Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Dulac, 1937:23 (France: Saône-et-Loire: Montcenis, Saint-Laurent d'Andenay, Saint-Pierre de Varennes); Goebel, 1937:38 (Poland: Poznań District: Kobylepole and Środa District: Tulce); Zavadił, Šustera, and Bat'a, 1937:153 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:83 (Japan: Hokkaido; Russia: Island of Sakhalin); A. Wagner, 1938a:116 (northwestern Germany); Maréchal, 1939:341 (Belgium: Loën); Móczár, 1939:5 (Hungary: Jászberény); Dovnar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Paul, 1941:34 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Benno, 1943:67 (Netherlands: Oud-Zeevenaar); Giner Marí, 1943a:231 (in Sphecid Fauna of Spain); Guiglia, 1944b:39 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Móczár, 1947a:60 (Hungary: Bars comitatus: Körmöcbánya, now in Slovakia: historical region Tekov: Kremnica), 1947b:90 (Hungary: Siebenbürgen: Székelykeresztúr, now Romania: Transylvania: Cristuru

Secuiese); Tsuneki, 1947d:285 (Korea), 1947e:402 (Japan: Hokkaido); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); Tsuneki, 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflak, 1948:117, 118 (in key to Sphecidae of Czechoslovakia); Cavo, 1950:40 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:458 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:51 (France: Ardèche River basin); Nouvel and Ribaut, 1953:183 (France: Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:95 (Italy); Teschner, 1955:56 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vogrin, 1955:43 (Yugoslavia); Bytinski-Salz, 1956:227 (Turkey: Aband); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Hertzog, 1956:181 (carrying prey venter to venter, not keeping it with mandibles); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:175 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Ceballos, 1959:230 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:132, 136 (in key to Polish Sphecidae); Lehrer and Scutaru, 1963:285 (Romania: Moldova: Baia, Brodina, and Cununa in Suceava District, Surănești in Iași District); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Scobiola-Palade, 1966b:393 (Romania: Tulcea District: C.A. Rosetti); Niedl and Denes, 1967:70 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:23 (Latvia); Balthasar, 1972:68 (in Sphecidae Fauna of Czechoslovakia); Józán, 1981:306 (Hungary: Hortobágy National Park); Skibińska, 1981:358 (Poland: Warszawa-Białogłoka, 1982:124 (Poland: Warszawa area); Kowalczyk, 1988a:45 (Poland: Rogów); Blagoveshchenskaya, 1994:89 (Russia: Ul'yanovsk Oblast'). – *As Ectemnius dives*: Kirchner, 1854:313 (new generic assignment, Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:113 (in key to Sphecidae of Germany); Brischke, 1862:107 (Germany: Preussen Province, now Poland: Pomorze Region); A. Costa, 1863:66 (Italy: Calabria Ulteriore: valle di Popis); Wierzejski, 1874:262 (Poland: Kraków; Ukraine: Bukovina Region: Kalinowce; Podole Region: Muzyłowice, Sinków); Kirchner, 1867:226 (in catalog of European Hymenoptera); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Rudow, 1912:71 (nesting in raspberry stems); Schirmer, 1912:163 (Germany: Berlin area); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz); Coulon, 1925:125 (France: Evreux, Queville); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Iwata, 1933b:11 (Japan: locality records); Hallett, 1935:185 (Great Britain: Glamorgan: near Sully); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Richards, 1937b:107 (in checklist of British aculeates); Hallett, 1939:16 (Great Britain: Glamorgan: Sully, Tulse Hill); Schneid, 1941:1026 (Germany: Bayern: Bamberg area); Yarrow and Guichard, 1941:119 (Great Britain: Kent, Middlesex, and Surrey); Richards, 1944b:134 (Great Britain: additional locality records; list of prey from France); Cowley, 1945:45 (Great Britain: Surrey: Norwood Hill); Hallett, 1945b:144 (Great Britain: Cheshire); Pate, 1946c:14 (synonymy); Strickland, 1947:127 (Canada: Alberta); Leclercq, 1949a:11 (Austria, Germany, Morocco: Tanger); Szulczewski, 1950:103 (Poland: Wielkopolski National Park 15 km south of Poznań); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (in catalog of North American Hymenoptera); Leclercq, 1951e:14 (bibliography of Belgian records); Fahlander, 1954:249 (Sweden: Gästrikland Region); Grandi, 1954:243 (Italy); Leclercq, 1954c:278 (in catalog of world Crabronini), 320 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Tsuneki and Tanaka, 1955a:67 (Japan: Nikko 120 km northwest of Tokyo); Grandi, 1957:391 (Italy: Abruzzi); de Beaumont, 1958c:210 (Swiss National Park); Móczár, 1958b:202 (Hungary: locality records); de Beaumont, 1959a:34 (Italy); Grandi, 1959b:288 (Italy: Bologna: Borgo Capanne); Wolf, 1959b:34 (Germany: Nassau); Hamann, 1960:196, 198 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Tsuneki, 1960g:4 (nesting habits); Hoop, 1961:63 (Germany: Schleswig-Holstein: Kronshagen); Grandi, 1962:98 (Italy); Valkeila, 1962b:68 (southwestern Finland); Krombein, 1963f:279 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Babiý, 1964:119 (Austria: Land Salzburg); de Beaumont,

1964c:128 (in Sphecidae Fauna of Switzerland), 1965a:59 (Greece); B. Klug, 1965:142 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Leclercq, 1965b:387 (Belgium: city of Liège); Gauss, 1966c:240 (specimen bearing dipteran egg); Lefebvre, 1966:209 (Netherlands: Bemelen); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:349 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:80 (Germany: Bayern: Unterfranken District); Benedek, 1968:76 (Hungary: floral records); Haneda, 1968a:47 (Japan); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Leclercq, 1968b:39 (Great Britain: Kent), 1968d:109 (Belgium: city of Liège); Nambu, 1968b:28 (Japan: Saitama Prefecture); Okuno, 1968:30 (Japan); Parré, 1968:123 (Germany: Sachsen-Anhalt: Staßfurt); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube), 1968c:386 (Romania: Bucureşti, Budeşti, Comana, Frăteşti, Mogoşoia); Tano, 1968:35 (Japan); Benedek, 1969a:84 (Hungary: marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalovertena pruni* (Geofroy)); Dathe, 1969:436 (Germany: Berlin Zoological Garden); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:51 (Japan: Niigata Prefecture); Lefebvre, 1969a:79 (Netherlands: Vijlen), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Benedek, 1970:102 (Hungary: Tapolca); Evans, 1970:492 (Wyoming: Jackson Hole); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Horning and Barr, 1970:106 (USA: Idaho: Craters of the Moon National Monument); Oehlke, 1970:756 (Democratic Germany); Yamada, 1970:13 (Japan: Nagano Prefecture: Shimajima Valley); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Leclercq, 1971:218 (Spain); Lefebvre, 1971a:18 (Belgium: Gellik); Schmidt, 1971b:46 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Suda, 1971:84 (Japan: Kanagawa Prefecture); Kofler, 1972:112 (Austria: eastern Tirol); Nambu, 1972e:91 (Japan: Saitama Prefecture); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman); de Beaumont, Bytinski-Salz and Pulawski, 1973:24 (Israel); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Erlandsson, 1974:82 (Italy); Kofler, 1974:320 (Austria: Kärnten); Lefebvre and Petit, 1974:163 (Belgium: Plombières); Else, 1974:208, 209 (in key to British *Ectemnius*); Leclercq, 1974d:280 (synonymy), 1975b:3 (France); Lefebvre, 1975b:156 (Belgium); Nambu, 1975b:73 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Eck, 1976:93 (Democratic Germany); Lomholdt, 1976:330 (in Sphecidae Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Hoop, 1977:73 (Germany: Schleswig-Holstein: Flehmude, Mönkerberg); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Guichard, 1978:272 (Greece); Marion, 1978:90 (France: Nièvre Department); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); R. Bohart and Kimsey, 1979:487 and 490 (in key to North American *Ectemnius*); Krombein, 1979b:1682 (in catalog of North American Hymenoptera, nesting sites); Leclercq, Gaspar et Verstraeten, 1979:map 1470 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:101 (in key to *Ectemnius* of Russian Far East); Richards, 1979:399 (British Channel Islands); Dathe, 1980:209 (Russia: northern Caucasus: Teberda); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Pagliano, 1980:123 (Italy: Piemonte); Richards, 1980:52 (in key to Sphecidae of British Isles); Schmidt, 1980:382 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Archer, 1981:138 (Great Britain); Dollfuss and Ressler, 1981:323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:45 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Donath, 1982:214 (Germany: Cottbus Bezirk); Finnamore, 1982:185 (in Sphecidae Fauna of southern Quebec); Gayubo, 1982b:29 (Spain: Ávila, Cáceres, and Salamanca provinces); Leclercq, 1982a:125 (Belgium: Liège); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Tsuneki, 1982b:7 (Korea), 16 (known from Korea); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Józán, 1983:100 (Hungary); Riemann, 1983:87 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo, 1984b:95 (Spain: Salamanca Province); Haack, Tscharncke, and Vidal, 1984:128 (Germany: Hamburg area); Lefebvre, 1984:29 (Netherlands: Maastricht); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Tsuneki, 1984e:59 (Ukraine: Borisovka); Gayubo, 1985c:170 (Spain: Valladolid: Padilla); Haeseler, 1985a:350 (Germany: Schleswig-Holstein); Józán, 1985b:60 (Hungary south of Lake

Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Plachter, 1985:60 (Germany: Bayern: lower Brombach valley); Riemann, 1985:21 (Germany: Niedersachsen); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Archer, 1986:32 (Great Britain: Yorkshire); Brechtel, 1986:67 (Germany: Südpfalz); Gayubo, 1986d:118 (Spain: Zamora Province); Gayubo and Heras, 1986:58 (Spain: Segovia Province; floral records); Gayubo and Sanza, 1986:69 (Spain: Burgos, Segovia); Józán, 1986:373 (Hungary: Kiskunság National Park); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Skibińska, 1986b:154 (Poland: suburbs of Warszawa); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:17, 28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Nilsson, 1988:98 (Sweden); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Allen and Felton, 1989:36 (Great Britain: Kent County); Jacobs, 1989:22 (Germany: Mecklenburg-Vorpommern); Józán, 1989:102 (Hungary: Tihany Nature Reserve); Pádr, 1989a:170 (in catalog of Czechoslovakian Sphecidae); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Gayubo, Asís, and Tormos, 1990b:77 (Spain: Cáceres and Palencia Provinces); Jacobs and Oehlke, 1990:196 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:24 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:88 (Czech Republic: Praha area); Pagliano, 1990:88 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:548 (Austria: Kärnten); Chinin, 1991:111 (Russia: Samara Oblast'); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:410 (Italy); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 93, 97, 104, 107 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Negrisolo, 1991:321 (Italy: Treviso, Udine, and Venezia provinces); Nilsson, 1991:83 (Sweden: Lake Mälaren); Pagliano, 1991b:351 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józán, 1992a:229 (Hungary: Béda-Karapanca Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); N. Schneider and Jacob-Remacle, 1992:43 (Luxemburg); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Bitsch and Leclercq, 1993:164 (in revision of western European Crabroninae); Józán, 1993:414 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:27 (locality records from Europe); Leclercq and Barbier, 1993:54 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Gayubo and Borsato, 1994:213 (Italy: Lazio); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Schmid-Egger, 1994a:688 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Tormos, Asís, and Gayubo, 1994:189, 216 (Spain: Albacete Province); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisolo, 1995a:22 (Italy: Veneto); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:447 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:90 (Italy: Ferrara Province); Scharer, 1995:26 (Germany: Bayern: Aschaffenburg, Kahl, Karlstadt); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:181 (Germany: summary of records from: Rheinland-Pfalz); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:71 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:304 (Belorussia: Berezinsky Nature Reserve); Tischendorf, 1996:46 (Germany:

Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:78 (Germany: Westfalen: summary of distribution and nesting habits); Bičík and Láská, 1997:8 (hunting syrphid *Syrphus ribesii* (Linnaeus), a case of Peckhamian mimicry); Celary, 1997:59 (in checklist of Animals of Poland); Finnamore, 1997:892 (Canada: Yukon); Gauss, 1997:27 (egg of milto-grammatid flies deposited on adult specimens); Riemann, 1997:49 (Germany: Achim 14 km southeast of Bremen); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); Wolf, 1997a:2 (Germany: Bayern: Hirblinger Höhen near Augsburg); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Petit, 1998a:110 (Belgium: Bassenge, visiting flowers of *Polygonum cuspidatum* Siebold and Zucc., Polygonaceae); Salzmann-Wandeler, 1998b:102 (Switzerland: Schwyz Canton: Gersau-Oberholz); N. Schneider and Wahis, 1998:21 (Luxemburg: sandstone quarries); H.-J. Schulz, 1998c:113 (Germany: Lausitz: former military training area near Mücka); Shkuratov, 1998a:98 (Russia: Rostov Oblast'); Sugar et al., 1998:16 (Canada: southern Ontario); van der Smitten, 1998:59 (Germany: Schleswig-Holstein); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Gusenleitner, 1999:600 (Austria: Vorarlberg: Runkeline northwest of Bludesch); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Leclercq, 1999a:23 (in key to Asian *Ectemnius*), 52 (in annotated catalog of Asian and Oceanian *Ectemnius*); Ljubomirov, 1999b:55 (Bulgaria: Mount Vitoshka near Sofia); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Petit, 1999:114 (Netherlands: Kruispolder, Nieuw-Namen); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Srba, 1999:181 (Czech Republic: Chomutov); Blösch, 2000:334 (in Sphecid Fauna of Germany); Cölln and Jakubzik, 2000:226 (Germany: Rheinland-Pfalz: Gönnersdorf); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:53 (southeastern Kazakhstan: no specific locality); Flügel, 2000:46 (Germany: Hessen: Halberg near Neumorschen); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:108 (Greece); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Ljubomirov, 2000:11 (Bulgaria, specimens in N. Nedelkov collection); Luig and Voolma, 2000:125 (first record from Estonia); Mauss, Schröder, and Botta, 2000:76 (Germany: Bayern: Arber area in Bavarian Forest); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Neumeyer, 2000:99 (Switzerland: Basel); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Vicidomini, 2000b:24 (Italy: previously recorded from Campania); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Basset, 2001:83 (France: Département de Gironde); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 206 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Mazzucco, 2001:203 (Austria: Niederösterreich: Steinfeld); Ohl et al., 2001:139 (distribution in Germany by provinces); Salzmann-Wandeler and Rezbanyai-Reser, 2001:156 (Switzerland: Tessin Canton: Meride area); Schmid-Egger, 2001:17 (France: Alsace: Bollenbergs); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smitten, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and

Mazzucco, 2001:78 (Austria: Wien); Archer, 2002b:118 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:75 (Lichtenstein); Dorow, 2002:16 (Germany: Hessen: Weiskopf Forest Reserve); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:107 (geographic distribution, collecting localities in Kazakhstan); Litt, 2002:167 (Belgium); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Shlyakhtenok and Skibinskaya, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Wiśniowski, 2002:72 (Poland: Ojców National Park); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:137 (Austria, Croatia, France, Germany: miscellaneous locality records); González, Gayubo, Asís, Tormos, and García, 2003:62 (Spain: Soria: Chavaler); Gorobchishin, 2003:48 (Ukraine: Kiev: botanical garden); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003:227 (Hungary: Látványi Pusztá Nature Conservation Area); Kuhlmann and Quest, 2003:50 (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); Lukáš, 2003:73 (Slovakia: Bratislava: old fruit orchard); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (Germany: in catalog of wasps and bees of Bayern); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Island of Malyi Tataru in delta of Danube at 45.21°N 29.00°E); Schneider and Feitz, 2003:96 (monstruous specimen: a divided tergum); Wiśniowski in Dylewska and Wiśniowski, 2003:171 (Poland: Ojców National Park); Wolf, 2003:260 (Germany: Nordrhein-Westfalen: Bommecketal Nature Reserve in Plettenberg); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:770 (locality records from Bulgaria, China, Croatia, France, Italy, Romania, Russia, Serbia, Slovenia, Spain, Turkey, and Ukraine); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Hellrigl, 2004a:173 (Italy: Trentino-Alto Adige, as Südtirol: Tirol village near Talbauer); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefebvre in Peeters, van Achterberg et al., 2004:383 (in Wasp and Ant Fauna of Netherlands); Krivonogova and Rudoiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Majzlan and Deván, 2004:32 (Slovakia: Malacky-Široké); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:81 (Russia: Rostov Oblast': Rostov-on-Don, Volgograd Oblast': Frolovo); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:45 (Japan: Yamanashi Prefecture); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Archer, 2005c:56 (Great Britain: Suffolk County); Burger, 2005:32 (Germany: Thüringen); Dubitzky, Blank, and Schönlitzer, 2005:274 (Germany: Bayern: area north of Dachau); Fuhrmann, 2005:89 (Germany: Nordrhein-Westfalen: Grubengelände Littfeld Nature Reserve); Gayubo and Özbek, 2005:31 (Turkey: Artvin: Yusufeli; Erzurum: Dumlupınar, Yedigöller, Uzundere); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture); Hallin, 2005:29 (Sweden: Örebro County: Nydalén); Jacobs, 2005a:445 (Bulgaria: Ivansky near Shumen); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:181 (Austria: Tirol: Lienz District: many localities); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Mandery, 2005:174 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Nemkov, 2005a:154 (Russia: Island of Sakhalin); Pagliano and Negrisoló, 2005:265 (in Sphecidae Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:555 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shoreenko, 2005a:165 (Ukraine: Crimea); Theunert,

2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Dvořák, Bogusch, and Smetana, 2006:103 (Czech Republic: Šumava = Bohemian Forest); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); U. Frommer and Tischerndorf, 2006:89 (Germany: Hessen: Schlüchterner Becken); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Gorobchishin, 2006:131 (Ukraine: Kyiv; Cherkasy Oblast': Kaniv Nature Reserve); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); Kroupa, 2006b:25 (Germany: Bayern: Oberfranken Region); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); Ljubomirov, 2006:540 (Bulgaria: Rhodope Mountains: Rakitovo); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Burguet, 2007:unnumbered p. 17 (France: Puy-de-Dôme: sands Girauds-Faures in Orléat commune); Chevin, Livory, Lair, Sagot, and Baldock, 2007:33 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:140 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Schönbuche Forest Reserve); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Flügel, 2007:39 (Germany: Hessen: Halberg near Neumorschen); Hallin, 2007b:25 (Sweden: Blekinge County); Herrmann, 2007b:94 (Germany: Baden-Württemberg: Fürstenberg in Konstanz); Jacobs, 2007:150, 155 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: north-western Sachsen); Józán, 2007:180 (Hungary: Zselic Hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Leclercq, 2007e:164 (correction to R. Bohart and Kimsey's key, 1979), 170 (locality records from Canada and USA); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve), 2007b:364 (Ukraine: Chernobyl area); Vago, 2007:175 (France: départements d'Aisne, Nord, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia); Vicidomini and Pignataro, 2007:15 (Italy: Provincia di Salerno: Faiano di Pontecagnano); Winkler, 2007:29 (Germany: Niedersachsen: eastern Friesland); Yildirim and Ljubomirov, 2007:120 (Turkey: Kars: Sankamış: Karakurt); Danilov and Tshernyshev, 2008:42 (Russia: Novosibirsk Oblast': Karasuk area); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Haneda, 2008:13 (in key to Japanese Crabroninae); Ljubomirov and Ban-Calefariu, 2008:206 (Romania: Maramureş District: Poienile de Sub Munte, Vaser Valley); Ljubomirov and Yildirim, 2008:275 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Protsenko and Drozdovskaya, 2008:128 (Ukraine: Sumy Oblast': Mogritsa village); Tannert and von der Dunk, 2008:181 (Germany: Bayern: west of Ernhofen and Weissenbrunn); Theunert, 2008:35 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria and Greece reported); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño–Vega del Duero); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Józán, 2009:166 (Croatia: Rava Gora); Kowalczyk, Kurzac, and Nadolski, 2009:62 (Poland: between Warta and Widawka rivers); Nemkov, 2009b:119 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Pagliano, 2009:182 (Italy: recorded from Sicilia by Tomarchio and Turrisi, 2006, in error: these authors did not record the species); Ruchin, Antropov, and Shibayev, 2009:169 (Russia: Republic of Mordovia); Shorenko, 2009:367 (in list of Sphecidae *sensu*

lato of Crimea); Straka, Dvořák, and Bogusch, 2009:261 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi, Haneda, and Tano, 2009:50 (distribution in Japan); Zettel, Wagner, Zimmermann, Wiesbauer, Sorger, Ockermüller, and Seyfert, 2009:10 (Austria: Oberösterreich: Pfaffstätten); Ermilov and Mokrousov, 2010:90 (phoretic mites *Crabrovidia popovi* (Zachvatkin), *Imparipes haeseleri* Ebermann and Hall, *Histiostoma gordius* (Vitzthum), *Schwiebea crabronis* (Zachvatkin), *Schwiebea nova* (Oudemans), and undetermined Gamasoidea and Uropodoidea in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:62 (Russia: Ivanovo, Kirov, Nizhniy Novgorod, and Vladimir oblast's, Chuvash Republic, Tatarstan: no specific localities); Mokrousov, 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:159 (Russia: central and southern Ural Mountains); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:18 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská Nížina); Treiber, 2010:135 (France: départements du Bas-Rhin and du Haut-Rhin); van der Smissen, 2010c:396 (Sweden: Öland and Södermanland: locality records); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Onguday); Gogala, 2011:21 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:73 (Russia: Chuvash Republic); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof), 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg), 2011d:199 (Germany: Sachsen-Anhalt: conservation area "Heide südlich Burg"); Schmid-Egger, 2011a:37 (Italy: Parco delle Alpi Marittime: Brignola), 2011c:555 (Austria: Tirol: Tiroler Lech Nature Park); Shlyakhtenok, 2011:95 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:132 (Germany: Hessen: not endangered); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012b:183 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Burguet in Durand and Burguet, 2012:3 (France: Puy-de-Dôme: sands Giraults-Faures in Orléat commune); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Klimsa, 2012:69 (Germany: Bayern: Schwandorf District); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Saure, 2012b:229 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Bitsch, Grouet, and Savina, 2013:291 (France: Pyrénées centrales: département d'Ariège: col de Pailhères), 292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Braun-Reichert, 2013:14 (Germany: Bayern: pastures between Regensburg and Nürnberg); Mokrousov, Ruchin, and Egorov, 2013:201 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:210 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Piotrowski, 2013:21 (Poland: Poleski National Park); Wiśniowski and Szczepko, 2013:34 (Poland: Kampinos National Park near Warszawa); Zettel, Zimmermann, and Wiesbauer, 2013:12 (Austria: Wien: Donaupark); Bitsch, 2014:401 (record from France by Vago, 2007 noted); U. Frommer, 2014:27 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); J.-K. Kim, 2014:429 (in catalog of Sphecidae *sensu lato* of Korean Peninsula);

- Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:36 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Lett, 2015:5 (France: Loir-et-Cher: Gièvre); P. Rosa and Pagliano, 2015:100 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Shorenko, 2015:321 (in list of Sphecidae *sensu lato* of Crimea); Simon, Lorthiois, and Macé, 2015:54 (France: alluvial terraces in Seine-Maritime Department: Anneville-Ambourville); Blažej, Macek, and Trýzna, 2016:119 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:23 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:575 (Russia: Krasnodarskiy Krai); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Buck, 2004); Saure, 2016b:49 (Germany: Sachsen-Anhalt: fruit orchards), 1916c:205 (Germany: center of Berlin: Großer Tiergarten Park); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yıldırım, Ljubomirov, Özbek, and Yüksel, 2016:46 (Turkey: Erzurum Province); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Říha, 2017:174 (Czech Republic: Brno); Shorenko, 2017:77 (in Crimea collected in May through September); Twerd, Krzyżyński, Waldon-Rudziońek, and Olszewski, 2017:7 (Poland: Inowrocław and Janikowo: nesting in postindustrial soda ash dumping sites); Jacobs and Liebig, 2018:140 (Primorskiy Krai: Anisimovka; Island of Sakhalin: Lugovoye); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Lett, 2018:203 (France: Loir-et-Cher: Gièvres at 47°16'39"N 1°41'52"E); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:98 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13229 (Russia: Mordovia State Nature Reserve); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Krai); Kejval, Blažej, and Erhart, 2020:100 (western Czech Republic); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:97 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yıldırım, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); U. Frommer and Bahmer, 2023:194 (Germany: Hessen: Giessen University Botanical Garden); Kaplan and Yıldırım, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alberta, British Columbia, Northwest Territories, Ontario, Quebec, Yukon Territory, first records from Manitoba, Labrador, Newfoundland Island, New Brunswick, Nova Scotia, Prince Edward Island, and Saskatchewan: no specific locality); Gülmez, Çubuk, and Can, 2025:158 (Turkey: Çanakkale: Kelkit River Valley).
- Solenius octonotatus* Lepeletier de Saint Fargeau et Brullé, 1835:719, ♂ (as *8-notatus*, incorrect original spelling). Holotype or syntypes: ♂, France: Paris (lost). Neotype: ♂, France: Mesnil-le-Roi (MNHN), designated by Leclercq, 1974d:280. Synonymized with *Ectemnius dives* by Leclercq, 1974d:280. – Kirchner, 1867:225 (in catalog of European Hymenoptera, as *notatus*). – **As *Crabro octonotatus***: Dahlbom, 1845:388 (new generic assignment, original description copied), 528 (unknown to author, but probably belonging to *Crabro* s.s.); Dalla Torre, 1897:613 (in catalog of world Sphecidae).
- Crabro alatulus* Dahlbom, 1839:85 and 1839-40:85, ♀, ♂. Syntypes: Sweden: Östergötland: Krogara-äng at Wadstena and Skåne: Island of Lybeck in Krageholms Lake; Switzerland: no specific locality (Lund). Synonymized with *Crabro dives* by Dahlbom, 1845:396. – Dahlbom, 1842a:15 (in review of Scandinavian aculeates); Dalla Torre, 1897:580 (in catalog of world Sphecidae).

- Crabro pictipes* Herrich-Schaeffer, 1840:292 (Germany: Bayern: Regensburg area). Nomen nudum (as *Pictipes*, incorrect original capitalization).
- Crabro pictipes* Herrich-Schaeffer, 1841:30, ♀. Holotype or syntypes: Germany (depository ?). Synonymized with *Crabro dives* by Kohl, 1915:94 (tentatively) and with *Ectemnius dives* by Leclercq, 1974d:280 (definitely). – Schenck, 1857:121 (in revision of fossorial wasps of Germany), 1867a:351 (known from Germany). – **As *Ectemnius pictipes***: Kirchner, 1867:226 (new generic assignment, in catalog of European Hymenoptera). – **As *Ectemnius dives* var. *pictipes***: A. Morawitz, 1866:271, footnote (new status); Dalla Torre, 1897:597 (in catalog of world Sphecidae).
- Solenius octavonotatus* Lepeletier de Saint Fargeau and Brullé, 1835: (as *8-notatus*, incorrect original spelling). Synonymized with *Crabro dives* by Kohl, 1915:94 (see also Index, p. 443). – Dahlbom, 1845:388 (original description copied); Lepeletier de Saint Fargeau, 1845:124 (in revision of world Hymenoptera, as *octavo-notatus*); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:87 (in Sphecid Fauna of France and Algeria). – **As *Crabro octavonotatus***: F. Smith, 1856:401 (new generic assignment, in catalog of Hymenoptera in British Museum). – **As *Clytochrysis octavonotatus***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera).
- Crabro auratus* F. Smith, 1856:398. Substitute name for *Crabro dives* (Lepeletier de Saint Fargeau and Brullé, 1835:716). F. Smith, 1856:398, originally in *Solenius*, nec *Crabro dives* Lepeletier de Saint Fargeau and Brullé, 1835:716.
- Crabro montanus* Cresson, 1865b:484, ♀, junior primary homonym of *Crabro montanus* Gistel, 1857. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. Synonymized with *Ectemnius dives* by Pate, 1945b:39. – Packard, 1866:101 (bibliographic references); Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:139 (in revision of North American Crabronini); Dalla Torre, 1897:611 (in catalog of world Sphecidae); Kincaid, 1900a:355 (USA: Washington); Viereck, 1901a:272 (New Mexico: Las Vegas Range); Harrington, 1902:218 (Canada: Ontario: Ottawa); J. Smith, 1910:681 (in new list of insects of New Jersey); Stevens, 1917:423 (North Dakota); Carter, 1925:131 (Canada: Alberta: Edmonton). – **As *Ectemnius montanus***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey). – **As *Solenius montanus***: Rohwer, 1916b:666 (new generic assignment, in catalog of Hymenoptera of Connecticut); Rohwer in Viereck, 1925:666 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1019 (in catalog of New York Sphecidae); A. Brown, 1934:265 (Canada: Ontario: Timagami); Krombein, 1936:99 (New York: Buffalo; floral records).
- Crabro cristatus* Packard, 1866:101, ♂. Lectotype: ♂, USA: Colorado and Illinois: no specific locality (ANSP), designated by Cresson, 1928:53. Synonymized with *Ectemnius dives* by Krombein in Muesebeck, Krombein, and Townes, 1951:1028. – Cresson, 1887:284 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado).
- Crabro cubiceps* Packard, 1866:105, ♀. Lectotype: ♀, USA: Illinois: no specific locality (ANSP), designated by Cresson, 1928:53. Synonymized with *Ectemnius montanus* by Krombein in Muesebeck, Krombein, and Townes, 1951:1028. – Provancher, 1882:109 and 1883b:661 (in revision of Canadian Hymenoptera); Cresson, 1887:284 (in catalog of North American Hymenoptera).
- Crabro heraclei* Rohwer, 1908b:254, ♂. Holotype or syntypes: ♂, USA: Colorado: Florissant (USNM). Synonymized with *Ectemnius dives* by Pate, 1946c:14. – Rohwer, 1908b:259 (in key to *Crabro* of Colorado and New Mexico); Stevens, 1917:423 (North Dakota).
- Crabro montivagans* Strand, 1916c:98. Substitute name for *Crabro montanus* Cresson.

59. *dizoster* Pate

- Ectemnius dizoster* Pate, 1947f:17, ♂. Holotype: ♂, Jamaica: Portland Parish: Port Antonio (ANSP). – Leclercq, 1954c:276 (in catalog of world Crabronini); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); H. Allen, 1995:15 (type in ANSP); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:170 (described from Jamaica).

60. *domingensis* Leclercq

Ectemnius domingensis Leclercq, 1950j:200, ♀, ♂. Syntypes: Ecuador: Santo Domingo (MNHN). – Leclercq, 1950j:201 and 202 (in key to South American species of subgenus *Apoctemnius*), 1954c:277 (as synonym of *Ectemnius maculicornis*), 1957c:320 (valid species, distinctive characters), 1968e:304 and 306 (in key to *Ectemnius* of Latin America), 1972c:199 and 200 (in updated key to *Ectemnius* of Latin America), 212 (bibliographic reference, new records from Ecuador); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1991b:9 (in revised key to Latin American *Ectemnius*), 18 (bibliographic references; Colombia, Ecuador, Galapagos Islands); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:170 (locality records from Ecuador, Peru, and Venezuela); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

61. *dominicanus* Evans

Ectemnius dominicanus Evans, 1972b:17, ♀, ♂. Holotype: ♀, Caribbean Islands: Island of Dominica: near Syndicate Estate (USNM). – R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:170 (known from Dominican Republic, in error; should be Island of Dominica).

62. *dungensis* Leclercq

Ectemnius dungensis Leclercq, 1958e:105, ♀. Holotype: ♀, Indonesia: western Java: Dungus Iwul (RMNH). – R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1999a:21 (in key to Asian *Ectemnius*), 52 (in annotated catalog of Asian and Oceanian *Ectemnius*, subgeneric placement).

ssp. *wattanapongsirii* Tsuneki

Ectemnius (Thyreocerus) dugensis wattanapongsirii Tsuneki, 1963c:41, ♀. Holotype: ♀, Thailand: Chantaburi (Sasayama). – Leclercq, 1999a:21 (in key to Asian *Ectemnius*).

63. *embeliae* Leclercq

Ectemnius embeliae Leclercq, 1958f:148, ♀, ♂. Holotype: ♀, Indonesia: Java: Sukabumi (RMNH). – Leclercq, 1958f:139 (in key to subgenus *Cameronitus*), 1963:28 (Singapore, Philippines); Baltazar, 1966:356 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Tsuneki, 1984f:25 (listed from Philippines), 45 (in key to Crabronini of Philippines); Leclercq, 1999a:28 (in key to Asian *Ectemnius*), 52 (in annotated catalog of Asian and Oceanian *Ectemnius*, new locality records).

Ectemnius peterseni Tsuneki, 1976b:105, ♀ (subgenus *Cameronitus*). Holotype: ♀, Philippines: Palawan: Uring Uring (ZMUC). Synonymized with *Ectemnius embeliae* by Leclercq, 1999a:53. – Tsuneki, 1984f:26 (may be a geographic form of *Ectemnius embeliae*), 45 (in key to Crabronini of Philippines).

64. *erebus* Leclercq

Ectemnius erebus Leclercq, 1958f:148, ♂. Holotype: ♂, Malaysia: Perak: Cameron Highlands (BMNH). – Leclercq, 1958f:138 (in key to subgenus *Cameronitus*); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1999a:33 and 34 (in key to Asian *Ectemnius*), 53 (in annotated catalog of Asian and Oceanian *Ectemnius*, recognition characters).

65. *excavatus* (W. Fox)

Crabro excavatus W. Fox, 1892a:10, ♀, ♂. Lectotype: ♀, USA: Florida: Saint Augustine (ANSP), designated by Cresson, 1928:53. – W. Fox, 1895a:149 (as synonym of *Crabro rufipes*); Dalla Torre, 1897:624 (in catalog of world Sphecidae). – **As *Solenius excavatus***: Ashmead, 1899d:173 (new generic assignment, as new synonym of *Solenius rufipes* Lepeletier de Saint Fargeau and Brullé, in checklist of North American Crabronidae). – **As *Ectemnius excavatus***: Pate, 1946c:13 (new generic assignment, valid species); Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (in catalog of North American Hymenoptera); Leclercq, 1954c:275 (in catalog of world Crabronini); Krombein and Evans, 1954:235 (Florida), 1955:234 (Florida); Krombein, 1958f:199 (in supplement to catalog of North American

Hymenoptera: is a member of subgenus *Apoctemnius*); Leclercq, 1972c:206 and 208 (in updated key to *Ectemnius* of Latin America), 221 (bibliographic references, new records from Mexico, variation); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); R. Miller, 1976:261 (color forms in Floridan populations); R. Bohart and Kimsey, 1979:489 and 491 (in key to North American *Ectemnius*), 494 (color variation); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Deyrup and Eisner, 2003:522 (a Floridian, red-marked species); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 45 (Mexico: Tamaulipas); Leclercq, 2007e:164 (correction to key by R. Bohart and Kimsey, 1979), 171 (Florida: Alachua and Clay counties); Horta-Vega, Vanoye-Eligio, García-Gutiérrez, Coronado-Blanco, and Barrientos-Lozano, 2013:382 (Mexico: Tamaulipas: Ciudad Victoria: Cañón del Novillo); Vanoye-Eligio, Meléndez-Ramírez, Ayala, Navarro, and Delfín-González, 2014:638 (Mexico: Yucatán Peninsula); Vanoye-Eligio, Meléndez-Ramírez, Ayala, Navarro-Alberto, and Delfín-González, 2015:993 (Mexico: in list of Sphecidae *sensu lato* of Yucatán).

Crabro banksi Rohwer, 1909c:147, ♀. Holotype: ♀, USA: Virginia: Glencarlyn (USNM). Synonymized with *Ectemnius excavatus* by Pate, 1946c:13 and R. Bohart in R. Bohart and Menke, 1976:426. – **As *Solenius banksi***: Mickel, 1918b:376 (new generic assignment, in catalog of Nebraskan Sphecidae). – **As *Ectemnius excavatus banksi***: Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (new generic assignment, new status, in catalog of North American Hymenoptera); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: is a member of subgenus *Apoctemnius*), 1963f:279 (Maryland: Plummers Island near Washington, D.C.); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Leclercq, 2007e:171 (locality records from USA).

ssp. *ravinus* Leclercq

Ectemnius ravinus Leclercq, 1968e:325, ♀. Holotype: ♀, Mexico: Yucatán: no specific locality (FSAG). Synonymized with *Ectemnius excavatus* by Leclercq, 1972c:221. – Leclercq, 1968e:314 (in key to *Ectemnius* of Latin America); Dollfuss, 1989:9 (paratype in NHMW); Leclercq, 2007e:165 (correction to Leclercq's key, 1991b), 171 (restored subspecific status, locality records from Costa Rica, Honduras, Mexico, and Panama), 2007g:194 (holotype in FSAG).

66. *ferrasi* Alayo Dalmau

Ectemnius ferrasi Alayo Dalmau, 1968b:15, ♂. Holotype: ♂, Cuba: Oriente: Piloto, Moa, Baracoa (IZAC). – Alayo Dalmau, 1973:194 (in catalog of Cuban Hymenoptera), 1976:18 (in key to Cuban *Ectemnius*), 33 (in checklist of Cuban Sphecidae); not listed by R. Bohart and Menke, 1976; Reyes and Hernández, 1995:3 (holotype in Inst. Ecol. Sist., La Havana, Cuba); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Hidalgo-Gato González, Reyes Sánchez, Mestre Novoa, Fernández García, Rodríguez-León Merino, Rodríguez Velázquez, Genaro Artola, and Fontenla Rizo, 2002:29 (holotype deposited at IZAC); Portuondo Ferrer and Fernández Triana, 2004:134 (Cuba: Nipe-Sagua-Baracoa mountains); Genaro, 2006:54 (in checklist of Cuban Sphecidae and Crabronidae); Leclercq, 2007e:171 (known from Cuba).

67. *flagellarius* (F. Morawitz)

Crabro flagellarius F. Morawitz, 1892:175, ♀, ♂. Lectotype: ♂, Turkmenistan: Dort Kuyu at 37°38'N 61°18'E (ZIN), designated by Pulawski, 1982a:364. – Dalla Torre, 1897:600 (in catalog of world Sphecidae); Kohl, 1915:104 (in revision of Palearctic Crabronini). – **As *Ectemnius flagellarius***: Leclercq, 1954c:280 (new generic assignment, in catalog of world Crabronini); Myartseva, 1972a:94 (Turkmenistan); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Pulawski, 1979c:304 (as new synonym of *Ectemnius urophori*), 1982a:364 (valid species, diagnostic characters); Leclercq, 1999a:21 (in key to Asian *Ectemnius*), 54 (in annotated catalog of Asian and Oceanian *Ectemnius*); Esenbekova and Kazenas, 2000:53 (southeastern Kazakhstan: 20 km west of Alma Ata, 5 km west of Lake Biylikul'); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:107 (geographic distribution, collecting localities in Kazakhstan); Dollfuss, 2004b:771 (locality records from Turkmenistan

and Uzbekistan); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains); Jacobs, 2006:106, 107 (in key to subgenus *Thyreocerus*), 109 (synonymy, geographic distribution); Kazenas, 2014a:137 (Kazakhstan: Karatau Mountain Range); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:426 (Uzbekistan: distribution).

Crabro balucha Nurse, 1903b:16, ♀, ♂ (part of ♂ syntypes = *Ectemnius confinis*). Syntypes: Pakistan: Quetta (BMNH). Synonymized with *Ectemnius flagellarius* by Leclercq, 1954c:280. – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897).

68. *flavipennis* (Lepeletier de Saint Fargeau and Brullé)

Ceratocolus flavipennis Lepeletier de Saint Fargeau and Brullé, 1835:740, ♀. Lectotype: ♀, Argentina or Brazil: between Uruguay and Misiones: no specific locality (MNHN), designated by Leclercq, 1957c:322 (as neotype). – Lepeletier de Saint Fargeau, 1845:145 (in revision of world Hymenoptera); Holmberg, 1903:474 (Argentina); Schrottky, 1913a:234 (Uruguay). – **As *Crabro flavipennis***: Dahlbom, 1845:381 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*), 528 (unknown to author, but probably belonging to *Crabro* s.s.); F. Smith, 1856:424 (in catalog of Hymenoptera in British Museum); Taschenberg, 1875:383 (Brazil); Dalla Torre, 1897:600 (in catalog of world Sphecidae). – **As *Ectemnius flavipennis***: Leclercq, 1950j:202 (in key to South American species of subgenus *Apoctemnius*), 208 (new generic assignment, distinctive characters, additional locality records), 1954c:276 (in catalog of world Crabronini), 1957c:321 (*Ectemnius flavipennis* species complex), 322 (recognition characters), 1968e:304 and 306 (in key to *Ectemnius* of Latin America), 318 (redefinition and redescription), 1972c:199 and 200 (in updated key to *Ectemnius* of Latin America), 212 (bibliographic references, study of Brèthes material); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1991b:9 and 10 (in revised key to Latin American *Ectemnius*), 18 (bibliographic references; Argentina, Brazil, Paraguay, Uruguay); Amarante, 2002:27 (in catalog of Neotropical Crabronidae); Dollfuss, 2004b:771 (Argentina: Entre Ríos: Departamento Colón); Leclercq, 2007e:171 (recognition characters, Brazil: Minas Gerais: Lavras Novas: Oure Orcto).

69. *flavohirtus* Tsuneki

Ectemnius flavohirtus Tsuneki, 1954c:43, ♀, ♂. Holotype: ♂, Japan: Ishikawa Prefecture: Mount Haku (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1960g:11 (nesting habits unknown, as *flavohirrus*), 1966d:9 (Taiwan, previously known only from central Japan), 1968d:57 (Taiwan), 1968g:34 (Taiwan, in key to Crabronini of Taiwan and Ryukyus); Tsuneki and Tano, 1969:30 (distribution in Japan); Tsuneki, 1971a:4 (Taiwan); Leclercq, 1973c:297 (Taiwan); Murota, 1973b:118 (Taiwan); Tsuneki, 1973f:45 (Taiwan), 1973h:54 (Japan: Fukui Prefecture); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Tsuneki, 1977j:280 (Taiwan: Taihorinsho); Tano, 1994a:7 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype and allotype transferred to Hyogo Mus.); Leclercq, 1999a:15 (in key to subgenera and species groups of *Ectemnius*), 18 (in key to Asian *Ectemnius*), 54 (in annotated catalog of Asian and Oceanian *Ectemnius*); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan); Yamane, Ikudome, and Terayama, 1999:506 (in Identification Guide to Crabronidae of Nansei = Ryukyu Islands, Japan); Tano, Kurokawa, Murota, and Nozaka, 2003:31 (Japan: Nagasaki Prefecture: Tsushima); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:51 (Japan: Gifu Prefecture), 2006a:26 (Japan: Toyama Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Haneda, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2007:54 (Japan: Kagoshima Prefecture: Amami Oshima Islands); Haneda, 2008:15 (in key to Japanese Crabroninae); Murota and Kurokawa, 2009:15 (Japan: Ryukyu Archipelago: Amami Oshima Islands); S. Takahashi, Haneda, and Tano, 2009:42, 52 (distribution in Japan); Tano and Kurokawa, 2015:26 (first record from Vietnam: central Vietnam: Bach Ma); Pham and Antropov, 2021:317 (recorded from Vietnam by Tano and Kurokawa, 2015); Barthélémy and Guénard, 2025:13 (China: Hong Kong).

70. *fossorius* (Linnaeus)

Sphex fossorius Linnaeus, 1758:571, sex not stated (as *fossoria*, incorrect original termination). Holotype: ♀, Europe: no specific locality (Linnean Society, London). – Forster, 1770:14 (in catalog of British insects); Linnaeus, 1771:13 (Sweden: Södermanland: Ryby at 59°28'N 15°46'E); O. Müller, 1776:161 (redescription; Denmark and Norway); de Villers, 1789:236 (redescription); Day, 1979:63 (study of holotype); Day and Fitton, 1978:194 (recuration of Linnean type material). – **As *Sphex cribrarius fossorius***: Christ, 1791:285 (new status, redescription, as *cribraria fossoria*). – **As *Vespa fossoria***: Gmelin, 1790:2761 (new generic assignment, redescription), Turton, 1801:530 (redescription, as *fossoira*). – **As *Lestica fossoria***: Billberg, 1820:107 (new generic assignment, specimens from Sweden in collection G. Billberg); Rohwer, 1911c:154 (discussion of name). – **As *Solenius fossorius***: Lepeletier de Saint Fargeau and Brullé, 1835:725 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:130 (in revision of world Hymenoptera); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:87 (in Sphecid Fauna of France and Algeria). – **As *Crabro fossorius***: Fabricius, 1775:374 (new generic assignment, redescription), 1781:469 (redescription), 1787:294 (redescription); Rossi, 1790:90 (Italy: in revision of insects of Etruria, now Toscana); Olivier, 1792a:512 (redescription); Fabricius, 1793:294 (redescription); Panzer, 1799, Heft 72:11 (in revision of German insects, illustration of habitus); Schrank, 1802:332 (Germany: in revision of insects of Bayern); Fabricius, 1804:308 (redescription); Panzer, 1806:179 (in critical review of his earlier work); Illiger, 1807b:147 (synonymy, redescription); Jurine, 1807:211 (in checklist of species of *Crabro*); Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects); Vander Linden, 1829:53 (bibliographic references, Belgium: Bruxelles, France, Germany; Italy: Sicilia, redescription); Lepeletier de Saint Fargeau and Brullé, 1835:808 (discussion of species identity); Zetterstedt, 1838:442 (in revision of insects of Lapland); Dahlbom, 1839:101 and 1839-40:101 (in revision of Scandinavian Crabronini), 1842a:16 (in review of Scandinavian aculeates), 1845:XXIV (specimens in collection J. Fabricius examined), 422 (in revision of Sphecidae and Pompilidae), 528 (is a member of *Crabro* s.s.); Eversmann, 1849:429 (Russia: common between Ural and Volga); Wissmann, 1849:17 (Germany: Kingdom of Hannover: Münden); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1856:400 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1857:54 (Germany: in revision of fossorial wasps of Nassau Region); Taschenberg, 1858:116 (in key to Sphecidae of Germany); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); Waga, 1882:46 (preying on *Asilus germanicus* Linnaeus, nesting in small vertical cliff); Taschenberg, 1866:165 (in revision of Hymenoptera of Germany); Kirchner, 1867:225 (in catalog of European Hymenoptera); Schenck, 1867a:350 (Germany: Nassau Region); Jaenicke, 1868:8 (Germany: Hessen: Frankfurter Wald); Wierzejski, 1868:118 (Poland: Pieniny Mountains; Ukraine: Podole Region); von Aichinger, 1870:311 (Austria: Tirol); Siła-Nowicki, 1870:(22) (Poland: Pieniny Mountains, determination tentative); Thomson, 1870:175 (in revision of Swedish Crabroninae), 1874:286 (in revision of Hymenoptera of Scandinavia); Wierzejski, 1874:262 (Poland: Wadowice, Pieniny Mountains; Ukraine: Bukowina Region: Kalinowce); Taschenberg, 1875:386 (specimens in Halle University collection); Becker, 1880:151 (Russia: Sarepta, now Krasnoarmeysk south of Volgograd); Kohl, 1880:117 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:72 (Norway); Marquet, 1881:188 (southern France); Yaroshevskiy, 1881:121 (Ukraine: Khar'kiv Oblast': Khar'kiv area); Kohl, 1883e:652 (Switzerland); von Heyden, 1884:122 (Germany: Frankfurt am Main area); Kohl, 1888b:721 (Austria: Tirol, now Italy: Alto Adige); Radoszkowski, 1892:592 (male genitalia); Kohl, 1893a:26 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Dalla Torre, 1897:600 (in catalog of world Sphecidae); Kozhevnikov, 1897:15 (Russia: Moscow Governorate); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia and Romania); Flamary, 1898:45 (France: Saône-et-Loire: Mâcon area); Strand, 1898b:96 (Norway); Nordenström, 1901:206 (Sweden: Gerdserum and Sankt Lars); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia); Friese, 1902:477 (occurring in Lapland according to Zetterstedt, 1838); Chyzer, 1902:34 (Hungary); de Cobelli, 1903:116 (Italy: Trentino: Caldonazzo); Strand, 1903:7 (Norway: Austad, as *fossor*); Antiga and Bofill, 1904:25 (Spain: Cataluña Province);

Aurivillius, 1904:298 (in revision of Swedish Sphecidae, as *fessorius*); Mosolov, 1905b:19 (Russia: Moscow Governorate: Mikhailovskoye); von Heyden, 1905:83 (Germany: Hessen: Frankfurt); Móczár and Henter, 1907:206 (Romania: Mehadia); Schmiedeknecht, 1907:184 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Peets, 1909-1911:66 (*Crabro fessorius* of Panzer = *Crabro chrysostomus*); Ditttrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:43 (Italy: Trieste area); Rudow, 1912:71 (nesting in stems of *Cirsium*, Asteraceae, and of Apiaceae); Kohl, 1913b:16 (Russia: Voronezh Oblast': Valuyki at 50°14'N 38°08'E); Birula, 1914:371 (Belorussia: Ambrosovich, Korolevo, and Luskopol' near Vitebsk); Kohl, 1915:38 (in revision of Palearctic Crabronini); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:146 (in key to Belgian Sphecidae); Enslin, 1922c:245 (Germany: Bayern: Ulm and Windsheim); Fahringer, 1922:182 (Turkey), 211 (nest and prey); Leininger, 1924:120 (Germany: Baden-Württemberg: Karlsruhe, Jöhligen); Berland, 1925d:201 (in Sphecid Fauna of France); Bischoff, 1925:296 (Latvia; Poland: Białowieża); Coulon, 1925:125 (France: Dijon, Evreux); Shestakov, 1925:35 (Russia: Yaroslavl' area); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Kaiserstuhl); Friese, 1926:146 (in key to Sphecidae of Central Europe short morphological and biological characteristics); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Schmiedeknecht, 1930:638, 642 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:120 (in revision of Sphecidae of Finland); Merisuo, 1933a:60 (Finland: city of Turku); K. Strohm, 1933:337 (Germany: Baden-Württemberg: Kaiserstuhl); Kolosov, 1934a:92 (Russia: Sverdlovsk); Zavadil, 1934:187 (Slovakia); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Steck, 1935:319 (Switzerland); Vergne, 1935:120 (France: Auvergne: Clermont-Ferrand, Pont-du-Chateau, Royat); Dulac, 1937:24 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Zavadil, Šustera, and Bat'a, 1937:149 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:115 (northwestern Germany); Zavadil, 1939:121 (Czechoslovakia: Podkarpatská Rus': Kuzy, now Ukraine); Giner Marí, 1943a:225 (in Sphecid Fauna of Spain); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); Karpiński, 1948:315 (Poland: Białowieża Primeval Forest); Vieujant, 1948:222 (first record from Belgium); Zavadil in Zavadil and Šnoflak, 1948:111 (in key to Sphecidae of Czechoslovakia); Cavo, 1950:41 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:458 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Nouvel and Ribaut, 1953:184 (France: Haute-Garonne: Saint-Béat); de Beaumont, 1954e:95 (Italy); Atanassov, 1955:194 (first record from Bulgaria: Boryana near Sofia); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Balthasar, 1958:336 (Czechoslovakia); Ceballos, 1959:230 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:129, 133 (in key to Polish Sphecidae); Balthasar and Hrubant, 1961:13 (Slovakia: Štúrovo); Scobiola-Palade, 1966b:393 (Romania: Tulcea District: Periprava), 1967b:50 (Romania); Niedl und Deneš, 1967:68 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:21 (Latvia); Balthasar, 1972:51 (in Sphecid Fauna of Czechoslovakia); Scobiola-Palade, 1974:145 (Romania: Sărăturile sandbank in delta of Danube); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:155 (specimens in M. Spinola collection, Torino, are *Ectemnius fessorius*, *Ectemnius* sp., and *Lestica clypeata*). – **As *Metacrabro fessorius***: Richards, 1935a:168 (new generic assignment, the type corresponds to current interpretation of species); Blüthgen, 1942:10 (Germany: Sachsen: known from Saal Valley but not from Kyffhäuser). – **As *Ectemnius fessorius***: Leclercq, 1949a:17 (new generic assignment; France: Somme: Bois de Guerbigny; Russia: Moscow, Kaluga), 1951e:15 (bibliography of Belgian records); Fahlander, 1954:249 (Sweden: Gästrikland Region); Leclercq, 1954c:290 (in catalog of world Crabronini), 323 (nest and prey records); Aerts, 1955:60 (Germany: Rheinland); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); Móczár, 1958b:206 (Hungary: locality records); Wolf, 1959b:35 (Germany: Nassau); Valkeila, 1962b:68 (southwestern Finland); Valkeila, Brander, and Kämpylä, 1963:42 (Finland: historical region Lounais-Hämeen = southwest Häme); Babić, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:126 (in Sphecid Fauna of Switzerland); Benno, 1967:41 (in

checklist of Sphecidae of Netherlands); de Beaumont, 1967a:348 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); Benedek, 1968:75 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube); Benedek, 1969a:84 (marshy meadow); Romanova, 1969:135 (Russia: North Caucasus); Schmidt, 1969:166 (Germany: Rhein-Main area); Babiý, 1970:21 (Austria: Land Salzburg); Benedek, 1970:101 (Hungary: Tapolca); Oehlke, 1970:759 (Democratic Germany); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains); Leclercq, 1971:219 (Spain); Kazenas, 1972b:173 (Kazakhstan); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman); Tsuneki, 1972a:147 (Mongolia); Fain, 1973:161 (parasite: *Crabrovia gussakovskii* (Zachvatkin), a saproglyphid mite); Leclercq, 1974d:284 (synonymy), 1975b:4 (France); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Leclercq, Gaspar et Verstraeten, 1979:map 1477 (Belgium); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Pagliano, 1980:123 (Italy: Trentino Alto Adige); Schmidt, 1980:382 (Germany: Baden-Württemberg); Dollfuss, 1983a:75 (endangered in Niederösterreich, Austria), 78 (endangered in Salzburg area, Austria), 80 (endangered in Tirol, Austria), 1983b:19 (in catalog of Sphecidae of Austria); Józán, 1983:102 (Hungary); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo and Tormos, 1984:19 (Spain: Valencia); Józán, 1985b:60 (Hungary south of Lake Balaton) 70 (map of distribution in Hungary), 80 (floral records), 84 (ecological and zoogeographic characteristics); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Westrich and Schmidt, 1985b:111 (Germany: extinct in Baden-Württemberg); Islamov, 1986:532 (Uzbekistan: Tashkent Oblast'); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Vikberg, 1986:77 (Finland); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Jacobs and Oehlke, 1990:201 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetsova, 1990:24 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pagliano, 1990:89 (in catalog of Italian Sphecidae); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Gusenleitner, 1991:647 (Austria: Steiermark: Goritz); Józán, 1991:604 (Hungary: Bátorliget Nature Reserve); Pagliano, 1991b:347, 354 (in key to Italian Crabroninae); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), Józán, 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:178 (in revision of western European Crabroninae); Leclercq, 1993c:28 (Germany: Erfurt; Estonia: Lechts; Hungary: Retyezath; Russia: Moscow; Bosnia: Sarajevo); Leclercq and Barbier, 1993:55 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Dollfuss, 1994:98 (endangered in Austria); Tormos, Asís, and Gayubo, 1994:189, 216 (Spain: Albacete Province); Jansen and Kaluza, 1995:7 (Germany: extinctgut in Sachsen); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:449 (in key to Sphecidae of Russian Far East); Schmid-Egger, Risch, and Niehuis, 1995:181 (summary of records from Germany: Rheinland-Pfalz Province); Gusenleitner, 1996b:812 (Austria: Burgenland); Schmid-Egger, Schmidt, and D. Doczkal, 1996:373, 377 (Germany: on the verge of extinction in Baden-Württemberg); Shlyakhtenok, 1996:304 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Wu and Zhou, 1996a:121 (in revision in Economic Insect Fauna of China); Celary, 1997:59 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:13 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 33 (endangered); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Józán, 1998:312 (Hungary: Duna-Dráva National Park); H.-J. Schulz, 1998b:9 (Germany: Brandenburg: Unteres Odertal National Park); Anan'eva and Kochetkov,

1999:7 (Russia: Ryazan' Oblast': no specific locality); Leclercq, 1999a:21 (in key to Asian *Ectemnius*), 54 (in annotated catalog of Asian and Oceanian *Ectemnius*); Pauly, 1999:110 (in catalog of Belgian aculeates); Podgorbunskikh and Rudoiskatel', 1999:142 (Russia: Chelyabinsk Oblast': Il'men Nature Reserve); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:334 (in Sphecidae Fauna of Germany); Esenbekova and Kazenas, 2000:53 (southeastern Kazakhstan: six localities); Luig and Voolma, 2000:127 (first record from Estonia); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmid-Egger, 2000b:275, 279 (Germany: Baden-Württemberg: shores of Rhein River); Shkuratov, 2000:60 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Vepřek, 2000:236 (Slovakia: Žerotín in Bele Karpaty mountain range); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Zettel, 2000:30 (Austria: Wien); Basset, 2001:83 (France: Département de Gironde); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 207 (nesting sites, review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:107 (geographic distribution, collecting localities in Kazakhstan); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Gusenleitner, 2003:864 (Austria: Steiermark: Hofwald, Lormanberg, Rorberberg, Trössingberg); Józán, 2003:227 (Hungary: Látványi Pusztá Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (Germany: in catalog of wasps and bees of Bayern); Protsenko, 2003:68, 69 (first record from Ukraine: Odessa Oblast': Island of Malyi Tataru in delta of Danube at 45.21°N 29.00°E); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:195 (Germany: Bayern: extinct or no longer collected); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:771 (locality records from Kazakhstan, Kyrgyzstan, Russia, and Turkey); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains); Krivonogova and Rudoiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Majzlan and Deván, 2004:30 (Slovakia: Sekule); Shkuratov, 2004a:81 (Russia: Rostov Oblast': Yelanskaya), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska in Bogdanowicz, Chudzička, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: last collected before 1942); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Gayubo and Özbek, 2005:31 (Turkey: nine localities); Mokrousov and Selivanova, 2005:753 (Russia: Voronezh Oblast'); Nemkov, 2005a:155 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:274 (in Sphecidae Fauna of Italy); Saure, 2005:15 (Germany: Berlin); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:397 (critically endangered in Czech Republic); Yildirim and Ljubomirov, 2005:1795 (Turkey: Erzurum: Pasinler); Dathe, 2006:38 (*Crabro fossorius*, recorded from Plauenscher Grund near Dresden, Germany, by von Block, 1799, is now *Ectemnius fossorius*); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:208 (Spain: Asturias: Campomanes); Gusenleitner, 2006:1358 (Austria: Steiermark: Kairegg at 46°54'N 15°18'E); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nemkov, 2006b:168 (Russia: Primorskiy Krai: Kedrovaya Pad' Nature Reserve), 2006c:248 (Russia: Island of Moneron south of Sakhalin); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Baghirov, 2007:93 (Russia: southwestern Siberia); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); Budrys, 2007:63 (Lithuania: Rokiškis District: Sartai Regional Park at 55°47'15"N 25°48'10"E; Plungė District: Žemaitija National Park at 56°01'32"N 21°49'47"E); Jacobs, 2007:148, 153 (in key to Crabronidae of Germany); Józán, 2007:180 (Hungary: Zselic Hills); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne, Nord, and Somme); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia), 230 (Vepřek, 2000, published first record from Moravia); Danilov and Tshernyshev, 2008:42 (Russia: Novosibirsk Oblast': Karasuk area); Jakubzik, Cungs, and Cölln, 2008:14 (first record from Luxemburg: Haard Nature Reserve near Dödelingen); Kazenas, 2008b:114 (Kazakhstan: foothills of Zailiyskiy Alatau: usually nesting in wood, but sometimes in loess cliffs); Ljubomirov and Yildirim, 2008:280 (in

catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:224 (in supplement to vol. I of Faune de France, 1993: recent records from Estonia, Germany, Italy, and Spain reported; first records from France: Gironde: marsh of Bruges and Haut-Rhin: Biesheim); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Mokrousov, 2009:285 (Russia: Republic Mari El); Nemkov, 2009b:121 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); S. Takahashi, Haneda, and Tano, 2009:50 (distribution in Japan); Ermilov and Mokrousov: 2010:90 (phoretic mites *Crabrovidia popovi* Zachvatkin, *Lackerbaueria cribratissima* Zachvatkin, and undetermined Gamasidea in Middle Volga Region of Russia); Mokrousov, 2010a:61 (Russia: Kirov, Nizhniy Novgorod and Vladimir oblast's, Chuvash Republic, Mari El Republic, Republic of Mordovia, Tatarstan: no specific localities), 2010c:108 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy" and National Park "Chavash varmane"); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: extremely rare); Shorenko and Kononov, 2010:19 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:89 (Western Slovakia: Borská nížina), 101 (Western Slovakia: recorded from Borská nížina); Stolle, 2010:75 (Germany: first record from Mecklenburg-Vorpommern: 4 km north of Boek); Treiber, 2010:135 (France: département du Bas-Rhin); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka); Burger, 2011a:287 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:21 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:73 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Tyuinsk village), 2011b:68 (Russia: Republic of Bashkortostan), 2011d:243 (Russia: central Ural Mountains); Tischendorf, Frommer, Flügel et al., 2011:42 (Germany: extinct in Hessen, last collected in 1934); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Reder, Bettag, Burger, and Kitt, 2012:9 (Germany: common in Rheinland-Pfalz, rediscovered after 120 years); Tischendorf, 2012:35 (Germany: population increase in upper Rhein valley, probably due to average temperature increase); Yildirim, 2012:81 (Turkey: Erzurum: Derekapı); Akulov and Proshchalykin, 2013:116 (Russia: Siberia: Krasnoyarsk Kray); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); Kazenas, 2013a:95, 96 (color photographs of adult wasps, short information on geographic distribution and nesting habits), 2013b:497 (southeastern Kazakhstan: 10 km northwest of Chundza on Sharyn River, 45 km southwest of Chundzha on Temerlik River); Mokrousov, Ruchin, and Egorov, 2013:201 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Olszewski, Wiśniowski, Pawlikowski, and Szpila, 2013:131 (Poland: Sutno near Siemiatycze); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:215 (in annotated catalog of aculeate wasps of Belorussia); Tischendorf, 2013:11 (Germany: Hessen: Lampertheim Nature Reserve); Bitsch, 2014:401 (France: Loiret: Saint-Hilaire); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Kazenas, 2014a:137 (Kazakhstan: Karatau Mountain Range); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Olszewski and Wendzonka, 2014:351 (new locality records from northern Poland); Ruchin and Antropov, 2014:36 (Russia: Republic of Mordovia); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Mokrousov and Egorov, 2015:425 (Russia: Republic of Mordovia: Nature State Reserve Prisuskiy); Shorenko, 2015:323 (in list of Sphecidae *sensu lato* of Crimea); Mokrousov and Popov, 2016:576 (Russia: Krasnodarskiy Kray); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Fresno, 2017:153 (Spain: Asturias: Pola de Lena; León: Sena de Luna); Shorenko, 2017:77 (in Crimea collected in

July and August); Jacobs and Liebig, 2018:141 (Russia: Irkutsk Oblast': Sarma; Primorskiy Kray: Poshiga, Saratovka, Uborka; Island of Sakhalin: Lugovoye, Novoaleksandrovsk); Lett, 2018:203 (France: Loir-et-Cher: Gièvres at 47°16'39"N 1°41'52"E); Shoreenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Kaplan and Yildirim, 2021:52 (in catalog of Crabronidae of Turkey); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:11 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:98 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13229 (Russia: Mordovia State Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:106 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:426 (Uzbekistan: distribution); Olszewski, Sparks, Twerd, and Wiśniowski, 2024:5 (central Poland: common in river valleys: no specific localities, vulnerable); Pytel-Huta and Franchuk, 2024:79 (Ukraine: Rivno Nature Reserve); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley, as *fossorius fossorius*).

