Last updated: 30 September 2025

CROSSOCERUS

(Including *Towada* but excluding *Eupliloides* and *Pericrabro*)

Crossocerus Lepeletier de Saint Fargeau and Brullé, 1835:763. Type species: *Crabro scutatus* Fabricius, 1787 [= *Sphex palmipes* Linnaeus, 1767], designated by Westwood, 1839:80.

Blepharipus Lepeletier de Saint Fargeau and Brullé, 1835:728. Type species: *Blepharipus nigritus* Lepeletier de Saint Fargeau and Brullé, 1835, designated by Ashmead, 1899d:215. Westwood's (1839:80) designation of *Crabro dimidiatus* Fabricius, 1781 as type species of *Blepharipus* is invalid since this species was only questionably included in the taxon by Lepeletier de Saint Fargeau and Brullé (1835:731).

Cuphopterus A. Morawitz, 1866:252. Type species: *Crabro subulatus* Dahlbom, 1845, by monotypy [= *Blepharipus* of authors accepting Westwood's type species designation].

Coelocrabro Thomson, 1874:262. Type species: *Crabro pubescens* Shuckard, 1837 [= *Blepharipus nigritus* Lepeletier de Saint Fargeau and Brullé, 1835], designated by Richards, 1935a:166.

Hoplocrabro Thomson, 1874:262. Type species: *Crabro quadrimaculatus* Fabricius, 1793, by monotypy.

Microcrabro de Saussure, 1892:574. Type species: *Crabro micromegas* de Saussure, 1892, by monotypy.

Dolichocrabro Ashmead, 1899d:216. Type species: *Dolichocrabro wickhami*. Ashmead, 1899, by original designation.

Epicrossocerus Ashmead, 1899d:215. Type species: *Crabro insolens* W. Fox, 1895, by original designation.

Stenocrabro Ashmead, 1899d:216. Type species: *Crabro planipes* W. Fox, 1895, by original designation.

Synorhopalum Ashmead, 1899d:218. Type species: *Crabro decorus* W. Fox, 1895, by original designation.

Ischnolynthus Holmberg, 1903:472. Type species: *Ischnolynthus foveolatus* Holmberg, 1903 [= *Crabro elongatulus* Vander Linden, 1829], by monotypy.

Ablepharipus Perkins, 1913b:390. Type species: *Ablepharipus podagricus* (Vander Linden, 1829) [= *Crabro podagricus* Vander Linden, 1829], by monotypy.

Acanthocrabro Perkins, 1913b:391. Type species: *Acanthocrabro vagabundus* (Panzer, 1798) [= *Crabro vagabundus* Panzer, 1798], by monotypy [= *Blepharipus* of Leclercq, 1954].

Apocrabro Pate, 1944a:282. Type species: *Crossocerus aeta* Pate, 1944, by original designation.

Nothocrabro Pate, 1944a:314. Type species: *Crabro nitidiventris* W. Fox, 1895, by original designation.

Stictoptila Pate, 1944a:315. Type species: *Crabro confertus* W. Fox, 1895 [= *Crabro maculipennis* F. Smith, 1856], by original designation.

Yuchiha Pate, 1944a:272. Type species: *Crossocerus xanthochilos* Pate, 1944, by original designation.

Ainocrabro Tsuneki, 1954b:74. Type species: *Crossocerus aino* (Tsuneki, 1947) [= *Crabro aino* Tsuneki, 1947], by original designation.

Oxycrabro Leclercq, 1961h:74. Type species: *Crabro acanthophorus* Kohl, 1892, by original designation.

Paroxycrabro Leclercq, 1963:2. Type species: *Crossocerus sotirus* Leclercq, 1963, by original designation and monotypy.

Alicrabro Tsuneki, 1968g:7. Type species: *Crossocerus rufiventris* Tsuneki, 1968, by original designation and monotypy.

Apoides Tsuneki, 1968g:5. Type species: *Crossocerus alticola* Tsuneki, 1968, by original designation and monotypy.

Neoblepharipus Leclercq, 1968c:98. Type species: *Crossocerus potosus* Leclercq, 1968, by original designation.

Towada Tsuneki, 1970f:1. Type species: *Crossocerus leclercqi* Tsuneki, 1959 [= *Crabro flavitarsus* Tsuneki, 1947], by original designation and monotypy.

Bnunius Tsuneki, 1971a:15. Type species: *Crossocerus domicola* Tsuneki, 1971, by original designation.

Fentis Tsuneki, 1971a:13. Type species: *Crossocerus quinquedentatus* Tsuneki, 1971, by original designation and monotypy.

Ornicrabro Leclercq, 1973c:291. Type species: *Crossocerus flavissimus* Leclercq, 1973, by original designation and monotypy.

Corenocrabro Tsuneki, 1974a:374. Type species: *Corenocrabro ectemiformis* Tsuneki, 1974, by original designation and monotypy. Synonymized with *Crossocerus* by Marshakov, 1979a:96 and by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:428 (as new synonym).

Thao Tsuneki, 1982e:33, as subgenus of *Crossocerus*. Type species: *Crossocerus nitidicorpus* Tsuneki, 1968, by original designation and monotypy.

Ortocrabro Tsuneki, 1990a:87, as subgenus of *Crossocerus*. Type species: *Crossocerus hirashimai* Tsuneki, 1966, by original designation and monotypy.

Yambal Tsuneki, 1990a:90, as subgenus of *Crossocerus*. Type species: *Crossocerus minor* Tsuneki, 1990, by original designation and monotypy.

Corenocrabro Tsuneki, 1991:202, junior homonym of *Corenocrabro* Tsuneki, 1974. Not available: nomen nudum and type not designated (Article 13b).

Panjal Saini and Dey, 2022:88, as subgenus of *Crossocerus*. Type species: *Crossocerus dutti* Saini and Dey, 2022:89, by original designation and monotypy.

Keys: Tsuneki, 1954b (Japan, Korea, Sakhalin, and Kuril islands), 1959n (Japan and Korea, in Japanese); Marshakov, 1980c (Mongolia and USSR); Li and Wu, 2003 (subgenus *Apocrabro* of China); Li and Fang, 2003 (subgenus *Ablepharipus* of China); Li and He, 2005 (subgenus *Acanthocrabro* of China); Leclercq, 2009 (key to subgenera of Asian *Crossocerus*); Bitsch and Leclercq, 2009:217 (in supplement to vol. I of Faune de France, 1993: modifications to 1993 key of European *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014 (*Crossocerus* of Japan, in Japanese).
Revision: Leclercq, 2000d (the Americas).
Review of biology: Kazenas, 2001b:188.

Crabro temporalis Gussakovskij, 1952 = *Odontocrabro*.

1. *acanthophorus* (Kohl)

Crabro acanthophorus Kohl, 1892:200, ♂. Syntypes: Austria, Switzerland, Yugoslavia (NHMW). – Dalla Torre, 1897:580 (in catalog of world Sphecidae); Schmiedeknecht, 1907:197, 199 (in key to Hymenoptera of Central Europe); Kohl, 1915:246 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Bethlen); Schmiedeknecht, 1930:649, 652, 655 (in keys to Hymenoptera of North and Central Europe); Steck, 1935:325 (Switzerland); Zavadil, 1937a:71 (eastern Slovakia); Zavadil, Šustera, and Bat'a, 1937:164 (in catalog of Sphecidae of Czechoslovakia); Zavadil *in* Zavadil and Šnoflak, 1948:125, 130 (in key to Sphecidae of Czechoslovakia); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Zavadil, 1951:85 (Slovakia: Nitra, Somotor); Vogrin, 1955:42 (Yugoslavia); Balthasar, M. Hrubant, and E. Hrubant, 1967:169 (Bulgaria: Slanchev Bryag near Nessebar); Balthasar, 1972:109 (in Sphecid Fauna of Czechoslovakia). – **As *Crossocerus acanthophorus***: F. Werner, 1927:66 (new generic assignment, Austria: Niederösterreich: River Kamp valley); Leclercq, 1954c:232 (in catalog of world Crabronini); Móczár, 1958b:197 (not collected in Hungary); Nouvel and Ribaut, 1958:16 (France: Pyrénées-Orientales: Banyuls-sur-Mer); de Beaumont, 1959a:39 (Italy: Sicily), 1959c:317 (redescription), 1960a:23 (Greece: Island of Rhodes), 1960b:250 (Libya), 1961c:51 (Greece: Crete; citation of de Beaumont, 1961c:51), 1964c:147 (in Sphecid Fauna

of Switzerland), 1965:60 (Greece), 1967a:352 (Turkey; variation); Leclercq, 1971:213 (Spain: Gerona: Palamós); de Beaumont, Bytinski-Salz and Pulawski, 1973:23 (Israel); Erlandsson, 1974:84 (Italy: Pesaro); Leclercq, 1975b:2 (France: Var: Valescure); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Pulawski, 1978:261, 262 (in key to Sphecidae of European part of USSR); Marshakov, 1980c:336, 350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; s. Europe, in USSR: Ukraine, Kazakhstan), 354 (description of ♀); Schmidt, 1980:333 (first record from Germany: Baden-Württemberg: Bickensohl and Eichelspitze east of Oberbergen); Westrich and Schmidt, 1982:104 (first record from Germany: Kaiserstuhl); Dollfuss, 1983b:17 (in catalog of Sphecidae of Austria); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Dollfuss, 1987:22 (Austria), 1988:27 (Austria: Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Karsai, 1988:100 (Hungary: Kiskunság National Park); Dollfuss, 1989:9 (type material in NHMW); Józan, 1989:101 (Hungary: Tihany Nature Reserve); Pádr *in* Šedivy, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Pagliano, 1990:82 (in catalog of Italian Sphecidae); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:151 (in key to Sphecidae of North and Central Europe); Pagliano, 1991b:337, 343 (in key to Italian Crabroninae); Józan, 1992b:174 (Hungary: Boronka-melléki Nature Reserve), 1992c:289 (Hungary: Zselic Hills); Bitsch and Leclercq, 1993:141 (in revision of western European Crabroninae); Leclercq, 1993c:15 (locality records from Algeria, Cyprus, Greece, Israel); Leclercq and Barbier, 1993:18 (map of distribution in France); Dollfuss, 1994:99 (endangered in Austria); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Papp and Józan, 1995:145 (Hungary: Síkfőkút oak forest); Schmid-Egger, Risch, and Niehuis, 1995:170 (Germany: summary of records from Rheinland-Pfalz State); Gusenleitner, 1996a:9 (Austria: Steiermark), 1996b:811 (Austria: Burgenland); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Schmidt and Schmid-Egger, 1997:9 (in checklist of German Sphecidae); Dollfuss, Gusenleitner, and Bregant, 1998:517 (Austria: summary of collecting records from Burgenland); Gonzáles, Gayubo, and Torres, 1998:74, 75 (Spain: Valladolid Province); Józan, 1998:307, 311 (Hungary: Duna-Dráva National Park); Blösch, 2000:290 (in Sphecid Fauna of Germany); Gayubo, González, and Torres, 2000:186 (Spain: Salamanca Province); Józan, 2000:110 (Hungary: Bakony Mountains); Leclercq, 2000d:28 (in revision of New World *Crossoce-*

rus); Schmid-Egger, 2000b:275, 278 (Germany: Baden-Württemberg: shores of Rhine River); Józan, 2001:280 (Hungary: Somogy County); Ohl et al., 2001:138 (distribution in Germany by states); Kazenas, 2002a:98 (geographic distribution, recorded from Kazakhstan); Schmid-Egger, 2003:752 (Italy: Sicilia: Agrigento, Castelammare, Randazzo); Deván, 2004:146 (western Slovakia); Gayubo**,** Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Georgiev et al., 2004:237 (nesting in old galleries of cerambycid *Saperda populnea* (L.) in Bulgaria); Pagliano and Negrisolo, 2005:237 (in Sphecid Fauna of Italy); Reder, 2005:949 (Germany: Rheinland-Pfalz: Monsheim); Dollfuss, 2006:506 (Bulgaria, Czech Republic, Greece, Slovakia, Turkey); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); Jacobs, 2007:132, 138 (in key to Crabronidae of Germany); Józan, 2007:179 (Hungary: Zselic hills); Leclercq, 2007f:189 (references to records from Greece); G. Turrisi and R. Turrisi, 2007:118 (Italy: Sicilia: Mount Etna: Botanical Garden, Nuova Gussonea and vicinity); Vepřek and Straka, 2007:204 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Moravia and Slovakia), 228 (first record from Czech Republic: Moravia: Dolenice, Podyji Nationnal Park); Gayubo, González, Tormos, and Asís, 2008:137 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and Yildirim, 2008:271 (in catalog of Crabronidae of Turkey); Zettel, Wiesbauer, and Zimmermann, 2008:136 (Austria: Wien: Alte Schanzen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:222 (in supplement to vol. I of Faune de France, 1993: records from Italy and Spain reported; new record: France: Corse: Ghiarghia); González, Gayubo, Asís, and Tormos, 2009:624 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Leclercq, 2009:161 (member of subgenus *Oxycrabro*), 162 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia, geographic variation); Pagliano, 2009:181 (Italy: Lazio: Morlupo, record from Veneto in Pagliano and Negrisolo, 2005, is in eror); van der Smissen, 2010b:384 (France: Ardèche: Saint-Maurice-d'Ibie); Baghirov, 2010:678 (Russia: Altai Territories: village Savvushka); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: very rare); Baghirov, 2011b:144 (Russia: Altayskiy Kray: Savvushka); Gogala, 2011:a8 (Slovenia); Józan, 2011:181 (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); Tischendorf, Frommer, Flügel et al., 2011:182 (Germany: never found in Hessen); Boillat, 2012:225 (Switzerland: in

checklist of insects of Canton de Genève); 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); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park and Paúl do Boquilobo Nature Reserve); U. Frommer, 2014:26 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1321 (Germany, Hessen: Roβstein); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Antropov, 2017b:231 (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, 2017:46 (Iran: known from West Azerbaijan Province); Mokrousov and Danilov, 2017:58 (Russia: Daghestan: 5 km southwest of Magaramkent at 41.573°N 28.247°E; Kalmykia: Oktyabrskiy at 46°10'27.4"N 42°47'23.7"E); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:77 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:34 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Pétremand, Salzman-Wandeler, and Castella, 2021:89 (Switzerland: canton de Genève); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Bertsch, Brunβen, Guericke, Hoffmann, Kratschmer, Maβell, Mehlhorn, Unglaub, Wörner, Wiesbauer, Zettel, Schmitt, and Niehuis, 2025:11 (Austria: Burgenland: Illmitz at 47.7731°N 16.7661°E).

Crabro pavlovskii Gussakovskij, 1952:262, ♀, ♂. Syntypes: Tadjikistan: Kondara Canyon 35 km north of Dushanbe; Cyprus: Limassol (ZIN). Synonymized with *Crossocerus acanthophorus* by Pulawski, 1982a:364. – **As *Crossocerus pavlovskii*:** R. Bohart and Menke, 1976:402 (new generic assignment, in checklist of world Sphecidae); Marshakov, 1980c:336, 350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Tajikistan), 355 (redescription, transferred to subgenus *Oxycrabro*); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Leclercq, 2009:161 (member of subgenus *Oxycrabro*), 179 (in list of Asian *Crossocerus*, bibliographic references, discussion of synonymy with *Crossocerus acanthophorus* Kohl).

As *Crabro jubilans*: de Beaumont, 1947b:398 (Cyprus), corrected to *Crossocerus acanthophorus* by de Beaumont, 1959c:319.

As *Crabro julliani* Kohl present correction (a misspelled citation of *Crabro jubilans*): Pittioni, 1950:28 (Cyprus); Georghiou, 1977:190 (Cyprus).

2. *acephalus* Leclercq

Crossocerus acephalus Leclercq, 1958a:21, ♂. Holotype: ♂, Zaire: northern Kivu: Komgobe south of Masisi (MRAC). – Leclercq, 1958a:11 (in key to Afrotropical *Crossocerus*), 1961b:72 (Zaire: Garamba National Park); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Dollfuss, 1990:122 (Central African Republic); Leclercq, 2008a:8, 10 (in key to Afrotropical *Crossocerus*).

3. *adhaesus* (Kohl)

Crabro adhaesus Kohl, 1915:261, ♂. Holotype of syntypes: ♂, southwestern Iran: no specific locality (BMNH). – de Beaumont, 1947b:398 (Cyprus); Pittioni, 1950:28 (Cyprus); Gussakovskij, 1952:265 (Tajikistan); Georghiou, 1977:190 (Cyprus). – **As *Crossocerus adhaesus***: Leclercq, 1954c:225 (new generic assignment, in catalog of world Crabronini); de Beaumont, 1960a:23 (Greece: Island of Rhodes), 1965a:60 (Greece), 1967a:354 (Turkey); de Beaumont, Bytinski-Salz and Pulawski, 1973:22 (Israel); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Marshakov, 1980c:345, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Tajikistan), 362 (redescription); Leclercq, 1993c:16 (Greece: Crete; Cyprus, Egypt, Israel, Saudi Arabia, Sudan, Yemen); Gadallah and Assery, 2004a:227 (in catalog of Sphecidae of Saudi Arabia); Dollfuss, 2006:506 (Greece, Jordan, Saudi Arabia, Turkey); Leclercq, 2007f:189 (references to records from Greece); Roche, 2007a:104 and 2007b:7 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae, first record from Egypt: Wadi Digla); Ljubomirov and Yildirim, 2008:264 (in catalog of Crabronidae of Turkey); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 163 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia including Israel and Saudi Arabia, reference to Kazenas, 2001, in error); Sakenin, Samin, Bagriacik, and Rastegar, 2011:2 (Iran: Kermanshah: Sahneh); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:350 (in new catalog of Sphecidae of Saudi Arabia); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Jahantigh, Rakhshani. Mokhtari, and Ramroodi, 2017:46 (Iran: known from Kermanshah Province); Gadallah, 2020b:34 (in list of aculeate wasps of Arabian Peninsula); Kaplan and Yildirim, 2021:48 (in

catalog of Crabronidae of Turkey), 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

4. *aeta* Pate

Crossocerus aëta Pate, 1944a:285, ♀, incorrect original spelling. Holotype: ♀, Philippines: Mindanao: Mount Apo (MCZ). – Leclercq, 1954c:230 (in catalog of world Crabronini), 1963:4 (Philippines; geographic variation); Baltazar, 1966:353 (in catalog of Hymenoptera of Philippines); Tsuneki, 1966d:1 (listed from Taiwan), 2 (Taiwan; discussion), 1968d:56 (Taiwan); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Tsuneki, 1984b:15 (Philippines; description of ♂), 1984f:14 (Philippines), 37 (in key to Crabronini of Philippines); Tsuneki et al., 1992b:40 (Philippines: Mount Apo); Leclercq, 2009:161 (member of subgenus *Apocrabro*), 163 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution, valid subspecies, correction to Li and Wu, 2003); Tano, 2010b:39 (member of *Apocrabro*, in list of Japanese subgenera of *Crossocerus*).

ssp. *loa* Pate

Crossocerus loa Pate, 1944a:287, ♀, ♂. Holotype: ♂, Taiwan: Taihorin (USNM). – Leclercq, 1950e:4 (Sumatra), 1954c:230 (in catalog of world Crabronini). – **As *Crossocerus aeta loa***: Tsuneki, 1968g:31 (new status, Taiwan; in key to Crabronini of Taiwan and Ryukyus), 1971a:13 (Taiwan); Leclercq, 1973c:288 (Taiwan); Murota, 1973b:119 (Taiwan); Tsuneki, 1973f:45 (Taiwan); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Tsuneki, 1977j:285 (Taiwan: Taihorinsho, Tapani), 1982e:30 (Taiwan); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Li and Wu, 2003:524 (in key to Chinese members of subgenus *Apocrabro*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Apocrabro*), 163 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:39 (member of *Apocrabro*, in list of Japanese subgenera of *Crossocerus*).

5. *alticola* Tsuneki

Crossocerus alticola Tsuneki, 1968g:6, ♀. Holotype: ♀, Taiwan: Chiai Prefecture: Mount Ali (originally K. Tsuneki collection, now USNM). – Tsuneki, 1968g:6 (type of subgenus *Apoides*), 31 (in key to Crabronini of Taiwan and Ryukyus); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Li and Wu, 2003:524 (in key to Chinese members of subgenus *Apocrabro*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Apoides*), 163 (in list of Asian *Crossocerus*, bibliographic references); Tano,

2010b:39 (member of *Apoides*, in list of Japanese subgenera of *Crossocerus*).

6. *amurensis* (Kohl)

Crabro amurensis Kohl, 1892:199, ♀. Holotype or syntypes: ♀, Russia or China: Amur area: no specific locality (NHMW). – Dalla Torre, 1897:582 (in catalog of world Sphecidae); Kohl, 1915:244 (in revision of Palearctic Crabronini); Gussakovskij, 1932:22 (Russia: Primorskiy Kray); Iwata, 1938d:87 (description of ♂; Japan: Hokkaido, Honshu; Russia: Kurils); Tsuneki, 1947e:416 (Japan: Hokkaido), 1948c:7 (Japan: Hokkaido). – **As *Crossocerus amurensis***: Leclercq, 1954c:233 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1954b:62, 71 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 1955d:217 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955b:21 (Japan: Honshu; nest, prey); Tsuneki, 1959n:69, 75 (in revised key to *Crossocerus* of Japan and Korea), 1960g:42 (prey: Chironomidae, Trichoptera, Psocoptera); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Nambu, 1968b:28 (Japan: Saitama Prefecture); Okuno, 1968:31 (Japan); Itami, 1969:51 (Japan: Niigata Prefecture); Yamada, 1970:14 (Japan: Nagano Prefecture: Shimajima Valley); Nambu, 1972e:91 (Japan: Saitama Prefecture), 1973a:153 (Japan: Saitama Prefecture); Tsuneki, 1973g:49 (is a member of subgenus *Neoblepharipus*); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Marshakov, 1979a:96, 101 (in key to *Crossocerus* of Russian Far East); Tsuneki, 1982b:17 (as *amulensis*; known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Dollfuss, 1989:9 (type material in NHMW); Nemkov, 1992b:247 (Russia: Far East: Khingan Nature Reserve); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:434, 439 (in key to Sphecidae of Russian Far East); Li and He, 2001:757 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E), 2004:1087 (in hymenopterous fauna of Zhejiang Province, China); 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); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:26 (Japan: Toyama Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Ohkusa, 2006a:25 (Japan: Honshu: Gifu Prefecture); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir), 2008b:22 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda,

2008a:58 (Japan: Hokkaido: Sapporo); Leclercq, 2009:161 (member of subgenus *Neoblepharipus*), 163 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution includidng Mongolia: Bogduul south of Ulan Baator); Nemkov, 2009b:111 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); Tano, 2010b:44 (member of *Neoblepharipus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:3, 9 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:425 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:230 (in catalog of Crabroninae of Russia); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

7. *angelicus* (Kincaid)

Crabro angelicus Kincaid, 1900:358, ♀, correctly ♂ (Pate, 1942c:184). Syntypes: ♂, USA: Washington: Seattle (USNM, one of the two syntypes is in ANSP). – **As *Crossocerus angelicus***: Pate, 1942c:181 (new generic assignment, in review of subgenus *Hoplocrabro*, redescription); Strickland, 1947:127 (Canada: Alberta); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Leclercq, 1954c:222 (in catalog of world Crabronini); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Krombein, 1979b:1668 (in catalog of North American Hymenoptera); Finnamore, 1997:890 (Canada: Yukon); Leclercq, 2000d:29 (in revision of New World *Crossocerus*); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, first records from Manitoba and Saskatchewan: no specific locality).

Crabro vierecki H. Smith, 1908:401, ♀. Holotype: ♀, USA: Nebraska: Sioux County: Glen (UNL). Synonymized with *Crossocerus angelicus* by Pate, 1942c:181 and 185. – Mickel, 1918a:325 (Wyoming), 1918b:381 (in catalog of Nebraskan Sphecidae); Muma, 1952:18 (holotype in UNL).

Crabro boulderensis Rohwer, 1909e:323, ♂. Holotype: ♂, USA: Colorado: Boulder (USNM). Synonymized with *Crossocerus angelicus* by Pate, 1942c:181 and 185.

Crabro spinibuccus Viereck, 1909:44, ♂. Holotype: ♂, USA: California: Kern County: Havilah (ANSP). Synonymized with *Crossocerus angelicus* by Pate, 1942c:181 and 185. – Cresson, 1928:56 (holotype in ANSP).

8. *angolae* Leclercq

Crossocerus angolae Leclercq, 2008a:16, ♂. Holotype: ♂, Angola: Moxico: Vila Luego (CAS). – Leclercq, 2008a:9 (in key to Afrotropical *Crossocerus*).

9. *angulifemur* Leclercq and Miller

Crossocerus angulifemur Leclercq and Miller *in* Leclercq, 2000d:29, ♀, ♂. Holotype: ♂, Colombia: Valle: Peñas Blancas (AEI). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae)

10. *annandali* (Bingham)

Crabro annandali Bingham, 1908:358, ♀. Holotype or syntypes: ♀, India: Himalayas. n Taunghi (BMNH). – Ramakrishna Aiyar, 1916:560 (in catalog of Indian aculeates described after Bingham, 1897, as *anandalei*). – **As *Crossocerus annandali***: Leclercq, 1950d:6 (new generic assignment), 1954c:239 (in catalog of world Crabronini); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 2009:164 (type cannot be found, is probably an *Ectemnius* close to *nitobei* Matsusmura); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

11. *annulipes* (Lepeletier de Saint Fargeau and Brullé)

Blepharipus annulipes Lepeletier de Saint Fargeau and Brullé, 1835:729, ♀. Holotype: ♀, France: Paris area (M. Spinola collection, Torino). – Lepeletier de Saint Fargeau, 1845:134 (in revision of world Hymenoptera); Kirchner, 1867:224 (in catalog of European Hymenoptera); Dours, 1874:154 (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); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:145 (specimen in M. Spinola collection, Torino, is *Crossocerus annulipes*, including holotype). – **As *Crabro annulipes***: Dahlbom, 1844:320 (new generic assignment, original description copied); F. Smith, 1856:410 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:582 (in catalog of world Sphecidae); Bradley, 1957:47 (Lepeletier's specimens in Turin). – **As *Crossocerus annulipes***: Kirchner, 1867:224 (new generic assignment, in catalog of European Hymenoptera); Leclercq, 1974d:269 (synonymy), 1975b:3 (France); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Lomholdt, 1976:396 (in Sphecid Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); van der Zanden, 1977a:19 (Neth-

erlands); Pulawski, 1978:261, 264 (in key to Sphecidae of European part of USSR); Schmidt, 1977/78:58 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Schwammberger, 1978:420 (Germany: Württemberg); Krombein, 1979b:1669 (in catalog of North American Hymenoptera, nesting sites, list of prey); Leclercq, Gaspar, and Verstraeten, 1979:map 1451 (distribution in Belgium); Marshakov, 1979a:97, 100 (in key to *Crossocerus* of Russian Far East); Schmidt, 1979a:56 (Germany: Ost-Holstein); Schwammberger, 1979:118 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Marshakov, 1980c:347, 354 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Holarctic); Pagliano, 1980:121 (Italy: Piemonte); Richards, 1980:49, 50 (in key to Sphecidae of British Isles); Schmidt, 1980:312, 316, 326, 333, 347 (Germany: Baden-Württemberg); Westrich, 1980:634 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Thiede, 1981:47 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Finnamore, 1982:151 (in Sphecid Fauna of southern Quebec); Gayubo, 1982b:24 (Spain: Cáceres and Salamanca provinces), 1982e:105 (Spain: Cádiz Province); Leclercq, 1982:125 (Belgium: urban center of Liège); Silvestre de Sacy, 1982:5 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Lefeber, 1983a:85 (Netherlands: Waddendistrict: northern coast sand dunes); Riemann, 1983:89 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Gayubo, 1984b:94 (Spain: Salamanca Province); Haack, Tscharntke, and Vidal, 1984:125 (Germany: Hamburg area); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Lefeber, 1984:28 (Netherlands: Maastricht); Tsuneki, 1984e:59 (Ukraine: Borisovka); Józan, 1985b:59 (Hungary south of Lake Balaton), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Nilsson, 1985:43 (Sweden); Radović, 1985:65 (sting apparatus analyzed); Brechtel, 1986:70 (Germany: Südpfalz); Gayubo, 1986d:117 (Spain: Zamora Province); Gayubo and Sanza, 1986:66 (Spain: Burgos, Soria); Islamov, 1986:531 (first record from Uzbekistan: Tashkent Oblast'); Kurczewski and Miller, 1986:157-162 (nesting habits; as *Crossocerus annulipes annulipes*); Nemkov, 1986:101 (Russia: Irkutsk Oblast'); Skibińska, 1986a:62 (population level increasing in urbanized habitats), 1986b:151, 155 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 187 (green areas of housing es-

tates), 175 (various green urban habitats); Vikberg, 1986:77 (Finland); Riemann, 1987a:339 (Germany: Niedersachsen: Bremen area); Schmidt and Westrich, 1987:372 (Germany: Mainz area); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford), 1988b:27 (Great Britain: Yorkshire: Strensall Common); Dollfuss, 1988:15, 27 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Bałazy, Banaszak, and Michalski, 1989:117 (Poland: Wielkopolski National Park); Jacobs, 1989:18 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:97 (Belorussya: Berezinskiy Nature Reserve); Skibińska, 1989a:206 (Poland: Warszawa area); Weiffenbach, 1989:111 (Germany: Hessen: Gießen area); Archer, 1990b:136 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Barbier, Rasmont, and Wahis, 1990:32 (Belgium: Hainaut); Jacobs and Oehlke, 1990:188 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Pádr, 1990:83 (Czech Republic: Praha area); Pagliano, 1990:82 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:544 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Dollfuss, 1991:152 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 94, 97, 105, 107 (Poland: Łódź); Kuhlmann et al., 1991:88 (Germany: Senne Region); Negrisolo, 1991:320 (Italy: Venezia Province); Nilsson, 1991:84 (Sweden: Lake Mälaren); Pagliano, 1991b:337, 343 (in key to Italian Crabroninae); H.-J. Schulz, 1991:31 (Germany: Oberlausitz: 5 km southwest of Wittichenau); Archer, 1992a:56 (Great Britain: Leicestershire), 1992b:21 (Great Britain: Yorkshire: Skipwith Common); Budrys, 1992:33 (in list of Sphecidae of Lithuania); Józan, 1992a:229 (Hungary: Béda-Karapancsa Nature Reserve), 1992b:174 (Hungary: Boronka-melléki Nature Reserve); Nemkov, 1992b:247 (Russia: Far East: Blagoveshchensk); Nilsson, 1992:55 (Sweden); N. Schneider, 1992:177 (Kärnten); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Wolf, 1992c:21 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Archer, 1993c:39 (Great Britain: Yorkshire); Bitsch and Leclercq, 1993:103 (in revision of western European Crabroninae); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:16 (locality records from Europe including Poland: Bydgoszcz; Romania: Tulcea, and Serbia: Drazevac); Leclercq and Barbier, 1993:19 (map of distribution in

France); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife near Altenahr); Sorg and Wolf, 1993:59 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Koponen, 1994:22 (Finland: Hämeennlinna); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); U. Peters, Sohmen, Stuke, and Prüter, 1994:66 (Germany: Schleswig-Holstein: gardens in Hof Möhr); Schmid-Egger, 1994a:687 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert, 1994c:34 (Germany: summary of records from Niedersachsen and Bremen), 1994d:277 (Germany: Niedersachsen: Braunschweig); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Józan, 1995:105 (Hungary: projected Duna-Dráva National Park); Kazenas and Esenbekova, 1995:79 (Kazakhstan; bibliographic reference to leafhopper prey); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 440 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:89 (Italy: Ferrara Province); Papp and Józan, 1995:145 (Hungary: Síkfőkút oak forest); Riemann, 1995:52 (Germany: Bremen); Schmid-Egger, 1995:58 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:171 (Germany: summary of records from Rheinland-Pfalz State); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Skibińska, 1995:424, 425, 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); Harvey and Plant, 1996:70 (Great Britain: summary of records from Essex); Jakubzik, 1996:251 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg), 107 (locality records); Woydak, 1996:64 (Germany: Westfalen: summary of distribution and nesting habits); Archer, 1997a:49 (Great Britain: Yorkshire: Cave Wold); Celary, 1997:59 (in checklist of Animals of Poland); Riemann, 1997:49 (Germany: Achim 14 km southeast of Bremen); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:9 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list

of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:517 (Austria: summary of collecting records from Burgenland); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józan, 1998:311 (Hungary: Duna-Dráva National Park); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Petit, 1998a:109 (Belgium: Bassenge, visiting flowers of *Polygonum cuspidatum* Siebold and Zucc., Polygonaceae); Sugar *et al*., 1998:16 (Canada: southern Ontario); van der Smissen, 1998:55 (Germany: Schleswig-Holstein, Niedersachsen); K. Weber, 1998:136 (Germany: Bayern: Bamberg area); Archer, 1999a:9 (Great Britain: Lancashire), 1999b:82 (Great Britain: Yorkshire); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Esenbekova, 1999:201 (southeastern Kazakhstan: nesting in artificial nests); Gusenleitner, 1999:599 (Austria: Vorarlberg: Steig); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:8, 12 (in improved key to *Crossocerus* of Benelux); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: endangered in Nordrhein-Westfalen); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Neumayer, Schwarz, and Bregant, 1999:223 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); Riemann, 1999:834 (Germany: Niedersachsen: sand pits near Bremen); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); M. Schwarz, 1999:86 (Austria: Oberösterreich: city of Linz area); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:290 (in Sphecid Fauna of Germany); Dressler, 2000:31 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:49 (southeastern Kazakhstan: 2 km southwest, 3-10 km south, and 6-18 km west of Alma Ata, 4-8 km north of Talgar); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Grace, Yates, and Triplet, 2000:20 (Great Britain: East Sussex: Rye Bay area); Jacobs, 2000:6 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Leclercq, 2000d:30 (in revision of New World *Crossocerus*); Ljubomirov, 2000:11 (Bulgaria, specimens in N. Nedelkov collection); Luig and Voolma, 2000:123 (first record from Estonia); M. Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Neumeyer, 2000:99 (Switzerland: Basel); Archer, 2001b:14 (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); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:191 (nesting habits); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:51 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:138 (distribution in Germany by states); Salzmann-Wandeler and Rezbanyai-Reser, 2001:156 (Switzerland: Tessin Canton: Meride area); Skevington et al., 2001:127 (Canada: Ontario: Lambton County); 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, 2001:59 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:75 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Archer, 2002b:115 (Great Britain: Watsonian Yorkshire: distribution map), 2002c:38 (Great Britain: Watsonian Yorkshire), 2002e:42 (Great Britain: Watsonian Yorkshire); Beavis, 2002:107 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:73 (Liechtenstein); Dorow, 2002:16 (Germany: Hessen: Weiherskopf Forest Reserve); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Kazenas, 2002a:98 (geographic distribution, collecting localities in Kazakhstan); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:71 (Poland: Ojców National Park); Ziska, 2002:7 (Germany: Berlin-Köpenick: Krumme Lake); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Blösch, 2003b:82 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:61 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Germany: Hessen: Gieβen; Nordrhein-Westfalen: Siegen); Ebermann and Hall, 2003:368 (parasite: new species of acarid mite, *Imparipes haeseleri*); Esenbekova and Kazenas, 2003:6, 15, and 54 (Kazakhstan: foothills of Zailiyskiy Alatau: nesting in artificial nests), 67 (nest structure); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area), 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); von der Heide and Metscher,

2003:101 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:160 (Poland: Ojców National Park); Archer, 2004f:153 (Great Britain: Watsonian Yorkshire: Victorian cemetery); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:146 (western Slovakia); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Kazenas, 2004b:107 (Kazakhstan: western Tien Shan); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:367 (in Wasp and Ant Fauna of Netherlands); 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); Szczepko and Kowalczyk, 2004:126 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Archer, 2005a:30 and 2005b:92 (Great Britain: Watsonian Yorkshire); Burger, 2005:31 (Germany: Thüringen); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Dubitzky, Blank, and Schönitzer, 2005:272 (Germany: Bayern: area north of Dachau); Jacobs, 2005a:442 (Bulgaria: Plovdiv); Kofler, 2005:175 (Austria: Tirol: Lienz District: Lienzer Klause in Leisach Common, Lengberg in Nikolsdorf Common, St. Johann, Heckenfluren in Virgen Common); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Mokrousov and Selivanova, 2005:753 (Russia: Voronezh Oblast'); Nemkov, 2005a:152 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:237 (in Sphecid Fauna of Italy); Quest and Kuhlmann, 2005:32 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:547 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:34 (Great Britain: Cumbria County); Saure, 2005:14 (Germany: Berlin); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:17 (France: Département du Nord: several localities); Ziska and Saure, 2005:81 (Germany: Berlin: Biesenhorster Sand); Archer, 2006a:21 (Great Britain: Lincolnshire: Rauceby Warren National Park); Dollfuss, 2006:506 (Bulgaria, Italy, Kazakhstan, Kyrghyzstan, Romania, Serbia, Ukraine, Uzbekistan); Edwards and Broad, 2006:40 (Great Britain: distribution, status, habitat, flight period,

prey, nesting habits, flower visiting, parasites, and distribution map); Gorobchishin, 2006:126 (Ukraine: Kyiv, Vinnitsa, and village Khodosivka in Kyiv Oblast'); Kroupa, 2006b:25 (Germany: Bayern: Oberfranken Region); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Persenk Hut, as *Crossocerus annulipes annulipes*); Magdalou, 2006a:7, 11 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); N. Schneider, 2006:138, 140, 142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Livory, Lair, Sagot, and Baldock, 2007:21 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge 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, 2007:154 (Sweden: Blekinge, Östergotland, Närke, and Uppland counties); Herrmann, 2007a:51 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:132, 137 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Józan, 2007:171, 179 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne and Nord); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:204 (in catalog of Sphecidae of Czech Republic and Slovakia); Archer, 2008d:21 (Great Britain: Watsonian Yorkshire: Burton Leonard Lime Quarry); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Gayubo, González, Tormos, and Asís, 2008:137 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Haeseler, 2008:307 (Germany: Friesian Islands); Ljubomirov and Yildirim, 2008:262 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:16 (Germany: map of distribution in Niedersachsen and Bremen); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño–Vega

del Duero); 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, 2009:217 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*), 218 (France: Sarthe: Saint-Cosme-en-Varrais); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); González, Gayubo, Asís, and Tormos, 2009:624 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Hessling, 2009:103 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Leclercq, 2009:161 (member of subgenus *Blepharipus*, also listed as *Crossocerus elongatulus annulipes* in subgenus *Crossocerus*), 164 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Mokrousov, 2009:280 (Russia: Republic Mari El); Nemkov, 2009b:100 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Pagliano, 2009:181 (Italy: recorded from Trentino-Alto Adige by Kohl, 1880); Straka, Dvořak, and Bogusch, 2009:258 (Czech Republic: Oldřichovské sedlo); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Ermilov and Mokrousov: 2010:89 (phoretic mite *Histiostoma gordius* (Vitz.) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (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, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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, Kostroma, and Yaroslavl' Oblast's, Chuvash Republic, Mari El Republic: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:157 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:132 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:18 (Ukraine: Lugansk Oblast': village D'yakovo); Treiber, 2010:135 (France: département du Haut-

Rhin); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); 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:144 (Russia: Altayskiy Kray: Savvushka); Falk, 2011:62 (Great Britain: Sussex: South Downs); Gogala, 2011:18 (Slovenia: Podčetrtek); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:70 (Russia: Chuvash Republic); Saure, 2011a:5 (Germany: Berlin: former airport Tempelhof), 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg); Rudoiskatel', 2011a:66 (Russia: Perm' Oblast': Tyuinsk village), 2011d:242 (Russia: central Ural Mountains); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:116 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fliеβ valley); Archer, 2012b:182 (Great Britain: urban York); Boillat, 2012:225 (Switzerland: in checklist of insects of Canton de Genève); Burguet *in* Durand and Burguet, 2012:2, fiche 1 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:171 (Belorussia, Russia: Kirov Oblast': Arkhangelskoye, Krasnaya Polyana 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, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Flügel, 2013c:303 (Germany: Hessen: Kassel); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:190 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park and Paúl do Boquilobo Nature Reserve); Wiśniowski and Szczepko, 2013:28 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain:

urban and suburban gardens); Bitsch, 2014:400 (France: Ariège: Bonac-Irazein); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:141 (in checklist of Hymenoptera of Turkey); P. Rosa and Pagliano, 2015:99 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine); Blažej, Macek, and Trýzna, 2016:113 (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, 2016:15 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:572 (Russia: Abkhazia, Krasnodarskiy Kray); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Saure, 2016b:48 (Germany: Sachsen-Anhalt: fruit orchards), 1916c:204 (Germany: center of Berlin: Groβer Tiergarten Park); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:44 (Turkey: Giresun: Keşap: Güneyköy, as *Crossocerus annulipes annulipes*); Antropov, 2017b:227 (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 and understory); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane); Říha, 2017:174 (Czech Republic: Brno); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:92 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13225 (Russia: Mordovian State Nature Reserve), 2019b:162 (in Mordovian State Nature Reserve known from single specimen); Vane-Wright, 2019:37 (Great Britain: Kent: Island of Bingley); Kejval, Blažej, and Erhart, 2020:94 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:50 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:34 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger,

2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia, New Brunswick, Nova Scotia, Ontario, Quebec, first records from Alberta, Manitoba, Prince Edward Island, and Saskatchewan: no specific locality); Kochetkov and Korsun, 2025:6 (Russia: Zabaikalskiy Kray: Daurskiy Nature Reserve).

Crossocerus gonager Lepeletier de Saint Fargeau and Brullé, 1835:785, ♀. Holotype or syntypes: ♀, France: Versailles area (destroyed). Neotype: ♀, France: Saint-Cloud (MNHN), designated by Leclercq, 1974d:270. Synonymized with *Crossocerus annulipes* by Leclercq, 1974d:270. – Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:188 (in revision of world Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Sickmann, 1893:67 (Germany: Niedersachsen: Iburg); De Stefani Perez, 1894:216 (Italy: Sicilia), 1895:228 (in catalog of Sicilian Hymenoptera, as *conager*); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria). – **As *Crabro gonager***: Dahlbom, 1844:325 (new generic assignment, original description copied); Thomson, 1870:163 (in revision of Swedish Crabroninae), 1874:269 (in revision of Hymenoptera of Scandinavia); E. Saunders, 1880:286 (in revision of British Aculeata); Schøyen, 1887:11 (Norway: Kristiania, now Oslo); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); E. Saunders, 1896:133 (in revision of British Aculeata); Dalla Torre, 1897:602 (in catalog of world Sphecidae); Strand, 1898b:96 (Norway); Morice, 1901a:278 (Great Britain: Surrey: Cobham); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Kubes, 1905:84 (Czech Republic: Obora); Mortimer, 1907a:259 (Great Britain: Surrey: Holmwood); Schmiedeknecht, 1907:193, 195 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien State, now Poland: Dolny Śląsk Region); Alfken, 1914:273 (northwestern Germany); R. Perkins, 1916:231 (specimens in F. Smith collection); Hellén, 1923:60 (recorded from Finland); Blüthgen, 1925:165 (Germany: Saale River valley); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); Bondroit, 1933:32 (Belgium: Bruxelles); Haines, 1936:141 (Great Britain:

Scotland: Inverness-shire: Glen Feshie). – **As *Coelocrabro gonager***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera); Schirmer, 1912:164 (Germany: Berlin area); Jansson, 1919:1 (nesting habits). – **As *Blepharipus gonager***: R. Perkins, 1913b:390, 393 (new generic assignment, in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset); R. Perkins, 1925:152 (Great Britain: Gloucestershire and Somersetshire); Spooner, 1931:16 (Great Britain: Cambridgeshire).

Crabro nigritus Gimmerthal, 1836:435, sex not stated, junior secondary homonym of *Blepharipus nigritus* Lepeletier de Saint Fargeau and Brullé, 1835. Holotype or syntypes: Liefland, now Latvia: no specific locality (depository unknown). Synonymized with *Crossocerus annulipes* by Leclercq, 1974d:270. – Dalla Torre, 1897:612 (in catalog of world Sphecidae).

Crabro ambiguus Dahlbom, 1842a:14, ♀. Holotype or syntypes: ♀, Sweden: near Lund (depository?). Synonymized with *Crabro gonager* by Thomson, 1870:163 and with *Crossocerus annulipes* by Leclercq, 1974d:270 (see also p. 260). – Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:336 (in revision of Sphecidae and Pompilidae), 1845:523 (in key to *Crabro*); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Wesmael, 1852:597 (Switzerland); F. Smith, 1856:409 (in catalog of Hymenoptera in British Museum); Schenck, 1960:146 (Germany: Nassau Region); A. Morawitz, 1864:457 (Russia: Sankt-Petersburg), 1866a:270 and 1866b:347 (specimens in E. Eversmann collection); Taschenberg, 1866:179 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (Germany: Nassau Region); Taschenberg, 1875:382 (Germany: specimen in Halle University collection); Kohl, 1880:127 (Austria: Tirol, and Italy: Trentino-AltoAdige); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:655 (Switzerland); von Heyden, 1884:123 (Germany: Frankfurt am Main area); De Stefani Perez, 1886:172 (Italy: Sicilia: monte di Renda near Palermo); Kohl, 1893a:22 (Austria: Niederösterreich); Krieger, 1894:4 (Germany: Kingdom of Saxony); de Cobelli, 1903:117 (Italy: Trentino: Mori); Antiga and Bofill, 1904:23 (Spain: Cataluña Province); Kohl, 1915:237 (in revision of Palearctic Crabronini); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921a:18 (first record from Belgium), 1921b:155, 158 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Berland, 1925d:184 (in Sphecid Fauna of France); Zavadil, 1926:34 (Czechoslovakia); Crèvecoeur and Maréchal, 1927:138 (Belgium: Wépion); Berland, 1928b:180 (add Hamm and Richards, 1926 to bibliography

in Berland, 1925d); Barovskij, 1929:148 (Russia: Sankt-Petersburg); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Bouwman, 1930:100 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:650, 654 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:147 (in revision of Sphecidae of Finland, not yet found in Finland); Bondroit, 1932:41 (Belgium: Bois in Bruxelles area); Crèvecoeur and Maréchal, 1932:67 (in catalog of Belgian Hymenoptera); Merisuo, 1932:89 (first record from Finland: Turku), 1933a:60 (Finland: city of Turku); E. Nielsen, 1933:266 (summary of nesting habits); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:324 (Switzerland); Vergne, 1935:119 (France: Auvergne: Les Martres-d'Artières); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Opatów); Hellén, 1936:67 (recorded from Finland); Zavadil, Šustera, and Bat'a, 1937:162 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:87 (Russia: Island of Sakhalin; China: Manchuria); A. Wagner, 1938a:117 (northwestern Germany); Maréchal, 1939:341 (Belgium: Loën); Teunissen, 1939:174 (Netherlands: Haaren, Voorburg); Balthasar, 1941a:105 (Czech Republic: Bzenecko area); Leclercq, 1941b:15 (Belgium: Liège area); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:243 (in Sphecid Fauna of Spain); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); de Beaumont, 1947b:398 (Cyprus); nec Tsuneki, 1947e:416 (= *Crossocerus annulipes hokkaidoensis*); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Tsuneki, 1948c:6 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:126, 130 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:23 (Portugal); Cavro, 1950:38 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Pittioni, 1950:28 (Cyprus); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Fæster, 1951:458 (distribution in Scandinavia); Caruel, 1953:101 (France: Marne Department); Móczár, 1953:311 (Hungary); Nouvel and Ribaut, 1953:182 (France: Central Pyrénées: Garonne River valley); de Beaumont, 1954e:97 (Italy); Kjellander, 1954b:245 (Sweden); Scobiola, 1954:884 (first record from Romania: Goleşti in Birlad Region, Sibiu in Braşov Region); Steiner, 1955:141 (France: Dordogne); Vogrin, 1955:42 (Yugoslavia); Ceballos, 1956:392 (in catalog of Hymenoptera of Spain); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Pfalz re-

gion); Benno, 1958b:18 (in review of Dutch Sphecidae); Pulawski, 1958a:188 (Bulgaria: Kniazhevo near Sofia); Ceballos, 1959:230 (in supplement to catalog of Spanish Sphecidae); Diniz, 1959:31 (Portugal: Massorra); Noskiewicz and Puławski, 1960:147, 152 (in key to Polish Sphecidae); Scobiola-Palade, 1967b:53 (Romania); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:100 (in Sphecid Fauna of Czechoslovakia); Georghiou, 1977:190 (Cyprus); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:124 (Poland: Warszawa area); Kowalczyk, 1988a:46 (Poland: Rogów), 1988b:66 (Poland: environs of Łódź); Vago, 2005a:14 (*Crabro ambiguus* in Cavro, 1950 is *Crossocerus annulipes* now). – **As *Coelocrabro ambiguus***: Graeffe, 1911:44 (new generic assignment, Italy: Trieste area); Baudot, 1931:255 (characteristics of cocoon); Harttig, 1930b:7 (specimen bearing dipteran egg), 1931a:16 (nesting habits); Bernard, 1935:67 (France: Var: Fréjus area); Spooner, 1935:139 (Great Britain: Northamptonshire: Ashton Wold); Callan, 1936:128 (nesting in dead willow), 1937:193 (cocoons in trunk of dead willow; nest parasites: *Habritys* brevicornis (Ratzeburg), a chalcidoid, and *Ptychoneura cylindrica* Fallén, a tachinid); Richards, 1937b:106 (in checklist of British aculeates); Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1029 (Germany: Bayern: Bamberg area); Audcent, 1942:25 (parasite: *Oebalia cylindrica* Fallén, Sarcophagidae); Spooner, 1942:110 (Great Britain: Bedfordshire); Boyd, 1943:163 (Great Britain: eastern Dorset); Bat'a, 1944a:25 (Czech Republic); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Stroud, Wotton); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Bristowe, 1948:31 (nesting habits); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Chambers, 1949:227 (Great Britain: Bedfordshire); Yeo, 1957:19 (Great Britain: Middlesex, now in London); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1963:178 (Great Britain: Kent County); Merisuo, 1967a:99 (habits of adults, prey: *Typhlocyba* sp., a cicadellid); Guichard, 1972:245 (Great Britain: London: Bushey Park); Piek and Spanjer, 1986:183 (in list of Sphecidae with known prey). – **As *Blepharipus ambiguus***: Hamm and Richards, 1926:312 (new generic assignment, summary of nesting habits), 324 (list of prey); Jones, 1928a:5 (nesting in old oak-stump at Wollaton Park, Nottingham); Hallett, 1938:72 (Great Britain: Herefordshire: Mathon). – **As *Crossocerus ambiguus***: Ruthe and Stein, 1857:315 (new generic assignment, Germany: Berlin area); Taschenberg, 1858:107 (in key to Sphecidae of Germany); Assmuss, 1859:618 (Russia: Moscow Governorate); Funk, 1859:58

(Germany: Bayern: Bamberg); Kirchner, 1867:224 (in catalog of European Hymenoptera); Wierzejski, 1874:261 (Ukraine: Stanisławów, now Ivano-Frankivsk, and Podole Region: Mielnica); Beuthin, 1876:230 (Germany: Hamburg area); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera); Borries, 1897:39 (morphological characteristics); Chyzer, 1902:34 (Hungary); Rudow, 1912:75 (nesting in raspberry twigs); Maréchal, 1935:123 (nesting habits, review of literature); Pate, 1944a:297 (as new generic assignment); Leclercq, 1949a:8 (Germany: Bromberg, currently Poland: Bydgoszcz); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Leclercq, 1951e:10 (bibliography of Belgian records); Krombein, 1952b:184 (USA: West Virginia: Lost River State Park); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:250 (Sweden: Gästrikland Region); Grandi, 1954:186 (list of prey), 242 (Italy); Krombein, 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:233 (in catalog of world Crabronini), 309 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); nec Tsuneki and Tanaka, 1955b:25 (= *Crossocerus annulipes hokkaidoensis*); Evans, 1957b:106 (description of larva); Krombein, 1958b:26 (prey), 1958f:198 (in supplement to catalog of North American Hymenoptera: West Virginia, Wisconsin, Washington); Móczár, 1958a:264 (in annotated catalog of Hungarian Crabronini, correction to Kohl, 1915), 1958b:197 (Hungary: collecting localities); Wolf, 1959b:33 (Germany: Nassau); Grandi, 1961:246 (nesting in dead wood, prey: Jassidae); Leclercq, 1961f:157 (Belgium: entering room through open window after temperature raised to 31ºC); Grandi, 1962:98 (Italy); 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); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:148 (in Sphecid Fauna of Switzerland); Gauss, 1966c:240 (specimen bearing dipteran egg); Lefeber, 1966:210 (Netherlands: Sint-Pietersberg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:352 (Turkey); Gauss, 1967:559 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Unterfranken District); Leclercq, 1967a:33 (Great Britain: locality records); Lefeber, 1967c:220 (Netherlands: Limburg); Benedek, 1968:77 (Hungary, visiting flowers of *Anethum graveolans* L., Apiaceae); Haneda, 1968c:69 (a European species found in Japan); Leclercq, 1968b:39 (Great Britain: Kent), 1968d:109 (Belgium: city of Liège); Lefeber,

1968b:95 (Netherlands: Sint-Pietersberg); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:85 (Hungary; marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena* pruni (Geoffroy)); Dathe, 1969:438 (Germany: Berlin Zoological Garden); Kazenas, 1969b:56 (Kazakhstan: near Alma Ata, nesting habits; preying on cicadellids *Edwardsiana froggatti* (Baker) and *Linnavuoriana malicola* (Zachvatkin)); Lefeber, 1969b:99 (Netherlands: common), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:781 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Leclercq, 1971:213 (Spain); Michener, 1971:405 (nest and prey); Schmidt, 1971b:50 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mombacher Feld), 1971c:75 (Germany: Schleswig-Holstein); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Kofler, 1972:114 (Austria: eastern Tirol); Kazenas, 1972b:172 (Kazakhstan); Lomholdt, 1972:123 (Denmark: Island of Læsø); Erlandsson, 1974:84 (France); Kofler, 1974:320 (Austria: Kärnten); Lefeber and Petit, 1974:163 (Belgium: Plombières); Lefeber, 1975b:119 (Netherlands: Schiepersberg); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Benedek, 1979:235 (Hungary: Bakony Hills); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Steiner, 1986:107 (references to publications on nesting habits); Srba, 1999:181 (Czech Republic: Chomutov).

Crabro capito Dahlbom, 1845:524, ♀ (as *Capito*, incorrect original capitalization, authorship attributed to Zeller). Syntypes: ♀: Germany, Sweden: no specific localities (Lund). Synonymized with *Crabro gonager* by Thomson, 1870:163 and with *Crossocerus annulipes* by Leclercq *in* R. Bohart and Menke, 1976:400. – Eversmann, 1849:419 (Russia: Ural foothills); A. Morawitz, 1866a:270 and 1866b:347 (specimens in Eversmann collection).

Blepharipus parkeri Banks, 1921:17, ♀. Holotype: ♀, USA: Massachussetts: Lexington (MCZ). Synonymized with *Crossocerus ambiguus* by Pate, 1943c:15.

Crabro davidsoni Sandhouse, 1938:1, ♀, ♂. Holotype: ♀, USA: Ohio: Columbus (USNM). Synonymized with *Crossocerus parkeri* by Pate, 1941:34 and with *Crossocerus ambiguus* by Pate, 1941:34. – Davidson and Landis, 1938:5 (nesting habits, prey: leafhoppers); Krombein, 1939:144 (New York State); Piek and Spanjer, 1986:183 (in list of Sphecidae with known prey).

As Crossocerus pusillus: Pagliano, 2011a:142, 143 (*Crossocerus pusillus* in M. Spinola collection, Torino, are *Crossocerus annulipes*)

ssp. *hokkaidoensis* Tsuneki

As *Crabro ambiguus*: Tsuneki, 1947e:416 (Japan: Hokkaido), present correction.

As *Crossocerus ambiguus*: Tsuneki and Tanaka, 1955b:25 (Japan: Nikko 120 km northwest of Tokyo), present correction.

Crossocerus ambiguus hokkaidoensis Tsuneki, 1954b:78, ♀. Holotype: ♀, Japan: Hokkaido: Sapporo (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1954b:61, 70 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 1959n:69, 74 (in revised key to *Crossocerus* of Japan and Korea), 1960g:42 (nesting habits), 1967e:14 (China: Manchuria: Harbin); Haneda, 1968a:47 (Japan); Tsuneki and Tano, 1969:30 (distribution in Japan); Nambu, 1972b:14 (Japan: Saitama Prefecture); Tsuneki, 1974a:378 (Korea); Nambu, 1975b:76 (Japan: Saitama Prefecture); Tsuneki, 1991:202 (Korea); Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.). – **As *Crossocerus annulipes hokkaiddoensis***: R. Bohart and Menke, 1976:400 (new subspecific generic assignment, in checklist of world Sphecidae); Tsuneki, 1982b:17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Tano, 1994a:6 (holotype in K. Tsuneki collection); Nemkov 2004b:264 (valid subspecies); Li and He, 2004:1079 (in hymenopterous fauna of Zhejiang Province, China); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture), 2006a:25 (Japan: Toyama Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Li and Wu, 2006:289, 290 (in key to *Blepharipus* of southwestern China); S. Takahashi and Haneda, 2008a:58 (Japan: Hokkaido: Sapporo); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 164 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:42 (distribution in Japan); Tano, 2010b:39 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:4, 9 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:425 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:227 (in catalog of Crabroninae of Russia); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City); Komeda, 2021b:64 (Japan: Honshu: Yamanashi Prefecture).

12. *antropovi* Schmid-Egger

Crossocerus antropovi Schmid-Egger, 2011a:521, ♀, ♂ (♂ recognized conditionally). Holotype: ♀, United Arab Emirates: Jebel Hafit at 24°04'N 55°45'E (Ch. Schmid-Egger personal collection, Berlin). – Schmid-Egger, 2011a:523 (color photograph of female), 2014:533 (United Arab Emirates: Wadi al-Helo); Gadallah, 2020b:34 (in list of aculeate wasps of Arabian Peninsula).

13. *aponis* Tsuneki

Crossocerus aponis Tsuneki, 1984b:17, ♀, ♂ (subgenus *Crossocerus*). Holotype: ♂, Philippines: Mindanao: Mount Apo (originally K. Tsuneki collection, now USNM). – Tsuneki, 1984f:12 (Philippines), 36 (in key to Crabronini of Philippines); Tsuneki et al., 1992b:40 (Philippines: Mount Apo); 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, 1995:45 (holotype in K. Tsuneki collection); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 164 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution); Tano, 2010b:41 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*), 2020:26 (holotype in USNM).

14. *aposanus* Tsuneki

Crossocerus aposanus Tsuneki, 1984b:14, ♂ (subgenus *Cuphopterus*). Holotype: ♂, Philippines: Mindanao: Mount Apo (originally K. Tsuneki collection, now USNM). – Tsuneki, 1984f:12 (Philippines), 37 (in key to Crabronini of Philippines); Tsuneki et al., 1992b:40 (Philippines: Mt Apo); Nuhn and Menke, 1994:26 (holotype not transferred to USNM, possibly returned to T. Tano, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:45 (holotype in K. Tsuneki collection); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 164 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution); Tano, 2010b:43 (member of subgenus *Crossocerus*, *s*, in list of Japanese subgenera of *Crossocerus*), 2020:26 (holotype in USNM).

15. *arabicus* Gadalla and Ermardash

Crossocerus arabicus Gadallah and Edmardash *in* Gadallah, Edmardash, Abu El-Ghiet, Al-Fifi, 2024:557, ♀. Holotype: ♀, Saudi Arabia: Jazan Province: Fifa Mountain: Almukhafih Farm at

17º16'07"N 43º07'32.3"E (Efflatoun Bey collection, Entomology Department, Cairo University, Egypt). – Gadallah and Abu El-Ghiet, 2024:81 (Saudi Arabia: Jazan Province: Fayfa).

16. *ardens* (Cameron)

Crabro ardens Cameron, 1890b:273, ♀, ♂. Syntypes: India: West Bengal: Barrackpore (OXUM). – Cameron, 1890b:270 (India: Barrackpore); Bingham, 1897:325 (redescription); Dalla Torre, 1897:583 (in catalog of world Sphecidae, as *ardeus*); Rothney, 1903:106 (India: West Bengal: Barrackpore); Maxwell-Lefroy, 1909:210 (India: Pusa: preying on small flies). – **As *Crossocerus ardens***: Leclercq, 1950e:4 (new generic assignment), 1954c:225 (in catalog of world Crabronini), 1956e:220 (redescription); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 164 (in list of Asian *Crossocerus*, additional description, bibliographic references, geographic distribution); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

17. *arnoldi* Leclercq and Miller

Crossocerus arnoldi Leclercq and Miller *in* Leclercq, 2000d:30, ♀, ♂. Holotype: ♀, USA: Virginia: Dunn Loring (USNM).

18. *assamensis* (Cameron)

Crabro assamensis Cameron, 1902d:59, ♀, ♂. Syntypes: India: Assam: Khasia Hills (OXUM). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Crossocerus assamensis***: Leclercq, 1950b:16 (new generic assignment), 1954c:241 (in catalog of world Crabronini), 1963:11 (India: Assam; description of ♂), 1974e:661 (in key to Asian species of subgenus *Cuphopterus*), 663 (corrections to earlier description, may be a synonym of *flavopictus* F. Smith); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 2009:164 (in list of Asian *Crossocerus*, bibliographic references).