Sphex scutellata bucephalus Christ, 1791:284, [♀] (as *Bucephalus*, incorrect original capitalization). Not available: binominal nomenclature not observed (Article 11.4). Holotype or syntypes: Germany: no specific locality (lost). Synonymized with *Ectemnius fossorius* by Leclercq 1954c:290.

Crabro aspidiphorus Schrank, 1802:329, ♀. Holotype or syntypes: ♀, Germany: Bayern: Gern (lost). Synonymized with *Ectemnius fossorius* by Leclercq, 1974d:284. – Dalla Torre, 1897:583 (in catalog of world Sphecidae).

Solenius fuscipennis Lepeletier de Saint Fargeau et Brullé, 1835:714, ♂. Holotype or syntypes: ♂, France: no specific locality (lost). Neotype: ♂: France: Lot: Montfaucon (MNHN), designated by Leclercq, 1974d:284. Secondary homonym in *Ectemnius* of *Crabro fuscipennis* Lepeletier de Saint Fargeau and Brullé, 1835:710 (which was treated as valid name by Leclercq, 1949a:13, presumably acting as first reviser). Synonymized with *Crabro fossorius* by Kohl, 1915:38. – Lepeletier de Saint Fargeau, 1845:120 (in revision of world Hymenoptera, new generic assignment); Dahlbom, 1945:528 (unknown to author, but probably belonging to *Crabro* s.s.); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:87 (in Sphecidae Fauna of France and Algeria). – **As *Crabro fuscipennis***: Herrich-Schaeffer, 1840:293 (new generic assignment, secondary homonym of *Crabro fuscipennis* Lepeletier de Saint Fargeau and Brullé, 1835:710, Germany: Bayern: Regensburg area); Dufour, 1841a:497 and 1841b:236 (digestive tract), 1841a:503 and 1841b:239 (male reproductive system), 1841a:507 and 1841b:243 (female reproductive system); Dahlbom, 1845:386 (new generic assignment, original description copied), 528 (in key to *Crabro*, unknown to author); F. Smith, 1856:422 (in catalog of Hymenoptera in British Museum); F. Smith, 1871a:369 (in catalog of Oriental Aculeata); Cameron, 1890b:270 (listed from India).

Solenius grandis Lepeletier de Saint Fargeau et Brullé, 1835:718, ♀. Holotype or syntypes: France: Bordeaux area (lost). Neotype: ♀, France: Allier Department: Broût-Vernet (MNHN), designated by Leclercq, 1974d:284. Synonymized with *Ectemnius fossorius* by Leclercq 1954c:290, synonymy confirmed by Leclercq, 1974d:284 – Lepeletier de Saint Fargeau, 1845:124 (in revision of world Hymenoptera); F. Smith, 1856:400 (in catalog of Hymenoptera in British Museum); A. Morawitz, 1864:453 (Russia: Sankt-Petersburg); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:87 (in Sphecidae Fauna of France and Algeria). – **As *Crabro grandis***: Herrich-Schaeffer, 1840:293 (new generic assignment, Germany: Bayern: Regensburg area); A. Morawitz, 1866a:270 and 1866b:349 (specimens in E. Eversmann collection).

Solenius tetraedrus Dahlbom, 1845:422 (in synonymy of *Crabro fossorius*, as *tetraedrus* Dufour in litteris) and 426 (as synonym of *Solenius grandis*, which is a variety of *Crabro fossorius*).

Crabro fumipennis F. Smith, 1856:399. Substitute name for *Crabro fuscipennis* (Lepeletier de Saint Fargeau and Brullé, 1835:714) F. Smith, 1856:399, nec *Crabro fuscipennis* (Lepeletier de Saint Fargeau and Brullé, 1835:710) F. Smith, 1856.

Crabro montanus Gistel, 1857:26, sex not stated. Holotype or syntypes: Germany: no specific locality (lost). Synonymized with *Ectemnius fossorius* by Leclercq, 1974d:284.

Crabro konowi Kohl, 1905a:218, ♂ (as *Konowi*, incorrect original capitalization). Holotype or syntypes: ♂, Japan: Tokyo (NHMW). Synonymized with *Crabro fossorius* by Marshakov, 1979a:103. – Kohl, 1915:41 (in revision of Palearctic Crabronini, as new species); Gussakovskij, 1932:15 (Russia: Primorskiy Kray); Iwata, 1933b:7 (locality records from Japan), 1938d:81 (Japan: Hokkaido, Honshu; Russia: Island of Sakhalin, Kuril Islands); Yasumatsu, 1942a:88 (China: Manchuria: Kaolintsu, Yablonia); Tsuneki, 1947d:282 (Korea), 1947e:398 (Japan: Hokkaido; nesting habits), 1948b:22 (Hokkaido, nesting habits), 1948c:2 (Japan: Hokkaido). – **As *Ectemnius konowi***: Leclercq, 1950c:10 (new generic assignment, Korea, as *konowii*), 1954c:289 (in catalog of world Crabronini), 323 (nest and prey records); Tsuneki, 1955d:214 (Russia: Kuril Islands: Island of Kunashir, synonymy); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1957d:77 (Korea, as *konowii*), 1957f:59 (Korea), 1960g:12 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Haneda, 1968a:47 (Japan), 1968b:57 (Japan: Nagano Prefecture: Ina District); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide, as *konowii*); Okuno, 1968:29 (Japan); Tano, 1968:35 (Japan); Itami, 1969:52 (Japan: Niigata Prefecture, as *konowii*); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History), 1970b:10 (central Japan); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Nambu, 1975b:74 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:426 (in checklist on world Sphecidae); Tsuneki, 1976d:298 (China: Manchuria), 1977f:7 (geographic variation, comparison with *Ectemnius fossorius*); Leclercq, 1982b:149 (China: Harbin). – **As *Ectemnius fossorius konowi***: Tsuneki, 1977f:8 (new status), 1982b:16 (known from Korea); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Miyatake, 1996:102 (specimens in Hiroshi Aoki collection, as *konowii*); Leclercq, 1999a:21 (in key to Asian *Ectemnius*); Suda, 2004:45 (Japan: Yamanashi Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); Haneda, 2008:15 (in key to Japanese Crabroninae).

Crabro sapporoensis Matsumura, 1911:... (Thousand insects of Japan. Supplement III:114, plate 39, fig. 19).

Crabro rubropictus Matsumura, 1912:101, ♀. ... Saghalien (Sapporo). Synonymized with *Ectemnius konowi* by Leclercq, 1954c:289 and by Tsuneki, 1955d:214.

ssp. *manchurianus* Tsuneki

Ectemnius konowii manchurianus Tsuneki, 1976d:299, ♀, ♂. Holotype: ♀, China: Heilungkiang: Maoershan 100 km east of Harbin (CAS). – **As *Ectemnius fossorius manchurianus***: Tsuneki, 1977f:9 (new subspecific generic assignment), 1984e:59 (Russia: Amur; Ukraine: Zhitomir); Pulawski, 1994:27 (CAS holotype no. 12547); Leclercq, 1999a:21 (in key to Asian *Ectemnius*); J.-K. Kim, 2014:429 (in catalog of Sphecidae *sensu lato* of Korean Peninsula).

Ectemnius konowii arnaudi Tsuneki, 1976d:288 (Abstract); Dollfuss, 2004b:771 (locality records from Mongolia and Russia); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

71. *fredericsmithi* (W. Schulz)

Crabro affinis F. Smith, 1879a:677, ♀, junior primary homonym of *Crabro affinis* Rossi, 1792 (now in *Cerceris*). Holotype or syntypes: ♀, Hawaiian Islands: Island of Kauai: no specific locality (BMNH), treated as holotype by Takumi, 1999:37. – Blackburn and Kirby, 1880:87 (Hawaiian Islands); Blackburn in Blackburn and Cameron, 1886:165 (re-description, description of ♂); Dalla Torre, 1897:580 (in catalog of world Sphecidae); R. Perkins in R. Perkins and Forel, 1899:19 (Hawaiian Islands: Island of Kauai; redescription).

Crabro affinis F. Smith, 1879b:138, ♀. Objective synonym of *Crabro affinis* F. Smith, 1879a.

Crabro fredericsmithi W. Schulz, 1906:204 (as *Frederici-Smithi*, incorrect original capitalization and hyphenation). Substitute name for *Crabro affinis* F. Smith. – **As *Ectemnius fredericsmithi***: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:327 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:426 (in checklist on world Sphecidae); Takumi, 1999:36 (in revision of Hawaiian *Ectemnius*).

72. *fulvicrus* (R. Perkins)

Crabro fulvicrus R. Perkins in R. Perkins and Forel, 1899:22, ♀, ♂. Lectotype: Hawaiian Islands: Island of Hawaii: Olaa (BMNH), designated by Takumi, 1999:38. – **As *Xenocrabro fulvicrus***: R. Perkins, 1907:97 (new generic assignment, Hawaiian Islands: Island of Hawaii: Kilauea crater). 1913a:689 (coloration). – **As *Ectemnius fulvicrus***: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:324 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:426 (in checklist on world Sphecidae); Takumi, 1999:5 (prey: *Dyscritomyia* sp., a calliphorid fly), 37 (in revision of Hawaiian *Ectemnius*).

73. *fulvopilosellus* (Cameron)

Crabro fulvopilosellus Cameron, 1902d:60, ♀. Holotype or syntypes: ♀, India: Assam: Khasia Hills (OXUM). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius fulvopilosellus***: Leclercq, 1950c:11 (new generic assignment, additional description), 1954c:288 (in catalog of world Crabronini), 1958c:114 (in key to selected subgenera of *Ectemnius* of southeastern Asia), 1963:34 (Philippines; geographic variation); Baltazar, 1966:357 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:426 (in checklist on world Sphecidae); Tsuneki, 1984f:19 (listed from Philippines), 41 and 42 (in key to Crabronini of Philippines); Leclercq, 1999a:19 (in key to Asian *Ectemnius*), 55 (in annotated catalog of Asian and Oceanian *Ectemnius*, color variation); Jonathan, Ray, and Kundu, 2000:205 (India: previously recorded from Meghalaya: East Khasi Hills); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

Crabro ctenopus Cameron, 1907c:88, ♂. Holotype or syntypes: ♂, India: Sikkim: no specific locality (BMNH). Synonymized with *Crabro fulvopilosus* [sic] by Meade-Waldo in Meade-Waldo, Morley, and Turner, 1915:336. – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius ctenopus***: Leclercq, 1950c:11 (new generic assignment).

74. *furuichii* (Iwata)

Crabro furuichii Iwata, 1934:17, ♀, ♂. Holotype: ♀, Japan: Honshu: Todoromi: Mount Hachifuse (Kyoto Univ.). – Iwata, 1941a:1 (nest structure; prey: *Xiphidium*, a locust); Tsuneki, 1947d:283 (Korea). – **As *Ectemnius furuichii***: Leclercq, 1954c:284 (new generic assignment, in catalog of world Crabronini), 320 (nest and prey records); Tsuneki and Tanaka, 1955b:25 (Japan: near Nikko 120 km northwest of Tokyo); Tsuneki, 1959e:8 (type of subgenus *Iwataia*), 1960g:20 (nesting habits); Iwata, 1963b:197 (Japan: prey record); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1966d:1 (listed from Taiwan); Haneda, 1968a:47 (Japan); Itami, 1969:52 (Japan: Niigata Prefecture); Nambu, 1973a:152 (Japan: Saitama Prefecture), 1975b:74 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:426 (in checklist on world Sphecidae); Tsuneki, 1982b:16 (known from Korea); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Leclercq, 1999a:33 (in key to Asian *Ectemnius*), 55 (in annotated catalog of Asian and Oceanian *Ectemnius*); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi in City of Obama); Tano, Kurokawa, Murota, and Nozaka, 2003:32 (Japan: Nagasaki Prefecture: Tsushima); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:36 (Japan: Gifu Prefecture); Suda, 2004:45 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture), 2006b:48 (Japan: Nagasaki Prefecture: Tsushima); Haneda, 2008:17 (in key to Japanese Crabroninae); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); J.-K. Kim, 2014:430 (in catalog of Sphecidae *sensu lato* of Korean Peninsula).

ssp. formosanus Tsuneki

Ectemnius furuichi formosanus Tsuneki, 1960d:241, ♀. Holotype: Taiwan: Arisan (Kyoto). – Tsuneki, 1968g:33 (in key to Crabronini of Taiwan and Ryukyus). – R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan).

75. *fuscipennis* (Lepeletier de Saint Fargeau and Brullé)

Crabro fuscipennis Lepeletier de Saint Fargeau and Brullé, 1835:710, ♀. Holotype or syntypes: ♀, India: Bengal: no specific locality (MNHN). Secondary homonym in *Ectemnius* of *Solenius fuscipennis* Lepeletier de Saint Fargeau and Brullé, 1835:714 (treated as valid name by Leclercq, 1949c:13, presumable acting as first reviser). – Dahlbom, 1845:385 (original description copied); F. Smith, 1856:422 (in catalog of Hymenoptera in British Museum); Cameron, 1890b:270 (listed); Bingham, 1897:329 (original description translated into English, in revision of Indian wasps and bees); Dalla Torre, 1897:602 (in catalog of world Sphecidae). – **As *Ectemnius fuscipennis***: Leclercq, 1949a:13 (new generic assignment, redescription), 1954c:285 (in catalog of world Crabronini); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1999a:30, 56 (in annotated catalog of Asian and Oceanian *Ectemnius*, holotype reexamined, Malaysia); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

76. *guadalupensis* Leclercq

Ectemnius guadalupensis Leclercq, 1972c:226, ♀. Holotype: ♀, country unknown: "Guadalupe" (NHMW). – Leclercq, 1972c:209 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Dollfuss, 1989:9 (holotype in NHMW, as *guadalupensis*); Leclercq, 1991b:10 (in revised key to Latin American *Ectemnius*), 23 (bibliographic reference), 1999:33 (in key to Asian *Ectemnius*); Amarante, 2002:27 (in catalog of Neotropical Crabronidae), 2007e:171 (exact origin of holotype uncertain).

77. *guttatus* (Vander Linden)

Crabro guttatus Vander Linden, 1829:51, ♀, ♂. Lectotype: sex ?, Belgium: Bruxelles area (coll. Wesmael, Inst. Roy. Sci. Nat. Belgique, Bruxelles), designated by Leclercq, 1974d:280. – Lepeletier de Saint Fargeau and Brullé, 1835:809 (discussion of species identity); Dahlbom, 1845:400 (in revision of Sphecidae and Pompilidae), 528 (belongs to subgenus *Ectemnius*); Wissmann, 1849:17 (Germany: Kingdom of Hannover: Klausthal, Münden); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Wesmael, 1852:616 (Belgium: Bruxelles); F. Smith, 1856:413 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1857:121 (in revision of fossorial wasps of Germany); Sichel, 1860:216 (France: département des Basses-Alpes); A. Morawitz, 1864:454 (Russia: Sankt-Petersburg); Löw, 1866:951 (nesting in stems of *Sambucus nigra* L., Adoxaceae, description of cocoon); A. Morawitz, 1866a:272 and 1866b:349 (specimens in E. Eversmann collection); Taschenberg, 1866:169 (in revision of Hymenoptera of Germany); A. Costa, 1867c:145 (in revision of Italian Sphecidae); Schenck, 1867a:351 (known from Germany); Jaennicke, 1868:8 (Germany: Hessen: Mombach); von Aichinger, 1870:312 (Austria: Tirol); Thomson, 1870:171 (in revision of Swedish Crabroninae); A. Costa, 1871b:74 (in revision of Italian Sphecidae); Thomson, 1874:282 (in revision of Hymenoptera of Scandinavia); Taschenberg, 1875:385 (Germany: Halle); Kohl, 1880:110 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:71 (Norway); Schøyen, 1881:12 (correction to Siebke, 1880); Kohl, 1883e:652 (Switzerland); Sickmann, 1883:68 (Germany: Niedersachsen: Wellingholthausen); Wüstnei, 1886:33 (Germany: Schleswig-Holstein); C. Verhoeff, 1892a:70 (member of subgenus *Mesocrabro*); Kohl, 1893a:25 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Baldini, 1894:72 (Italy: Modena area); Krieger, 1894:6 (Germany: Kingdom of Saxony); Dalla Torre, 1897:603 (in catalog of world Sphecidae); Strand, 1898b:96 (Norway); Mocsáry, 1897:84 (Kingdom of Hungary: localities are actually in today's Croatia, Romania, and Slovakia); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia); Friese, 1902:477 (occurring in Lapland according to Zetterstedt, 1838); de Cobelli, 1903:115 (Italy: Trentino: Malè, Mori, Rovereto); Antiga and Bofill, 1904:25 (Spain: Cataluña Province); Aurivillius, 1904:297 (in revision of Swedish Sphecidae); W. Schulz, 1904b:99 ("Admont"); Kubes, 1905:84 (Czech Republic: Kolín); Mosolov, 1905b:19 (Russia: Moscow Governorate: Mikhailovskoye); Schmiedeknecht, 1907:188 (in key to Hymenoptera of Central Europe); Sparre Schneider, 1909:107 (citation of Zetterstedt); Dittrich, 1911b:18 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Torka, 1913:34 (Germany: Provinz Posen, now Poland: Poznań Region); Alfken, 1914:271 (northwestern Germany); Birula, 1914:373 (Belorussia: Ambrosovich and Luskopol' near Vitebsk, comparison

with *Crabro dives* and *C. spinicollis*); Dubois, 1920:87 (Belgium: Uccle); Schütze, 1925:109 (Germany: Lausitz Region); Friese, 1926:147 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Jansson, 1934:288 (Sweden); Vogrin, 1955:44 (Yugoslavia); Benno, 1958b:18 (in review of Dutch Sphecidae); Ceballos, 1959:230 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:132, 136 (in key to Polish Sphecidae); Lehrer and Scutaru, 1963:285 (Romania: Moldova: Brodina in Suceava District); Scobiola-Palade, 1966b:392 (Romania: Tulcea District: C.A. Rosetti); Tumšs and Maršakovs, 1970:23 (Latvia); Skibińska, 1981:358 (Poland: Warszawa-Białotłęka), 1982:124 (Poland: Warszawa area). – **As *Solenius guttatus***: Lange, 1898:70 (new generic assignment, Germany: Sachsen: Buchholz-Annaberg); Graeffe, 1911:43 (Italy: Trieste area); Jansson, 1922:25 (Sweden: Island of Öland); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:157 (specimens in M. Spinola collection, Torino, are *Ectemnius guttatus*). – **As *Ectemnius guttatus***: Ruthe and Stein, 1857:316 (new generic assignment, Germany: Berlin area); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:114 (in key to Sphecidae of Germany); Assmuss, 1859:619 (Russia: Moscow Governorate); Brischke, 1862:107 (Germany: Preussen Province, now Poland: Pomorze Region), 1864:210 (specimens previously recorded as *Ectemnius guttatus* are *E. nigrinus* and *E. spinicollis*); Jaennicke, 1867:146 (Germany: Hessen: Frankfurt area); Kirchner, 1867:226 (in catalog of European Hymenoptera); Wierzejski, 1868:118 (Poland: Kraków; Ukraine: L'viv area and Podole Region; everywhere), 1874:262 (Poland: Krzeszowice, Mogilany, Tatry Mountains); Beuthin, 1876:230 (Germany: Hamburg area); Friese, 1883:200 (Germany: Sachsen-Anhalt: Weissenfels); De Stefani Perez, 1886:172 (Italy: Sicilia: monte di Renda near Palermo); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); Westerlund, 1893:27 (Russia: Karelian Republic: northern shore of Lake Ladoga); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); Chyzer, 1902:34 (Hungary); Strand, 1906:101 (Norway: Aal); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1910:55 (Sweden, nesting habits); Schirmer, 1912:163 (Germany: Berlin area); Lundblad, 1913:212 (Sweden); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Coulon, 1925:125 (France: Evreux); Leclercq, 1949a:10 (synonymy); Szulczewski, 1950:103 (Poland: Wielkopolski National Park 15 km south of Poznań); Leclercq, 1951e:14 (bibliography of Belgian records); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:249 (Sweden: Gästrikland Region); Leclercq, 1954c:278 (in catalog of world Crabronini), 320 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Leclercq, 1956g:326 (Greece); Evans, 1957b:110 (discussion of larva's description by Minkiewicz, 1933); de Beaumont, 1958c:210 (Swiss National Park); Móczár, 1958a:265 (in annotated catalog of Hungarian Crabronini), 1958b:202 (Hungary: locality records); de Beaumont, 1959a:34 (Italy); Wolf, 1959b:34 (Germany: Nassau); Hoop, 1961:63 (Germany: Schleswig-Holstein: Kronshagen); Valkeila, 1962b:68 (southwestern Finland); Valkeila, Brander, and Kämpylä, 1963:42 (Finland: historical region Lounais-Hämeen = southwest Häme); Babiý, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:129 (in Sphecid Fauna of Switzerland), 1965a:59 (Greece); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:80 (Germany: Bayern: Unterfranken District); Benedek, 1968:76 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube), 1968c:386 (Romania: Budești, Căldărușani); Benedek, 1969a:85 (Hungary: marshy meadow); Lefebvre, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); nec Romanova, 1969:135 (= *Ectemnius lituratus*); Benedek, 1970:102 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:757 (Democratic Germany); Leclercq, 1971:219 (Spain); Lefebvre, 1971a:18 (Netherlands: Heel); Schmidt, 1971a:64 (synonymy), 1971b:46 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Wolf, 1971:375 (Italy: Trentino–Alto Adige: Alpi Siusi); Kofler, 1972:113 (Austria: eastern Tirol); Scobiola-Palade, 1972a:152 (Romania: delta of Danube: Caraorman), 1972b:254 (Romania); Simon Thomas, 1972:185 (France: Gironde, Landes); Fain, 1973:167 (parasite: *Crabrovidia ectemni* Fain, a saprogllyphid mite); Leclercq, 1974d:280 (synonymy); Erlandsson, 1974:82 (Italy);

Scobiola-Palade, 1974:145 (Romania: Sărăturile sandbank in delta of Danube); Leclercq, 1975b:3 (France); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Lomholdt, 1976:332 (in Sphecidae Fauna of Fennoscandia and Denmark); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklosterle in Schwarzwald); Guichard, 1978:272 (Greece); Lefebvre, 1978:138 (Belgium: Opoe-teren); Marion, 1978:90 (France: Nièvre Department); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1471 (Belgium); Marshakov, 1979a:101 (in key to *Ectemnius* of Russian Far East); Schmidt, 1980:383 (Germany: Baden-Württemberg); Dollfuss and Ressler, 1981:323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:45 (Germany: Westfalen: Hamm); van der Zanden, 1981:130 (Netherlands: Tegelen); Axelsson, 1982:80 (Sweden); Donath, 1982:214 (Germany: Cottbus Bezirk); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Józán, 1983:101 (Hungary); Steinmann, 1983:163 (Switzerland: Graubünden Canton, nesting in wood buildings); Gayubo and Tormos, 1984:19 (Spain: Valencia); Haack, Tschardtke, and Vidal, 1984:128 (Germany: Hamburg area); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Józán, 1985b:60 (Hungary: Barcsi borókás), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:67 (Germany: Südpfalz); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast); Skibińska, 1986b:154 (Poland: suburbs of Warszawa); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:370 (Germany: Mainz area); Scobiola-Palade, 1987:64 (Romania: Dobrogea); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:17, 28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Nilsson, 1988:98 (Sweden); Jacobs, 1989:22 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belorussia: Berezinskiy Nature Reserve); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Barbier, Rasmont, and Wahis, 1990:32 (Belgium: Hainaut); Jacobs and Oehlke, 1990:196 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Pádr, 1990:88 (Czech Republic: Praha area); Pagliano, 1990:89 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:548 (Austria: Kärnten); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991b:121 (Poland: Augustów Forest); Negrisoló, 1991:321 (Italy: Udine Province); Pagliano, 1991b:351, 353 (in key to Italian Crabroninae); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józán, 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:165 (in revision of western European Crabroninae); Józán, 1993:414 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:28 (locality records from Europe); Leclercq and Barbier, 1993:56 (map of distribution in France); van der Smissen, 1993:128 (northwestern Germany); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Gayubo and Borsato, 1994:213 (Italy: Veneto); Pádr and Lukáš, 1994:893 (Slovakia: High Tatra Mountains); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisoló *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:447 (in key to Sphecidae of Russian Far East); Scharer, 1995:26 (Germany: Bayern: Hasenkopf, Mainfranken); Schmid-Egger, Risch, and Niehuis, 1995:181 (summary of records from Germany: Rheinland-Pfalz); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Jakubzik, 1996:252 (Germany: Köln); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: endangered); Shlyakhtenok, 1996:304 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:79 (Germany: Westfalen: summary of distribution

and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Celary, 1998b:211 (Poland: Babia Góra National Park); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefebvre, 1998:182, 183 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Salzmänn-Wandeler, 1998b:102 (Switzerland: Schwyz Canton: Gersau-Oberholz); N. Schneider, Olinger, and Cungs, 1998:161 (Luxemburg: Dudelange); van der Smissen, 1998:59 (Germany: Schleswig-Holstein: Brünkendorf, Segrahn); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Kuhlmann, Wolf, and Woydak, 1999:569 (endangered in Nordrhein-Westfalen State of Germany); Leclercq, 1999a:23 (in key to Asian *Ectemnius*), 56 (in annotated catalog of Asian and Oceanian *Ectemnius*); Ljubomirov, 1999b:55 (Bulgaria: Mount Vitosha near Sofia); Mandery, 1999:105 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:335 (in Sphecidae Fauna of Germany); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Luig and Voolma, 2000:125 (Estonia); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Viciomini, 2000b:24 (Italy: previously recorded from Campania); Basset, 2001:83 (France: Département de Gironde); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 207 (review of biology); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: endangered); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Bieri, 2002:75 (Lichtenstein); Kazenas, 2002a:108 (geographic distribution, collecting localities in Kazakhstan); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Shlyakhtenok and Skibińska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Ziska, 2002:8 (Germany: Berlin-Köpenick: Krumme Lake); Drewes, 2003:137 (Italy: Trentino: Molveno); Kula and Tyrner, 2003a:150 (Czech Republic: Děčín Sandstone Uplands: forest district Snežník: birch stands in air-polluted area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (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); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: endangered); Bergsten, Nilsson, and Hellquist, 2004:7 (Sweden: Västerbotten: Nordmaling); Dollfuss, 2004b:771 (locality records from Bulgaria, Finland, and Slovenia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Klein and Lefebvre in Peeters, van Achterberg et al., 2004:383 (in Wasp and Ant Fauna of Netherlands); Majzlan and Deván, 2004:30 (Slovakia: Sekule), 32 (Slovakia: Malacky-Široké); Skibińska in Bogdanowicz, Chudzik, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Hallin, 2005:29 (Sweden: Örebro County: Nydalen); Kofler, 2005:181 (Austria: Tirol: Lienz District: locality "Wacht" in Lavant Common, Heckenfluren in Virgen Common; Südtirol: Prettau in Arn Valley); Pagliano and Negrisol, 2005:265 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:558 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:15 (Germany: Berlin); Shoreenko, 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Straka, 2005a:400 (endangered in Czech Republic); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:208 (Spain: Málaga: Siera Bermeja); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:540

(Bulgaria: Rhodope Mountains: Teshel Village); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vershinina, Mokin, Reshchikov, and Rudoiskatel', 2006:111 (Russia: Pskov Oblast': Selezhskiy National Park); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); Chevin, Livory, Lair, Sagot, and Baldock, 2007:33 (France: Département de la Manche); Jacobs, 2007:151, 156 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements du Nord and Somme); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Tannert and von der Dunk, 2008:181 (Germany: Bayern: west of Ernhofen and Weissenbrunn); Theunert, 2008:36 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent record from Bulgaria reported; new French Département: Ardèche: Saint-Martial); Debuysier and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen), 33 (locality records from Hessen); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Mokrousov, 2009:284 (Russia: Republic Mari El); Nemkov, 2009b:119 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); Ermilov and Mokrousov, 2010:90 (phoretic mites *Calvolia* sp. and *Probonomoia pini* (Scheucher) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:62 (Russia: Kirov, Nizhniy Novgorod, and Vladimir Oblast's, Chuvash Republic, Mari El Republic: no specific localities); Rudoiskatel', 2010:159 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: rare); Shorenko and Kononov, 2010:18 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská Nižina); van der Smissen, 2010a:340 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka); Burger, 2011a:287 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:21 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:73 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Tyuinsk village), 2011d:244 (Russia: central Ural Mountains); Schmid-Egger, 2011a:37 (France: Parc National du Mercantour: Col de Cayolle); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:80 (Germany: Hessen: threatened to unknown degree); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:211 (in annotated catalog of aculeate wasps of Belorussia); Flügel, 2014:254 (Brandenburg: Hangelsberger Heide); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Józán, 2014:132 (Croatia: Oštarijka vrata); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Mokrousov and Egorov, 2015:425 (Russia: Republic of Mordovia: Nature State Reserve Priskuskiy); Paukun and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Mokrousov and Popov, 2016:575 (Russia: previous record from Krasnodarskiy Kray is based on a misdetermined specimen of *Ectemnius lituratus*); Stolle and Saure,

2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols, Vallée d'Eyne); Jacobs and Liebig, 2018:140 (Russia: Irkutsk Oblast': Bol'shoye Goloustnoye; Island of Sakhalin: Korsakov, Lugovoye, and Pravda); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ruchin and Antropov, 2019a:13229 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:100 (western Czech Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:98 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and Ljubomirov, 2021:89 (in commented list of Sphecidae *sensu lato* of Poland); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); Pytel-Huta and Franchuk, 2024:78 (Ukraine: Rivno Nature Reserve).

Crabro laportei Lepeletier de Saint Fargeau et Brullé, 1835:712, ♂. Holotype or syntypes: ♂, France: no specific locality (lost). Neotype: sex not stated, France: Basses Alpes: Barcelonnette (MNHN), designated by Leclercq, 1974d:280. Synonymized with *Ectemnius guttatus* by Leclercq, 1974d:280. – Lepeletier de Saint Fargeau, 1845:116 (in revision of world Hymenoptera, as *laportaei*); F. Smith, 1856:398 (in catalog of Hymenoptera in British Museum); Six, 1859:18 (Netherlands: Driebergen, as *Laportaei*); Dours, 1874:158 (in catalog of Hymenoptera of France); Acloque, 1897:86 (in Sphecid Fauna of France and Algeria, as *laportaei*). – **As *Clytochrysis laportei***: Coulon, 1925:126 (new generic assignment, France: Martin-Eglise).

Crabro spinicollis Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area). Nomen nudum (as *Spinicollis*, incorrect original capitalization).

Crabro spinicollis Herrich-Schaeffer, 1841:... Synonymized with *Crabro guttatus* by Wesmael, 1852:616, synonymy confirmed by Leclercq, 1949a:10. – Schenck, 1857:65 (Germany: in revision of fossorial wasps of Nassau Region); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); A. Morawitz, 1864:454 (Russia: Sankt-Petersburg), 1866a:272 and 1866b:349 (specimens in E. Eversmann collection); Schenck, 1867a:350 (Germany: Nassau Region); Dietrich, 1868:362 (Switzerland: Zurich Canton); von Aichinger, 1870:312 (Austria: Tirol); Thomson, 1870:171 (in revision of Swedish Crabroninae), 1874:282 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:109 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:71 (Norway); Kohl, 1883e:651 (Switzerland); Wüstnei, 1891a:26 (Germany: Schleswig Holstein: Gramm); C. Verhoeff, 1892a:70 (member of subgenus *Mesocrabro*); Kohl, 1893a:25 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Sickmann, 1893:56 (Germany: Niedersachsen: Iburg, analysis of color variation); Krieger, 1894:6 (Germany: Kingdom of Saxony); Dalla Torre, 1897:629 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia and Romania); Strand, 1898b:96 (Norway); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia, as *guttatus* Dahlbom = *spinicollis* Herrich Schaeffer); de Cobelli, 1903:115 (Italy: Trentino: Rovereto, Volano); Antiga and Bofill, 1904:25 (Spain: Cataluña Province); Aurivillius, 1904:297 (in revision of Swedish Sphecidae); Kubes, 1905:84 (Czech Republic: Kolín, Sušice); Schmiedeknecht, 1907:188 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:18 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1913:535 (Ukraine: Zhytomyr Oblast': Radomyshl'); Rudow, 1912:71 (nesting in raspberry stems); Birula, 1914:372 (Belorussia: Ambrosovich and Luskynopol' near Vitebsk); Kohl, 1915:99 (in revision of Palearctic Crabronini); Schulze, 1918:281 (Germany: Berlin-Buckow); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:37 (Germany: Franken); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:150 (in key to Belgian Sphecidae), 164 (phenology); Lundblad, 1924:23 (Sweden: Lapland: Lycksele); Berland, 1925d:197 (in Sphecid Fauna of France); Bischoff, 1925:297 (Latvia; Poland: Białowieża and Grajewo area); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); Schütze, 1925:110 (Germany: Lausitz Region); Shestakov, 1925:35 (Russia: Yaroslavl' area); Soot-Ryen, 1925:7 (not occurring in Norway); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavdil, 1926:31 (Czechoslovakia); Benoist, 1928:411 (France:

- Alpes-Maritimes, Basses-Alpes, Hautes-Alpes); Gaunitz, 1929:199 (Sweden: Lapland); Bouwman, 1930:66 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:641, 644 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Minkiewicz, 1931b:213 (nesting habits, description of larva); Pulkkinen, 1931:128 (in revision of Sphecidae of Finland); Bondroit, 1932:39 (Belgium: recorded from Bruxelles area by Wesmael); Crèvecoeur and Maréchal, 1932:68 (in catalog of Belgian Hymenoptera); Balles, 1934:16 (Germany: Baden-Württemberg: Achern, Oberachern); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:321 (Switzerland); Vergne, 1935:119 (France: Auvergne: Clermont-Ferrand, Le Mont-Dore); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Łowicz); Zavadil, Šustera, and Bat'a, 1937:154 (in catalog of Sphecidae of Czechoslovakia); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve); A. Wagner, 1938a:116 (northwestern Germany); Maréchal, 1939:341 (Belgium: Loën); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Paul, 1941:34 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Guiglia, 1941c:167 (Italy: Calabria: Grande Sila); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Giner Marí, 1943a:232 (in Sphecid Fauna of Spain); Guiglia, 1944b:39 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); de Hennin and Anciaux, 1948:76 (Belgium: between Sambre and Meuse rivers); Zavadil in Zavadil and Šnoflák, 1948:117, 118 (in key to Sphecidae of Czechoslovakia); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavro, 1950:40 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:458 (distribution in Scandinavia); Caruel, 1952b:101 (France: Marne Department); Teschner, 1955:56 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:175 (Germany: Rheinland-Pfalz: Pfalz region); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Niedl and Deneš, 1967:70 (Czech Republic: Třeboň area); Balthasar, 1972:70 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:150 (Czech Republic: Třeboň area). – **As *Solenius spinicollis***: Borries, 1897:24 (new generic assignment, flying in June and July); Baudot, 1931:255 (characteristics of cocoon). – **As *Ectemnius spinicollis***: Brischke, 1864:210 (new generic assignment, Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:226 (in catalog of European Hymenoptera); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Westerlund, 1893:27 (Russia: Karelian Republic: northern shore of Lake Ladoga); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Rudow, 1912:71 (nesting in raspberry stems); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Łoziński, 1920:121 (Poland: Maków Podhalański); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz); Harttig, 1930b:8 (specimen bearing dipteran egg); Minkiewicz, 1935:215 (Poland: Lake Garbaś 20 km west of Suwałki); Schneid, 1941:1026 (Germany: Bayern: Bamberg area); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle), 195 (visiting flowers of *Cirsium arvense* L., Asteraceae, and *Daucus carota* L., Apiaceae).
- Crabro parvulus* Herrich-Schaeffer, 1841:.... Synonymized with *Ectemnius guttatus* by Leclercq, 1954c:278. – Schenck, 1857:122 (Germany: in revision of fossorial wasps); Schenck, 1867a:351 (known from Germany); Kohl, 1880:110 (Austria: Tirol, and Italy: Trentino–Alto Adige); C. Verhoeff, 1892a:70 (member of subgenus *Mesocrabro*). – **As *Ectemnius parvulus***: Kirchner, 1867:226 (new generic assignment, in catalog of European Hymenoptera).
- Crabro pictus* Schenck, 1857:70, ♀, junior primary homonym of *Crabro pictus* Fabricius, 1793 (now in *Dinetus*). Holotype: ♀, Germany: Wiesbaden (Landesmuseum Wiesbaden). Synonymized with *Ectemnius guttatus* by Schmidt, 1971a:64. – Schenck, 1861:141 (may be a variety of *Crabro dives*); von Aichinger, 1870:312 (Austria: Tirol); Kohl, 1880:111 (Austria: Tirol); Schmiedeknecht, 1907:188 (in key to Hymenoptera of Central Europe); Andert, 2010:10 (type material cannot be found in Landesmuseum Wiesbaden). – **As *Crabro dives* var. *pictus***: Schenck, 1861:141 (new status, possibly a variety of *Crabro dives*); Dalla Torre, 1897:597 (in catalog of world Sphecidae). – **As *Solenius***

pictus: De Stefani Perez, 1894:216 (new generic assignment, Italy: Sicilia), 1895:228 (in catalog of Sicilian Hymenoptera). – **As Ectemnius pictus**: Rudow, 1996:329 (new generic assignment, Germany: Brandenburg; no specific locality); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz, determination tentative).

Crabro pictus Schenck, 1860:145. Nomen nudum.

Crabro divitoides C. Verhoeff, 1892:70, ♀. Holotype or syntypes: ♀, origin not stated but probably Germany: Bonn (depository unknown). Synonymized with *Crabro spinicollis* by Kohl, 1915:100. – Dalla Torre, 1897:629 (in catalog of world Sphecidae).

Crabro verhoeffi Dalla Torre, 1897:636. Substitute name for *Crabro parvulus* of C. Verhoeff, 1892:70.

Crabro dives schencki Cockerell, 1907a:51. Substitute name for *Crabro pictus* Schenck, 1857.

As *Ceratocolus* non det., partim: Pagliano, 2011a:148 (specimens in M. Spinola collection, Torino, are *Ectemnius guttatus*).

As *Solenius lapidarius* partim: Pagliano, 2011a:151 (specimens in M. Spinola collection, Torino, are *Ectemnius guttatus*).

78. *haleakalae* (R. Perkins)

Crabro haleakalae R. Perkins in R. Perkins and Forel, 1899:17, ♀. Holotype: ♀, Hawaiian Islands: Island of Maui: Haleakala (BMNH). – **As Ectemnius haleakalae**: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:322 (in revision of Hawaiian *Ectemnius*, description of ♂); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Takumi, 1999:15 (males described by Yoshimoto are *Ectemnius nesiotes*), 39 (in revision of Hawaiian *Ectemnius*).

79. *harshae* Saini and Dey

Ectemnius harshae Saini and Dey, 2022d:213, ♀, ♂. Holotype: ♀, India: Uttarakhand: Bhimtal at 29.2136°N 79.3308°E (National Pusa Collection-Indian Agricultural Research Institute). Paratypes: Delhi, Jammu and Kashmir, Uttar Pradesh. – Saini and Dey, 2022d: 213 (in key to subgenus *Hypocrabro* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:108 (in checklist of Crabroninae of Northern India).

80. *hawaiiensis* (R. Perkins)

Crabro hawaiiensis R. Perkins in R. Perkins and Forel, 1899:17, ♀, ♂. Lectotype: ♂, Hawaiian Islands: Island of Hawaii: Kilauea (BMNH), designated by Takumi, 1999:40. – **As Xenocrabro hawaiiensis**: R. Perkins, 1907:97 (new generic assignment, Hawaiian Islands: Isl(National Pusa Collection-Indian Agricultural Research Institute). and of Hawaii: Kilauea crater), 1913a:689 (coloration); F. Williams, 1927:445 (prey record summary). – **As Ectemnius hawaiiensis**: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:317 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1999a:56 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:6 (summary of prey records), 39 (in revision of Hawaiian *Ectemnius*).

81. *hebetescens* (R. Turner)

Crabro hebetescens R. Turner, 1908:530, ♀. Lectotype: ♀, Australia: Queensland: Mackay (BMNH), designated by Leclercq, 1999a:56. – R. Turner, 1915a:93 (in key to Australian *Crabro* subgenus *Solenius*, now *Ectemnius*). – **As Ectemnius hebetescens**: Leclercq, 1950i:195 (new generic assignment), 1954c:268 (in catalog of world Crabronini); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Cardale, 1985:276 (in catalog of Australian Sphecidae); Dollfuss, 1989:9 (type material in NHMW); Leclercq, 1999a:35 (in key to Asian *Ectemnius*), 56 (in annotated catalog of Asian and Oceanian *Ectemnius*, faunal records, color variation).

82. *hector* (Cameron)

Crabro hector Cameron, 1891a:147, ♀. Syntypes: ♀, Mexico: Guerrero: Amula (BMNH). – Dalla Torre, 1897:603 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Hymenoptera, misspelled *vestor*; listed as *vestor* Ashmead in synonymy of *Ectemnius ruficornis* by Bohart and Menke, 1976:427); Krombein,

1959b:1677 (listed as synonym of *Ectemnius ruficornis*). – **As *Ectemnius nigrifrons hector***: Leclercq, 1968e:301 (in key to *Ectemnius* of Latin America), 317 (bibliographic references, new status), 1972c:198 (in updated key to *Ectemnius* of Latin America), 210 (bibliographic reference); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae). – **As *Ectemnius hector***: Leclercq, 1954c:285 (new generic assignment, in catalog of world Crabronini), 1991b:8 (in revised key to Latin American *Ectemnius*), 19 (new status, references; Mexico); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:7 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:165 (correction to Leclercq's key, 1991b), 171 (locality records from Costa Rica, Honduras, and Mexico).

83. *hispanicus* (Kohl)

Crabro hispanicus Kohl, 1915:81, ♀. Holotype or syntypes: ♀, Spain: Madrid (NHMW or MNCN). – Giner Marí, 1934:136 (Spain), 1943a:230 (in Sphecidae Fauna of Spain); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain), 1959:230 (in supplement to catalog of Spanish Sphecidae). – **As *Ectemnius hispanicus***: Leclercq, 1954c:272 (new generic assignment, in catalog of world Crabronini); Leclercq, 1971:217 (as probable synonym of *Ectemnius continuus*); R. Bohart and Menke, 1976:246 (in checklist of world Sphecidae), 628 (synonymy with *Ectemnius continuus* recorded); Bitsch and Leclercq, 1993:172 (as valid species, in revision of western European Crabroninae); Leclercq, 1993c:28 (holotype lost); Amarante, 2005a:10 (correction to his 2002 catalog); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:103 (in revision of Sphecidae *sensu lato* of Europe, may be a valid species).

84. *honiarae* Leclercq

Ectemnius honiarae Leclercq, 1999a:57, ♀. Holotype: ♀, Solomon Islands: Island of Guadalcanal: Honiara District: Mount Austen (BMNH). – Leclercq, 1999a:33 (in key to Asian *Ectemnius*).

85. *hypsae* (De Stefani Perez)

Crabro hypsae De Stefani Perez, 1884b:217, ♀, ♂ (as *Hypsae*, incorrect original capitalization). Syntypes: Italy: Sicilia: Belice River and Castelbuono (depository unknown). – Riggio and De Stefani Perez, 1888:149 (Italy: Island of Ustica); Dalla Torre, 1897:604 (in catalog of world Sphecidae); E. Saunders, 1904c:608 (Spain: Mayorca), 639 (Spain); Graeffe, 1906:455 (Tunisia: Tunis area); Morice, 1911:133 (Algeria: Alger, Bône, now Annaba, Constantine, Hippône, now Annaba, Le Tarf, now El Taref); Kohl, 1915:79 (in revision of Palearctic Crabronini); Maidl, 1922:74 (Croatia); Berland, 1925d:197 (in Sphecidae Fauna of France); Bischoff, 1933:4 (Morocco); Nadig, 1933:76 (Morocco); Grandi, 1934:128 (Italy: Lazio: Acilia); Bernard, 1936c:288 (southern France); Guiglia, 1941c:168 (Italy: Calabria: Grande Sila); Giner Marí, 1943a:230 (in Sphecidae Fauna of Spain); Guiglia, 1943b:73 (Albania: Kopliku); Giordani Soika, 1944:8 (Italy: Sicily: Messina, Taormina); Guiglia, 1944b:38 (Italy; description); de Beaumont, 1945:479 (occurrence in Switzerland doubtful); Giner Mari, 1945b:360 (Morocco: Muley Ali); Zavadil in Zavadil and Šnoflak, 1948:115, 116 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); de Andrade, 1949:24 (Portugal); de Beaumont, 1950f:411 (Algeria), 1954e:96 (Italy: Liguria, Umbria, Lazio); Hertzog, 1954:101 (France: Bouches-du-Rhône: Camargue); Ceballos, 1956:394 (in catalog of Sphecidae of Spain), 1959:230 (in supplement to catalog of Spanish Sphecidae, as *hypsice*); Diniz, 1959:31 (Portugal: Lisboa, S. João do Estoril, Vale de Gaio); Ceballos, 1964:94 (in supplement to catalog of Spanish Sphecidae, as *hypsiae*); Balthasar, 1972:65 (in Sphecidae Fauna of Czechoslovakia, may be expected in the country). – **As *Solenius hypsae***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera); Bernard, 1935:67 (France: Var: Fréjus area). – **As *Ectemnius hypsae***: Leclercq, 1949a:12 (new generic assignment, Cyprus, Algeria, Morocco), 1951b:67 (yellow body pigments are pterines); Grandi, 1954:243 (Italy); Leclercq, 1954c:271 (in catalog of world Crabronini); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); de Beaumont, 1957a:151 (Morocco); Nouvel and Ribaut, 1958:17 (France: Pyrénées-Orientales: Banyuls-sur-Mer area); de Beaumont, 1959a:35 (Italy; geographic variation); Suárez, 1959:60 (Spain: Almería Province); de Beaumont, 1962b:27 (Spain), 1965a:59 (Greece); Isensee, Lesemann, and Röseler, 1965:612 (Spain: Gerona: no specific locality); Leclercq, 1971:219 (Spain); de Beaumont, Bytinski-Salz

and Pulawski, 1973:23 (Israel); Fain, 1973:167 (parasite: *Crabrovidia ectemnii* Fain, a saproglyphid mite); Erlands-son, 1974:82 (Malta, Spain, Yugoslavia); Leclercq, 1974d:279 (synonymy), 1975b:3 (France); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Pagliano, 1980:123 (Italy: Liguria); Gayubo, 1982b:29 (Spain: Ávila, Cáceres, and Salamanca provinces), 1882e:105 (Spain: Cádiz Province), 1983a:124 (prey: Diptera Ulididae: *Ulidia erythrophthalma* Meigen), 1984b:95 (Spain: Salamanca Province), 1984c:378 (Portugal: El Algarve Province); Chevin and Chevin, 1985:39 (France: Aude); Gayubo, 1986a:63 (Spain: Ciudad Real Province); Gayubo and Tormos, 1984:19 (Spain: Valencia); Gayubo, 1986d:118 (Spain: Zamora Province); Gayubo and Sanza, 1986:69 (Spain: Burgos, Segovia, Soria); Gayubo and Tormos, 1986a:16 (Spain: Castellón de la Plana); Asís and Jiménez, 1987:27 (Spain: Castellón Province); Gayubo, Asís, and Tormos, 1990b:77 (Spain); Pagliano, 1990:89 (in catalog of Italian Sphecidae); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:410 (Italy: Lazio: Acilia); Pagliano, 1991b:349, 354 (in key to Italian Crabroninae); Schembri, 1991:182 (Malta); Bitsch and Leclercq, 1993:172 (in revision of western European Crabroninae); Leclercq, 1993c:28 (locality records from southern Europe and North Africa); Leclercq and Barbier, 1993:57 (map of distribution in France); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Gayubo and Borsato, 1994:214 (Italy: Toscana); Tormos, Asís, and Gayubo, 1994:189, 217 (Spain: Albacete Province); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Leclercq, 1999a:26 and 27 (in key to Asian *Ectemnius*), 57 (in Asia known only from Israel); Gayubo, González, and Torres, 2000:186 (Spain: Salamanca Province); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:108 (Greece); Ljubomirov, 2000:12 (Bulgaria: specimens in N. Nedelkov collection); Shkuratov, 2002b:142 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Drewes, 2003:137 (Spain: Barcelona, Tarragona); Generani, Pagliano, Scaramozzino, and Strumia, 2003:65 (Italy: Arcipelago Toscano); Pagliano, 2003b:128 (Italy: Island of Pantelleria); Schmid-Egger, 2003:753 (Italy: Basilicata: Lauria; Sicilia: Avola, Castelammare, Ragusa, Randazzo); Dollfuss, 2004b:771 (locality records from Algeria, France, Greece, Italy, Morocco, Portugal, Spain, and Tunisia); Shkuratov, 2004a:81 (Russia: Rostov Oblast': village Nedvigovka, Rostovskiy Nature Reserve); Pagliano and Negrisolo, 2005:262 (in Sphecid Fauna of Italy); Yildirim and Ljubomirov, 2005:1795 (Turkey: Erzurum: Olu); Standfuss and Standfuss, 2006b:99 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Roche, 2007a:105 and 2007b:7 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); G. Turrise and R. Turrise, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Ljubomirov and Yildirim, 2008:277 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Pagliano, 2009:182 (Italy: Sardegna: Calasetta); Tüzün and Yüksel, 2010:4472 (Turkey: Niğde Province); van der Smissen, 2010b:384 (France: Vaucluse: Bédoin); Baldock, 2014:357 (Spain: Island of Mallorca); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); D. Suárez, 2017:268 (first record from Canary Islands: Island of Gran Canaria); Ben Khedher, Yildirim, and Braham, 2020a:102 (Tunisia: numerous locality records); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:103 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:51 (in catalog of Crabronidae of Turkey); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey).

Crabro serotinus De-Stefani, 1894:216, ♀, ♂. Syntypes: Italy: Sicilia: Santa Ninfa in Trapani Province (depository unknown). Synonymized with *Crabro hypsae* by Kohl, 1915:79.

Crabro laetus Pérez: Antiga and Bofill, 1904:26, nomen nudum (as *Laetus*, incorrect original capitalization). Synonymized with *Crabro hypsae* by Kohl, 1915:80.