19. *ariminensis* Terayama and Murota

Crossocerus ariminensis Terayama and Murota, 2016:1, ♀, ♂. Holotype: ♀, Japan: Honshu: Toyama Prefecture: Oritate at Lake Arimine (National Institute for Agro-Environmental Science, Tsukuba, Japan)

20. *assimilis* (F. Smith)

Crabro affinis Wesmael, 1852:596, ♀, junior primary homonym of *Crabro affinis* Rossi, 1792, and junior secondary homonym of *Crossocerus affinis* Lepeletier de Saint Fargeau and Brullé, 1835. Syntypes: ♀, Belgium: Diest and Bruxelles (Bruxelles). – Thomson, 1870:162 (as new synonym of *Crabro pubescens*); Marquet,

1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); de Cobelli, 1903:117 (Italy: Trentino: Rovereto, Serrada, Val di Fiemme, as *affinis* Herrich-Schaeffer); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Fiemme, as *affinis* Herrich-Schaeffer). – **As *Crossocerus affinis***: Kirchner, 1867:224 (new generic assignment, in catalog of European Hymenoptera).

Crabro assimilis F. Smith, 1856:413. Substitute name for *Crabro affinis* Wesmael, 1852. – Dalla Torre, 1897:583 (in catalog of world Sphecidae); de Beaumont, 1954e:96 (Italy), 1958c:212 (Swiss National Park); nec Pulawski, 1958a:188 (= *Crossocerus quadrimaculatus*); Noskiewicz and Puławski, 1960:146, 155 (in key to Polish Sphecidae); Skibińska, 1981:358 (Poland: Warszawa-Białołęka). – **As *Crossocerus assimilis***: Leclercq, 1951e:7 (new generic assignment, bibliography of Belgian records), 1954c:232 (in catalog of world Crabronini), 308 (nest and prey records); Tsuneki, 1954b:60, 68 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril islands); Aerts, 1955:58 (Germany: Rheinland); Tsuneki, 1955d:216 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955a:68 (Japan: Nikko 120 km northwest of Tokyo); Móczár, 1958b:196 (Hungary: collecting localities); Tsuneki, 1959n:68, 74 (in revised key to *Crossocerus* of Japan and Korea); de Beaumont, 1958c:212 (Swiss National Park); Móczár, 1958a:264 (in annotated catalog of Hungarian Crabronini); de Beaumont, 1959a:39 (Italy); Wolf, 1959b:33 (Germany: Nassau); Tsuneki, 1960g:40 (no observations on nesting habits in Japan); Stritt, 1962:49 (Germany: Baden-Württemberg: Wutach area); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:147 (in Sphecid Fauna of Switzerland); Lefeber, 1966:209 (Netherlands: Wolder); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:351 (Turkey); Gauss, 1967:558 (Germany: Baden-Württemberg); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Lefeber, 1968a:5 (Netherlands: Bemelen); Tano, 1968:35 (Japan); Itami, 1969:51 (Japan: Niigata Prefecture); Lefeber, 1969c:234 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Gauss and Perraudin, 1970:362 (Germany: Baden-Württemberg: Kaiserstuhl, Wittental); Oehlke, 1970:780 (first record from Democratic Germany); Lefeber, 1971b:223 (Netherlands: t'Rooth; Belgium: Eben); Petit, 1971:22 (Luxemburg: Bourscheid,); Kofler, 1972:114 (Austria: eastern Tirol); Nambu, 1972e:91 (Japan: Saitama Prefecture); Tsuneki, 1972a:150 (Mongolia); Nambu, 1973a:153 (Japan: Saitama Prefecture); Lefeber, 1974:77 (Netherlands: Sint-Pieter; Belgium: Eben); Leclercq, 1975b:2 (France); Lefeber, 1975a:37 (Netherlands: Asperen), 1975b:154 (Belgium); Nambu, 1975b:75 (Japan: Saitama Prefecture); Lefeber, 1975a:37 (Netherlands), 1975b:119

(Netherlands: Schiepersberg); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Eck, 1976:95 (Democratic Germany); Lomholdt, 1976:394 (in Sphecid Fauna of Fennoscandia and Denmark); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Guichard, 1978:272 (first record from Greece: Aspropotomas, Timfristos); Petit, 1978:87 (Belgium: Wollersheim); Pulawski, 1978:260, 264 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1448 (Belgium); Marshakov, 1979a:95, 99 (in key to *Crossocerus* of Russian Far East), 1980c:347, 350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Mongolia; in Russia: European part, Chita Oblast', Maritime Province, Kuril Islands: Island of Kunashir); Pagliano, 1980:122 (Italy: Piemonte); Schmidt, 1980:334 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:316, 323 (Austria: Niederösterreich: Scheibbs District); Skibińska, 1982:121, 124 (Poland: Mazovian Voivodship: Młochów, Ursynów, Warszawa); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Westrich, 1983:80 (Germany: Tübingen area); Haeseler, 1984:108 (Germany: Island of Memmert); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985c:577 (Germany: Island of Memmert); Józan, 1985b:59 (Hungary south of Lake Balaton), 70 (map of distribution in Hungary), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Nemkov, 1986:101 (Russia: Irkutsk Oblast'); Skibińska, 1986b:151, 155 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 165 (streetside green), 175 (various green urban habitats); Hedström, 1987:153, 156 (first record from Sweden); Dollfuss, 1988:15, 27 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Haeseler, 1988:210 (Germany: Friesian Islands); Leclercq, 1988:19 (Russia: Primorskiy Kray: Okeanskaya); Kowalczyk, 1988d:557 (Poland: Rubcowo in Augustów Forest); Pádr *in* Šedivy, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:206 (Poland: Warszawa area); Weiffenbach, 1989:111 (Germany: Hessen: Gießen area); Jacobs and Oehlke, 1990:187 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Pádr, 1990:83 (Czech Republic: Praha area); Pagliano, 1990:82 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:544 (Austria: Kärnten); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:152 (in key

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Rheinland-Pfalz); Józan, 1998:311 (Hungary: Duna-Dráva National Park); Kowalczyk, 1998:128 (Poland: Zakopane); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); W. Klein, 1999:8, 14 (in improved key to Crossocerus of Benelux); Kuhlmann, Wolf, and Woydak, 1999:568 (Germany: endangered in Nordrhein-Westfalen because of low population level); Ljubomirov, 1999b:53 (Bulgaria: Mount Vitosha near Sofia); Majzlan, Rychlík, and Deván, 1999:145 (Slovakia: Čenkovská Step Nature Reserve); Neumayer, Schwarz, and Bregant, 1999:223 (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, 1999:86 (Austria: Oberösterreich: city of Linz area); Vikberg, 1999:245 (first record from Finland); Blösch, 2000:292 (in Sphecid Fauna of Germany); Esenbekova and Kazenas, 2000:49 (southeastern Kazakhstan: 7-8 km south of Talgar); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:107 (Greece); Jacobs, 2000:6, 17 (Germany: Land Mecklenburg-Vorpommern: probably endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Luig and Voolma, 2000:123 (first record from Estonia); Wiśniowski, 2000:161 (Poland: Bieszczady Mountains); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:192 (review of known biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:138 (distribution in Germany by states); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: extremely rare); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Bieri, 2002:73 (Liechtenstein); Dorow, 2002:16 (Germany: Hessen: Weiherskopf Forest Reserve); Gayubo, González, Tormos, and Asís, 2002:86 (Andorra: Santa Coloma); Józan, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:98 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Kraus and Floren, 2002:100 (Germany: Bayern: Münnerstadt); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:71 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:61 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Austria, France, Germany, Italy: miscellaneous local-

ity records); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Kowalczyk and Kurzac, 2003:209 (Poland: Łódź: Botanical Garden); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area), 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern, Germany); Wiśniowski *in* Dylewska and Wiśniowski, 2003:160 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:77 (Poland: Pieniny National Park); Deván, 2004:146 (western Slovakia); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefeber in Peeters, van Achterberg, et al., 2004:367 (in Wasp and Ant Fauna of Netherlands); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Suda, 2004:42 (Japan: Yamanashi Prefecture); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Burger, 2005:31 (Germany: Thüringen); Dubitzky, Blank, and Schönitzer, 2005:272 (Germany: Bayern: area north of Dachau); Gayubo and Özbek, 2005:28 (Turkey: Erzurum: Oltu, Þenkaya); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:48 (Japan: Gifu Prefecture); Jacobs, 2005a:443 (Bulgaria: Rila Monastery); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:176 (Austria: Tirol: Lienz District: many localities); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Nemkov, 2005a:152 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:247 (in Sphecid Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:547 (Germany: Niedersachsen: city of Bremen and adjacent area); Schmalz, 2005:57 (references to XIXth century authors); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen), 2005b:8 (Germany: Niedersachsen: Harz National Park); Vago, 2005a:16 (France: Département du Nord: Wasnes-au-Bac);_Dollfuss, 2006:506 (Bulgaria, Georgia, Kyrghyzstan, Mongolia, Turkey); Gorobchishin, 2006:126 (Ukraine: Cherkasy Oblast': Kaniv Nature Reserve); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Mutenitsa River valley, as *Crossocerus assimilis assimilis*);

Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge Forest Reserve); Hallin, 2007:154 (Sweden: Närke County); Jacobs, 2007:132, 142 (in key to Crabronidae of Germany); Józan, 2007:179 (Hungary: Zselic hills); Leclercq, 2007f:189 (references to records from Greece); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Vago, 2007:175 (France: Département du Nord: Wasnes-au-Bac); Vepřek and Straka, 2007:204 (in catalog of Sphecidae of Czech Republic and Slovakia); Haeseler, 2008:307 (Germany: Friesian Islands); Ljubomirov and Ban-Calefariu, 2008:205 (Romania: Maramureş District: Poienile de Sub Munte); Ljubomirov and Yildirim, 2008:260 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:16 (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, 2009:218 (in supplement to vol. I of Faune de France, 1993: France: Ain: Tenay; Isère: Saint-Laurent-en-Beaumont; Nord: Wasnes-au-Bac; Puy-de-Dôme: col de Guéry and Puy de Cliergue; Haut-Rhin: Munster); Burguet, 2009:15 (France: Département de Puy-de-Dôme: Bois de la Comté); Debuyser and Vago, 2009:5 (in list of Sphecidae sensu lato of northern France); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 164 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:98 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Pagliano, 2009:181 (Italy: Lazio: Morlupo); Straka, Dvořak, and Bogusch, 2009:258 (Czech Republic: Rašeliniště Nature National Park); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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 and Nizhniy Novgorod Oblast's, Chuvash Republic: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:156 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:132 (Germany:

Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:17 (Ukraine: Lugansk Oblast': village D'yakovo); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein: Bad Schwartau); Baghirov, 2011b:144 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:18 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:69 (Russia: Chuvash Republic); Rudoiskatel', 2011b:68 (Russia: Republic of Bashkortostan), 2011d:242 (Russia: central Ural Mountains); Schmid-Egger, 2011a:37 (Italy: Parco delle Alpi Marittime); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:116 (Germany: Hessen: not endangered); Hellrigl, 2012:128 (Italy: Provinzia Autonoma di Bolzano-Alto Adige, as Südtirol); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012a:171 (Belorussia and Russia: Kirov Oblast': Arkhangelskoye: collected in private plots); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Flügel, 2013b:57 (Germany: Hessen: Knüllköpfchen); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); Pankov, 2013:229 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:189 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:400 (France: Ariège: Ascou-Pailhères); U. Frommer, 2014:26 (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); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:141 (in checklist of Hymenoptera of Turkey); Blažej, Macek, and Trýzna, 2016:113 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:572 (Russia: Krasnodarskiy Kray); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:44 (Turkey:

Artvin: Genya Mountain, as *Crossocerus assimilis assimilis*); Antropov, 2017b:227 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Eschkopf near Rockensüß); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Eyne); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:92 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13225 (Russia: Mordovia State Nature Reserve); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:47 (in revision of Sphecidae *sensu lato* of Europe); Fresno, 2021a:79 (Spain: Asturias, Barceona, and Gerona provinces); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:47 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Japoshvili and Ljubomirov, 2022:276 (Georgia: Lagodekhi Protected Areas) Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

Crossocerus socius Thomson, 1870:164, sex not stated (as Dahlbom's manuscript name). Holotype or syntypes: Sweden: no specific locality (LUND). Synonymized with *Crabro tirolensis* by Kohl, 1883e:655.

Crossocerus tirolensis Kohl, 1878:709, ♀ (as *Tirolensis*, incorrect original capitalization). Syntypes: Austria: Tirol: near Wilten and Zams; Italy: Cortina d'Ampezzo (NHMW). Synonymized with *Crossocerus assimilis* Wesmael by Leclercq, 1951e:7. – Rudow, 1912:75 (nesting in rotten mulberry twigs, as *tiroliensis*). – **As *Crabro tirolensis***: Kohl, 1880:125 (new generic assignment, Austria: Tirol, and Italy: Trentino-AltoAdige), 213 (description of ♂), 1883e:655 (Switzerland); 1892:200 (comparison with *Crabro amurensis*), 1893:22 (Austria: Niederösterreich); Dalla Torre, 1897:631 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary: some localities are in today's Romania and Slovakia); de Cobelli, 1903:117 (Italy: Trentino: Monte Baldo, San Giacomo di Monte Baldo); Schmiedeknecht, 1907:193, 195 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien: Agnetendorf, now Poland: Dolny Śląsk: Jagniątkowo); Rudow, 1912:75 (nesting in rotten mulberry twig); Birula, 1914:376 (Belorussia: Ambrosovichi near Vitebsk, redescription); Kohl, 1915:242 (in revision of Palearctic Crabronini); Dubois, 1921a:19 (Belgium: Uccle), 1921b:155, 157 (in key

to Belgian Sphecidae), 165 (phenology, nesting habits); Berland, 1925d:186 (in Sphecid Fauna of France); Zavadil, 1926:34 (Czechoslovakia); Crèvecoeur and Maréchal, 1927:138 (in catalog of Belgian Hymenoptera: La Chabresse); Benoist, 1928:410 (France: Basses-Alpes: Certamussat); Schmiedeknecht, 1930:650, 656 (in keys to Hymenoptera of North and Central Europe); Bondroit, 1932:40 (Belgium: Forêt de Soigne, Solbosch, Uccle); Crèvecoeur and Maréchal, 1932:68 (in catalog of Belgian Hymenoptera: Méry); Bondroit, 1933:32 (Belgium: Forêt de Soignes; prey: *Phora*); Steck, 1935:325 (Switzerland); Zavadil, Šustera, and Bat'a, 1937:163 (in catalog of Sphecidae of Czechoslovakia); Kuntze and Noskiewicz, 1938:406 (Poland: Podole region, now Ukraine, also known from more northern parts of Poland); A. Wagner, 1938a:117 (not found in northwestern Germany); Teunissen, 1939:174 (Netherlands: Elzeterbosch near Mechelen); Zavadil, 1939:121 (Czech Republic: Morava: Pouzdřany: Slovakia: Děvin); Dovnar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Zavadil *in* Zavadil and Šnoflak, 1948:124 (in key to Sphecidae of Czechoslovakia); Leclercq, 1949a:7 (in key); Cavro, 1950:39 (France: Département du Nord); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area; as *tyrolensis*); Fæster, 1951:458 (distribution in Scandinavia); Nouvel and Ribaut, 1953:183 (France: Hautes-Pyrénées: Cauterets), Benno, 1958b:19 (in review of Dutch Sphecidae); Balthasar, 1972:96 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area), 1972:151 (Czech Republic: Třeboň area); Dollfuss, 1989:9 (type material in NHMW); Vago, 2005a:14 (*Crabro tirolensis* in Cavro, 1950 is *Crossocerus assimilis* now). – **As *Coelocrabro tirolensis***: Kinel and Noskiewicz, 1924:00 (Poland: Podole Region: Kasowa Góra, now Ukraine); Kolubajiv, 1938:25 (new generic assignment, Czechoslovakia: Slezsko = Silesia: Horní Lomná); Schneid, 1941:1029 (Germany: Bayern: Bamberg area). – **As *Ablepharipus tirolensis***: Zavadil, 1946:8 (new generic assignment, Czechoslovakia: Ostrava area).

ssp. *collaris* Tsuneki

Crossocerus assimilis collaris Tsuneki, 1974a:377, ♀, ♂. Holotype: ♂, Korea: Ryang-gang Province: Samzi-yan (TMB). – R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Tsuneki, 1982b:17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 165 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*); J.-

K. Kim, 2014:425 (in catalog of Sphecidae *sensu lato* of Korean Peninsula).

Crossocerus assimilis collaris Tsuneki, 1991:202, as new subspecies. Nomen nudum.

21. *aswad* (Nurse)

Crabro aswad Nurse, 1902:88, ♂. Holotype or syntypes: ♂, India: Maharashtra: Matheran (BMNH). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Crossocerus aswad***: Leclercq, 1950e:4 (new generic assignment, diagnostic characters), 1954c:225 (in catalog of world Crabronini), 1956e:231 (holotype studied), 1963:6 (description of ♀, India: Nilgiri Hills); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 1989a:240 (India, Nepal, Malaysia); Ebermann and Hall, 2003:368 (parasite: new species of acarid mite, *Imparipes haeseleri*, as *asward*); Dollfuss, 2006:507 (China: Yunnan: Heishui 35 km N Lijiang); Leclercq, 2009:161 (member of subgenus *Ainocrabro*), 165 (in list of Asian *Crossocerus*, bibliographic references, recognition characters, variation, Thailand: Loei: Phu Rua National Park and Chiang Mai: Doi Suthep); Tano, 2010b:38 (member of *Ainocrabro*, in list of Japanese subgenera of *Crossocerus*).

22. *bajaensis* Leclercq and Miller

Crossocerus bajaensis Leclercq and Miller *in* Leclercq, 2000d:32, ♀, ♂. Holotype: ♂, Mexico: Baja California Sur: San José del Cabo (Cornell Univ.).

23. *barbipes* (Dahlbom)

Crabro barbipes Dahlbom, 1845:521, ♂. Holotype or syntypes: ♂, Sweden: Lapponia: no specific locality (Lund). – Thomson, 1870:163 (in revision of Swedish Crabroninae), 1874:269 (in revision of Hymenoptera of Scandinavia); Kohl, 1888b:721 (Austria: Tirol, now Italy: Alto Adige); Kohl, 1893a:22 (Austria: Niederösterreich); Dalla Torre, 1897:584 (in catalog of world Sphecidae); Strand, 1903:7 (first record from Norway: Austad); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Schmiedeknecht, 1907:194, 196 (in key to Hymenoptera of Central Europe); Sparre Schneider, 1909:106 (Norway: Nordlands: Saltdalen); Kohl, 1912a:63 (Austria: Südtirol: Ratzes, now Italy: Trentino-Alto Adige: Razzes, recognition characters); Alfken, 1914:273 (northwestern Germany); Kohl, 1915:234 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Ferenczfalva); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921b:156, 158 (in key to Belgian Sphecidae); Lundblad, 1924:22 (Sweden: Lappland: Lycksele); Noskiewicz, 1924a:114 (Poland: vicinity of Kraków); Berland, 1925d:184 (in Sphecid Fauna of France); Shestakov, 1925:35 (Russia: Yaroslavl'

area); Zavadil, 1926:34 (Czechoslovakia); Bouwman, 1930:100 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:651, 656 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:145 (in revision of Sphecidae of Finland); Drogoszewski, 1933:117 (Poland: Łowicz, in error); Yasumatsu, 1934c:63 (Japan: Island of Yakushima); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:324 (Switzerland); Vergne, 1935:119 (France: Auvergne: La Bourbuoule, Le Mont-Dore); Drogoszewski, 1936:129 (the 1933 identification was in error); Zavadil, Šustera, and Bat'a, 1937:162 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:117 (northwestern Germany); Balthasar, 1942:4 (Czech Republic: Morava Region); de Beaumont, 1945:481 (Switzerland); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Tsuneki, 1947e:417 (Japan: Hokkaido), 1948c:6 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:127, 133 (in key to Sphecidae of Czechoslovakia); Fæster, 1951:458 (distribution in Scandinavia); Leininger, 1951:115 (Germany: Baden-Württemberg: Schönberg); Nouvel and Ribaut, 1953:182 (France: Hautes-Pyrénées: Orédon), de Beaumont, 1954e:97 (northern Italy); Vogrin, 1955:42 (Yugoslavia); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz, 1959:207 (first record from Poland: Bardo Śląskie); Noskiewicz and Puławski, 1960:148, 155 (in key to Polish Sphecidae, not yet found in Poland); Niedl and Deneš, 1967:73 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Balthasar, 1972:101 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area). – **As *Coelocrabro barbipes***: Zavadil, 1946:8 (new generic assignment, Czechoslovakia: Ostrava area). – **As *Crossocerus barbipes***: Kirchner, 1867:224 (new generic assignment, in catalog of European Hymenoptera); Grandi, 1954:242 (Italy); Leclercq, 1954c:234 (in catalog of world Crabronini); Tsuneki, 1954b:61, 71 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Hellén, 1955a:128 (Finland: Pusula, Vichtis); Nouvel and Ribaut, 1955:141 (France: Haute-Garonne: Saint-Béat); Tsuneki, 1955d:216 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955b:21 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1956b:12 (in supplement to 1954b key); de Beaumont, 1958c:212 (Swiss National Park); Móczár, 1958b:197 (Hungary: collecting localities); de Beaumont, 1959a:39 (Italy); Tsuneki, 1959n:69, 75 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:33 (known from Germany, but not from Nassau); Tsuneki, 1960g:42 (nesting habits); Valkeila, 1962b:68 (southwestern Fin-

land); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:148 (in Sphecid Fauna of Switzerland); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Alpe di Siusi, Razzes); nec Lefeber, 1966:209 (= *Crossocerus elongatulus*); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:352 (Turkey); Gauss, 1967:559 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Miltenberg); Haneda, 1968a:46 (Japan), 1968b:56 (Japan: Nagano Prefecture: Ina District); T. Iida, 1968:22 (Japan); Okuno, 1968:31 (Japan); Tano, 1968:34 (Japan); Haneda, 1969:70 (Japan: Yamanashi Prefecture); Itami, 1969:51 (Japan: Niigata Prefecture); Tsuneki, 1969e:28 (Japan: specimens in Osaka Museum of Natural History), 1969k:64 (Japan: Mount Hyonosen); Oehlke, 1970:782 (Democratic Germany); Tsuneki, 1970b:11 (central Japan); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains), 1972b:172 (Kazakhstan: Alma-Ata Oblast': Podgornoye village in Ketmen' Range); Kofler, 1972:114 (Austria: eastern Tirol); Nambu, 1972e:91 (Japan: Saitama Prefecture); Tsuneki 1972a:150 (Mongolia); Nambu, 1973a:153 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Leclercq, 1975b:3 (France); Marshakov, 1975b:335 (Mongolia); Nambu, 1975b:75 (Japan: Saitama Prefectu**re**); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Lefeber, 1976:152 (Netherlands: Benzenrade, Winterswijk); Lomholdt, 1976:399 (in Sphecid Fauna of Fennoscandia and Denmark); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Pulawski, 1978:261, 264 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Krombein, 1979b:1669 (in catalog of North American Hymenoptera, nesting sites, list of prey); Marshakov, 1979a:97, 100 (in key to *Crossocerus* of Russian Far East), 1980c:348, 353 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Pagliano, 1980:122 (Italy: Trentino Alto Adige); Schmidt, 1980:335 (Germany: Baden-Württemberg); Westrich, 1980:634 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Thiede, 1981:47 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Axelsson, 1982:80 (Sweden); Finnamore, 1982:152 (in Sphecid Fauna of southern Quebec); Tsuneki, 1982g:63 (known from Ryukyu archipelago); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Nemkov, 1986:101 (Russia: Irkutsk Oblast'); Vikberg, 1986:77 (Finland);

Dollfuss, 1988:15 (Austria: Bisamberg); Kowalczyk, 1988d:557 (Poland: Augustów Forest); Nilsson, 1988:99 (Sweden); Pádr *in* Šedivy, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:188 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie), 298 (distribution in Poland); Pádr, 1990:83 (Czech Republic: Praha area); Pagliano, 1990:82 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:544 (Austria: Kärnten); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:152 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991b:121 (Poland: Augustów Forest); Nilsson, 1991:84 (Sweden: Lake Mälaren); Pagliano, 1991b:339, 343 (in key to Italian Crabroninae); Nilsson, 1992:55 (Sweden); Bitsch and Leclercq, 1993:105 (in revision of western European Crabroninae); Józan, 1993:413 (Hungary: Bükk National Park); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:16 (Austria, Italy); Leclercq and Barbier, 1993:21 (map of distribution in France); Koponen, 1994:22 (Finland: Kittilä); Pádr and Lukáš, 1994:892 (first record from Slovakia: High Tatra Mountains); Theunert, 1994c:35 (Germany: summary of records from Niedersachsen and Bremen); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Krasnobayev et al., 1995:139 (Russia: Zhiguli Hills northwest of Samara); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 440 (in key to Sphecidae of Russian Far East); Skibińska, 1995:424, 427 (Poland: pine forest in Białowieża Primeval Forest); Woydak, 1996:65 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Finnamore, 1997:890 (Canada: Yukon); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:9 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); Dollfuss, Gusenleitner, and Bregant, 1998:517 (Austria: summary of collecting records from Burgenland); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); W. Klein, 1999:9, 14 (in improved key to *Crossocerus* of Benelux); Kowalczyk, 1998:128 (Poland: Zakopane); Kuhlmann, Wolf, and Woydak, 1999:568 (Germany: endangered in Nordrhein-Westfalen because of low population level); Yamane, Ikudome, and Terayama, 1999:501 (in Identification Guide to Crabronidae of Nansei = Ryukyu Islands, Japan); Blösch, 2000:293 (in Sphecid Fauna of Germany); Esenbekova and Kazenas, 2000:49 (southeastern Kazakhstan: 7-8 km south of Talgar); Leclercq, 2000d:33 (in revision of New World *Crossocerus*); Kazenas, 2001b:192 (review

of known biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:51 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:138 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Bieri, 2002:73 (Liechtenstein); Kazenas, 2002a:98 (geographic distribution, collecting localities in Kazakhstan); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:71 (Poland: Ojców National Park); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: Island of Romelsön); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area), 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Wiśniowski *in* Dylewska and Wiśniowski, 2003:160 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Bergsten, Nilsson, and Hellquist, 2004:7 (Sweden: Västerbotten: Nordmaling); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Deván, 2004:146 (western Slovakia); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:33 (Japan: Gifu Prefecture); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:43 (Japan: Yamanashi Prefecture); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Bergsten, Ekerholm, Gabrielsson, Hellquist, Petersson, Werner, Ström, Chauvet, and Dalecky, 2005:15 (Sweden: Västerbotten: Bjuröklubbs Nature Reserve); Burger, 2005:31 (Germany: Thüringen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Kofler, 2005:175 (Austria: Tirol: Lienz District: Amlach, Tauerwirt in Kals Common, Thal-Aue in Assling Common, Winkeltal in Auβervillgraten, eastern Au region in Lavant Common, Lengberg in Nikolsdorf Common, Mauerertal in Virgen Common); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov, 2005a:152 (Russia: Island of Sakhalin); Pagliano and

Negrisolo, 2005:238 (in Sphecid Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Riemann and Hohmann, 2005:547 (Germany: Niedersachsen: city of Bremen and adjacent area); Straka, 2005a:400 (endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Dollfuss, 2006:507 (China: Yunnan: Heishui 35 km north of Lijiang; Romania, Ukraine); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:25 (Japan: Toyama Prefecture); Li and Wu, 2006:289, 290 (in key to *Blepharipus* of southwestern China); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Baghirov, 2007:93 (Russia: southwestern Siberia); Dorow, 2007:263 (Germany: Hessen: Hohestein, Niddahänge, and Schönbuche Forest Reserves); Hallin, 2007:154 (Sweden: Småland County); Jacobs, 2007:133, 142 (in key to Crabronidae of Germany); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:204 (in catalog of Sphecidae of Czech Republic and Slovakia), 228 (first recorded from Slovakia by Pádr and Lukáš, 1994); Ljubomirov and Yildirim, 2008:262 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Rudoiskatel' and Fadeev, 2008:256 (Russia: Ekaterinburg area, reared from trap nests); S. Takahashi and Haneda, 2008a:59 (Japan: Hokkaido: Sapporo); Theunert, 2008:17 (Germany: map of distribution in Niedersachsen and Bremen); Wiśniowski, 2008:635 (Poland: Ojców National Park, collected in 1993-2003); Belkheir, 2009:18 (France: Pyrénées-Orientales: commune d'Eyne); Bitsch and Leclercq, 2009:218 (in supplement to vol. I of Faune de France, 1993: France: Ariège: Goulier); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen), 32 (locality records from Hessen); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 165 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Mokrousov, 2009:281 (Russia: Republic Mari El); Nemkov, 2009b:100 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Rudoiskatel', Nikolaenkova, and Fadeev, 2009a:108 (Russia: Western Siberia: Chelyabinsk); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořak, and Bogusch, 2009:258 (Czech Republic: Jizerské Mountains and Frýdlant region); Ermilov and Mokrousov: 2010:89 (phoretic mite *Probonomoia pini* (Scheucher), Tetranychidae, in Middle Volga Region of Russia); Dorow, 2010:208 (Germany: Hessen: Nature Forest Reserves Goldbachsrück and Ziebachsrück); Esser, Fuhrmann,

and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Kirov and Nizhniy Novgorod Oblast's, Chuvash Republic, Mari El Republic: no specific localities), 2010b:100 (Russia: Kirov and Nizhniy Novgorod Oblast's, Mari El Republic: no specific localities); Mokrousov, 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:157 (Russia: central and southern Ural Mountains); Rudoiskatel' and Fadeev, 2010:124 (Russia: Sverdlovsk Oblast'); Rudoiskatel, Fadeev, and Nikolaenkova, 2010:162 (Russia: Kluchi in vicinity of Ekaterinburg at 56°35'N 60°50'E); Rudoiskatel', Nikolaenkova, and Fadeev, 2010:314 (Russia: Sverdlovsk Oblast: near Ekaterinburg); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:132 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:39 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010c:396 (Sweden: Öland: Byrums Sandvik); Baghirov, 2011b:144 (Russia: Altay Republic: Ust'-Kan); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:70 (Russia: Chuvash Republic); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Rudoiskatel', Fadeev, and Nikolaenkova, 2011:29 (Russia: Sverdlovsk Oblast': near Ekaterinburg); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:117 (Germany: Hessen: not endangered); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Akulov and Proshchalykin, 2013:115 (Russia: Siberia: Krasnoyarsk Kray: 70 km southwest of Krasnoyarsk); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Dyuzhaeva, 2013:116 (Russia: Samara Oblast': Zhiguli Nature Reserve); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:191 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:400 (France: Ariège: Ascou-Pailhères, Bethmale); Haneda, Murota, Kurokawa, and Tano, 2014:4, 10 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Reder and

Niehuis, 2014:7 (Germany: Monsheim); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Shorenko, 2015:320 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:114 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:227 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Vallée d'Eyne); Shorenko, 2017:76 (in Crimea collected in July); Jacobs and Liebig, 2018:138 (Russia: Irkutsk Oblast': Sarma); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ruchin and Antropov, 2019a:13226 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:95 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:51 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Saure and Marten, 2021:134 (Germany: Sachsen-Anhalt: Nationalpark Harz); Japoshvili and Ljubomirov, 2022:276 (Georgia: Lagodekhi Protected Areas); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Columbia, Ontario, Quebec, Yukon Territory, first record from Manitoba, New Brunswick, and Newfoundland Island: no specific locality).

Crabro ater Cresson, 1865b:477, ♀, junior primary homonym of *Crabro ater* Olivier, 1792. Lectotype: ♀, USA: Colorado Territory: mountains but no specific locality (ANSP), designated by Cresson, 1916:102. Synonymized with *Crossocerus barbipes* by R. Miller *in* Krombein, 1979b:1669. – Cresson, 1887:284 (in catalog of North American Hymenoptera); Ashmead, 1890:32 (in checklist of Hymenoptera of Colorado); W. Fox, 1895a:197 (in revision of North American Crabronini); Dalla Torre, 1897:583 (in catalog of world Sphecidae); Kincaid, 1900a:359 (USA: Washington: Olympia); Ashmead, 1902:133 (Alaska: Seldovia);

Viereck, 1903a:66 (New Mexico: Beulah); Rohwer, 1908b:246 (USA: Colorado), 259 (in key to *Crabro* of Colorado and New Mexico); Carter, 1925:131 (Canada: Alberta: Waterton). – **As *Blepharipus ater***: Packard, 1867:374 (new generic assignment, in revision of North American Sphecidae); Provancher, 1882:133 and 1883b:667 (in revision of Canadian Hymenoptera); Ashmead, 1899d:217 (in checklist of North American Crabronidae); Kincaid, 1900b:508 (Alaska: Seldovia); J. Smith, 1900:515 (in list of insects of New Jersey); Harrington, 1902:219 (Canada: Ontario: Ottawa); Ashmead, 1910:138 (Alaska: Seldovia); Rohwer, 1917a:243 (California: Tahoe). – **As *Solenius ater***: J.Ch. Bradley, 1926:175 (new generic assignment, New York: Lloyd-Cornell Reservation near McLean), 1928:1021 (in catalog of New York Sphecidae); Strickland, 1947:128 (Canada: Alberta: Waterton).

Crabro hirtipes A. Morawitz, 1866a:258, ♂. Holotype: ♂, Russia: Spask (ZIN). Synonymized with *Crabro barbipes* by Kohl, 1915:234. – A. Morawitz, 1866a:270 and 1866b:347 (specimens in Eversmann collection); Dalla Torre, 1897:604 (in catalog of world Sphecidae).

Crabro hirtipes A. Morawitz, 1866b:330. Objective synonym of *Crabro hirtipes* A. Morawitz, 1866.

Dolichocrabro wickhamii Ashmead, 1899d:216, ♂ (as *Wickhamii*, incorrect original capitalization). Holotype: ♂, USA: Alaska: no specific locality (USNM). Synonymized with *Crabro ater* Cresson by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023. – Ashmead, 1899d:217 (in checklist of North American Crabronidae). – **As *Crossocerus wickhamii***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023 (new generic assignment, in catalog of North American Hymenoptera); Krombein, 1952b:184 (USA: West Virginia: Lost River State Park); Leclercq, 1954c:238 (in catalog of world Crabronini), 311 (nest and prey records); Evans, 1970:492 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae).

Dolichocrabro wickhami. Ashmead, 1902:133, ♂ (as *Wickhamii*, incorrect original capitalization). Holotype: ♂, USA: Alaska: Wrangell (USNM). Objective synonym of *Dolichocrabro wickhamii* Ashsmead, 1899.

Dolichocrabro wickhami. Ashmead, 1910:139, ♂. Holotype: ♂, USA: Alaska: Wrangell (USNM). Objective synonym of *Dolichocrabro wickhamii* Ashmead, 1899.

Crossocerus pammelas Pate, 1944a:299. Substitute name for *Crabro ater* Cresson, 1865. – Steyskal, 1944:170 (prey: a leafhopper *Empoasca* sp.)

24. *binicarinalis* Q. Li and Wu

Crossocerus binicarinalis Q. Li and Wu, 2003:525, ♀. Holotype: ♂, China: Szechuan: Emeishan: Xixiangchi (Inst. Zoology, Acad. Sinica, Beijing). – Q. Li and Wu, 2003:524 (in key to Chinese members of subgenus *Apocrabro*); Leclercq, 2009:161 (member of subgenus *Apocrabro*).

25. *binotatus* Lepeletier de Saint Fargeau and Brullé

Crabro signatus Panzer, 1798, Heft 53:15, [♀], junior primary homonym of *Crabro signatus* Olivier, 1792. Holotype or syntypes: Austria: no specific locality (depository?). – Panzer, 1806:183 (in critical review of his previous work); Jurine, 1807:212 (in checklist of species of *Crabro*); Audouin, 1824a:5 (in Dictionnaire classique d'histoire naturelle); nec Stephens, 1829a:365 and 1829b:33 (= *Crossocerus dimidiatus*); Wesmael, 1852:594 (Belgium); F. Smith, 1856:407 (in catalog of Hymenoptera in British Museum); Schenck, 1857:129 (in revision of fossorial wasps of Germany); F. Smith, 1858c:124 (in review of British Aculeata, redescription); Taschenberg, 1866:174 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (known from Germany); von Aichinger, 1870:314 (Austria: Tirol); Thomson, 1870:169 (in revision of Swedish Crabroninae); F. Smith, 1871b:13 (in catalog of British Aculeata); Thomson, 1874:278 (in revision of Hymenoptera of Scandinavia); Daly, 1878:45 (Great Britain: Dorset: Glanville's Wootton); Kohl, 1880:130 (Austria: Tirol, and Italy: Trentino-AltoAdige); E. Saunders, 1880:291 (in revision of British Aculeata); Siebke, 1880:70 (Norway); Kohl, 1883e:656 (Switzerland); Harwood, 1884:211 (England: Essex: Colchester area); von Heyden, 1884:124 (Germany: Frankfurt am Main area); Wüstnei, 1886:34 (Germany: Schleswig-Holstein: Blankenese, Sonderburg); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann, 1893:73 (Germany: Niedersachsen: Iburg, color pattern); Krieger, 1894:4 (Germany: Kingdom of Saxony); E. Saunders, 1896:139 (in revision of British Aculeata); Dalla Torre, 1897:628 (in catalog of world Sphecidae); Kozhevnikov, 1897:15 (Russia: Moscow Governorate); Mocsáry, 1897:83 (Kingdom of Hungary, localities actually are in today's Romania); Strand, 1898b:96 (Norway); Sharp, 1900:264 (Great Britain: New Forest); Nordenström, 1901:206 (Sweden: Vreta Kloster); de Cobelli, 1903:118 (Italy: Trentino: Rovereto); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); W. Schulz, 1904b:98 (Czechoslovakia); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); W. Schulz, 1906:206 (homonymy with *Crabro signatus* Olivier, 1792); Schmiedeknecht, 1907:192 (in key to Hymenoptera of Central Europe); Šustera, 1909:34 (Czech Republic: vicinity of Praha);

Peets, 1909-1911:66 (*Crabro signatus* of Panzer = *Crabro signatus*); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Hallett, 1912:94 (Great Britain: Glamorgan County); Alfken, 1914:273 (northwestern Germany); Haines, 1914:129 (Great Britain: Dorset); Kohl, 1915:213 (in revision of Palearctic Crabronini); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Morley, 1919:209 (Great Britain: Hampshire: New Forest); Stöckhert, 1919:37 (Germany: Franken); A. Wagner, 1920:44 (Germany: Lower Elbe region); Dubois, 1921b:154 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Maréchal, 1923:15 (Belgium: Gospinal near Liège); Noskiewicz, 1924a:114 (Poland: vicinity of Kraków); Berland, 1925d:188 (in Sphecid Fauna of France); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:32 (Czechoslovakia); Berland, 1928b:181 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d; France: Finistère: Fouesnant); Bouwman, 1930:98 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:648 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:139 (in revision of Sphecidae of Finland); Bondroit, 1932:40 (Belgium: Forêt de Soignes); K. Strohm, 1933:338 (Germany: Baden-Württemberg: Kaiserstuhl); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Richards, 1935a:167 (type in Berlin, corresponds to current interpretation, the name is preoccupied); Steck, 1935:323 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Opatów); Blüthgen, 1937:235 (Germany: Saale River valley: Schulpforta); Goebel, 1937:38 (Poland: Poznań); Zavadil, Šustera, and Bat'a, 1937:158 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:116 (northwestern Germany); Paul, 1941:35 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1945:114 (Czech Republic: southeastern Morava Region); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers, as *signarus*); Cavro, 1950:39 (France: Département du Nord); Fæster, 1951:456 (differences between females of *Crabro signatus* and *serripes*), 457 (distribution in Scandinavia); Vogrin, 1955:42 (Yugoslavia); Preuss, 1964:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg). – **As *Blepharipus signatus***: Lepeletier de Saint Fargeau and Brullé, 1835:731 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:136 (in revision of world Hymenoptera); Taschenberg, 1858:109 (in key to Sphecidae of Germany: Austria); Funk, 1859:58 (Germany: Bayern: Bamberg); Jaennicke, 1867:147

(Germany: Hessen: Frankfurt area); Kirchner, 1867:224 (in catalog of European Hymenoptera); Jaennicke, 1868:8 (Germany: Hessen: Frankfurter Wald); Wierzejski, 1868:118 (either Poland: Kraków area, or Ukraine: Podole Region: no specific locality); Dours, 1874:154 (in catalog of Hymenoptera of France); Wierzejski, 1874:261 (Ukraine: Podole Region: no specific locality); Engel, 1894:52 (Germany: Hoisdorf near Hamburg); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Chevalier, 1923c:38 (nesting habits); Coulon, 1925:123 (France: Evreux, Oise, Seine-et-Oise); Bradley, 1957:47 (Lepeletier's specimens in Turin); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Vago, 2005a:14 (*Crabro signatus* in Cavro, 1950 is *Crossocerus binotatus* now); Pagliano, 2011a:145 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.), 146 (specimens in M. Spinola collection, Torino, are *Crossocerus binotatus* and *C. dimidiatus*). – **As *Cuphopterus signatus***: Schirmer, 1912:164 (new generic assignment, Germany: Berlin area); R. Perkins, 1913b:391, 395 (in key to British Crabronini); Łoziński, 1920:121 (Poland: Maków Podhalański); R. Perkins, 1925:152 (Great Britain: Gloucestershire: Wotton); Hamm and Richards, 1926:317 (summary of nesting habits), 328 (list of prey); Hémon, 1926:200 (France: Finistère: Fouesnant); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Jones, 1932b:233 (Great Britain: Wicken Fen); Hallett, 1939:16 (Great Britain: Wales: no specific locality).

Crossocerus binotatus Lepeletier de Saint Fargeau and Brullé, 1835:771, ♀. Holotype or syntypes: ♀, France: Paris area (destroyed). Neotype: ♀, France: Versailles (MNHN), designated by Leclercq, 1974d:274. Synonymized with Crossocerus signatus Panzer by Leclercq, 1974d:273. – Dahlbom, 1845:525 (in key to Crabro); Lepeletier de Saint Fargeau, 1845:175 (in revision of world Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Leclercq, 1974e:660 (in key to Asian species of subgenus Cuphopterus), 664 (valid name for signatus Panzer and confusus Schulz), 1975b:3 (France); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Lomholdt, 1976:410 (in Sphecid Fauna of Fennoscandia and Denmark); Banaszak, 1977:112 (Poland: Rogalin near Poznań); Guichard, 1977:253 (Great Britain: Surrey); Schmidt, 1977:99 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); van der Zanden, 1977a:19 (Netherlands); Lefeber, 1978:138 (Netherlands: Nunspeet, Otterlo); Pulawski, 1978:257, 262 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1461 (Belgium);

Marshakov, 1979a:91, 98 (in key to Crossocerus of Russian Far East); Schmidt, 1979a:56 (Germany: Ost-Holstein); Marshakov, 1980c:337, 349 (in key to Crossocerus of Mongolia, Kazakhstan, and Central Asia; in USSR: central and southern European part, Kazakhstan); Pagliano, 1980:122 (Italy: Veneto); Richards, 1980:48 (in key to Sphecidae of British Isles); Schmidt, 1980:335 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:322 (Austria: Niederösterreich: Scheibbs District); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Riemann, 1983:89 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Haack, Tscharntke, and Vidal, 1984:125 (Germany: Hamburg area); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Józan, 1985b:59 (Hungary south of Lake Balaton), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:70 (Germany: Südpfalz); Nilssen, 1986:88 (Sweden); Skibińska, 1986b:151, 155 (Poland: suburbs of Warszawa); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); Jacobs, 1989:18 (Germany: Mecklenburg-Vorpommern); Pádr in Šedivy, 1989a:169 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:97 (Belorussya: Berezinskiy Nature Reserve); Archer, 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:192 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:23 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:84 (Czech Republic: Praha area); Pagliano, 1990:82 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:544 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Dollfuss, 1991:152 (in key to Sphecidae of North and Central Europe); Nilsson, 1991:84 (Sweden: Lake Mälaren), 90 (distribution in Sweden); Pagliano, 1991b:337, 341 (in key to Italian Crabroninae); van der Smissen, 1991:96 (northwestern Germany); Budrys, 1992:33 (in list of Sphecidae of Lithuania); Leclercq, 1992c:207 (prey); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:134 (in revision of western European Crabroninae); Józan, 1993:413 (Hungary: Bükk National Park); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:17 (Austria, Belgium, Italy; Algeria: El Kseur, forêt d'Akfadou); Leclercq and Barbier, 1993:22 (map of distribution in France); Mochi and Luchetti, 1993:105 (Italy: Piemonte: Alpi Marittime); van der Smissen, 1993:128 (northwestern Germany); Kowalczyk, 1994:75 (Poland:

Łagiewnuki Forest in Łódź); Theunert, 1994c:35 (Germany: summary of records from Niedersachsen and Bremen); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Riemann, 1995:52 and 58 (Germany: Bremen); Scharrer, 1995:25 (Germany: Hessen: Eulbach); Schmid-Egger, Risch, and Niehuis, 1995:171 (Germany: summary of records from Rheinland-Pfalz); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Gusenleitner, 1996a:9 (Austria); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Harvey and Plant, 1996:71 (Great Britain: summary of records from Essex); Jakubzik, 1996:251 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: probably endangered); Witt, 1996:105 (Germany: Brandenburg), 107 (locality records); Woydak, 1996:71 (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, 1997:9 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Denton, 1998:350 (England: Hampshire); Dollfuss, Gusenleitner, and Bregant, 1998:517 (Austria: summary of collecting records from Burgenland); Haeseler and Ritzau, 1998:50 (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, 1998:18 (Great Britain: Wales: Carmarthenshire County); van der Smissen, 1998:55 (Germany: Schleswig-Holstein); Archer, 1999c:216 (Great Britain: Lincolnshsire); Dorow, 1999:528, 573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); W. Klein, 1999:6, 10 (in improved key to Crossocerus of Benelux); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: threatened with extinction in Nordrhein-Westfalen); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:86 (Austria: Oberösterreich: city of Linz area); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:293 (in Sphecid Fauna of Germany); Dressler, 2000:31 (Germany: Hessen: Darmstadt area); Jacobs, 2000:6 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Luig and Voolma, 2000:125 (first record from Estonia); Zettel, 2000:29 (Austria: Mauerbach); Archer, 2001c:15 (Great Britain: Watsonian Yorkshire); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve), 166 (comments on distribution and ecology); Edwards

and Telfer, 2001:60 (Great Britain: distribution, status, habitat, flight period, prey, nesting habits, flower visiting, parasites, and distribution map); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Ljubomirov, 2001b:52 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:138 (distribution in Germany by provinces); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: possibly endangered); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Archer, 2002b:117 (Great Britain: Watsonian Yorkshire: distribution map); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Dorow, 2002:16 (Germany: Hessen: Weiherskopf Forest Reserve); Gayubo, González, Tormos, and Asís, 2002:86 (first records from Iberian Peninsula: Andorra: Santa Coloma, and Spain: Navarra: Artikutza); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józan, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:98 (geographic distribution, recorded from Kazakhstan); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Litt, 2002:167 (Belgium); Martínez de Murguia, Vázquez, and Nieves Aldrey, 2002:202 (Spain: Navarra: Artikutza Forest Reserve at 43°09'28"–43°14'52"N 0°1'45'35"–01°49'30"E); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Wiśniowski, 2002:71 (Poland: Ojców National Park); Ziska, 2002:7 (Germany: Berlin-Köpenick: Krumme Lake); Cölln, Esser, and Jakubzik, 2003:61 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Germany: Hessen: Staufenberger Terasse); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kowalczyk and Kurzac, 2003:209 (Poland: Łódź: Botanical Garden); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area), 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Robinson, 2003:170 (Great Britain: Cumbria: Hutton Roof Crags); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wiśniowski in Dylewska and Wiśniowski, 2003:161 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Deván, 2004:146 (western Slovakia); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at

50°06'42"N 7°43'87"E); Klein and Lefeber in Peeters, van Achterberg, et al., 2004:367 (in Wasp and Ant Fauna of Netherlands); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Tischendorf and Frommer, 2004:67 (Germany: Hessen: near Lorch); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); G. Allen, 2005a:9 (Great Britain: Dorset County: Broadstone); Archer, 2005b:92 (Great Britain: Watsonian Yorkshire); Burger, 2005:31 (Germany: Thüringen); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Kofler, 2005:175 (Austria: Tirol: Lienz District: city of Lienz); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Pagliano and Negrisolo, 2005:249 (in Sphecid Fauna of Italy); Quest and Kuhlmann, 2005:33 (Germany: Bayern: Bayerischer Wald National Park); Robinson, 2005:34 (Great Britain: Cumbria County); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors), 58 (Germany: Hessen: Fulda: Eichenzell); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:403 (vulnerable in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:2 (France: Département du Nord: Bugnicourt and Marcoing); Dollfuss, 2006:507 (Slovenia); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:207 (first record from Spain: Cantabria: Liencres); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Chevin, Livory, Lair, Sagot, and Baldock, 2007:22 (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); Jacobs, 2007:128, 136 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne and Nord); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:204 (in catalog of Sphecidae of Czech Republic and Slovakia); Archer, 2008c:145 (Great Britain: Lincolnshire: Hardy Gang Wood); Haeseler, 2008:307 (Germany: Friesian Islands); Mei, 2008:175 (Italy: first records from Friuli, Lombardia, Lazio, Abruzzo, Silia, and Sardegna); Sobek, Tscharntke, Scherber, Schiele, and Steffan-

Dewenter, 2008:614 (Germany: Thüringen: Nationalpark Hainich: nesting mostly in canopy); Theunert, 2008:17 (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, 2009:221 (in supplement to vol. I of Faune de France, 1993: France: Haut-Rhin: Munster; Var: Le-Garde-Freinet and Montauroux); Debuyser and Vago, 2009:5 (in list of Sphecidae sensu lato of northern France); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Leclercq, 2009:161 (member of subgenus Cuphopterus), 165 (in list of Asian Crossocerus, bibliographic references, recorded from Kazakhstan by Kazenas, 2001); Shorenko, 2009:367 (in list of Sphecidae sensu lato of Crimea); Straka, Dvořak, and Bogusch, 2009:258 (Czech Republic: Oldřichovské sedlo); Dorow, 2010:208 (Germany: Hessen: Nature Forest Reserves Goldbachsrück and Ziebachsrück); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik, Kinkler, and Cölln, 2010:154 (Germany: Rheinland-Pfalz: Leverkusen-Steinbüchel); 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', 2010:156 (Russia: central and southern Ural Mountains); Saure, 2010a:87 (Germany: Berlin-Reinickendorf: Baumberge); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:132 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:17 (Ukraine: Khar'kov Oblast': village Konstantinovka); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein: locality records); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common); Gogala, 2011:18 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae sensu lato of Hungary); Mokrousov, Berezin, and Egorov, 2011:71 (Russia: Chuvash Republic); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:117 (Germany: Hessen: not endangered); Tripotin, 2011:22 (France: Seine-Maritime: artificial sand site near Sandouville); 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: Skäne: Kullaberg Peninsula); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Tripotin, 2012:22 (France: Seine-Maritime: estuary of Seine river); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae sensu lato); Shlyakhtenok, 2013:201 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:28 (Poland: Kampinos National Park near Warszawa); Bitsch, 2014:400 (France: several localities); U. Frommer, 2014:26 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1321 (Germany: Hessen: Roβstein); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Shorenko, 2015:320 (in list of Sphecidae sensu lato of Crimea); Blažej, Macek, and Trýzna, 2016:114 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:20 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae sensu lato of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:230 (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 understory); Fresno, 2017:153 (Spain: Asturias: La Isla); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:46 (Iran: known from Mazandaran Province); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Vallée d'Eyne); Shorenko, 2017:76 (in Crimea collected in June); 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, 2019:13 (France: in list of Sphecidae sensu lato of Franche-Comté); Olszewski and Kowalczyk, 2019:92 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:95 (western Czech Republic); Bitsch and Leclercq in Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:72 (in revision of Sphecidae sensu lato of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae sensu

lato of Poland); Buck and Bennett, 2025:212 (in checklist of Sphecidae sensu lato of Canada, Alaska, and Greenland: first record from Canada: Quebec: no specific locality). – **As *Crabro binotatus***: Dahlbom, 1844:344 (new generic assignment, in revision of Sphecidae and Pompilidae), 1845:525 (in key to *Crabro*); F. Smith, 1856:410 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:584 (in catalog of world Sphecidae); von Heyden, 1905:83 (Germany: Hessen: Frankfurt). – **As *Blepharipus binotatus***: Kirchner, 1867:224 (new generic assignment, in catalog of European Hymenoptera); de Gaulle, 1908:122 (in catalog of French Hymenoptera, as *bizonatus*).

Crabro monstrosus Dahlbom, 1845:525, ♂ (authorship attributed to G. Herrich-Schaeffer). Holotype or syntypes: ♂, Europe: no specific locality (Lund). Tentatively synonymized with *Crossocerus binotatus* by Leclercq *in* R. Bohart and Menke, 1976:400, synonymy confirmed by Lomholdt, 1976:410. – Leclercq, 1974d:275 (synonymy). Nec earlier authors (= *Crossocerus subulatus*). – **As *Blepharipus monstrosus***: Kirchner, 1867:224 (new generic assignment, in catalog of European Hymenoptera).

Crabro confusus Schulz, 1906:207. Substitute name for *Crabro signatus* Panzer, 1798. – Zavadil *in* Zavadil and Šnoflak, 1948:123 (in key to Sphecidae of Czechoslovakia); Balthasar, 1950:37 (Slovakia: Zadielska dolina); Leininger, 1951:115 (Germany: Baden-Württemberg); Nouvel and Ribaut, 1953:183 (France: Haute-Garonne: Saint-Béat); de Beaumont, 1954e:96 (Italy); Pulawski, 1955b:103 (structure of male tergum VII); Hellén, 1956:42 (recorded from Finland); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:143, 150 (in key to Polish Sphecidae); Niedl and Deneš, 1967:71 (Czech Republic: Třeboň area); Balthasar, 1972:90 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:150 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:27 (Latvia); Skibińska, 1981:358 (Poland: Warszawa-Białołęka). – **As *Blepharipus confusus***: Richards, 1937b:106 (new generic assignment, in checklist of British aculeates); Schneid, 1941:1028 (new generic assignment, Germany: Bayern: Bamberg area); J. Perkins, 1942:198 (Sweden: Skåne: Ring Lake and Röstånga); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Wotton); Chambers, 1949:229 (Great Britain: Bedfordshire). – **As *Crossocerus confusus***: Leclercq, 1951e:11 (new generic assignment, bibliography of Belgian records), 1954c:241 (in catalog of world Crabronini), 313 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); de Beaumont, 1957b:138 (northern Iran); Móczár, 1958a:264 (in annotated catalog of Hungarian Crabronini), 1958b:198 (Hungary: collecting localities); Wolf, 1959b:33 (Germany: Nassau); Grandi, 1962:98 (Italy); Babiy, 1964:118 (Austria: Land Salzburg); de

Beaumont, 1964c:150 (in Sphecid Fauna of Switzerland); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Hoop, 1967a:39 (Germany: Schleswig-Holstein: Bosau); Gauss, 1967:559 (Germany: Baden-Württemberg); Leclercq, 1967a:34 (Great Britain: locality records); Lefeber, 1969a:79 (Netherlands: t'Rooth), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:779 (Democratic Germany); Lefeber, 1971a:18 (Netherlands: Sloten; Belgium: Smeermaas); Petit, 1971:22 (Luxemburg: Bourscheid); Scobiola-Palade, 1972a:152 (Romania: delta of Danube: Caraorman), 1972b:255 (Romania); Haeseler, 1973:55 (Germany: Schleswig-Holstein: Kiel); Lefeber, 1975b:119 (Netherlands: Schiepersberg), 154 (Belgium); Lomholdt, 1975b:32 (Denmark: Island of Anholt); Eck, 1976:94 (Democratic Germany); Hoop, 1977:73 (Germany: Schleswig-Holstein: Flemhude); Scobiola-Palade, 1985:97 (Romania: delta of Danube); Tyrner, 1985:9 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Kowalczyk, 1991a:90, 104 (Poland: Łódź). – **As *Ectemnius confusus***: Hellén, 1955a:129 (new generic assignment, not occurring in Finland).

26. *bispinosus* de Beaumont

Crossocerus bispinosus de Beaumont, 1967a:354, ♀, ♂. Holotype: ♂, Turkey: Ankara: Kavaklidere (BMNH). – R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Marshakov, 1980c:350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: Turkmenistan), 364 (redescription); Leclercq, 1993c:17 (Turkey: Konya: Kulu); Dollfuss, 2006:507 (Bulgaria: Rodopi: Markovo, Varvara; Greece: Phokis); Leclercq, 2007f:189 (references to records from Greece); Ljubomirov and Yildirim, 2008:264 (in catalog of Crabronidae of Turkey); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 166 (in list of Asian *Crossocerus*, bibliographic references, geographic distribution); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey), 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

27. *bnun* Tsuneki

Crossocerus bnun Tsuneki, 1971a:21, ♀. Holotype: ♀, Taiwan: Nantou Prefecture: Tsuifeng (originally K. Tsuneki collection, now USNM). – R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Li and Fang, 2003:148 (in key to subgenus

Ablepharipus of China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 166 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*).

28. *boharti* Leclercq and Miller

Crossocerus boharti Leclercq and Miller *in* Leclercq, 2000d:33, ♀, ♂. Holotype: ♂, USA: California: Napa County: Angwin (Cornell Univ.).

29. *brahmanus* Leclercq

Crossocerus brahmanus Leclercq, 1956e:229, ♂. Holotype: ♂, India: Tamil Nadu: Madura, Shembaganur (FSAG). – Leclercq, 1963:14 (India: Tamil Nadu; individual variation); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 1978a:123 (in key to Asian species of subgenus *Yuchiha*), 124 (description of ♀), 2007g:194 (holotype in FSAG), 2009:162 (member of subgenus *Yuchiha*), 166 (in list of Asian *Crossocerus*, bibliographic references, individual variation).

30. *breviclypeatus* Tsuneki

Crossocerus breviclypeatus Tsuneki, 1977c:18, ♀, ♂. Holotype: ♀, Taiwan: Nantou Prefecture: Wushe-Pihu (originally K. Tsuneki collection, now Hyogo Mus.). – Tano, 1995:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Alicrabro*), 166 (in list of Asian *Crossocerus*, bibliographic references, valid species according to Nemkov, 2004); Tano, 2010b:39 (member of *Alicrabro*, in list of Japanese subgenera of *Crossocerus*).

31. *brooksi* Leclercq and Miller

Crossocerus brooksi Leclercq and Miller *in* Leclercq, 2000d:34, ♀. Holotype: ♀, USA: California: Sacramento: Fair Oaks (UCD).

32. *brunniventris* (Arnold)

Thyreopus brunniventris Arnold, 1932:22, ♀. Holotype: ♀, Zimbabwe: Chirinda Forest (SAM). – **As *Crossocerus brunniventris***: Leclercq, 1954c:221 (new generic assignment, in catalog of world Crabronini), 1958a:8 (in key to Afrotropical *Crossocerus*), 16 (Zaire: Upemba National Park; variation, diagnostic characters); nec Leclercq, 1958a:14, and 1961b:75 (= *Crossocerus riparius*); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); Leclercq, 2008:7 (in key to Afrotropical *Crossocerus*), 17 (bibliographic references).

33. *bukavu* Leclercq

Crossocerus bukavu Leclercq, 2008a:17, ♀. Holotype: ♀, Zaire: Lwiro River 47 km N Bukavu (CAS). – Leclercq, 2008a:7 (in key to Afrotropical *Crossocerus*).

34. *bulawayoensis* (Arnold)

Thyreopus bulawayoensis Arnold, 1932:23, ♀, ♂. Syntypes: Zimbabwe: Bulawayo (SAM). – **As *Crossocerus bulawayoensis***: Leclercq, 1954c:236 (new generic assignment, in catalog of world Crabronini), 1958a:10 and 11 (in key to Afrotropical *Crossocerus*), 25 (Zaire), 1961b:77 (Zaire: Garamba National Park); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Dollfuss, 1990:122 (Central African Republic), 2006:507 (Central African Republic: Kembe; Kenya: Voi; Senegal: Simenti); Leclercq, 2008:6, 9 (in key to Afrotropical *Crossocerus*), 10 (bibliographic references, locality records from South Africa, comments on originl description).

35. *burungaensis* (Arnold)

Thyreopus burungaensis Arnold, 1934:22, ♀, ♂. Syntypes: Zaire: Burunga (SAM). – **As *Crabro burungaensis***: Arnold, 1943:83 (new generic assignment, Zaire: Albert National Park, now Virunga National Park). – **As *Crossocerus burungaensis***: Leclercq, 1954c:236 (new generic assignment, in catalog of world Crabronini), 1958a:11 and 15 (in key to Afrotropical *Crossocerus*), 20 (Kenya, Rwanda, Zaire; diagnostic characters); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 2008a:8, 10 (in key to Afrotropical *Crossocerus*), 17 (bibliographic references, Zaire: Lwiro River 47 km N Bukavu).