Crabro loetus Pérez, 1905b:87, ♀, ♂. Syntypes: Spain: Barcelona; and Algeria: Bône, now Annaba (MNHN?). Synonymized with *Crabro hypsae* by Kohl, 1915:80 (as *laetus*).

As *Solenius vagus* partim: Pagliano, 2011a:153 (specimens in M. Spinola collection, Torino, are *Ectemnius hypsae*).

86. *iliganensis* Tsuneki

Ectemnius iliganensis Tsuneki, 1984f:25, ♂ (subgenus *Iwataia*). Holotype: ♂, Philippines: Island of Luzon: Asin Spa 16 km from Baguio (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:44 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to T. Murota, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection); Leclercq, 1999a:35 (in key to Asian *Ectemnius*), 57 (in annotated catalog of Asian and Oceanian *Ectemnius*); Tano, 2020:26 (holotype in USNM).

87. *insignis* (F. Smith)

Crabro insignis F. Smith, 1856:422, ♀. Holotype or syntypes: ♀, India: no specific locality (OXUM). – F. Smith, 1871a:369 (in catalog of Oriental Aculeata); Cameron, 1890b:270 (in list of Oriental Sphecidae); Bingham, 1897:326 (original description copied); Dalla Torre, 1897:605 (in catalog of world Sphecidae). – As *Ectemnius insignis*: Leclercq, 1954c:288 (new generic assignment, in catalog of world Crabronini), 1958c:114 (in key to selected subgenera of *Ectemnius* of southeastern Asia); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1982b:148 (China: Szechuan; Hongkong), 1999:20 (in key to Asian *Ectemnius*), 57 (in annotated catalog of Asian and Oceanian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Barthélémy and Guénard, 2025:13 (China: Hong Kong).

88. *invalidus* Leclercq

Ectemnius invalidus Leclercq, 1958e:111, ♀. Holotype: ♀, Malaysia: Selangor: Bukit Kutu (BMNH). – Leclercq, 1958e:108 (in key to selected subgenera of *Ectemnius* of southeastern Asia); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1999a:18 (in key to Asian *Ectemnius*), 58 (in annotated catalog of Asian and Oceanian *Ectemnius*).

89. *iridifrons* (Pérez)

Crabro iridifrons Pérez, 1905a:154, ♀. Holotype or syntypes: ♀, Japan: no specific locality but presumably Tokyo area (MNHN). – Pérez, 1905a:26 (in checklist of Crabronidae of Japan); Kohl, 1915:45 (original description translated into German); Iwata, 1933b:8 (locality records from Japan), 1938d:81 (description of ♂; Japan: Hokkaido, Honshu); Shibuya, 1938:8 (nesting habits); Yasumatsu, 1942a:87 (Japan: Kyushu: Hukuoka, Sobosan); Tsuneki, 1947d:282 (Korea), 1947e:398 (Japan: Hokkaido), 1948c:2 (Japan: Hokkaido). – As *Ectemnius iridifrons*: Tsuneki, 1952c:63 (new generic assignment; Japan: Shikoku); Leclercq, 1954c:289 (in catalog of world Crabronini), 322 (nest and prey records); Iwata, 1955:30 (egg size, number of oocytes); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km north-west of Tokyo); Leclercq, 1958e:115 (in key to selected subgenera of *Ectemnius* of southeastern Asia); Tsuneki, 1960g:19 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Haneda, 1968a:47 (Japan); Nambu, 1968b:28 (Japan: Saitama Prefecture); Okuno, 1968:29 (Japan); Tano, 1968:35 (Japan); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:52 (Japan: Niigata Prefecture); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History, as *irridifrons*); Suda, 1971:83 (Japan: Chiba Prefecture); Yamada, 1971:36 (Japan: Aichi Prefecture); Nambu, 1972e:91 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Nambu, 1975b:74 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Tsuneki, 1976b:104 (Philippines, as *irridifrons*); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Tsuneki, 1979d:10 (Japan, as *irridifrons*), 1982b:16 (known from Korea), 1984f:19 (Philippines; as *irridifrons*), 41 (in key to Crabronini of Philippines); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:449 (in key to Sphecidae of Russian Far East); Miyatake, 1996:102 (specimens in Hiroshi Aoki collection); Leclercq, 1999a:20 (in key to Asian *Ectemnius*), 58 (in annotated catalog of

Asian and Oceanian *Ectemnius*); Yamane, Ikudome, and Terayama, 1999:504 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Haneda, 2003:4 (Japan: Nagasaki Prefecture: Tsushima); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi in City of Obama); Nozaka and Kurokawa, 2003:56 (Japan: town of Awara: lake side of Kitagata); Tano, Kurokawa, Murota, and Nozaka, 2003:32 (Japan: Nagasaki Prefecture: Tsushima); Ohl and Linde, 2003:151 (number of ovarioles); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:36 (Japan: Gifu Prefecture); Suda, 2004:45 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture), 2006a:27 (Japan: Toyama Prefecture), 2006b:49 (Japan: Nagasaki Prefecture: Tsushima); Nambu, 2006:247 (Japan: Tokyo: Imperial Palace garden); Haneda, 2008:17 (in key to Japanese Crabroninae); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Nemkov, 2009b:122 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); Okhusa and Tajima, 2010:13 (Japan: Island of Honshu: Shiga Prefecture); N. Yamamoto, 2011:13 (Japan: Kyūshyū: mainland Nagasaki Prefecture); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); J.-K. Kim, 2014:430 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Nakamura, 2016:16 (Japan: Honshu: Yamaguti Prefecture); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City); Tano, 2020:26 (holotype of Tsuneki in USNM, incorrect information); Terayama, 2021:18 (Japan: Port of Tokyo Wild Bird Park).

ssp. *meridionalis* Tsuneki (preoccupied)

Ectemnius irridifrons [sic] *meridionalis* Tsuneki, 1984f:19, ♂, junior secondary homonym of *Ectemnius meridionalis* (A. Costa, 1871). Holotype: ♂, Philippines: Island of Mindanao: Lanao del Norte near Iligan (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:42 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to T. Murota, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection); Leclercq, 1999a:26 (in key to Asian *Ectemnius*), 63 (may be a synonym of *Ectemnius neptunus*); Tano, 2020:26 (holotype in USNM).

90. *kriechbaumeri* (Kohl)

Crabro kriechbaumeri Kohl, 1879:395, ♀ (as *Kriechbaumeri*, incorrect original capitalization). Holotype or syntypes: ♀, Austria: Sankt-Justina near Bozen, now Italy: Alto Adige: Santa-Justina near Bolzano (NHMW). – Kohl, 1880:134 (Italy: Trentino–Alto Adige: Sankt-Justina near Bolzano), 1888b:722 (description of ♂); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s.s.); Kohl, 1893a:26 (Austria: Niederösterreich); Dalla Torre, 1897:606 (in catalog of world Sphecidae); Schmiedeknecht, 1907:185 (in key to Hymenoptera of Central Europe); Kohl, 1915:51 (in revision of Palearctic Crabronini); Berland, 1925d:202 (in Sphecid Fauna of France); Benoist, 1928:411 (France: Basses-Alpes: Faucon and Le Lauzet); Schmiedeknecht, 1930:639, 640, 642 (in keys to Hymenoptera of North and Central Europe); Guiglia, 1941c:168 (Italy: Calabria: Grande Sila), 1944b:40 (Italy); Zavadil in Zavadil and Šnoflak, 1948:112 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); de Beaumont, 1954e:95 (Italy); Vogrin, 1955:44 (Yugoslavia); Balthasar, 1972:55 (in Sphecid Fauna of Czechoslovakia, not yet found in country). – **As *Ectemnius kriechbaumeri***: Leclercq, 1954c:287 (new generic assignment, in catalog of world Crabronini); Móczár, 1958a:266, 271 (in annotated catalog of Hungarian Crabronini, corrections to Kohl, 1915), 1958b:205 (Hungary: locality records); de Beaumont, 1965a:58 (Greece), 1967a:349 (Turkey); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube); Leclercq, 1975b:4 (France); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Guichard, 1978:272 (Greece); Marion, 1978:89 (France: Basses-Alpes Department); Pulawski, 1978:270 (in key to Sphecidae of European part of USSR); Dollfuss, 1983a:75 (Austria: endangered in Niederösterreich), 1983b:19 (in catalog of Sphecidae of Austria: Niederösterreich); Zilli, 1983:61 (nest of an unknown wasp provided with adult *Zygaena filipendulae*, identified as *Ectemnius kriechbaumeri* by Zilli, 1991); Gayubo and Tormos, 1984:19 (Spain: Valencia; first record from Iberian Peninsula); Scobiola-Palade, 1985:97 (Romania: delta of

Danube); Dollfuss, 1989:9 (type material in NHMW); Pagliano, 1990:89 (in catalog of Italian Sphecidae); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:174 (in key to Sphecidae of North and Central Europe); Pagliano, 1991b:347, 353 (in key to Italian Crabroninae); Zilli, 1991:71 (preys on adult Zygaenidae); Bitsch and Leclercq, 1993:179 (in revision of western European Crabroninae); Leclercq, 1993c:29 (Turkey: Hakkari Province); Leclercq and Barbier, 1993:58 (map of distribution in France); Dollfuss, 1994:98 (endangered in Austria); Negrisoló in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Mei and Zilli, 1997:146 (using adult *Zygaena filipendulae* (Linnaeus) as prey); Leclercq, 1999a:16 (in key to subgenera and species groups of *Ectemnius*), 24 (in key to Asian *Ectemnius*), 58 (in annotated catalog of Asian and Oceanian *Ectemnius*); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien, last collected in 1886); Dollfuss, 2004b:772 (locality records from France and Turkey); Gayubo and Özbek, 2005:31 (Turkey: Erzurum: Oltu, Palandöken, Pasinler); Pagliano and Negrisoló, 2005:274 (in Sphecid Fauna of Italy); Ljubomirov and Yildirim, 2008:280 (in catalog of Crabronidae of Turkey); Bitsch and Leclercq, 2009:224 (in supplement to vol. I of Faune de France, 1993: France: first records from Aude: Conques-sur-Orbiel, and Isère: Grenoble); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Pagliano, 2009:182 (Italy: Lazio: Acquapendente); van der Smitten, 2010b:384 (France: Ardèche: Saint-Thomé; Vaucluse: Le Beaucet-Venasque); Standfuss and Standfuss, 2012:427 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Bitsch, 2014:401 (record from France by van der Smitten, 1010b recorded); Yıldırım, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Yıldırım, Ljubomirov, Özbek, and Yüksel, 2016:48 (Turkey: Artvin and Erzurum provinces); Fresno, 2017:153 (Spain: Madrid: Tielmes; Murcia: Pliego); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:11 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:107 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:52 (in catalog of Crabronidae of Turkey), 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley).

91. *krombeini* Tsuneki

Ectemnius krombeini Tsuneki, 1983h:20, ♂ (subgenus *Cameronitus*). Holotype: ♂, New Guinea: Port Moresby (USNM). – Nuhn and Menke, 1994:26 (holotype in USNM); Leclercq, 1999a:37 (in key to Asian *Ectemnius*), 58 (in annotated catalog of Asian and Oceanian *Ectemnius*).

92. *krusemani* (Leclercq)

Crossocerus krusemani Leclercq, 1950d:4, ♂. Holotype: ♂, Indonesia: western Sumatra: Singgalang (Zool. Mus. Amsterdam). – Leclercq, 1954c:239 (in catalog of world Crabronini). – **As *Ectemnius krusemani***: Leclercq, 1958e:106 (type of subgenus *Policrabro*), 108 (new generic assignment, in key to *Ectemnius* of South-East Asia; Java); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1999a:18 and 34 (in key to Asian *Ectemnius*), 58 (in annotated catalog of Asian and Oceanian *Ectemnius*, additional description of holotype).

93. *kvak* Marshakov

Ectemnius kvak Marshakov, 1976c:938, ♀, ♂. Holotype: ♀, Tajikistan: Kvak near Kondara Canyon 45 km north of Dushanbe (ZIN). – Leclercq, 1999a:26 and 27 (in key to Asian *Ectemnius*), 59 (in annotated catalog of Asian and Oceanian *Ectemnius*); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: found in Zailiyskiy Alatau, no specific locality); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:108 (geographic distribution, collecting localities in Kazakhstan); Dollfuss, 2004b:772 (locality records from Kazakhstan and Kyrgyzstan).

94. *laevidorsis* Tsuneki

Ectemnius laevidorsis Tsuneki, 1977c:16, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Wushe-Pihu (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1995:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi,

1997:17 (holotype transferred to Hyogo Mus.); Leclercq, 1999a:34 (in key to Asian *Ectemnius*), 53 (as tentative synonym of *Ectemnius erebus*), 59 (in annotated catalog of Asian and Oceanian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

95. *lapidarius* (Panzer)

Crabro lapidarius Panzer, 1803, Heft 90:12, [♂]. Holotype of syntypes: ♂, Germany: no specific locality (depository ?). – Fabricius, 1804:309 (redescription); Panzer, 1806:180 (in critical review of his earlier work); Jurine, 1807:212 (in checklist of species of *Crabro*); Audouin, 1824a:5 (in Dictionnaire classique d'histoire naturelle); Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects); Vander Linden, 1829:57 (bibliographic references, Belgium: Bruxelles, France: Lille, Italy, redescription); Dahlbom, 1839:91 and 1839-40:91 (in revision of Scandinavian crabronids), 1842a:16 (in review of Scandinavian aculeates); von Siebold, 1844:132 (Germany: Preussen: vicinity of Danzig, now Poland: Gdańsk); Dahlbom, 1845:XXIV (specimens in collection Fabricius examined, as new synonym of *Crabro vexillatus*), 405 (in revision of Sphecidae and Pompilidae), 528 (belongs to subgenus *Solenius*), determination corrected to *Crabro chrysostomus* by Thomson, 1870:174; Eversmann, 1849:428 (Russia: Kazan and Orenburg provinces, foothills of Ural Mountains); Wissmann, 1849:17 (Germany: Kingdom of Hannover: common); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Wesmael, 1852:617 (Belgium: Bruxelles); Schenck, 1857:61 (Germany: in revision of fossorial wasps of Nassau Region); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); Taschenberg, 1866:168 (in revision of Hymenoptera of Germany); Schenck, 1867a:350 (Germany: Nassau Region); Dietrich, 1868:362 (Switzerland: Zurich Canton); Jaenicke, 1868 (Germany: Hessen: Taunus); von Aichinger, 1870:311 (Austria: Tirol); Taschenberg, 1875:385 (Germany: Halle); J. Lichtenstein, 1878:CVII (nesting in bramble twigs, providing nests with small noctuids, clearly in error); Girard, 1879:936 (nesting habits); Becker, 1880:151 (Russia: Sarepta, now Krasnoarmeysk south of Volgograd, as *lapidarius*); Marquet, 1881:188 (southern France); Friese, 1883:200 (Germany: Sachsen-Anhalt: Weissenfels); Laboulbène, 1895:179 (preying on Diptera); N. Arnold, 1902:87 (Russia: Mohilev Province, now Belorussia); von Heyden, 1905:83 (Germany: Hessen: Frankfurt); Peets, 1909-1911:66 (*Crabro lapidarius* of Panzer = *Crabro chrysostomus*); E. Nielsen, 1933:269 (summary of nesting habits); Nouvel and Ribaut, 1953:183 (France: Hautes-Pyrénées: Orédon); de Beaumont, 1954e:95 (Italy); Benno, 1958b:18 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:130, 135 (in key to Polish Sphecidae); Wengris, 1962:206 (Lithuania: Vilnius area); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:22 (Latvia); Skibińska, 1982:123 (Poland: Warszawa area); Kowalczyk, 1988a:45 (Poland: Rogów), 1988b:65 (Poland: environs of Łódź); Pagliano, 2011a:151 (specimens in M. Spinola collection, Torino, are *Ectemnius* sp.). – **As *Clytocrhysus lapidarius***: Strickland, 1947:127 (new generic assignment, Canada: Alberta: Athabasca, Edmonton); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino). – **As *Solenius lapidarius***: Lepeletier de Saint Fargeau and Brullé, 1835:721 (new generic assignment, in revision of Crabronini), 1838:416 (*Thyreus vexillatus* is a junior synonym); Perris, 1840:408 (nesting habits); Ghiliani, 1842:25 (listed from Italy: Sicilia); Lepeletier de Saint Fargeau, 1845:117 (in revision of world Hymenoptera); Lucas, 1849:245 (Algeria: Alger); Kirchner, 1854:313 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Ruthe and Stein, 1857:316 (Germany: Berlin area); Taschenberg, 1858:114 (in key to Sphecidae of Germany); Assmuss, 1859:620 (Russia: Moscow Governorate); Brischke, 1862:108 (Germany: Preussen Province, now Poland: Pomorze Region); Jaenicke, 1867:146 (Germany: Hessen: Frankfurt area); Kirchner, 1867:225 (in catalog of European Hymenoptera); Wierzejski, 1868:118 (Ukraine: Podole Region); P. Ivanov, 1872:151 (Khar'kov Oblast': Kupyansk area); Dours, 1874:156 (in catalog of Hymenoptera of France); Wierzejski, 1874:262 (Poland: Kraków; Ukraine: Bukovina Region: Kalinowce; Podole Region: Bucyki, Mielnica, Sinków); Schmiedeknecht, 1876:186 (Germany: Thüringen: Rothensteiner Felsen); Lichtenstein, 1879:43 (nesting in reed stems); Yaroshevskiy, 1881:122 (Ukraine: Khar'kiv Oblast': Khar'kiv, Kupyansk); Fabre, 1882:227 (nesting in bramble stems); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Acloque, 1897:87 (in Sphecid Fauna of France and Algeria); Wnukowskij, 1927:32 (Russia: Western

Siberia: village Kornilovo at 53°57'N 81°10'E); J.Ch. Bradley, 1957:46 (Lepeletier de Saint Fargeau's specimens in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:150 (specimens in M. Spinola collection, Torino, are *Lestica clypeata*), 151 (specimens in M. Spinola collection, Torino, are *Ectemnius lapidarius*, *E. guttatus*, *E. borealis*, and *Ectemnius* sp.). – **As *Ectemnius lapidarius*:** Pate, 1946c:2 (new generic assignment, synonymy, first record from North America); Leclercq, 1949a:13 (miscellaneous locality records), 1949b:181 (nest, list of prey species), 1951b:67 (yellow body pigments are pterines), 1951e:15 (bibliography of Belgian records); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:249 (Sweden: Gästrikland Region); Leclercq, 1954c:285 (in catalog of world Crabronini), 320 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Steiner, 1955:142 (France: Dordogne); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km northwest of Tokyo); Leclercq, 1956i:133 (Luxemburg); Tsuneki, 1957f:59 (Korea); de Beaumont, 1958c:209 (Swiss National Park); Móczár, 1958a:266 (in annotated catalog of Hungarian Crabronini), 1958b:203 (Hungary: locality records); de Beaumont, 1959a:34 (Italy); Wolf, 1959b:34 (Germany: Nassau); Tsuneki, 1960g:5 (nesting habits); Hoop, 1961:63 (Germany: Schleswig-Holstein); Valkeila, 1962b:68 (south-western Finland); Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Valkeila, Brander, and Käpylä, 1963:42 (Finland: historical region Lounais-Hämeen = southwest Häme); Babiý, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:127 (in Sphecid Fauna of Switzerland); Valkeila, Brander, and Käpylä, 1964:75 (Finland: southern Finland: Jokioinen); B. Klug, 1965:142 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Leclercq, 1965b:387 (Belgium: city of Liège); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:79 (Germany: Bayern: Unterfranken District); Leclercq, 1967a:30 (locality records from Great Britain and Ireland); Tsuneki, 1967e:12 (China: Heilongjiang: Harbin); Benedek, 1968:75 (Hungary, floral records); Haneda, 1968a:47 (Japan), 1968b:56 (Japan: Nagano Prefecture: Ina District); Leclercq, 1968b:39 (Great Britain: Kent), 1968d:109 (Belgium: city of Liège); Lefeber, 1968b:94 (Netherlands: Sint-Pietersberg); Okuno, 1968:30 (Japan); Scobiola-Palade, 1968c:387 (Romania: Budești, Turnu Măgurele); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:84 (Hungary: marshy meadow); Itami, 1969:52 (Japan: Niigata Prefecture); Lefeber, 1969b:99 (Netherlands: Sint-Pietersberg), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Petit, 1969:72 (Belgium: Mousny); Retzlaff and Woydak, 1969:3 (Germany: Rheinland-Westfalen); Romanova, 1969:135 (Russia: North Caucasus); Benedek, 1970:101 (Hungary: Tapolca); Evans, 1970:492 (Wyoming: Jackson Hole); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:764 (Democratic Germany); Dathe, 1971:234, 238 (Germany: Berlin Zoological Garden; phenology); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains); Leclercq, 1971:220 (Spain); Michener, 1971:405 (nest and prey); Petit, 1971:23 (Luxemburg: Echternach, Ettelbrück); Schmidt, 1971b:45 (Germany: Rheinland-Pfalz: Mainzer Sand); Haeseler, 1972:156, 204 (Germany: Schleswig-Holstein, anthropogenic habitats); Kazenas, 1972b:175 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Nambu, 1972e:91 (Japan: Saitama Prefecture); Scobiola-Palade, 1972a:152 (Romania: delta of Danube: Caraorman), 1972b:254 (Romania); Simon Thomas, 1972:185 (France: Landes); Tsuneki, 1972a:147 (Mongolia); Fain, 1973:165 (parasite: *Crabrovia ectemni* Fain, a saprogllyphid mite); Nambu, 1973a:152 (Japan: Saitama Prefecture); Steiner, 1973:29 (Canada: Yukon Territory: Lake Labarge); Suda, 1973:124 (Japan: Yamanashi Prefecture); Dzhanokmen and Kazenas, 1974:104 (nest parasite: *Habritys brevicornis* (Ratzeburg), a pteromalid); Else, 1974:207 (Great Britain: Oxenbourne), 207, 208 (in key to British *Ectemnius*); Erlandsson, 1974:83 (Italy); Kazenas, 1974b:110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, and *Silaum besseri* L., Apiaceae, in Kazakhstan); Kofler, 1974:320 (Austria: Kärnten); Leclercq, 1974d:280 (synonymy); Scobiola-Palade, 1974:145 (Romania: Sărăturile sandbank in delta of Danube); Tsuneki, 1974a:374 (Korea); Leclercq, 1975b:3 (France); Lefeber, 1975b:122 (Belgium); Nambu, 1975b:73 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Eck, 1976:94 (Democratic Germany); Lomholdt, 1976:321 (in Sphecid Fauna of Fennoscandia and Denmark); Tsuneki, 1976d:301 (China: Heilungkiang: Maershan 100 km east

of Harbin); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald), 1977/78:57 (Germany: Rheinland-Pfalz: Mombacher Sand); Haeseler, 1978c:194 (Germany: Friesian Islands: Island of Borkum); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); R. Bohart and Kimsey, 1979:488 and 490 (in key to North American *Ectemnius*); Haeseler, 1979:10 (Germany: Niedersachsen: 10 km south of Oldenburg); Krombein, 1979b:1676 (in catalog of North American Hymenoptera, nesting sites, list of prey); Leclercq, Gaspar, and Verstraeten, 1979:map 1473 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Schmidt, 1979a:56 (Germany: Ost-Holstein); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:118 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Pagliano, 1980:123 (Italy: Piemonte); Preuss, 1980a:24 (Germany: nesting in wood, but natural habitat is reduced); Richards, 1980:53, 54 (in key to Sphecidae of British Isles); Schmidt, 1980:383 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Thiede, 1981:46 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:44 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Donath, 1982:214 (Germany: Cottbus Bezirk); Finnamore, 1982:187 (in Sphecidae Fauna of Southern Quebec); Leclercq, 1982a:125 (Belgium: Liège), 1982e:100 (Norway: Hordaland: Bergen, Voss); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Tsuneki, 1982b:16 (known from Korea); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Jacob-Remacle and Jacob, 1983:242 (Belgium: Liège Province: fagne de Malchamps near Spa); Józán, 1983:102 (Hungary); Riemann, 1983:87 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo and Tormos, 1984:19 (Spain: Valencia); Haack, Tscharncke, and Vidal, 1984:128 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Sagvolden, 1984:19 (Norway: Buskerud: Rollag); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Gayubo, 1985c:170 (Spain: Cantabria: Santoña); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 355 (prey), 1985c:571 (Germany: Friesian Islands); Józán, 1985b:60 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Turner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:67 (Germany: Südpfalz); Gayubo and Sanza, 1986:69 (Spain: Burgos); Józán, 1986:373 (Hungary: Kiskunság National Park); Nemkov, 1986:104 (Russia: Siberia: Irkutsk Oblast'); Parks, 1986 (California: Torrey Pines State Reserve); Skibińska, 1986b:165 (Poland: Warszawa: streetside green), 174 (various green urban habitats); Steiner, 1986:108 (references to publications on nesting habits); Vikberg, 1986:77 (Finland); Haeseler, 1987b:668 (Germany: Ipweiger Moor near Oldenburg); Crellin, 1987:35 (Great Britain: Isle of Man); Riemann, 1987b:38 (Germany: Niedersachsen: Nature Reserve Voßberge); Schmidt and Westrich, 1987:371 (Germany: Mainz area); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:17, 28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Nilsson, 1988:98 (Sweden); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Allen and Felton, 1989:36 (Great Britain: Kent County); Archer, 1989a:131 (Great Britain: York: found before coniferization); Bałazy, Banaszak, and Michalski, 1989:118 (Poland: Wielkopolski National Park); Jacobs, 1989:23 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belorussia: Berezinskiy Nature Reserve); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Skibińska, 1989a:204 (Poland: Warszawa area); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Archer, 1990c:16 (Great Britain: Leicestershire); Gayubo, Asís, and Tormos, 1990b:77 (Spain: La Rioja Province); Jacobs and Oehlke, 1990:199 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:24 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Nash, Boston, and Nelson, 1990:249 (Ireland: Down County);

Pádr, 1990:89 (Czech Republic: Praha area); Pagliano, 1990:89 (in catalog of Italian Sphecidae); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Schwammberger and Priesner, 1990:548 (Austria: Kärnten); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:410 (Italy); Józán, 1991:604 (Hungary: Bátorliget Nature Reserve); Kowalczyk, 1991a:90, 99, 102, 104, 107 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Kuhlmann et al., 1991:90 (Germany: Senne Region); Negrisola, 1991:322 (Italy: Treviso and Udine Provinces); Nilsson, 1991:83 (Sweden: Lake Mälaren); Pagliano, 1991b:347, 353 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Tsuneki, 1991:202 (Korea); Archer, 1992a:56 (Great Britain: Leicestershire), 1992b:21 (Great Britain: Yorkshire: Skipwith Common); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères, as *lapidosus*); Gayubo, Borsato, and Osella, 1992:286 (Austria); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Leclercq, 1992c:208 (prey); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); N. Schneider and Jacob-Remacle, 1992:42 (Luxemburg); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992b:92 (Germany: Nordrhein-Westfalen: Olpe), 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Bitsch and Leclercq, 1993:158 (in revision of western European Crabroninae); Józán, 1993:414 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:29 (locality records from Europe and Açores); Leclercq and Barbier, 1993:59 (map of distribution in France); Mochi and Luchetti, 1993:105 (Italy: Sicilia: Monti Peloritani); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Gayubo and Borsato, 1994:214 (Italy: Trentino); Blades and Marshall, 1994:276 (Canada: southern Ontario); Finnamore, 1994:210 (Canada: Alberta: Wagner Natural Area 8 km west of Edmonton); Junck, F. Schoos, and R. Schoos, 1994:96 (Luxemburg: Bettendorf); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); U. Peters, Sohmen, Stuke, and Prüter, 1994:66 (Germany: Schleswig-Holstein: gardens in Hof Möhr); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisola in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:450 (in key to Sphecidae of Russian Far East); Papp and Józán, 1995:145 (Hungary: Síkfőkút oak forest); Riemann, 1995:52 (Germany: Bremen); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:181 (Germany: summary of records from Rheinland-Pfalz); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Skibińska, 1995:424, 425 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:72 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:304 (Belorussia: Berezinsky Nature Reserve); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:80 (Germany: Westfalen: summary of distribution and nesting habits); Bičík and Láska, 1997:8 (hunting syrphid *Sphaerophoria scripta* (Linnaeus), a case of Peckhamian mimicry); Celary, 1997:59 (in checklist of Animals of Poland); Finnamore, 1997:891 (Canada: Yukon); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Petit, 1997:351 (Belgium: Liège Province: Lanaye: colonization of new habitat); Riemann, 1997:49 (Germany: Achim 14 km southeast of Bremen); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); Wolf, 1997a:2 (Germany: Bayern: Hirblinger Höhen near Augsburg); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner,

and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Morgan, 1998:18, 19 (Great Britain: Wales: Carmarthenshire County); Petit, 1998a:110 (Belgium: Bassenge, visiting flowers of *Polygonum cuspidatum* Siebold and Zucc., Polygonaceae); N. Schneider and Wahis, 1998:21 (Luxemburg: sandstone quarries); Sugar, Finnamore, Goulet, Cumming, Kerr, de Giusti, and Packer, 1998:16 (Canada: southern Ontario); Salzmänn-Wandeler, 1998a:98 (Switzerland: Luzern Canton: Sempach), 1998b:102 (Switzerland: Schwyz Canton: Gersau-Oberholz); van der Smissen, 1998:59 (Germany: Niedersachsen, Schleswig-Holstein); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); Anan'eva and Kochetkov, 1999:7 (Russia: Ryazan' Oblast': no specific locality); Archer, 1999a:9 (Great Britain: Lancashire), 1999b:82 (Great Britain: Yorkshire); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Gusenleitner, 1999:600 (Austria: Vorarlberg: Düns east of Satteins); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Leclercq, 1999a:24 (in key to Asian *Ectemnius*), 59 (in annotated catalog of Asian and Oceanian *Ectemnius*; South Africa: Grahamstown); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Petit, 1999:114 (Netherlands: Kieldrecht, Nieuw-Namen); Salzmänn-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Archer, 2000c:115 (Great Britain: Lincolnshire); Blösch, 2000:335 (in Sphecidae Fauna of Germany); Flügel, 2000:46 (Germany: Hessen: Halberg near Neumorschen); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:53 (southeastern Kazakhstan: 2 km southwest, 5-20 km west, and 3-8 km south of Alma Ata); Jacobs, 2000:7 (Germany: Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Ljubomirov, 2000:11 (Bulgaria: specimens in N. Nedelkov collection); Luig and Voolma, 2000:126 (first record from Estonia); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mountains); Mauss, Schröder, and Botta, 2000:76 (Germany: Bayern: Arber area in Bavarian Forest); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Archer, 2001b:14 (Great Britain: Watsonian Yorkshire); Basset, 2001:83 (France: Département de Gironde); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 207 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:52 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:139 (distribution in Germany by provinces); Salzmänn-Wandeler and Rezbanyai-Reser, 2001:156 (Switzerland: Tessin Canton: Meride area); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsau Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Archer, 2002b:118 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:75 (Lichtenstein); Deván, 2002b:204 (Slovakia: Prepadlisko); Dorow, 2002:16 (Germany: Hessen: Weiherkopf Forest Reserve); Esser and

Cölln, 2002:1136 (southwestern Germany: Eifel region); Józán, 2002:54 (Hungary: Mecsek Mountains); Kazenas, 2002a:108 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Litt, 2002:167 (Belgium); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Wiśniowski, 2002:72 (Poland: Ojców National Park); Ziska, 2002:8 (Germany: Berlin-Köpenick: Krumme Lake); Bagnée, 2003:65 (Belgium: Namur: Ri d'Hôwisse); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:137 (France, Germany, Hungary, Italy: miscellaneous locality records); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Józán, 2003:228 (Hungary: Látványi Pusztá Nature Conservation Area); Kuhlmann and Quest, 2003:50 (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); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warneke, 2003:66 (Germany: in catalog of wasps and bees of Bayern); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Island of Malyi Tataru in delta of Danube at 45.21°N 29.00°E); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:171 (Poland: Ojców National Park); Aistleitner, 2004:59 (Austria: Vorarlberg: Sonntag); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:772 (locality records from Bulgaria, Finland, Kazakhstan, Kyrgyzstan, Mongolia, Romania, Slovenia, and Ukraine); Dorow, 2004:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Jakubzik, Niehuis, and Cölln, 2004:458 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains), 2004d:34 (Kazakhstan: shores of Ural River); Klein and Lefebvre *in* Peeters, van Achterberg et al., 2004:383 (in Wasp and Ant Fauna of Netherlands); Krivonogova and Rudoiiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Majzlan and Deván, 2004:32 (Slovakia: Malacky-Široké); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:44 (Japan: Yamanashi Prefecture); Szczepko and Kowalczyk, 2004:127 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Ziska and Saure, 2005:81 (Germany: Berlin: Biesenhorster Sand); Burger, 2005:33 (Germany: Thüringen); Dubitzky, Blank, and Schönlitzer, 2005:274 (Germany: Bayern: area north of Dachau); Gayubo and Özbek, 2005:33 (Turkey: twelve localities); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:51 (Japan: Gifu Prefecture); Hallin, 2005:16 (Sweden: Örebro County: Hällefors), 29 (Sweden: Örebro County: Nydalen); Jacobs, 2005a:445 (Bulgaria: Shipka); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:181 (Austria: Tirol: Lienz District: many localities); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Mandery, 2005:174 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov, 2005a:156 (Russia: Island of Sakhalin); Pagliano and Negrisola, 2005:267 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:558 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:36 (Great Britain: Cumbria County); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:165 (Ukraine: Crimea); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Dvořák, Bogusch, and Smetana, 2006:103 (Czech Republic: Šumava = Bohemian Forest); Feitz, Gloden, Melchior, and

Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Gadoum and Barbier, 2006:42 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Chars, Ennery, and Saint-Clair-sur-Epte); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Gorobchishin, 2006:132 (Ukraine: several localities); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); Kroupa, 2006b:25 (Germany: Bayern: Oberfranken Region); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Teshel Village); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:94 (Great Britain: Tunbridge Wells and Central High Weald); Cungs, Jakubzik, and Cölln, 2007:140 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge and Schönbuche Forest Reserves); Chevin, Livory, Lair, Sagot, and Baldock, 2007:34 (France: Département de la Manche); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Fateryga, Ivanov, and Novikov, 2007:149 (feeding on flowers of *Scrophularia umbrosa* Dumort., Scrophulariaceae, in Crimea); Flügel, 2007:39 (Germany: Hessen: Halberg near Neumorschen); Guldemon, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap); Jacobs, 2007:149, 154 (in key to Crabronidae of Germany); Jacobs and Kroupa, 2007:324 (Azores: previously recorded from islands of Pico and São Miguel); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic Hills); Kazenas, 2007a:92 (Kazakhstan: Akmala Oblast: Kurgandzhin Nature Reserve and vicinity); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Leclercq, 2007e:171 (locality records from USA); Lee and Scott, 2007:21 (Great Britain: East Anglian wetlands); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve); Smit and Megens, 2007:17 (Netherlands: Noort Brabant: vicinity of Leende); Theunert, 2007b:22 (description and photographs of mating); Vago, 2007:175 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia); Danilov, 2008:349 (Russia: Altayskiy Kray: Barnaul area); Haeseler, 2008:308 (Germany: Friesian Islands); Haneda, 2008:14 (in key to Japanese Crabroninae); Ljubomirov and Ban-Calefariu, 2008:205 (Romania: Maramureş District: Crasna Vişeuului, Repedea, Vişeu Valley); Ljubomirov and Yildirim, 2008:273 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Protsenko and Drozdovskaya, 2008:128 (Ukraine: Sumy Oblast: Mogritsa village); Tannert and von der Dunk, 2008:181 (Germany: Bayern: west of Ernhofen and Weissenbrunn); Theunert, 2008:36 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: observations on mating by Theunert, 2007b, reported; recent records from Bulgaria, Estonia, and Italy reported; new record: Greece: Thessalia); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); Flügel, 2009b:63 (Germany: Hessen: Borken, in inactive open brown coal mine); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño–Vega del Duero); Mokrousov, 2009:283 (Russia: Republic Mari El); Nemkov, 2009b:117 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořák, and Bogusch, 2009:261 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); van Diemen,

2009:49 (Netherlands: airbase Gilze-Rijen); Ermilov and Mokrousov: 2010:90 (phoretic mites *Acarus siro* (Linnaeus), *Crabrovidia popovi* (Zachvatkin), *Schwiebea nova* (Oudemans), *Stenotarsonemus* sp., and undetermined Uropodoidea in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Ghazi-Soltani, Khaghaninia, and Shahim, 2010:638 (Iran: East Azerbaijan: Horand Forests); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Ivanovo, Kirov, Kostroma, Nizhniy Novgorod, and Vladimir oblast's, Mari El Republic, Mordovia Republic, Chuvash Republic, Tatarstan: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy" and National Park "Chavash varmane"); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge), 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Kononov, 2010:18 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská nížina); Treiber, 2010:135 (France: département du Bas-Rhin); van der Smissen, 2010a:340 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records), 2010c:396 (Sweden: Södermanland: Rassa); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor and Thorne Moor); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Chemal); Gogala, 2011:22 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:72 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Okhansk), 2011b:69 (Russia: Republic of Bashkortostan), 2011d:243 (Russia: central Ural Mountains); Schmid-Egger, 2011c:555 (Austria: Tirol: Tiroler Lech Nature Park); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg), 2011d:199 (Germany: Sachsen-Anhalt: conservation area "Heide südlich Burg"); Schmid-Egger, 2011a:37 (France: Parc National du Mercantour: Tende); Shlyakhtenok, 2011:95 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:133 (Germany: Hessen: not endangered); von der Dunk, 2011:184 (Germany: Bayern: Kaiserburg in Nürnberg); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:183 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Kazenas, 2012b:169 (Kazakhstan: Korgalzhin State Nature Reserve); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Saure, 2012b:229 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Kirov Oblast': Arkhangelskoye, and Krasnaya Polana near Sochi: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Flügel, 2013b:57 (Germany: Hessen: Knüllköpfchen); Kazenas, 2013a:97-99 (color photographs of adult wasps, short information on geographic distribution and nesting habits); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:207 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Paúl do Boquilobo Nature Reserve); Wiśniowski and Piotrowski, 2013:21 (Poland: Poleski National Park); Wiśniowski and Szczepko, 2013:34 (Poland: Kampinos National Park near Warszawa); Zettel, Zimmermann, and Wiesbauer, 2013:12 (Austria: Wien: Donaupark); Flügel, 2014:254 (Brandenburg:

Hangelsberger Heide); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roßstein); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:37 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Mokrousov and Egorov, 2015:424 (Russia: Republic of Mordovia: Nature State Reserve Prisuskiy); P. Rosa and Pagliano, 2015:101 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Simon, Lorthiois, and Macé, 2015:54 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine and Seine-Maritime Department: Anneville-Ambourville); Weber, 2015:62 (Germany: Bayern: Nature Reserve Börsting near Hallstadt); Blažej, Macek, and Trýzna, 2016:119 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:21 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland, Isle of Man); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:574 (Russia: Krasnodarskiy Kray); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Buck, 2004); Saure, 2016a:8 (Germany: Brandenburg: Uckermark District: dry slopes near Altgalow-Stützkow), 2016b:49 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Vas, Szöllösi-Tóth, and Muskovits, 2016:153 (Romania: Sălaj County); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yıldırım, Ljubomirov, Özbek, and Yüksel, 2016:46 (Turkey: Erzurum, Rize, Samsun, and Tunceli provinces); Antropov, 2017b:231 (in catalog of Crabroninae of Russia); Flügel, 2017:5 (Germany: Hessen: Doline and Eschkopf near Rockensüß); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Vallée d'Eyne); Shorenko, 2017:77 (in Crimea collected in May through August); Creutzburg, Winter, Baumbach, and Ssymank, 2018:216 (Germany: Thüringen: Wachsenburg Nature Reserve); Jacobs and Liebig, 2018:140 (Russia: Primorskiy Kray: Bonevurovo and Ryazanovka; Island of Sakhalin: Korsakov and Lugovoye); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:98 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13229 (Russia: Mordovian State Nature Reserve), 2019b:163 (common in Mordovian State Nature Reserve); Shorenko, 2019:211 (among the commonest sphecid species in Crimea); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray); Kejval, Blažej, and Erhart, 2020:100 (western Czech Republic); Saure, 2020:276 (Germany: Sachsen-Anhalt: sand dunes); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:94 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yıldırım, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:82 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Saure and Marten, 2021:135 (Germany: Sachsen-Anhalt: Nationalpark Harz); Jakubzik and Cölln, 2022:11 (Germany: Rheinland-Pfalz: Moselle River valley between Dohn and Kattenes); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); U. Frommer and Bahmer, 2023:194 (Germany: Hessen: Giessen: city gardens); Kaplan and Yıldırım, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:79 (Ukraine: Rivno Nature Reserve); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Columbia, Yukon Territory, Ontario, Quebec, first records from Labrador, Manitoba, New Brunswick, Newfoundland Island, New Scotia, Northwest Territories, Prince Edward Island, Saskatchewan: no specific locality); Gülméz, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley).

Crabro sinuatus Fabricius, 1804:310, sex not stated. Holotype: ♀, Germany: no specific locality (ZMUC). Synonymized with *Crabro cephalotes* by Dahlbom, 1845:XXV, and with *Ectemnius lapidarius* by van der Vecht, 1961a:69. – Spinola, 1806:104 (Italy: Liguria: Arcata); Dahlbom, 1845:XXV (study of type material); Lepeletier de Saint Fargeau and Brullé, 1835:807 (discussion of species identity); F. Smith, 1856:414 (in catalog of Hymenoptera in British Museum); Kohl, 1915:348 (unrecognizable species).

Crabro chrysostomus Lepeletier de Saint Fargeau et Brullé, 1835:704, ♀, junior primary homonym of *Crabro chrysostomus* Gmelin, 1790:2766. Holotype or syntypes: ♀, France: Paris area (lost). Neotype: ♀, Yvelines, Feucherolles (MNHN), designated by Leclercq, 1974d:281. Synonymized with *Ectemnius lapidarius* by Pate, 1946c:2. – Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:107 (in revision of world Hymenoptera); F. Smith, 1856:399 (in catalog of Hymenoptera in British Museum), 1858c:156 (in review of British Aculeata, redescription); A. Morawitz, 1864:453 (Russia: Sankt-Petersburg), 1866a:272 and 1866b:350 (specimens in E. Eversmann collection); A. Costa, 1867c:142 (in revision of Italian Sphecidae); Bold, 1870:150 (Great Britain: Northumberland and Durham); Thomson, 1870:174 (in revision of Swedish Crabroninae); A. Costa, 1871b:71 (in revision of Italian Sphecidae); F. Smith, 1871b:16 (in catalog of British Aculeata); Dours, 1874:158 (in catalog of Hymenoptera of France); Thomson, 1874:285 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:102 (Austria: Tirol, and Italy: Trentino–Alto Adige); E. Saunders, 1880:295 (in revision of British Aculeata); Siebke, 1880:72 (Norway); Kohl, 1883e:650 (Switzerland); Sickmann, 1883:68 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:122 (Germany: Frankfurt am Main area, as *chrysostoma*); Wüstnei, 1886:32 (Germany: Schleswig-Holstein); C. Verhoeff, 1891b:22 (nesting habits); V. Perkins, 1892:206 (Great Britain: Gloucestershire: Wotton-under-Edge, as *chrysostoma*); C. Verhoeff, 1892b:364 (individuals of both sexes that emerge first are larger); Kohl, 1893a:25 (Austria: Niederösterreich, as *crysostomus*); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Sickmann, 1893:52 (Germany: Niedersachsen: Iburg, analysis of color variation); Baldini, 1894:71 (Italy: Modena area); Krieger, 1894:7 (Germany: Kingdom of Saxony); E. Saunders, 1896:141 (in revision of British Aculeata); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); Dalla Torre, 1897:588 (in catalog of world Sphecidae, as *chrysostoma*); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898b:96 (Norway); R. Perkins, 1899b:261 (diagnostic characters); R. Bradley, 1900:13 (Great Britain: Birmingham, as *chrysostoma*); W. Evans, 1900:265 (Great Britain: Scotland: Luffness); Gardner, 1901:381 (Great Britain: Cheshire: Bebington, Eaton near Chester, Ince); Hocking, 1901:68 (Great Britain: Surrey county); Chyzer, 1902:34 (Hungary); E. Saunders, 1902a:53 (southwestern Ireland); de Cobelli, 1903:115 (Italy: Province of Trentino); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); Aurivillius, 1904:298 (in revision of Swedish Sphecidae); Jourdain 1904:221 (Great Britain: Derbyshire: Breadsall Moor, Burton, Little Eaton); W. Schulz, 1904b:99 (Austria, Czechoslovakia); Zilahy Kiss, 1904:77 (Hungary: Tasnád); Kubes, 1905:84 (Czech Republic: Obora, Sušice); Móczár and Henter, 1907:206 (Hungary: Putnok); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Cavro, 1910:685 (France: Département du Nord, as *chrysostoma*); Ditttrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Hallett, 1912:94 (Great Britain: Glamorgan County); Alfken, 1914:270 (northwestern Germany); Birula, 1914:372 (Belorussia: Ambrosovich, Korolevo, and Luskinopol' near Vitebsk); Szilády, 1914:90 (Hungary: Gyilkos-tó); Kohl, 1915:64 (in revision of Palearctic Crabronini); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Noskiewicz, 1920a:154 (Poland: Tatry Mountains: Dolina ku Dziurze); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:147, 148 (in key to Belgian Sphecidae), 164 (phenology, nesting habits); Fahringer, 1922:181 (Turkey); Maidl, 1922:74 (Albania, Montenegro); Stelfox, 1924:16 (Ireland: Dublin District: Kenure Park); Berland, 1925d:199 (in Sphecidae Fauna of France); Bischoff, 1925:296 (Latvia, Poland); Grönbom, 1925:5 (nesting habits); Schütze, 1925:109 (Germany: Lausitz Region); Shestakov, 1925:35 (Russia: Yaroslavl' area); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Burkenheim); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:147 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Zavadil, 1926:30 (Czechoslovakia); Berland, 1928b:181 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Bouwman, 1930:65 (in

revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:639, 643 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Pulkkinen, 1931:123 (in revision of Sphecidae of Finland); Bondroit, 1932:39 (Belgium: Uccle, as *chrysostoma*); Gussakovskij, 1932:15 (Russia: Primorskiy Kray); Balles, 1934:15 (Germany: Baden-Württemberg: seven localities); Jansson, 1934:288 (Sweden); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:320 (Switzerland); Vergne, 1935:120 (France: Auvergne: Clermont-Ferrand, Pont-du-Chateau); Bernard, 1936a:35 (France: Hautes-Pyrénées: Pic de Néouvielle area); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Łowicz); Dulac, 1937:23 (France: Saône-et-Loire: Montcenis, Saint-Laurent d'Andenay); Zavadil, Šustera, and Bat'a, 1937:151 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:82 (first record from Japan: Hokkaido: Jozankei; Russia: Island of Sakhalin); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve); A. Wagner, 1938a:115 (northwestern Germany); Dovnar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Leclercq, 1941b:13 (Belgium: Liège area); Paul, 1941:33 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:228 (in Sphecidae Fauna of Spain); Guiglia, 1944b:39 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Tsuneki, 1947e:400 (Japan: Hokkaido); van Lith, 1947:103 (Netherlands); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); de Hennin and Anciaux, 1948:74 (Belgium: between Sambre and Meuse rivers); Tsuneki, 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflák, 1948:112, 113 (in key to Sphecidae of Czechoslovakia); Chambers, 1949:229 (Great Britain: Bedfordshire); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavro, 1950:40 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:457 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Móczár, 1953:311 (Hungary); Teschner, 1955:56 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Niedl and Deneš, 1967:69 (Czech Republic: Třeboň area); Balthasar, 1972:56 (in Sphecidae Fauna of Czechoslovakia). – **As *Clytocrhysus chrysostomus***: Westerlund, 1893:27 (new generic assignment, Russia: Karelian Republic: northern shore of Lake Ladoga); Borries, 1897:14 (review of nesting habits); J. Nielsen, 1901a:255 (nesting habits), 1903:110 (nesting habits); Schmiedeknecht, 1907:186 (in key to Hymenoptera of Central Europe); Graeffe, 1911:43 (Italy: Trieste area); Schirmer, 1912:163 (Germany: Berlin area); R. Perkins, 1913b:386, 388 (in key to British Crabronini); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz); Alfken, 1924:231 (northern Germany); R. Perkins, 1924:224 (Great Britain: Devon), 1925:151 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:303 (summary of nesting habits), 321 (list of prey); Hémon, 1926:200 (France: Finistère: Fouesnant); Stelfox, 1927:295 (Ireland: collecting localities); F. Werner, 1927:66 (Austria: Niederösterreich: Kamp River valley); Jones, 1928a:5 (Great Britain: Nottingham: nesting in old oak-stump at Wollaton Park); Harttig, 1930b:7 (specimen bearing dipteran egg); Richards, 1930:134 (Great Britain: nesting in rotten posts at Bagley Wood near Oxford); Baudot, 1931:255 (characteristics of cocoon); Butterfield and Fordham, 1931:156 (Great Britain: Yorkshire); Spooner, 1931:15 (Great Britain: Cambridgeshire); Routledge, 1933:89 (England: Cumberland); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Minkiewicz, 1935:215, 219 (Poland: Lake Garbaś 20 km west of Suwałki); Faris, 1936:144 (Ireland: Cavan County); Richards, 1937b:107 (in checklist of British aculeates); Struve, 1937:149 (Germany: Island of Borkum); Hallett, 1938:72 (Great Britain: Herefordshire: Mathon, Ross-on-Wye, West Malvern); Guichard, 1938:72 (Britain: Norfolk coast); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Saint Fagans and Wilmslow); Schneid, 1941:1025 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); Audcent, 1942:25 (nest parasite: *Moschusa polyodon* (Meigen), Sarcophagidae); J. Perkins, 1942:198 (Sweden: Skåne: Höör); Spooner, 1942:110

- (Great Britain: Bedfordshire); Boyd, 1943:163 (Great Britain: eastern Dorset); Richards, 1944a:118 (Great Britain: Wales: Cardigan); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Gloucester); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1963:178 (Great Britain: Kent County); H. Schulz, 1967:59 (Germany: Brandenburg: Ruhlsdorf near Potsdam). – **As *Ectemnius chrysostomus***: Grandi, 1954:243 (new generic assignment, Italy); Srba, 1999:181 (Czech Republic: Chomutov).
- Crabro comptus* Lepeletier de Saint Fargeau and Brullé, 1835:705, ♂. Syntypes: ♂, France: Paris area and Lyon (M. Spinola collection, Torino). Synonymized with *Ectemnius lapidarius* by Pate, 1946c:2. – Dahlbom, 1845:385 (original description copied), 528 (unknown to author, but probably belonging to *Crabro* s.s.); Lepeletier de Saint Fargeau, 1845:108 (in revision of world Hymenoptera); F. Smith, 1856:399 (in catalog of Hymenoptera in British Museum); Kirchner, 1867:226 (in catalog of European Hymenoptera, as *comptus* Panzer); Dours, 1874:158 (in catalog of Hymenoptera of France); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); Krombein in Muesebeck, Krombein, and Townes, 1951:1024 (in catalog of North American Hymenoptera); J.Ch. Bradley, 1957:46 (type in M. Spinola collection, Turin); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: is a synonym of *Ectemnius lapidarius*); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:157 (specimens in M. Spinola collection, Torino, are *Ectemnius lapidarius* and *E. lituratus*).
- Crabro duodecimguttatus* Stephens, 1829a:365, sex not stated, nomen nudum (in catalog of British insects), synonymized with *Ectemnius xylurgus* by F. Smith, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).
- Crabro xylurgus* Shuckard, 1837a:139, ♀, ♂. Syntypes: Britain: no specific locality (depository unknown). Synonymized with *Crabro chrysostoma* by E. Saunders, 1880. – von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); F. Smith, 1851c:27 (Great Britain: nesting in decaying wood), 1853:64 (in checklist of British Hymenoptera); Brown, 1863:181 (Great Britain: Burton-on-Trent); Dale, 1878:45 (Great Britain: Dorset: Glanville's Wootton); D. Baker, 1998:172 (type origin and depository).
- Crabro interstinctus* F. Smith, 1851b:cxvi, ♂. Holotype: ♂, Great Britain: Surrey: Weybridge (BMNH or OXUM). Synonymized with *Crabro chrysostomus* by Kohl, 1915:64. – F. Smith, 1851c:28 (Great Britain: Weybridge), 1853:64 (in checklist of British Hymenoptera), 1855:97 (Great Britain: Weybridge), 1856:405 (in catalog of Hymenoptera in British Museum), 1858c:148 (in review of British Aculeata, redescription); Kirchner, 1867:226 (in catalog of European Hymenoptera).
- Crabro obscurus* F. Smith, 1856:418, ♀, ♂. Syntypes: Canada: Hudson Bay: no specific locality (BMNH). Synonymized with *Ectemnius lapidarius* by Pate, 1946c:3. – Cresson, 1862:236 (in catalog of North American Hymenoptera); Packard, 1866:99 (in revision of North American Crabronini); Provancher, 1882:107 and 1883b:659 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); J. Smith, 1910:681 (in new list of insects of New Jersey); Wray, 1950:38 and 1976:124 (North Carolina: Busick). – **As *Clytochrysus obscurus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey); Harrington, 1902:219 (Canada: Ontario: Ottawa). – **As *Solenius obscurus***: Rohwer, 1916b:665 (new generic assignment, in catalog of Hymenoptera of Connecticut); Mickel, 1918b:375 (in catalog of Nebraskan Sphecidae); Britton, 1920:339 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:665 (in key to Sphecidae of Connecticut; Colebrook, New Haven); J.Ch. Bradley, 1926:175 (New York: Lloyd-Cornell Reservation near McLean), 1928:1019 (in catalog of New York Sphecidae); A. Brown, 1934:265 (Canada: Ontario: Timagami).
- Crabro gracilissimus* Packard, 1866:78, ♂. Lectotype: ♂, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:54. Synonymized with *Ectemnius lapidarius* by Pate, 1946c:3. – Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:144 (in revision of North American Crabronini); Dalla Torre, 1897:603 (in catalog of world Sphecidae); Kincaid, 1900a:355 (USA: Oregon, Washington); Ashmead, 1902:132 (Alaska: Fox Point); Stevens, 1917:423 (North Dakota); Davidson, 1931:49 (California: Los Angeles, nesting habits). – **As *Clytochrysus gracilissimus***: Ashmead,

1899d:174 (new generic assignment, in checklist of North American Crabronidae); Kincaid, 1900b:508 (Alaska: Fox Point); Ashmead, 1910:138 (Alaska: Fox Point).

Crabro denticulatus Packard, 1866:97, ♂. Lectotype: ♂, USA: Virginia: no specific locality (ANSP), designated by Cresson, 1928:53. Synonymized with *Crabro obscurus* by W. Fox, 1895a:143 and with *Ectemnius lapidarius* by Pate, 1946c:3. – Provancher, 1882:109 and 1883b:662 (in revision of Canadian Hymenoptera); Cresson, 1887:284 (in catalog of North American Hymenoptera).

Crabro effossus Packard, 1866:104, ♂. Holotype or syntypes: ♂, USA: New York: no specific locality (ANSP). Synonymized with *Crabro obscurus* by W. Fox, 1895a:143. – Provancher, 1882:107 and 1883b:660 (♀ only, ♂ = ...); Cresson, 1887:285 (in catalog of North American Hymenoptera).

Crabro papagorum Viereck, 1908:401, ♀. Holotype: ♀, USA: Arizona: Coconino County: Oak Creek Canyon 20 mi. southwest of Flagstaff (Kansas Univ.). Synonymized with *Ectemnius lapidarius* by R. Bohart in R. Bohart and Menke, 1976:426. – Krombein in Muesebeck, Krombein, and Townes, 1951:1024 (in catalog of North American Hymenoptera); Leclercq, 1954c:286 (in catalog of world Crabronini); LaBerge, 1956:526 (holotype in Snow Entomological Museum).

As *Crabro subterraneus* Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects), corrected to *Crabro xylurgus* by F. Smith, 1855:99.

As *Solenius lateralis*: Pagliano, 2011a:157 (specimen in M. Spinola collection, Torino, is *Ectemnius lapidarius*)

96. *leonesus* Leclercq

Ectemnius leonesus Leclercq, 1968e:315, ♀, ♂. Holotype: ♀, Argentina: Santa Fe: Rosario, Leones (FSAG). Paratype: Surinam. – Leclercq, 1968e:300 (in key to *Ectemnius* of Latin America), 1972c:196 (in updated key to *Ectemnius* of Latin America), 209 (bibliographic references; additional description); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1991b:6 (in revised key to Latin American *Ectemnius*), 26 (bibliographic references; Argentina: Corrientes: Ituzaingo); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:171 (Argentina: Cordoba: Chiquita), 2007g:194 (holotype in FSAG).