36. *callani* Pate

Crossocerus callani Pate, 1941e:5, ♀. Holotype: ♀, Trinidad: Brasso (ANSP). Paratype: British Guiana. – Leclercq, 1954c:238 (in catalog of world Crabronini), 1968c:94 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Callan, 1991a:12 (Trinidad); H. Allen, 1995:15 (holotype in ANSP); Leclercq, 2000d:35 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae); Starr and Hook, 2003:18 (in catalog of Aculeata of Trinidad, West Indies); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

Crossocerus potosus Leclercq, 1968c:100, ♀, ♂. Holotype: ♀, Bolivia: no specific locality (NHMW). Paratype: Peru. Synonymized with *Crossocerus callani* by Bitsch and Leclercq, 1993:140 and Leclercq, 2000d:35 (as new synonym). – Leclercq, 1968c:96 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Amarante, 2002:25

(in catalog of Neotropical Crabronidae), 2005a:10 (correction to his 2002 catalog).

37. *cameroni* Leclercq and Miller

Crossocerus cameroni Leclercq and Miller *in* Leclercq, 2000d:36, ♀, ♂. Holotype: ♀, Mexico: México: Agualendita (CORNELL UNIV.). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

38. *capax* Leclercq

Crossocerus capax Leclercq, 2008a:18, ♀. Holotype: ♀, Kenya: Kakamega District: Ischeno (LACM). – Leclercq, 2008:6 (in key to Afrotropical *Crossocerus*).

39. *capitalis* Leclercq

Crossocerus capitalis Leclercq, 1958a:18, ♂. Holotype: ♂, Zaire: Kinshasa (FSAG). – Leclercq, 1958a:8 (in key to Afrotropical *Crossocerus*); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Leclercq, 2007g:194 (holotype in FSAG), 2008:6, 9 (in key to Afrotropical *Crossocerus*), 18 (bibliographic references, holotype damaged, Botswana: Serowe, Kenya: Naivasha, Tanzania: Marangu).

40. *capitosus* (Shuckard)

Crabro capitosus Shuckard, 1837a:159, ♀. Syntypes: Britain: Battersea Fields (depository unknown). – Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:317 (in revision of Sphecidae and Pompilidae), 1845:522 (in key to *Crabro*); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:29 (Great Britain: Kent: Birch Wood); Wesmael, 1852:595 (Belgium: Bruxelles); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:404 (in catalog of Hymenoptera in British Museum); Schenck, 1857:76 (Germany: in revision of fossorial wasps of Nassau Region); F. Smith, 1857d:40 (Great Britain: no specific locality), 1858c:137 (in review of British Aculeata, redescription); Schenck, 1860:145 (Germany: Nassau Region); A. Morawitz, 1864:458 (Russia: Sankt-Petersburg); Taschenberg, 1866:180 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (Germany: Nassau Region); von Aichinger, 1870:313 (Austria: Tirol); Thomson, 1870:160 (in revision of Swedish Crabroninae); F. Smith, 1871b:14 (in catalog of British Aculeata); Thomson, 1874:265 (in revision of Hymenoptera of Scandinavia); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county by F. Smith, 1858); Kohl, 1880:124 (Austria: Tirol, and Italy: Trentino-AltoAdige); E. Saunders, 1880:283 (in revision of British Aculeata); Siebke, 1880:68 (Norway); Marquet, 1881:187 (in

Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:654 (Switzerland); Sickmann, 1883:70 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Emmelsbüll, Husum, Sonderburg); Kohl, 1888b:721 (Austria: Tirol, now Italy: Alto Adige); V. Perkins, 1892:204 (Great Britain: Gloucestershire: Wotton-under-Edge); C. Verhoeff, 1892b:362 (male cocoons are closer to nest entrance), 363 (nest may include progeny of one sex only), 365 (individuals of both sexes that emerge first are larger), 1892c:717 (nesting habits); Kohl, 1893a:22 (Austria: Niederösterreich); Sickmann, 1893:67 (Germany: Niedersachsen: Iburg); Krieger, 1894:4 (Germany: Kingdom of Saxony); Meunier, 1896:269 (Belgium: Bruxelles area); E. Saunders, 1896:131 (in revision of British Aculeata); Dalla Torre, 1897:585 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Hungary except Nagyszeben is now Sibiu, Romania); Strand, 1898b:95 (Norway); Baer, 1901:161 (description of nest, prey); Hocking, 1901:68 (Great Britain: Surrey county); Aurivillius, 1904:294 (in revision of Swedish Sphecidae); Höppner, 1904:168 (nest parasite: *Eurytoma rubicola* Gir.); Schmiedeknecht, 1907:192, 195 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Hallett, 1912:94 (Great Britain: Glamorgan County); Alfken, 1914:273 (northwestern Germany); Haines, 1914:129 (Great Britain: Dorset); Kohl, 1915:222 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Simontornya); R. Perkins, 1916:231 (specimens in F. Smith collection); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:38 (Germany: Franken); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921a:18 (Belgium), 1921b:156, 157 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Berland, 1925d:185 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia; Poland: Białowieża and Grajewo area); Grönblom, 1925:1 (nesting habits); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Carpentier, Crèvecoeur and Maréchal, 1926:354 (Belgium: Avister, Haut-Pré, Massouheid, Méry); Zavadil, 1926:33, footnote (Czechoslovakia); Berland, 1928b:180 (add Maréchal, 1927 and Hamm and Richards, 1926 to bibliography in Berland, 1925d); Barovskij, 1929:148 (Russia: Sankt-Petersburg); Blüthgen, 1929:82 (Germany: Saale River valley: Naumburg); Schmiedeknecht, 1930:649, 657 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:141 (in revision of Sphecidae of Finland); Bondroit, 1933:32 (Belgium: Bruxelles; prey: *Pachygaster leachi* Curtis, a stratiomyid); E. Nielsen,

1933:266 (summary of nesting habits); Stelfox, 1933:51 (Ireland); K. Strohm, 1933:338 (Germany: Baden-Württemberg: Kaiserstuhl); Balles, 1934:16 (Germany: Baden-Württemberg: Achern); Bondroit, 1934:62 (Belgium: Forêt de Soignes); Jansson, 1934:287 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:323 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Łowicz); Zavadil, Šustera, and Bat'a, 1937:160 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:116 (northwestern Germany); Teunissen, 1939:170 (first record from Netherlands: Haaren, Herpen, Meyendell); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Benno, 1943:68 (Netherlands); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Tsuneki, 1947e:416 (Japan: Hokkaido), 1948c:6 (Japan: Hokkaido); van Lith, 1948b:265 (nest, cocoons facing away from nest entrance); Zavadil *in* Zavadil and Šnoflak, 1948:125, 132 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:38 (France: Département du Nord); Fæster, 1951:457 (distribution in Scandinavia); de Beaumont, 1954e:97 (Italy); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1957:144 (Netherlands: Tilburg area, nesting in stems of *Rubus*); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Landau); Benno, 1958a129 (nesting in stems of *Rubus*), 1958b:19 (in review of Dutch Sphecidae); Lundblad, 1958:48 (Sweden: Gotland); Noskiewicz and Puławski, 1960:146, 154 (in key to Polish Sphecidae); Fæster, 1965:193 (Denmark: Hansted Nature Reserve); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:30 (Latvia); Balthasar, 1972:107 (in Sphecid Fauna of Czechoslovakia); Józan, 1981:306 (Hungary: Hortobágy National Park); Skibińska, 1982:124 (Poland: Warszawa area); Kowalczyk, 1988b:66 (Poland: environs of Łódź); D. Baker, 1998:172 (type origin and depository). – **As *Blepharipus capitosus***: R. Perkins, 1913b:389, 393 (new generic assignment, in key to British Crabronini), 1924:225 (Great Britain: Devon), 1925:152 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:311 (summary of nesting habits), 324 (list of prey); Stelfox, 1927:299 (Ireland: list of localities); Butterfield and Fordham, 1931:157 (Great Britain: Yorkshire); Jones, 1931:98 (Great Britain: Nottinghamshire); Spooner, 1931:16 (Great Britain: Cambridgeshire); Routledge, 1933:89 (England: Cumberland); Hallett, 1938:72 (Great Britain: Herefordshire: Ross-on-Wye). –

As *Coelocrabro capitosus*: Lange, 1898:70 (new generic assignment, Germany: Sachsen: Annaberg-Buchholz); Schirmer, 1912:164 (Germany: Berlin area); Box, 1919:17 (Great Britain: common in Leicester, Warwick, and Northampton counties); Kerenskiy, 1919:32 (Russia: Penza Governorate); Coulon, 1925:124 (France: Evreux); Maréchal, 1927:101 (nesting habits); Baudot, 1931:255 (characteristics of cocoon); Iwata, 1933b:12 (locality records from Japan); Spooner, 1935:139 (Great Britain: Northamptonshire: Ashton Wold); Richards, 1937b:106 (in checklist of British aculeates); J. Murray, 1938a:172 (Great Britain: Scotland: Dumfriesshire: Gretna); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1029 (Germany: Bayern: Bamberg area); Bat'a, 1942:85 (Czech Republic), 1944a:25 (Czech Republic); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Chalford, Lea Bailey, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Chambers, 1949:227 (Great Britain: Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Hamann, 1960:199 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Danks, 1971a:362 (nesting habits), 1971c:80 (nest mortality); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district). – **As *Crossocerus capitosus***: Ruthe and Stein, 1857:315 (new generic assignment, Germany: Berlin area); Taschenberg, 1858:106 (in key to Sphecidae of Germany); Assmuss, 1859:617 (Russia: Moscow Governorate); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:225 (in catalog of European Hymenoptera); Wierzejski, 1868:118 (Ukraine: Bukowina Region: Kalinowce), 1874:261 (Poland: Kraków; Ukraine: Podole Region: Kalinowce); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); Borries, 1897:33 (nesting habits); Rudow, 1912:75 (nesting in raspberry twigs); Leclercq, 1949a:7 (Austria, Germany), 1951e:8 (bibliography of Belgian records); Tsuneki, 1952c:69 (Japan: Shikoku); Fahlander, 1954:250 (Sweden: Gästrikland Region); Leclercq, 1954c:236 (in catalog of world Crabronini), 311 (nest and prey records); Tsuneki, 1954b:63, 69 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Tsuneki and Tanaka, 1955a:70 (Japan: Nikko 120 km northwest of Tokyo); Evans, 1957b:107 (discussion of larval characters); Móczár, 1958a:264 (in annotated catalog of Hungarian Crabronini), 1958b:198 (Hungary: collect-

ing localities); Tsuneki, 1959n:70, 74 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959a:13 (Germany: no specific locality), 1959b:33 (Germany: Nassau); Tsuneki, 1960c:193 (characteristics of Japanese populations), 1960g:44 (nesting habits); Hoop, 1961:63 (Germany: Schleswig-Holstein: Rosenkranz); Valkeila, 1962b:68 (southwestern Finland); Hoop, 1963b:6 (Germany: Schleswig-Holstein: Kronshagen, Russee); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:149 (in Sphecid Fauna of Switzerland); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Leclercq, 1965b:387 (Belgium: city of Liège); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:559 (Germany: Baden-Württemberg); Leclercq, 1967a:34 (Great Britain: locality records, and Ireland); Lefeber, 1967c:220 (Netherlands: Limburg), 1968b:95 (Netherlands: Kannerbos and Sint-Pietersberg); Matsuura, 1968:29 (Japan); Tano, 1968:34 (Japan); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Lefeber, 1969b:99 (Netherlands: Kannerbos, Mastricht, Sint-Pietersberg; Belgium: Lanaye), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Zangheri, 1969:1707 (Italy: in catalog of flora and fauna of Romagna Region); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:783 (Democratic Germany); Schmidt, 1971c:75 (Germany: Schleswig-Holstein); Wolf, 1971:375 (Italy: Trentino–Alto Adige: Alpi Siusi); Kofler, 1972:115 (Austria: eastern Tirol); Nambu, 1972e:91 (Japan: Saitama Prefecture); Scobiola-Palade, 1972b:255 (Romania); Nambu, 1973a:153 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Lefeber and Petit, 1974:163 (Belgium: Plombières); Leclercq, 1974d:270 (synonymy), 1975b:3 (France); Nambu, 1975b:76 (Japan: Saitama Prefecture); Lefeber, 1975b:156 (Belgium); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Lomholdt, 1976:405 (in Sphecid Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Pulawski, 1978:261, 263 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1452 (Belgium); Marshakov, 1979a:97, 101 (in key to *Crossocerus* of Russian Far East); Schmidt, 1979a:58 (Germany: Ost-Holstein); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Marshakov, 1980c:347, 354 (in key to *Crossocerus* of Mon-

golia, Kazakhstan, and Central Asia; in USSR: European part, Kazakhstan, Maritime Province); Richards, 1980:50, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:336 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:317, 323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Woydak, 1981:50 (Germany: Westfalen: Hamm); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Westrich, 1983:81 (Germany: Tübingen area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Haack, Tscharntke, and Vidal, 1984:125 (Germany: Hamburg area); Lefeber, 1984:28 (Netherlands: Maastricht); Haeseler, 1985c:571 (Germany: Friesian Islands); Józan, 1985b:59 (Hungary: Mernye), 70 (map of distribution in Hungary), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:70 (Germany: Südpfalz); Józan, 1986:372 (Hungary: Kiskunság National Park); Skibińska, 1986b:158 (Poland: Warszawa area: rural and suburban parks), 163 (urban parks), 175 (various green urban habitats); Vikberg, 1986:77 (Finland); Riemann, 1987a:340 (Germany: Niedersachsen: Bremen area); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:15 (Austria: Bisamberg); Haeseler, 1988:210 (Germany: Friesian Islands); Archer, 1989a:131 (Great Britain: York: found before coniferization); Jacobs, 1989:18 (Germany: Mecklenburg-Vorpommern); Józan, 1989:101 (Hungary: Tihany Nature Reserve); Nilsson, 1989:48 (Sweden); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Archer, 1990b:137 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:188 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Pádr, 1990:84 (Czech Republic: Praha area); Pagliano, 1990:83 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:544 (Austria: Kärnten); Pádr, 1990:84 (Czech Republic: Praha area); Dollfuss, 1991:152 (in key to Sphecidae of North and Central Europe); Pagliano, 1991b:341, 343 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:33 (in list of Sphecidae of Lithuania); Leclercq, 1992c:207 (prey); Nilsson, 1992:55 (Sweden); Wolf, 1992c:21 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Bitsch and Leclercq, 1993:106 (in revision of western European Crabroninae); Gorobchishin, 1993:47 (Ukraine: Kanev Nature Reserve); Kuhlmann, 1993:75 (Germany: known from Westfalen);

Leclercq, 1993c:17 (Austria, Germany); Leclercq and Barbier, 1993:23 (map of distribution in France); Sorg and Wolf, 1993:59 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Felton and Schneider, 1994:289 (Luxemburg); Theunert, 1994c:35 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Józan, 1995:105 (Hungary: projected Duna-Dráva National Park); Kowalczyk and Krzeptowski, 1995:189 (Poland: Zakopane); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 441 (in key to Sphecidae of Russian Far East); Schmid-Egger, 1995:58 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:171 (Germany: summary of records from Rheinland-Pfalz); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Jakubzik, 1996:251 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg), 107 (locality records); Woydak, 1996:65 (Germany: Westfalen: summary of distribution and nesting habits); Celary, 1997:59 (in checklist of Animals of Poland); Knutelski, 1997:54 (correction to Kowalczyk and Krzeptowski, 1995: Poland: *Crossocerus capitosus* is new only for Kotlina Zakopiańska); Riemann, 1997:49 (Germany: Achim 14 km southeast of Bremen); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Schmidt and Schmid-Egger, 1997:9 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:517 (Austria: summary of collecting records from Burgenland); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Shkuratov, 1998:98 (Russia: Rostov Oblast'); Tscharntke, Gathmann, and Steffan-Deventer, 1998:718 (trap-nesting in Germany); van der Smissen, 1998:55 (Germany: Schleswig-Holstein); K. Weber, 1998:136 (Germany: Bayern: Bamberg area); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); W. Klein, 1999:10, 14 (in improved key to *Crossocerus* of Benelux); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan,

Rychlík, and Deván, 1999:146 (first record from Slovakia: Čenkovská Step Nature Reserve); Mandery, 1999:104 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:223 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:86 (Austria: Oberösterreich: city of Linz area); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:293 (in Sphecid Fauna of Germany); Jacobs, 2000:6 (Germany: Mecklenburg-Vorpommern: not endangered); Luig and Voolma, 2000:124 (first record from Estonia); M. Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); Zettel, 2000:29 (Austria: Wien); Archer, 2001b:14 (Great Britain: Watsonian Yorkshire); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 192 (review of known biology); Li and He, 2001:757 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E); Ohl et al., 2001:138 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: not endangered); Wolf, 2001:127 (Germany: Nordrhein-Westfalen: Plettenberg, nesting in stems of *Rubus*); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Archer, 2002b:115 (Great Britain: Watsonian Yorkshire: distribution map); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Józan, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:98 (geographic distribution, collecting localities in Kazakhstan); Kraus and Floren, 2002:100 (Germany: Bayern: Münnerstadt); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:71 (Poland: Ojców National Park); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Cölln, Esser, and Jakubzik, 2003:61 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Germany; Hessen: Gieβen); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area), 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Wiśniowski *in* Dylewska and Wiśniowski, 2003:161 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Po-

land: Pieniny National Park); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:368 (in Wasp and Ant Fauna of Netherlands); Li and He, 2004:1079 (in hymenopterous fauna of Zhejiang Province, China); Nemkov, 2004b:265 (locality records from Russia and Japan); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:80 (Russia: Rostov Oblast': Rostov-on-Don); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Gathmann, 2005:108 (Germany: Niedersachsen: agricultural landscape near Göttingen; nest parasite: *Melittobia acasta* (Walker), Eulophidae); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:175 (Austria: Tirol: Lienz District: city of Lienz, Heckenfluren and Käscherfang in Virgen Common); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Pagliano and Negrisolo, 2005:238 (in Sphecid Fauna of Italy); Robinson, 2005:34 (Great Britain: Cumbria County); Riemann and Hohmann, 2005:547 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors), 58 (Germany: Hessen: Fulda: Eichenzell); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:400 (endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:14 (*Crabro capitosus* in Cavro, 1950 is *Crossocerus capitosus* now), 17 (France: Départements du Nord and Pas-de-Calais: not collected after 1950); Dollfuss, 2006:507 (Bulgaria, Finland, Georgia); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:208 (Spain: Asturias: Pola de Lena); Gorobchishin, 2006:126 (Ukraine: Cherkasy Oblast': Kaniv Nature Reserve; Kyiv; Lviv Oblast': Roztochchya Nature Reserve); Hua, 2006:279 (in list of Chinese insects, geographic distribution); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Chevin, Livory, Lair, Sagot, and Baldock, 2007:22 (France: Département de la Manche); Hallin, 2007:154 (Sweden: Blekinge, Småland, Öland, and Närke counties); Jacobs, 2007:133, 143 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: north-

western Sachsen); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Vago, 2007:175 (France: départements Nord and Pas-de-Calais); Vepřek and Straka, 2007:204 (in catalog of Sphecidae of Czech Republic and Slovakia), 228 (first recorded from Slovakia by Majzlan, Rychlík, and Deván, 1999:146); Archer, 2008d:21 (Great Britain: Watsonian Yorkshire: Burton Leonard Lime Quarry); Haeseler, 2008:307 (Germany: Friesian Islands); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:18 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Bitsch and Leclercq, 2009:219 (in supplement to vol. I of Faune de France, 1993: France: Var: Montauroux); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Dvořák, Bogusch, and Smetana, 2009:81 (Czech Republic: Králický Sněžnik National Nature Reserve); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 166 (in list of Asian *Crossocerus*, bibliographic references, recorded from Kazakhstan by Kazenas, 2001); Nemkov, 2009b:101 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořak, and Bogusch, 2009:258 (Czech Republic: Fojtka); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast': no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast': no specific localities); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Shorenko and Konovalov, 2010:17 (Ukraine: Lugansk Oblast': village D'yakovo); Tano, 2010b:39 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein: locality records); 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:144 (Russia: Altayskiy Kray and Altay Republic); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Falk, 2011:62 (Great Britain: Sussex: South Downs); Gogala, 2011:18 (Slovenia: Podčetrtek); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Pagliano, 2011a:142 (specimens in M. Spinola collection,

Torino, are *Crossocerus* sp.); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:118 (Germany: Hessen: not endangered); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:191 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:28 (Poland: Kampinos National Park near Warszawa); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Haneda, Murota, Kurokawa, and Tano, 2014:6, 11 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Shorenko, 2015:320 (in list of Sphecidae *sensu lato* of Crimea); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine); Cölln and Jakubzik, 2016:17 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton, and Broad, 2016:15 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland); Mokrousov and Popov, 2016:572 (Russia: Krasnodarskiy Kray); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Flügel, 2017:5 (Germany: Hessen: Doline near Rockensüß); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Shorenko, 2017:76 (in Crimea collected in May), 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); U. Frommer, 2020:157 (Germany: Hessen: Weilburg); Kejval, Blažej, and Erhart, 2020:95 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:52 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Canada: Ontario: no specific locality).

Crabro annulus Dahlbom, 1839:40 and 1839-40:40, ♀, ♂. Syntypes: Sweden: Lund and Allerums Trägård (Lund). Synonymized with ... *capitosus* by ...

Crossocerus capitosus yezo Tsuneki, 1960c:193, ♀, ♂. Holotype: ♀, Japan: Hokkaido: Sapporo (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus capitosus* by Nemkov, 2004b:265. – R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Tsuneki, 1977f:1 (comparison with nominotypical subspecies); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Haneda, 2003:4 (Japan: Nagasaki Prefecture: Tsushima); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi. in City of Obama); Haneda and Tano, 2003:11 (Japan: Nagasaki Prefecture: Tsushima); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:66 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:25 (Japan: Toyama Prefecture); S. Tanaka, 2008:39 (Japan: Yamaguchi Prefecture); N. Yamamoto, 2011:13 (Japan: Kyūshyū: mainland Nagasaki Prefecture).

41. *carinicollaris* Q. Li and Wu

Crossocerus carinicollaris Q. Li and Wu, 2006:292, ♂. Holotype: ♂, China: Hubei: Shennongjia: Quiangiaping (Academia Sinica). – Q. Li and Wu, 2006:290 (in key to *Blepharipus* of southwestern China); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 166 (in list of Asian *Crossocerus*, bibliographic references).

42. *cetratus* (Shuckard)

Crabro cetratus Shuckard, 1837a:131, ♂. Syntypes: ♂, Great Britain: London area (depository unknown). – Dahlbom, 1844:337 (in revision of Sphecidae and Pompilidae), 1845:524 (in key to *Crabro*); Wissmann, 1849:16 (Germany: Kingdom of Hannover: common); F. Smith, 1851c:26 (Great Britain: Bristol, London district); Wesmael, 1852:599 (Switzerland); Bold, 1853:3779 (nesting habits); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:395 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); F. Smith, 1858c:145 (in review of British Aculeata, redescription); Schenck, 1960:146 (Germany: Nassau Region); A. Morawitz, 1864:457 (Russia: Sankt-Petersburg); Taschenberg, 1866:177 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (Germany: Nassau Region); von Aichinger, 1870:314 (Austria: Tirol); Bold, 1870:149 (Great Britain: Northumberland and Durham); Thomson,

1870:161 (in revision of Swedish Crabroninae); F. Smith, 1871b:15 (in catalog of British Aculeata); Thomson, 1874:267 (in revision of Hymenoptera of Scandinavia); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton); Kohl, 1880:124 (Austria: Tirol, and Italy: Trentino-Alto Adige); E. Saunders, 1880:284 (in revision of British Aculeata); Siebke, 1880:69 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:654 (Switzerland); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Elmshorn); Kohl, 1888b:721 (Austria: Tirol, now Italy: Alto Adige): V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); Kohl, 1893:22 (Austria: Niederösterreich); F. Morawitz, 1893a:113 (Russia: Karelian Isthmus); Sickmann, 1893:67 (Germany: Niedersachsen: Iburg); Krieger, 1894:4 (Germany: Kingdom of Saxony); E. Saunders, 1896:130 (in revision of British Aculeata); Westerlund, 1896:28 (Finland: no specific locality); Dalla Torre, 1897:587 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in today's Romania and Slovakia); Strand, 1898b:95 (Norway); E. Saunders, 1902a:52 (southwestern Ireland); de Cobelli, 1903:117 (Italy: Trentino: Mori, Serrada, as *centratus*); Aurivillius, 1904:294 (in revision of Swedish Sphecidae); W. Schulz, 1904b:98 (Czech Republic: Moravia Region: no specific locality); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); Schmiedeknecht, 1907:194, 195 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine: Zhytomyr Oblast': Radomyshl'), 1914:377 (Belorussia: Ambrosovichi near Vitebsk); Kohl, 1915:228 (in revision of Palearctic Crabronini); Lindemans, 1920:203 (first record from Netherlands: Vorden); A. Wagner, 1920:45 (Germany: can be expected in Lower Elbe region); Dubois, 1921a:18 (first record from Belgium: Beyne-Heusay), 1921b:155, 158 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Stelfox, 1924:16 (Ireland: Glencree); Berland, 1925d:185 (in Sphecid Fauna of France); Grönblom, 1925:3 (nesting habits); Scott, 1925:156 (prey: Chironomidae); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Carpentier, Crèvecoeur and Maréchal, 1926:354 (Belgium: Bois de Filff); Lauterborn, 1926:7 (Germany: Baden-Württemberg: Neuenburg); Zavadil, 1926:33 (Czechoslovakia); Berland, 1928b:180 (prey*:* ceratopogonid fly *Johannseniella nitida* Macquart according to Scott, 1925); Blüthgen, 1929:82 (Germany: Saale River valley: Naumburg); Bouwman, 1930:100 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:651, 654 (in keys to Hymenoptera of

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Dvořak, and Bogusch, 2009:258 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); Venne, 2009:110 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren); Ermilov and Mokrousov: 2010:89 (phoretic mite *Schwiebea crabronis* (Zachvatkin) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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 and Nizhniy Novgorod Oblast's, Chuvash Republic: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:157 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:132 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:39 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Treiber, 2010:135 (France: Département du Bas-Rhin); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common); Baghirov, 2011b:144 (Russia: Altay Republic: Artybash); Falk, 2011:62 (Great Britain: Sussex: South Downs); Gogala, 2011:19 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:70 (Russia: Chuvash Republic); Rudoiskatel', 2011b:68 (Russia: Republic of Bashkortostan), 2011d:243 (Russia: central Ural Mountains); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:119 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:182 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Burguet *in* Durand and Burguet, 2012:2 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg

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Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:44 (Turkey: Erzurum: Şenkaya: Akşar); Antropov, 2017b:228 (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 understory); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Eschkopf near Rockensüß); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane, Julols); Shorenko, 2017:76 (in Crimea collected in August); Twerd, Krzyżyński, Waldon-Rudzionek, and Olszewski, 2017:7 (Poland: Janikowo: nesting in postindustrial soda ash dumping sites); Jacobs and Liebig, 2018:138 (Russia: Irkutsk Oblast': Bol'shoye Goloustnoye and Sarma); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ljubomirov, 2019:101 (Bulgaria: Vratchanska Planina); Olszewski and Kowalczyk, 2019:92 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13226 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:95 (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, 2021:53 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Japoshvili and Ljubomirov, 2022:276 (Georgia: Lagodekhi Protected Areas); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:78 (Ukraine: Rivno Nature Reserve).

Crabro vanderlindeni Dahlbom, 1839:32 and 1839-40, ♀, ♂ (as *van der Lindeni*, incorrect original division and capitalization). Holotype: ♂, Finland: Kolwaskogen in Yläne (Lund). Synonymized with *Crabro cetratus* by Dahlbom, 1844:338. – Dahlbom, 1842a:14 (in review of Scandinavian aculeates).

Crabro dilatatus Herrich-Schaeffer, 1841:…. Synonymized with .. *cetratus* by ..

Crabro inornatus Matsumura, 1912:103, .. . Holotype or syntypes: … (Sapporo). Synonymized with *Crossocerus cetratus* by Leclercq, 1954c:235 and Tsuneki, 1955d:217.

Crossocerus dentsukanus Tsuneki, 1976a:71, ♀. Holotype: ♀, Japan: South Japan Alps: Dentsuku Pass (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus cetratus* by Nemkov, 2004b:265. – Tano, 1994b:43 (holotype in K. Tsuneki collection, as *dentzukanus*); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species – sic!); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan).

As *Crabro inermis*: Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region), corrected to *Crabro cetratus* by Noskiewicz and Chudoba, 1949:408.

43. *chiapensis* Leclercq and Miller

Crossocerus chiapensis Leclercq and Miller *in* Leclercq, 2000d:36, ♂. Holotype: ♂, Mexico: Chiapas: San Cristóbal de las Casas (CNC). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

44. *chromatipus* Pate

Crabro pictipes W. Fox, 1895a:187, ♂, junior primary homonym of *Crabro pictipes* Herrich-Schaeffer, 1841. Lectotype: ♂, USA: Nevada: no specific locality (ANSP), designated by Cresson, 1928:55. – Dalla Torre, 1897:618 (in catalog of world Sphecidae). – **As *Crossocerus pictipes***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae).

Crossocerus chromatipus Pate, 1944a:280. Substitute name for *Crabro pictipes* W. Fox, 1895. – Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Leclercq, 1954c:228 (in catalog of world Crabronini); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Krombein, 1979b:1665 (in catalog of North American Hymenoptera); Radović, 1985:65 (sting apparatus analyzed); Rust, Menke, and Miller, 1985:47 (California: Channel Islands); Leclercq, 2000d:37 (in revision of New World *Crossocerus*); Ratzlaff, 2016:25 (first records from Canada: British Columbia: Georgia Depression), 34 (British Columbia: Victoria: Langford: Upper Thetis Lake).

45. *cinxius* (Dahlbom)

Crabro cinxius Dahlbom, 1839:38 and 1839-40:38, ♀, ♂. Syntypes: Norway: near Dovre (Lund). – Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:318 (in revision of Sphecidae and Pompilidae), 1845:522 (in key to *Crabro*); Wesmael, 1852:595 (is a northern species); F. Smith, 1856:415 (in catalog of Hymenoptera in British Museum); Thomson, 1870:160 (in revision of Swedish Crabroninae), 1874:265 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:124 (Italy: Trentino-AltoAdige); Siebke, 1880:68 (Norway); Marquet, 1881:187 (in Wesmael's

classification scheme of subgenus *Crossocerus*); Schøyen, 1881:12 (correction to Siebke, 1880); nec Wüstnei, 1886:36 (= *Crossocerus anxius*); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:113 (Russia: Karelian Isthmus); Sickmann, 1893:67 (Germany: Niedersachsen: Iburg); Krieger, 1894:4 (Germany: Kingdom of Saxony); Westerlund, 1896:28 (Finland: no specific locality); Dalla Torre, 1897:58589 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary: Oravicza, now Romania: Oraviţa); Strand, 1898b:95 (Norway); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Kubes, 1905:84 (Czech Republic: Maria Sorg near Jáchymov, Sušice); Schmiedeknecht, 1907:193, 195 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Alfken, 1914:273 (northwestern Germany); Kohl, 1915:223 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Senjsko Bilo, now in Croatia); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:38 (Germany: Franken); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: no specific locality); A. Wagner, 1920:45 (Germany: can be expected in Lower Elbe region); Dubois, 1921a:18 (first record from Belgium: Botassart), 1921b:156, 157 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Enslin, 1922c:245 (Germany: Bayern: Hersbruck); Berland, 1925d:185 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia); Grönblom, 1925:2 (nesting habits); Schütze, 1925:110 (Germany: Lausitz Region); Zavadil, 1926:33, footnote (Czechoslovakia); Crèvecoeur and Maréchal, 1929:167 (Belgium: Esneux); Micheli, 1930:54 (nest, description of larva); Schmiedeknecht, 1930:649, 657 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:142 (in revision of Sphecidae of Finland); Crèvecoeur and Maréchal, 1932:67 (in catalog of Belgian Hymenoptera); Balles, 1934:16 (Germany: Baden-Württemberg: Oberachern); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:324 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Goebel, 1937:38 (Poland: Poznań District: Strzeszynek); van Lith, 1937b:210 (first record from Netherlands: Epen); Zavadil, Šustera, and Bat'a, 1937:160 (in catalog of Sphecidae of Czechoslovakia); Guiglia, 1944b:35 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Tsuneki, 1947d:290 (Korea), 1947e:416 (Japan: Hokkaido), 1948c:5 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:125, 132 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:38 (France: Département du Nord); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Fæster, 1951:458 (distribution in Scandinavia); Benno, 1958b:19

(in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:147, 154 (in key to Polish Sphecidae); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:108 (in Sphecid Fauna of Czechoslovakia); Kowalczyk, 1988b:66 (Poland: environs of Łódź); Vago, 2005a:14 (*Crabro cinxius* in Cavro, 1950 is *Crossocerus cinxius* now). – **As *Coelocrabro cinxius***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera); Adlerz, 1910:47 (nesting habits); Baudot, 1931:255 (characteristics of cocoon); Iwata, 1933b:13 (locality records from Japan); A. Wagner, 1939b:74 (northwestern Germany: list of localities); Zavadil, 1946:8 (Czechoslovakia: Ostrava area); Bat'a, 1952:167 (Czech Republic). – **As *Crossocerus cinxius***: Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera); Maréchal, 1930a:46 (nesting habits); Leclercq, 1949a:7 (Switzerland), 1950f:23 (distribution in Belgium), 1954c:235 (in catalog of world Crabronini), 311 (nest and prey records); Tsuneki, 1954b:63, 69 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Hellén, 1955a:127 (northern Finland: Puolanka); Iwata, 1955:30 (egg size, number of oocytes); Tsuneki and Tanaka, 1955a:69 (Japan: Nikko 120 km northwest of Tokyo); Evans, 1957b:107 (discussion of larval characters); de Beaumont, 1958c:211 (Swiss National Park); Móczár, 1958b:198 (not collected in Hungary); Tsuneki, 1959n:70, 74 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959a:13 (Germany: no specific locality; prey: Empididae; nest parasite: *Macronychia*, a muscid), 1959b:33 (Germany: Nassau); Tsuneki, 1960g:44 (nesting habits); Valkeila, 1962b:68 (southwestern Finland); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:149 (in Sphecid Fauna of Switzerland); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Lefeber, 1966:210 (Netherlands: Bemelen, as *cintius*); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:559 (Germany: Baden-Württemberg); J. Heinrich, 1967:82 (Germany: Niederfranken); Lefeber, 1967c:220 (Netherlands: Bemelen, as *cintius*), 1968a:5 (Netherlands, Bemelen, as *cinctius*); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Lefeber, 1969b:99 (Netherlands: Kannerbos, as *cinctius*), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre, as *cinctius*); Tsuneki and Tano, 1969:31 (distribution in Japan); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:783 (Democratic Germany); Hoop, 1971:83 (Germany: Schleswig-Holstein: Buchhorste Berge); Itami, 1971:28 (Japan: new locality records); Lefeber, 1971a:18 (Netherlands: Bemelen, Borgharen,

Maastricht; Belgium: Caestert; as *cintius*); 1971b:223 (Netherlands: Venlo, as *cinctius*); Stritt, 1971a:105 (Baden-Württemberg: Germany: Karlsruhe); Kazenas, 1972b:172 (Kazakhstan); Kofler, 1972:115 (Austria: eastern Tirol); Leclercq, 1975b:3 (France); Lefeber, 1975b:119 (Netherlands: Schiepersberg); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Eck, 1976:95 (Democratic Germany); Lomholdt, 1976:404 (in Sphecid Fauna of Fennoscandia and Denmark); Schmidt, 1977:99 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald; as *cincius*); Pulawski, 1978:261, 263 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1454 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:96, 101 (in key to *Crossocerus* of Russian Far East); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Marshakov, 1980c:347, 354 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: European part, Kazakhstan, Maritime Province, Magadan Oblast': Talon, Kuril Islands: Island of Kunashir); Pagliano, 1980:121 (Italy: Piemonte); Schmidt, 1980:337 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:317, 323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:49 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Tsuneki, 1982b:17 (known from Korea); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Lefeber, 1984:28 (Netherlands: Maastricht), 1985:87 (Netherlands: southern Limburg); Paik, 1985:201 (in list of Sphecidae of Korea); Riemann, 1985:21 (Germany: Niedersachsen); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Nemkov, 1986:102 (Russia: Irkutsk Oblast'); Vikberg, 1986:77 (Finland); Wolf, 1988b:139 (Germany: Rheinland-Westfalen); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Weiffenbach, 1989:111 (Germany: Hessen: Gießen area); Jacobs and Oehlke, 1990:189 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Pádr, 1990:84 (Czech Republic: Praha area); Pagliano, 1990:83 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:544 (Austria: Kärnten); Dollfuss, 1991:152 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 94 (Poland: Łódź); Pagliano, 1991b:341, 343 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve Southeast of Koblenz); Nilsson, 1992:55 (Sweden); Wolf, 1992b:91 (Germany: Nordrhein-Westfalen: Olpe), 1992c:21 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Bitsch and Leclercq, 1993:108 (in revision of western European Crabroninae);

Jakubzik and Cölln, 1993a:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*), 138 (prey); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:17 (locality records from western Europe); Leclercq and Barbier, 1993:25 (map of distribution in France); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Pádr and Lukáš, 1994:893 (Slovakia: High Tatra Mountains); U. Peters, Sohmen, Stuke, and Prüter, 1994:66 (Germany: Schleswig-Holstein: gardens in Hof Möhr); Theunert, 1994c:35 (Germany: summary of records from Niedersachsen and Bremen), 1994d:277 (Germany: Niedersachsen: south of Wense in Peine District); Chvála and Tyrner, 1995:43 (the most frequent prey are the dipterans Hybotidae); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 441 (in key to Sphecidae of Russian Far East); Riemann, 1995:52 and 58 (Germany: Bremen); Schmid-Egger, Risch, and Niehuis, 1995:171 (Germany: summary of records from Rheinland-Pfalz); Jakubzik, 1996:251 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Woydak, 1996:66 (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, 1997:9 (in checklist of German Sphecidae); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Tscharntke, Gathmann, and Steffan-Deventer, 1998:718 (trap-nesting in Germany); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); W. Klein, 1999:10, 14 (in improved key to *Crossocerus* of Benelux); Mandery, 1999:104 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:223 (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, 2000:297 (in Sphecid Fauna of Germany); Luig and Voolma, 2000:124 (first record from Estonia); M. Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 192 (review of known biology); Ohl et al., 2001:138 (distribution in Germany by provinces); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: extremely rare); Wolf, 2001:127 (Germany: Nordrhein-Westfalen: Plettenberg, nesting in stems of *Rubus*); Kazenas, 2002a:99 (geographic distribution, collecting

localities in Kazakhstan); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:71 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Germany, Italy: miscellaneous locality records); Kowalczyk and Kurzac, 2003:209 (Poland: Łódź: Botanical Garden); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area); Ohl and Linde, 2003:151 (number of ovarioles); Wiśniowski *in* Dylewska and Wiśniowski, 2003:162 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Wolf, 2003:260 (Germany: Nordrhein-Westfalen: Bommecketal Nature Reserve in Plettenberg); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:369 (in Wasp and Ant Fauna of Netherlands); Nemkov, 2004b:266 (locality records from Russia and Japan); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Suda, 2004:43 (Japan: Yamanashi Prefecture); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Bergsten, Ekerholm, Gabrielsson, Hellquist, Petersson, Werner, Ström, Chauvet, and Dalecky, 2005:15 (Sweden: Västerbotten: Bjuröklubbs Nature Reserve); Burger, 2005:32 (Germany: Thüringen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture); Jacobs, 2005a:443 (first record from Bulgaria: Rila Monastery); Kofler, 2005:175 (Austria: Tirol: Lienz District: Assling, Lesach in Kals Common, Lavant, Nörsach in Nikolsdorf, Dorfertal in Prägraten Common, Wetterkreuz an Heckenfluren in Virgen Common); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Nemkov, 2005a:153 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:239 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:550 (Germany: Niedersachsen: city of Bremen and adjacent area); Straka, 2005a:403 (vulnerable in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:18 (France: Département du Pas-de Calais: not collected); Wiśniewski, 2005b:340

(Poland: Ojców National Park, of secondary faunistic value); Dollfuss, 2006:507 (Finland, Tajikistan: Dusti); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:25 (Japan: Toyama Prefecture); Dorow, 2007:263 (Germany: Hessen: Schönbuche Forest Reserve); Hallin, 2007:154 (Sweden: Småland County); Jacobs, 2007:133, 143 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir); Vago, 2007:175 (France: département de Pas-de-Calais); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Haeseler, 2008:308 (Germany: Friesian Islands); Löhr, 2008:9 (Germany: Hessen: Mücke); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:59 (Japan: Hokkaido: Sapporo); Theunert, 2008:19 (Germany: map of distribution in Niedersachsen and Bremen); Wiśniowski, 2008:635 (Poland: Ojców National Park, collected in 1992-2005); Bitsch and Leclercq, 2009:219 (in supplement to vol. I of Faune de France, 1993: record from France: Hautes-Alpes is based on misidentification: France: Haut-Rhin: Munster); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France);U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 166 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:101 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Straka, Dvořak, and Bogusch, 2009:258 (Czech Republic: Jizerské Mountains and Frýdlant region); S. Takahashi, Haneda, and Tano, 2009:42 (distribution in Japan); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Mokrousov, 2010a:61 (Russia: Kostroma Oblast': no specific localities), 2010b:100 (Russia: Kostroma Oblast': no specific localities); Rudoiskatel', 2010:157 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Tano, 2010b:40 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein: Büchen); Baghirov, 2011b:144 (Russia: Altay Republic: Kuray); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:19 (Slovenia: Podčetrtek); Pagliano, 2011a:145 (specimens in M. Spinola collection, Torino); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Saure, Bohrer, Venne, and Diestelhorst, 2011:221 (Germany:

Rheinland-Westfalen: Nature Reserve Doberg and Eiberg), 225 (prefers forest biotopes); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:120 (Germany: Hessen: not endangered); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Haneda, Murota, Kurokawa, and Tano, 2014:5, 11 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); J.-K. Kim, 2014:425 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Blažej, Macek, and Trýzna, 2016:115 (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); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Kejval, Blažej, and Erhart, 2020:95 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:54 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Olszewski, Sparks, Twerd, and Wiśniowski, 2024:5 (central Poland: common in river valleys: no specific localities, not endangered).

Crossocerus capitosus yamato Tsuneki, 1960c:195, ♀, ♂. Holotype: ♀, Japan: Nikko (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus cinxius* by Nemkov, 2004b:265. – R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae). – **As *Crossocerus yamato***: Tsuneki, 1977f:1 (new status, redescription); Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype and allotype transferred to Hyogo Mus.); Haneda, 2003:4 (Japan: Nagasaki Prefecture: Tsushima); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture), 2006a:26 (Japan: Toyama Prefecture); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Haneda, Murota, Kurokawa, and Tano, 2014:6, 11 (in key to *Crossocerus* of Japan).

ssp. *omeinus* Leclercq

Crossocerus cinxius omeinus Leclercq, 1982b:146, ♀, ♂. Holotype: ♀, China: Szechuan: Mount Omei (USNM). – Dollfuss, 2006:508 (China: Yunnan: Heishui 35 km north of Lijiang); Li and Wu, 2006:289, 290 (in key to *Blepharipus* of southwestern China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 167 (in list of Asian *Crossocerus*, bibliographic references).

46. *congener* (Dahlbom)

Crabro congener Dahlbom, 1844:335, ♀. Holotype: ♀, "Germany: ad Glogaviam", now Poland: Głogów (Lund). – Dahlbom, 1845:524 (in key to *Crabro*); Eversmann, 1849:420 (Russia: Orenburg province); F. Smith, 1856:414 (in catalog of Hymenoptera in British Museum); Schenck, 1857:129 (in revision of fossorial wasps of Germany), 1860:146 (Germany: Nassau Region); Taschenberg, 1866:178 (in revision of Hymenoptera of Germany); Krieger, 1894:4 (Germany: Kingdom of Saxony); Westerlund, 1896:28 (Finland: no specific locality); Schmiedeknecht, 1907:194 (in keys to Hymenoptera of Central Europe), 1930:651 (in keys to Hymenoptera of North and Central Europe); Bondroit, 1932:40 (first record from Belgium: Solbosch); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil *in* Zavadil and Šnoflak, 1948:124 (in key to Sphecidae of Czechoslovakia); Kjellander, 1954a:241 (valid species, redescription, Sweden); Hellén, 1956:45 (recorded from Finland); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:146, 154 (in key to Polish Sphecidae); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Tumš and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:96 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area, description of ♂). – **As *Crabro podagricus* var. *congener***: A. Morawitz, 1866:270 (new status, Russia: Volga-Ural area); Dalla Torre, 1897:619 (in catalog of world Sphecidae); Dittrich, 1911b:19 (Germany: Glogau, now Poland: Głogów). – **As *Ablepharipus congener***: Zavadil, 1946:8 (new generic assignment, Czechoslovakia: Ostrava area). – **As *Crossocerus congener***: Taschenberg, 1858:108 (new generic assignment, in key to Sphecidae of Germany); Kirchner, 1867:225 (in catalog of European Hymenoptera); Rudow, 1912:75 (nesting in raspberry twigs); Coulon, 1925:123 (France: Colmar, Evreux); Leclercq, 1949a:5 (valid species, in key to subgenus *Ablepharipus*; France, Switzerland); Sanders, 1951:64 (first record from Netherlands: no specific locality); Leclercq, 1951e:7 (in Belgium previously recorded by Bondroit, 1931), 1954c:232 (in catalog of world Crabronini); Aerts, 1955:58 (Germany: Rheinland); Hellén, 1955a:128

(recognition characters, Finland: five localities); Móczár, 1958a:263, 270 (in annotated catalog of Hungarian Crabronini, recognition characters of ♀), 1958b:196 (Hungary: collecting localities); Wolf, 1959b:33 (Germany: Nassau); Tsuneki, 1960g:40 (nesting habits); Valkeila, 1962b:68 (southwestern Finland); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:147 (in Sphecid Fauna of Switzerland); Lefeber, 1966:210 (Netherlands: Sint-Pietersberg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Lefeber, 1967c:220 (Netherlands: Sint-Pietersberg); Benedek, 1968:77 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae); Lefeber, 1968a:5 and 1968b:94 (Netherlands: Sint-Pietersberg); Okuno, 1968:30 (Japan); Stritt, 1968:110 (Germany: Baden-Württemberg); Benedek, 1969a:85 (Hungary; marshy meadow); Haneda, 1969:70 (Japan: Yamanashi Prefecture); Lefeber, 1969c:234 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Babiy, 1970:21 (Austria: Land Salzburg); Benedek, 1970:103 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area), 362 (Germany: Baden-Württemberg: no specific locality); Oehlke, 1970:781 (Democratic Germany); Lefeber, 1971a:18 (Netherlands: Gronsveld; Belgium: Wonck); Balthasar, 1972:96 (in Sphecid Fauna of Czechoslovakia); Nambu, 1972e:91 (Japan: Saitama Prefecture); Lefeber, 1973:152 (Netherlands: Eben, Gronsveld, Maastricht, Sint Pieter); Nambu, 1973a:153 (Japan: Saitama Prefecture); Leclercq, 1975b:2 (France); Lefeber, 1975b:119, 154 (Netherlands: Schiepersberg); Nambu, 1975b:75 (Japan: Saitama Prefecture; as *congenen*); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Lomholdt, 1976:393 (in Sphecid Fauna of Fennoscandia and Denmark); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Petit, 1978:87 (Belgium: Wonck); Pulawski, 1978:260, 264 (in key to Sphecidae of European part of USSR); Leclercq, Gaspar, and Verstraeten, 1979:map 1449 (Belgium); Marshakov, 1979a:95, 99 (in key to *Crossocerus* of Russian Far East); Preuss, 1979a:12 (Germany: first record from Rheinland-Pfalz: Mittagsfels near Niederalben); Schmidt, 1979a:57 (Germany: Ost-Holstein); Marshakov, 1980c:346, 350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: European part, Kazakhstan, Maritime Province); Schmidt, 1980:337 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:48 (Germany: Westfalen: Hamm); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Haack, Tscharntke, and Vidal, 1984:125 (Germany: Hamburg area); Lefeber, 1984:28 (Netherlands: Maastricht), 1985:87 (Netherlands: southern Limburg); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Brechtel, 1986:70 (Germany: Südpfalz);

Nilssen, 1986:87 (Sweden); Vikberg, 1986:77 (Finland); Dollfuss, 1988:15 (Austria: Bisamberg); Kowalczyk, 1988c:222 (Poland: Struga Dobieszkowska Nature Reserve near Łódź); Jacobs, 1989:18 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:187 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie), 298 (distribution in Poland); Pádr, 1990:84 (Czech Republic: Praha area); Pagliano, 1990:83 (first record from Italy); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:153 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991a:90, 97, 105 (Poland: Łódź); Nilsson, 1991:84 (Sweden: Lake Mälaren), 90 (distribution in Sweden, preference for shady deciduous forest); Pagliano, 1991b:341, 343 (in key to Italian Crabroninae); Budrys, 1992:33 (in list of Sphecidae of Lithuania); Gusenleitner, 1992:686 (Austria: Oberösterreich, Steiermark); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:99 (in revision of western European Crabroninae); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:17 (Austria); Leclercq and Barbier, 1993:26 (map of distribution in France); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife near Altenahr); Wiśniowski, 1993b:280 (Poland: Ojców National Park); Koponen, 1994:21 (Finland: Sipoo); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:434, 438 (in key to Sphecidae of Russian Far East); Riemann, 1995:52 and 58 (Germany: Bremen); Schmid-Egger, Risch, and Niehuis, 1995:172 (Germany: summary of records from Rheinland-Pfalz); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: probably endangered); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Woydak, 1996:63 (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, 1997:10 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 38 (data insufficient to evaluate the degree of endangerment); Dollfuss, Gusenleitner, and Bregant, 1998:517 (Austria: summary of collecting records from Burgenland);

Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:50 (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); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Jacobs, 1999:26 (recognition characters); W. Klein, 1999:8, 14 (in improved key to *Crossocerus* of Benelux); Kuhlmann, Wolf, and Woydak, 1999:568 (Germany: endangered in Nordrhein-Westfalen because of low population level); Ljubomirov, 1999b:53 (Bulgaria: Mount Vitosha near Sofia); Pauly, 1999:110 (in catalog of Belgian aculeates); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Srba, 1999:181 (Czech Republic: Chomutov); Blösch, 2000:298 (in Sphecid Fauna of Germany); Jacobs, 2000:6, 17 (Germany: Land Mecklenburg-Vorpommern: data insufficient to evaluate how endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Luig and Voolma, 2000:123 (first record from Estonia); Wiśniowski, 2000:161 (Poland: Bieszczady Mountains); Zettel, 2000:30 (Austria: Wien); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 193 (review of known biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:138 (distribution in Germany by provinces); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Tischendorf, 2001:30 (Germany: Hessen: Kühkopf-Knoblochsaue Nature Reserve); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: extremely rare); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Bieri, 2002:73 (Liechtenstein); Kazenas, 2002a:99 (geographic distribution, collecting localities in Kazakhstan); Kraus and Floren, 2002:100 (Germany: Bayern: Münnerstadt); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:71 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Feitz, Schneider, and Pauly, 2003:80 (first record from Luxemburg: Remich); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339, 345 (Germany: Niedersachsen: Island

of Harriersand near Bremen); Kula and Tyrner, 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Wiśniowski *in* Dylewska and Wiśniowski, 2003:162 (Poland: Ojców National Park); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Kazenas, 2004b:107 (Kazakhstan: western Tien Shan); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:369 (in Wasp and Ant Fauna of Netherlands); 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); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Kofler, 2005:175 (Austria: Tirol: Lienz District: Nörsach in Nikolsdorf Common); Pagliano and Negrisolo, 2005:248 (in Sphecid Fauna of Italy); Reder, 2005:949 (Germany: Rheinland-Pfalz: Monsheim, Gundersheim, Florsheim-Dalsheim); Riemann and Hohmann, 2005:550 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:14 (Germany: Berlin); Straka, 2005a:400 (endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:14 (not recorded by Cavro, 1950), 16 (France: Département du Pas–de-Calais: Bourlon); Wiśniowski, 2005a:312 (Poland: Ojców National Park; occurring in nearly all biotopes); Dollfuss, 2006:508 (Bulgaria, Czech Republic, Romania, Serbia); U. Frommer, 2006:37 (Germany: Hessen: Runkel area); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Gorobchishin, 2006:126 (Ukraine: Kyiv); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Archer, 2007e:79 (Great Britain: extinct or vagrant); Chevin, Livory, Lair, Sagot, and Baldock, 2007:23 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Jacobs, 2007:131, 142 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Nemkov, 2007b:72 (Russia: Kuril

Islands: Island of Kunashir); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Theunert, 2007a:30 (review of nesting habits); Vago, 2007:175 (France: département d'Aisne); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Bohemia and Moravia); Kazenas, 2008a:103 (southeastern Kazakhstan: 8 km south of Talgar); Mei, 2008:175 (Italy: first record from Lazio: Roma: Tenuta di Castelporziano); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:19 (Germany: map of distribution in Niedersachsen and Bremen); Wiśniowski, 2008:635 (Poland: Ojców National Park, collected in 1992-2005); Bitsch and Leclercq, 2009:218 (in supplement to vol. I of Faune de France, 1993: distinctive characters given by Jacobs, 1999; in France, collected in the Départements of Isère: Grenoble, Loiret, and Pas-de Calais); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 167 (in list of Asian *Crossocerus*, bibliographic references, recorded from Kazakhstan by Kazenas, 2001); Mokrousov, 2009:280 (Russia: Republic Mari El); Nemkov, 2009b:98 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Jizerské Mountains and Frýdlant region); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Jakubzik and Cölln, 2010:1187 (Germany: Rheinland-Pfalz: Bruchertseifen near Altenkirchen); Mokrousov, 2010a:61 (Russia: Kirov and Nizhniy Novgorod Oblast's, Chuvash Republic, Mari El Republic: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Rudoiskatel', 2010:157 (Russia: recorded from Ural Mountains); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Treiber, 2010:135 (France: département du Bas-Rhin); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein: locality records); Baghirov, 2011b:144 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:69 (Russia: Chuvash Republic); Theunert, 2011a:19 (Germany: in checklist of

aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:120 (Germany: Hessen: not endangered); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012a:171 (Belorussia and Russia: Krasnaya Polyana near Sochi: collected in private plots); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); 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, 2013:189 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Piotrowski, 2013:20 (Poland: Poleski National Park); Zettel, Zimmermann, and Wiesbauer, 2013:12 (Austria: Wien: Donaupark); Bitsch, 2014:400 (record from France by Treiber, 2010 noted); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Blažej, Macek, and Trýzna, 2016:115 (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, 2016:14 (in checklist of Aculeata of Great Britain and Ireland: England); Mokrousov and Popov, 2016:572 (Russia: Krasnodarskiy Kray); Saure, 2016b:48 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:227 (in catalog of Crabroninae of Russia); Carminati, Mora, and Cretin, 2019:13 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:93 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:95 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:48 (in revision of Sphecidae *sensu lato* of Europe); Fresno, 2021a:79 (Spain: Asturias: Pola de Lena); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Japoshvili and Ljubomirov, 2022:276 (Georgia: Lagodekhi Protected Areas).

Nec following authors (= *Crossocerus fukuiensis*): Tsuneki, 1954b:60, 69; Tsuneki and Tanaka, 1955a:68; Tsuneki, 1959n:68, 74, 1960g:40; Tsuneki and Shimoyama, 1963:50, Tsuneki, 1970:11.

47. *decorosus* Leclercq and Miller

Crossocerus decorosus Leclercq and Miller *in* Leclercq, 2000d:37, ♀. Holotype: ♀, USA: Arizona: Yavapai County: Oak Creek Valley Road (Cornell Univ.).

Crossocerus yavapai Miller: Leclercq, 2000d:73, nomen nudum.

48. *decorus* (W. Fox)

Crabro decorus W. Fox, 1895a:200, ♀. Lectotype: ♀, USA: New Mexico: Las Cruces (ANSP), designated by Cresson, 1928:53. – Dalla Torre, 1897:596 (in catalog of world Sphecidae). – **As *Synrhopalum decorus*** [*sic*]: Ashmead, 1899d:220 (new generic assignment, in checklist of North American Crabronidae). – **As *Rhopalum decorum***: H. Smith, 1908b:395 (new generic assignment, in revision of Nebraskan Sphecidae, as *decorus*); Mickel, 1918b:371 (in catalog of Nebraskan Sphecidae). – **As *Crossocerus decorus***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:229 (in catalog of world Crabronini), 308 (nest and prey records), 1968c:94 (in key to *Crossocerus* of Latin America), 97 (Mexico: Orizaba); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Krombein, 1979b:1665 (in catalog of North American Hymenoptera, nesting sites, list of prey); Leclercq, 2000d:37 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Pagliano, 2011a:140 (specimens in M. Spinola collection, Torino, are *Tracheliodes quinquenotatus* and a damaged, undetermined crabronid).

ssp. *metanotalis* Leclercq and Miller

Crossocerus decorus metanotalis Leclercq and Miller *in* Leclercq, 2000d:38, ♀. Holotype: ♀, USA: Utah: Emery County: 2 mi. west of Goblin State Park (KU).

49. *denticoxa* (Bischoff)

Crabro denticornis Gussakovskij, 1932:24 (7 Sept.), ♂, junior primary homonym of *Crabro denticornis* F. Smith, 1879. Holotype: ♂, Russia: Primorskiy Kray: Sedanka near Vladivostok (Stockholm). – **As *Crossocerus denticornis***: Coulon, 1925:123 (new generic assignment, France: Evreux); Tsuneki, 1974a:380 (Korea), 1982a:7 (Korea; additional description), 17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Tsuneki, 1991:203 (Korea).

Crabro denticoxa Bischoff, 1932:44 (1 Oct.), ♂. Holotype: ♂, Germany: Baden-Württemberg: Wasenweiler near Kaiserstuhl (ZMHU). Synonymized with *Crossocerus denticornis* Gussakovskij by Marshakov, 1980c:356. – Bischoff, 1934:60 (description of ♀); Balthasar, 1941a:105 (Czech Republic: Bzenecko area); Zavadil *in* Zavadil and Šnoflak, 1948:128, 131 (in key to Sphecidae of Czechoslovakia); Leininger, 1951:115 (Germany: Baden-Württemberg: Kaiserstuhl); Zirngiebl, 1957:177 (Germany: Rheinland-Pfalz: Leistadt); Noskiewicz and Pulawski, 1960:144, 152 (in key to Polish Sphecidae, not yet found in Poland); Balthasar, 1972:120 (in Sphecid Fauna of Czechoslovakia). – **As *Crossocerus denticoxa***: Leclercq, 1954c:226 (new generic assignment, in catalog of world Crabronini); Wolf, 1959b:32 (known from Germany, but not from Nassau); de Beaumont, 1964c:146 (in Sphecid Fauna of Switzerland, not recorded from Switzerland); Stritt, 1968:110 (Germany: Baden-Württemberg); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Schmidt, 1977/78:58 (Germany: Rheinland-Pfalz: Gonsenheimer Wald; det. W.J. Pulawski); Pulawski, 1978:257, 263 (in key to Sphecidae of European part of USSR); Marshakov, 1979a:93, 99 (in key to *Crossocerus* of Russian Far East); Schmidt, 1980:338 (Germany); Marshakov, 1980c:341, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic), 357 (redescription); Schmidt, 1980:338 (Germany: Baden-Württemberg); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Westrich and Schmidt, 1985a:117 (Germany: Baden-Württemberg); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Nemkov, 1986:102 (Russia: Irkutsk Oblast'); Schmidt and Westrich, 1987:372 (Germany: Mainz area); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Leclercq, 1988:16 (Russia: Primorskiy Kray: Okeanskaya); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:153 (in key to Sphecidae of North and Central Europe); Józan, 1991:603 (first record from Hungary: Bátorliget Nature Reserve); Leclercq, 1991e (France: Alsace); Nemkov, 1992b:246 (Russia: Far East: Khingan Nature Reserve); Bitsch and Leclercq, 1993:119 (in revision of western European Crabroninae); Leclercq, 1993c:18 (references to previous papers); Leclercq and Barbier, 1993:27 (map of distribution in France); Dollfuss, 1994:98 (endangered in Austria); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:431, 438 (in key to Sphecidae of Russian Far East); Schmid-Egger, Risch, and Niehuis, 1995:172 (Germany: summary of records from Rheinland-Pfalz); Schmid-

Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Schmidt and Schmid-Egger, 1997:10 (in checklist of German Sphecidae); Józan, 1998:307, 318 (Hungary: Duna-Dráva National Park); Blösch, 2000:298 (in Sphecid Fauna of Germany); Li and He, 2001:757 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E); Ohl et al., 2001:138 (distribution in Germany by provinces); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Kuhlmann, 2004:230 (Germany is responsible for preservation of this species on its territory); Q. Li and He, 2004:1082 (China: in hymenopterous fauna of Zhejiang Province); Straka, 2005a:394 (extinct in Czech Republic); Gorobchishin, 2006:123 (Ukraine: Lviv Oblast': Roztochchya Nature Reserve); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Jacobs, 2007:129, 139 (in key to Crabronidae of Germany); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Bohemia and Moravia). 228 (first record from Bohemia: Hradec Králové, several localities from Moravia); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:217 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*), 220 (male has a pygidial plate on tergum VII), 220 (France: Tarn-et-Garonne: Andiran); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 167 (in list of Asian *Crossocerus*, geograpahic variation, bibliographic references, distribution in Asia); Nemkov, 2009b:104 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: extremely rare); Tano, 2010b:41 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Baghirov, 2011b:144 (Russia: Altay Republic: Kosh-Agach); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Tischendorf, Frommer, Flügel et al., 2011:87 (Germany: Hessen: insufficient data to evaluate degree of endangerment); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow), 2013:195 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:400 (record from Bulgaria by Guéorgiev and Ljubomirov, 2009 noted); J.-K. Kim, 2014:425 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Mokrousov and Popov, 2016:573 (Russia: Krasnodarskiy Kray); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:60 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and

Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland; first record from Poland: Poznań Botanical Garden).