97. *lesticoides* Leclercq

Ectemnius lesticoides Leclercq, 1950e:15, ♀. Holotype: ♀, French Guiana: Bas-Maroni: Nouveau Chantier (MNHN). – Leclercq, 1954c:274 (in catalog of world Crabronini), 1968e:311 (in key to *Ectemnius* of Latin America), 1972c:204 (in updated key to *Ectemnius* of Latin America), 219 (bibliographic reference, diagnostic characters); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Leclercq, 1991b:12 and 14 (in revised key to Latin American *Ectemnius*), 23 (bibliographic references; Bolivia, Ecuador); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:171 (locality records from Colombia, Costa Rica, Ecuador, and Peru).

Ectemnius defiguratus Leclercq, 1972c:218, ♂. Holotype: ♂, Bolivia: Sara: Santa Cruz de la Sierra (ZMHU). Synonymized with *Ectemnius lesticoides* by Leclercq, 1991:23. – Leclercq, 1972c:202 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae).

98. *lituratus* (Panzer)

Crabro lituratus Panzer, 1803, Heft 90:13, [♀]. Holotype or syntypes, ♀, Germany: “habitat in montibus”: no specific locality (depository ?). – Panzer, 1806:181 (in critical review of his earlier work); Spinola, 1806:103 (Italy: Liguria: Arcata); Jurine, 1807:212 (in checklist of species of *Crabro*); Audouin, 1824a:5 (in Dictionnaire classique d’histoire naturelle); Lepeletier de Saint Fargeau and Brullé, 1835:702 (in revision of Crabronini); Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:105 (in revision of world Hymenoptera); F. Smith, 1856:401 (in catalog of Hymenoptera in British Museum); Wesmael, 1852:621 (Italy: Sicily); A. Costa, 1867c:142 and 1871b:71 (in revision of Italian Sphecidae); Dours, 1874:157 (in catalog of Hymenoptera of France); Kohl, 1883e:651 (Switzerland); Sickmann, 1883:68 (Germany: Niedersachsen: Wellingholthausen); Kohl, 1893a:25 (Austria: Niederösterreich); Sickmann, 1893:58 (Germany: Niedersachsen: Iburg, analysis of color variation); Baldini, 1894:71 (Italy: Modena area); E. Saunders, 1896:145 (in revision of British Aculeata); Acloque, 1897:86 (in

Sphecidae Fauna of France and Algeria); Dalla Torre, 1897:608 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia and Slovakia); Antiga and Bofill, 1904:25 (Spain: Cataluña Province; as *lituratus*); W. Schulz, 1904b:99 (France: Alpes Maritimes); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); Schmiedeknecht, 1907:185, 186 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Morley, 1909:306 (Great Britain: Isle of Wight); Peets, 1909-1911:66 (*Crabro lituratus* of Panzer = *Crabro lituratus*); Cavo, 1910:685 (France: Département du Nord: Féchain); Haines, 1914:130 (Great Britain: Dorset); Kohl, 1915:54 (in revision of Palearctic Crabronini); R. Perkins, 1916:231 (females in F. Smith collection are mixed with *Crabro cephalotes* and *C. chrysostoma*); Honoré, 1919:268 (France: Seine-et-Oise: Lardy); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Dubois, 1920:87 (first record from Belgium: La Gileppe), 1921b:147, 148 (in key to Belgian Sphecidae), 164 (phenology); Enslin, 1922c:245 (Germany: Bayern: Iphofen and Ulm); Maidl, 1922:74 (Albania); Berland, 1925d:200 (in Sphecidae Fauna of France); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Berland, 1928b:181 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Bouwman, 1930:64 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:641, 643 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Grandi, 1931:58 (Italy: Emilia-Romagna: Gabellina); Maréchal, 1932:68 (in catalog of Belgian Hymenoptera: Esneux); K. Strohm, 1933:337 (Germany: Baden: Württemberg: Kaiserstuhl); Balles, 1934:15 (Germany: Baden-Württemberg: Hopfengarten, Oberschefflenz); Bondroit, 1934:62 (Belgium: Chimay); Grandi, 1935a:108 (Italy); Steck, 1935:319 (Switzerland); Vergne, 1935:120 (France: Auvergne: Pont-du-Chateau); Crèvecoeur and Maréchal, 1936:225 (in catalog of Belgian Hymenoptera); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg area); Dulac, 1937:24 (France: Saône-et-Loire: Aluze, Charresey, La Coudraye, Saint-Laurent d'Andenay, Uchon); Zavadil, Šustera, and Bat'a, 1937:150 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Zavadil, 1939:121 (Czech Republic: Moravia: Pouzdrany); Dovnar-Zapolskiy, 1940:303 (Russia: Kursk Oblast); Balthasar, 1941b:111 (Czech Republic: eastern Moravia), 1943:40 (Czech Republic: Moravia: Zlin area); Giner Mari, 1943a:227 (in Sphecidae Fauna of Spain); Guiglia, 1944b:39 (Italy); de Hennin and Anciaux, 1948:74 (Belgium: between Sambre and Meuse rivers); Zavadil in Zavadil and Šnoflak, 1948:112, 113 (in key to Sphecidae of Czechoslovakia); Balthasar, 1950:37 (Czechoslovakia; additions to description of Zavadil and Šnoflak, 1948); Cavo, 1950:40 (France: Département du Nord); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:457 (distribution in Scandinavia); Cleu, 1953:51 (France: Ardèche River basin); Nouvel and Ribaut, 1953:183 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cadéac); de Beaumont, 1954e:95 (Italy); Atanassov, 1955:195 (first record from Bulgaria: Pancharevo near Sofia); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:394 (in catalog of Sphecidae of Spain); Zirngiebl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Noskiewicz and Puławski, 1960:130, 133 (in key to Polish Sphecidae); Wengris, 1962:206 (Lithuania: Vilnius area); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Scobiola-Palade, 1967b:51 (Romania); Balthasar, 1972:60 (in Sphecidae Fauna of Czechoslovakia); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Skibińska, 1981:358 (Poland: Warszawa-Białoleka), 1982:120, 123 (Poland: Mazovian Voivodship: Białoleka, Ursynów, Warszawa); Pagliano, 2011a:156 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes*). – **As *Clytochrysus lituratus***: Coulon, 1925:126 (new generic assignment, France); Hémon, 1926:200 (France: Finistère: Fouesnant); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Caruel, 1952a:62 (France: Marne Department). – **As *Metacrabro lituratus***: R. Perkins, 1913b:387, 388 (new generic assignment, in key to British Crabronini), 1916:15 (tooth on upper mandibular margin in female, as in *Metacrabro quadricinctus*), 1924:224 (Great Britain: Devon), 1925:151 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:307 (summary of nesting habits), 322 (list of prey); Stelfox, 1927:296 (records from Ireland are erroneous); Butterfield and Fordham, 1931:156 (Great Britain: Yorkshire); Stelfox, 1931:15 (Great Britain: Cambridgeshire), 1935:139 (Great Britain: Huntingdonshire: Wood Walton, and Northamptonshire: Ashton Wold); Richards, 1937b:107 (in checklist of British

aculeates); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1024 (Germany: Bayern: Bamberg area); Blüthgen, 1942:10 (Germany: Sachsen: known from Saal Valley but not from Kyffhäuser); Spooner, 1942:110 (Great Britain: Bedfordshire); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Chalford, Rocborough, Stroud, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Graham, 1947:239 (Great Britain: Lincolnshire: Woodhall Spa); Chambers, 1949:230 (Great Britain: Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Hallett, 1952:44 (Great Britain: West Sussex: Bosham Hoe); Felton, 1963:179 (Great Britain: Kent County). – *As Ectemnius lituratus*: Leclercq, 1949a:16 (new generic assignment, miscellaneous locality records), 1951e:16 (bibliography of Belgian records); Grandi, 1954:244 (Italy); Leclercq, 1954c:287 (in catalog of world Crabronini), 322 (nest and prey records); Aerts, 1955:60 (Germany: Rheinland); Grandi, 1957:392 (Italy: Abruzzi); Móczár, 1958b:205 (Hungary: locality records); de Beaumont, 1959a:34 (Italy); Wolf, 1959b:35 (known from Germany, but not from Nassau); Babiý, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:126 (in Sphecidae Fauna of Switzerland); Roberti, Frilli, and Pizzaghi, 1965:110 (Italy: Emilia-Romagna: Vernasca in Piacenza Province); Gauss, 1966c:240 (specimen bearing dipteran egg); Lefebber, 1966:209 (Netherlands: Bemelen, Sint-Pietersberg); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:349 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:79 (Germany: Niederfranken); Leclercq, 1967a:30 (locality records from Great Britain); Lefebber, 1967c:220 (Netherlands: Sint-Pietersberg, as *lituratus*); Benedek, 1968:75 (Hungary, floral records); Leclercq, 1968b:39 (Great Britain: Kent); Lefebber, 1968a:5 (Netherlands: Sint-Pietersberg); Benedek, 1969a:84 (Hungary: marshy meadow); Lefebber, 1969a:79 (Netherlands: Baarn, Cadier, Ede, Elsloo, Winterswijk), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Zangheri, 1969:1708 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:101 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:759 (Democratic Germany); Leclercq, 1971:221 (Spain); Lefebber, 1971a:18 (Netherlands: Bemelen, Geulle; Belgium: Caestert); Petit, 1971:23 (Luxemburg: Echternach); Kofler, 1972:112 (Austria: eastern Tirol); Simon Thomas, 1972:185 (France: Landes); Haeseler, 1973:55 (Germany: Niedersachsen: Pevestorf 72 km southeast of Lauenburg, Schleswig-Holstein: 6 km northeast of Eutin, Segrahner Berg 12 km southeast of Mölln); Hoop, 1973:47 (Germany: Schleswig-Holstein: Schmilau); Else, 1974:207 (Great Britain: Oxenbourne), 207, 209 (in key to British *Ectemnius*); Leclercq, 1974d:284 (synonymy); Leclercq, 1975b:4 (France); Lefebber, 1975b:122, 154 (Netherlands: Limburg: Schiepersberg 6 km east of Maastricht); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Lomholdt, 1976:314 (in Sphecidae Fauna of Fennoscandia and Denmark); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Hoop, 1977:72 (Germany: Schleswig-Holstein: Kahlschlag near Rodenbek); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Marion, 1978:89 (France: Nièvre Department); Petit, 1978:88 (Belgium: Côte Saint-Germain, Wonck); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1478 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Pagliano, 1980:123 (Italy: Piemonte); Preuss, 1980a:24 (Germany: nesting in wood, but natural habitat is reduced, occurring in numbers in old beech stands); Richards, 1980:54 (in key to Sphecidae of British Isles); Schmidt, 1980:384 (Germany: Baden-Württemberg); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:43 (Germany: Westfalen: Hamm); Donath, 1982:214 (Germany: Cottbus Bezirk); Gayubo, 1982b:31 (Spain: Salamanca: Béjar); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:19 (in catalog of Sphecidae of Austria); Józán, 1983:102 (Hungary); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo, 1984b:96 (Spain: previously recorded from Salamanca Province); Gayubo and Tormos, 1984:19 (Spain: Valencia); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Haeseler, 1985a:350 (Germany: Schleswig-Holstein); Józán, 1985b:60 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefebber, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:67 (Germany: Südpfalz); Józán, 1986:373 (Hungary: Kiskunság National Park); Skibińska, 1986b:154 (Poland: suburbs of Warszawa), 158 (rural and suburban parks, as *ligeratus*), 163 (urban parks, as *ligeratus*), 165 (streetside green), 174 (various green urban habitats); Tormos

and Jiménez, 1987a:126 (Spain: Valencia); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:17 (Austria: Bisamberg); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Karsai, 1988:100 (Hungary: Kiskunság National Park); Allen and Felton, 1989:36 (Great Britain: Kent County); Jacobs, 1989:23 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:201 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetsova, 1990:24 (Russia: Voronezh Oblast: Galich'ya Gora Nature Reserve); Pagliano, 1990:90 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:549 (Austria: Kärnten); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:410 (Italy); Kowalczyk, 1991b:120 (Poland: Augustów Forest); Negrisola, 1991:322 (Italy: Treviso and Udine Province); Pagliano, 1991b:347, 354 (in key to Italian Crabroninae); van der Smissen, 1991:96 (northwestern Germany); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józán, 1992a:229 (Hungary: Béda-Karapanca Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Archer, 1993a:45 (Great Britain: Channel Islands); Bitsch and Leclercq, 1993:180 (in revision of western European Crabroninae); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:29 (Austria, Germany; Ukraine: Zaleszczyki; Slovenia: Lipica); Leclercq and Barbier, 1993:60 (map of distribution in France); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); van der Smissen, 1993:128 (northwestern Germany); Wolf, 1993:14 (Germany: Bayern: Gersthofen); Gayubo and Borsato, 1994:214 (Italy: Veneto); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Krasnobayev et al., 1995:139 (Russia: Zhiguli Hills northwest of Samara); Negrisola in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Riemann, 1995:52 and 59 (Germany: Bremen); Schmid-Egger, 1995:60 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:184 (summary of records from Germany: Rheinland-Pfalz Province); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:73 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:304 (Belorussia: Berezinsky Nature Reserve); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Witt, 1996:106 (Germany: Brandenburg), 108 (locality records); Woydak, 1996:84 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 35 (endangered); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Kulik, 1998:130 (northwestern Germany); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Salzmann-Wandeler, 1998b:102 (Switzerland: Schwyz Canton: Gersau-Oberholz); van der Smissen, 1998:59 (Germany: Niedersachsen, Schleswig-Holstein); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Kuhlmann, Wolf, and Woydak, 1999:569 (endangered in Nordrhein-Westfalen State of Germany); Leclercq, 1999a:20 (in key to Asian *Ectemnius*), 60 (in annotated catalog of Asian and Oceanian *Ectemnius*); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Pauly, 1999:110 (in catalog of Belgian aculeates); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:338 (in Sphecid Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary:

Bakony Mountains); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mountains); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Vicidomini, 2000b:24 (Italy: previously recorded from Campania); Basset, 2001:83 (France: Département de Gironde); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 207 (review of biology); Ohl et al., 2001:139 (distribution in Germany by provinces); Reemer and van der Meer, 2001:16 (Netherlands: along Almelo-Nordhorn canal); Salzmänn-Wandeler and Rezbanyai-Reser, 2001:157 (Switzerland: Tessin Canton: Meride area); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Archer, 2002b:118 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:109 (Great Britain: Kent: Tunbridge Wells area, prey: *Lassioglossum lativentre* (Schenck), a bee); Bieri, 2002:75 (Lichtenstein); Deván, 2002b:204 (Slovakia: Pekelná dolina and Prepadlisko); Józán, 2002:54 (Hungary: Mecsek Mountains); Kazenas, 2002a:108 (geographic distribution, collecting localities in Kazakhstan); Litt, 2002:167 (Belgium); Lukáš, 2002:190 (Slovakia: Hájnica Hill near Trenčianske Bohuslavice); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Wiśniowski, 2002:72 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Drewes, 2003:137 (France, Germany, Hungary: miscellaneous locality records); Józán, 2003:228 (Hungary: Látrányi Pusztá Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:66 (Germany: in catalog of wasps and bees of Bayern); Wiśniowski in Dylewska and Wiśniowski, 2003:172 (Poland: Ojców National Park); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:773 (locality records from Bulgaria, Croatia, France, Greece, and Italy); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Klein and Lefebvre in Peeters, van Achterberg et al., 2004:384 (in Wasp and Ant Fauna of Netherlands); Litt, 2004:222 (Switzerland: Valais: Zinal); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:81 (Russia: Rostov Oblast': Migulinskaya), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Dubitzky, Blank, and Schönlitzer, 2005:274 (Germany: Bayern: area north of Dachau); Fallahzadeh, Ostovan, and Shojaei, 2009:43 (first record from Iran: Fars: Jahrom); Gayubo and Özbek, 2005:33 (Turkey: Erzurum: Penkaya; Iğdır: Melekli; Samsun: Gürgen); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:181 (Austria: Tirol: Lienz District: no new records after Werner, 1934); Mokrousov and Selivanova, 2005:753 (Russia: Voronezh Oblast'); Pagliano and Negrisolo, 2005:275 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:558 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:15 (Germany: Berlin); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Straka, 2005a:397 (critically endangered in Czech Republic); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Wiśniowski, 2005a:312 (Poland: Ojców National Park; occurring only in forest and on wooden buildings); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Gadoum and Barbier, 2006:43 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français); Gorobchishin, 2006:132 (Ukraine: Cherkasy Oblast': Kaniv Nature Reserve); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); K. Standfuss and L. Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund), 2006b:99 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge); Beavis, 2007:94 (Great Britain: Tunbridge Wells and Central High Weald); Cungs, Jakubzik, and Cölln, 2007:140 (Luxemburg: Haardt Nature

Reserve); Flügel, 2007:39 (Germany: Hessen: Halberg near Neumorschen); Jacobs, 2007:151, 153 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic Hills); Lee and Scott, 2007:22 (Great Britain: East Anglian wetlands); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia), 230 (first recorded from Bohemia by Vepřek, 2006; Bohemia: Praha-Košíře, Radonice, Vrchoviny); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vicidomini and Pignataro, 2007:2 (Italy: Salerno: known from Parco Nazionale del Cilento e Vallo di Diano), 15 (Italy: Provincia di Salerno: San Severino di Centola); Gayubo, González, Tormos, and Asís, 2008:138 (Spain: Salamanca: Parque Natural de Las Batuecas–Sierra de Francia); Ljubomirov and Yildirim, 2008:282 (in catalog of Crabronidae of Turkey); Theunert, 2008:37 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:224 (in supplement to vol. I of Faune de France, 1993: recent records from France, Greece, and Spain reported; France: first records from Sarthe: Cré); Burguet, 2009:15 (France: Département de Puy-de-Dôme: Bois de la Comté); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Fallahzadeh, Ostovan, and Saghaei, 2009:237 (Iran: Fars: Jahrom), 244 (color photograph); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen), 34 (Germany: Hessen: locality records); Mokrousov, 2009:285 (Russia: Republic Nordrhein-Westfalen); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Mokrousov, 2010a:62 (Russia: Kirov and Nizhniy Novgorod oblast's, Chuvash Republic, Mari El Republic, Republic of Mordovia, Tatarstan: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve “Prisurskiy”); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Saure, 2010b:175 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Shorenko and Kononov, 2010:19 (Ukraine); Treiber, 2010:135 (France: département du Bas-Rhin); van der Smissen, 2010a:340 (Germany: Schleswig-Holstein: locality records); Falk, 2011:65 (Great Britain: Sussex: South Downs); Gogala, 2011:22 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:74 (Russia: Chuvash Republic); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahnberg); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:134 (Germany: Hessen: not endangered); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Prisniy, 2012:50 (Russia: Belgorod Oblast'); Saure, 2012b:229 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Russia: Krasnaya Polana near Sochi: collected in private plots); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Mokrousov, Ruchin, and Egorov, 2013:201 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:216 (in annotated catalog of aculeate wasps of Belorussia); Archer, 2014a:125 (Great Britain: extinct in Yorkshire, last collected in 1852); Bitsch, 2014:401 (France: Aveyron: Cransac-les-Thermes); U. Frommer, 2014:27 (Germany: Hessen: Lorch); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:323 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:120 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Else, Bolton, and Broad, 2016:25 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:576 (Russia: Krasnodarskiy Kray); Saure,

2016b:49 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:48 (Turkey: Tunceli: Pülümür: Dağyolu); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Burguet and Durand, 2017:9 (France: Puy-de-Dôme: basin of river Crouël); 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 understory); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:49 (Iran: known from Fars Province); Shorenko, 2017:77 (in Crimea collected in June through August); Creutzburg, Winter, Baumbach, and Ssymank, 2018:216 (Germany: Thüringen: Wachsenburg Nature Reserve); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ruchin and Antropov, 2019a:13230 (Russia: Mordovia State Nature Reserve); Shorenko, 2019:211 (among the commonest sphecid species in Crimea), 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:108 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:52 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Saure and Marten, 2021:135 (Germany: Sachsen-Anhalt: Nationalpark Harz); Jakubzik and Cölln, 2022:11 (Germany: Rheinland-Pfalz: Moselle River valley between Drohn and Kattenes); Japoshvili and Ljubomirov, 2022:277 (Georgia: Lagodekhi Protected Areas); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); U. Frommer and Bahmer, 2023:194 (Germany: Hessen: Giessen University Botanical Garden); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:79 (Ukraine: Rivno Nature Reserve); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley).

Solenius petiolatus Lepeletier de Saint Fargeau and Brullé, 1835:726, ♂. Holotype or syntypes: ♂, France: Paris area (lost). Neotype: ♂, France: Pas-de-Calais: Le Chesnoy-en-Artois (MNHN), designated by Leclercq, 1974d:284. Synonymized with *Ectemnius lituratus* by Leclercq, 1974d:284. – Lepeletier de Saint Fargeau, 1845:131 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:87 (in Sphecid Fauna of France and Algeria); de Gaulle, 1908:122 (in catalog of French Hymenoptera, as *petiolatus* L.); Coulon, 1925:125 (France: Martin-Eglise). – **As *Crabro petiolatus*:** Dahlbom, 1845:388 (new generic assignment, junior secondary homonym of *Crabro petiolatus* Panzer, 1797, now *Mellinus crabroneus* (Thunberg, 1791), original description copied), 528 (unknown to author, but probably belonging to *Crabro* s.s.); F. Smith, 1856:401 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:61 (in catalog of world Sphecidae).

Ceratocolus fasciatus Lepeletier de Saint Fargeau and Brullé, 1835:746, ♂. Holotype or syntypes: France: Paris area (lost). Neotype: ♂, France: Sceaux (MNHN), designated by Leclercq, 1974d:284. Synonymized with *Crabro lituratus* by Kohl, 1888b:720 and with *Ectemnius lituratus* by Leclercq, 1974d:284. – Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:151 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria); de Gaulle, 1908:122 (in catalog of French Hymenoptera). – **As *Crabro fasciatus*:** Dahlbom, 1845:382 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*); F. Smith, 1856:400 (in catalog of Hymenoptera in British Museum); Kohl, 1883e:651 (Switzerland); Dalla Torre, 1897:599 (in catalog of world Sphecidae).

Ceratocolus [lapsus calami] *reticulatus* Lepeletier de Saint Fargeau and Brullé, 1835:747, ♀. Holotype or syntypes: France: Bordeaux area (lost). Neotype: ♂, France: Manche: Bolleville (MNHN), designated by Leclercq, 1974d:284. Synonymized with *Crabro pterotus* by F. Smith, 1856:396, with *Crabro peltarius* by Kohl, 1888c:576, and with *Ectemnius lituratus* by Leclercq, 1974d:284. – Lepeletier de Saint Fargeau, 1845:152 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera

- of France); Acloque, 1897:88 (in Sphecidae Fauna of France and Algeria). – **As *Crabro reticulatus***: Dahlbom, 1845:382 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*); F. Smith, 1856:402 (in catalog of Hymenoptera in British Museum); R. Bohart and Menke, 1976:408 (in checklist of world Sphecidae, as tentative synonym of *Crabro scutellatus*).
- Crabro kollari* Dahlbom, 1845:415, ♀, ♂ (as *Kollari*, incorrect original capitalization). Syntypes: Germany: no specific locality, and Austria: Wien (Lund). Synonymized with *Crabro lituratus* by Kohl, 1888b:720. – Dahlbom, 1845:528 (is a member of *Crabro* s.s.); F. Smith, 1856:414 (in catalog of Hymenoptera in British Museum); Schenck, 1857:120 (in revision of fossorial wasps of Germany); Taschenberg, 1858:116 (Germany), 1866:166 (in revision of Hymenoptera of Germany); Kirchner, 1867:226 (in catalog of European Hymenoptera); Schenck, 1867a:351 (known from Germany); Wierzejski, 1868:118 (Poland: Kraków; Ukraine: Podole Region), 1874:262 (specimens recorded in 1868 are actually *Crabro striatus*); Rudow, 1896:329 (Germany: Brandenburg: no specific locality); E. Saunders, 1883a:246 (first record from Britain); Harwood, 1884:212 (England: Essex: Colchester area).
- Crabro argenteus* Schenck, 1857:62, ♀. Holotype: ♀, Germany: Nassau Region: no specific locality (Landesmuseum Wiesbaden). Synonymized with *Crabro lituratus* by Kohl, 1888b:720, synonymy confirmed by Schmidt, 1971a:64. – Schenck, 1861:141 (may be a variety of *Crabro cephalotes*); Kohl, 1880:100 (Italy: Trentino-Alto Adige: Haslach near Bolzano); Friese, 1883:200 (Germany: Sachsen-Anhalt: Weissenfels); Andert, 2010:8 (type material in Museum Wiesbaden). – **As *Clytochrysus argenteus***: Borries, 1897:16 (new generic assignment, nesting habits).
- Crabro vestitus* F. Smith, 1858c:131, ♂. Syntypes: Great Britain: Yorkshsire: no specific locality (BMNH). Synonymized with *Ectemnius lituratus* by Leclercq, 1954c:287.
- Crabro intermedius* A. Morawitz, 1866a:264, ♀, ♂. Syntypes: Russia: Spask (ZIN). Synonymized with *Crabro lituratus* by Kohl, 1888b:720. – A. Morawitz, 1866a:272 and 1866b:349 (specimens in E. Eversmann collection); Dalla Torre, 1897:605 (in catalog of world Sphecidae).
- Crabro intermedius* A. Morawitz, 1866b:339. Objective synonym of *Crabro intermedius* A. Morawitz, 1866a:264.
- Crabro luxuriosus* A. Costa, 1871b:72, ♀. Holotype: ♀, Italy: Campania: colline di Sanseverino near Napoli (Inst. Entomol. Agrar., Portici). Synonymized with *Ectemnius lituratus* by Leclercq, 1992b:254. – Kohl, 1915:92 (new generic assignment, original description copied); R. Bohart and Menke, 1976:409 (as "unknown species described in *Crabro*").
- Crabro kollari* var. *dallatorreanus* Kohl, 1880:114, ♀ (as *Dallatorreanus*, incorrect original capitalization). Holotype: ♀, Austria: Tirol: Zeinischjoch (NHMW). Synonymized with *Crabro lituratus* by Kohl, 1915:54. – **As *Crabro lituratus* var. *dallatorreanus***: Dalla Torre, 1897:609 (new subspecific generic assignment, in catalog of world Sphecidae).
- Crabro transiens* Kohl, 1915:54: R. Bohart and Menke, 427 (Kohl's comment "*Crabro transiens* ad *Clytochrysus*" incorrectly interpreted as species name).
- As *Ectemnius guttatus*: Romanova, 1969:135 (Russia: Krasnodar Kray), corrected to *Ectemnius lituratus* by Mokrousov and Popov, 2016:575.
- As *Ceratocolus striatus*: Pagliano, 2011a:149 (specimens in M. Spinola collection, Torino, are *Ectemnius lituratus*).
- As *Crabro cephalotes* partim: Pagliano, 2011a:155 (specimens in M. Spinola collection, Torino, are *Ectemnius lituratus*).
- As *Crabro comptus* partim: Pagliano, 2011a:157 (specimen in M. Spinola collection, Torino, is *Ectemnius lituratus*).

99. *lysias* (Cameron)

- Crabro lysias* Cameron, 1905a:15, ♀. Holotype: ♀, India or Pakistan: Himalayas: no specific locality (BMNH). – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius lysias***: Leclercq, 1950c:2 (new generic assignment), 1954c:285 (in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1982b:149 (comparison with *Ectemnius continuus*); Leclercq, 1999a:25 (in key to Asian *Ectemnius*), 60 (in annotated catalog of Asian and Oceanian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent), 213 (in key to subgenus *Hypocrabro* of Indian subcontinent).

100. mackayensis (R. Turner)

Crabro mackayensis R. Turner, 1908:532, ♀. Holotype or syntypes: ♀, Australia: Queensland: Mackay (BMNH). – R. Turner, 1912f:63 (placed in subgenus *Solenius*), 1915a:92 (in key to Australian *Crabro* subgenus *Solenius*, now *Ectemnius*). – **As *Ectemnius mackayensis***: Leclercq, 1951i:195 (new generic assignment), 1954c:268 (in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Cardale, 1985:276 (in catalog of Australian Sphecidae).

101. maculosus (Gmelin)

Crabro maculatus Fabricius, 1781:470, sex not stated. Holotype or syntypes: North America: no specific locality (type originally in BMNH, Banks coll., now lost: van der Vecht, 1961a:71). – Fabricius, 1787:295 (redescription); Rossi, 1790:90 (in revision of insects of Etruria, now Toscana, Italy, obviously in error); Olivier, 1792a:513 (redescription); Fabricius, 1793:295 (redescription), 1804:309 (redescription); nec Lepeletier de Saint Fargeau and Brullé, 1835:730 (in *Blepharipus*, = *Crossocrus maculipennis*); Dahlbom, 1845:526 (in key to *Crabro*); F. Smith, 1856:417 (in catalog of Hymenoptera in British Museum); Cresson, 1862:236 (in catalog of North American Hymenoptera); Packard, 1866:115 (bibliographic references); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:204 (original description copied); Dalla Torre, 1897:609 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey); Harrington, 1902:218 (Canada: Ontario: Ottawa); Slosson, 1902:5 (Kentucky: Mount Washington); W. Schulz, 1906:207 (additional bibliography); J. Smith, 1910:681 (in new list of insects of New Jersey); Stevens, 1917:423 (North Dakota); Krombein in Muesebeck, Krombein, and Townes, 1951:1029 (in catalog of North American Hymenoptera, unrecognized species); Krombein, 1958f:199, 200 (in supplement to catalog of North American Hymenoptera: is a member of *Ectemnius*).

Vespa maculosa Gmelin, 1790, substitute name for *Vespa maculata* (Fabricius, 1782) Gmelin, 1790, junior secondary homonym of *Vespa maculata* Linnaeus, 1763, now in *Vespula*. – **As *Ectemnius maculosus***: R. Bohart and Menke, 1976:427 (new generic assignment, in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:488 and 490 (in key to North American *Ectemnius*); Krombein, 1979b:1678 (in catalog of North American Hymenoptera); Finnamore, 1982:188 (in Sphecidae Fauna of Southern Quebec); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Boone, Grehan, and B. Parker, 2000:36 (Vermont: Mount Mansfield); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Leclercq, 2007e:171 (USA: locality records); Ratzlaff, 2016:25 (Canada: first record from British Columbia: Georgia Depression and Southern Interior), 34 (British Columbia: locality records); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia, Ontario, Quebec, first record from Alberta, Manitoba, New Brunswick, Northwest Territories, Nova Scotia, Prince Edward Island, and Saskatchewan: no specific locality).

Crabro singularis F. Smith, 1856:417, ♂. Holotype or syntypes: ♂, North America: New York: Oneida County: Trenton Falls (BMNH). Synonymized with *Ectemnius maculosus* by R. Bohart in R. Bohart and Menke, 1976:427. – Cresson, 1862:236 (in catalog of North American Hymenoptera); Packard, 1866:86 (in revision of North American Crabronini, description of ♀); Provancher, 1882:105 and 1883b:658 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:159 (in revision of North American Crabronini); Dalla Torre, 1897:629 (in catalog of world Sphecidae); Kincaid, 1900a:357 (USA: Washington: Olympia, Island of Whidby); Titus, 1909:319 (Michigan: Lake Superior: Isle Royale); Brimley, 1938:449 (North Carolina: Raleigh, Southern Pines). – **As *Solenius singularis***: Faull, 1913:384 (new generic assignment, Canada: Toronto region); Rohwer, 1916b:667 (in catalog of Hymenoptera of Connecticut; type species of *Lophocrabro* Rohwer); Mickel, 1918b:376 (in catalog of Nebraskan Sphecidae); Britton, 1920:339 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:667 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1926:175 (New York: Lloyd-Cornell Reservation near McLean), 1928:1020 (in catalog of New York Sphecidae); A. Brown, 1934:265 (Canada: Ontario: Timagami). – **As *Ectemnius singularis***: Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (new generic

assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:290 (in catalog of world Crabronini), 323 (nest and prey records); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: synonymy with *Ectemnius frigidus* reported), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); Fain, 1973:167 (parasite: *Crabrovidia ectemni* Fain, a saproglyphid mite).

Crabro frigidus F. Smith, 1856:419, ♀. Holotype or syntypes: ♀, North America: no specific locality (BMNH). Tentatively synonymized with *Ectemnius quadricinctus* (correctly: *Ectemnius cephalotes*) by Krombein in Muesebeck, Krombein, and Townes, 1951:1025; definitely synonymized with *Ectemnius singularis* by Leclercq, 1954c:290. – Cresson, 1862:235 (in catalog of North American Hymenoptera); Packard, 1866:115 (bibliographic references); Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:203 (original description copied); Dalla Torre, 1897:602 (in catalog of world Sphecidae); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: is a synonym of *Ectemnius singularis*).

Crabro quadrangularis Packard, 1866:85, ♀. Lectotype: ♀, USA: Pennsylvania: no specific locality (ANSP), designated by Cresson, 1928:55 (as *quadrangulus*). Synonymized with *Crabro singularis* by W. Fox, 1895a:159, 160. – Cresson, 1887:285 (in catalog of North American Hymenoptera).

Crabro quatuordecimmaculatus Packard, 1866:87, ♂ (as *14-maculatus*, incorrect original spelling). Lectotype: ♂, USA: Illinois: no specific locality (ANSP), designated by Cresson, 1928:55. Synonymized with *Crabro singularis* by W. Fox, 1895a:159, 160. – Cresson, 1887:285 (in catalog of North American Hymenoptera, as *14-maculatus*).

Crabro oblongus Packard, 1866:88, ♀. Holotype or syntypes: ♀, USA: Connecticut: no specific locality (ANSP). Synonymized with *Ectemnius maculosus* by R. Bohart in R. Bohart and Menke, 1976:427. – Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:204 (original description copied); Dalla Torre, 1897:612 (in catalog of world Sphecidae); Rohwer, 1916b:662 (original description copied); Britton, 1920:339 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:662 (in key to Sphecidae of Connecticut; original description copied). – **As *Ectemnius oblongus***: Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:290 (in catalog of world Crabronini).

Crabro trapezoideus Packard, 1866:89, ♂. Lectotype: ♂, USA: Illinois: no specific locality (ANSP), designated by Cresson, 1928:56. Synonymized with *Ectemnius maculosus* by R. Bohart in R. Bohart and Menke, 1976:427. – Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:160 (revision); Ashmead, 1899d:173 (in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey), 1910:681 (in new list of insects of New Jersey); Washburn, 1919:218 (in list of Hymenoptera of Minnesota). – **As *Solenius trapezoideus***: Mickel, 1918b:376 (new generic assignment, in catalog of Nebraskan Sphecidae, as *trapezoidus*). – **As *Ectemnius trapezoideus***: Krombein in Muesebeck, Krombein, and Townes, 1951:1025 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:290 (in catalog of world Crabronini).

102. *mamasae* Leclercq

Ectemnius mamasae Leclercq, 1999a:60, ♀. Holotype: ♀, Indonensia: Sulawesi: Pennanang near Mamasa (RMNH). – Leclercq, 1999a:28 (in key to Asian *Ectemnius*).

103. *mandibularis* (F. Smith)

Crabro mandibularis F. Smith, 1879a:677, ♀. Holotype or syntypes: ♀, Hawaiian Islands: Island of Maui: no specific locality (BMNH), treated as holotype by Takumi, 1999:42. – Blackburn and Kirby, 1880:87 (Hawaiian Islands); Blackburn in Blackburn and Cameron, 1886:167 (redescription); Dalla Torre, 1897:610 (in catalog of world Sphecidae); R. Perkins in R. Perkins and Forel, 1899:21 (redescription). – **As *Xenocrabro mandibularis***: Krauss, 1944:93 (new generic assignment, Hawaiian Islands: Island of Molokai). – **As *Ectemnius mandibularis***: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:320 (in revision of Hawaiian *Ectemnius*);

R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Takumi, 1999:41 (in revision of Hawaiian *Ectemnius*).

Crabro mandibularis F. Smith, 1879b:138. Objective synonym of *Crabro mandibularis* F. Smith, 1879a.

Crabro denticornis F. Smith, 1879a:678, ♂. Holotype or syntypes: ♂, Hawaiian Islands: coasts of Maui: no specific locality (BMNH), treated as holotype by Takumi, 1999:42. Synonymized with *Crabro mandibularis* by Blackburn in Blackburn and Cameron, 1886:167. – Blackburn and Kirby, 1880:87 (Hawaiian Islands); Dalla Torre, 1897:596 (in catalog of world Sphecidae).

Crabro denticornis F. Smith, 1879b:130, ♂. Objective synonym of *Crabro denticornis* F. Smith, 1879a.

Crabro iridipennis F. Smith, 1879a:678, in description of *Crabro denticornis*. Nomen nudum (a lapsus for *Crabro mandibularis*).

Crabro mauiensis Blackburn in Blackburn and Cameron, 1886:165, ♀. Holotype: ♀, Hawaiian Islands: Island of Maui: near Wailuku (Bishop Mus.). Synonymized with *Crabro mandibularis* by R. Perkins, 1912:727. – Dalla Torre, 1897:610 (in catalog of world Sphecidae); R. Perkins in R. Perkins and Forel, 1899:17 (redescription).

104. *martjanowi* (F. Morawitz)

Crabro martjanowi F. Morawitz, 1892:177, ♂ (as *Martjanowi*, incorrect original capitalization). Holotype: ♂, Russia: Krasnoyarskiy Kray: Minussinsk (ZIN); designation of lectotype ♀ by Marshakov, 1979a:102 was illegal. – Dalla Torre, 1897:610 (in catalog of world Sphecidae); Kohl, 1915:53 (original description copied); Iwata, 1933b:8 (description of ♀, locality records from Japan), 1938d:82 (Japan: Hokkaido, Honshu); Tsuneki, 1947d:282 (Korea). – **As *Ectemnius martjanowi*:** Leclercq, 1954c:287 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1955d:213 (Russia: Kuril Islands, description of local population); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1956e:129 (type of subgenus *Yanoni*, diagnostic characters), 1957d:77 (Korea), 1957f:59 (Korea); Leclercq, 1958e:112 (in subgenus *Yanoni*; synonymy, geographic distribution); Tsuneki, 1960g:12 (nesting habits unknown); Okuno, 1968:30 (Japan, as *martzanowii*); Tano, 1968:35 (Japan); Itami, 1969:52 (Japan: Niigata Prefecture, as *martianowii*); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History), 1970b:10 (Central Japan); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Nambu, 1975b:73 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Marshakov, 1979a:102 (in key to *Ectemnius* of Russian Far East); Leclercq, 1982b:149 (China: Szechuan; India: Kashmir: Gulmarg); Tsuneki, 1982b:6 (Korea), 16 (known from Korea); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Leclercq, 1999aa:23 (in key to Asian *Ectemnius*), 61 (in annotated catalog of Asian and Oceanian *Ectemnius*); Dollfuss, 2004b:773 (locality records from China, Mongolia and, Russia); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:36 (Japan: Gifu Prefecture); Suda, 2004:45 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:48 (Japan: Toyama Prefecture); Nemkov, 2005a:155 (Russia: Island of Sakhalin); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nemkov, 2006c:248 (Russia: Island of Moneron south of Sakhalin), 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Haneda, 2008:15 (in key to Japanese Crabroninae, as *martjanowi* Fabricius); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia), 2009b:122 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:44, 52 (distribution in Japan); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka); Nakayama, 2012:48 (Japan: Yamanashi Prefecture: Houougoya); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); J.-K. Kim, 2014:430 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Jacobs and Liebig, 2018:141 (Russia: Island of Sakhalin: Lugovoye, Novoaleksandrovsk); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:108 (in checklist of Crabroninae of Northern India).

Clytochrysus dubiosus Ashmead, 1904b:65, ♀, ♂. Holotype: ♀, Japan: no specific locality (USNM). Synonymized with *Ectemnius martjanowi* by Tsuneki, 1956e:128. – Kohl, 1915:69 (original description translated into German); Leclercq, 1954c:285 (in catalog of world Crabronini).

105. *massiliensis* (Kohl)

Thyreocerus massiliensis Kohl, 1883a:163, ♂. Syntypes: France: Marseille (NHMW). – de Gaulle, 1908:122 (in catalog of French Hymenoptera). – **As *Crabro massiliensis***: Dalla Torre, 1897:610 (new generic assignment, in catalog of world Sphecidae); Kohl, 1915:105 (in revision of Palearctic Crabronini); Berland, 1925d:194 (in Sphecidae Fauna of France), 1928b:181 (France: Var: Callian); Giner Marí, 1943a:233 (in Sphecidae Fauna of Spain); Ceballos, 1956:394 (in catalog of Sphecidae of Spain), 1959:231 and 1964:94 (in supplements to catalog of Spanish Sphecidae); Balthasar, M. Hrubant, and E. Hrubant, 1967:169 (Bulgaria: Slanchev Bryag near Nesebar); Balthasar, 1972:74 (in Sphecidae Fauna of Czechoslovakia). – **As *Ectemnius massiliensis***: Leclercq, 1949a:10 (new generic assignment, France: Hautes-Alpes: Serres; Spain: Barcelona), 1954c:280 (in catalog of world Crabronini); de Beaumont, 1959a:37 (Italy); 1962b:28 (Spain), 1965a:59 (Greece), 1967a:350 (Turkey); Leclercq, 1971:221 (Spain), 1975b:3 (France); Erlands-son, 1974:83 (Spain); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Guichard, 1978:272 (Greece); Pagliano, 1980:124 (Italy: Molise); Gayubo, 1982b:31 (Spain: Ávila, Cáceres, and Salamanca provinces), 1984b:95 (Spain: Salamanca Province), 1986a:64 (Spain: Ciudad Real Province); Gayubo and Tormos, 1984:20 (Spain: Valencia); Gayubo and Sanza, 1986:70 (Spain: Burgos); Dollfuss, 1989:9 (type material in NHMW); Gayubo, Asís, and Tormos, 1990b:77 (Spain: Ávila, Cáceres, and León Provinces); Pagliano, 1990:90 (in catalog of Italian Sphecidae), 349, 354 (in key to Italian Crabroninae); Bitsch and Leclercq, 1993:184 (in revision of western European Crabroninae); Leclercq, 1993c:30 (locality records from Spain, Yugoslavia, and Turkey); Leclercq and Barbier, 1993:61 (map of distribution in France); Mochi and Luchetti, 1993:105 (Italy: Toscana: Pentolina); Tormos, Asís, and Gayubo, 1994:189, 217 (Spain: Albacete Province); Negrísolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Leclercq, 1999a:21 and 24 (in key to Asian *Ectemnius*), 61 (in annotated catalog of Asian and Oceanian *Ectemnius*); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:108 (Greece); Schmid-Egger, 2003:753 (Italy: Sicilia: Bronte, Randazzo); Dollfuss, 2004b:773 (locality records from Bulgaria, France, Macedonia, Portugal, and Turkey); Tezcan and Yildirim, 2004:245 (Turkey: Manisa: Muradiye, as *massiliensis*); Cruz-Sánchez, Gayubo, González, and Torres, 2005:221 (Spain: Salamanca: San Martín del Castañar); Gayubo and Özbek, 2005:33 (Turkey: many localities); Jacobs, 2005a:445 (Bulgaria: Arkutino near Burgas); Pagliano and Negrísolo, 2005:260 (in Sphecidae Fauna of Italy); Yildirim and Ljubomirov, 2005:1795 (Turkey: Erzurum Province); Jacobs, 2006:106, 107 (in key to subgenus *Thyreocerus*), 108 (Turkey: Salamakis near Bodrum); G. Turrisi and R. Turrisi, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Ljubomirov and Yildirim, 2008:283 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Yildirim, 2012:81 (Turkey: Bayburt, Erzincan, Erzurum, Iğdır, and Kars provinces); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Samin and Bagriacik, 2016:496 (Iran: West Azarbaijan Province: Oshnavieh); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:48 (Turkey: Erzurum Province); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:49 (Iran: known from West Azerbaijan Province); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:11 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:111 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:53 (in catalog of Crabronidae of Turkey), 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley).

Crabro bulgaricus Balthasar, M. Hrubant, and E. Hrubant, 1967:167, ♀. Holotype: ♀, Bulgaria: Slanchev Bryag near Nesebar (originally V. Balthasar coll., now NMPC). Synonymized with *Ectemnius massiliensis* by Balthasar, 1972:74.

106. *mayeri* (Dewitz)

Crabro mayeri Dewitz, 1881:201, ♂ (as *Mayeri*, incorrect original capitalization). Holotype: ♂, Puerto Rico: no specific locality (ZMHU). – Dalla Torre, 1897:610 (in catalog of world Sphecidae); Ashmead, 1900:305 (in checklist of Caribbean Hymenoptera). – **As *Ectemnius mayeri***: Pate, 1947f:25 (new generic assignment, in revision of Caribbean Crabronini); Leclercq, 1951g:122 (in checklist of *Ectemnius auriceps* species group); Wolcott, 1951:839 (in review of insects of Puerto Rico); Leclercq, 1954c:275 (in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:172 (may be a senior synonym of *Ectemnius taino* Pate).

107. *melanotarsis* (Cameron)

Crabro melanotarsis Cameron, 1902d:60, ♀, actually ♂ (Leclercq, 1958d:150). Holotype: ♂, India: Assam: Khasia Hills (OXUM). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius melanotarsis***: Leclercq, 1950c:8 (new generic assignment, diagnostic characters), 1954c:283 (in catalog of world Crabronini), 1958f:141 (in key to subgenus *Cameronitus*), 150 (bibliographic references, holotypes of *Ectemnius melanotarsis*, *E. elvinus*, and *E. monozonus* are males; additional description); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1982b:150 (China: Szechuan; description of ♀; addition to key of Leclercq, 1958f:139), 1999:23 and 29 (in key to Asian *Ectemnius*), 61 (in annotated catalog of Asian and Oceanian *Ectemnius*); Jonathan, Ray, and Kundu, 2000:205 (India: previously recorded from Meghalaya: East Khasi Hills); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent, as *melanotarsis melanotarsis*).

Crabro elvinus Cameron, 1905a:14, ♀, actually ♂ (Leclercq, 1958f:150). Holotype: ♂, India or Pakistan: Himalayas: no specific locality (BMNH). Synonymized with *Ectemnius melanotarsis* by Leclercq, 1950c:8. – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897).

ssp. changi Tsuneki

Ectemnius melanotarsis changi Tsuneki, 1971a:7, ♂. Holotype: ♂, Taiwan: Mount Ali (originally K. Tsuneki coll., now USNM). – R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Leclercq, 1999a:23 (in key to Asian *Ectemnius*), 61 (in annotated catalog of Asian and Oceanian *Ectemnius*); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

ssp. monozonus (Cameron)

Crabro monozonus Cameron, 1905c:218, ♀, actually ♂ (Leclercq, 1958f:150). Holotype or syntypes: ♂, India: Assam: Khasia Hills (OXUM). Synonymized with *Ectemnius melanotarsis* by Leclercq, 1958f:150. – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius monozonus***: Leclercq, 1954c:283 (new generic assignment, in catalog of world Crabronini, redescription). – **As *Ectemnius melanotarsis monozonus***: Leclercq, 1999a:29 (new status, in key to Asian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

108. *menyllus* (Cameron)

Crabro menyllus Cameron, 1905a:15, ♀, actually ♂. Holotype: ♂, India or Pakistan: Himalayas: no specific locality (BMNH). – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius menyllus***: Leclercq, 1950b:14 (new generic assignment, type of subgenus *Cameronitus*), 1954c:283 (in catalog of world Crabronini), 1958f:139 (in key to subgenus *Cameronitus*), 148 (bibliographic references); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1982b:151 (Sikkim; variation), 1999:28 (in key

to Asian *Ectemnius*), 62 (in annotated catalog of Asian and Oceanian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India).

109. *meridionalis* (A. Costa)

Crabro meridionalis A. Costa, 1867c:138 and 1871b:67, ♀, ♂. Lectotype: ♂, Italy: Terra d'Otranto: Lecce (Napoli), designated by de Beaumont, 1953i:12. – A. Costa, 1893b:8 (Tunisia); Schletterer, 1894:34 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); Dalla Torre, 1897:610 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia and Slovakia); Kohl, 1915:75 (as synonym of *Ectemnius impressus*); Zilahy Kiss, 1915:80 (Hungary: Hadad); de Beaumont, 1953i:12 (study of syntypes); Vogrin, 1955:43 (Yugoslavia). – **As *Ceratocolus meridionalis***: A. Costa, 1883:58 (new generic assignment; Italy: Sardegna: Oliena, Simaxis, Tissi). – **As *Ectemnius meridionalis***: Leclercq, 1974d:279 (new generic assignment, = *impressus* of authors, nec F. Smith), 1975b:3 (France); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Pagliano, 1980:124 (Italy: Piemonte); Gayubo, 1982e:106 (Spain: Cádiz Province); Dollfuss, 1983a:78 (endangered in Burgenland, Austria), 1983b:19 (in catalog of Sphecidae of Austria); Gayubo, 1986a:64 (Spain: Ciudad Real Province); Gayubo and Sanza, 1986:70 (Spain: Burgos); Dollfuss, 1987:23 (Austria), 1988:29 (Austria: Niederösterreich: Oberweiden); Józán, 1989:102 (Hungary: Tihany Nature Reserve); Pagliano, 1990:90 (in catalog of Italian Sphecidae); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Pagliano, 1991b:349, 354 (in key to Italian Crabroninae); Gayubo, Borsato, and Osella, 1992:287 (Spain: Granada); Józán, 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Bitsch and Leclercq, 1993:173 (in revision of western European Crabroninae); Leclercq, 1993c:30 (locality records from Europe, Israel, and North Africa); Leclercq and Barbier, 1993:62 (map of distribution in France); Negrisolo and Pagliano, 1993:92 (Italy: Sardegna); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Dollfuss, 1994:103 (endangered in Austria); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Scharrer, 1995:26 (Croatia: Island of Krk); Gusenleitner, 1996a:9 (Austria: Burgenland, Niederösterreich), 1996c:812 (Austria: Burgenland); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: Burgenland: summary of collecting records); Gusenleitner, 1998:499 (Austria: Niederösterreich: Teichfeld-Scheibe); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Nazarova, 1998:41 (Tajikistan: Tigrovaya Balka Nature Reserve); Leclercq, 1999a:27 (in key to Asian *Ectemnius*), 62 (in annotated catalog of Asian and Oceanian *Ectemnius*); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: 20 km west of Alma Ata); Gayubo, González, and Torres, 2000:186 (Spain: Salamanca Province); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:108 (Greece); Ljubomirov, 2000:12 (Bulgaria: specimens in N. Nedelkov collection); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia); Józán, 2002:54 (Hungary: Mecsek Mountains); Kazenas, 2002a:108 (geographic distribution, collecting localities in Kazakhstan); Shkuratov, 2002b:142 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Drewes, 2003:137 (Croatia: mouth of Arse; Hungary: Hortobagy); Józán, 2003:228 (Hungary: Látrányi Puszta Nature Conservation Area); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Protsenko, 2003:68, 69 (first record from Ukraine: Odessa Oblast': Island of Malyi Tataru in delta of Danube at 45.21°N 29.00°E); Schmid-Egger, 2003:753 (Italy: Sicilia: Bronte, Castelammare); Dollfuss, 2004b:774 (locality records from Algeria, Bulgaria, Croatia, Czech Republic, France, Greece, Italy: Sardegna, Jordan, Kazakhstan, Kyrgyzstan, Morocco, Romania, Serbia, Slovakia, Spain, Syria, Tajikistan, Turkey, Turkmenistan, Ukraine, and Uzbekistan); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gorobchishin, 2004:34 (Ukraine: Zaporiz'ka Oblast': Obitichna

Kosa Nature Reserve); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains); Shkuratov, 2004a:81 (Russia: Rostov Oblast'); Zettel, 2004:6 (Austria: Niederösterreich: Purbach am Neusiedlersee); Gayubo and Özbek, 2005:33 (Turkey: many localities); Pagliano and Negrisola, 2005:262 (in Sphecidae Fauna of Italy); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Ljubomirov, 2006:540 (Bulgaria: Rhodope Mountains: Peshtera); K. Standfuss and L. Standfuss, 2006b:99 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Józán, 2007:180 (Hungary: Zselic Hills); G. Turrise and R. Turrise, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia, known from Moravia and Slovakia only), 230 (first record from Czech Republic: Moravia: Ottnice, Pálava Protected Area); Ljubomirov and Yildirim, 2008:277 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: France: Charente-Maritime: Saint-Trojan-lesBains is the first record from this locality); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Pagliano, 2009:182 (Italy: Molise: Campolieto); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Shorenko and Kononov, 2010:19 (Ukraine: Crimea: Feodosiya; Lugansk Oblast': village D'yakovo); van der Smissen, 2010b:384 (France: Ardèche: Saint-Thomé); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Murai and Amr, 2011:111, 119 (first record from Syria: Al Thawrah Nature Reserve at 35°51'N 28°38'E); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Dunford, Turbyville, and Leavengood, 2014:9 (listed as medically important in Afghanistan); Kazenas, 2014a:137 (Kazakhstan: Karatau Mountain Range); Yıldırım, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:323 (in list of Sphecidae *sensu lato* of Crimea); Mokrousov and Popov, 2016:576 (Russia: Krasnodarskiy Krai); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:47 (Turkey: Artvin, Bayburt, Bilecik, Bingöl, Erzincan, Erzurum, Kars, and Konya provinces); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Shorenko, 2017:77 (in Crimea collected in May through August); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:103 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:51 (in catalog of Crabronidae of Turkey), 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:426 (Uzbekistan: distribution); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley).

Crabro finitimus F. Morawitz, 1894:364, ♂. Holotype or syntypes: Turkmenistan: Hodzha-kala (ZIN). Synonymized with *Crabro impressus* (correctly: *Ectemnius meridionalis*) by Kohl, 1915:75.

As *Crabro impressus*: Kohl, 1915:75 (in revision of Palearctic Crabronini); Berland, 1925d:198 (in Sphecidae Fauna of France); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Schmiedeknecht, 1930:641, 644 (in keys to Hymenoptera of North and Central Europe); Grandi, 1934:128 (Italy: Lazio: Acilia), 1935a:108 (Italy); Zavadil, 1937a:71 (eastern Slovakia); Zavadil, Šustera, and Bat'a, 1937:152 (in catalog of Sphecidae of Czechoslovakia); Giner Marí, 1943a:229 (in Sphecidae Fauna of Spain); Guiglia, 1943b:73 (Albania: Kopliku); de Beaumont, 1947b:397 (Cyprus); Balthasar, 1948:140 (Slovakia: Kovačov); Zavadil in Zavadil and Šnoflák, 1948:115, 116 (in key to Sphecidae of Czechoslovakia); Leclercq, 1949a:12 (miscellaneous locality records); Pittioni, 1950:27 (Cyprus); de Beaumont, 1950f:411 (Algeria); Pittioni, 1950:27 (Cyprus); Balthasar, 1954b:268 (Palestine: Jerusalem), 1954d:181 (Slovakia); de Beaumont, 1954e:96 (Italy); Bytinski-Salz, 1956:227 (Turkey: Kütahya); Ceballos, 1956:394 (in catalog of Sphecidae of Spain); Balthasar, M. Hrubant, and E. Hrubant, 1967:167 (Bulgaria: Slanchev Bryag near Nesebar); Balthasar, 1972:65 (in Sphecidae Fauna of Czechoslovakia); Georgioui, 1977:190 (Cyprus); Józán, 1981:306 (Hungary: Hortobágy National Park). – **As *Solenius impressus***: Baudot, 1931:255 (new generic assignment, characteristics of

cocoon). – **As *Ectemnius impressus***: Grandi, 1954:243 (new generic assignment, Italy); Leclercq, 1954c:271 (in catalog of world Crabronini), 318 (nest and prey records); de Beaumont, 1957a:152 (Morocco); Grandi, 1957:391 (Italy); Móczár, 1958a:265 (in annotated catalog of Hungarian Crabronini), 1958b:201 (Hungary: locality records); Nouvel and Ribaut, 1958:17 (France: Pyrénées-Orientales: Banyuls-sur-Mer); de Beaumont, 1959a:36 (Italy; geographic variation), 1960a:22 (Greece: Island of Rhodes), 1960c:172 (Afghanistan), 1961c:52 (Greece: Crete), 1965a:59 (Greece), 1967a:349 (Turkey); Benedek, 1968:75 (Hungary, floral records), 1969a:84 (Hungary: marshy meadow); de Beaumont, 1969:93 (Turkey), 1970c:17 (Iran: Kerman); Benedek, 1970:102 (Hungary: Tapolca); Leclercq, 1971:220 (Spain); Myartseva, 1972a:94 (Turkmenistan); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman); de Beaumont, Bytinski-Salz and Pulawski, 1973:23 (Israel); Fain, 1973:161 (parasite: *Crabrovidia gussakovskii* (Zachvatkin), a saproglyphid mite), 163 (parasite: *Crabrovidia popovi* (Zachvatkin)), 166 (parasite: *Crabrovidia ectemnii* Fain); Erlandsson, 1974:83 (Spain); Benedek, 1979:234 (Hungary: Bakony Hills); Józán, 1985b:60 (Hungary south of Lake Balaton), 84 (ecological and zoogeographic characteristics); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae).

110. *mindanaonis* Tsuneki

Ectemnius mindanaonis Tsuneki in Tsuneki, Nozaka, Tano, Kurokawa, and Murota, 1992b:41, ♀ (subgenus *Metacrabro*). Holotype: ♀, Philippines: Mindanao: suburbs of Zamboanga (USNM). – Nuhn and Menke, 1994:26 (holotype in USNM); Leclercq, 1999a:20 (in key to Asian *Ectemnius*), 47 (may be a subspecies of *Ectemnius chrysites*), 62 (in annotated catalog of Asian and Oceanian *Ectemnius*).

111. *molokaiensis* (R. Perkins)

Crabro molokaiensis R. Perkins in R. Perkins and Forel, 1899:16, ♀, ♂. Lectotype: ♂, Hawaiian Islands: Island of Molokai: Molokai Mountains (BMNH), designated by Takumi, 1999:43. – **As *Xenocrabro molokaiensis***: Swezey and Bryan, 1929:296 (new generic assignment, Hawaii: Island of Molokai); Krauss, 1944:93 (Hawaii: Molokai Island). – **As *Ectemnius molokaiensis***: Leclercq, 1954c:281 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:321 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Rosenheim and Granicher, 1998:147 (nesting habits); Takumi, 1999:42 (in revision of Hawaiian *Ectemnius*).

112. *monticola* (R. Perkins)

Crabro monticola R. Perkins in R. Perkins and Forel, 1899:15, ♀, ♂, junior secondary homonym of *Crabro monticola* (Packard, 1867). Lectotype: ♂, Hawaiian Islands: Island of Kauai: Halemanu (BMNH) designated by Takumi, 1999:44. – R. Perkins, 1906:43 (Hawaiian Islands: mount Tantalus in Honolulu). – **As *Ectemnius monticola***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:325 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:62 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:43 (in revision of Hawaiian *Ectemnius*).

113. *nandaniae* Saini and Dey

Ectemnius nandaniae Saini and Dey, 2022d:217, ♀. Holotype: ♀, India: Jammu and Kashmir: Sumbal (National Pusa Collection-Indian Agricultural Research Institute). – Saini and Dey, 2022d: 213 (in key to subgenus *Hypocrabro* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India).

114. *neptunus* Leclercq

Ectemnius neptunus Leclercq, 1958e:117, ♀. Holotype: ♀, Singapore (BMNH). – Leclercq, 1958e:116 (in key to selected subgenera of *Ectemnius* of southeastern Asia); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:19 (in key to Asian *Ectemnius*), 62 (in annotated catalog of Asian and Oceanian *Ectemnius*, additional description).

115. nesiotes (Pate)

Crabro unicolor F. Smith, 1856:421, ♀, junior primary homonym of *Crabro unicolor* Panzer, 1798 (see Roth von Schreckenstein, 1802, for the validity of latter name). Holotype or syntypes: ♀, Sandwich Islands, now Hawaiian Islands: no specific locality (BMNH), treated as holotype by Takumi, 1999:46. – F. Smith, 1879a:678 (listed); Blackburn and Kirby, 1880:87 (Hawaiian Islands); Blackburn in Blackburn and Cameron, 1886:169 (redescription); Dalla Torre, 1897:632 (in catalog of world Sphecidae); R. Perkins in R. Perkins and Forel, 1899:23 (Hawaiian Islands: islands of Oahu, Molokai, Lanai, Maui; redescription), 1906:43 (Hawaiian Islands: mount Tantalus in Honolulu); Bridwell, 1920e:331 (nest, prey). – **As *Xenocrabro unicolor***: R. Perkins, 1902:148 (new generic assignment, type species of new genus *Xenocrabro*); Swezey and Bryan, 1929:296 (Hawaii: Island of Molokai). – **As *Ectemnius unicolor***: R. Bohart and Menke, 1976:428 (new generic assignment, in checklist of world Sphecidae); Nascimento and Overal, 1980:5 (Brazil, record obviously erroneous).

Crabro nesiotes Pate, 1937c:4. Substitute name for *Crabro unicolor* F. Smith, 1856. – **As *Ectemnius nesiotes***: Pate, 1944b:381 (new generic assignment); Leclercq, 1954c:282 (in catalog of world Crabronini), 320 (nest and prey records); Yoshimoto, 1960:317 (in revision of Hawaiian *Ectemnius*); Leclercq, 1999a:63 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:6 (summary of prey record), 45 (in revision of Hawaiian *Ectemnius*).

116. nigellus R. Bohart

Ectemnius nigellus R. Bohart in R. Bohart and Kimsey, 1979:496, ♀, ♂. Holotype: ♀, USA: California: Nevada County: Sagehen Creek (UCD). – R. Bohart and Kimsey, 1979:487 and 491 (in key to North American *Ectemnius*); Leclercq, 2007e:172 (examined paratypes from Sagehen Creek, California).

117. nigratarsus (Herrich-Schaeffer)

Crabro nigratarsus Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area). Nomen nudum (as *Nigratarsus*, incorrect original capitalization).

Crabro nigratarsus Herrich-Schaeffer, 1841:25, ♀. Holotype or syntypes: ♀, Germany: no specific locality (depository unknown). – Schenck, 1857:123 (in revision of fossorial wasps of Germany); Kirchner, 1867:226 (in catalog of European Hymenoptera); Schenck, 1867a:351 (known from Germany); Kohl, 1883e:651 (Switzerland), 1888b:720 (additional description); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s.s.); Dalla Torre, 1897:612 (in catalog of world Sphecidae); Schmiedeknecht, 1907:187 (in key to Hymenoptera of Central Europe); Kohl, 1915:66 (in revision of Palearctic Crabronini); Fahringer, 1922:182 (Turkey, as *nigratarsis*), 212 (nest structure); Berland, 1925d:201 (in Sphecid Fauna of France); Schmiedeknecht, 1930:639, 643 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:124 (in revision of Sphecidae of Finland, not yet found in Finland); Gussakovskij, 1932:15 (Russia: Primorskiy Kray); Steck, 1935:320 (Switzerland); Zavadil, Šusterka, and Bat'a, 1937:151 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:83 (Japan: Hokkaido, Honshu); Giner Marí, 1943a:229 (in Sphecid Fauna of Spain); de Beaumont, 1945:479 (Switzerland; correction to Steck, 1935); Tsuneki, 1947d:283 (Korea), 1947e:400 (Japan: Hokkaido), 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflak, 1948:112 (in key to Sphecidae of Czechoslovakia); Leininger, 1951:114 (Germany: Baden-Württemberg); Nouvel and Ribaut, 1953:184 (France: Haute-Garonne: Saint-Béat); Balthasar, 1954d:181 (Slovakia); de Beaumont, 1954e:95 (Italy); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Noskiewicz and Puławski, 1960:129, 133 (in key to Polish Sphecidae); Tumšs and Maršakovs, 1970:22 (Latvia); Balthasar, 1972:54 (in Sphecid Fauna of Czechoslovakia); Hua, 2006:279 (in list of Chinese insects, geographic distribution, as *nigratarsis*). – **As *Solenius nigratarsus***: Kohl, 1883c:81 (new generic assignment, description of ♂). – **As *Clytochrysus nigratarsus***: Iwata, 1933b:9 (new generic assignment, locality records from Japan). – **As *Ectemnius nigratarsus***: Leclercq, 1949b:180 (new generic assignment, first record from Belgium: Carlsbourg), 1951e:15 (in Belgium known from Carlsbourg and Orval); Vieujant, 1951:146 (Belgium: Orval); Leclercq, 1954c:284 (in catalog of world Crabronini); Aerts, 1955:59 (Germany: Rheinland); Tsuneki and Tanaka, 1955a:67 (Japan: Nikko 120 km northwest of Tokyo); Leclercq, 1958f:144 (in key to subgenus *Cameronitus*; as *Ectemnius nigratarsus nigratarsus*); Móczár, 1958b:203 (known from

Slovakia, but not from Hungary); Wolf, 1959a:13 (Germany: Hessen: Gladebach), 1959b:34 (Germany: Nassau); Iwata, 1960:210 (number of ovarioles and oocytes, egg size); Tsuneki, 1960g:11 (nesting habits); Leclercq, 1963:31 (in key to *Ectemnius nigratarsus* species group); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Babiý, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:127 (in Sphecidae Fauna of Switzerland); Gauss, 1967:557 (Germany: Baden-Württemberg); Tano, 1968:35 (Japan); Itami, 1969:52 (Japan: Niigata Prefecture); Oehlke, 1970:767 (first record from Democratic Germany); Tsuneki, 1970b:11 (Central Japan); Yamada, 1970:13 (Japan: Nagano Prefecture: Shimajima Valley), 1971:36 (Japan: Aichi Prefecture); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Leclercq, 1975b:3 (France); Nambu, 1975b:73 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Lomholdt, 1976:323 (in Sphecidae Fauna of Fennoscandia and Denmark, not known from the area); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1466 (Belgium); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Schmidt, 1980:384 (Germany: Baden-Württemberg); Dollfuss, 1983a:75 (Austria: endangered in Niederösterreich), 79 (Austria: endangered in Salzburg area), 1983b:18 (in catalog of Sphecidae of Austria); Haeseler, 1984:108 (Germany: 15 km southwest of Kiel); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Westrich and Schmidt, 1985b:111 (Germany: endangered in Baden-Württemberg); Brechtel, 1986:68 (Germany: Südpfalz); Dollfuss, 1987:23 (Austria); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Weiffenbach, 1989:108 (Germany: Hessen: Gießen area); Jacobs and Oehlke, 1990:122 and 197 (not collected in Democratic Germany after 1960); Pagliano, 1990:90 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:549 (Austria: Kärnten); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Gusenleitner, 1991:647 (Austria: Steiermark: Goritz); Pagliano, 1991b:347, 353 (in key to Italian Crabroninae); Gusenleitner, 1992:688 (Austria: Steiermark); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area); Wolf, 1992b:92 (Germany: Nordrhein-Westfalen: Olpe); Bitsch and Leclercq, 1993:156 (in revision of western European Crabroninae); Józán, 1993:414 (first record from Hungary: Bükk National Park and Sopron); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:30 (bibliographic reference to recent publications); Leclercq and Barbier, 1993:63 (map of distribution in France); Dollfuss, 1994:100 (endangered in Austria); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:449 (in key to Sphecidae of Russian Far East); Schmid-Egger, Risch, and Niehuis, 1995:184 (Germany: summary of records from: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: endangered); Woydak, 1996:75 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: threatened with extinction in Nordrhein-Westfalen); Leclercq, 1999a:31 (in key to Asian *Ectemnius*), 63 (in annotated catalog of Asian and Oceanian *Ectemnius*); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:338 (in Sphecidae Fauna of Germany); Gusenleitner, 2000:955 (Austria: first record from Oberösterreich); Budrys, 2001c:389 (first record from Lithuania: Biržiai District: Biržų Giria forest at 56°18'N 24°53'E); Józán, 2001:280 (Hungary: Somogy County); Ohl et al., 2001:139 (distribution in Germany by provinces); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: extinct); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Bieri, 2002:75 (Lichtenstein); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Drewes, 2003:137 (Germany: Hessen: Steinau: Main am Kinz); Józán, 2003:228 (Hungary: Látányi Puszta Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:66 (Germany: in catalog of wasps and bees of Bayern); Ohl and Linde, 2003:151 (number of ovarioles); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: strongly endangered); Dollfuss, 2004b:775 (locality records from China,

Czech Republic, and Georgia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Krivonogova and Rudoiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: last collected in 1956); Suda, 2004:44 (Japan: Yamanashi Prefecture); Wiśniowski, 2004:49 (in checklist of Polish Sphecidae: the only record is in Kohl, 1915, as ?*Posen*); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:51 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Pagliano and Negrisolo, 2005:276 (in Sphecid Fauna of Italy); Reder, 2005:949 (Germany: Rheinland-Pfalz: Auwald south of Worms); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:394 (extinct in Czech Republic); Vago, 2005b:19 (France: Aisne: Parfondru near Laon); Gorobchishin, 2006:133 (Ukraine: near Vinnitsa); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:26 (Japan: Toyama Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Baghirov, 2007:93 (Russia: southwestern Siberia); Jacobs, 2007:148, 153 (in key to Crabronidae of Germany); Józán, 2007:172, 180 (Hungary: Zselic Hills); Vago, 2007:175 (France: département d'Aisne); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia, known from Moravia and Slovakia only); Haneda, 2008:15 (in key to Japanese Crabroninae); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Ljubomirov and Yildirim, 2008:272 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:222 (in supplement to vol. I of Faune de France, 1993: recent records from Austria, presence in Poland uncertain, recorded from France by Leclercq, 1949b, new French records: Aisne: near Laon; Isère: Grenoble); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen), 34 (Germany: Hessen: locality records); Nemkov, 2009b:116 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Pagliano, 2009:182 (Italy: Liguria: Millesimo); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea, as *Ectemnius nigratarsus nigratarsus*); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast': no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast': no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: rare); Shorenko and Konovalov, 2010:18 (Ukraine: Khar'kov Oblast': villages Gaidary and Zm'yev; Lugansk Oblast': village D'yakovo); Treiber, 2010:135 (France: département du Bas-Rhin); Baghirov, 2011b:146 (Russia: Altay Republic: Artybash); Bogusch, Straka, Macek, Dvořák, Vepřek, and Říha, 2011:94 (Czech Republic: Moravia: Břeclav-Lednice, Lednice, Pouzdřany); Gogala, 2011:22 (Slovenia: Podčetrtek); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:72 (Russia: Chuvash Republic); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Tischendorf, Frommer, Flügel et al., 2011:71 (Germany: Hessen: endangered); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Bitsch, 2014:401 (France: Ariège: Bonac-Irazein); J.-K. Kim, 2014:430 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Yildirim, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Zettel, Ockermüller, and Wiesbauer, 2014:169 (Austria: Niederösterreich); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Mokrousov and Popov, 2016:574 (Russia: Krasnodarskiy Kray); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:231 (in catalog of Crabroninae of Russia); Bitsch and Savina, 2017:143 (France: Ariège: Bonac-Irazein at 42°52'33.1"N 0°58'28.4"E and Sinsa at 42°48'00.2"N 1°40'07.7"E; detailed redescription, color variation, visiting

flowers, distribution in France and elsewhere); 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 understory); Fresno, 2017:155 (Spain: Asturias: La Isla); Shorenko, 2017:77 (in Crimea collected in May), 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City); Ruchin and Antropov, 2019a:13230 (Russia: Mordovia State Nature Reserve); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray); Baugnée and Barbier, 2021:28 (Belgium: Namur Province: Sart-Bernard; summary of available information); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:92 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of Turkey), 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

Crabro trinotatus A. Costa, 1867c:137 and 1871b:66, ♀. Holotype: ♀, Italy: Piemonte: no specific locality (Napoli). Synonymized with *Crabro nigratarsus* by Kohl, 1915:67. – Dalla Torre, 1897:632 (in catalog of world Sphecidae).

ssp. munakatai Tsuneki

Crabro munakatai Tsuneki, 1947e:401, ♂. Holotype: ♂, Japan: Hokkaido: Akanuma near Hakodate (originally K. Tsuneki coll., now Hyogo Mus.). Synonymized with *Ectemnius nigratarsus* by Tsuneki, 1952c:65. – Tsuneki, 1948c:8 (Japan: Hokkaido). – **As *Ectemnius nigratarsus munakatai***: Leclercq, 1999a:31 (in key to Asian *Ectemnius*), 63 (new status, in annotated catalog of Asian and Oceanian *Ectemnius*).

ssp. palitans (Bingham)

Crabro palitans Bingham, 1896a:446, ♀. Holotype or syntypes: ♀, Sri Lanka: Pundaluoya (BMNH). – Bingham, 1897:329 (redescription); R. Turner, 1912g:377 (transferred to subgenus *Solenius*); Sen, 1931:22 (description of ♂, Burma). – **As *Ectemnius palitans***: Leclercq, 1951i:195 (new generic assignment), 1954c:284 (in catalog of world Crabronini); Tsuneki, 1959a:98 (Taiwan); Leclercq, 1963:31 (in key to *Ectemnius nigratarsus* species group); Baltazar, 1966:356 (in catalog of Hymenoptera of Philippines); Tsuneki, 1966d:2 (listed from Taiwan); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Tsuneki, 1977d:13 (New Britain); S. Gupta, 1995:86 (India: Uttar Pradesh). – **As *Ectemnius nigratarsus palitans***: Leclercq, 1958f:144 (in key to subgenus *Cameronitus*), 152 (new status, additional locality records); Tsuneki, 1984b:38 (a southern Indian and Sri Lankan subspecies of *Ectemnius nigripes*; new status); Leclercq, 1999a:32 (in key to Asian *Ectemnius*), 64 (in annotated catalog of Asian and Oceanian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India).

ssp. palitoides Leclercq

Ectemnius palitoides Leclercq, 1963:29, ♀, ♂. Holotype: ♀, India: Himachal Pradesh: Simla (FSAG). – Leclercq, 1963:30 (in key to *Ectemnius nigratarsus* species group); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae, as synonym of *Ectemnius palitans*), 2007g:194 (holotype in FSAG). – **As *Ectemnius nigratarsus palitoides***: Tsuneki, 1984b:38 (North Indian subspecies of *Ectemnius nigratarsus*; new status); Leclercq, 1999a:32 (in key to Asian *Ectemnius*), 48 (comparison with *Ectemnius conglobatus*), 64 (in annotated catalog of Asian and Oceanian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India).

ssp. paxinus Leclercq

Ectemnius paxinus Leclercq, 1963:29, ♀, ♂. Holotype: ♀, Philippines: Negros: Mount Canlaon (AEI). – Leclercq, 1963:30 (in key to *Ectemnius nigratarsus* species group); Baltazar, 1966:356 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae, as synonym of *Ectemnius palitans*); Tsuneki, 1977d:13 (Bismarck Archipelago), 1982a:47 (Bismarck Archipelago), 1984f:26 (Philippines), 45 (in key to

Crabronini of Philippines). – **As *Ectemnius nigratarsus paxinus***: Tsuneki, 1984b:38 (a Philippino subspecies of *Ectemnius nigratarsus*; new status); Tsuneki, Nozaka, Tano, Kurokawa, and Murota, 1992b:42 (Philippines: Mindanao); Leclercq, 1999a:32 (in key to Asian *Ectemnius*), 64 (in annotated catalog of Asian and Oceanian *Ectemnius*).

118. *nitobei* (Matsumura)

Crabro nitobei Matsumura, 1912:173, ♀, actually ♂. Holotype or syntypes: ♂, Japan: Aomori Prefecture (depository ?). – **As *Lestica nitobei***: Leclercq, 1954c:291 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:431 (in checklist of world Sphecidae); Tano, 1994a:7 (allotype in K. Tsuneki collection); Paik, 1985:201 (in list of Sphecidae *sensu lato* of Korea). – **As *Ectemnius nitobei***: Tsuneki, 1958f:156 (new generic assignment, redescription; description of ♀), 1960g:20 (nesting habits unknown); Itami, 1968b:17 (Japan), 1969:52 (Japan: Niigata Prefecture); Leclercq, 1973c:298 (Taiwan), 1999: 22 (in key to Asian *Ectemnius*), 64 (in catalog of Asian and Oceanian *Ectemnius*, *Spadicocrabro* downgraded to subgenus); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan); S. Takahashi, Haneda, and Tano, 2009:45, 52 (distribution in Japan); J.-K. Kim, 2014:430 (in catalog of Sphecidae *sensu lato* of Korean Peninsula), 450 (recorded from Korea but no occurring there); Ueyama, 2016:15 (Japan: Honshu: first record from Wakayama Prefecture). – **As *Spadicocrabro nitobei***: Tsuneki, 1990b:100 (new generic assignment, nesting habits, references to papers in Japanese by Okuno, 1957, and Shimoyama, 1987); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Negoro, Haneda, and Tano, 2005:48 (Japan: Toyama Prefecture); Haneda, 2008:9 (in key to Japanese Crabroninae).

ssp. *siamensis* Leclercq

Ectemnius nitobei siamensis Leclercq, 1999a:65, ♀. Holotype: ♀, Thailand: Chiang Mai Province: Doi Suthep (CAS). – Leclercq, 1999a:22 (in key to Asian *Ectemnius*).

119. *noyesi* Leclercq

Ectemnius noyesi Leclercq, 1991b:26, ♂. Holotype: ♂, Trinidad: Saint George: Aripo Valley (BMNH). – Leclercq, 1991b:7 (in revised key to Latin American *Ectemnius*); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:172 (Venezuela: Guarico: 44 km south of Calabozo, Hato Masaguaral).

120. *odyneroides* (Cresson)

Crabro odyneroides Cresson, 1865b:481, ♂. Lectotype: ♂, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. – Packard, 1866:78 (bibliographic references); Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:153 (in revision of North American Crabronini); Dalla Torre, 1897:613 (in catalog of world Sphecidae); Snow, 1906:135 (Arizona: Oak Creek 20 mi. southwest of Flagstaff); H. Smith, 1908b:402 (in revision of Nebraskan Sphecidae). – **As *Pseudocrabro odyneroides***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae). – **As *Solenius odyneroides***: Mickel, 1918b:376 (new generic assignment, in catalog of Nebraskan Sphecidae). – **As *Ectemnius odyneroides***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1026 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:273 (in catalog of world Crabronini), 1968e:309 and 314 (in key to *Ectemnius* of Latin America), 324 (bibliographic references), 1972c:206 and 207 (in updated key to *Ectemnius* of Latin America), 221 (new records from Mexico); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 492 (in key to North American *Ectemnius*); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:172 (locality records from Arizona and Texas).

Crabro ariel Cameron, 1891a:147, ♀, ♂. Syntypes: Mexico: Durango: Ciudad; and Guerrero: Omilteme (BMNH). Synonymized with *Ectemnius odyneroides* by Leclercq, 1968e:324. – Dalla Torre, 1897:583 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Ectemnius ariel***: Leclercq, 1954c:270 (new generic assignment, in catalog of world Crabronini).

121. *orius* Leclercq

Ectemnius orius Leclercq, 1958f:153, ♀, ♂. Holotype: ♀, Indonesia: western Java: Djampang Tengah: Malang (RMNH). – Leclercq, 1958f:146 (in key to subgenus *Cameronitus*), 1963:31 (in key to *Ectemnius nigratarsus* species group); R. Bohart and Menke, 1976:427 (as synonym of *Ectemnius palitans*); Tsuneki, 1982e:29 (is not a synonym of *palitans*); Leclercq, 1999a:32 (in key to Asian *Ectemnius*), 65 (in annotated catalog of Asian and Oceanian *Ectemnius*).

ssp. *bornicus* Leclercq

Ectemnius orius bornicus Leclercq, 1958f:155, ♀. Holotype: ♀, Malaysia: Sarawak: Mount Dulit (BMNH). – Leclercq, 1958f:146 (in key to subgenus *Cameronitus*), 1999:32 (in key to Asian *Ectemnius*), 65 (in annotated catalog of Asian and Oceanian *Ectemnius*).

ssp. *cetonicus* Leclercq

Ectemnius orius cetonicus Leclercq, 1958f:154, ♀. Holotype: ♀, Taiwan: Taihorinsho (NHMW). – Leclercq, 1958f:145 (in key to subgenus *Cameronitus*; as *Ectemnius orius* var. *cetonicus*); Tsuneki, 1966d:8 (Taiwan), 1968d:57 (Taiwan), 1968g:3 (Taiwan; diagnostic characters, variation), 33 (in key to Crabronini of Taiwan and Ryukyus), 1971a:5 (Taiwan); Haneda, 1971b:33 (Taiwan); Leclercq, 1973c:297 (Taiwan); R. Bohart and Menke, 1976:427 (as new synonym of *Ectemnius palitans*); Tsuneki, 1977j:280 (Taiwan), 1982e:29 (Taiwan); Dollfuss, 1989:9 (holotype in NHMW); Leclercq, 1999a:32 (in key to Asian *Ectemnius*), 65 (in annotated catalog of Asian and Oceanian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

122. *pacuarus* Leclercq

Ectemnius pacuarus Leclercq, 1972c:216, ♀, ♂. Holotype: ♂, Costa Rica: Pacuare (USNM). Paratypes: Colombia. – Leclercq, 1972c:205 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1991b:13 and 14 (in revised key to Latin American *Ectemnius*), 23 (bibliographic references; Ecuador); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Dollfuss, 2004b:775 (Ecuador); Leclercq, 2007e:172 (Ecuador: Morana Santiago).

123. *pahangi* Leclercq

Ectemnius pahangi Leclercq, 1958f:146, ♀. Holotype: ♀, Malaysia: Pahang: Cameron Highlands (BMNH). – Leclercq, 1958f:137 (in key to subgenus *Cameronitus*); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:30 (in key to Asian *Ectemnius*), 65 (in annotated catalog of Asian and Oceanian *Ectemnius*, may be a color form of *Ectemnius fuscipennis*).

124. *palamosi* Leclercq

Ectemnius palamosi Leclercq, 1964c:49, ♂. Holotype: ♂, Spain: Girona: Palamos (ZMHU). – R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Bitsch and Leclercq, 1993:167 (in revision of western European Crabroninae); Leclercq, 1993c:30 (bibliographic reference to Leclercq and Barbier, 1993); Leclercq and Barbier, 1993:64 (distribution map); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:99 (in revision of Sphecidae *sensu lato* of Europe); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell), 16 (description of ♀).

125. *paluster* Alayo Dalmau

Ectemnius paluster Alayo Dalmau, 1968b:14, ♀, ♂ (as *palustris*, incorrect original termination, present correction). Holotype: ♂, Cuba: La Habana: Melena del Sur (Inst. Ecol. Sist., La Havana, Cuba). – Alayo Dalmau, 1973:193 (in

catalog of Cuban Hymenoptera), 1976:18 (in key to Cuban *Ectemnius*), 33 (in checklist of Cuban Sphecidae); not listed by R. Bohart and Menke, 1976; Reyes and Hernández, 1995:3 (holotype in Inst. Ecol. Sist., La Havana, Cuba); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Hidalgo-Gato González, Reyes Sánchez, Mestre Novoa, Fernández García, Rodríguez-León Merino, Rodríguez Velázquez, Genaro Artola, and Fontenla Rizo, 2002:29 (holotype deposited at IZAC); Amarante, 2005a:10 (correction to his 2002 catalog); Genaro, 2006:54 (in checklist of Cuban Sphecidae and Crabronidae); Leclercq, 2007e:172 (known from Cuba, as *palustris*).

126. *papuanus* Tsuneki

Ectemnius papuanus Tsuneki, 1983h:22, ♀ (type species of subgenus *Papuacrabro*). Holotype: ♀, New Guinea: Sigi Camp, 1500 m (RMNH). – Leclercq, 1999a:34 (in key to Asian *Ectemnius*), 66 (in annotated catalog of Asian and Oceanian *Ectemnius*).

127. *papuensis* Tsuneki

Ectemnius papuensis Tsuneki, 1983h:18, ♀ (subgenus *Cameronitus*). Holotype: ♀, New Guinea: Sugi Camp, 1500 m (RMNH). – Leclercq, 1999a:31 (in key to Asian *Ectemnius*), 66 (in annotated catalog of Asian and Oceanian *Ectemnius*).

ssp. *iebeleus* Tsuneki

Ectemnius papuensis iebeleus Tsuneki, 1983h:19, ♀. Holotype: ♀, New Guinea: Iebele Camp, 2250 m (RMNH). – Leclercq, 1999a:31 (in key to Asian *Ectemnius*), 66 (in annotated catalog of Asian and Oceanian *Ectemnius*).

128. *paucimaculatus* (Packard)

Crabro paucimaculatus Packard, 1866:90, ♀. Lectotype: ♀, USA: Illinois: no specific locality (ANSP), designated by Cresson, 1928:55. – Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:147 (in revision of North American Crabronini); Dalla Torre, 1897:616 (in catalog of world Sphecidae); J. Smith, 1910:681 (in new list of insects of New Jersey, as *paucimaculatus* Say). – **As *Xestocrabro paucimaculatus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey); nec Harrington, 1902:218 (= *Ectemnius stirpicola*). – **As *Ectemnius paucimaculatus***: Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:272 (in catalog of world Crabronini); Krombein, 1963f:279 (Maryland: Plummers Island near Washington, D.C.); E. Baker, 1964:46 (parasite: *Vidia cooremani*, new species, an acarid); Evans, 1964b:294 (description of larva); Krombein, 1964a:73 (nesting habits studied on Plummers Island, Maryland); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 491 (in key to North American *Ectemnius*), 497 (comparison with *Ectemnius stirpicola*); Krombein, 1979b:1680 (in catalog of North American Hymenoptera, nesting sites, list of prey); Steiner, 1986:108 (references to publications on nesting habits, as *pauchimaculatus*); Buck, Paiero, and Marshall, 2006:41 (first record from Canada: Ontario: Kent County: Rondeau Provincial Park; coloration of tergum V unreliable as distinctive character); Leclercq, 2007e:164 (correction to R. Bohart and Kimsey's key, 1979), 172 (locality records from USA); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Ontario: no specific locality).

129. *pedicellaris* (F. Morawitz)

Crabro pedicellaris F. Morawitz, 1889a:160. Lectotype: ♀, China: Gansu: "Monasterium Dshoni" (ZIN), designated by Marshakov, 1979a:105. – Kohl, 1915:77 (as new synonym of *Crabro laevigatus*). – **As *Ectemnius pedicellaris***: Marshakov, 1979a:105 (new generic assignment, in key to *Ectemnius* of Russian Far East); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); Nemkov, Kazenas, Budrys, and Antropov, 1995:450 (in key to Sphecidae of Russian Far East); Leclercq, 1999a:26 and 27 (in key to Asian *Ectemnius*), 66 (in annotated catalog of Asian and Oceanian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia), 2009b:1230 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Krai: Lazovsky Nature Reserve), 2012c:443 (in catalog of Crabronidae of

Russian Far East); J.-K. Kim, 2014:431 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Jacobs and Liebig, 2018:141 (Russia: Zabaikal'skiy Kray: Daur'skiy Nature Reserve).

Crabro nielsenii Kohl, 1915:74, ♀ (as *Nielsenii*, incorrect original capitalization). Syntypes: China: Haining (BMNH) and Tsingtau (ZMHU). Synonymized with *Crabro pedicellaris* by Marshakov, 1979a:105. – Tsuneki, 1947d:284 (Korea). – **As *Solenius nielsenii***: Iwata, 1933b:10 (description of ♂, locality records from Japan). – **As *Ectemnius nielsenii***: Leclercq, 1954c:271 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1957f:60 (Korea), 1974a:374 (Korea); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1982b:152 (China; comparison with *Ectemnius confinis* and *E. hypsae*); Tsuneki, 1982b:16 (known from Korea); Tsuneki, 1991:202 (Korea); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea).

130. *pelotarium* Leclercq

Crabro cubiceps Taschenberg, 1875:382, ♀, junior primary homonym of *Crabro cubiceps* Packard, 1866. Lectotype: ♀, Brazil: no specific locality (Halle), designated by Leclercq, 1951:122. – Dalla Torre, 1897:595 (in catalog of world Sphecidae); Leclercq, 1951g:122 (in checklist of *Ectemnius* of *auriceps* group), 123 (redescription), 1954c:275 (in catalog of world Crabronini); nec Leclercq, 1968e:313, 322, 1972c:205, 207, 220 (= ?); Fain, 1973:170 (parasite: *Crabrovidua cubensis* Fain, a saprogllyphid mite).

Ectemnius pelotarium Leclercq, 1968e:322, ♂. Holotype: ♂, Brazil: Rio Grande do Sul: Pelotas (C.M. Biezanko coll., Escola de Agronomia Eliseu Maciel, Pelotas). Synonymized with *Ectemnius cubiceps* (Taschenberg, 1875) by R. Bohart and Menke, 1976:427. – Leclercq, 1968e:307 (in key to *Ectemnius* of Latin America), 1972c:201 and 205 (in updated key to *Ectemnius* of Latin America), 216 (bibliographic reference, new records from Brazil and Argentina, color variation); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1991b:12 and 14 (in revised key to Latin American *Ectemnius*), 23 (bibliographic references; Brazil, Paraguay); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:172 (Brazil: Minas Gerais: Arapongo in Serra do Brigadeiro).

131. *pempuchi* Tsuneki

Ectemnius pempuchi Tsuneki, 1971a:5, ♀. Holotype: ♀, Taiwan: Nantou Prefecture: Pempuchi (originally K. Tsuneki coll., now USNM). – R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM). – Leclercq, 1999a: 22 (in key to Asian *Ectemnius*), 67 (in annotated catalog of Asian and Oceanian *Ectemnius*); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

132. *pendleburyi* Leclercq

Ectemnius pendleburyi Leclercq, 1958f:146, ♀, ♂. Holotype: ♀, Malaysia: Kedah: Kedah Peak (BMNH). – Leclercq, 1958f:137 (in key to subgenus *Cameronitus*); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:29 (in key to Asian *Ectemnius*), 67 (in annotated catalog of Asian and Oceanian *Ectemnius*, locality records, variation).

133. *persicus* (Kohl)

Crabro persicus Kohl, 1888a:134, ♀. Holotype or syntypes: ♀, Iran: Shiraz (NHMW). – Dalla Torre, 1897:618 (in catalog of world Sphecidae); Kohl, 1915:70 (in revision of Palearctic Crabronini). – **As *Ectemnius persicus***: Leclercq, 1954c:270 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Dollfuss, 1989:9 (type material in NHMW); Leclercq, 1999a:27 (in key to Asian *Ectemnius*), 67 (in annotated catalog of Asian and Oceanian *Ectemnius*, first record from Turkey, recognition characters); Ljubomirov and Yildirim, 2008:278 (in catalog of Crabronidae of Turkey); Yıldırım, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of

Turkey); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:47 (Turkey: Erzurum and Kars provinces, may be conspecific with *Ectemnius walteri*); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:5 (Azerbaijan: Nakhichevan Autonomous Republic: Babek and Shakhbuz districts); Kaplan and Yildirim, 2021:51 (in catalog of Crabronidae of Turkey), 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey).

Crabro walteri Kohl in Kohl and Handlirsch, 1889:281, ♂ (as *Walteri*, incorrect original capitalization). Holotype: ♂, Turkmenistan: Ashkhabad (not NHMW, possibly Georgia State Museum, Tbilisi, Georgia), Synonymized with *Ectemnius persicus* by Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:5. – Dalla Torre, 1897:636 (in catalog of world Sphecidae); Kohl, 1915:71 (in revision of Palearctic Crabronini). – **As *Ectemnius walteri***: Leclercq, 1949a:12 (new generic assignment; Russia: Sarepta, now Krasnoarmeysk; additional description), 1954c:270 (in catalog of world Crabronini); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Pulawski, 1978:274 (in key to Sphecidae of European part of USSR); Leclercq, 1993c:32 (only two specimens known), 1999:26 (in key to Asian *Ectemnius*), 74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Kazenas, 2001b:43 (in checklist of Sphecidae of Kazakhstan and Central Asia); Yildirim and Ljubomirov, 2005:1795 (first record from Turkey: Erzurum: Tortum), 2007:121 (Turkey: Konya: Çumra: Dinlendik); Ljubomirov and Yildirim, 2008:279 (in catalog of Crabronidae of Turkey); Yildirim, 2012:81 (Turkey: Kars: Kağızman); Yildirim, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Antropov, 2017b:233 (in catalog of Crabroninae of Russia).

134. *philippinensis* Tsuneki

Ectemnius philippinensis Tsuneki, 1976b:106, ♂. Holotype: ♂, Philippines: Palawan: Pinigisan (ZMUC). – Tsuneki, 1984f:19 (listed from Philippines), 41 (in key to Crabronini of Philippines); Leclercq, 1999a:13 (in key to subgenera and species groups of *Ectemnius*), 25 (in key to Asian *Ectemnius*), 67 (in annotated catalog of Asian and Oceanian *Ectemnius*).

135. *plutonius* Leclercq

Ectemnius plutonius Leclercq, 1958e:116, ♀. Holotype: ♀, Indonesia: southern Sulawesi: Lanjing (RMNH). – Leclercq, 1958e:116 (in key to selected subgenera of *Ectemnius* of southeastern Asia); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:19 (in key to Asian *Ectemnius*), 67 (in annotated catalog of Asian and Oceanian *Ectemnius*, may be a variation of *Ectemnius chrysites*).

136. *polynesialis* (Cameron)

Crabro polynesialis Cameron, 1881:562, sex not stated. Holotype or syntypes: ♀, Hawaiian Islands: Island of Hawaii: Mauna Loa (BMNH), treated as holotype by Takumi, 1999:47. – Blackburn in Blackburn and Cameron, 1886:168 (additional description); R. Perkins in R. Perkins and Forel, 1899:22 (redescription); Dalla Torre, 1897:619 (in catalog of world Sphecidae). – **As *Xenocrabro polynesialis***: R. Perkins, 1907:97 (new generic assignment, Hawaiian Islands: Island of Hawaii: Kilauea crater); Swezey and Williams, 1932:181 (Hawaiian Islands: Island of Hawaii). – **As *Ectemnius polynesialis***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:323 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:68 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:6 (prey: calliphorid and sarcophagid flies), 46 (in revision of Hawaiian *Ectemnius*).

137. *praeclarus* (Arnold)

Crabro praeclarus Arnold, 1945:181, ♀. Syntypes: Madagascar: Ivondro (MNHN). – **As *Ectemnius praeclarus***: Leclercq, 1954c:269 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:12 (in key to subgenera and species groups of *Ectemnius*); Pulawski, 2003b:796 (in checklist of Malagasy Sphecidae); Madl, 2014a:954 (in catalog of Ampulicidae, Crabronidae, and

Sphecidae of Malagasy subregion, with synonymy and locality records); Řiha and Farkač, 2015:184 (in list of Afrotropical *Ectemnius*).

Dasyproctus sakalavus Leclercq, 1967b:68, ♀. Holotype: ♀, Madagascar: Aninoravo (MNHN). Synonymized with *Ectemnius praeclarus* by Leclercq, 1989c:51. – R. Bohart Menke, 1976:421 (in checklist of world Sphecidae).

138. *praeivius* (Kohl)

Crabro praeivius Kohl, 1915:93, ♀. Holotype: ♀, Caucasus: no specific locality (NHMW). – **As *Ectemnius praeivius*:** Leclercq, 1954c:278 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Kazenas, 2001b:42 (tentatively in checklist of Sphecidae of Kazakhstan and Central Asia).

139. *productus* (W. Fox)

Crabro productus W. Fox, 1897b:387, ♀, ♂. Syntypes: Brazil: Mato Grosso: Chapada do Guimaraes (Carnegie Mus.). – **As *Ectemnius productus*:** Leclercq, 1950j:201 (new generic assignment, listed), 1954c:277 (in catalog of world Crabronini); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1991b:9 (in revised key to Latin American *Ectemnius*), 19 (bibliographic references; Brazil); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:172 (Venezuela: Bolivar: 57 km east of Santa Elena de Uairen).

Ectemnius flirans Leclercq, 1968e:321, ♀, ♂. Holotype: ♂, Paraguay: San Bernardino (NHMW). Paratypes: Brazil. Synonymized with *Ectemnius productus* by Leclercq, 1991b:19. – Leclercq, 1968e:305 and 306 (in key to *Ectemnius* of Latin America), 1972c:199 and 200 (in updated key to *Ectemnius* of Latin America), 213 (bibliographic reference, Brazil); R. Bohart and Menke, 1976:426 (in checklist of world Sphecidae); Dollfuss, 1989:9 (holotype in NHMW).

140. *psychosus* Leclercq

Ectemnius psychosus Leclercq, 1999a:68, ♀. Holotype: ♀, Malaysia: Sabah (= northeastern Borneo): near Danum Valley Field C (RMNH). – Leclercq, 1999a:22 (in key to Asian *Ectemnius*).

141. *psyllus* Leclercq

Ectemnius psyllus Leclercq, 1982b:152, ♂. Holotype: ♂, India: Sikkim: no specific locality (ZMHU). – Leclercq, 1999a:28 (in key to Asian *Ectemnius*), 69 (in annotated catalog of Asian and Oceanian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian sub-continent).

142. *pulawskii* Leclercq

Ectemnius pulawskii Leclercq, 1999a:69, ♀. Holotype: ♀, Papua New Guinea: Madang Province: Mount Hanseman northeast of Nobonob Hill (CAS). – Leclercq, 1999a:36 (in key to Asian *Ectemnius*).

143. *radiatus* (Pérez)

Crabro radiatus Pérez, 1905a:155, ♂. Holotype or syntypes: ♂, Japan: no specific locality but presumably Tokyo area (MNHN). – Pérez, 1905a:26 (in checklist of Crabronidae of Japan); Kohl, 1915:46 (original description translated into German). – **As *Ectemnius radiatus*:** Leclercq, 1954c:289 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1959e:7 (synonymy); Tsuneki, 1960g:11 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1967g:44 (western Japan: Hyonosen Mountain); Haneda, 1968a:47 (Japan), 1968b:57 (Japan: Nagano Prefecture: Ina District); Okuno, 1968:30 (Japan); Tano, 1968:35 (Japan); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:52 (Japan: Niigata Prefecture); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History), 1970b:11 (Central Japan); Yamada, 1970:13 (Japan: Nagano Prefecture: Shimajima Valley); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Nambu, 1975b:73 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Tsuneki, 1979d:10 (Japan); Leclercq, 1982b:153 (Korea: no specific locality); Tsuneki, 1982b:16 (known from Korea); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Antropov, 1993e:157 (Russia: Primorskiy Krai: 32 km southeast

of Ussuriysk; comparison with *Ectemnius nigratarsus*); Takahashi 1993:3 (Japan: Island of Hachijo-Jima); Nemkov, 1998a:686 (in supplementary key to Russian Far East *Ectemnius*); Leclercq, 1999a:31 (in key to Asian *Ectemnius*), 69 (in annotated catalog of Asian and Oceanian *Ectemnius*); Yamane, Ikudome, and Terayama, 1999:506 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Haneda, 2003:4 (Japan: Nagasaki Prefecture: Tsushima); Tano, Kurokawa, Murota, and Nozaka, 2003:32 (Japan: Nagasaki Prefecture: Tsushima); Dollfuss, 2004b:776 (Japan: Osaka); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Suda, 2004:44 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:51 (Japan: Gifu Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture), 2006b:48 (Japan: Nagasaki Prefecture: Tsushima); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Haneda, 2008:15 (in key to Japanese Crabroninae); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Nemkov, 2009b:116 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); N. Yamamoto, 2011:13 (Japan: Kyūshū: mainland Nagasaki Prefecture); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); J.-K. Kim, 2014:431 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:231 (in catalog of Crabroninae of Russia); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

Crabro nigratarsus forma *mizuho* Tsuneki, 1947e:400, sex not stated. Holotype or syntypes: Japan: Hokkaido: no specific locality (originally K. Tsuneki coll., now?). Synonymized with *Ectemnius radiatus* by Tsuneki, 1959e:7. – **As *Ectemnius nigratarsus* form *mizuho***: Leclercq, 1954c:284 (in catalog of world Crabronini, as *mizuko*).

Ectemnius mizuho Tsuneki, 1952c:63, ♀, ♂. Holotype: ♂, Japan, Hokkaido: Sounkyo (originally K. Tsuneki coll., now?). Junior secondary homonym of *Crabro mizuho* Tsuneki, 1947. Synonymized with *Ectemnius radiatus* by Tsuneki, 1959e:7. – Leclercq, 1954c:284 (in catalog of world Crabronini, as *mizuko*), 1958f:145 (in key to subgenus *Cameronitus*), 153 (bibliographic reference to original description), 1963:31 (in key to *Ectemnius nigratarsus* species group); Tsuneki and Tanaka, 1955a:67 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1957f:59 (Korea).

144. *recuperatus* Leclercq

Ectemnius recuperatus Leclercq, 1972c:217, ♀. Holotype: ♀, Panama: El Valle (USNM). – Leclercq, 1972c:204 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1991b:14 (in revised key to Latin American *Ectemnius*), 23 (bibliographic reference); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:172 (described from Panama).

145. *reginellus* (Leclercq)

Crabro cinctus R. Turner, 1908:531, ♀, junior primary homonym of *Crabro cinctus* Rossi, 1790, and of *Crabro cinctus* Spinola, 1806. Holotype or syntypes: ♀, Australia: Queensland: Mackay (BMNH). – R. Turner, 1912f:63 (placed in subgenus *Solenius*), 1915a:93 and 94 (in key to Australian *Crabro* subgenus *Solenius*, now *Ectemnius*). – **As *Ectemnius cinctus***: Leclercq, 1950i:195 (new generic assignment, additional description).

Crabro reginellus Leclercq, 1954c:268, substitute name for *Crabro cinctus* R. Turner, 1908. – Leclercq, 1974c:40 (Australia: Queensland); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:15 (in key to subgenera and species groups of *Ectemnius*), 18 (in key to Asian *Ectemnius*), 70 (in annotated catalog of Asian and Oceanian *Ectemnius*, locality records).

146. *riosorum* Leclercq

Ectemnius riosorum Leclercq, 1968e:324, ♀, ♂. Holotype: Argentina: Entre Ríos: Pronunciamiento (FSAG). – Leclercq, 1968e:309 and 313 (in key to *Ectemnius* of Latin America), 1972c:201 and 203 (in updated key to *Ectemnius* of Latin America), 215 (bibliographic references, new records from Argentina); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1991b:10 (in revised key to Latin American *Ectemnius*), 23 (bibliographic

references); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:172 (described from Argentina), 2007g:194 (holotype in FSAG).

147. *rubicola* (Dufour and Perris)

Solenius rubicola Dufour and Perris, 1840:25, ♀, ♂. Syntypes: France: Landes: no specific locality (MNHN, coll. Perris).
 – Giraud, 1866:475 (nesting in stems of *Rubus*; France: Bar-sur-Seine, Grenoble, Fontainebleau, Paris); Dours, 1874:157 (in catalog of Hymenoptera of France); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Schirmer, 1912:163 (Germany: Berlin area); Enslin, 1922a:1 (senior synonym of *Crabro larvatus*, nesting habits, description of larva, parasites); Coulon, 1925:125 (France: Evreux); Baudot, 1931:255 (characteristics of cocoon); Richards, 1936a:171 (synonymy with *Crabro larvatus* reported), 1937b:107 (in checklist of British aculeates); Schneid, 1941:1026 (Germany: Bayern: Bamberg area); Audcent, 1942:25 (parasite: *Moschusa polyodon* Meigen); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Wotton); Chambers, 1949:230 (Great Britain: Bedfordshire); Felton, 1963:178 (Great Britain: Kent County).
 – **As *Crabro rubicola*:** Dahlbom, 1845:389 (new generic assignment, in revision of Sphecidae and Pompilidae), 528 (belongs to subgenus *Ectemnius*); Eversmann, 1849:426 (Russia: Kazan' province and Ural foothills); F. Smith, 1856:412 (in catalog of Hymenoptera in British Museum); Schenck, 1857:110 (Germany: in revision of fossorial wasps of Nassau Region); Taschenberg, 1866:171 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (known from Germany); Thomson, 1870:172 (in revision of Swedish Crabroninae), 1874:284 (in revision of Hymenoptera of Scandinavia); Girard, 1879:937 (nesting habits); Marquet, 1881:189 (France: Haute-Garonne: Toulouse); Kohl, 1883e:651 (Switzerland); Sahlberg, 1883:164 (Russia: Petrozavodsk; prey); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s. s.); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Dalla Torre, 1897:623 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: northern Hungary and Sušak, now in Croatia); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); Aurivillius, 1904:297 (in revision of Swedish Sphecidae); Höppner, 1904:168 (nest parasite: *Eurytoma rubicola* Gir.); Schmiedeknecht, 1907:187 (in key to Hymenoptera of Central Europe); Kohl, 1915:77 (as questionable synonym of *Crabro laevigatus*); Enslin, 1922c:245 (Germany: Bayern: everywhere in Nordbayern); Berland, 1925d:198 (in Sphecidae Fauna of France: unrecognizable); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Ihringen); Bischoff, 1931:9 (Spain); E. Nielsen, 1933:269 (summary of nesting habits); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:321 (Switzerland); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg); Zavadil, Šusterka, and Bat'a, 1937:152 (in catalog of Sphecidae of Czechoslovakia); Leclercq, 1941a:68 (Belgium: Pays de Liège), 1941b:13 (Belgium: Liège area; nesting habits); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Hachfeld, 1945:73 (metamorphosis); Zavadil in Zavadil and Šnoflak, 1948:115, 116 (in key to Sphecidae of Czechoslovakia); Cavo, 1950:40 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Caruel, 1952a:62 (France: Marne Department); Nouvel and Ribaut, 1953:183 (France: Haute-Garonne: Luchon, Saint-Béat, Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:95 (Italy); Kjellander, 1954b:245 (Sweden); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1957:144 (Netherlands: Tilburg area, nesting in stems of *Rubus*), 1958b:18 (in review of Dutch Sphecidae); Ceballos, 1959:231 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:132, 137 (in key to Polish Sphecidae); Tolstova, 1962:288 (Russia: Pushkin, nesting in raspberry stems); Wengris, 1962:206 (Lithuania: Vilnius area); Niedl and Deneš, 1967:69 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:52 (Romania); Tumšs and Maršakovs, 1970:24 (Latvia); Balthasar, 1972:62 (in Sphecidae Fauna of Czechoslovakia); Skibińska, 1982:124 (Poland: Warszawa area); Kowalczyk, 1988a:45 (Poland: Rogów), 1988b:65 (Poland: environs of Łódź).
 – **As *Ectemnius rubicola*:** Taschenberg, 1858:113 (new generic assignment, in key to Sphecidae of Germany); Mocsáry, 1874:120 (Siebenbürgen, now Romania: Transylvania: no specific locality); Kirchner, 1867:226 (in catalog of European Hymenoptera); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); Chyzer, 1902:34 (Hun-

gary); Rudow, 1912:71 (nesting in raspberry stems); Leclercq, 1949a:11 (Germany: Nürnberg), 1951e:13 (bibliography of Belgian records); Tsuneki, 1952c:66 (Japan: Shikoku); Fahlander, 1954:249 (Sweden: Gästrikland Region); Grandi, 1954:243 (Italy); Leclercq, 1954c:272 (in catalog of world Crabronini), 318 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Hellén, 1955a:129 (Finland: Föglö, Helsing, Parikkala); Iwata, 1955:30 (egg size, number of oocytes); Tsuneki and Tanaka, 1955a:67 (Japan: Nikko 120 km northwest of Tokyo); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); Iwata and Yoshida, 1957:53 (damage to commercial cultures of *Gladiolus gandavensis* Van Houtt, Iridaceae); de Beaumont, 1958c:210 (Swiss National Park); Móczár, 1958a:265 (in annotated catalog of Hungarian Crabronini), 1958b:202 (Hungary: locality records); de Beaumont, 1959a:35 (Italy); Miyamoto, 1959:32 (visiting flowers of *Erigeron annuus* L., Asteraceae), 36 (visiting flowers of *Lepidium virginicum* L., Brassicaceae); Wolf, 1959b:34 (Germany: Nassau); Grandi, 1962:98 (Italy); Valkeila, 1962b:68 (southwestern Finland); Babi, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:128 (in Sphecidae Fauna of Switzerland), 1965a:58 (Greece); Roberti, Frilli, and Pizzaghi, 1965:110 (Italy: Emilia-Romagna: Vernasca in Piacenza Province); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:349 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:80 (Germany: Bayern: Unterfranken District); Benedek, 1968:75 (Hungary, visiting flowers of *Angelica silvestris* L. and *Pastinaca sativa* L., both Apiaceae); Leclercq, 1968b:39 (Great Britain: Kent); Okuno, 1968:29 (Japan, as *rabicola*); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube), 1968c:386 (Romania: Alexandria, Andronache); Benedek, 1969a:84 (Hungary: marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena pruni* (Geoffroy)); Lefebvre, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Zangheri, 1969:1708 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:102 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:763 (Democratic Germany); Leclercq, 1971:221 (Spain); Lefebvre, 1971a:18 (Belgium: Lanaye); Petit, 1971:23 (Luxemburg: Bourscheid, Welscheid); Schmidt, 1971b:46 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Suda, 1971:83 (Japan: Chiba Prefecture); Kazenas, 1972b:174 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman); Else, 1974:207 (Great Britain: Oxenbourne), 208, 210 (in key to British *Ectemnius*); Erlandsson, 1974:83 (Italy); Kazenas, 1974b:110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan); Leclercq, 1974d:279 (synonymy); Simon Thomas and Veenendaal, 1974b:4 (France: Gironde: Andernos-les-Bains); Leclercq, 1975b:3 (France); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Eck, 1976:94 (Democratic Germany); Lomholdt, 1976:327 (in Sphecidae Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Guichard, 1978:272 (Greece); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); Benedek, 1979:234 (Hungary: Bakony Hills); Edwards, 1979:70 (Great Britain: Sussex County); Leclercq, Gaspar, and Verstraeten, 1979:map 1468 (Belgium); Marshakov, 1979a:105 (in key to *Ectemnius* of Russian Far East); Dathe, 1980:209 (Russia: northern Caucasus: Teberda); Pagliano, 1980:124 (Italy: Piemonte); Richards, 1980:54 (in key to Sphecidae of British Isles); Schmidt, 1980:385 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Donath, 1982:214 (Germany: Cottbus Bezirk); Gayubo, 1982b:32 (Spain: Ávila, Cáceres, and Salamanca provinces); Leclercq, 1982a:125 (Belgium: Liège); Dollfuss, 1983b:19 (in catalog of Sphecidae of Austria); Józán, 1983:102 (Hungary); Rasmont and Pauly, 1983:59 (Spain: Llerida: Caldes de Boi: member of sleeping aggregation); Riemann, 1983:87 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo, 1984b:96 (Spain: Salamanca Province); Lefebvre, 1984:29 (Netherlands: Maastricht); Nilsson, 1984:104 (Sweden: Västmanland Province); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Józán, 1985b:60 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Plachter,

1985:60 (Germany: Bayern: lower Brombach valley); Riemann, 1985:21 (Germany: Niedersachsen); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Brechtel, 1986:68 (Germany: Südpfalz); Gayubo and Heras, 1986:58 (Spain: Segovia Province; floral records); Józán, 1986:373 (Hungary: Kiskunság National Park); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Steiner, 1986:108 (references to publications on nesting habits); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:371 (Germany: Mainz area); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:17, 29 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Allen and Felton, 1989:36 (Great Britain: Kent County); Archer, 1989b:232 (Great Britain: Suffolk); Jacobs, 1989:23 (Germany: Mecklenburg-Vorpommern); Józán, 1989:102 (Hungary: Tihany Nature Reserve); Nilsson, 1989:48 (Sweden); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989b:291 (Poland: moist meadow in Warszawa area); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Jacobs and Oehlke, 1990:198 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:24 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:89 (Czech Republic: Praha area); Pagliano, 1990:90 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:549 (Austria: Kärnten); Yeo, 1990:101 (Great Britain: Cambridge); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:410 (Italy: Emilia, Veneto); Józán, 1991:604 (Hungary: Bátorliget Nature Reserve); Negrisolo, 1991:322 (Italy: Gorizia and Udine Provinces); Pagliano, 1991b:349, 355 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); van der Smissen, 1991:96 (northwestern Germany); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Cölln and Jakubzik, 1992:89 (Germany: Rheinland; reared from twigs of *Rubus*); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józán, 1992a:229 (Hungary: Béda-Karapanca Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:248 (Russia: Far East: Khingan Nature Reserve); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Bitsch and Leclercq, 1993:173 (in revision of western European Crabroninae); Jakubzik and Cölln, 1993a:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:31 (locality records from Europe); Leclercq and Barbier, 1993:65 (map of distribution in France); van der Smissen, 1993:128 (northwestern Germany); Wiśniowski, 1993a:95, 97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Gayubo and Borsato, 1994:214 (Italy: Veneto); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); U. Peters, Sohmen, Stuke, and Prüter, 1994:66 (Germany: Schleswig-Holstein: gardens in Hof Möhr); Schmid-Egger, 1994a:688 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:450 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:90 (Italy: Ferrara Province); Papp and Józán, 1995:145 (Hungary: Sikfőkút oak forest); Saure and Dürrenfeld, 1995:29 (Germany: Brandenburg: Gabower Hänge near Bad Freienwalde); Scharrer, 1995:27 (Austria: Niederösterreich: Stammersdorf, Kärnten: Eisenkappel, Mölltal; Croatia: Island of Krk); Schmid-Egger, 1995:61 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:184 (summary of records from Germany: Rheinland-Pfalz); Wolf, 1995:18 (Germany: Rheinland-Pfalz: near Lorelei Rock on Rhein River); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Harvey and Plant, 1996:73 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996a:323 (Germany: nesting in stems of *Rubus*), 324 (nest parasite: *Perithous divinator* Rossi, an ichneumonid), 335 and 336 (in keys to cocoons), 1996b:399 (Germany: Rheinland-Pfalz); Minorskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Pawlikowski and Kruszyński, 1996:86 (Poland: Toruń Basin); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: not endangered); Voblenko, Gorobchishin, and Nesterov, 1996:15

(Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg), 108 (locality records); Woydak, 1996:77 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Riemann, 1997:49 (Germany: Achim 14 km southeast of Bremen); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); Blösch, 1998:167 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józán, 1998:312 (Hungary: Duna-Dráva National Park); Lefebvre, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); N. Schneider and Wahis, 1998:21 (Luxemburg: sandstone quarries); van der Smissen, 1998:59 (Germany: Niedersachsen, Schleswig-Holstein); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); W. Klein, 1999:16 (in improved key to *Ectemnius* of Benelux); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany endangered in Nordrhein-Westfalen); Leclercq, 1999a:27 (in key to Asian *Ectemnius*), 70 (in annotated catalog of Asian and Oceanian *Ectemnius*); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Mandery, 1999:105 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:88 (Austria: Oberösterreich: city of Linz area); Blösch, 2000:338 (in Sphecidae Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: no specific locality); Flügel, 2000:46 (Germany: Hessen: Halberg near Neumorschen); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:107 (Greece); Grace, Yates, and Triplet, 2000:20 (Great Britain: East Sussex: Rye Bay area); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:111 (Hungary: Bakony Mountains); Luig and Voolma, 2000:126 (first record from Estonia); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mountains); Mauss, Schröder, and Botta, 2000:76 (Germany: Bayern: Arber area in Bavarian Forest); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Neumeyer, 2000:99 (Switzerland: Basel); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 207 (review of biology); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:78 (Austria: Wien); Bieri, 2002:75 (Lichtenstein); Józán, 2002:54 (Hungary: Mecsek Mountains); Kazenas, 2002a:109 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:155 (Poland: Kampinos National Park near Warszawa); Litt, 2002:167 (Belgium); Lukáš, 2002:190 (Slovakia: Hájníca Hill near Trenčianske Bohuslavice); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Wiśniowski, 2002:72 (Poland: Ojców National Park); Ziska, 2002:8 (Germany: Berlin-Köpenick: Krumme Lake); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:137 (Austria, France, Germany, Hungary: miscellaneous locality records); Generani, Pagliano, Scaramozzino, and Strumia, 2003:65 (Italy: Arcipelago Toscano); Józán, 2003:228 (Hungary: Látrányi Pusztas Nature Conservation Area); Kula and Tyrner, 2003a:150 (Czech Republic: Děčín Sandstone Uplands: forest district Snežník: birch stands in air-polluted area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:66 (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); Ohl and Linde, 2003:151 (number of ovarioles); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Island of

Malyi Tataru in delta of Danube at 45.21°N 29.00°E); Wiśniowski *in* Dylewska and Wiśniowski, 2003:172 (Poland: Ojców National Park); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:776 (locality records from Bulgaria, Croatia, Finland, Romania, Serbia, Turkey, and Ukraine); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gorobchishin and Protsenko, 2004:39 (Ukraine: Kherson Oblast': Chernomorskiy Nature Reserve); Jakubzik and Cölln, 2004:273, 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); Klein and Lefebvre *in* Peeters, van Achterberg et al., 2004:384 (in Wasp and Ant Fauna of Netherlands); Majzlan and Deván, 2004:32 (Slovakia: Malacky-Široké); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Shkuratov, 2004a:81 (Russia: Rostov Oblast'); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Cheeseborough, 2005:17 (Great Britain: Shropshire County: Hookagate near Shrewsbury); Gayubo and Özbek, 2005:33 (Turkey: eight localities); Jacobs, 2005a:445 (Bulgaria: Shipka); Kofler, 2005:181 (Austria: Tirol: Lienz District: Alter See in Amlach Common, Thal in Assling Common, Lavant, city of Lienz, Nikolsdorf); Nemkov, 2005a:157 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:263 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:558 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Gadoum and Barbier, 2006:43 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Haute-Isle); Gorobchishin, 2006:134 (Ukraine: Kyiv Oblast': Kyiv and villages Kruglyk near Kyiv and Svityl'ne); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:540 (Bulgaria: Rhodope Mountains: village Trigrad, as *rubicola rubicola*); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Beavis, 2007:94 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Livory, Lair, Sagot, and Baldock, 2007:34 (France: Département de la Manche); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Flügel, 2007:39 (Germany: Hessen: Halberg near Neumorschen); Jacobs, 2007:152, 156 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic hills); Kazenas, 2007a:92 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Nemkov, 2007b:74 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Vago, 2007:175 (France: départements du Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia); Ljubomirov and Ban-Calefariu, 2008:206 (Romania: Maramureş District: Strâmtura); Ljubomirov and Yildirim, 2008:279 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:37 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria, Estonia, and Sicily reported); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Nemkov, 2009b:120 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist

of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Kirov and Nizhny Novgorod oblast's: no specific localities); Rudoiskatel', 2010:159 (Russia: central Ural Mountains); Sakenin, Samin, and Bagriacik, 2010:16 (Iran: Khorasan: Bojnord); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:19 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská Nížina); van der Smissen, 2010a:340 (Germany: Schleswig-Holstein: locality records); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka); Falk, 2011:65 (Great Britain: Sussex: South Downs); Gogala, 2011:22 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:73 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Okhansk), 2011d:244 (Russia: central Ural Mountains); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg), 2011d:199 (Germany: Sachsen-Anhalt: conservation area "Heide südlich Burg"); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:134 (Germany: Hessen: not endangered); Ziska and Saure, 2011:109 (Germany: Berlin: Tegeler Fließ valley); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:50 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:171 (Russia: Krasnaya Polana near Sochi: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:81 (Turkey: Bayburt: Kopdağı: Şehitler Çeşmesi); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:214 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:34 (Poland: Kampinos National Park near Warszawa); U. Frommer, 2014:27 (Germany: Hessen: Lorch); Ghahari, Hayat, Lavigne, and Ostovan, 2014:1394 (prey of asilid fly *Erebunus farinatus* (Becker)); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:15 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); P. Rosa and Pagliano, 2015:101 (Italy: Lombardia and Piemonte: Parco del Ticino); Shorenko, 2015:323 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:120 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:24 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:109 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:576 (Russia: Abkhazia, Krasnodarskiy Kray); Ruchin and Antropov, 2016:402 (Russia: Mordovian State Nature Reserve); A. Scholz, 2016:72 (Germany: Sachsen: Kleinraschützer Heide); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:47 (Turkey: Erzurum: Aşkale: Kopdağı, as *Ectemnius rubicola rubicola*); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Burguet and Durand, 2017:9 (France: Puy-de-Dôme: basin of river Crouël); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:49 (Iran: known from North Khorasan Province); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols); Shorenko, 2017:77 (in Crimea collected in May through August); Twerd, Krzyżyński, Waldon-Rudzionek, and Olszewski, 2017:7 (Poland: Inowrocław and Janikowo: nesting in postindustrial soda ash dumping sites); Jacobs and Liebig, 2018:141 (Russia: Primorskiy Kray: Poshiga; Island of Sakhalin: Korsahov, Lugovoye, and Pravda); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ljubomirov, 2019:101 (Bulgaria: Vrachanska Planina); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:11 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and

- Kowalczyk, 2019:98 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13230 (Russia: Mordovia State Nature Reserve); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Krai); Kejval, Blažej, and Erhart, 2020:101 (western Czech Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:104 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:51 (in catalog of Crabronidae of Turkey); Olaszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:82 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:79 (Ukraine: Rivno Nature Reserve); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley, as *rubicola rubicola*).
- Crabro microstictus* Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area). Nomen nudum (as *Microstictus*, incorrect original capitalization).
- Crabro microstictus* Herrich-Schaeffer, 1841:.... Tentatively synonymized with *Crabro larvatus* by Kohl, 1915:82. – Schenck, 1857:122 (in revision of fossorial wasps of Germany); Funk, 1864:156 (Germany: Bayern: Bamberg); A. Morawitz, 1866a:272 and 1866b:350 (specimens in E. Eversmann collection); Schenck, 1867a:351 (known from Germany); Kohl, 1880:108 (Italy: Trentino–Alto Adige), 212 (diagnostic characters), 1888b:721 (Austria: Tirol, now Italy: Alto Adige; probably a variety of *Crabro fuscitarsus*); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s. s.); Dalla Torre, 1897:610 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: localities are actually in today's Romania and Slovakia); Schmiedeknecht, 1907:187 (in key to Hymenoptera of Central Europe); Birula, 1913:535 (Ukraine: Zhytomyr Oblast': Radomyshl'); Zilahi Kiss, 1915:80 (Hungary: Hadad); Schütze, 1925:109 (Germany: Lausitz Region). – **As *Ectemnius microstictus***: Kirchner, 1867:226 (new generic assignment, in catalog of European Hymenoptera). – **As *Xestocrabro microstictus***: R. Perkins, 1913b:387, 388 (new generic assignment, in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset). – **As *Solenius microstictus***: R. Perkins, 1925:151 (new generic assignment, Great Britain: Gloucestershire and Somersetshire).
- Crabro larvatus* Wesmael, 1852:614, ♀. Holotype: ♀, Belgium: Diest (Bruxelles). Synonymized with *Solenius rubicola* by Enslin, 1922a:1 and Picard, 1926:58. – F. Smith, 1856:400 (in catalog of Hymenoptera in British Museum); Schenck, 1857:70 (Germany: in revision of fossorial wasps of Nassau Region); Funk, 1859:58 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); A. Morawitz, 1864:454 (Russia: Sankt-Petersburg); Schenck, 1867a:350 (Germany: Nassau Region); von Aichinger, 1870:312 (Austria: Tirol); Kohl, 1880:109 (Italy: Trentino–Alto Adige); Sickmann, 1883:68 (Germany: Niedersachsen: Wellingholthausen); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s. s.); Dalla Torre, 1897:606 (in catalog of world Sphecidae); W. Schulz, 1904b:99 (Slovakia: Trenčín); Schmiedeknecht, 1907:188 (in key to Hymenoptera of Central Europe); Morice, 1910:271 (first record from Great Britain); Dittrich, 1911b:18 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1914:372 (Belorussia: Vitebsk area); Kohl, 1915:82 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Boksánbánya); Schulze, 1918:281 (Germany: Berlin-Buckow); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:37 (Germany: Franken historical region); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:149 (in key to Belgian Sphecidae), 164 (phenology, nesting habits); Berland, 1925d:196 (in Sphecidae Fauna of France); Bischoff, 1925:297 (Latvia, northeastern Poland); Zavadil, 1926:30 (Czechoslovakia); Benoist, 1928:411 (France: Basses-Alpes: Certamussat); Berland, 1928b:181 (*Crabro larvatus* is a junior synonym of *Crabro rubicola*); Bouwman, 1930:66 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:642, 645 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:58 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:124 (in revision of Sphecidae of Finland), 125 (comparison with *Crabro vagus*); Crèvecoeur and Maréchal, 1932:68 (in catalog of Belgian Hymenoptera: Hermalle-

sur-Argenteau); Bondroit, 1932:39 (Belgium: recorded from Diest by Wesmael, is a junior synonym of *Crabro rubicola*); Giordani Soika, 1932a:23 (Italy: Lido di Venezia); Bondroit, 1933:32 (Belgium: Uccle); Masi, 1933:196 (Italy: Toscana: Isola di Capraia); Balles, 1934:15 (Germany: Baden-Württemberg: Gamshurst, Hopfengarten, Katzenthal, and Oberachern); Bondroit, 1934:62 (Belgium: Watermael); Jansson, 1934:288 (Sweden); Grandi, 1935a:109 (Italy); Vergne, 1935:119 (France: Auvergne: Billom); Crèvecoeur and Maréchal, 1936:255 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Łowicz); Dulac, 1937:23 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Iwata, 1938d:83 (Japan: Hokkaido); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve); A. Wagner, 1938a:115 (northwestern Germany); Móczár, 1939:5 (Hungary: Jászberény); Paul, 1941:33 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:230 (in Sphecidae Fauna of Spain); Benno, 1943:67 (Netherlands); Guiglia, 1944b:38 (Italy); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Tsuneki, 1947e:402 (Japan: Hokkaido), 1948c:3 (Japan: Hokkaido); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Fæster, 1951:458 (distribution in Scandinavia); Koornneef, 1951:247 (Netherlands: Velp, color variety); Móczár, 1953:311 (Hungary); Vogrin, 1955:43 (Yugoslavia); Ceballos, 1956:394 (in catalog of Sphecidae of Spain); Zirmgibl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Lundblad, 1958:48 (Sweden: Gotland); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve). – **As *Solenius larvatus***: Dubois, 1919:95 (new generic assignment, Belgium: Bruxelles: Uccle); Hamm and Richards, 1926:304 (summary of nesting habits); Hémon, 1926:200 (France: Finistère: Fouesnant); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Collins, 1932:14 (Great Britain: Oxford District); Iwata, 1933b:10 (locality records from Japan); Spooner, 1933:203 (Great Britain: Bedfordshire: Sandy); Harttig, 1935:4 (Germany: Niedersachsen: Wollah); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Spooner, 1935:139 (Great Britain: Huntingdonshire: Wood Walton, and Northamptonshire: Ashton Wold); Hallett, 1938:72 (Great Britain: Herefordshire: Ross-on-Wye); Iwata, 1938b:33 (nesting habits). – **As *Ectmnius larvatus***: Kirchner, 1867:226 (new generic assignment, in catalog of European Hymenoptera).

Crabro pumilus A. Costa, 1871b:73, footnote, ♀. Holotype: ♀, Italy: no specific locality (Napoli). Synonymized with *Ectemnius rubicola* by Leclercq, 1954c:272. – Dalla Torre, 1897:619 (in catalog of world Sphecidae); Kohl, 1915:84 (original description translated into German).

As *Crabro interruptus*: Gorham, 1902:205 (preying on *Ogcodes gibbosus*, and acrocerid, in New Forest, Great Britain), corrected to *Solenius larvatus* by Hamm and Richards, 1926:305.

As *Solenius vagus* partim: Pagliano, 2011a:152, 153 (specimens in M. Spinola collection, Torino, are *Ectemnius rubicola*).

ssp. *nipponis* Tsuneki

Ectemnius rubicola nipponis Tsuneki, 1960d:240, ♀, ♂. Syntypes: Japan: Hokkaido, Kyushu, Shikoku and Honshu: no specific localities (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1960g:23 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Haneda, 1968b:57 (Japan: Nagano Prefecture: Ina District); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Nambu, 1968b:29 (Japan: Saitama Prefecture); Nishino, 1968:25 (Japan); Tano, 1968:35 (Japan); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:53 (Japan: Niigata Prefecture); Tsuneki, 1969i:61 (Japan: Fukui), 1969k:64 (Japan: Mount Hyonosen); Haneda, 1970:13 (Japan: Akita Prefecture); Tsuneki, 1970b:11 (Central Japan); Yamada, 1971:36 (Japan: Aichi Prefecture); Nambu, 1972e:91 (Japan: Saitama Prefecture), 1973a:153 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Nambu, 1975b:74 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Hoshiba and Imai, 1993:467 (chromosome number $n = 14$); Tano, 1994b:44 (holotype in K. Tsuneki coll.); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Leclercq, 1999a:27 (in key to Asian *Ectemnius*), 70 (in annotated catalog of Asian and Oceanian *Ectemnius*); Haneda and Tano, 2003:12 (Japan: Nagasaki Prefecture: Tsushima); Kurokawa, 2003:61 (Japan: city of Fukui: Egamichou); Nozaka and Kurokawa, 2003:56 (Japan: town of

Awara: lake side of Kitagata); Tano, Kurokawa, Murota, and Nozaka, 2003:32 (Japan: Nagasaki Prefecture: Tsushima); Dollfuss, 2004b:776 (Japan: Oshima: Wakayama); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:36 (Japan: Gifu Prefecture); Suda, 2004:45 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:48 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture), 2006b:48 (Japan: Nagasaki Prefecture: Tsushima); Ohkusa, 2006a:25 (Japan: Honshu: Gifu Prefecture), 2007:34 (Japan: central Honshu: Aichi Prefecture); Haneda, 2008:17 (in key to Japanese Crabroninae); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); S. Tanaka, 2008:39 (Japan: Yamaguchi Prefecture); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); Ohkusa and Tajima, 2010:13 (Japan: Island of Honshu: Shiga Prefecture); N. Yamamoto, 2013:28 (Japan: mainland Nagasaki Prefecture).

148. *rubrocaudatus* (Blackburn)

Crabro rubrocaudatus Blackburn in Blackburn and Cameron, 1886:172. Holotype ♂, Hawaiian Islands: Island of Hawaii: Mauna Loa (BMNH). – Dalla Torre, 1897:623 (in catalog of world Sphecidae). – **As *Nesocrabro rubrocaudatus***: R. Perkins in R. Perkins and Forel, 1899:27 (new generic assignment, redescription), 1907:97 (Hawaiian Islands: Island of Hawaii: Kilauea crater), 1913a:689 (coloration); Swezey and Williams, 1932:181 (nest and prey). – **As *Ectemnius rubrocaudatus***: Pate, 1944b:382 (new generic assignment); Leclercq, 1954c:282 (in catalog of world Crabronini); Yoshimoto, 1960:304 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1999a:70 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:5 (summary of known prey), 25 (in revision of Hawaiian *Ectemnius*).

Nesocrabro bidecoratus R. Perkins in R. Perkins and Forel, 1899:27, ♀. Holotype: ♀, Hawaiian Islands: Island of Hawaii: Kilauea (BMNH). Synonymized with *Nesocrabro rubrocaudatus* by R. Perkins, 1910:606, synonymy confirmed by Leclercq, 1954c:282, synonym status reinstated by Takumi, 1999:25. – R. Perkins, 1907:97 (Hawaiian Islands: Island of Hawaii: Kilauea crater; as *Nesocrabro rubrocaudatus* var. *bidecoratus*). – **As *Ectemnius bidecoratus***: Yoshimoto, 1960:308 (new generic assignment, in revision of Hawaiian *Ectemnius*, resurrected as valid species); R. Bohart and Menke, 1976:424 (in checklist of world Sphecidae).

149. *ruficornis* (Zetterstedt)

Crabro ruficornis Zetterstedt, 1838:443, ♂. Holotype or syntypes: ♂, Sweden: Muonioniska at 67°57'N 23°42'E (depository?). – **As *Ectemnius ruficornis***: Leclercq, 1974d:281 (new generic assignment, synonymy), 1975b:3 (France); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae, as new generic assignment by J. Leclercq); Lefebvre, 1976:152 (Netherlands: Best, Nunspeet); Lomholdt, 1976:320 (in Sphecidae Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald), 1977/78:57 (Germany: Rheinland-Pfalz: Mombacher Sand); Lefebvre, 1978:138 (Netherlands: Echt, Nunspeet); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); R. Bohart and Kimsey, 1979:488 and 490 (in key to North American *Ectemnius*); Edwards, 1979:70 (Great Britain: Sussex County); Krombein, 1979b:1677 (in catalog of North American Hymenoptera); Leclercq, Gaspar, and Verstraeten, 1979:map 1474 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:105 (in key to *Ectemnius* of Russian Far East); Richards, 1979:399 (British Channel Islands); Pagliano, 1980:124 (Italy: Trentino-Alto Adige); Preuss, 1980a:24 (Germany; nesting at forest edges), 24 (Germany: nesting in wood, but natural habitat is reduced); Richards, 1980:53, 54 (in key to Sphecidae of British Isles); Schmidt, 1980:385 (Germany: Baden-Württemberg); Westrich, 1980:633 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:51 (Germany: Friesian Island: Island of Amrum); Thiede, 1981:46 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:44 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Finnmore, 1982:189 (in Sphecidae Fauna of Southern Quebec); Leclercq, 1982e:100 (Norway: Hordaland: Voss); Tsuneki,

1982b:10 (Korea), 16 (known from Korea); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Jacob-Remacle and Jacob, 1983:242 (Belgium: Liège Province: fagne de Malchamps near Spa); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Haack, Tschardtke, and Vidal, 1984:128 (Germany: Hamburg area); Lefebvre, 1984:29 (Netherlands: Maastricht); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 355 (prey); Józán, 1985b:60 (Hungary south of Lake Balaton), 70 (map of distribution in Hungary; as *ruficornis*), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Brechtel, 1986:68 (Germany: Südpfalz); Nemkov, 1986:104 (Russia: Siberia: Irkutsk Oblast); Nilsson, 1986:87 (Sweden); Skibińska, 1986b:151, 154 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 168 (green areas of housing estates), 174 (various green urban habitats); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:371 (Germany: Mainz area); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); M. Cooper, 1988b:206 (Great Britain: Herefordshire: Llanwarne); Chevin, 1988:16 (France: La Manche Department); Dollfuss, 1988:29 (Austria: Niederösterreich: Oberweiden); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Allen and Felton, 1989:36 (Great Britain: Kent County); Jacobs, 1989:23 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:204 (Poland: Warszawa area); Weiffenbach, 1989:109 (Germany: Hessen: Gießen area); Archer, 1990b:137 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:199 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetsova, 1990:24 (Russia: Voronezh Oblast: Galich'ya Gora Nature Reserve); Pádr, 1990:89 (Czech Republic: Praha area); Pagliano, 1990:90 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammerberger and Priesner, 1990:549 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 93, 104 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Kuhlmann et al., 1991:90 (Germany: Senne Region); Negrisolo, 1991:322 (Italy: Udine Province); Nilsson, 1991:83 (Sweden: Lake Mälaren); Pagliano, 1991b:349, 353 (in key to Italian Crabroninae); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:249 (Russia: Far East: Khingan Nature Reserve); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992b:92 (Germany: Nordrhein-Westfalen: Olpe), 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: ruin of castle Schwarzenberg); Bitsch and Leclercq, 1993:161 (in revision of western European Crabroninae); Józán, 1993:414 (Hungary: Bükk National Park); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:31 (locality records from Europe and Turkey); Leclercq and Barbier, 1993:66 (map of distribution in France); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife bei Altenahr); nec Blades and Marshall, 1994:276 (= *Ectemnius arcuatus*); Felton and Schneider, 1994:290 (Luxemburg); Finnamore, 1994:210 (Canada: Alberta: Wagner Natural Area 8 km west of Edmonton, as *Ectemnius ruficornis ruficornis*); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Pádr and Lukáš, 1994:893 (Slovakia: High Tatra Mountains); Theunert, 1994c:40 (Germany: summary of records from Niedersachsen and Bremen); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Kowalczyk and Krzeptowski, 1995:189 (Poland: Zakopane and Tatry Mountains); Krasnobayev et al., 1995:139 (Russia: Zhiguli Hills northwest of Samara); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:450 (in key to Sphecidae of Russian Far East); Papp and Józán, 1995:145 (Hungary: Sikfőkút oak forest); Riemann, 1995:52 (Germany: Bremen); Scharrer, 1995:27 (Austria: Niederösterreich: Bucklige Welt; Germany: Bayern: Aschaffenburg, Schönbusch); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Schmid-Egger, 1995:61 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:184 (summary of records from Germany: Rheinland-Pfalz Province); Skibińska, 1995:424,

425, 426 (Poland: pine forest in Białowieża Primeval Forest); von der Dunk and Amon, 1995:52 (Germany: Nürnberg: Birkenlach forest, as *ruficrus*); Archer, 1996a:58 (Great Britain: Channel Islands), 1996b:37 (Great Britain: Nottinghamshire: Sherwood Forest); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Jakubzik, 1996:252 (Germany: Köln); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:304 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); von der Dunk and Amon, 1996:41 (Germany: Bayern: Altdorf sand dunes east of Nürnberg); Witt, 1996:106 (Germany: Brandenburg), 108 (locality records); Woydak, 1996:81 (Germany: Westfalen: summary of distribution and nesting habits); Bičik and Láška, 1997:8 (hunting syrphids *Episyrphus balteatus* (De Geer) and *Syrphus torvus* Osten-Sacken, a case of Peckhamian mimicry); Celary, 1997:59 (in checklist of Animals of Poland); Finnermore, 1997:891 (Canada: Yukon, as *Ectemnius ruficornis ruficornis*); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Knutelski, 1997:54 (correction to Kowalczyk and Krzeptowski, 1995: Poland: *Ectemnius ruficornis* is also new for Kotlina Zakopiańska); Blösch, 1996:5 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Celary, 1998b:211 (Poland: Babia Góra National Park); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Lefebvre, 1998:182, 183 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Morgan, 1998:19 (Great Britain: Wales: Carmarthenshire County); van der Smissen, 1998:59 (Germany: Mecklenburg-Vorpommern, Schleswig-Holstein); K. Weber, 1998:139 (Germany: Bayern: Bamberg area); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Dorow, 1999:531, 574 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Gusenleitner, 1999:601 (Austria: Vorarlberg: Runkeline northwest of Bludesch); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); Leclercq, 1999a:24 (in key to Asian *Ectemnius*), 70 (in annotated catalog of Asian and Oceanian *Ectemnius*, first record from Burma); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Mandery, 1999:105 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:88 (Austria: Oberösterreich: city of Linz area); Skibińska, 1999:95 (previously recorded from Białowieża Primeval Forest, Poland); Srba, 1999:181 (Czech Republic: Chomutov); Blösch, 2000:341 (in Sphecidae Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: 7-8 km south of Talgar); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:112 (Hungary: Bakony Mountains); Luig and Voolma, 2000:126 (first record from Estonia); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mountains); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 208 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:52 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:79 (Austria: Wien); Archer, 2002b:119 (Great Britain: Watsonian Yorkshire: distribution map), 2002c:38 (Great Britain:

Watsonian Yorkshire); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:75 (Lichtenstein); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Józán, 2002:54 (Hungary: Mecsek Mountains); Kazenas, 2002a:109 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Litt, 2002:167 (Belgium); Mokrousov, 2002:150 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Wiśniowski, 2002:72 (Poland: Ojców National Park); Ziska, 2002:8 (Germany: Berlin-Köpenick: Krumme Lake); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:137 (Austria, France, Germany: miscellaneous locality records); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Kuhlmann and Quest, 2003:50 (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, 2003:66 (Germany: in catalog of wasps and bees of Bayern); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:172 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:147 (western Slovakia); Dollfuss, 2004b:776 (locality records from Bulgaria, Romania, and Ukraine); Dorow, 2004:127 (Germany: Hessen: Schönbuche Nature Reserve); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Hellrigl, 2004a:173 (Italy: Trentino-Alto Adige, as Südtirol: Tirol village near Talbauer); Jakubzik, Niehuis, and Cölln, 2004:458 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Litt, 2004:222 (Switzerland: Valais: Vissoie); Klein and Lefebvre *in* Peeters, van Achterberg et al., 2004:385 (in Wasp and Ant Fauna of Netherlands); Krivonogova and Rudoiskatel', 2004:109 (Russia: Sverdlovsk Oblast': near Gari village); Majzlan and Deván, 2004:30 (Slovakia: Sekule); Salzmänn-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:81 (Ukraine: Donetsk Oblast': Donetsk Botanical Garden; Russia: Rostov Oblast': Migulinskaya), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muзей-Zapovednik M.A. Sholokhova); Skibińska *in* Bogdanowicz, Chudzik, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:45 (Japan: Yamanashi Prefecture); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Dubitzky, Blank, and Schönlitzer, 2005:274 (Germany: Bayern: area north of Dachau); Gayubo and Özbek, 2005:33 (Turkey: Erzurum: Tortum, Esendurak; Kars: Karakurt at 40°07'5"N 42°29'9"E; Trabzon: center); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:51 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Kofler, 2005:182 (Austria: Tirol: Lienz District: many localities); Kraatz, 2005:103 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov, 2005a:156 (Russia: Island of Sakhalin); Pagliano and Negrisola, 2005:268 (in Sphecidae Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:558 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:36 (Great Britain: Cumbria County); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Venne and Bleidorn, 2005:43 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Wiśniowski, 2005a:312 (Poland: Ojców National Park; occurring only in forest and on wooden buildings); Dvořák, Bogusch, and Smetana, 2006:103 (Czech Republic: Šumava = Bohemian Forest); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Gadoum and Barbier, 2006:42 (France: départements of Val-

d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Haravilliers); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:208 (Spain: Asturias: Pola de Lena); Gorobchishin, 2006:133 (Ukraine: Cherkasy Oblast': Kaniv Nature Reserve); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:510 (Czech Republic: Kokořínsko area); Baghirov, 2007:93 (Russia: southwestern Siberia); Chevin, Livory, Lair, Sagot, and Baldock, 2007:35 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:140 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge and Schönbuche Forest Reserves); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Jacobs, 2007:150, 155 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Leclercq, 2007e:172 (locality records from Canada and USA); Nemkov, 2007b:74 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); N. Schneider, 2006:140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia); Archer, 2008d:21 (Great Britain: Watsonian Yorkshire: Duncombe Park); Haeseler, 2008:308 (Germany: Friesian Islands); Haneda, 2008:14 (in key to Japanese Crabroninae); Ljubomirov and Yildirim, 2008:273 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Tannert and von der Dunk, 2008:181 (Germany: Bayern: west of Ernhofen and Weissenbrunn); Theunert, 2008:38 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent records from Bulgaria, Italy, Romania, Spain, and Ukraine reported); Burguet, 2009:15 (France: Département de Puy-de-Dôme: Bois de la Comté); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); Dvořák, Bogusch, and Smetana, 2009:81 (Czech Republic: Králický Sněžník National Nature Reserve); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Mokrousov, 2009:284 (Russia: Republic Mari El); Nemkov, 2009b:117 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Krai: Lazovsky Nature Reserve); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Straka, Dvořák, and Bogusch, 2009:261 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); Ermilov and Mokrousov, 2010:90 (phoretic mites *Lackerbaueria cribratissima* Zachvatkin and *Schwiebea nova* (Oudemans) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Falk, 2010:93 (Great Britain: heathland sites in West Midlands region); Hable, von der Dunk, and Knipfer, 2010:65 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Kirov and Nizhniy Novgorod oblast's, Chuvash Republic, Mari El Republic, Tatarstan: no specific localities) Mokrousov, 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:135 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Kononov, 2010:18 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská nížina); Treiber, 2010:135 (France: département du Bas-Rhin); van der

Smissen, 2010a:340 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records), 2010c:396 (Sweden: Öland: Byrums Sandvik); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common); Baghirov, 2011b:146 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Aktash, Artybash, Kosh-Agach); Gogala, 2011:22 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:72 (Russia: Chuvash Republic); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Saure, Bohrer, Venne, and Diestelhorst, 2011:225 (Germany: Rheinland-Westfalen: Nature Reserve Eiberg, prefers forest biotopes); Schmid-Egger, 2011c:555 (Austria: Tirol: Tiroler Lech Nature Park); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:135 (Germany: Hessen: not endangered); von der Dunk, 2011:184 (Germany: Bayern: Kaiserburg in Nürnberg); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:183 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Larivière, Chapelin-Viscardi, and Maillet-Mezeray, 2012:296 (France: Essonne: Maisse); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:50 (Russia: Belgorod Oblast'); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Dyuzhaeva, 2013:117 (Russia: Samara Oblast': Zhiguli Nature Reserve); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Saure, 2012b:229 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots); Akulov and Proshchalykin, 2013:116 (Russia: Siberia: Krasnoyarsk Kray: Minusinsk and Nazarovo); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:19 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:208 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:401 (record from France by Vago, 2007 reported); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roßstein); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); J.-K. Kim, 2014:431 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:37 (Russia: Republic of Mordovia); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Peeters, Klein, van Kemenade, and Spijkers, 2015:59 (Netherlands: Noord-Brabant: Kaaistoep Nature Reserve); P. Rosa and Pagliano, 2015:101 (Italy: Lombardia and Piemonte: Parco del Ticino); Blažej, Macek, and Trýzna, 2016:120 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:22 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Mokrousov and Popov, 2016:574 (Russia: Krasnodarskiy Kray); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Buck, 2004); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Antropov, 2017b:231 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Jacobs and Liebig, 2018:140 (Russia: Irkutsk Oblast': Bol'shoje Goloustnoye; Island of Sakhalin: Korsakov, Lugovoye, Novoaleksandrovsk, and Pravda); Carminati, Mora, and Cretin, 2019:16 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:99 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13230 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:101 (western Czech Republic); Poláček, 2020:59 (Czech Republic: Opava District: Jakartovice: occurring on mine spoil heaps); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:95 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of

Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:82 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Saure and Marten, 2021:135 (Germany: Sachsen-Anhalt: Nationalpark Harz); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Alaska: no specific locality, Canada: Alberta, British Columbia, Northwest Territories, Nova Scotia, Ontario, Quebec, Yukon Territory, first records from Labrador, Manitoba, New Brunswick, Newfoundland Island, Prince Edward Island, and Saskatchewan: no specific locality).

Crabro aurilabris Herrich-Schaeffer, 1841:20, ♀, ♂. Syntypes: Germany (depository?). Synonymized with *Ectemnius ruficornis* by Leclercq, 1974d:281.

Crabro nigrifrons Cresson, 1865b:482, ♂. Lectotype: ♂, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. Synonymized with *Ectemnius ruficornis* by Leclercq, 1974d:281, 260. – Packard, 1866:78 (bibliographic references); Provancher, 1882:105 and 1883b:657 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:145 (in revision of North American Crabronini); Bridwell, 1899:209 (Kansas: Baldwin); Kincaid, 1900a:355 (USA: Washington: Olympia, Seattle, Whidby); Snow, 1906:136 (Arizona: Humphrey's Peak); J. Smith, 1910:681 (in new list of insects of New Jersey); Brimley, 1938:449 (North Carolina: Sunburst); Cavo, 1950:41 (France: Département du Nord); Nouvel and Ribaut, 1953:184 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:95 (Italy); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1958b:18 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:131, 136 (in key to Polish Sphecidae); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:23 (Latvia); Skibińska, 1981:358 (Poland: Warszawa-Białoleka); Skibińska, 1982:120, 123 (Poland: Mazovian Voivodship: Białoleka, Hamernia, Ursynów, Warszawa); Kowalczyk, 1988a:45 (Poland: Rogów), 1988b:65 (Poland: environs of Łódź). – **As *Clytochrysus nigrifrons***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); Harrington, 1902:219 (Canada: Ontario: Ottawa). – **As *Solenius nigrifrons***: Rohwer, 1916b:665 (new generic assignment, in catalog of Hymenoptera of Connecticut); Mickel, 1918b:375 (in catalog of Nebraskan Sphecidae); Rohwer *in* Viereck, 1925:665 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1019 (in catalog of New York Sphecidae: Ithaca); A. Brown, 1934:265 (Canada: Ontario: Timagami); Krombein, 1936:95 (prey: *Syrphus ribesii* Linnaeus, Syrphidae); Piek and Spanjer, 1986:189 (in list of Sphecidae with known prey). – **As *Clytochrysus nigrifrons***: J. Smith, 1900:515 (new generic assignment, in list of insects of New Jersey); Strickland, 1947:127 (Canada: Alberta: Edmonton, Nordegg). – **As *Ectemnius nigrifrons***: Pate, 1946c:2 (new generic assignment, synonymy); Leclercq, 1948:204 (Belgium), 1949a:13 (Switzerland); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1024 (in catalog of North American Hymenoptera); Leclercq, 1951e:16 (bibliography of Belgian records); Krombein, 1952b:184 (USA: West Virginia: Lost River State Park); Fahlander, 1954:249 (Sweden: Gästrikland Region); Krombein, 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:286 (in catalog of world Crabronini), 321 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Steiner, 1955:142 (France: Dordogne); Tsuneki, 1955d:214 (Russia: Kuril Islands: Island of Kunashir; synonymy); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1957f:59 (Korea); de Beaumont, 1958c:209 (Swiss National Park); Móczár, 1958a:266 (in annotated catalog of Hungarian Crabronini), 1958b:204 (Hungary: locality records); de Beaumont, 1959a:34 (Italy); Wolf, 1959b:34 (Germany: Nassau); Tsuneki, 1960g:8 (nesting habits); Valkeila, 1962b:68 (south-western Finland); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Babiý, 1964:119 (Austria: Land Salzburg); de Beaumont, 1964c:127 (in Sphecid Fauna of Switzerland); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Cavalese, Val Cadino); Gauss, 1966c:240 (specimen bearing dipteran egg); nec Tsuneki, 1966d:8 (= *Ectemnius nigrifrons taiwanus*); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:79 (Germany: Aschaffenburg, Weiberg near Klingenberg); Hoop, 1967a:39 (Germany: Schleswig-Holstein: Gut Althorst near Schmellau); Leclercq, 1967a:30 (locality records from Great Brit-

ain); Haneda, 1968a:47 (Japan), 1968b:56 (Japan: Nagano Prefecture: Ina District); Okuno, 1968:30 (Japan); Scobiola-Palade, 1968c:386 (Romania: București); Tano, 1968:35 (Japan); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:52 (Japan: Niigata Prefecture); Lefebber, 1969a:79 (Netherlands: Meermaes, Vijlen); Romanova, 1969:135 (Russia: North Caucasus); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History); Evans, 1970:492 (Wyoming: Jackson Hole); Tsuneki, 1970b:10 (Central Japan); Oehlke, 1970:765 (Democratic Germany); Dathe, 1971:234, 238 (Germany: Berlin Zoological Garden; phenology); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains); Schmidt, 1971b:46 (Germany: Rheinland-Pfalz: Gonsenheimer Wald); Steiner, 1973:29 (Canada: Northwest Territories, Yukon Territory); Wolf, 1971:375 (Italy: Trentino–Alto Adige: Alpi Siusi); Haeseler, 1972:156, 165, 175, 200 (Germany: Schleswig-Holstein, anthropogenic habitats); Kazenas, 1972b:175 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Lefebber, 1973:152 (Belgium: Plombières); Nambu, 1973a:152 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Lefebber and Petit, 1974:164 (Belgium: Plombières); Else, 1974:207 (Great Britain: Oxenbourne), 208, 209 (in key to British *Ectemnius*); Kazenas, 1974b:110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan); Lefebber, 1975a:37 (Netherlands: Cadier, Echt, Venlo; Belgium: Emael, La Calamine), 1975b:156 (Belgium); Lomholdt, 1975b:32 (Denmark: Island of Anholt); Marshakov, 1975b:334 (Mongolia); D. Peters, 1975:118 (Sweden: Lappland: Messaure at 66°41'N 20°20'E); Nambu, 1975b:73 (Japan: Saitama Prefecture); Eck, 1976:94 (Democratic Germany); Hoop, 1977:73 (Germany: Schleswig-Holstein: Kahlschlag near Rodenbeck, Schierenseebach); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Marion, 1978:89 (France: Nièvre Department); Benedek, 1979:234 (Hungary: Bakony Hills); Dathe, 1980:209 (Russia: northern Caucasus: Teberda); Donath, 1982:214 (Germany: Cottbus Bezirk); Józán, 1983:102 (Hungary); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Steiner, 1986:108 (references to publications on nesting habits).

Crabro contiguus Cresson, 1865b:484, ♀. Lectotype: ♀, USA: Colorado Territory: no specific locality (ANSP), designated by Cresson, 1916:103. Synonymized with *Crabro nigrifrons* by W. Fox, 1895a:145. – Packard, 1866:101 (bibliographic references); Cresson, 1887:284 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado, as *contiguus*).

Crabro septentrionalis Packard, 1866:110, ♀. Syntypes: ♀, Canada: Hudson Bay Territory and Maine: Brunswick and headwaters of Penobscot (ANSP). Synonymized with *Crabro nigrifrons* by W. Fox, 1896b:78. – Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:205 (original description copied); J. Smith, 1910:681 (in new list of insects of New Jersey, as *septemprionalis*). – **As *Clytochrysus septentrionalis*** [sic]: J. Smith, 1900:514 (new generic assignment, in list of insects of New Jersey). – **As *Solenius septentrionalis***: Rohwer, 1917a:243 (new generic assignment, California: Placer County: Summit); J.Ch. Bradley, 1928:1019 (in catalog of New York Sphecidae).

Crabro planifrons Thomson, 1870:173, ♀, ♂. Syntypes: southern Sweden: no specific locality (Lund). Synonymized with *Ectemnius nigrifrons* by Pate, 1946c:2. – Thomson, 1874:285 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:100 (Austria: Tirol, and Italy: Trentino–Alto Adige); Siebke, 1880:72 (Norway); Kohl, 1883e:650 (Switzerland); Sickmann, 1883:67 (Germany: Niedersachsen: Wellingholthausen); Wüstnei, 1886:32 (Germany: Schleswig-Holstein: Sonderburg); Kohl, 1893a:26 (Austria: Niederösterreich); F. Morawitz, 1893a:115 (Russia: Karelian Isthmus); Sickmann, 1893:52 (Germany: Niedersachsen: Iburg); de Hennin and Anciaux, 1948:74 (Belgium: between Sambre and Meuse rivers); Krieger, 1894:7 (Germany: Kingdom of Saxony); Dalla Torre, 1897:618 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898b:96 (Norway); nec R. Perkins, 1899a:110 (= *Ectemnius sexcinctus*); R. Perkins, 1899b:261 (diagnostic characters); de Cobelli, 1903:115 (Italy: Province of Trentino); Aurivillius, 1904:298 (in revision of Swedish Sphecidae); W. Schulz, 1904b:99 (Finland: Pargola, now Russia: Pargolovo); Kubes, 1905:84 (Czech Republic: Sušice); Morice, 1010:272 (first record from Great Britain: Northhamptonshire: Hillmorton); Móczár and Henter, 1907:206 (Hungary: Putnok); Schmiedeknecht, 1907:186 (in key to Hymenoptera of Central Europe); Sparre-Schneider, 1909:110 (Norway: Nordlands: Saltdalen); Dittrich, 1911b:17 (Germany: Niederschlesien Province, now Poland:

- Dolny Śląsk Region); Alfken, 1914:270 (northwestern Germany); Birula, 1914:372 (Belorussia: Vitebsk area); Kohl, 1915:62 (in revision of Palearctic Crabronini); R. Perkins, 1919a:9 (addition to E. Saunders, 1902 catalog); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:148 (in key to Belgian Sphecidae); Enslin, 1922c:245 (Germany: Bayern: Nürnberg); Maidl, 1922:74 (Albania); Lundblad, 1924:23 (Sweden: Lapland: Lycksele); Berland, 1925d:201 (in Sphecidae Fauna of France); Schütze, 1925:109 (Germany: Lausitz Region); K. Strohm, 1925:210 (Germany: Baden-Württemberg: Ihringen); Zavadil, 1926:30 (Czechoslovakia); Berland, 1928b:182 (add Alfken, 1914 to bibliography in Berland, 1925d); Bouwman, 1930:65 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:640, 644 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:123 (in revision of Sphecidae of Finland); Gussakovskij, 1932:15 (Russia: Kamchatka); Iwata, 1933b:9 (locality records from Japan); K. Strohm, 1933:337 (Germany: Baden: Württemberg: Kaiserstuhl); Forsius in Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Maneval, 1935:75 (France: Haute-Marne: Auberive); Steck, 1935:320 (Switzerland); Zavadil, Šustera, and Bat'a, 1937:151 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:82 (Japan: Honshu; Russia: Island of Sakhalin); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Redikortsev, 1938:144 (Russia: Mordovian State Nature Reserve, as *plumifrons*); A. Wagner, 1938a:115 (northwestern Germany); Balthasar, 1941b:111 (Czech Republic: eastern Moravia); Paul, 1941:33 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Giner Marí, 1943a:227 (in Sphecidae Fauna of Spain); Fæster, 1944:98 (nesting habits including mating); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Tsuneki, 1947d:283 (Korea), 1947e:400 (Japan: Hokkaido; nesting habits); de Hennin and Anciaux, 1948:75 (first record from Belgium: between Sambre and Meuse rivers); Tsuneki, 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflak, 1948:113, 114 (in key to Sphecidae of Czechoslovakia); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Abrahamsen, 1951:115 (recorded from Denmark after J.C. Nielsen, 1907); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:457 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Vogrin, 1955:44 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Zirngiebl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Balthasar, 1972:58 (in Sphecidae Fauna of Czechoslovakia); Niedl and Deneš, 1967:69 (Czech Republic: Třeboň area). – **As *Clytochrysus planifrons***: Westerlund, 1893:27 (new generic assignment, Russia: Karelian Republic: northern shore of Lake Ladoga); de Gaulle, 1908:122 (in catalog of French Hymenoptera); R. Perkins, 1913b:386, 388 (in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset); Hamm and Richards, 1926:302 (summary of nesting habits); Minkiewicz, 1935:215, 219 (Poland: Lake Garbaś 20 km west of Suwałki); Richards, 1937b:107 (in checklist of British aculeates); Hallett, 1939:16 (Great Britain: Wales: Hillmorton near Rugby, Penarth); Schneid, 1941:1025 (Germany: Bayern: Bamberg area); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1968:6 (England: Kent County). – **As *Ectemnius planifrons***: Grandi, 1954:243 (new generic assignment, Italy).
- Crabro longipalpis* C. Verhoeff, 1892:70, ♀. Holotype or syntypes: ♀, Germany: Baden-Württemberg: Neckar Valley east of Heidelberg (depository unknown). Synonymized with *Crabro planifrons* by Kohl, 1915:63. – Dalla Torre, 1897:609 (in catalog of world Sphecidae).
- Crabro lineatotarsis* Matsumura, 1911:102, ♀. Holotype or syntypes: ♀, Russia: Island of Sakhalin: no specific locality (Sapporo). Synonymized with *Ectemnius nigrifrons* by Tsuneki, 1955d:214.
- Crabro chipsani* Matsumura, 1912:102, ♀. Holotype or syntypes: ♀, Russia: Island of Sakhalin: no specific locality (Sapporo). Synonymized with *Ectemnius nigrifrons* by Tsuneki, 1955d:214. Dated 1911 by R. Bohart and Menke, 1976.
- ssp. *taiwanus* Tsuneki**
- Ectemnius nigrifrons taiwanus* Tsuneki, 1968g:2, ♀, ♂. Holotype: ♂, Taiwan: Chiai Prefecture: Mount Ali (originally K. Tsuneki coll., now?). – Tsuneki, 1968g:34 (Taiwan; in key to Crabronini of Taiwan and Ryukyus); R. Bohart and

Menke, 1976:427 (in checklist of world Sphecidae); Tsuneki, 1971a:2 (Taiwan). – **As *Ectemnius ruficornis taiwanus***: Leclercq, 1999a:24 (new subspecific generic assignment, in key to Asian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

As *Ectemnius nigrifrons*: Tsuneki, 1966d:8 (first record from Taiwan and the Oriental Region), corrected to *Ectemnius nigrifrons taiwanus* by Tsuneki, 1968g:2, 1968d:57.

150. *rufifemur* (Packard)

Crabro rufifemur Packard, 1866:81, ♀, ♂. Lectotype: ♀, USA: Illinois: no specific locality (ANSP), designated by Cresson, 1928:55. – Cresson, 1873:226 (Texas); Provancher, 1882:104 and 1883b:657 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); C. Robertson, 1892:108 (visiting flowers of *Pycnanthemum lanceolatum* (Willdenow) Pursh and *P. linifolium* (Willdenow) Pursh, Lamiaceae), 1894:457 (visiting flowers of *Solidago nemoralis* Aiton, Asteraceae); W. Fox, 1895a:158 (in revision of North American Crabronini); Dalla Torre, 1897:623 (in catalog of world Sphecidae); Rohwer, 1908b:245 (Colorado), 250 (in key to females of *Crabro* subgenus *Protothyreopus*), 258 (in key to *Crabro* of Colorado and New Mexico); H. Smith, 1908b:403 (in revision of Nebraskan Sphecidae); J. Smith, 1910:681 (in new list of insects of New Jersey); Stevens, 1917:423 (North Dakota). – **As *Protothyreopus rufifemur***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); Strickland, 1947:128 (Canada: Alberta: Lethbridge). – **As *Solenius rufifemur***: Rohwer, 1916b:668 (new generic assignment, in catalog of Hymenoptera of Connecticut); Mickel, 1918b:375 (in catalog of Nebraskan Sphecidae); Britton, 1920:339 (in checklist of insects of Connecticut); Carter, 1925:132 (Canada: Alberta: Lethbridge); Rohwer in Viereck, 1925:668 (in key to Sphecidae of Connecticut; New Haven); J.Ch. Bradley, 1928:1020 (in catalog of New York Sphecidae). – **As *Ectemnius rufifemur***: Krombein in Muesebeck, Krombein, and Townes, 1951:1024 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:268 (in catalog of world Crabronini), 1968e:300 (in key to *Ectemnius* of Latin America), 1972c:197 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:487 and 490 (in key to North American *Ectemnius*); Krombein, 1979b:1676 (in catalog of North American Hymenoptera); Finnamore, 1982:191 (in Sphecid Fauna of Southern Quebec); Radović, 1985:65 (sting apparatus analyzed); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Leclercq, 2007e:172 (locality records from Colorado, Florida, Kansas, and Michigan); Ratzlaff, 2016:25 (Canada: first record from British Columbia: Georgia Depression and Southern Interior), 34 (British Columbia: locality records); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, Ontario, Quebec, Saskatchewan, first record from Manitoba: no specific locality).

ssp. orizabinus Leclercq

Ectemnius rufifemur orizabinus Leclercq, 1968e:316, ♂. Holotype: ♂, Mexico: Veracruz: Orizaba (FSAG). – Leclercq, 1968e:310 (in key to *Ectemnius* of Latin America), 1972c:197 (in updated key to *Ectemnius* of Latin America), 210 (new records from Mexico; variation); R. Bohart and Menke, 1976:427 (in checklist of world Sphecidae); Leclercq, 1991b:27 (subspecific status confirmed); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:172 (described from Mexico), 2007g:194 (holotype in FSAG).

151. *rufipes* (Lepeletier de Saint Fargeau and Brullé)

Ceratocolus rufipes Lepeletier de Saint Fargeau and Brullé, 1835:741, ♀. Holotype or syntypes: USA: Caroline (North or South?): no specific locality (lost). Neotype: ♀, USA: Alabama: Decatur (UCD), designated by R. Bohart and Menke, 1976:627. – Lepeletier de Saint Fargeau, 1845:146 (in revision of world Hymenoptera); Cresson, 1862:236 (in catalog of North American Hymenoptera); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:149 (specimens in M. Spinola collection, Torino, are *Ectemnius* sp.). – **As**

Crabro rufipes: Dahlbom, 1845:381 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*); F. Smith, 1856:418 (in catalog of Hymenoptera in British Museum); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:149 (in revision of North American Crabronini); Krombein in Muesebeck, Krombein, and Townes, 1951:1029 (in catalog of North American Hymenoptera, unrecognized species). – ***As Solenius rufipes***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); Cockerell, 1907a:51 (a junior secondary homonym of *Crabro rufipes* Fabricius, 1787, if placed in *Crabro*). – ***As Lestica rufipes***: Krombein, 1958f:200 (in supplement to catalog of North American Hymenoptera: is a member of *Lestica*). – ***As Ectemnius rufipes***: R. Bohart and Menke, 1976:427 (new generic assignment, in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:488 and 491 (in key to North American *Ectemnius*), 497 (color variation); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Deyrup and Eisner, 2003:522 (a Floridian, red-marked species); Leclercq, 2007e:164, 165 (correction to key by R. Bohart and Kimsey's, 1979), 172 (Panama: Canal Zone: Island of Barro Colorado; USA: Texas: no specific locality).

Crabro texanus Cresson, 1873:227, ♀. Lectotype: ♀, USA: Texas: Bosque County: no specific locality (ANSP), designated by Cresson, 1916:103. Synonymized with *Ectemnius rufipes* by R. Bohart in R. Bohart and Menke, 1976:428. – Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:150 (in revision of North American Crabronini); C. Robertson, 1896:73 (visiting flowers of *Polygonum hydropiperoides* Michx., Polygonaceae); Dalla Torre, 1897:631 (in catalog of world Sphecidae); Brimley, 1938:449 (North Carolina: Raleigh). – ***As Solenius texanus***: Ashmead, 1899d:173 (new generic assignment, in checklist of North American Crabronidae); Mickel, 1918b:377 (in catalog of Nebraskan Sphecidae); Krombein, 1939:143 (New York State). – ***As Hypocrabro texanus***: Rau, 1922:20 (new generic assignment; Missouri: Saint Louis). – ***As Ectemnius texanus***: Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:275 (in catalog of world Crabronini); Krombein, 1958f:199, 200 (in supplement to catalog of North American Hymenoptera: is a member of subgenus *Apoctemnius*); R. Miller, 1976:261 (color forms in Floridian populations).

ssp. *ais* Pate

Ectemnius texanus ais Pate, 1946c:12, ♀, ♂. Holotype: ♀, USA: Florida: Brevard County: Indian River (originally ANSP, now lost?). – Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (in catalog of North American Hymenoptera); Krombein and Evans, 1955:234 (Florida: Key Largo); Morse and Kerr, 1957:77 (nesting in rose stems). – ***As Ectemnius rufipes ais***: Krombein, 1958f:199, 200 (in supplement to catalog of North American Hymenoptera: is a member of subgenus *Apoctemnius*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Krombein, 1979b:1680 (in catalog of North American Hymenoptera, nesting sites, list of prey); H. Allen, 1995:15 (type missing in ANSP collection); Deyrup and Eisner, 2003:522 (a Floridian, red-marked subspecies); Leclercq, 2007e:172 (locality records from Florida).