Crossocerus republicus Leclercq, 1954:226. Substitute name for *Crossocerus denticornis* Gussakovskij. – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

50. *denticrus* Herrich-Schaeffer

Crossocerus denticrus Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area). Nomen nudum (as *Denticrus*, incorrect original capitalization).

Crossocerus denticrus Herrich-Schaeffer, 1841, fasc.181:plate 20, ♂. Germany. – Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region), 1864:210 (*Crossocerus denticrus* is a synonym of *elongatulus*); Kirchner, 1867:225 (in catalog of European Hymenoptera); Thomson, 1874:276 (in revision of Hymenoptera of Scandinavia); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region); Dalla Torre, 1889:47 (Germany: Helgoland); Borries, 1897:41 (reference to Wüstnei, 1886:37); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1912:59 (nesting habits); Schütze, 1916:42 (Germany: Sachsen: Rachlau, visiting flowers of parseley, *Petroselinum crispum* (Mill.) Fuss, Apiaceae); Jansson, 1922:25 (Sweden: Island of Öland); Bischoff, 1925:298 (Poland: Grajewo area); Schmiedeknecht, 1930:653, 655 (in keys to Hymenoptera of North and Central Europe); Bondroit, 1932:41 (Belgium: recorded from Bruxelles area by Wesmael); Iwata, 1933b:13 (locality records from Japan); Goebel, 1937:39 (Poland: Środa District: Tulce); Bat'a, 1942:85 (Czech Republic), 1944a:25 (Czech Republic); Sanders, 1949:98 (first record from Netherlands: Spar); Cavro, 1950:38 (France: Département du Nord); Sanders, 1950:47 (Netherlands: no specific locality); Leclercq, 1951e:4 (bibliography of Belgian records); Bat'a, 1952:167 (Czech Republic); Leclercq, 1954c:227 (in catalog of world Crabronini); Tsuneki, 1954b:64, 73 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 306 (nest and prey records); Tsuneki and Tanaka, 1955b:25 (Japan: near Nikko 120 km northwest of Tokyo); Vogrin, 1955:41 (Yugoslavia); Móczár, 1958a:263 (in annotated catalog of Hungarian Crabronini), 1958b:196 (Hungary: collecting localities); Nouvel and Ribaut, 1958:16 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Tsuneki, 1958e:54 (Japan: city of Toyama), 1959n:71, 76 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:33 (Germany: Nassau); Noskiewicz and Puławski, 1960:145, 152 (in key to Polish Sphecidae, not yet found in Poland); Tsuneki, 1960g:47 (nesting habits known from single record by Adlerz, 1912); Stritt, 1962:49 (Germany: Baden-Württemberg: Wutach area); de Beaumont,

1964c:146 (in Sphecid Fauna of Switzerland); Lefeber, 1966:209 (Netherlands: Ootmarsum, determination uncertain); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Unterfranken District); Benedek, 1968:77 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae); Nambu, 1968b:28 (Japan: Saitama Prefecture); Okuno, 1968:30 (Japan); Scobiola-Palade, 1968c:387 (Romania: Pantelimon); Tano, 1968:34 (Japan); Benedek, 1969a:85 (Hungary; marshy meadow); Itami, 1969:51 (Japan: Niigata Prefecture); Tsuneki, 1969e:28 (Japan: specimens in Osaka Museum of Natural History); Benedek, 1970:103 (Hungary: Tapolca); Haneda, 1970:13 (Japan: Akita Prefecture); Oehlke, 1970:773 (Democratic Germany); Yamada, 1973:61 (nesting habits); Leclercq, 1971:213 (Spain); Yamada, 1971:36 (Japan: Aichi Prefecture); Haneda, 1972a:6 (Taiwan); Tsuneki, 1972c:7 (Taiwan), 1973u:150 (taxonomy); Yamada, 1973:61 (nesting); nec Simon Thomas, 1974:57 (Errata: should be deleted); Tsuneki, 1974a:381 (Korea); Leclercq, 1975b:2 (France); Nambu, 1975b:76 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Lomholdt, 1976:389 (in Sphecid Fauna of Fennoscandia and Denmark); van der Zanden, 1977a:18 (Netherlands); Pulawski, 1978:260, 264 (in key to Sphecidae of European part of USSR); Leclercq, Gaspar, and Verstraeten, 1979:map 1439 (Belgium); Marshakov, 1979a:95, 99 (in key to *Crossocerus* of Russian Far East); Tsuneki, 1979d:12 (Japan); Marshakov, 1980c:346, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: Altai, Maritime Province, Kuril Islands: Island of Kunashir), 363 (redescription); Schmidt, 1980:339 (Germany: Baden-Württemberg); Tsuneki, 1982b:17 (known from Korea); Dollfuss, 1983b:15 (bibliographic citation); Paik, 1985:201 (in list of Sphecidae of Korea); Westrich and Schmidt, 1985b:110 (Germany: extinct in Baden-Württemberg); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989b:291 (Poland: moist meadow in Warszawa area); Jacobs and Oehlke, 1990:122 and 182 (not collected in Democratic Germany after 1960); Pádr, 1990:84 (Czech Republic: Praha area); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:153 (in key to Sphecidae of North and Central Europe); Józan, 1991:604 (Hungary: Bátorliget Nature Reserve); Tsuneki, 1991:203 (Korea); Barbier and Leclercq, 1993:119 (in revision of western European Crabroninae); Leclercq, 1993c:18 (Italy: Lombardia); Leclercq and Barbier, 1993:28 (map of distribution in France); Jansen and Kaluza, 1995:7 (Germany: extinct in Sachsen); Negrisolo, 1995a:22 (Italy: Veneto); Negrisolo *in* Minelli, Ruffo, and La

Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:432, 438 (in key to Sphecidae of Russian Far East); Scharrer, 1995:25 (Austria: Oberösterreich: Linz; Germany: Bayern: Miltenberg); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: last collected in 1946); Schmidt and Schmid-Egger, 1997:10 (in checklist of German Sphecidae); K. Weber, 1998:136 (Germany: Bayern: Bamberg area); W. Klein, 1999:8, 13 (in improved key to *Crossocerus* of Benelux); Pauly, 1999:110 (in catalog of Belgian aculeates); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan, as *dentricrus*); Blösch, 2000:299 (in Sphecid Fauna of Germany); Ohl et al., 2001:138 (distribution in Germany by provinces); Gusenleitner, 2003:864 (Austria: Steiermark: Oberau southwest of Unterpukla at 46°43'N 15°38'E); Kurokawa, 2003:61 (Japan: city of Fukui: Egamichou); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:195 (Germany: Bayern: extinct or no longer collected); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:369 (in Wasp and Ant Fauna of Netherlands); Q. Li and He, 2004:1082 (in hymenopterous fauna of Zhejiang Province, China); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: not collected since 1924); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Burger, 2005:36 (Germany: not occurring in Thüringen); Pagliano and Negrisolo, 2005:242 (in Sphecid Fauna of Italy); Straka, 2005a:394 (extinct in Czech Republic); Yildirim and Ljubomirov, 2005:1794 (first record from Turkey: Erzurum: Oltu: Çamlıbel); Vago, 2005a:18 (France: Département du Nord: not collected after 1950); Dollfuss, 2006:508 (Russia: Primorskiy Kray: Kraskino); Gorobchishin, 2006:123 (Ukraine: Cherkasy Oblast': Kaniv Nature Reserve); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas-Larrieu Nature Reserve near Argelès-sur-Mer), 2006c:7 (France: Pyrénées-Orientales: Réserve Naturelle du Mas-Larrieu); Jacobs, 2007:130, 138 (in key to Crabronidae of Germany); Nemkov, 2007b:71 (Russia: Kuril Islands: Island of Kunashir); Vago, 2007:175 (France: département du Nord); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Bohemia and Moravia); Ljubomirov and Yildirim, 2008:264 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:220 (in supplement to vol. I of

Faune de France, 1993: France: Landes: Saint-Julien-en-Born); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 167 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:105 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: extinct, last collected in 1946); Shorenko and Konovalov, 2010:17 (Ukraine: Lugansk Oblast': Antratsitovsk District); Tano, 2010b:41 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Baghirov, 2011b:144 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Tischendorf, Frommer, Flügel et al., 2011:41 (extinct in Germany, in Hessen last collected before 1857); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Haneda, Murota, Kurokawa, and Tano, 2014:6, 12 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); J.-K. Kim, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); P. Rosa and Pagliano, 2015:99 (Italy: Lombardia and Piemonte: Parco del Ticino); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Mas Larrieu); Kejval, Blažej, and Erhart, 2020:95 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:60 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey). – **As *Crabro denticrus***: Wesmael, 1852:609 (new generic assignment, Belgium: Bruxelles); F. Smith, 1856:413 (in catalog of Hymenoptera in British Museum); Schenck, 1960:146 (Germany: Nassau Region), 1867a:351 (Germany: Nassau Region); Kohl, 1880:127 (Italy:

Trentino-AltoAdige); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Sonderburg); von Dalla Torre, 1889:47 (Germany: Helgoland); Krieger, 1894:5 (Germany: Kingdom of Saxony); von Dalla Torre, 1897:596 (in catalog of world Sphecidae); de Cobelli, 1903:117 (Italy: Trentino: Serrada); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); Schmiedeknecht, 1907:198 (in key to Hymenoptera of Central Europe); nec Dittrich, 1911b:20 (= *Crossocerus elongatulus*); Kohl, 1915:270 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Simontornya); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); Dubois, 1921b:159, 161 (in key to Belgian Sphecidae), 166 (Bruxelles area); Berland, 1925d:182 (in Sphecid Fauna of France); Schütze, 1925:111 (Germany: Lausitz Region); Zavadil, 1926:35, footnote (Czechoslovakia); Blüthgen, 1929:82 (Germany: Saale River valley: Goseck); Pulkkinen, 1931:151 (in revision of Sphecidae of Finland, not yet found in Finland); Jansson, 1934:288 (Sweden); Steck, 1935:326 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:166 (in catalog of Sphecidae of Czechoslovakia); Struve, 1940:823 (Germany: Island of Borkum); Balthasar, 1942:4 (Czech Republic: Morava Region); Yasumatsu, 1942a:90 (Korea); Tsuneki, 1947d:291 (Korea), 1947e:421 (Japan: Hokkaido); Maruyama, 1948:8 (Japan: Honsu: between Yasan and Kengamine; anthomyiid prey); Tsuneki, 1948c:7 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:129, 131 (in key to Sphecidae of Czechoslovakia); Fæster, 1951:457 (distribution in Scandinavia); Móczár, 1953:311 (Hungary); Scobiola, 1954:885 (first record from Romania: Braşov); Benno, 1958b:19 (in review of Dutch Sphecidae); Scobiola-Palade, 1967b:53 (Romania); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Balthasar, 1972:116 (in Sphecid Fauna of Czechoslovakia); Vago, 2005a:14 (*Crabro denticrus* in Cavro, 1950 is *Crossocerus denticrus* now).

51. *dimidiatus* (Fabricius)

Crabro dimidiatus Fabricius, 1781:471, sex not stated. Holotype: ♂, Germany: no specific locality (ZMUC). – Fabricius, 1787:297 (redescription); Olivier, 1792a:516 (redescription); Fabricius, 1793:298 (redescription), 1804:313 (redescription); Stephens, 1829a:366 (in catalog of British insects), 1829b:34 (in checklist of British insects); Vander Linden, 1829:60 (bibliographic references, Belgium: Bruxelles, Austria, Germany, variation); nec Shuckard, 1837a:151 (= *Diodontus tristis*); Dahlbom, 1839:46 and 1839-40:46 (in revision of Scandinavian Crabronini),

1842a:15 (in review of Scandinavian aculeates), 1844:345 (in revision of Sphecidae and Pompilidae), 1845:XXV (type material examined), 525 (in key to *Crabro*); Eversmann, 1849:421 (Russia: Ural foothills); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Wissmann, 1849:16 (Germany: Kingdom of Hannover: not common); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:25 (Great Britain: Scotland and North of England, Isle of Wight, Weybridge), 1853:63 (in checklist of British Hymenoptera), 1856:404 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); F. Smith, 1858c:124 (in review of British Aculeata, redescription); A. Costa, 1867c:130 (in revision of Italian Sphecidae); von Aichinger, 1870:314 (Austria: Tirol); Bold, 1870:148 (Great Britain: Northumberland and Durham); A. Costa, 1871b:59 (in revision of Italian Sphecidae); F. Smith, 1871b:13 (in catalog of British Aculeata); Taschenberg, 1875:382 (specimen in Halle University collection); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county: Wakefield, by F. Smith, 1858); E. Saunders, 1880:290 (in revision of British Aculeata); V. Perkins, 1892:206 (Great Britain: Gloucestershire: Wotton-under-Edge); Freke, 1895:282 (Ireland: Dublin County), 1896:41 (Ireland); E. Saunders, 1896:138 (in revision of British Aculeata); R. Bradley, 1900:13 (Great Britain: Birmingham), Nevinson, 1900:62 (Great Britain: Wales: Towyn); A. Carter, 1901a:67 (Great Britain: Scotland: Perthshire: Comrie); Gardner, 1901:380 (Great Britain: Cheshire: Chester, Delamare, West Kirby); Malloch, 1901:6 (Great Britain: Scotland: Dumbartonshsire); R. Bradley, 1902:267 (Great Britain: North Wales); E. Saunders, 1902a:53 (southwestern Ireland), 1902b: (Great Britain: Channel Islands: Island of Jersey); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); von Heyden, 1905:83 (Germany: Hessen: Frankfurt); Morley, 1908b:276 (Ireland: Kenmare), 1909:306 (Great Britain: Isle of Wight); Orr, 1909b:242 (Ireland: Leitrim County); Lundblad, 1924:23 (Sweden: Lappland: Lycksele); Coulon, 1925:125 (France: Chaville); Gaunitz, 1929:199 (Sweden: Lapland); Routledge, 1933:88 (England: Cumberland); Jansson, 1934:288 (Sweden); Stelfox, 1939a:41 (Great Britain: Scotland: Garelochhead); Tsuneki, 1947a:8 (nesting habits),1947d:289 (Korea), 1947e:408 (Japan: Hokkaido), 1948c:5 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:123 (in key to Sphecidae of Czechoslovakia); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Leininger, 1951:115 (Germany: Baden-Württemberg: Baar); de Beaumont, 1954e:97 (Italy); Pulawski, 1955b:103 (structure of male tergum

VII); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:144, 150 (in key to Polish Sphecidae); Wengris, 1962:207 (Lithuania: Vilnius area); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:27 (Latvia); Balthasar, 1972:91 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:150 (Czech Republic: Třeboň area); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:124 (Poland: Warszawa area); Kowalczyk, 1988a:46 (Poland: Rogów), 1988b:66 (Poland: environs of Łódź); Vago, 2005a:14 (*Crabro dimidiatus* in Cavro, 1950 is *Crossocerus dimdidiatus* now). – **As *Lestica dimidiata***: Billberg, 1920:107 (new generic assignment, authorship attributed to G. Panzer, specimens from Sweden in collection Billberg); Rohwer, 1911c:154 (discussion of the name). – **As *Blepharipus dimidiatus***: Tischbein, 1850:6 (new generic assignment, Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Kirchner, 1854:313 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Assmuss, 1859:618 (Russia: Moscow Governorate); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:224 (in catalog of European Hymenoptera); A. Costa, 1869:17 (Italy: Piemonte); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); Richards, 1937b:106 (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, 1941:1029 (Germany: Bayern: Bamberg area); J. Perkins, 1942:198 (Sweden: southern Skåne); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Chalford, Rodborough, Stroud, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Chambers, 1949:229 (Great Britain: Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Felton, 1963:178 (Great Britain: Kent County). – **As *Cuphopterus dimidiatus***: R. Perkins, 1913b:391, 395 (new generic assignment, in key to British Crabronini), 1924:225 (Great Britain: Devon), 1925:152 (Great Britain: Gloucestershire and Somersetshire); Stelfox, 1927:297 (Ireland: list of localities); Faris, 1936:144 (Ireland: Cavan County). – **As *Crossocerus dimidiatus***: Leclercq, 1949a:8 (new generic assignment, Switzerland: Valais: Salvan), 1951e:11 (bibliography of Belgian records); Fahlander, 1954:250 (Sweden: Gästrikland Region); Leclercq, 1954c:242 (in catalog of world Crabronini), 313 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); de Beaumont, 1958c:211 (Swiss National

Park); Móczár, 1958a:264, 270 (in annotated catalog of Hungarian Crabronini, comparison with *Crossocerus confusus*), 1958b:198 (Hungary: collecting localities); de Beaumont, 1959a:38 (Italy); Grandi, 1959b:288 (Italy: Trento: Brusago); Wolf, 1959b:33 (Germany: Nassau); Hoop, 1961:64 (Germany: Schleswig-Holstein: Eggstedt); van der Vecht, 1961a:68 (study of holotype); Valkeila, 1962b:68 (southwestern Finland); Valkeila, Brander, and Käpylä, 1963:41 (Finland: historical region Lounais-Hämeen = southwestern Häme); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:150 (in Sphecid Fauna of Switzerland); Gauss, 1966c:240 (specimen bearing dipteran egg); Lefeber, 1966:209 (Netherlands: Sint-Pietersberg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:351 (Turkey); Gauss, 1967:559 (Germany: Baden-Württemberg); J. Heinrich, 1967:82 (Germany: Bayern: Engelberg near Grossheubach, as *dimitiatus*); Leclercq, 1967a:34 (Great Britain: locality records), 1968d:109 (Belgium: city of Liège); Dathe, 1969:438 (Germany: Berlin Zoological Garden); Lefeber, 1969a:79 (Netherlands: Bemelen, Maastricht, Otterlo), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Petit, 1969:72 (Belgium); Oehlke, 1970:780 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Hoop, 1971:83 (Germany: Schleswig-Holstein: vicinity of Rodenbek, Osterstedt); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains); Lefeber, 1971b:223 (Netherlands: Ede); Petit, 1971:22 (Luxemburg: Michelau); Schmidt, 1971b:51 (Germany: Rheinland-Pfalz: recorded from Mombach by Jaennicke, 1869); Haeseler, 1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:171 (Kazakhstan); Kofler, 1972:115 (Austria: eastern Tirol); Lomholdt, 1972:123 (Denmark: Island of Læsø); Scobiola-Palade, 1972b:255 (Romania); D. Peters, 1973a:103 (communal nesting, division of labor); Erlandsson, 1974:84 (Italy); Leclercq, 1974d:274 (synonymy), 1974e:661 (in key to Asian species of subgenus *Cuphopterus*; as *Crossocerus dimidiatus dimidiatus*), 1975b:3 (France); Lefeber, 1975a:37 (Netherlands: Asperen), 1975b:156 (Belgium); Lomholdt, 1975b:32 (Denmark: Island of Anholt); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Lomholdt, 1976:408 (in Sphecid Fauna of Fennoscandia and Denmark); Schmidt, 1977:99 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Haeseler, 1978c:193 (Germany: Friesian Islands: Island of Borkum); Marion, 1978:90 (France: Nièvre Department); O'Toole and Raw, 1978:43 (nest and mature larva); Pulawski, 1978:257, 262 (in key to Sphecidae of European part of USSR); Schwammberger,

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Britain: Watsonian Yorkshire); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Gayubo, González, Tormos, and Asís, 2002:86 (distribution in Iberian Peninsula); Kazenas, 2002a:99 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Germany: Hessen: Gieβen; Schleswig-Holstein: Birk); Esenbekova and Kazenas, 2003:6 and 54 (Kazakhstan: foothills of Zailiyskiy Alatau: nesting in artificial nests); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area), 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (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); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Wiśniowski *in* Dylewska and Wiśniowski, 2003:162 (Poland: Ojców National Park); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:131 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Kazenas, 2004b:107 (Kazakhstan: western Tien Shan); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:370 (in Wasp and Ant Fauna of Netherlands); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Szczepko and Kowalczyk, 2004:126 (Poland: Kampinos National Park near Warszawa); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Bergsten, Ekerholm, Gabrielsson, Hellquist, Petersson, Werner, Ström, Chauvet, and Dalecky, 2005:15 (Sweden: Västerbotten: Bjuröklubbs Nature Reserve); Burger, 2005:32

(Germany: Thüringen); Gayubo and Özbek, 2005:28 (Turkey: Erzurum: Kargapazarý, Pasinler; Tortum: Doruklu Plateau); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:177 (Austria: Tirol: Lienz District: Arnig and Dorfertal in Kals Common, Widum in Lavant Common, Lengberg in Nikolsdorf Common; Südtirol: Prettau in Arntal); Nemkov, 2005a:150 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:250 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:550 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:34 (Great Britain: Cumbria County); Saure, 2005:14 (Germany: Berlin); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:400 (endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:20 (France: Département d'Aisne: Soissons); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Yildirim and Ljubomirov, 2005:1794 (Turkey: Erzurum: Dutçu, Pasinler); Dollfuss, 2006:508 (Kyrghyzstan, Spain); Gorobchishin, 2006:129 (Ukraine: village Kruglyk near Kyiv); N. Schneider, 2006:140 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Chevin, Livory, Lair, Sagot, and Baldock, 2007:23 (France: Département de la Manche); Hallin, 2007a:154 (Sweden: Blekinge, Småland, and Närke counties), 2007b:25 (Sweden: Blekinge County); Jacobs, 2007:128, 135 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Nemkov, 2007b:71 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne and Nord); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Archer, 2008a:144 (Great Britain: Cumbria: Bamburgh Dunes and Lindisfarne Nature Reserve); Haeseler, 2008:308 (Germany: Friesian Islands); Ljubomirov and Yildirim, 2008:269 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:20 (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, 2009:221 (in supplement to vol. I of Faune de France, 1993: the latest record from France is Haute-Savoie: Bossy/Frangy, in 1990); Debuyser and Vago, 2009:5 (in

list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 168 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:109 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); Venne, 2009:110 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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); Rudoiskatel', 2010:156 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); van der Smissen, 2010a:335 (Germany: Schleswig-Holstein: locality records); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011c:43 (Great Britain: Watsonian Yorkshire: Lindrick area); Baghirov, 2011b:145 (Russia: recorded from Altai by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józan, (in 2011:181 checklist of of Hungary Sphecidae *sensu lato*); Nemkov, 2011:94 (Russia: one of three sphecid wasps occurring in Chukotka Peninsula); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:78 (Germany: Hessen: threatened to unknown degree); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common); Cölln, Jakubzik, and Kinkler, 2012:19 (Germany: Nordrhein-Westfalen: Leverkusen); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Hopewell House Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Johansson, 2013:22 (Sweden: Gotland: Island of Stora Karlsö); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in

list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:201 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:28 (Poland: Kampinos National Park near Warszawa); 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); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); P. Rosa and Pagliano, 2015:99 (Italy: Lombardia and Piemonte: Parco del Ticino); Shorenko, 2015:321 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:115 (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, 2016:20 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:230 (in catalog of Crabroninae of Russia, as *dimidiatus dimidiatus*); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Eschkopf near Rockensüß); Shorenko, 2017:76 (in Crimea collected in July); Jacobs and Liebig, 2018:139 (Russia: Irkutsk Oblast': Bol'shoye Goloustnoye; Sakhalin: Lugovoye and Pravda); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:93 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Akulov, Proshchalykin, and Mokrousov, 2020:46 (Russia: central Krasnoyarsk Kray); Kejval, Blažej, and Erhart, 2020:96 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:73 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:34 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

Crabro subpunctatus Rossi, 1790:95, sex not stated. Holotype or syntypes: Italy: Etruria, now Toscana (destroyed). Synonymized with *Crabro dimidiatus* by Leclercq, 1974d:274. – Illiger, 1807b:156 (redescription); Vander Linden, 1829:60 (bibliographic references, Belgium: Bruxelles, most of Europe, diagnostic characters); nec Curtis, 1838 (= *Crossocerus quadrimaculatus*); Shuckard, 1837a:147 (in revision of British Aculeata); Dahlbom, 1839:49 and 1839-40:49 (in revision of Scandinavian Crabronini), 1842a:15 (in review of Scandinavian aculeates); Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Dahlbom, 1844:349 (in revision of Sphecidae and Pompilidae); von Siebold, 1844:132 (Germany: Preussen: vicinity of Danzig, now Poland: Gdańsk, as *subpunctatus* Lepeletier); Dahlbom, 1845:526 (in key to *Crabro*); Eversmann, 1849:421 (Russia: Kazan and Orenburg provinces, Ural foothills); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Wissmann, 1849:16 (Germany: Kingdom of Hannover: Münden); F. Smith, 1849b:2551 (preying on gnats); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:28 (Great Britain: decaying wood), 1853:64 (in checklist of British Hymenoptera); Kawall, 1857:26 (Kurland, now Latvia); Thomson, 1870:169 (as synonym of *Crabro vagabundus*); Girard, 1879:938 (parasite on other Hymenoptera, in error); Marquet, 1881:187 (southern France); von Heyden, 1905:83 (Germany: Hessen: Frankfurt; as *subpunctatus* Panz.). – **As *Blepharipus subpunctatus***: Tischbein, 1850:6 (new generic assignment, Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Ruthe and Stein, 1857:315 (Germany: Berlin area); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region, as *subpunctatus* Dahlbom); Kirchner, 1867:224 (in catalog of European Hymenoptera); Dours, 1874:154 (in catalog of Hymenoptera of France); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region; as *subpunctatus* Dahlbom); Coulon, 1925:123 (France: Evreux); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:146 (specimens in M. Spinola collection, Torino, are *Crossocerus quadrimaculatus*, *Crossocerus dimidiatus*, and *Crossocerus* sp.). – **As *Crossocerus subpunctatus***: Lepeletier de Saint Fargeau and Brullé, 1835:766 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:170 (in revision of world Hymenoptera); P. Ivanov, 1872:151 (Ukraine: Khar'kov Oblast': Kupyansk area); nec Yaroshevskiy, 1881:122 (= *Crossocerus quadrimaculatus*); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Bradley, 1957:45 (Lepeletier's specimens in M. Spinola ollection, Torio); Casolari and Casolari Moreno, 1980:117

(specimens in M. Spinola collection, Torino); Pagliano, 2011a:140, 141 (specimens in M. Spinola collection, Torino, are *Crossocerus quadrimaculatus*, *C. vagabundus*, and *C.* sp.).

Crabro signatus Olivier, 1792a:517, sex not stated. Holotype or syntypes: France: Paris area (destroyed). Synonymized with *Crabro dimidiatus* by Leclercq, 1974d:274. – Lepeletier de Saint Fargeau and Brullé, 1835:809 (discussion of species identity); Taschenberg, 1875:382 (specimen in Halle University collection).

Crabro sexmaculatus Olivier, 1792a:518, sex not stated. Holotype or syntypes: ♂, France: Paris area (destroyed). Synonymized with *Crabro dimidiatus* by Leclercq, 1974d:274. – Lepeletier de Saint Fargeau and Brullé, 1835:809 (discussion of species identity); Dalla Torre, 1897:627 (in catalog of world Sphecidae).

Crabro serripes Panzer, 1797, Heft 46:8, [♀]. Holotype or syntypes: ♀, Germany: no specific locality (depository ?). Synonymized with *Blepharipus dimidiatus* by Richards, 1935a:167. – Jurine, 1807:212 (in checklist of species of *Crabro*); Audouin, 1824a:5 (in Dictionnaire classique d'histoire naturelle); nec Stephens, 1829a:365 and 1829b:33 (= *Ectemnius continuus*); Lepeletier de Saint Fargeau and Brullé, 1835:810 (discussion of species identity); Wesmael, 1852:594 (Belgium); Schenck, 1860:146 (Germany: Nassau Region), 1861:141 (Germany: Weilburg); Taschenberg, 1866:174 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (Germany: Nassau Region); von Aichinger, 1870:314 (Austria: Tirol); Thomson, 1870:168 (in revision of Swedish Crabroninae); Schlechtendal, 1872:36 (Germany: Sachsen: Zwickau); Thomson, 1874:278 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:131 (Austria: Tirol, and Italy: Trentino-AltoAdige); Siebke, 1880:70 (Norway); Sickmann, 1883:74 (Germany: Niedersachsen: Wellingholthausen); Wüstnei, 1886:34 (Germany: Schleswig-Holstein: Emmelsbüll, Fahretoft); Kohl, 1888b:722 (Austria: Tirol, now Italy: Alto Adige), 1893:23 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann, 1893:73 (Germany: Niedersachsen: Iburg, analysis of color variation); Krieger, 1894:5 (Germany: Kingdom of Saxony); Dalla Torre, 1897:626 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in today's Croatia); O. Schneider, 1898:102 (Germany: Island of Borkum); Strand, 1898b:96 (Norway); Friese, 1902:478 (Norway: Saltdalen at 67°N); de Cobelli, 1903:118 (Italy: Trentino: Serrada); W. Schulz, 1904b:98 (Germany: Island of Borkum); Kubes, 1905:84 (Czech Republic: Sušice); Schmiedeknecht, 1907:192 (in key to Hymenoptera of Central Europe); Peets, 1909-1911:66 (*Crabro serripes* of Panzer = *Crabro serripes*); Sparre Schneider, 1909:110 (Norway: Nord-

lands area: Saltdalen); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Alfken, 1914:273 (northwestern Germany); Szilády, 1914:89 (Hungary: Nagyenyed); Kohl, 1915:210 (in revision of Palearctic Crabronini); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:37 (Germany: Franken); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: Kamieniołom); A. Wagner, 1920:44 (Germany: Lower Elbe region); Dubois, 1921b:153, 154 (in key to Belgian Sphecidae), 165 (phenology); Fahringer, 1922:183 (Turkey); Berland, 1925d:187 (in Sphecid Fauna of France); Bischoff, 1925:297 (Poland: Białowieża); Blüthgen, 1925:165 (Germany: Saale River valley: Roβbach); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:149 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Schütze, 1925:110 (Germany: Lausitz Region); Zavadil, 1926:32 (Czechoslovakia); Soot-Ryen, 1927:7 (Norway: Bosekop); Berland, 1928b:181 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Bouwman, 1930:98 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:648 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:138 (in revision of Sphecidae of Finland); Bondroit, 1932:40 (Belgium: recorded from Beruxelles area by Wesmael); Bondroit, 1933:32 (Belgium: common near Bruxelles a century before but not found currently), 1934:62 (Belgium: Boendael, Solbosch); Merisuo, 1933a:60 (Finland: city of Turku); E. Nielsen, 1933:268 (nesting in beetle galleries in wood); Grandi, 1934:128 (Italy: Trentino-Alto Adige: Lavarone); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:323 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:158 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:85 (Japan: Hokkaido, Honsu; Russia: Kuril Islands); A. Wagner, 1938a:116 (northwestern Germany); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Benno, 1943:68 (Netherlands); Grandi, 1944b:36 (Italy); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Cavro, 1950:39 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Fæster, 1951:456 (differences between females of *Crabro signatus* and *serripes*), 457 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Preuss, 1956:14 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Leistadt); Lundblad,

1958:48, 49 (Sweden: Gotland); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Vigo di Fassa); J. Robert, 1967:64 (France: Doubs Department: Besançon). – **As *Blepharipus serripes***: Taschenberg, 1858:109 (new generic assignment, in key to Sphecidae of Germany); Funk, 1859:58 (Germany: Bayern: Bamberg); Kirchner, 1867:224 (in catalog of European Hymenoptera); Jaennicke, 1868:8 (Germany: Hessen: Mombach); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Lange, 1898:70 (Germany: Sachsen: Annaberg-Buchholz); Chyzer, 1902:34 (Hungary); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Coulon, 1925:123 (France: Elbeuf, Evreux, Seine-et-Oise). – **As *Cuphopterus serripes***: Graeffe, 1911:43 (new generic assignment, Italy: Trieste area); Schirmer, 1912:164 (Germany: Berlin area); Łoziński, 1920:121 (Poland: Maków Podhalański); Hamm and Richards, 1926:316 (summary of nesting habits), 328 (list of prey); Harttig, 1930b:7, 8 (specimen bearing dipteran egg); Baudot, 1931:255 (characteristics of cocoon); Butterfield and Fordham, 1931:158 (Great Britain: Yorkshire); Iwata, 1933b:12 (locality records from Japan); Spooner, 1935:139 (Great Britain: Huntingdonshire: Wood Walton, and Northamptonshire: Ashton Wold); Hallett, 1938:72 (Great Britain: Herefordshire: Cusop, Tarrington).