152. *rugifer* (Dahlbom)

Crabro rugifer Dahlbom, 1845:404, ♂. Holotype: ♂, Germany: "ad Glogaviam", now Poland: Głogów (Lund). – Dahlbom, 1845:528 (belongs to subgenus *Ectemnius*); F. Smith, 1856:414 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1857:121 (in revision of fossorial wasps of Germany); Taschenberg, 1866:169 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (known from Germany); Tournier, 1878:XV (nesting habits); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s.s., as *rugifera*); Krieger, 1894:6 (Germany: Kingdom of Saxony); Dalla Torre, 1897:624 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Hungary except Ujbánya is now Nova Bana, Slovakia); Kohl, 1905c:233 (Turkey: Kayseri: Erciyes Dağı); Šusterka, 1909:34 (Czech Republic: vicinity of Praha); Dittrich, 1911b:18 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Kohl, 1915:91 (in revision of Palearctic Crabronini); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:43 (can be expected in Germany: Lower Elbe region); Noskiewicz, 1924a:114 (Poland: vicinity of Kraków); Schmiedeknecht, 1930:641, 644, 645 (in keys to Hymenoptera

of North and Central Europe); Steck, 1935:321 (Switzerland); Drogoszewski, 1936:129 (Poland: Łowicz); Zavadil, Šustera, and Bat'a, 1937:153 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:116 (northwestern Germany), 1939b:74 (an eastern species in northwestern Germany); Paul, 1941:33 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); de Beaumont, 1945:479 (Switzerland; correction to Steck, 1935); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); Zavadil in Zavadil and Šnoflak, 1948:117 (in key to Sphecidae of Czechoslovakia); Noskiewicz and Chudoba, 1949:412 (Poland: Wrocław Botanical Garden); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Balthasar, 1954d:181 (Slovakia); Vogrin, 1955:44 (Yugoslavia); Noskiewicz and Puławski, 1960:131, 136 (in key to Polish Sphecidae); Miczulski, 1967:189 (Poland: Sławin near Lublin); Niedl and Deneš, 1967:70 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:23 (Latvia); Balthasar, 1972:69 (in Sphecidae Fauna of Czechoslovakia); Skibińska, 1982:124 (Poland: Warszawa area); Kowalczyk, 1988a:45 (Poland: Rogów). – **As *Solenius rugifer***: Schirmer, 1912:163 (new generic assignment, Germany: Berlin area). – **As *Ectemnius rugifer***: Ruthe and Stein, 1857:316 (new generic assignment, Germany: Berlin area); Taschenberg, 1858:114 (in key to Sphecidae of Germany: Glogau; now: Poland: Głogów); Kirchner, 1867:226 (in catalog of European Hymenoptera); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Blüthgen, 1942:10 (Germany: Sachsen: known from Saal Valley but not from Kyffhäuser); Leclercq, 1954c:272 (in catalog of world Crabronini), 319 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Móczár, 1958a:265 (in annotated catalog of Hungarian Crabronini), 1958b:202 (Hungary: locality records); Wolf, 1959b:34 (known from Germany, but not from Nassau); de Beaumont, 1960a:23 (Greece: Island of Rhodes), 1964c:129 (in Sphecidae Fauna of Switzerland), 1965a:59 (Greece), 1967a:349 (Turkey); Benedek, 1968:76 (Hungary: flower visiting); Scobiola-Palade, 1968c:386 (Romania: Budești, Cernica, Ciornuleasa, Pusnicu); Benedek, 1969a:85 (Hungary: marshy meadow), 1970:102 (Hungary: Tapolca); Oehlke, 1970:759 (Democratic Germany); Leclercq, 1975b:3 (France); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Pulawski, 1978:272, 273 (in key to Sphecidae of European part of USSR); Benedek, 1979:234 (Hungary: Bakony Hills); Dollfuss, 1983a:76 (endangered in Niederösterreich, Austria), 77 (Austria: endangered in Burgenland), 1983b:19 (in catalog of Sphecidae of Austria); Józán, 1983:102 (Hungary), 1985b:60 (Hungary south of Lake Balaton), 84 (ecological and zoogeographic characteristics), 1986:373 (Hungary: Kiskunság National Park); Skibińska, 1986b:165 (Poland: Warszawa: streetside green), 174 (various green urban habitats); Jacobs, 1989:23 (Germany: Mecklenburg-Vorpommern); Pádr, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:196 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Pádr, 1990:89 (Czech Republic: Praha area); Pagliano, 1990:91 (in catalog of Italian Sphecidae); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:410 (Italy: Puglia: Cagnano); Pagliano, 1991b:351 (in key to Italian Crabroninae); van der Smissen, 1991:96 (northwestern Germany); Gusenleitner, 1992:688 (Austria: Steiermark); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), 1992b:175 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Bitsch and Leclercq, 1993:167 (in revision of western European Crabroninae); Leclercq, 1993c:31 (locality records from Europe); Leclercq and Barbier, 1993:67 (map of distribution in France); Dollfuss, 1994:99 (endangered in Austria); Theunert, 1994c:41 (Germany: summary of records from Niedersachsen and Bremen); Gusenleitner, 1995:163 (Austria: Steiermark); Jansen and Kaluza, 1995:7 (Germany: extinct in Sachsen); Józán, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisola in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Celary, 1997:59 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 33 (endangered); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Gorobchishin, 1998a:50 (Ukraine: Kiev and surroundings); Józán, 1998:312 (Hungary: Duna-Dráva National Park); van der Smissen, 1998:59 (Germany: Niedersachsen: Brückendorf); Leclercq, 1999a:23 (in key to Asian *Ectemnius*), 71 (in annotated catalog of Asian and Oceanian *Ectemnius*);

Blösch, 2000:342 (in Sphecidae Fauna of Germany); Jacobs, 2000:7, 16 (Germany: Land Mecklenburg-Vorpommern: close to extinction); Józán, 2000:112 (Hungary: Bakony Mountains), 2001:280 (Hungary: Somogy County); Ohl et al., 2001:139 (distribution in Germany by provinces); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: extinct); Gayubo, González, Tormos, and Asís, 2002:88 (first records from Spain: Badajoz: La Bazana, and Salamanca: Salto de Saucelle); Józán, 2002:54 (Hungary: Mecsek Mountains); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Józán, 2003:228 (Hungary: Látványi Pusztá Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:66 (Germany: in catalog of wasps and bees of Bayern); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Island of Malýi Tataru in delta of Danube at 45.21°N 29.00°E); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Dollfuss, 2004b:776 (locality records from Bulgaria, Greece, Slovakia, Turkey, and Ukraine); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Shkuratov, 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); Skibińska in Bogdanowicz, Chudzińska, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: last collected before 1942); Wiśniowski, 2004:49 and 62 (in checklist of Polish Sphecidae); Burger, 2005:33 (Germany: Thüringen); Gayubo and Özbek, 2005:33 (Turkey: Bilecik; Erzurum: Palandöken, Đenkaya, Turnalı); Mandery, 2005:174 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolo, 2005:266 (in Sphecidae Fauna of Italy); Saure, 2005:15 (Germany: Berlin); Shorenko, 2005a:165 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Straka, 2005a:397 (critically endangered in Czech Republic); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:208 (Spain: Salamanca: Mieza; Zamora: Badilla, Zafara); Gorobchishin, 2006:131 (Ukraine: Kyiv); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Burger, 2007:59 (Germany: Thüringen: Crawinkel; record from Jena by Bürger, 2005 was a misdetermination); Jacobs, 2007:150, 155 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józán, 2007:180 (Hungary: Zselic Hills); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia), 231 (first record from Moravia: Břeclav, Lednice); Ljubomirov and Yildirim, 2008:275 (in catalog of Crabronidae of Turkey); Theunert, 2008:38 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recent records from Italy, Island of Rhodes, and Spain reported); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Baghirov, 2010:678 (Russia: Altai Territories: village Ust'-Kan); Hable, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Mokrousov, 2010a:62 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast', Tatarstan: no specific localities); Rudoiskatel', 2010:159 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: extremely rare); Shorenko and Konovalov, 2010:18 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská nížina); van der Smissen, 2010a:340 (Germany: Schleswig-Holstein: Brünkendorf); Baghirov, 2011b:147 (Russia: Altay Republic: Ust'-Kan); Burger, 2011a:287 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:499 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire), 501 (exclusive species of control areas); Gogala, 2011:22 (Slovenia: Podčetrtek); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Kirov Oblast': Arkhangelskoye: collected in private plots); Pankov, 2013:229 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of

Sphecidae *sensu lato*); Shlyakhtenok, 2013:212 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park and Serras de Aire e Candeeiros Natural Park); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Zettel, Ockermüller, and Wiesbauer, 2014:169 (Austria: Niederösterreich); Atbaei, Fallahzadeh, and Ljubomirov, 2015:11 (first record from Iran: Fars Province); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Mokrousov and Popov, 2016:575 (Russia: Krasnodarskiy Kray); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:49 (Iran: known from Fars Province); Shorenko, 2017:77 (in Crimea collected in May through August); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Kejval, Blažej, and Erhart, 2020:101 (western Czech Republic); Shorenko, 2020:49 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:99 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Pytel-Huta, Skyrpan, Tsaryk, Shydlovskyy, and Khamar, 2022:54 (western Ukraine); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:80 (Ukraine: Rivno Nature Reserve); Gülmez, Çubuk, and Can, 2025:159 (Turkey: Çanakkale: Kelkit River Valley).

153. *rugosellus* Tsuneki

Ectemnius rugosellus Tsuneki, 1984f:20, ♀, ♂. Holotype: ♀, Philippines: Island of Luzon: Laguna Province: Pagsanjan (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:43 and 44 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to H. Kurokawa, the collector.); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection); Leclercq, 1999a:35 (in key to Asian *Ectemnius*), 71 (in annotated catalog of Asian and Oceanian *Ectemnius*); Tano, 2020:26 (holotype in USNM).

154. *rugosus* Tsuneki

Ectemnius rugosus Tsuneki, 1984b:45, ♀, ♂ (subgenus *Iwataia*). Holotype: ♂, Philippines: Luzon: Asin Spa 16 km of Baguio (originally K. Tsuneki coll., now USNM). – Tsuneki, 1984f:20 (Philippines; additional recognition characters), 42 and 44 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (type not transferred to USNM, possibly returned to T. Murota, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:46 (holotype in K. Tsuneki collection); Leclercq, 1999a:35 (in key to Asian *Ectemnius*), 71 (in annotated catalog of Asian and Oceanian *Ectemnius*); Tano, 2020:26 (holotype in USNM).

155. *sagutorius* Leclercq

Ectemnius sagutorius Leclercq, 1999a:71, ♀. Holotype: ♀, Indonesia: Moluccas: Island of Halmahera: Sagutora 20 km south of Payahe (RMNH). – Leclercq, 1999a:35 (in key to Asian *Ectemnius*).

156. *satan* Pate

Ectemnius satan Pate, 1946c:10, ♂. Holotype: ♂, USA: New Mexico: McKinley County: Satan Pass (originally ANSP, now lost?). – Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (in catalog of North American Hymenoptera); Leclercq, 1954c:273 (in catalog of world Crabronini); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 492 (in key to North American *Ectemnius*), 498 (color variation); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); H. Allen, 1995:15 (type missing in

ANSP collection); Hook, 1998:251 (first record from Texas: Val Verde County: Dolan Falls Preserve); Leclercq, 2007e:172 (locality records from Arizona and California).

157. *scaber* (Lepeletier de Saint Fargeau and Brullé)

Solenius scaber Lepeletier de Saint Fargeau and Brullé, 1835:715, ♂. Holotype or syntypes: ♂, USA: Pennsylvania: Philadelphia (M. Spinola collection, Torino). – Lepeletier de Saint Fargeau, 1845:121 (in revision of world Hymenoptera); Cresson, 1862:236 (in catalog of North American Hymenoptera); Ashmead, 1899d:173 (in checklist of North American Crabronidae); J.Ch. Bradley, 1957:46 (Lepeletier de Saint Fargeau's specimens in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:119 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:157 (specimens in M. Spinola collection, Torino, are *Ectemnius scaber*). – **As *Crabro scaber***: Dahlbom, 1845:387 (new generic assignment, original description copied), 528 (unknown to author, but probably belonging to *Crabro* s.s.); F. Smith, 1856:418 (in catalog of Hymenoptera in British Museum); Packard, 1866:113 (description of ♀); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:149 (in revision of North American Crabronini); Dalla Torre, 1897:624 (in catalog of world Sphecidae); J. Smith, 1910:681 (in new list of insects of New Jersey); Wray, 1950:38 and 1976:124 (North Carolina: Kill Devil Hills, Lillington, as *saber* in 1976). – **As *Ectemnius scaber***: Krombein, 1950a:272 (new generic assignment, North Carolina: Dare County); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (new generic assignment, in catalog of North American Hymenoptera); Krombein, 1953a:295 (visiting foliage of *Pinus serotina* Michx.), 338 (North Carolina), 1953b:122 (visiting foliage of *Quercus marilandica* Münchh.), 134 (North Carolina: Kill Devil Hills); Leclercq, 1954c:275 (in catalog of world Crabronini); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: is a member of subgenus *Apoctemnius*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); R. Miller, 1976:261 (color forms in Floridan populations); L. Davis, 1978:216 (North Carolina: Kill Devil Hills, data from Krombein, 1953a); R. Bohart and Kimsey, 1979:489 and 491 (in key to North American *Ectemnius*); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Deyrup and Eisner, 2003:522 (a Floridian, red-marked species); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario), 30 (distribution within Ontario), 60 (first record from Canada: Ontario: collecting localities); Grissell, 2007:182 (nest structure, prey: *Toxomerus marginatus* Say, a syrphid); Leclercq, 2007e:165 (correction to R. Bohart and Kimsey's key, 1979), 173 (locality records from Virginia, and also separately from Arizona, Connecticut, and Kansas); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Ontario: no specific locality).

ssp. rufescens Krombein

Ectemnius scaber rufescens Krombein, 1954b:24, ♀, ♂. Holotype: ♂, USA: Florida: Collier County: Marco (USNM). – Krombein and Evans, 1954:235 (Florida), 1955:234 (Florida); LaBerge, 1956:528 (paratype in Snow Entomological Museum); Krombein, 1958f:199 (in supplement to catalog of North American Hymenoptera: central and southern Florida); Wray, 1967:124 (coastal North Carolina); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Deyrup and Eisner, 2003:522 (a Floridian, red-marked subspecies); Leclercq, 2007e:173 (locality records from Florida).

158. *schlettereri* (Kohl)

Crabro schlettereri Kohl, 1888a:135, ♀ (as *Schlettereri*, incorrect original capitalization). Holotype or syntypes: ♀, Austria: Südtirol: Sankt Pauls near Bozen, now Italy: Alto Adige: Sankt Pauls near Bolzano (NHMW). – Kohl, 1888b:720 (member of *Crabro vagus* group); Dalla Torre, 1897:624 (in catalog of world Sphecidae); Kohl, 1915:72 (in revision of Palearctic Crabronini); Noskiewicz, 1924b:181 (Poland: Podole Region: Dźwiniaczka and Zaleszczyki, now Ukraine); Schmiedeknecht, 1930:640, 644 (in keys to Hymenoptera of North and Central Europe); Gussakovskij, 1932:16 (Russia: Primorskiy Kray); Zavadil, 1937a:71 (eastern Slovakia); Zavadil, Šusterka, and Bat'a, 1937:152 (in catalog of Sphecidae of Czechoslovakia); Gussakovskij, 1938:7 (China: Kiangsu Province); Kuntze and Noskiewicz, 1938:376 (in Poland known only from Podole region, now Ukraine); Kuntze, 1939:7 (Poland: Stanisławów, now

Ukraine: Ivano-Frankovsk); Iwata, 1941a:6 (Japan, nest structure; prey: Muscidae); Yasumatsu, 1942c:114 (China: Beijing); Giordani Soika, 1944:8 (Italy: Sicily: Taormina); Tsuneki, 1947d:284 (Korea), 1947e:402 (Japan: Hokkaido); Balthasar, 1948:140 (Slovakia: Parkan); Tsuneki, 1948c:3 (Japan: Hokkaido); Zavadil in Zavadil and Šnoflak, 1948:114, 115 (in key to Sphecidae of Czechoslovakia); Balthasar, 1950:37 (Slovakia: Zadielska dolina); de Beaumont, 1954e:95 (Italy); Scobiola, 1954:884 (first record from Romania: Galați Region: Salina); Noskiewicz and Puławski, 1960:132, 137 (in key to Polish Sphecidae); Balthasar, 1972:66 (in Sphecidae Fauna of Czechoslovakia).

– **As *Solenius schlettereri***: Iwata, 1933b:10 (new generic assignment, locality records from Japan). – **As *Ectemnius schlettereri***: Iwata, 1937a:130 (new generic assignment, nesting habits); Tsuneki, 1952c:65 (Japan: Shikoku); Grandi, 1954:243 (Italy); Leclercq, 1954c:270 (in catalog of world Crabronini), 318 (nest and prey records); Iwata, 1955:30 (egg size, number of oocytes); Tsuneki and Tanaka, 1955a:67 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1957f:60 (Korea); Móczár, 1958a:265 (in annotated catalog of Hungarian Crabronini); Miyamoto, 1959:33 (visiting flowers of *Aster* sp., Asteraceae, and *Patrinia villosa* Juss., Valerianaceae), 34 (visiting flowers of *Torilis anthriscus* Gmel., Apiaceae, and *Cancalis scabra* Makino, Apiaceae); Iwata, 1960:210 (number of ovarioles and oocytes, egg size); Tsuneki, 1960g:22 (nesting habits); Haneda, 1962:57 (nest structure, prey); Iwata, 1963b:196 (Japan: prey record); Leclercq, 1963:32 (China, Vietnam, India); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Roberti, Frilli, and Pizzaghi, 1965:110 (Italy: Emilia-Romagna: Piacenza); Tsuneki, 1966d:7 (Amami-Oshima Islands, specimen transitional to *Ectemnius schlettereri sakaguchii*), 1967e:12 (China: Heilongjiang: Harbin); Haneda, 1968a:47 (Japan); Nambu, 1968b:29 (Japan: Saitama Prefecture); Nishino, 1968:25 (Japan); Scobiola-Palade, 1968b:143 (Romania: Island of Letea in delta of Danube); Tano, 1968:35 (Japan); Tsuneki, 1968d:57 (Japan: Ryukyu Islands), 1968g:34 (Eastern Palearctic Region, as *Ectemnius schlettereri schlettereri*), 34 (in key to Crabronini of Taiwan and Ryukyus); Benedek, 1969a:84 (Hungary: marshy meadow); Haneda, 1969:71 (Japan: Yamanashi Prefecture); Itami, 1969:53 (Japan: Niigata Prefecture); Tsuneki, 1969i:61 (Japan: Fukui); Benedek, 1970:102 (Hungary: Tapolca); Haneda, 1970:13 (Japan: Akita Prefecture); Tsuneki, 1970:b:11 (central Japan); Suda, 1971:83 (Japan: Chiba Prefecture), 84 (Kanagawa Prefecture); Tsuneki, 1971m:34 (China: Beijing: Tiendang); Yamada, 1971:36 (Japan: Aichi Prefecture); Nambu, 1972e:91 (Japan: Saitama Prefecture); Scobiola-Palade, 1972a:151 (Romania: delta of Danube: Caraorman); Tano, 1972:24 (Japan: Ryukyu Islands); Fain, 1973:166 (parasite: *Crabrovia ectemni* Fain, a saproglyphid mite); Nambu, 1973a:153 (Japan: Saitama Prefecture); Scobiola-Palade, 1974:145 (Romania: Sărăturile sandbank in delta of Danube); Tsuneki, 1974a:372 (Korea); Nambu, 1975b:74 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Tsuneki, 1976d:304 (China: Heilongjiang:), 1977e:9 (geographic variation); Pulawski, 1978:272, 274 (in key to Sphecidae of European part of USSR); Marshakov, 1979a:105 (in key to *Ectemnius* of Russian Far East); Pagliano, 1980:124 (Italy: Lombardia); Leclercq, 1982b:153 (China); Tsuneki, 1982b:16 (known from Korea), 1982g:62 (known from Ryukyu archipelago); Dollfuss, 1983b:19 (in catalog of Sphecidae of Austria: Burgenland: Winden; as *schletteri*); Józán, 1985b:60 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Kowalczyk, 1988c:222 (first record from Poland: Grabowiec Nature Reserve near Kielce); Dollfuss, 1989:9 (type material in NHMW); Józán, 1989:102 (Hungary: Tihany Nature Reserve); Pádr, 1989a:171 (in checklist of Czechoslovakian Sphecidae); Pagliano, 1990:91 (in catalog of Italian Sphecidae); Dollfuss, 1991:176 (in key to Sphecidae of North and Central Europe); Negrisolo, 1991:322 (Italy: Treviso and Udine Provinces); Pagliano, 1991b:351, 354 (in key to Italian Crabroninae); Tsuneki, 1991:202 (Korea); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area); Nemkov, 1992b:248 (Russia: Far East: Blagoveshchensk); Bitsch and Leclercq, 1993:174 (in revision of western European Crabroninae); Leclercq, 1993c:32 (Italy: Lombardia: Garlasco); Leclercq and Barbier, 1993:68 (map of distribution in France); Takahashi, 1993:3 (Japan: Island of Hachijo-Jima); Negrisolo, 1995a:22 (Italy: Veneto); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:451 (in key to Sphecidae of Russian Far East); Celary, 1997:59 (in checklist of Animals of Poland); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of

collecting records from Burgenland); Leclercq, 1999a:72 (in annotated catalog of Asian and Oceanian *Ectemnius*); Yamane, Ikudome, and Terayama, 1999:505 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Józán, 2000:112 (Hungary: Bakony Mountains); Vepřek, 2000:236 (Czech Republic: recorded by Tyrner, 1995 from Moravia: Pavlovské Vrší and Svatý Kopeček near Mikulov); Józán, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 208 (review of biology), 2002a:109 (geographic distribution, collecting localities in Kazakhstan); Haneda, 2003:4 (Japan: Nagasaki Prefecture: Tsushima); Haneda and Tano, 2003:12 (Japan: Nagasaki Prefecture: Tsushima); Tano, Kurokawa, Murota, and Nozaka, 2003:32 (Japan: Nagasaki Prefecture: Tsushima); Ohl and Linde, 2003:151 (number of ovarioles); Protsenko, 2003:68, 69 (first record from Ukraine: Odessa Oblast': Island of Malyi Tataru in Danube delta at 45.21°N 29.00°E); Dollfuss, 2004b:777 (locality records from China, Japan, and Korea); Kazenas, 2004d:34 (Kazakhstan: Khar'kino); Majzlan and Deván, 2004:32 (Slovakia: Malacky-Široké); Skibińska in Bogdanowicz, Chudzicka, Piliński, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Wiśniowski, 2004:50 and 62 (in checklist of Polish Sphecidae); Nemkov, 2005a:157 (Russia: Island of Sakhalin); Pagliano and Negrisola, 2005:263 (in Sphecidae Fauna of Italy); Straka, 2005a:394 (extinct in Czech Republic); Hua, 2006:279 (in list of Chinese insects, geographic distribution); G. Turrisi and R. Turrisi, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia), 231 (detailed records from Moravia summarized by Vepřek, 2000); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: record from Poland reported); Nemkov, 2009b:121 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:182 (Italy: Molise: Guardialfiera); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); Rudoiskatel', 2010:159 (Russia: central Ural Mountains); Shorenko and Konovalov, 2010:19 (Ukraine: Khar'kov Oblast': village Rogan'); Baghirov, 2011b:147 (Russia: recorded from Altay by Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995); Gogala, 2011:22 (Slovenia: Podčetrtek); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Rudoiskatel', 2011e:249 (Russia: Chelyabinsk Oblast': Il'men' Nature Reserve); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Akulov and Proshchalykin, 2013:116 (Russia: Siberia: Krasnoyarsk Krai: 20 km south and 45 km northeast of Minusinsk); J.-K. Kim, 2014:431 (in catalog of Sphecidae *sensu lato* of Korean Peninsula, as *Ectemnius schlettereri schlettereri*); Pham, Kumar and Danilov, 2015:1592 (in list of Sphecidae *sensu lato* of Vietnam, as *Ectemnius schlettereri schlettereri*); P. Rosa and Pagliano, 2015:101 (Italy: Lombardia and Piemonte: Parco del Ticino); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:47 (Turkey: Kars: Kağızman, as *Ectemnius schlettereri schlettereri*); Antropov, 2017b:232 (in catalog of Crabroninae of Russia); Jacobs and Liebig, 2018:141 (Russia: Irkutsk Oblast': Dauriskiy Nature Reserve and Ust'-Ordynskiy steppe; Primorskiy Krai: Poshiga); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:104 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:52 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Terayama, 2021:18 (Japan: Port of Tokyo Wild Bird Park); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent, as *schlettereri schlettereri*); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India, as *schletteeri schlettereri*); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Huflejt and Łuszczak, 2024:10 (Poland: Nizina Sandomierska: Lubasz); Barthélémy and Guénard, 2025:13, 14 (China: Hong Kong).

ssp. chinensis (Sickmann)

Crabro chinensis Sickmann, 1894:199, ♀, ♂. Syntypes: China: Hopei Province: Tientsin (Münster). – Kohl, 1915:72 (as new synonym of *Crabro schlettereri*). – **As *Ectemnius schlettereri chinensis***: Tsuneki, 1977e:10 (new status, morphological characteristics); Leclercq, 1999a:26 (in key to Asian *Ectemnius*); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

ssp. horvatovichi Tsuneki

Ectemnius horvatovichi Tsuneki, 1974a:373, ♀, ♂. Holotype: ♂, Korea: Pyongyang (TMB). – Tsuneki, 1982b:16 (known from Korea). – R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea). – **As *schlettereri horvatovichi***: Tsuneki, 1977e:10 (new status, morphological characteristics); Leclercq, 1999a:26 (in key to Asian *Ectemnius*); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006b:48 (Japan: Nagasaki Prefecture: Tsushima); J.-K. Kim, 2014:431 (in catalog of Sphecidae *sensu lato* of Korean Peninsula), 450 (subspecies status uncertain).

Ectemnius horvatovichi Tsuneki, 1991:202, as new species. Nomen nudum.

ssp. ishigakiensis Tsuneki

Ectemnius schlettereri ishigakiensis Tsuneki, 1972b:19, ♂. Holotype: ♂, Japan: Island of Ishigaki: Nosoko (originally K. Tsuneki coll., now Hyogo Mus.). – R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Tsuneki, 1977e:12 (morphological characteristics), 1982g:63 (known from Ryukyu archipelago); Tano, 1994a:7 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Leclercq, 1999a:26 (in key to Asian *Ectemnius*); Haneda, 2008:17 (in key to Japanese Crabroninae).

ssp. jakowlewi (F. Morawitz)

Crabro jakowlewi F. Morawitz, 1892:170, ♀, ♂ (as *Jakowlewi*, incorrect original capitalization). Syntypes: Russia: Siberia: Irkutsk (ZIN). – Dalla Torre, 1897:604 (in catalog of world Sphecidae); Kohl, 1915:72 (as new synonym of *Crabro schlettereri*). – **As *Ectemnius schlettereri jakowlewi***: Tsuneki, 1977e:9 (new status, morphological characteristics); Leclercq, 1999a:26 (in key to Asian *Ectemnius*).

Crabro obstrictus Gussakovskij, 1932:16, ♂. Holotype: ♂, Russia: Primorskiy Kray: Sedanka (Stockholm). Synonymized with *Ectemnius schlettereri jakowlewi* by Tsuneki, 1977e:9 and with *Ectemnius schlettereri* by Marshakov, 1979a:105. – **As *Ectemnius obstrictus***: Leclercq, 1954c:271 (new generic assignment, in catalog of world Crabronini). – **As probable synonym of *Ectemnius schlettereri***: Leclercq, 1963:32; R. Bohart and Menke, 1976:428.

ssp. japonicus Tsuneki

Ectemnius schlettereri japonicus Tsuneki, 1977e:10, ♀, ♂. Holotype: ♂, Japan: Fukui Prefecture: Sabae (originally K. Tsuneki coll., now Hyogo Mus.). – Tano, 1994a:7 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Leclercq, 1999a:26 (in key to Asian *Ectemnius*); Nambu, 2006:247 (Japan: Tokyo: Imperial Palace garden); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi in city of Obama); Kurokawa, 2003:61 (Japan: city of Fukui: Egamichou); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:36 (Japan: Gifu Prefecture); Suda, 2004:45 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Negoro, Haneda, and Tano, 2005:48 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture); Ohkusa, 2006a:25 (Japan: Honshu: Gifu Prefecture), 2007:34 (Japan: central Honshu: Aichi Prefecture); Haneda, 2008:17 (in key to Japanese Crabroninae); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan); Ohkusa and Tajima, 2010:13 (Japan: Island of Honshu: Shiga Prefecture); N. Yamamoto, 2011:13 (Japan: Kyūshyū: mainland Nagasaki Prefecture); Nagase and Kishi, 2014:22 (Japan: Izu Islands: Island of Miyakejima); Kishi and Nagase, 2015:16 (Japan: Tokyo University: Yayoi Campus: visiting flowers).

ssp. nursei (Kohl)

Crabro nursei Kohl, 1915:89, ♂ (as *Nursei*, incorrect original capitalization). Syntypes: India: Kashmir: no specific locality (BMNH). – **As *Ectemnius nursei***: Leclercq, 1950c:8 (new generic assignment), 1954c:269 (in catalog of world Crabronini), 1963:32 (probable synonym of *Ectemnius schlettereri*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae, as tentative synonym of *Ectemnius schlettereri*); Dollfuss, 1989:9 (paratype in NHMW); Leclercq, 1999a:72 (listed as synonym of *Ectemnius schlettereri*). – **As *Ectemnius schlettereri nursei***:

Leclercq, 1999a:26 (new status, in key to Asian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent), 213 (in key to subgenus *Hypocrabro* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India, as *nurse*).

ssp. *sakaguchii* (Matsumura and Uchida)

Crabro sakaguchii Matsumura and Uchida, 1926:38, ♀. Holotype: ♀, Japan: Okinawa: Okinawa-honto (Hokkaido Univ., Sapporo). – Leclercq, 1954c:270 (in catalog of world Crabronini, as *sagakuchii*); Tsuneki, 1959e:8 (as new synonym of *Ectemnius schlettereri*). – **As *Ectemnius schlettereri sakaguchii***: Tsuneki, 1959a:98 (new generic assignment, new status, Taiwan, description of ♂), 1959e:8 (redescription), 1966d:1 (Taiwan), 1966d:2 (Ryukyus), 1966d:7 (Okinawa, characteristics of subspecies), 1968g:3 (Taiwan), 34 (in key to Crabronini of Taiwan and Ryukyus), 1971a:2 (Taiwan); Haneda, 1971b:32 (Taiwan), 1972a:6 (Taiwan); Leclercq, 1973c:298 (Taiwan); Murota, 1973a:101 (Ryukyu Islands: Amami group), 1973b:118 (Taiwan); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Tsuneki, 1977e:11 (morphological characteristics), 1977j:280 (Taiwan), 1982f:48 (Okinawa), 1982g:62 (known from Ryukyu archipelago); Leclercq, 1999a:26 (in key to Asian *Ectemnius*); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan); Haneda, Nozaka, Tano, Kurokawa, Murota, and Murota, 2007:54 (Japan: Ryukyu Archipelago: Amami Oshima Islands); Haneda, 2008:17 (in key to Japanese Crabroninae); Murota and Kurokawa, 2009:15 (Japan: Ryukyu Archipelago: Amami Oshima Islands).

ssp. *taiwanensis* Tsuneki

Ectemnius schlettereri taiwanensis Tsuneki, 1977e:12, ♀, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Tahnan (originally K. Tsuneki coll., now?). – Tsuneki, 1982e:28 (Taiwan); Leclercq, 1999a:26 (in key to Asian *Ectemnius*); Hua, 2006:280 (in list of Chinese insects, geographic distribution).

159. *schwarzi* (Rohwer)

Crabro schwarzi Rohwer, 1911b:563, ♂. Holotype: ♂, Guatemala: "Cacao, Trece Aguas, Alta Vera Paz" (USNM). – **As *Ectemnius schwarzi***: Leclercq, 1954c:274 (new generic assignment, in catalog of world Crabronini), 1972c:203 (in updated key to *Ectemnius* of Latin America), 218 (bibliographic references; membership in subgenus *Hypocrabro* confirmed); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1991b:12 and 14 (in revised key to Latin American *Ectemnius*), 23 (bibliographic references; Colombia, Bolivia, Ecuador, Guatemala, Venezuela); Hanson and Menke, 1995:640 (known from Costa Rica); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:173 (described from Guatemala).

ssp. *servitorius* Leclercq

Ectemnius servitorius Leclercq, 1972c:218, ♂. Holotype: ♂, Argentina: Misiones: Eldorado (originally M. Fritz coll., now MACN). Paratypes: Brazil. – Leclercq, 1972c:203 (in updated key to *Ectemnius* of Latin America); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Dollfuss, 1989:9 (paratype in NHMW); Fritz, 1993:16 (holotype in M. Fritz coll.). – **As *Ectemnius schwarzi servitorius***: Leclercq, 1991b:12 (in revised key to Latin American *Ectemnius*), 24 (new status; Argentina, Ecuador); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:173 (Ecuador: Napo: Puerto Napo, specimen intermediary with nominotypical subspecies); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

160. *semipunctatus* (Lepeletier de Saint Fargeau and Brullé)

Crabro semipunctatus Lepeletier de Saint Fargeau and Brullé, 1835:711, ♀. Holotype: ♀: Brazil: Rio de Janeiro (MNHN). – Dahlbom, 1845:386 (original description copied), 528 (unknown to the author, but probably belonging to *Crabro* s.s.); Lepeletier de Saint Fargeau, 1845:115 (in revision of world Hymenoptera); F. Smith, 1856:423 (in catalog of Hymenoptera in British Museum); Taschenberg, 1875:383 (Brazil, discussion of identification); Dalla Torre, 1897:625 (in catalog of world Sphecidae). – **As *Ectemnius semipunctatus***: Leclercq, 1968e:310 and 314 (in key to *Ectemnius* of Latin America), 325 (new generic assignment, bibliographic references, additional locality records), 1972c:206 and 208 (in updated key to *Ectemnius* of Latin America), 223 (bibliographic references, additional

locality records); Fain, 1973:167 (parasite: *Crabrovidia ectemnii* Fain, a saproglyphid mite); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Callan, 1991a:12 (Trinidad); Leclercq, 1991b:11 (in revised key to Latin American *Ectemnius*), 24 (bibliographic references; Trinidad to Paraguay); Hanson and Menke, 1995:640 (known from Costa Rica); Cambra and Santos, 2000:51 (Panama: Parque Nacional Coiba in Isla de Coiba, Pacific Ocean); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Starr and Hook, 2003:19 (in catalog of Aculeata of Trinidad, West Indies); Leclercq, 2007e:166 (correction to Leclercq's key, 1991b), 173 (locality records from Brazil, Colombia, Costa Rica, Ecuador, French Guyana, Panama, Tobago, and Venezuela); Silvestre, Demétrio, Trad, de Oliveira Lima, Auko, and de Souza, 2014:68 (Brazil: Mato Grosso do Sul: dry forests in Bodoquena Mountain Range and Brazilian Chaco); Trad and Silvestre, 2017:5 (Brazil: Mato Grosso do Sul).

Crabro opulentus F. Smith, 1856:423, ♀. Holotype or syntypes: ♀, Brazil: Pará: Santarem (BMNH). Synonymized with *Ectemnius semipunctatus* by Leclercq, 1968e:325. – Taschenberg, 1875:383 (Brazil). – **As *Ectemnius opulentus*:** Leclercq, 1950j:201 (new generic assignment, listed), 1954c:277 (in catalog of world Crabronini).

Crabro championi Cameron, 1891:142, ♀. Holotype or syntypes: ♀, Guatemala: Las Mercedes (BMNH). Synonymized with *Ectemnius semipunctatus* by Leclercq, 1968e:325. – Dalla Torre, 1897:587 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Ectemnius championi*:** Leclercq, 1954c:274 (new generic assignment, in catalog of world Crabronini).

Crabro atitlanae Cameron, 1891a:143, ♀, actually ♂. Holotype or syntypes: ♂, Guatemala: Volcan de Atitlán (BMNH). Synonymized with *Ectemnius semipunctatus* by Leclercq, 1968e:325. – Dalla Torre, 1897:584 (in catalog of world Sphecidae); W. Fox, 1897b:387 (Brazil: Rio de Janeiro and Benevides); Ashmead, 1899d:173 (in checklist of North American Crabronidae, misspelled *antiplanae*); Leclercq, 1954c:276 (in catalog of world Crabronini), 1956f:305 (in revision of subgenus *Apoctemnius*).

Crabro flavipennis var. *fumosus* Brèthes, 1910a:282, sex not stated. Holotype: ♀, Argentina: Misiones: no specific locality (MACN). Synonymized with *Ectemnius carinatus* by Leclercq, 1968e:321 and with *Ectemnius semipunctatus* by Leclercq, 1972c:223. – Jörgensen, 1912:293 (Argentina: Mendoza Province); Schrottky, 1913a:234 (Argentina: Misiones); Genise, 1990:26 (type material in MACN).

161. *semirus* Leclercq

Ectemnius semirus Leclercq, 1982b:154, ♀. Holotype: ♀, India: Sikkim: no specific locality (ZMHU). – Leclercq, 1999a:26 (in key to Asian *Ectemnius*), 72 (in annotated catalog of Asian and Oceanian *Ectemnius*); Hua, 2006:280 (in list of Chinese insects, geographic distribution); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent), 213 (in key to subgenus *Hypocrabro* of Indian subcontinent).

162. *sennacus* Leclercq

Ectemnius sennacus Leclercq, 1968e:327, ♀. Holotype: ♀, Brazil: Rio Grande do Sul: no specific locality (FSAG). – Leclercq, 1968e:315 (in key to *Ectemnius* of Latin America), 1972c:208 (in updated key to *Ectemnius* of Latin America), 225 (bibliographic reference, additional locality records; variation); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Dollfuss, 1989:9 (paratype in NHMW); Leclercq, 1991b:10 and 11 (in revised key to Latin American *Ectemnius*); 25 (bibliographic references; Argentina, Brazil, Paraguay); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:166 (correction to Leclercq's key, 1991b), 174 (Argentina: Salta; Liebig; Brazil: São Paulo: Campinas), 2007g:194 (holotype in FSAG).

163. *sexcinctus* (Fabricius)

NOTE: Kohl (1915:350) and R. Bohart and Menke (1976:428) thought that Schrank (1802:337) had described a new species *Crabro octomaculatus*, a junior primary homonym of *Crabro octomaculatus* Preyssler, 1793. Schrank, however, did not create this name, as he only referred to Preyssler, 1793. His *Crabro octomaculatus* is merely a citation of Preyssler, 1793.

Crabro sexcinctus Fabricius, 1775:374, sex not stated. Lectotype: ♂, Germany: no specific locality (ZMUC), designated by van der Vecht, 1961a:70. – Fabricius, 1781:470 (redescription), 1787:295 (redescription); Olivier, 1792a:513

(redescription); Fabricius, 1793:295 (redescription); Panzer, 1799, Heft 64:13 (in revision of German insects, illustration of habitus); Schrank, 1802:337 (Germany: in revision of insects of Bayern); Fabricius, 1804:309 (redescription); Panzer, 1806:180 (in critical review of his earlier work); Jurine, 1807:211 (in checklist of species of *Crabro*); Stephens, 1829a:365 (in catalog of British insects), 1829b:33 (in checklist of British insects); Vander Linden, 1829:57 (bibliographic references, Belgium: Bruxelles, redescription); Lepeletier de Saint Fargeau and Brullé, 1835:703 (in revision of Crabronini); Shuckard, 1837a:137 (in revision of British Aculeata); Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Dahlbom, 1845:XXIV (type material not examined, as new synonym of *Crabro cephalotes*); Lepeletier de Saint Fargeau, 1845:106 (in revision of world Hymenoptera, as *sex cincus*); F. Smith, 1851c:27 (Great Britain: sandy areas); Wesmael, 1852:620 (Belgium; color variation); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:402 (in catalog of Hymenoptera in British Museum); Schenck, 1857:57 (Germany: in revision of fossorial wasps of Nassau Region); F. Smith, 1858c:146 (in review of British Aculeata, redescription); Funk, 1859:57 (Germany: Bayern: Bamberg); Schenck, 1860:145 (Germany: Nassau Region); A. Morawitz, 1866a:272 and 1866b:350 (specimens in Eversmann collection); Schenck, 1867a:350 (Germany: Nassau Region); Dietrich, 1868:363 (Switzerland: Zürich Canton); Jaennicke, 1868:8 (Germany: Hessen: Büdingen, Frankfurter Wald); von Aichinger, 1870:312 (Austria: Tirol); Dours, 1874:158 (in catalog of Hymenoptera of France); Radoszkowski, 1877:77 (Kyrghyzstan: Hodja-Chiburgan); Kohl, 1880:99 (Austria: Tirol, and Italy: Trentino–Alto Adige), 212 (prey: *Syrphus pyrastris* Linnaeus, Syrphidae); Friese, 1883:200 (Germany: Sachsen-Anhalt: Weissenfels); Kohl, 1883e:650 (Switzerland); Sickmann, 1883:67 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:121 (Germany: Frankfurt am Main area); Sickmann, 1886:279 (Germany: Friesian Islands: Island of Spiekeroog); Wüstnei, 1886:31 (Germany: Schleswig-Holstein: Husum, Sonderburg); Kohl, 1888b:720 (Austria: Tirol, now Italy: Alto Adige), 1893:26 (Austria: Niederösterreich); F. Morawitz, 1893b:428 (Tajikistan: Iskander-kul in Zeravshan River valley); Sickmann, 1893:48 (Germany: Niedersachsen: Iburg, analysis of color variation); Krieger, 1894:7 (Germany: Kingdom of Saxony); Meunier, 1896:269 (Belgium: Bruxelles area); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); Dalla Torre, 1897:626 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Kingdom of Hungary: localities are actually in today's Croatia and Slovakia); de Cobelli, 1903:115 (Italy: Trentino: Rovereto, Serrada, Val de Fiemme); Antiga and Bofill, 1904:26 (Spain: Cataluña Province); W. Schulz, 1904b:99 (Austria, France); Kubes, 1905:84 (Czech Republic: Kolín, Sušice); Schmiedeknecht, 1907:186 (in key to Hymenoptera of Central Europe); Peets, 1909-1911:66 (*Crabro sexcinctus* of Panzer = *Crabro sexcinctus*); Cavo, 1910:685 (France: Département du Nord, as *6cinctus*); Dittrich, 1911b:17 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Alfken, 1914:270 (northwestern Germany); Szilády, 1914:90 (Hungary: Vihnye); R. Turner, 1917e:189 (India: Kashmir: Gulmarg; Pakistan: Hazara District: Dungagali); Maréchal, 1923:15 (Belgium: Liège); Schütze, 1925:109 (Germany: Lausitz Region); Friese, 1926:146 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Balles, 1934:15 (Germany: Baden-Württemberg: Mannheim-Rheinau); Zavadil in Zavadil and Šnoflak, 1948:113, 114 (in key to Sphecidae of Czechoslovakia); Niedl and Deneš, 1967:69 (Czech Republic: Třeboň area). – **As *Lestica sexcincta***: Billberg, 1820:107 (new generic assignment, specimens from Sweden in collection Billberg); Rohwer, 1911c:155 (discussion of name). – **As *Clytochrysis sexcinctus***: Borries, 1897:23 (new generic assignment, first record from Denmark: Han); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Graeffe, 1911:43 (Italy: Trieste area); Geyer, 1912:378 (structure of compound eyes); Schirmer, 1912:163 (Germany: Berlin area); R. Perkins, 1913b:386 (in key to British Crabronini); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Coulon, 1925:126 (France: Evreux, Martin-Eglise); R. Perkins, 1925:151 (Great Britain: Gloucestershire and Somersetshire); Schneid, 1941:1025 (Germany: Bayern: Bamberg area); Felton, 1973:15 (England: Kent County). – **As *Solenius sexcinctus***: Jaennicke, 1867:146 (new generic assignment, Germany: Hessen: Frankfurt area); Kirchner, 1867:225 (in catalog of European Hymenoptera); Wierzejski, 1874:261 (Poland: Tatry Mountains); Beuthin, 1876:229 (Germany: Hamburg area); Brischke, 1889:204 (Germany: Steegen east of Danzig, now Poland: Stegna east of Gdańsk); Rudow, 1912:70 (nesting in wood, preying on flies, as *sercinctus*); R. Perkins, 1924:224 (Great Britain: Devon). – **As *Ectemnius sexcinctus***: de

Beaumont, 1964c:127 (new generic assignment, in Sphecidae Fauna of Switzerland); Leclercq, 1965b:387 (Belgium: city of Liège); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:41 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:349 (Turkey); Gauss, 1967:557 (Germany: Baden-Württemberg); J. Heinrich, 1967:79 (Germany: Bayern: Unterfranken District); Leclercq, 1967a:30 (locality records from Great Britain), 1968d:109 (Belgium: city of Liège); Lefebvre, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Oehlke, 1970:766 (Democratic Germany); Leclercq, 1971:222 (Spain); D. Peters, 1971:26 (nest established in plastic case for decorative plants); Petit, 1971:23 (Luxemburg: Brandenbourg, Lellingen); Schmidt, 1971c:75 (Germany: Schleswig-Holstein); Haeseler, 1972:156, 172, 200, 203, 204 (Germany: Schleswig-Holstein, anthropogenic habitats); Oehlke, 1972:139 (Germany: Island of Hiddensee); Kazenas, 1972b:174 (Kazakhstan); Kofler, 1972:112 (Austria: eastern Tirol); Else, 1974:208, 209 (in key to British *Ectemnius*); Erlandsson, 1974:83 (Italy); Leclercq, 1974d:282 (synonymy); Lefebvre and Petit, 1974:164 (Belgium: Plombières); Leclercq, 1975b:3 (France); Lefebvre, 1975b:122 (Belgium); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogyphid mite); Lomholdt, 1975b:32 (Denmark: Island of Anholt); Marshakov, 1975b:334 (Mongolia); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Lomholdt, 1976:316 (in Sphecidae Fauna of Fennoscandia and Denmark); Schmidt, 1977:97 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Gayubo, 1978:188 (feeding on honeydew); Petit, 1978:88 (Belgium: Breinigerberg); Kolesnikov, 1977:320 (Russia: Bryansk Oblast); Schmidt, 1977-1978:57 (Germany: Rheinland-Pfalz: Mombacher Sand); Marion, 1978:89 (France: Nièvre Department); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:419 (Germany: Württemberg); R. Bohart and Kimsey, 1979:488 and 490 (in key to North American *Ectemnius*); Leclercq, Gaspar, and Verstraeten, 1979:map 1475 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:105 (in key to *Ectemnius* of Russian Far East); Richards, 1979:399 (British Channel Islands); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Pagliano, 1980:124 (Italy: Piemonte); Preuss, 1980a:24 (Germany: nesting in wood, but natural habitat is reduced); Richards, 1980:53, 54 (in key to Sphecidae of British Isles); Schmidt, 1980:386 (Germany: Baden-Württemberg); Westrich, 1980:634 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:324 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:51 (Germany: Friesian Island: Island of Amrum); Thiede, 1981:46 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:43 (Germany: Westfalen: Hamm); Donath, 1982:214 (Germany: Cottbus Bezirk); Gauss, 1982:74 (Germany: nest and syrphid prey); Gayubo, 1982b:32 (Spain: Salamanca: Béjar, Candelario); Haeseler, 1982b:228 (a male carrying 10 deutonymphs of *Uroobovella marginata* (C.L. Koch), a mite); Leclercq, 1982a:125 (Belgium: Liège); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:18 (in catalog of Sphecidae of Austria); Lefebvre, 1983a:84 (Netherlands: Wadden district: northern coast sand dunes, Island of Schiermonnikoog); Riemann, 1983:87 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:9 (France: Yvelines Department); Gayubo, 1984b:96 (Spain: previously recorded from Salamanca Province); Gayubo and Tormos, 1984:20 (Spain: Valencia); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Haeseler, 1985c:571 (Germany: Friesian Islands); Lefebvre, 1984:29 (Netherlands: Maastricht); Józán, 1985b:60 (Hungary south of Lake Balaton), 80 (floral records), 84 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:68 (Germany: Südpfalz); Gayubo, 1986b:39 (Spain: Andalucía); Gayubo and Heras, 1986:59 (Spain: Valladolid Province; floral records); Gayubo and Sanza, 1986:70 (Spain: Burgos, Soria); Islamov, 1986:532 (Uzbekistan: Tashkent Oblast); Józán, 1986:373 (Hungary: Kiskunság National Park); Skibińska, 1986a:61 (dominant in natural and urbanized habitats), 1986b:151, 154 (Poland: suburbs of Warszawa), 163 (urban parks), 165 (streetside green), 174 (various green urban habitats); Schmidt and Westrich, 1987:371 (Germany: Mainz area); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Coldewell, 1989:250 (Great Britain: first record from Yorkshire); Allen and Felton, 1989:36 (Great Britain: Kent County); Jacobs, 1989:23 (Germany: Mecklenburg-Vorpommern); Józán, 1989:102 (Hungary: Tihany Nature Reserve); Pádr, 1989a:171 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:204 (Poland: Warszawa area); Weiffenbach, 1989:108 (Germany: Hessen: Gießen

area); Archer, 1990a:106 (Great Britain: Yorkshire), 1990b:137 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:200 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Pagliano, 1990:91 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:549 (Austria: Kärnten); Dollfuss, 1991:176 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:411 (Italy: Friuli: Forni); Kowalczyk, 1991a:90, 99, 102, 104 (Poland: Łódź); Pagliano, 1991b:347, 353 (in key to Italian Crabroninae); Schembri, 1991:182 (citation of Valetta, 1979; as *sescinctus*); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Fol-latères); Gayubo, Borsato, and Osella, 1992:287 (Turkey); Leclercq, 1992c:208 (prey); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:162 (in revision of western European Crabroninae); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:32 (locality records from Europe; Kashmir: Gulmarg; Pakistan: Chitral: Tirich Valley); Leclercq and Barbier, 1993:69 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Gayubo and Borsato, 1994:214 (Italy: Veneto); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Stöcklein, 1994:47 (nesting in sandstone walls); Theunert, 1994c:41 (Germany: summary of records from Niedersachsen and Bremen); Negrisola *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:450 (in key to Sphecidae of Russian Far East); Schmid-Egger, 1995:61 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:184 (Germany: summary of records from Rheinland-Pfalz); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Skibińska, 1995:424, 427 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Harvey and Plant, 1996:72 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:377 (Germany: Baden-Württemberg: endangered); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:106 (Germany: Brandenburg); Woydak, 1996:82 (Germany: Westfalen: summary of distribution and nesting habits); Archer, 1997b:97 (Great Britain: Watsonian Yorkshire); Celary, 1997:59 (in checklist of Animals of Poland); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:14 (in checklist of German Sphecidae); Stoyanov and Ljubomirov, 1997:27 (Bulgaria: Rila Mountains); Celary, 1998b:211 (Poland: Babia Góra National Park); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:519 (Austria: summary of collecting records from Burgenland); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Flügel, 1998:60 (Germany: Brandenburg: Unteres Odertal National Park); Haeseler and Ritzau, 1998:51 (Germany: Bremen: Island of Harriersand in Weser River); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Morgan, 1998:19 (Great Britain: Wales: Carmarthenshire County); van der Smissen, 1998:60 (Germany: Schleswig-Holstein); K. Weber, 1998:140 (Germany: Bayern: Bamberg area); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:16 (in improved key to *Ectemnius* of Benelux); Leclercq, 1999a:24 (in key to Asian *Ectemnius*), 72 (in annotated catalog of Asian and Oceanian *Ectemnius*); Mandery, 1999:105 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:88 (Austria: Oberösterreich: city of Linz area); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Blösch, 2000:343 (in Sphecid Fauna of Germany); Dressler, 2000:32 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: 7-8 km south of Talgar); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Luig and Voolma, 2000:126 (first record from Estonia); M. Mader and Chalwatzis, 2000:60 (Germany: Hessen: Oderwald Mountains); Melo, 2000:89 (use of nest by more than one female);

Neumeyer, 2000:99 (Switzerland: Basel); Schmalz, 2000:20 (Germany: Hessen: Fulda area); Smit, 2000:177 (Madeira); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Archer, 2001c:15 (Great Britain: Watsonian Yorkshire); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 209 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:139 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:60 (Germany: in red list of bees and wasps of Schleswig-Holstein: not endangered); Archer, 2002b:119 (Great Britain: Watsonian Yorkshire: distribution map), 2002c:38 (Great Britain: Watsonian Yorkshire); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:75 (Lichtenstein); Kazenas, 2002a:109 (geographic distribution, collecting localities in Kazakhstan); Litt, 2002:167 (Belgium); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:53 (in list of Aculeata of Finland); Vischer, 2002:289 (Germany: Sachsen-Anhalt: vineyards in Saale-Unstrut area); Wiśniowski, 2002:72 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:138 (France, Germany: miscellaneous locality records); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Generani, Pagliano, Scaramozzino, and Strumia, 2003:65 (Italy: Arcipelago Toscano); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:66 (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); Wiśniowski in Dylewska and Wiśniowski, 2003:173 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Dollfuss, 2004b:777 (locality records from Bulgaria, Kazakhstan, Kyrgyzstan, Tajikistan, and Turkey); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo, Nieves-Aldrey, González, Asís, Rey del Castillo, and Tormos, 2004:132 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains); Klein and Lefebvre in Peeters, van Achterberg et al., 2004:385 (in Wasp and Ant Fauna of Netherlands); Litt, 2004:222 (Switzerland: Valais: Vissoie); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:50 and 62 (in checklist of Polish Sphecidae); G. Allen, 2005b:14 (Great Britain: Kent County: Maidstone); Archer, 2005a:30 (Great Britain: Watsonian Yorkshire); Burger, 2005:33 (Germany: Thüringen); Gayubo and Özbek, 2005:33 (Turkey: twelve localities); Haeseler, 2005:629 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:182 (Austria: Tirol: Lienz District: Amlach, Stronach in Iselberg Common, Drauweg in Lavant Common, Tauernstüberl and Zedlacher Paradies in Matrei Common, Tassenbach Stausee in Tassenbach Common); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Pagliano and Negrisolo, 2005:268 (in Sphecidae Fauna of Italy); Riemann and Hohmann, 2005:558 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:36 (Great Britain: Cumbria County); Saure, 2005:15 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:403 (vulnerable in Czech Republic); Theunert, 2005a:17 (Germany: in checklist of Sphecidae of Straka, 2005a:403 (vulnerable in Czech Republic); and Bremen); Yildirim and Ljubomirov, 2005:1794 (Turkey: Erzurum and Kars provinces); Dathe, 2006:38 (*Crabro sexcinctus*, recorded from Plauenscher Grund near Dresden, Germany, by von Block, 1799, is now *Ectemnius sexcinctus*); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Mutenitsa River valley, village Trigrad); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Beavis, 2007:94 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Livory, Lair, Sagot, and Baldock, 2007:35 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:140 (Luxemburg: Haardt Nature Reserve); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Jacobs, 2007:149, 154 (in key to Crabronidae of Germany); Jansen and

Kaluza, 2007:23 (Germany: northwestern Sachsen); Leclercq, 2007e:174 (R. Bohart and Kimsey, 1979, synonymized *Ectemnius yosemite* Pate with *Ectemnius sexcinctus*); Saure, 2007:82 (Germany: in checklist of Aculeata of Land Brandenburg); Vago, 2007:175 (France: départements d'Aisne, Nord, Pas-de-Calais, and Somme); Venne, Bleidorn, and Lauterbach, 2007:301 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia); K. Alexander, 2008:149 (Great Britain: Norfolk: Sheringham Park); Archer, 2008d:21 (Great Britain: Watsonian Yorkshire: Burton Leonard Lime Quarry); Gayubo, González, Tormos, and Asís, 2008:138 (Spain: Salamanca: Parque Natural de Las Batuecas–Sierra de Francia); Haeseler, 2008:308 (Germany: Friesian Islands); Ljubomirov and Ban-Calefariu, 2008:205 (Romania: Maramureş District: Poienile de Sub Munte); Ljubomirov and Yildirim, 2008:273 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia), 2008c:10 (Russia: first record from Primorskiy Kray: Lazovskiy Nature Reserve); Theunert, 2008:39 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield), 2009b:170 (Great Britain: Lindisfarne National Nature Reserve on Island of Lindisfarne); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:223 (in supplement to vol. I of Faune de France, 1993: recently reported from Bulgaria; new record from French Départements: Gard: Mount Espérou north of Le Vigan; Loire: Doizieux; Meurthe-et-Moselle: Vandoeuvre-les-Nancy; Vosges: Tendon); Debuyser and Vago, 2009:6 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Nemkov, 2009b:118 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořák, and Bogusch, 2009:261 (Czech Republic: Jizerské Mountains and Frýdlant region); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Ghazi-Soltani, Ebrahimi, Iranipour, and Pour Abad, 2010:800 (Iran: East Azarbaijan: Marand: Yam); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Schmid-Egger, 2010a:16 (in red list of Aculeata of Germany: relatively common); Shorenko and Konovalov, 2010:18 (Ukraine: Lugansk Oblast': village D'yakovo); van der Smissen, 2010a:341 (Germany: Schleswig-Holstein: locality records); Archer, 2011c:43 (Great Britain: Watsonian Yorkshire: Lindrick area); Baghirov, 2011b:147 (Russia: Altay Republic: Kosh-Agach, Kuray); Burger, 2011a:287 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Schmid-Egger, 2011a:38 (France: Parc National du Mercantour: Le Pra), 2011c:555 (Austria: Tirol: Tiroler Lech Nature Park); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:103 (Germany: Hessen: may be endangered); Archer, 2012b:183 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Japoshvili and Ljubomirov, 2012:96 (Turkey: Isparta: Gölcük Nature Park 8 km southwest of city of Isparta); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Kazenas, 2013b:497 (southeastern Kazakhstan: Kurtogay on Sharyn River); A. Scholz and Liebig, 2013:20 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:209 (in annotated catalog of aculeate wasps of Belorussia); Dunford, Turbyville, and Leavengood, 2014:9 (listed as medically important in Afghanistan); Hellqvist, Abenius, and Norén, 2014:92 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Yildirim, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:143 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:322 (in list of Sphecidae *sensu lato* of Crimea); Colln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:22 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Reemer and Peeters, 2016:10 (Netherlands: Hulshorsterzand); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2016:431 (Iran: Fars Province); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Stolle and Saure, 2016:923 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park);

Antropov, 2017b:231 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:49 (Iran: known from East Azerbaijan Province); Magdalou, 2017:15 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols); Shorenko, 2017:77 (in Crimea collected in August); Jacobs and Liebig, 2018:140 (Irkutsk Oblast: Sarma); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:17 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:99 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2019a:262 (Iran: Fars: Estahban: Gordeh); Akulov, Proshchalykin, and Mokrousov, 2020:48 (Russia: central Krasnoyarsk Krai); Kejval, Blažej, and Erhart, 2020:101 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:96 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:36 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Fresno, 2023:15 (Spain: Catalonia: Balenyá: finca Mas Mirambell); U. Frommer and Bahmer, 2023:194 (Germany: Hessen: Giessen: city gardens); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India); Kaplan and Yildirim, 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:426 (Uzbekistan: distribution); Kochetkov and Korsun, 2025:7 (Russia: Zabaikalskiy Krai: Dauriski Nature Reserve).

Crabro quadricinctus Fabricius, 1787:205, sex not stated. Holotype: ♀, Denmark: Hafniae, now Copenhagen (ZMUC). Synonymized with *Ectemnius sexcinctus* by van der Vecht, 1961a:70. – Fabricius, 1781:295 (redescription); Olivier, 1792a:514 (redescription); Fabricius, 1793:296 (redescription), 1804:310 (redescription); Jurine, 1807:211 (in checklist of species of *Crabro*); Dahlbom, 1845:XXV (type material not examined); Lepeletier de Saint Fargeau and Brullé, 1835:807 (discussion of species identity); Dalla Torre, 1897:620 (in catalog of world Sphecidae). – **As *Sphex quadricinctus***: de Villers, 1789:247 and 251 (new generic assignment, redescription).

Sphex interruptefasciatus Retzius, 1783:64, sex not stated (as *interrupte-fasciata*, incorrect original termination and hyphenation). Holotype or syntypes: sex not stated, origin not given. Synonymized with *Ectemnius sexcinctus* by Leclercq, 1974d:282. – **As *Crabro interruptefasciatus***: A. Morawitz, 1864:453 (new generic assignment, Russia: Sankt-Petersburg), 1866a:272 and 1866b:350 (specimens in E. Eversmann collection); Dalla Torre, 1897:605 (in catalog of world Sphecidae); Friese, 1902:478 (occurring in Lapland according to Zetterstedt, 1838); W. Schulz, 1904b:99 (Austria). – **As *Ectemnius interruptefasciatus***: R. Bohart and Menke, 1976:424 (new generic assignment, in checklist of world Sphecidae as tentative synonym of *Ectemnius cavifrons*), 628 (synonymy with *Ectemnius sexfasciatus* recorded).

Sphex cribrarius quatuorcinctus Christ, 1791:285, sex not stated (as *cribraria quatuorcincta*, incorrect original termination). Not available: published as synonym of *Crabro sexcinctus* Fabricius, 1775 (Article 11.6).

Crabro tibialis Olivier, 1792a:513, sex not stated. Holotype or syntypes: France: Brive (lost). Neotype: ♀, France: Corrèze (MNHN), designated by Leclercq, 1974d:282. Synonymized with *Ectemnius sexcinctus* by Leclercq, 1974d:282.

Crabro octomaculatus Preyßler, 1793:372, sex not stated (as *8 maculata*, incorrect original spelling including termination). Holotype or syntypes: Czechoslovakia: no specific locality (lost). Synonymized with *Ectemnius sexcinctus* by Leclercq, 1974d:282. – Schrank, 1802:337 (Germany: in revision of insects of Bayern, as *8 maculatus*); Dalla Torre, 1897:613 (in catalog of world Sphecidae).

Crabro zonatus Panzer, 1797, Heft 46:7 [♂]. Holotype or syntypes: ♂, Germany: no specific locality (depository ?). Synonymized with *Ectemnius sexcinctus* by van der Vecht, 1961a:70. – Panzer, 1806:181 (in critical review of his earlier work); Jurine, 1807:212 (in checklist of species of *Crabro*); Spinola, 1808:176 (diagnostic characters); Vander Linden, 1829:55 (bibliographic references, France: Bordeaux, Italy: continental and Sicilia, redescription); Lepeletier de Saint Fargeau and Brullé, 1835:700 (in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:103 (in revision

of world Hymenoptera); F. Smith, 1856:403 (in catalog of Hymenoptera in British Museum); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:86 (in Sphecidae Fauna of France and Algeria); Peets, 1909-1911:66 (*Crabro zonatus* of Panzer = *Crabro sexcinctus*); Kohl, 1915:57 (in revision of Palearctic Crabronini); O. Meyer, 1919:147 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:43 (Germany: Lower Elbe region); Dubois, 1921b:147, 148 (in key to Belgian Sphecidae), 164 (phenology, nesting habits); Fahringer and Friese, 1921:161 (Turkey: Erzurum: Chanziri in Amanus Mountains = Gavur Dağları); Fahringer, 1922:183 (Turkey); Berland, 1925d:200 (in Sphecidae Fauna of France); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:29 (Czechoslovakia); Berland, 1928b:181 (add Fahringer, 1922 and Perkins, 1923 to bibliography in Berland, 1925d); Bouwman, 1930:64 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:640, 643 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Bondroit, 1932:39 (Belgium: Jette, Solbosch); E. Nielsen, 1933:269 (summary of nesting habits); Gussakovskij, 1934a:11 (China: Kansu Province); Steck, 1935:320 (Switzerland); Vergne, 1935:120 (France: Auvergne: Lezoux); Bernard, 1936a:35 (France: Hautes-Pyrénées: Pic de Néouvielle area); Dulac, 1937:24 (France: Saône-et-Loire: Le Creusot); Goebel, 1937:37 (Poland: Poznań); Zavadil, Šusterka, and Bat'a, 1937:150 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:115 (northwestern Germany); Paul, 1941:32 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:227 (in Sphecidae Fauna of Spain); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Guiglia, 1944b:39 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Hachfeld, 1945:58 (nesting, metamorphosis, description of larva and cocoon, list of prey, nest parasites); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Sala de Castellarnau, 1949:89 (Spain: Teruel: Bronchales); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavo, 1950:41 (France: Département du Nord); de Beaumont, 1951h:34 (Switzerland: Neuchâtel area); Fæster, 1951:457 (distribution in Scandinavia); Fahlander, 1951a:46 (first record from Sweden: Skållerup and Mellby); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:51 (France: Ardèche River basin); Nouvel and Ribaut, 1953:183 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cauterets); de Beaumont, 1954e:95 (Italy); Tjeder, 1954:68 (Sweden: eastern Skåne: Äsperod, Löderup); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:44 (Yugoslavia); van der Zanden, 1955:421 (Netherlands: Burgh and Eindhoven); Ceballos, 1956:396 (in catalog of Sphecidae of Spain); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:174 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:18 (in review of Dutch Sphecidae); Ceballos, 1959:231 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:130, 135 (in key to Polish Sphecidae); Ceballos, 1964:95 (in supplement to catalog of Spanish Sphecidae); Wengris, 1962:206 (Lithuania: Vilnius area); Scobiola-Palade, 1967b:51 (Romania); Tumšs and Maršakovs, 1970:22 (Latvia); Balthasar, 1972:57 (in Sphecidae Fauna of Czechoslovakia); Valetta, 1979:215 (Malta); Skibińska, 1981:358 (Poland: Warszawa-Białoleka), 1982:120, 123 (Poland: Mazovian Voivodship: Białoleka, Warszawa); Kowalczyk, 1988b:65 (Poland: environs of Łódź, as *zanatus*). – ***As Clytochrysus zonatus***: Hamm and Richards, 1926:302 (new generic assignment, summary of nesting habits), 320 (list of prey); Hémon, 1926:200 (France: Finistère: Fouesnant); Richards, 1935a:168 (type examined, corresponds to current interpretation); Maneval, 1937:166 (nest structure, nesting habits, description of larva); Richards, 1937b:106 (in checklist of British aculeates); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Rodborough, Wotton); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1973:15 (England: Kent County). – ***As Ectemnius zonatus***: Pate, 1946c:5 (new generic assignment, Honduras: Tegucigalpa); Leclercq, 1949a:13 (Germany, Spain, Switzerland), 1951e:16 (bibliography of Belgian records); Grandi, 1954:243 (Italy); Leclercq, 1954c:287 (in catalog of world Crabronini), 322 (nest and prey records); Aerts, 1955:59 (Germany: Rheinland); Iwata, 1955:30 (egg size, number of oocytes); Morel, Nouvel, and Ribaut, 1956:339 (France: Département des Pyrénées-Orientales); Evans, 1957b:110 (discussion of larva's description by Maneval, 1937); de Beaumont, 1958c:209 (Swiss National Park); Móczár, 1958a:266 (in annotated catalog of Hungarian Crabronini, correction to Kohl, 1915), 1958b:205 (Hungary: locality records); Nouvel

and Ribaut, 1958:17 (France: Pyrénées-Orientales: Banyuls-sur-Mer); de Beaumont, 1959a:34 (Italy); Suárez, 1959:59 (Spain: Almería Province); Wolf, 1959b:35 (Germany: Nassau); Hoop, 1961:63 (Germany: Schleswig-Holstein); de Beaumont, 1963c:417 (Afghanistan); Babiý, 1964:119 (Austria: Land Salzburg); Evans, 1964b:296 (discussion of Hachfeld, 1945, description of larva); B. Klug, 1965:142 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Bonelli, 1966c:220 (Italy: Trentino-Alto Adige: Fiemme, Ortisei); Zangheri, 1969:1708 (Italy: in catalog of flora and fauna of Romagna Region); Hoop, 1970:60 (Germany: Schleswig-Holstein: Hochwacht, as *zonulus*); Tsuneki, 1972a:148 (Mongolia); Marshakov, 1975b:334 (Mongolia).

Crabro vespiformis Panzer, 1798, Heft 53:14, [♂]. Holotype or syntypes: ♂, Austria: no specific locality (depository?). Synonymized with *Crabro zonatus* by Kohl, 1915:57. – Roth von Schreckenstein, 1802:32 (Germany: Baden-Württemberg); Panzer, 1806:181 (in critical review of his earlier work); nec Stephens, 1829a:365 and 1829b:33 (= *Ectemnius cephalotes*); Vander Linden, 1829:56 (bibliographic references, Belgium: Bruxelles, redescription); Lepeletier de Saint Fargeau and Brullé, 1835:701 (in revision of *Crabronini*); Lepeletier de Saint Fargeau, 1845:104 (in revision of world Hymenoptera); F. Smith, 1855:99 (*Crabro vespiformis* of Stephens, 1829a and 1829b = *Crabro lindenius*), 1856:403 (in catalog of Hymenoptera in British Museum); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:86 (in Sphecid Fauna of France and Algeria); Peets, 1909-1911:66 (*Crabro vespiformis* of Panzer = *Crabro sexcinctus*).

Crabro cinctus Spinola, 1806:106 (description of ♀), junior primary homonym of *Crabro cinctus* Rossi, 1790. Substitute name for *Crabro sexcinctus* Fabricius, 1775. – Lepeletier de Saint Fargeau and Brullé, 1835:809 (possibly identical with *Solenius lapidarius*).

Crabro flavipes Lepeletier de Saint Fargeau et Brullé, 1835:699, ♂, junior primary homonym of *Crabro flavipes* Fabricius, 1781. Holotype or syntypes: ♂, France: Paris area (lost). Neotype: ♂, France: Yvelines: Bullion (MNHN), designated by Leclercq, 1974d:282. Synonymized with *Ectemnius sexcinctus* by Leclercq, 1974d:282. – Dahlbom, 1845:384 (original description copied); Lepeletier de Saint Fargeau, 1845:102 (in revision of world Hymenoptera); Kirchner, 1867:226 (in catalog of European Hymenoptera, as *flavipes* Panzer); Dours, 1874:157 (in catalog of Hymenoptera of France); Acloque, 1897:86 (in Sphecid Fauna of France and Algeria); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Crabro tetraedrus Blanchard, 1840:pl. 5 fig. 4, sex not stated. Holotype or syntypes: France (lost). Neotype: ♀, France: Paris (MNHN), designated by Leclercq, 1974d:282. Synonymized with *Ectemnius sexcinctus* by Leclercq, 1974d:282.

Crabro saundersi R. Perkins, 1899:260, ♀, ♂ (as *Saundersi*, incorrect original capitalization). Syntypes: Great Britain: no specific locality (depository?). Synonymized with *Crabro sexcinctus* by E. Saunders, 1906:173. – E. Saunders, 1902:144 (British Channel Islands: Island of Jersey), 1906:173 (almost certainly identical to *Crabro sexcinctus*, recognition characters).

Ectemnius yosemite Pate, 1946c:3, ♀. Holotype: ♀, USA: California: Mariposa County: Yosemite National Park (ANSP). Synonymized with *Ectemnius sexcinctus* by Bohart and Kimsey, 1979:498. – Krombein in Muesebeck, Krombein, and Townes, 1951:1024 (in catalog of North American Hymenoptera); Leclercq, 1954c:285 (in catalog of world *Crabronini*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Krombein, 1979b:1677 (in catalog of North American Hymenoptera); H. Allen, 1995:15 (type in ANSP).

As *Crabro planifrons*: R. Perkins, 1899a:110 (first record from Great Britain), corrected to *Crabro saundersi* by R. Perkins, 1899b:250, and to *Crabro sexcinctus* by E. Saunders, 1906:173.

As *Crabro cephalotes*: E. Saunders, 1880:292 and 1896:140 (in revision of British Aculeata, = *Crabro sexcinctus*); Pagliano, 2011a:151, 154, 156 (part of specimens in M. Spinola collection, Torino, are *Ectemnius sexcinctus*).

164. *seyrigi* (Arnold)

Crabro seyrigi Arnold, 1945:183, ♀, ♂ (as *Seyrigi*, incorrect original capitalization). Syntypes: Madagascar: Ivondro (MNHN). – Arnold, 1958:137 (belongs to subgenus *Metacrabro* in Leclercq's system). – As *Ectemnius seyrigi*:

Leclercq, 1954c:269 (new generic assignment, in catalog of world Crabronini), 1961d:118 (belongs to subgenus *Iwataia*; Madagascar); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1989c:52 (variation); Pulawski, 2003b:796 (in checklist of Malagasy Sphecidae); Madl, 2014a:954 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records); Řiha and Farkač, 2015:183 (in key to Afrotropical species of subgenus *Policrabro* of *Ectemnius*), 184 (in list of Afrotropical *Ectemnius*).

165. *shimoyamai* Tsuneki

Ectemnius shimoyamai Tsuneki, 1958:198, ♀ (subgenus *Nesocrabro*). Holotype: ♀, Japan: Honshu: Aomori Prefecture: Towada (originally K. Tsuneki coll., now Hyogo Mus.). – Tsuneki, 1960g:4 (nesting habits); Yoshimoto, 1960:301 (listed); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki and Tano, 1969:30 (distribution in Japan); Tsuneki, 1970f:1 (type of subgenus *Ceratocrabro* Tsuneki, 1970); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae, significantly different from Hawaiian *Ectemnius*); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Leclercq, 1999a:73 (in catalog of Asian and Oceanian *Ectemnius*, *Ceratocrabro* downgraded to subgenus); Dollfuss, 2004b:777 (China: Shanxi: Quiling Mountains: Xunyangba); S. Takahashi, Haneda, and Tano, 2009:41 (distribution in Japan); J.-K. Kim, 2014:432 (in catalog of Sphecidae *sensu lato* of Korean Peninsula), 450 (recorded from Korea but no occurring there). – **As *Ceratocrabro shimoyamai***: Tsuneki, 1983g:1 (new generic assignment, *Ceratocrabro* raised to full genus), 1983i:29 (description of ♂); Tano, 1994a:6 (holotype in K. Tsuneki collection); Haneda, 2008:9 (in key to Japanese Crabroninae); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan); Kikuchi, 2014:37 (Japan: first record from Fukushima Prefecture).

166. *slateri* (Arnold)

Thyreopus slateri Arnold, 1926:374, ♀. Holotype: ♀, Zimbabwe: Victoria Falls (SAM). – Arnold, 1930:13 (in checklist of Afrotropical Sphecidae). – **As *Ectemnius slateri***: Leclercq, 1954c:269 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1989c:52 (Madagascar, Mozambique, Transvaal); Madl, 2014a:954 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Madagascar, with synonymy and locality records); Řiha and Farkač, 2015:184 (in list of Afrotropical *Ectemnius*). *Crabro slateri*; *nigrescens* Arnold, 1945:183, ♀, ♂. Syntypes: Madagascar: Bekily (MNHN). Synonymized with *Ectemnius slateri* by Leclercq, 1989c:52. – **As *Ectemnius slateri nigrescens***: R. Bohart and Menke, 1976:428 (new generic assignment, in checklist of world Sphecidae); Pulawski, 2003b:796 (in checklist of Malagasy Sphecidae).

167. *sodalis* (Bingham)

Crabro sodalis Bingham, 1897:326, ♀. Holotype or syntypes: ♀, Burma: Tenasserim (BMNH). – **As *Ectemnius sodalis***: Leclercq, 1950c:9 (new generic assignment, diagnostic characters), 1954c:288 (in catalog of world Crabronini), 1958c:108 (in key to selected subgenera of *Ectemnius* of southeastern Asia), 109 (transferred to subgenus *Policrabro*; redescription); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1999a:18 (in key to Asian *Ectemnius*), 73 (in annotated catalog of Asian and Oceanian *Ectemnius*).

168. *solomonicus* Tsuneki

Ectemnius solomonicus Tsuneki, 1983h:24, ♀ (original subgeneric assignment: *Cameronitus-Papuacrabro*). Holotype: ♀, Solomon Islands: Island of Russel: Pavuvu (CAS). – Pulawski, 1994:27 (CAS holotype no. 15124); Leclercq, 1999a:34 (in key to Asian *Ectemnius*), 73 (in annotated catalog of Asian and Oceanian *Ectemnius*).

169. *sonorensis* (Cameron)

Crabro sonorensis Cameron, 1891a:144, ♀. Holotype or syntypes: ♀, Mexico: northern Sonora: no specific locality (BMNH). – Dalla Torre, 1897:629 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Ectemnius sonorensis***: Leclercq, 1954c:273 (new generic assignment, in catalog of world Crabronini), 1968e:310 and 311 (in key to *Ectemnius* of Latin America), 324 (bibliographic references, vari-

ation), 1972c:205 and 207 (in updated key to *Ectemnius* of Latin America), 220 (bibliographic references, new records from Mexico); Fain, 1973:165 (parasite: *Crabrovidia ectemni* Fain, a saprogllyphid mite); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 491 (in key to North American *Ectemnius*); Krombein, 1979b:1680 (in catalog of North American Hymenoptera); Leclercq, 1991b:11 (in revised key to Latin American *Ectemnius*), 25 (bibliographic references; Mexico: Puebla); Hanson and Menke, 1995:640 (known from Costa Rica); Hook, 1998:251 (first records from Texas); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:174 (locality records from Honduras, Mexico, and USA).

Crabro montivagus Cameron, 1891a:145, ♀, ♂. Syntypes: Mexico: Guerrero: Amula, Omilteme, and Xucumanatlán (BMNH). Synonymized with *Ectemnius sonorensis* by Leclercq, 1968e:324. – Dalla Torre, 1897:611 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Ectemnius montivagus*:** Leclercq, 1951g:121 (new generic assignment, in checklist of *Ectemnius auriceps* species group; Mexico: Veracruz: Orizaba), 1954c:273 (in catalog of world Crabronini).

Crabro imbutus W. Fox, 1894c:108, ♀. Holotype or syntypes: ♀, Mexico: Baja California Sur: San José del Cabo (ANSP). Synonymized with *Ectemnius sonorensis* by Leclercq, 1968e:324. – Dalla Torre, 1897:604 (in catalog of world Sphecidae); Snow, 1906:135 (Arizona: Oak Creek 20 mi. southwest of Flagstaff, as *imbutis*). – **As *Pseudocrabro imbutus*:** Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae). – **As *Solenius imbutus*:** Rohwer, 1917a:242 (new generic assignment, synonymy). – **As *Ectemnius imbutus*:** Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:273 (in catalog of world Crabronini); Frommer, 1988:93 (California: Riverside County: Deep Canyon).

Crabro ferrugineipes Rohwer, 1908b:250, ♂. Holotype: ♂, USA: New Mexico: Pecos (USNM). Synonymized with *Solenius imbutus* by Rohwer, 1917a:242. – Rohwer, 1908b:259 (in key to *Crabro* of Colorado and New Mexico), 1911b:564 (Mexico: Chihuahua: "Meadow Valley"). – **As *Ectemnius ferrugineipes*:** Krombein in Muesebeck, Krombein, and Townes, 1951:1026 (new generic assignment, in catalog of North American Hymenoptera).

170. *spiniferus* (W. Fox)

Crabro spiniferus W. Fox, 1895a:148, ♀, ♂. Lectotype: ♀, USA: Washington: no specific locality (ANSP), designated by Cresson, 1928:56. – Dalla Torre, 1897:629 (in catalog of world Sphecidae); Kincaid, 1900a:356 (Oregon: Corvallis; Washington: Pasco). – **As *Hypocrabro spiniferus*:** Strickland, 1947:127 (new generic assignment, Canada: Alberta: Medicine Hat). – **As *Ectemnius spiniferus*:** Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:274 (in catalog of world Crabronini); Bechtel and Schlinger, 1957:225 (preying on acrocerid *Ogcodes eugonatus* Loew); F. Parker and R. Bohart, 1966:94 (California: Davis; Nevada: Verdi; nest parasites: *Senotainia trilineata* Vanderwump, *Macronichia* sp., and *Amobia floridensis* Townsend, Sarcophagidae, and torymid *Diomyorus zabriskiei* Cresson); G. Bohart, Nye, and Hawthorn, 1970:48 (Utah: Logan, onion pollinator); Evans, 1970:492 (Wyoming: Jackson Hole); Horning and Barr, 1970:106 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 492 (in key to North American *Ectemnius*, as *spinifer*); Krombein, 1979b:1681 (in catalog of North American Hymenoptera, nesting sites, prey); Radović, 1985:65 (sting apparatus analyzed, as *spinifer*); Rust, Menke, and Miller, 1985:47 (California: Channel Islands; as *spinifer*); Parks, 1986 (California: Torrey Pines State Reserve); S. Frommer, 1988:93 (California: Riverside County: Deep Canyon); Spofford, Kurczewski, and Downes, 1989:255, 256, 259 (references to publications on nest parasites *Amobia floridensis* (Townsend), *Macronichia* sp., and *Senotainia trilineata* (Wulp), miltogrammine flies); Leclercq, 1991b:25 (bibliographic references; Mexico: Baja California Norte); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Leclercq, 2007e:174 (locality records from California, Nevada, and Washington); Ratzlaff, 2016:25 (Canada: first record from British Columbia: Southern Interior); 34

(British Columbia: locality records); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alberta, British Columbia, Saskatchewan: no specific locality).

Solenius conspiciendus Mickel, 1918a:324, ♂. Holotype: ♂, USA: California: Auburn (UNL). Synonymized with *Ectemnius spiniferus* by R. Bohart in R. Bohart and Menke, 1976:428. – Muma, 1952:22 (type in UNL), 28 (paratypes in UNL).

171. *spinipes* (A. Morawitz)

Crabro spinipes A. Morawitz, 1866a:265, ♀, ♂. Syntypes: Russia: Amur area, Spask, and Kazan' (ZIN). – A. Morawitz, 1866a:272 and 1866b:350 (specimens in E. Eversmann collection); Kohl, 1881:239 (synonymy, color variation); C. Verhoeff, 1892a:70 (member of subgenus *Solenius* s. s.); Kohl, 1893a:25 (Austria: Niederösterreich); Westerlund, 1896:28 (Finland: no specific locality, determination tentative); Dalla Torre, 1897:629 (in catalog of world Sphecidae); Mocsáry, 1897:84 (Hungary: Budapest, and Mehadia, now in Romania); Móczár and Henter, 1907:206 (Romania: Mehadia); Schmiedeknecht, 1907:185 (in key to Hymenoptera of Central Europe); Kohl, 1915:47 (in revision of Palearctic Crabronini); Berland, 1925d:202 (in Sphecid Fauna of France); Schmiedeknecht, 1930:640, 642 (in keys to Hymenoptera of North and Central Europe); Steck, 1935:319 (Switzerland); Iwata, 1933b:8 (locality records from Japan), 1937a:132 (nesting habits); Zavadil, Šustera, and Bat'a, 1937:149 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:82 (Japan: Hokkaido, Honshu; Russia: Island of Sakhalin), 1941a:7 (Japan: nest structure); Giner Marí, 1943a:225 (in Sphecid Fauna of Spain); Tsuneki, 1947d:282 (Korea), 1947e:399 (Japan: Hokkaido), 1948c:2 (Japan: Hokkaido); Karpiński, 1948:315 (first record from Poland: Białowieża Primeval Forest); Zavadil in Zavadil and Šnoflak, 1948:111 (in key to Sphecidae of Czechoslovakia); Balthasar, 1950:37 (corrections to description of Zavadil and Šnoflak, 1948); de Beaumont, 1954e:95 (Italy); Noskiewicz and Puławski, 1960:130, 133 (in key to Polish Sphecidae); Wengris, 1962:206 (Lithuania: Vilnius area); Scobiola-Palade, 1967b:51 (Romania); Balthasar, 1972:53 (in Sphecid Fauna of Czechoslovakia). – *As Ectemnius spinipes*: Leclercq, 1954c:288 (new generic assignment, in catalog of world Crabronini), 322 (nest and prey records); Tsuneki and Tanaka, 1955a:66 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1957d:77 (Korea), 1957f:59 (Korea); Móczár, 1958b:205 (Hungary: locality records); Tsuneki, 1959e:7 (synonymy), 1960g:17 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); de Beaumont, 1964c:125 (in Sphecid Fauna of Switzerland); Gauss, 1967:557 (Germany: Baden-Württemberg: Nördliches Rheinvorland, a misidentification according to Gauss and Perraudin, 1970:362); Haneda, 1968a:47 (Japan); Okuno, 1968:29 (Japan); Tano, 1968:35 (Japan); Itami, 1969:52 (Japan: Niigata Prefecture); Romanova, 1969:135 (Russia: North Caucasus); Oehlke, 1970:761 (not recorded from Democratic Germany); Tsuneki, 1970b:10 (central Japan); Yamada, 1970:13 (Japan: Nagano Prefecture: Shimajima Valley); Leclercq, 1975b:4 (France, as *spinides*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Tsuneki, 1976d:300 (China: Heilungkiang: Kaolingtze, midway between Harbin and Pogranichnaya Station); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Pulawski, 1978:270, 273 (in key to Sphecidae of European part of USSR); Marshakov, 1979a:103 (in key to *Ectemnius* of Russian Far East); Preuss, 1980a:24 (Germany: nesting in wood, but natural habitat is reduced); Tsuneki, 1982b:6 (Korea), 16 (known from Korea); Dollfuss, 1983a:76 (Austria: endangered in Niederösterreich), 78 (Austria: endangered in Oberösterreich), 79 (Austria: endangered in Salzburg area and Kärnten), 80 (Austria: endangered in Steiermark), 1983b:19 (in catalog of Sphecidae of Austria); Tsuneki 1984e:59 (Azerbaijan: Elisabethpol, later Kirovabad, now Ganca); Paik, 1985:200 (in list of Sphecidae *sensu lato* of Korea); Nemkov, 1986:105 (Russia: Siberia: Irkutsk Oblast'); Dollfuss, 1987:23 (Austria); Pádr, 1989a:171 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belarus: Berezinskiy Nature Reserve); Jacobs and Oehlke, 1990:201 (not recorded from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie), 298 (distribution in Poland); Pagliano, 1990:91 (in catalog of Italian Sphecidae); Schwammerberger and Priesner, 1990:549 (Austria: Kärnten); Day, 1991:xv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:175 (in key to Sphecidae of North and Central Europe); Pagliano, 1991b:347, 354 (in key to Italian Crabroninae); Budrys, 1992:36 (in list of Sphecidae of Lithuania); Nemkov,

1992b:248 (Russia: Far East: Khingan Nature Reserve); Bitsch and Leclercq, 1993:181 (in revision of Western European Crabroninae); Leclercq, 1993c:32 (bibliographic reference to recent publications); Leclercq and Barbier, 1993:70 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Dollfuss, 1994:100 (endangered in Austria); Krasnobayev et al., 1995:139 (Russia: Zhiguli Hills northwest of Samara); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, and Antropov, 1995:449 (in key to Sphecidae of Russian Far East); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Wu and Zhou, 1996a:122 (in Economic Insect Fauna of China); Celary, 1997:59 (in checklist of Animals of Poland); Anan'eva and Kochetkov, 1999:7 (Russia: Ryazan' Oblast': no specific locality); Leclercq, 1999a:11 (in key to subgenera and species groups of *Ectemnius*), 20 (in key to Asian *Ectemnius*), 73 (in annotated catalog of Asian and Oceanian *Ectemnius*); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Podgorbunskikh and Rudoiskatel', 1999:142 (Russia: Chelyabinsk Oblast': Il'men Nature Reserve); Blösch, 2000:344 (in Sphecidae Fauna of Germany); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: 5 km south of Alma Ata, 7-8 km south of Talgar); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Kazenas, 2001b:43 (in checklist of Sphecidae of Kazakhstan and Central Asia), 209 (review of biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Zettel, Gross, and Mazzucco, 2001:79 (Austria: Wien); Gusenleitner, 2002:1125 (Austria: Burgenland: Kramerberg south of Minihof-Liebau); Kazenas, 2002a:110 (geographic distribution, collecting localities in Kazakhstan); Shlyakhtenok and Skibińska, 2002:34 (Belorussia: no specific locality); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:66 (Germany: occurrence in Bayern not confirmed); Litt, 2004:222 (Switzerland: Valais: Vissoie); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Wiśniowski, 2004:50 and 62 (in checklist of Polish Sphecidae); Kinota, Haneda, and Tano, 2005:31 (Japan: Hokkaido); Mokrousov and Selivanova, 2005:753 (Russia: Voronezh Oblast'); Nemkov, 2005a:155 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:276 (in Sphecidae Fauna of Italy); Shlyakhtenok, 2006:113 (Belorussia: Polesye Radiological Nature Reserve); Fateryga, Ivanov, and Novikov, 2007:149 (feeding on flowers of *Scrophularia umbrosa* Dumort., Scrophulariaceae, in Crimea); Jacobs, 2007:152, 153 (in key to Crabronidae of Germany, not yet found in Germany); Shlyakhtenok, 2007a:299 (Belorussia: Berezinsky Nature Reserve); Vepřek and Straka, 2007:206 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Slovakia); Kazenas, 2008a:104 (southeastern Kazakhstan: Zailiyskiy Alatau: Pravyy Talgar canyon and 5 km south of Alma Ata); Nemkov, 2008b:23 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:224 (in supplement to vol. I of Faune de France, 1993: recent records from Austria, Poland, and Switzerland reported; France: first record from Isère: domaine de Raud); Mokrousov, 2009:285 (Russia: Republic Mari El); Nemkov, 2009b:122 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ruchin, Antropov, and Shibayev, 2009:170 (Russia: Republic of Mordovia); Ermilov and Mokrousov, 2010:90 (phoretic mites *Imparipes haeseleri* Ebermann and Hall, *Lackerbaueria cribratissima* Zachvatkin, and undetermined Gamasoidea in Middle Volga Region of Russia); Mokrousov, 2010a:62 (Russia: Kirov and Nizhniy Novgorod oblast's, Chuvash Republic, Mari El Republic, Republic of Mordovia, Tatarstan: no specific localities), 2010c:108 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy" and National Park "Chavash varmane"); Rudoiskatel', 2010:158 (Russia: central and southern Ural Mountains); Shorenko and Konovalov, 2010:20 (Ukraine: Khar'kov Oblast': village Gaidary; Lugansk Oblast': village D'yakovo); Gogala, 2011:22 (Slovenia); Józán, 2011:182 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:74 (Russia: Chuvash Republic); Rudoiskatel', 2011b:68 (Russia: Republic of Bashkortostan), 2011d:243 (Russia: central Ural Mountains); Nemkov, 2012c:443 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:50 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Akulov and Proshchalykin, 2013:116 (Russia: Siberia: Krasnoyarsk Kray: 70 km southwest of Krasnoyarsk, near Lesosibirsk); Dyuzhaeva, 2013:117

(Russia: Samara Oblast': Zhiguli Nature Reserve); Mokrousov, Ruchin, and Egorov, 2013:201 (Russia: Republic of Mordovia: Mordovian State Nature Reserve); Olszewski, Wiśniowski, Pawlikowski, and Szpila, 2013:131 (Poland: Dąbki, Polana Polichno Nature Reserve, Niepołomska Forest); Shlyakhtenok, 2013:216 (in annotated catalog of aculeate wasps of Belorussia); Jakovlev, Polevoi, and Humala, 2014:302 (Russia: Republic of Karelia: Zaonezhye Peninsula in Lake Onega); J.-K. Kim, 2014:432 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Mokrousov and Vafin, 2014:57 (Russia: Republic of Tatarstan); Ruchin and Antropov, 2014:37 (Russia: Republic of Mordovia); Zettel, Ockermüller, and Wiesbauer, 2014:170 (Austria: Niederösterreich); Mokrousov and Egorov, 2015:425 (Russia: Republic of Mordovia: Nature State Reserve Prisuskiy); Mokrousov and Popov, 2016:576 (Russia: Krasnodarskiy Kray); Antropov, 2017b:233 (in catalog of Crabroninae of Russia); Raekunnas, Vilén, Paukkunen, and Leinonen, 2017:14 (first record from Finland: Lappeenranta and Parikkala); Jacobs and Liebig, 2018:141 (Russia: Irkutsk Oblast': Bol'shoie Goloustnoye, Sarma; Primorskiy Kray: Poshiga; Island of Sakhalin: Korsakov, Lugovoye, and Novoaleksandrovsk); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Ruchin and Antropov, 2019a:13230 (Russia: Mordovia State Nature Reserve); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:109 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and Ljubomirov, 2021:90 (in commented list of Sphecidae *sensu lato* of Poland); Pytel-Huta and Franchuk, 2024:80 (Ukraine: Rivno Nature Reserve).

Crabro spinipes A. Morawitz, 1866b:341. Objective synonym of *Crabro spinipes* A. Morawitz, 1866a:265.

Crabro bulsanensis Kohl, 1879:397, ♀ (as *Bulsanensis*, incorrect original capitalization). Holotype or syntypes: ♀, Italy: Alto Adige: Gries near Bozen, now Bolzano (NHMW). Synonymized with *Crabro spinipes* by Kohl, 1881:239 and 1888b:721. – Kohl, 1880:115 (Italy: Trentino–Alto Adige).

ssp. *tetracanthus* (Pérez)

Crabro tetracanthus Pérez, 1905a:155, ♂. Holotype or syntypes: ♂, Japan: no specific locality but presumably Tokyo area (MNHN). Synonymized with *Ectemnius spinipes* by Tsuneki, 1959e:7. – Pérez, 1905a:26 (in checklist of Crabronidae of Japan). – **As *Ectemnius tetracanthus***: Leclercq, 1954c:288 (new generic assignment, in catalog of world Crabronini). – **As *Ectemnius spinipes tetracanthus***: Bitsch and Leclercq, 1993:181 (new status); Leclercq, 1999a:20 (in key to Asian *Ectemnius*), 73 (in annotated catalog of Asian and Oceanian *Ectemnius*); Dollfuss, 2004b:777 (Mongolia: Ulan Baator); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:36 (Japan: Gifu Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:52 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:48 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:27 (Japan: Toyama Prefecture, as *tetracanthus*); Haneda, 2008:17 (in key to Japanese Crabroninae); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo), 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:52 (distribution in Japan).

Crabro jozankeanus Matsumura, 1912:170, 171, ♀. Holotype or syntypes: ♀, Japan: Hokkaido: Sapporo (depository?). Synonymized with ... by ...

Ectemnius spinipes sculpturatus Tsuneki, 1976d:301, ♀, ♂. Holotype: ♀, Japan: Towada (originally K. Tsuneki coll., now Hyogo Mus.). Synonymized with *Ectemnius spinipes tetracanthus* by Bitsch and Leclercq, 1993:181. – Tano, 1995:41 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17, 18 (holotype and paratype transferred to Hyogo Mus.).

172. *stirpicola* (Packard)

Crabro stirpicola Packard, 1866:111, ♀, ♂. Lectotype: ♂, USA: New York: no specific locality (ANSP), designated by Cresson, 1928:56. – Provancher, 1882:102 and 1883b:655 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:148 (in revision of North American Crabronini, as *stirpicolus*); Dalla Torre, 1897:629 (in catalog of world Sphecidae); G. Peckham and E. Peckham, 1898:47 (nesting habits); Bridwell, 1899:209 (Kansas: Baldwin); G. Peckham and E. Peckham, 1905:105 (nesting in stems, nest digging during the night, nest structure, prey: flies); H. Smith, 1908b:403 (in revision of Nebraskan Sphecidae,

as *stirpicolus*); J. Smith, 1910:681 (in new list of insects of New Jersey); Gahan, 1911:431 (nesting); Brimley, 1938:449 (North Carolina: Raleigh, as *stirpicolus*). – **As *Xylocrabro stirpicola***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey). – **As *Hypocrabro stirpicolus***: Rau and Rau, 1918:90 (new generic assignment, nest structure in wood and twig, list of dipteran prey); Rau, 1922:20 (USA: Missouri: St. Louis, nest and prey), 1928b:381 (nests in stem of *Sambucus*; prey: dipterans *Agromyza burgessi* Malloch, *A. virens* Loew, and *Phorbia fuscipes* Zetterstedt). – **As *Solenius stirpicola***: Rohwer, 1916b:668 (new generic assignment, in catalog of Hymenoptera of Connecticut); Mickel, 1918b:375 (in catalog of Nebraskan Sphecidae); Britton, 1920:339 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:668 (in key to Sphecidae of Connecticut; New Haven); J.Ch. Bradley, 1926:175 (New York: Lloyd-Cornell Reservation near McLean), 1928:1020 (in catalog of New York Sphecidae). – **As *Ectemnius stirpicola***: Krombein, 1951:143 (new generic assignment, Virginia: Dunn Loring; visiting tulip-tree honeydew); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (in catalog of North American Hymenoptera); Leclercq, 1954c:274 (in catalog of world Crabronini), 319 (nest and prey records); Evans, 1957b:109 (description of larva), 1959b:165 (additional description of larva, as *stirpicolus*); Krombein, 1960a:63 (nesting habits), 1963f:279 (Maryland: Plummers Island near Washington, D.C., as *stirpicola*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 491 (in key to North American *Ectemnius*); Krombein, 1979b:1681 (in catalog of North American Hymenoptera, nesting sites, list of prey); Finnamore, 1982:192 (in Sphecid Fauna of Southern Quebec); Steiner, 1986:108 (references to publications on nesting habits); Spofford, Kurczewski, and Downes, 1989:255 (reference to publication on *Amobia* sp., a miltogrammine fly); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Leclercq, 2007e:164 (correction to R. Bohart and Kimsey's key, 1979), 174 (locality records from Canada, USA, and Mexico); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Ontario, Quebec, first records from Alberta, Manitoba, Nova Scotia and Prince Edward Island: no specific locality).

As *Xestocrabro paucimaculatus*: Harrington, 1902:218 (Canada: Ontario, Qebec, first records from: Ottawa), corrected to *Ectemnius stirpicola* by Buck, 2004:75

173. *stygius* (Kirby)

Crabro stygius Kirby in Blackburn and Kirby, 1880:88, ♂. Holotype: ♂, Hawaiian Islands: Island of Oahu: no specific locality (BMNH). – Blackburn in Blackburn and Cameron, 1886:170 (redescription); Dalla Torre, 1897:630 (in catalog of world Sphecidae). – **As *Nesocrabro stygius***: R. Perkins in R. Perkins and Forel, 1899:29 (new generic assignment, redescription); R. Perkins 1906:43 (prey: flies of genus *Discritomyia* and *Prostethochaeta*, both *Calliphoridae*), 1913a:689 (coloration); Bridwell, 1917b:275 (nest in fallen wood on the ground, prey: *Discritomyia* flies). – **As *Ectemnius stygius***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini); Yoshimoto, 1960:309 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Takumi, 1999:5 (summary of known prey), 27 (in revision of Hawaiian *Ectemnius*).

174. *tabanica* (Fischer)

Crabro tabanica Fischer, 1929a:43, ♀, ♂. Syntypes: Brazil: São Paulo (Instituto Biológico São Paulo). – Fischer, 1929b:157 (redescription, list of tabanid prey), pl. 24 (color illustrations); Leclercq, 1982d:3 (request for material). – **As *Ectemnius tabanica***: Leclercq, 1951j:105 (new generic assignment, type species of subgenus *Protoctemnius*), 1954c:267 (in catalog of world Crabronini), 317 (nest and prey records), 1972c:210 (in updated key to *Ectemnius* of Latin America), 210 (type depository unknown); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1982d:3 (taxonomic history); Leclercq, 1991b:6 (in revised key to Latin American *Ectemnius*), 27 (bibliographic references, study of paratype, closely related to *Ectemnius leonesus*); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:174 (described from São Paulo, Brazil).

175. *taino* Pate

Ectemnius taino Pate, 1947f:22, ♀, ♂. Holotype: ♂, Dominican Republic: no specific locality (ANSP). – Leclercq, 1951g:122 (in checklist of *Ectemnius auriceps* species group), 1954c:275 (in catalog of world Crabronini); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); H. Allen, 1995:15 (type in ANSP); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:174 (Dominican Republic: Puerto Plata); Perez-Gelabert, 2008:240 (in list of arthropods of island of Hispaniola).

ssp. *virginum* Leclercq

Ectemnius taino virginum Leclercq, 2007e:174, ♂. Holotype: ♂, British Virgin Islands: Island of Guana: hotel area (LACM). – Leclercq, 2007e:165 (inclusion into key to Caribbean *Ectemnius* by Pate, 1947, and Alayo Dalmau, 1968).

176. *tarawakanus* Tsuneki

Ectemnius bogorensis tarawakanus Tsuneki, 1976b:104, ♀ (subgenus *Iwataia*). Holotype: ♀, Philippines: Tawi Tawi: Tarawakan (ZMUC). – **As *Ectemnius tarawakanus***: Tsuneki, 1984f:21 (new status), 43 (in key to Crabronini of Philippines); Leclercq, 1999a:35 (in key to Asian *Ectemnius*), 73 (in annotated catalog of Asian and Oceanian *Ectemnius*).

177. *teleges* Pate

Ectemnius teleges Pate, 1946j:118, ♀. Holotype: ♀, Galapagos: Island of Chatham (USNM). – Leclercq, 1954c:270 (in catalog of world Crabronini); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1991b:10 (in revised key to Latin American *Ectemnius*), 25 (bibliographic reference); Amarante, 2002:28 (in catalog of Neotropical Crabronidae); Leclercq, 2007e:174 (described from Galapagos Islands).

178. *trichiosomus* (Cameron)

Crabro trichiosomus Cameron, 1904j:260, ♀, actually ♂. Holotype: ♂, India: Himalayas: no specific locality (BMNH or OXUM). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius trichiosomus***: Leclercq, 1950c:9 (new generic assignment, diagnostic characters), 1954c:283 (in catalog of world Crabronini), 1958f:142 (in key to subgenus *Cameronitus*), 150 (bibliographic references, morphological characteristics); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1982b:154 (correction to key of Leclercq, 1958f:141); Leclercq, 1999a:33 (in key to Asian *Ectemnius*), 74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Jonathan, Ray, and Kundu, 2000:206 (India: previously recorded from Meghalaya: East Khasi Hills); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent); Mawadda and Girish Kumar, 2023a:109 (in checklist of Crabroninae of Northern India).

Crabro himalayensis Cameron, 1905c:218, ♀. Holotype or syntypes: ♀, India: Assam: Khasia Hills (OXUM). Synonymized with *Ectemnius trichiosomus* by Leclercq, 1958f:150. – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Ectemnius himalayensis***: Leclercq, 1954c:282 (new generic assignment, in catalog of world Crabronini, redescription).

179. *trifasciatus* (Say)

Crabro trifasciatus Say, 1824:342, sex not stated. Holotype or syntypes: USA: Northwest Territories (now area around Great Lakes and between the Ohio and Mississippi Rivers): no specific locality (destroyed). Neotype: ♂, Canada: Northwest Territories: Norman Wells (CNC), designated by R. Bohart and Kimsey, 1979:498. – F. Smith, 1856:419 (in catalog of Hymenoptera in British Museum); Cresson, 1862:236 (in catalog of North American Hymenoptera); Packard, 1866:93 (in revision of North American Crabronini); Provancher, 1882:103 and 1883b:656 (in revision of Canadian Hymenoptera); Cresson, 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:146 (in revision of North American Crabronini); C. Robertson, 1896:73 (visiting flowers of *Polygonum hydropiperoides* Michx., Polygonaceae); Dalla Torre, 1897:632 (in catalog of world Sphecidae); Rohwer, 1908b:246 (Colorado), 259

(in key to *Crabro* of Colorado and New Mexico); J. Smith, 1910:681 (in new list of insects of New Jersey); Sarazin, 1986:307 (neotype in CNC). – ***As Xestocrabro trifasciatus***: Ashmead, 1899d:174 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:514 (in list of insects of New Jersey); Viereck, 1901a:272 (New Mexico: Las Vegas Range); Harrington, 1902:218 (Canada: Ontario: Ottawa); Carter, 1925:131 (Canada: Alberta: Edmonton). – ***As Solenius trifasciatus***: Rohwer, 1916b:667 (new generic assignment, in catalog of Hymenoptera of Connecticut); Rohwer in Viereck, 1925:667 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1926:175 (New York: Lloyd-Cornell Reservation near McLean), 1928:1019 (in catalog of New York Sphecidae); A. Brown, 1934:265 (Canada: Ontario: Timagami); Krombein, 1936:99 (New York: Buffalo; floral records). – ***As Hypocrabro trifasciatus***: Strickland, 1947:127 (Canada: Alberta). – ***As Ectemnius trifasciatus***: Leclercq, 1949a:11 (new generic assignment, Canada: no specific locality); Krombein in Muesebeck, Krombein, and Townes, 1951:1027 (as new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:270 (in catalog of world Crabronini); Evans, 1970:492 (Wyoming: Jackson Hole); Horning and Barr, 1970:106 (USA: Idaho: Craters of the Moon National Monument); Steiner, 1973:29 (Canada: Northwest Territories); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); R. Bohart and Kimsey, 1979:489 and 492 (in key to North American *Ectemnius*); Krombein, 1979b:1681 (in catalog of North American Hymenoptera); Finnermore, 1982:193 (in Sphecid Fauna of Southern Quebec), 1997:894 (expected to occur in Yukon); Buck, 2004:27 (Canada: in checklist of Crabronidae of Ontario); Leclercq, 2007e:175 (locality records from Canada and USA); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Buck, 2004); Buck and Bennett, 2025:213 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Columbia, Labrador, Newfoundland Island, Nova Scotia, Northwest Territories, Ontario, Quebec, Saskatchewan, first records from Manitoba, New Brunswick, Prince Edward Island, and Yukon Territory: no specific locality).

180. *tsuifenicus* Tsuneki

Ectemnius tsuifenicus Tsuneki, 1971a:8, ♀, ♂. Holotype: Taiwan: Nantou Prefecture: Tsuifeng (originally K. Tsuneki coll., now USNM). – Haneda, 1972a:6 (Taiwan); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Leclercq, 1999a:14 (in key to subgenera and species groups of *Ectemnius*), 25 (in key to Asian *Ectemnius*), 74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Porter, Stange, and Wang, 1999:13 (in checklist of Sphecidae of Taiwan); Hua, 2006:280 (in list of Chinese insects, geographic distribution).

181. *tumidoventris* (R. Perkins)

Crabro tumidoventris R. Perkins in R. Perkins and Forel, 1899:18, ♀, ♂. Lectotype: ♂, Hawaiian Islands: Island of Oahu: Waianae Mountains (BMNH), designated by Takumi, 1999:49. – R. Perkins, 1906:43 (Hawaiian Islands: mount Tantalus in Honolulu), 1913a:689 (coloration); F. Williams, 1919c:180 (preying on *Ceratitis capitata* (Wiedermann), Tephritidae). – ***As Hylocrabro tumidoventris***: R. Perkins, 1902:147 (new generic assignment, type species of new genus *Hylocrabro*), 1910:606 (belongs in *Hylocrabro*), 1912:727 (bibliographic reference to ♀); F. Williams, 1927:447 (description of larva and pupa); Malloch, 1928:82 (use of *Lispocephala brevispina* Malloch, Anthomyiidae, as prey); Swezey and Bryan, 1929:296 (Hawaii: Molokai), 306 (nest and prey). – ***As Ectemnius tumidoventris***: Pate, 1944b:381 (new generic assignment); Leclercq, 1954c:280 (in catalog of world Crabronini); Evans, 1957b:110 (description of larva); Yoshimoto, 1960:315 (in revision of Hawaiian *Ectemnius*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1999a:74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Takumi, 1999:6 (summary of prey record), 48 (in revision of Hawaiian *Ectemnius*).

Crabro tumidoventris var. *leucognathus* R. Perkins in R. Perkins and Forel, 1899:19, ♀, ♂. Lectotype: ♂, Hawaiian Islands: Island of Hawaii: Olaa (BMNH), designated by Takumi, 1999:49. Synonymized with *Ectemnius tumidoventris* by Yoshimoto, 1960:315 and Takumi, 1999:49 (as new synonym). – ***As Hylocrabro tumidoventris* var. *leucognathus***: R. Perkins, 1907:97 (new generic assignment, Hawaiian Islands: Island of Hawaii: Kilauea crater); Williams, 1927:445 (prey: a tipulid); Swezey and Williams, 1932:181 (Hawaiian Islands: Island of Hawaii).

182. urophori (Radoszkowski)

Crabro urophori Radoszkowski, 1877:78, ♀. Holotype: ♀, Uzbekistan: Samarkand (ZMMU). – Dalla Torre, 1897:633 (in catalog of world Sphecidae); R. Bohart and Menke, 1976:409 (in checklist of world Sphecidae, as unknown species described in *Crabro*). – **As *Ectemnius urophori***: Pulawski, 1979c:304 (new generic assignment); Leclercq, 1999a:21 (in key to Asian *Ectemnius*), 74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Esenbekova and Kazenas, 2000:54 (southeastern Kazakhstan: found in Zailiyskiy Alatau, no specific locality); Kazenas, 2001b:43 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:110 (geographic distribution, collecting localities in Kazakhstan); Dollfuss, 2004b:777 (locality records from Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan); Jacobs, 2006:107 (in key to subgenus *Thyreocerus*), 109 (status, geographic distribution); Kazenas, 2008a:104 (southeastern Kazakhstan: Alma Ata Nature Reserve); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:426 (Uzbekistan: distribution).

Crabro dilaticornis F. Morawitz, 1893b:427, ♂. Lectotype: ♂, Tajikistan: Yagnob (ZIN), designated by Pulawski, 1982a:365. Synonymized with *Ectemnius urophori* by Pulawski, 1982a:365. – Kohl, 1915:103 (in revision of Palearctic *Crabronini*). – **As *Ectemnius dilaticornis***: Leclercq, 1954c:280 (new generic assignment, in catalog of world *Crabronini*); R. Bohart and Menke, 1976:425 (in checklist of world Sphecidae); Nazarova, 1998:41 (Tajikistan: Tigrovaya Balka Nature Reserve); Esenbekova and Kazenas, 2000:53 (southeastern Kazakhstan: near Alma Ata, 3–8 km south and 20 km west of Alma Ata, 5 km west of Lake Biylikul', 3 km south of Talgar, 1–3 km northwest of Zhabagly); Kazenas, 2001b:42 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:107 (geographic distribution, collecting localities in Kazakhstan); Kazenas, 2004b:108 (Kazakhstan: western Tien Shan Mountains), 2014a:137 (Kazakhstan: Karatau Mountain Range).

183. varentzowi (F. Morawitz)

Crabro varentzowi F. Morawitz, 1894:362, ♂ (as *Varentzowi*, incorrect original capitalization). Holotype or syntypes: ♂, Transcaspiya: no specific locality (ZIN). – Dalla Torre, 1897:635 (in catalog of world Sphecidae); Kohl, 1915:90 (original description copied); Myartseva, 1963b:61 (Turkmenistan: lower Murgab River), 1965:95 (Turkmenistan: Murgab district); 1972a:94 (Turkmenistan). – **As *Ectemnius varentzowi***: Leclercq, 1954c:270 (new generic assignment, in catalog of world *Crabronini*); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1999a:74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Esenbekova and Kazenas, 2000:55 (southeastern Kazakhstan: near Bakanas); Kazenas, 2001b:43 (in checklist of Sphecidae of Kazakhstan and Central Asia), 209 (review of biology), 2002a:110 (geographic distribution, collecting localities in Kazakhstan), 2008a:104 (southeastern Kazakhstan: Ili River Valley: 15–16 km east of Ayak-Kalkan, near Bakanas, near Kapchagay, 60 km east of Kapchagay, 35 km northwest of Kapchagay, near Zharkent); Rudoiskatel', 2010:159 (Russia: southern Ural Mountains); Kazenas, 2013b:497 (southeastern Kazakhstan: Ili River valley); Antropov, 2017b:233 (in catalog of *Crabroninae* of Russia); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:426 (Uzbekistan: distribution).

184. violaceipennis (Cameron)

Crabro violaceipennis Cameron, 1907d:88, ♀. Holotype or syntypes: ♀, India: Sikkim: no specific locality (BMNH). – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897); R. Turner, 1917e:189 (comparison with *Crabro sexmaculatus*). – **As *Ectemnius violaceipennis***: Leclercq, 1950c:1 (new generic assignment, diagnostic characters), 1954c:283 (in catalog of world *Crabronini*), 1958f:143 (in key to subgenus *Cameronitus*), 152 (membership in subgenus *Cameronitus* confirmed); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1999a:29 (in key to Asian *Ectemnius*), 74 (in annotated catalog of Asian and Oceanian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

185. wasbaueri Leclercq

Ectemnius wasbaueri Leclercq, 1999a:75, ♂. Holotype: ♂, Papua New Guinea: Nobonob Hill 7 km northwest of Madang at 5°10'S 145°45'E (CAS). – Leclercq, 1999a:36 (in key to Asian *Ectemnius*).

186. weberi Yoshimoto

Ectemnius weberi Yoshimoto, 1960:324, ♀. Holotype: ♀, Hawaiian Islands: Island of Hawaii: 22 km south of Kilauea (Bishop Mus.). – R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Takumi, 1999:15 (is either a hybrid between *Ectemnius mandibularis* and *polynesialis* or an unusual local population of *polynesialis*), 50 (in revision of Hawaiian *Ectemnius*).

187. wickwari (R. Turner)

Crabro wickwari R. Turner, 1920a:270, ♀. Holotype: ♀, Sri Lanka: Kandy (BMNH). – As *Ectemnius wickwari*: Leclercq, 1950c:11 (new generic assignment, diagnostic characters), 1954c:289 (in catalog of world Crabronini), 1958c:114 (in key to selected subgenera of *Ectemnius* of southeastern Asia); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae); Leclercq, 1999a:19 (in key to Asian *Ectemnius*); Saini and Dey, 2022d:212 (in list of *Ectemnius* of Indian subcontinent).

188. yitonus Leclercq

Ectemnius yitonus Leclercq, 2007e:175, ♀. Holotype: ♀, Costa Rica: Puntarenas: San Yito: Estación Biológica Las Alturas (Mus. de Insectos, Univ. de Costa Rica). – Leclercq, 2007e:165 (inclusion into key to South American *Ectemnius* by Leclercq, 1991b).

189. yoshimotoi R. Bohart

Ectemnius giffardi Yoshimoto, 1960:310, ♂. Holotype: ♂, Hawaiian Islands: Island of Hawaii: Kau: Kahuku (Bishop Mus.). Junior secondary homonym of *Ectemnius giffardi* (Rohwer, 1917).

Ectemnius yoshimotoi R. Bohart in R. Bohart and Menke, 1976:428. Substitute name for *Ectemnius giffardi* Yoshimoto. – Takumi, 1999:28 (in revision of Hawaiian *Ectemnius*).

190. zonsteini Jacobs

Ectemnius zonsteini Jacobs, 2006:109, ♀, ♂. Holotype: ♂, Kyrgyzstan: Kaltabulak at Nura River at 39°39'N 73°50', 3000 m (DEI). – Jacobs, 2006:107 (in key to subgenus *Thyreocerus*); F. Gusenleitner and Schwarz, 2013:312 (paratypes in Biologiezentrum, Linz, Austria); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:48 (first record from Turkey: Erzurum: Oltu: Çamlıbel); Kaplan and Yildirim, 2021:53 (in catalog of Crabronidae of Turkey), 2023:1684 (in checklist of Sphecidae *sensu lato* of Turkey).

sp.

Titus, 1909:319 (Michigan: Lake Superior: Isle Royale); Morice, 1911:133 (Algeria: Constantine); Steiner, 1973:30 (Canada: Northwest Territories); Hurd and Linsley, 1975:117 (Arizona: Pima County: Tucson; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); Maes, 1989:99 (Nicaragua); Kurczewski and Acciavatti, 1990:61 (New York: Cayuga County); Snelling, 1992:14 (Virgin Islands: Island of Guana); Cambra, 1993:16 (Peru: Pakitza at 11°57'S 71°17'W); Snelling, 1993a:18 (British Virgin Islands: Island of Guana); Blades and Maier, 1996:72 (Canada: British Columbia: Osoyoos - Mount Kobau area at 119°40'W 49°05'N); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument); Boone, Grehan, and B. Parker, 2000:36 (Vermont: Mount Mansfield); Wurst and Schweigert, 2002:70 (France: Cevennes); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Esenbekova and Kazkenas, 2003:15 and 68 (Kazakhstan: foothills of Zailiyskiy Alatau: nesting in artificial nests, nest structure); Kazenas, 2004b:108 (sp. aff. *kvak*; Kazakhstan: western Tien Shan Mountains); Pagliano, 2011a:140 (*Crossocerus texianus* in M. Spinola collection, Torino, is *Ectemnius* sp.), 149 (*Ceratocolus rufipes* and *Ceratocolus loevi* in M. Spinola collection, Torino, are *Ectemnius* sp.), 151 (*Solenius lapidarius* partim and *Crabro lapidarius* in M. Spinola collection, Torino, are *Ectemnius* sp.), 154 (*Crabro cephalotes* partim in M. Spinola collection, Torino, are *Ectemnius* sp.), 155 (*Crabro australasiae*, *Crabro fossorius* partim, and *Crabro chrysargyrus* partim in M. Spinola collection, Torino, are *Ectemnius* sp.), 157 (*Solenius interruptus*, *Solenius fluctuatus*, and *Crabro bicarinatus* in M. Spinola collection, Torino, are *Ectemnius* sp.); Silvestre, Demétrio, Trad, de Oliveira Lima, Auko, and de Souza,

2014:68 (Brazil: Mato Grosso do Sul: dry forests in Bodoquena Mountain Range and Brazilian Chaco, two species); Trad and Silvestre, 2017:5 (Brazil: Mato Grosso do Sul, two species); Weiser, 2019:10 (Germany: Baden-Württemberg: Schwetzingen Hardt: colonization of deforested area); Barthélémy and Guénard, 2025:14 (China: Hong Kong).

UNRECOGNIZABLE MISSPELLING

Ectemnius tricinctus Pehr.: Coulon, 1925:125 (Spain: Barcelona).

FOSSIL *ECTEMNIUS*

***longoevus* (Cockerell)**

Crabro longoevus Cockerell, 1910:60, sex not stated. Holotype: sex not stated, Lower Oligocene shales of Florissant, Colorado (MCZ?). – **As *Ectemnius longoevus***: Leclercq, 1954c:268 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:428 (in checklist of world Sphecidae).

***continuus* (Fabricius)**

Meunier, 1911:539 (Germany: Nordrhein-Westfalen: Turnich, Lower Miocene deposit, a specimen claimed to represent this recent species)