Crabro notatus Illiger *in* Rossi, 1807:148 (for specimens misidentified as *Crabro maculatus* Fabricius, 1781 by Rossi, 1790:90). Synonymized with *Crabro dimidiatus* by Leclercq, 1974d:274. – Dalla Torre, 1897:613 (in catalog of world Sphecidae).

Crabro analis Stephens, 1829a:365, nomen nudum (in catalog of British insects). Synonymized with *Crabro subpunctatus* by F. Smith, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).

Crabro consobrinus Stephens, 1829a:365, nomen nudum (in catalog of British insects). Synonymized with *Crabro subpunctatus* by F. Smith, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).

Blepharipus pauperatus Lepeletier de Saint Fargeau and Brullé, 1835:733, ♀, ♂. Syntypes: France: Paris area (collection M. Spinola, Torino). Synonymized with *Crabro serripes* by Kohl, 1915:210. – Lepeletier de Saint Fargeau, 1845:138 (in revision of world Hymenoptera); Fabre, 1856a:139 (France: Vaucluse: Avignon area); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria); Chyzer, 1902:34 (Hungary); Bradley, 1957:48 (type in M. Spiola collection, Torino); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:147 (specimens in M. Spinola collection, Torino, are *Crossocerus quadrimaculatus* and *C. vagabundus*).

Crabro armipes von Siebold, 1844:132, sex not stated. Holotype: Germany: Preussen: vicinity of Danzig, now Poland: Gdańsk (lost?). Synonymized with *Crabro dimidiatus* by Leclercq, 1974d:274.

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

As *Crabro quadrimaculatus*: Stephens, 1829a:365 (in catalog of British insects) and 1829b:33 (in checklist of British insects), corrected to *Crabro subpunctatus* by F. Smith, 1855:99; Karvonen, 1922:94 (Finland: Jomala), corrected to *Crossocerus dimidiatus* by Hellén, 1955b:68

As *Blepharipus subpunctatus* partim: Pagliano, 2011a:146 (specimens in M. Spinola collection, Torino, are *Crossocerus dimidiatus* and *C. quadrimaculatus*)

ssp. *agyo* Terayama and Takahashi

Crabro serripes sapporoensis Kohl, 1915:213, ♀. Holotype: ♀, Japan: Sapporo (NHMW). Junior primary homonym of *Crabro sapporoensis* Matsumura, 1911 (= *Ectemnius fossorius* (Linnaeus, 1758)).– **As *Crossocerus dimidiatus sapporoensis***: Tsuneki, 1954b:59, 68 (new generic assignment, in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 1955d:216 (Kuril Islands); Tsuneki and Tanaka, 1955a:68 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki,

1959n:68, 73 (in revised key to *Crossocerus* of Japan and Korea), 1960g:34 (prey: Anthomyiidae and Muscidae); Haneda, 1962:57 (preying on anthomyiid flies, nesting in ground); T. Iida, 1968:21 (Japan); Tano, 1968:34 (Japan); Haneda, 1969:70 (Japan: Yamanashi Prefecture); Itami, 1969:51 (Japan: Niigata Prefecture); Nambu, 1973a:153 (Japan: Saitama Prefecture); Leclercq, 1974e:661, 663 (in key to Asian species of subgenus *Cuphopterus*), 664 (geographic variation, locality records); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Suda, 2004:44 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 168 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Tano, 2010b:43 (member of *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:2, 8 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula).

Crossocerus dimidiatus agyo Terayama and Takahashi, 2017:27, substitute name for *Crabro dimidiatus sapporoensis* Kohl, 1915. – Antropov, 2017b:230 (in catalog of Crabroninae of Russia)

52. *distinguendus* (A. Morawitz)

Crabro distinguendus A. Morawitz, 1866a:260, ♂. Syntypes: ♂, Switzerland: Creuznach and Interlaken (ZIN). – Kohl, 1880:129 (Italy: Trentino-AltoAdige), 216 (additional description), 1883e:655 (Switzerland); 1888b:722 (Austria: Tirol, now Italy: Alto Adige); Sickmann, 1885:177 (Germany: Niedersachsen: Wellingholthausen); Kohl, 1893a:23 (Austria: Niederösterreich); Sickmann, 1893:70 (Germany: Niedersachsen: Iburg); Dalla Torre, 1897:596 (in catalog of world Sphecidae); Šustera, 1909:34 (Czech Republic: vicinity of Praha); de Cobelli, 1903:117 (Italy: Trentino: Vigo di Fassa); Kohl, 1915:266 (in revision of Palearctic Crabronini); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:38 (Germany: Franken); Lindemans, 1920:203 (first record from Netherlands: Vorden); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: Dolina Koscieliska); A. Wagner, 1920:46 (Germany: can be expected in Lower Elbe region); Dubois, 1921b:160 (in key to Belgian Sphecidae), 166 (phenology, recognition characters of ♀); Bischoff, 1925:298 (Latvia; Poland: Grajewo area); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:35 (Czechoslovakia); Banzhaf, 1930:130 (Germany: Island of Rügen, now Poland: Island of Rugia); Bouwman, 1930:104 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:653, 656 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Pulkkinen, 1931:150 (in revision of Sphecidae of Finland, not yet found in Finland); Crèvecoeur and Maréchal, 1932:67 (in catalog of Belgian Hymenoptera: Wépion); Bondroit, 1934:62 (Belgium: Solbosch); Jansson, 1934:288 (Sweden); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:165 (in catalog of Sphecidae of Czechoslovakia); Maréchal, 1938b:211 (Belgium, on leaves of *Tilia*); A. Wagner, 1938a:117 (northwestern Germany); Teunissen, 1939:174 (Netherlands: Haaren, Herpen, Terziet); Paul, 1941:37 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:245 (in Sphecid Fauna of Spain); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); de Beaumont, 1945:481 (first record from Switzerland); Balthasar, 1948:140 (Slovakia: Kovačov); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Zavadil *in* Zavadil and Šnoflak, 1948:129, 133 (in key to

Sphecidae of Czechoslovakia); Cavro, 1950:38 (France: Département du Nord); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Fæster, 1951:455 (differences between females of *Crabro elongatulus* and *distinguendus*), 457 (distribution in Scandinavia); Leininger, 1951:115 (Germany: Baden-Württemberg: Aselfingen); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cauterets); de Beaumont, 1954e:97 (Italy); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1958b:19 (in review of Dutch Sphecidae); Lundblad, 1958:48, 49 (Sweden: Gotland); Noskiewicz and Puławski, 1960:146, 155 (in key to Polish Sphecidae); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Vigo di Fassa); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:113 (in Sphecid Fauna of Czechoslovakia); Józan, 1981:306 (Hungary: Hortobágy National Park); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:121, 124 (Poland: Mazovian Voivodship: Warszawa, Wola Mrokowska); Vago, 2005a:14 (*Crabro distinguendus* in Cavro, 1950 is *Crossocerus distinguendus* now). – **As *Crossocerus distinguendus***: Richards, 1928b:221 (new generic assignment, first record from France); Harttig, 1935:4 (Germany: Niedersachsen: Bremen, Horn, Oyten); Minkiewicz, 1935:221 (Poland: Lake Garbaś 20 km west of Suwałki); Steck, 1935:325 (Switzerland); Harttig, 1938:165 (comparison with *Crossocerus elongatulus*); Schneid, 1941:1031 (Germany: Bayern: Bamberg area); Bat'a, 1942:85 (Czech Republic), 1944a:25 (Czech Republic); Leclercq, 1949a:4 (female difficult to distinguish from *Crossocerus elongatulus*), 1951e:4 (bibliography of Belgian records), 1954c:227 (in catalog of world Crabronini); Aerts, 1955:57 (Germany: Rheinland); Leclercq, 1956i:132 (Luxemburg); de Beaumont, 1958c:213 (Swiss National Park); Móczár, 1958a:263 (in annotated catalog of Hungarian Crabronini), 1958b:195 (Hungary: collecting localities); Wolf, 1959b:33 (Germany: Nassau); Hamann, 1960:199 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Hoop, 1961:63 (Germany: Schleswig-Holstein: Kronshagen and Rosenkranz); Valkeila, 1961b:147 (Finland), 1962a:48 (Finalnd: Vanaja and Kitee), 1962b:68 (southwestern Finland); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:146 (in Sphecid Fauna of Switzerland); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Hellén, 1966:83 (first record from Finland: Pälkäne); Lefeber, 1966:209 (Netherlands: Bemelen); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Obernau and Sulzbach; as *distinguendis*);

Benedek, 1968:76 (Hungary, floral records); Haneda, 1968c:69 (a European species found in Japan); Wolf, 1968:11 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:85 (Hungary; marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena* pruni (Geoffroy)); Lefeber, 1969a:78 (Netherlands: Bemelen, Heino, Maastricht, t'Rooth), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Zangheri, 1969:1707 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:103 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:773 (Democratic Germany); Petit, 1971:22 (Luxemburg: Bourscheid,); Schmidt, 1971b:50 (Germany: Mainz area); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1972:157, 200 (Germany: Schleswig-Holstein; anthropogenic habitats); Kofler, 1972:114 (Austria: eastern Tirol); Lomholdt, 1972:123 (Denmark: Island of Læsø); Kofler, 1974:320 (Austria: Kärnten); Lefeber and Petit, 1974:163 (Belgium: Plombières); Leclercq, 1975b:2 (France); Lefeber, 1975b:119 (Netherlands: Schiepersberg); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Lomholdt, 1976:388 (in Sphecid Fauna of Fennoscandia and Denmark); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald), 1977/78:58 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand); Guichard, 1978:272 (first record from Greece: Aspropotomas); Marion, 1978:90 (France: Nièvre Department); Pulawski, 1978:260, 264 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1440 (Belgium); Schmidt, 1979a:57 (Germany: East Holstein); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Marshakov, 1980c:344, 353 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: European part, Kazakhstan); Pagliano, 1980:122 (Italy: Piemonte); Preuss, 1980a:24 (Germany; nesting at forest edges); Richards, 1980:49, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:340 (Germany: Baden-Württemberg); Westrich, 1980:634 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Packer, 1981:97 (first record from Great Britain: Kent: Sturry and Westbere Butts near Canterbury); Woydak, 1981:48 (Germany: Westfalen: Hamm);

Leclercq, 1982a:125 (Belgium: Liège); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Riemann, 1983:88 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Lefeber, 1984:28 (Netherlands: Maastricht); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985c:571 (Germany: Friesian Islands); Józan, 1985b:59 (Hungary south of Lake Balaton), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Skibińska, 1986b:155 (Poland: suburbs of Warszawa), 160 (gardens), 163 (urban parks), 165 (streetside green), 187 (green areas of housing estates), 175 (various green urban habitats); Riemann, 1987b:34 (Germany: Niedersachsen: Nature Reserve Dünengebiet near Neumühlen); Schmidt and Westrich, 1987:373 (Germany: Mainz area); Dollfuss, 1988:15, 27 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Haeseler, 1988:210 (Germany: Friesian Islands); Riemann, 1988:222 (Germany: Bremen area); Jacobs, 1989:18 (Germany: Mecklenburg-Vorpommern); Józan, 1989:101 (Hungary: Tihany Nature Reserve); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:206 (Poland: Warszawa area), 158 (rural and suburban parks); Jacobs and Oehlke, 1990:183 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:23 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:84 (Czech Republic: Praha area); Pagliano, 1990:83 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:545 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:153 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 94, 99, 102 (Poland: Łódź), 1991b:121 (Poland: Augustów Forest); Negrisolo, 1991:320 (Italy: Udine Province); Pagliano, 1991b:339, 345 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Budrys, 1992:33 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatèrres, as *distenguendus*); Józan, 1992b:174 (Hungary: Boronka-melléki Nature Reserve), 1992c:289 (Hungary: Zselic Hills); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:86

(Germany: Bayern: Bamberg District); Wolf, 1992c:21 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Bitsch and Leclercq, 1993:120 (in revision of western European Crabroninae); Józan, 1993:414 (Hungary: Bükk National Park); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq and Barbier, 1993:30 (map of distribution in France); Leclercq, 1993c:18 (faunal data including Czechoslovakia: Chodov, and Poland: Bydgoszcz); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife near Altenahr); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Schmid-Egger, 1994a:687 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Stöcklein, 1994:47 (nesting in sandstone walls), 48 (nesting in building walls); Theunert, 1994c:35 (Germany: summary of records from Niedersachsen and Bremen); Józan, 1995:105 (Hungary: projected Duna-Dráva National Park); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Riemann, 1995:52 (Germany: Bremen); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:172 (Germany: summary of records from Rheinland-Pfalz); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Harvey, 1996:25 (Great Britain: Essex); Harvey and Plant, 1996:69 (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, 1996:376 (Germany: Baden-Württemberg: not endangered); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg, as *distinguensis*); Woydak, 1996:55 (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, 1997:10 (in checklist of German Sphecidae); Stoyanov and Ljubomirov, 1997:27 (Bulgaria: Rila Mountains); 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, 1998:517 (Austria: summary of collecting records from Burgenland); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island g in Weser River); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józan, 1998:311 (Hungary: Duna-Dráva National Park); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); van der Smissen, 1998:55 (Germany: Schleswig-Holstein); K. Weber, 1998:136 (Germany: Bayern: Bamberg area); Cölln and

Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Gusenleitner, 1999:600 (Austria: Vorarlberg: Grosses Walsertal); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:7, 14 (in improved key to *Crossocerus* of Benelux); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Neumayer, Schwarz, and Bregant, 1999:223 (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, 1999:87 (Austria: Oberösterreich: city of Linz area); Sörensen, Mauss, and Schindler, 1999:503 (Germany: Schleswig-Holstein); Blösch, 2000:300 (in Sphecid Fauna of Germany); Dressler, 2000:31 (Germany: Hessen: Darmstadt area); Jacobs, 2000:6 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Kuhlmann, 2000:64 (Germany: Hessen: Diemel River valley); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Deván, 2001:165 (Slovakia: Krasin Nature Reserve in Biele Karpaty Mountains); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Ljubomirov, 2001b:51 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:138 (distribution in Germany by states); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Archer, 2002a:42 (Great Britain: Yorkshire); Beavis, 2002:106 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:73 (Liechtenstein); Deván, 2002a:200 (Slovakia: Kobela Nature Reserve near Nové Mesto); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józan, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:99 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Lukáš, 2002:190 (Slovakia: Hájnica hill near Trenčianske Bohuslavice); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Wiśniowski, 2002:71 (Poland: Ojców National Park); Blösch, 2003b:83 (Germany: Bayern: Erlangen area, nesting in rotten willow poles); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:135 (Germany: Hessen: Gieβen, Staufenberger Terrasse); Flügel, 2003:8 (Germany: Hessen:

Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:163 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Archer, 2004b:49 (Great Britain: Yorkshire: York cemetery), 2004e:76 (Great Britain: Yorkshire: York cemetery, Burton Leonard Lime Quarries, Sand Hutton), 2004f:153 (Great Britain: Watsonian Yorkshire: Victorian cemetery); Devián, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:370 (in Wasp and Ant Fauna of Netherlands); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Dubitzky, Blank, and Schönitzer, 2005:272 (Germany: Bayern: area north of Dachau); Edwards and Broad, 2005:44 (Great Britain: distribution, status, habitat, flight period, prey, nesting habits, flower visiting, parasites, and distribution map); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:177 (Austria: Tirol: Lienz District: Gh. Kapaun in Dölsach Common); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Pagliano and Negrisolo, 2005:242 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:550 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:164 (Ukraine: Crimea), 2005b:98 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:18 (France: Département du Nord: Cambrai); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Ziska and Saure, 2005:81 (Germany: Berlin: Biesenhorster Sand); Dollfuss, 2006:508 (Bulgaria, Croatia, Greece, Ukraine); Gorobchishin, 2006:123 (Ukraine: several localities); Kroupa, 2006b:25 (Germany: Bayern: Oberfranken Region); Liebig, 2006:38 (Germany: Sachsen:

Muskauer Heide); Liška, 2006:88 (Slovakia: Váh river valley near Trenčin); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Standfuss and Standfuss, 2006b:98 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Hallin, 2007:154 (Sweden: Blekinge, Småland, Gotland, Öland, and Närke counties); Herrmann, 2007b:94 (Germany: Baden-Württemberg: Fürstenberg in Konstanz); Jacobs, 2007:131, 140 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Józan, 2007:179 (Hungary: Zselic hills); Leclercq, 2007f:190 (references to records from Greece); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); G. Turrisi and R. Turrisi, 2007:118 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vago, 2007:175 (France: départements du Nord and Pas-de-Calais); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Archer, 2008d:21 (Great Britain: Watsonian Yorkshire: Burton Leonard Lime Quarry); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Haeseler, 2008:308 (Germany: Friesian Islands); Tannert and von der Dunk, 2008:181 (Germany: Bayern: west of Ernhofen and Weissenbrunn); Theunert, 2008:20 (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, 2009:220 (in supplement to vol. I of Faune de France, 1993: France: Alpes-Maritimes: Casterine, at altitude 2,300 m); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 168 (in list of Asian *Crossocerus*, bibliographic references, recorded from Kazakhstan by Kazenas, 2001); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Hessling, 2009:103 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Mokrousov, 2009:282 (Russia: Republic Mari El); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:28 (known from Norway), 42 and 71 (Norway: locality records); Pagliano, 2009:181 (Italy: Molise: Castelpetroso);

Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); Baghirov, 2010:678 (Russia: Altai Territories: village Savvushka); Burguet *in* Durand and Burguet, 2010:27 (France Département d'Ardèche: Ardèche Gorges); Ermilov and Mokrousov: 2010:89 (phoretic mite *Histiogaster* sp. in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (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, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast', Mari El Republic, Tatarstan: no specific localities); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); van der Smissen, 2010a:336 (Germany: Schleswig-Holstein: locality records) 2010c:396 (Sweden: Öland: Byrums Sandvik, Högsrum, Rönnerum); Baghirov, 2011b:144 (Russia: Altayskiy Kray: Savvushka); Falk, 2011:62 (Great Britain: Sussex: South Downs); Gogala, 2011:19 (Slovenia: Podčetrtek); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Saure, 2011a:5 (Germany: Berlin: former airport Tempelhof); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:121 (Germany: Hessen: not endangered); Archer, 2012b:182 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Shlyakhtenok, 2012a:171 (Belorussia and Russia: Krasnaya Polasna near Sochi: collected in private plots); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Johansson, 2013:22 (Sweden: Gotland: island of Stora Karlsö); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:196 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:29 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain: urban and suburban gardens); U. Frommer, 2014:26 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1321 (Germany, Hessen: Roβstein); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jacobs and Schmid-Egger, 2014:28 (in

key to females of the *elongatulus* species group); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); P. Rosa and Pagliano, 2015:100 (Italy: Lombardia and Piemonte: Parco del Ticino); Shorenko, 2015:319 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:116 (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, 2016:18 (in checklist of Aculeata of Great Britain and Ireland: England); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:573 (Russia: Krasnodarskiy Kray); A. Scholz, 2016:71 (Germany: Sachsen: Kleinraschützer Heide); U. Sörensen, 2016:426 (Germany: Schleswig-Holstein: der Ochsenweg south of Leck); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Flügel, 2017:5 (Germany: Hessen: Doline and Eschkopf near Rockensüß); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols, as *distenguendus*); Shorenko, 2017:76 (in Crimea collected in June and July), 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:93 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:96 (western Czech Republic); Shorenko, 2020:48 (Crimea: Karadag Nature Reserve); Turrisi, Altadonna, Lo Cascio, Nobile, and Selis, 2020:728 (Italy: Aeolian Archipelago: island of Lipari); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:61 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland).

Crabro distinguendus A. Morawitz, 1866b:333 (233 in error). Objective synonym of *Crabro distinguendus* A. Morawitz, 1866a:260.

Crabro mucronatus Thomson, 1870:167, ♀, ♂, junior primary homonym of *Crabro mucronatus* Fabricius, 1793. Syntypes: Sweden: no specific locality (Lund). Synonymized with *Crabro distinguendus* by Kohl, 1915:266. – Thomson, 1874:275 (in revision of Hymenoptera of Scandinavia); Sickmann, 1885:178 (Germany: Niedersachsen: Wellingholthausen); Krieger, 1894:5 (Germany: Kingdom of Saxony); Dalla Torre, 1897:611 (in catalog of world

Sphecidae); Antiga and Bofill, 1904:24 (Spain: Cataluña Province); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); Schmiedeknecht, 1907:197, 199 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:20 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Schirmer, 1912:164 (Germany: Berlin area); Schütze, 1925:111 (Germany: Lausitz Region). – **As *Crossocerus mucronatus***: Graeffe, 1911:44 (new generic assignment, Italy: Trieste area); Łoziński, 1920:121 (Poland: Kraków).

As *Crabro affinis* H.S. (= *mucronatus* Thomson): Wüstnei, 1886:36 (Germany: Schleswig-Holstein); *affinis* Lepeletier de Saint Fargeau and Brullé = *elongatulus*; *mucronatus* Thomson = *distinguendus*.

53. *distortus* Leclercq

Crossocerus distortus Leclercq, 1955a:190, ♂. Holotype: ♂, India: Uttar Pradesh: Kumaon west of Almora (BMNH). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae). – Leclercq, 2009:161 (member of subgenus *Blepharipus*), 168 (in list of Asian *Crossocerus*, bibliographic references); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

54. *domicola* Tsuneki

Crossocerus domicola Tsuneki, 1971a:15, ♀. Holotype: ♀, Taiwan: Chiai Prefecture: Kuanhua (originally K. Tsuneki collection, now USNM). – Tsuneki, 1971a:15 (type of subgenus *Bnunius*); Leclercq, 1973c:289 (Taiwan); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tsuneki, 1977j:285 (Taiwan: Taihorin); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Bnunius*), 168 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Tano, 2010b:41 (member of subgenus *Bnunius*, in list of Japanese subgenera of *Crossocerus*).

55. *dutti* Saini and Dey

Crossocerus dutti Saini and Dey, 2022b:89, ♀. Holotype: ♀, Pakistan: Punjab: Muree Hills, now Pir Panjal Mountains (National Pusa Collection, Indian Agricultural Research Institute, New Delhi, India).

56. *elongatulus* (Vander Linden)

Crabro elongatulus Vander Linden, 1829:64, ♀, ♂. Syntypes: Belgium: Bruxelles (Inst. Roy. Sci. Nat. Belgique, Bruxelles). – Haliday, 1833:516 (Ireland: eastern coast north of Dublin); Shuckard, 1837a:154 (in revision of British Aculeata); Dahlbom, 1844:315 (in revision of Sphecidae and Pompilidae), 1845:522 (in key to

Crabro); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony); F. Smith, 1849a:2373 (Great Britain: Devonshire); Wissmann, 1849:15 (Germany: Kingdom of Hannover: Münden); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:29 (Great Britain: London district); Wesmael, 1852:604 (Belgium: Bruxelles); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:405 (in catalog of Hymenoptera in British Museum, as *elongatus* Lepeletier); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1960:146 (Germany: Nassau Region); A. Costa, 1863:66 (Italy: Calabria Ulteriore: near Reggio); Morawitz, 1864:456 (Russia: Sankt-Petersburg), 1866a:270 and 1866b:347 (specimens in Eversmann collection); Taschenberg, 1866:180 (in revision of Hymenoptera of Germany); A. Costa, 1867c:126 (in revision of Italian Sphecidae); Dietrich, 1868:362 (Switzerland: Zurich Canton); Schenck, 1867a:351 (Germany: Nassau Region); von Aichinger, 1870:314 (Austria: Tirol); Thomson, 1870:167 (in revision of Swedish Crabroninae); A. Costa, 1871b:55 (in revision of Italian Sphecidae); Thomson, 1874:275 (in revision of Hymenoptera of Scandinavia); Marquet, 1875:210 (France: Hérault: Montpellier, as *elongatus* Lepeletier); Taschenberg, 1875:382 (Germany: Halle; as *elongatus*, a misspelling originated by Lepeletier, 1845:193); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton); Becker, 1880:151 (Russia: Sarepta, now Krasnoarmeysk south of Volgograd); Kohl, 1880:128 (Austria: Tirol, and Italy: Trentino-AltoAdige); E. Saunders, 1880:289 (in revision of British Aculeata); Siebke, 1880:70 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:655 (Switzerland); Sickmann, 1883:71 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Sickmann, 1886:280 (Germany: Friesian Islands: Island of Spiekeroog); Wüstnei, 1886:36 (Germany: Schleswig-Holstein: Elmshorn, Emmelsbüll, Husum, Sonderburg); Gasperini, 1887:14 (Croatia: Split); Kohl, 1888b:722 (Austria: Tirol, now Italy: Alto Adige); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); Alfken, 1893:120 (Germany: Friesian Islands: Island of Juist); Kohl, 1893a:23 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus), 1893b:425 (Tajikistan: Darkh in Zeravshan River valley); Sickmann, 1893:69 (Germany: Niedersachsen: Iburg); Krieger, 1894:5 (Germany: Kingdom of Saxony); Schletterer, 1894:34 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); Meunier, 1896:270 (Belgium: Bruxelles area); E. Saunders, 1896:136 (in revision of British Aculeata); Westerlund, 1896:28 (Finland: no specific locality, as *elongotulus*); Dalla Torre, 1897:597 (in catalog of world Sphecidae) and

599 (listed as *elongatus*); Meunier, 1897b:353 (coastal sand dunes at Blankenberge); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in today's Croatia and Romania); O. Schneider, 1898:102 (Germany: Island of Borkum); Strand, 1898b:96 (Norway); Ferton, 1899:344 (prey); Ferton, 1901a:113 (list of prey); Gardner, 1901:380 (Great Britain: Cheshire: Delamere, Hazlegrove, and Lancashire: Manchester); Rothney, 1901:150 (Great Britain: Cornwall: Tintagel); N. Arnold, 1902:88 (Russia: Mohilev Province, now Belorussia); Ferton, 1902:518 (list of prey); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); E. Saunders, 1902b:143 (British Channel Islands: islands of Alderney, Guernsey, and Jersey); de Cobelli, 1903:117 (Italy: Province of Trentino); E. Saunders, 1903d:246 (Great Britain: Channel Islands: Island f Jersey); Antiga and Bofill, 1904:24 (Spain: Cataluña Province); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); E. Saunders, 1904c:608 (Spain: Mayorca); Zilahi Kiss, 1904:77 (Hungary: Tasnád); Kubes, 1905:84 (Czech Republic: Kolín, Sušice); Luff, 1905b:390 (British Channel Islands: Island of Jethou); Mantero, 1905:71 (Italy: Toscana: Isola del Giglio); W. Schulz, 1906:201 (*elongatulus* is the correct name, not *elongatus*); Móczár and Henter, 1907:206 (Romania: Mehadia, as *elongatus*); Schmiedeknecht, 1907:197, 199 (in key to Hymenoptera of Central Europe); Morley, 1909:306 (Great Britain: Isle of Wight); Dittrich, 1911b:20 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Morice, 1911:134 (Algeria: Alger, Biskra, Bône, Constantine); Hallett, 1912:94 (Great Britain: Glamorgan County); Alfken, 1914:274 (northwestern Germany); Birula, 1914:378 (Belorussia: Ambrosovichi near Vitebsk, redescription); Kohl, 1915:262 (in revision of Palearctic Crabronini); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: Dolina Kościeliska); A. Wagner, 1920:46 (Germany: Lower Elbe region); Dubois, 1921b:160, 161 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Ferton, 1923:82 (position of egg on prey), 89, footnote (prey: small flies of genus *Sapromyza*); Berland, 1925d:181 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia; Poland: Grajewo area); Schütze, 1925:111 (Germany: Lausitz Region); K. Strohm, 1925:110 (Germany: Baden-Württemberg: Ihringen, Wasenweiler); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:149 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Zavadil, 1926:35 (Czechoslovakia); Benoist, 1928:410 (France: Basses-Alpes, Hautes-Alpes); Berland, 1928b:180 (add Perkins, 1892 and Hamm and Richards, 1926 to bibliography in Berland, 1925d, as

elegantulus); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Bouwman, 1930:103 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:653, 657 (in keys to Hymenoptera of North and Central Europe); Bischoff, 1931:9 (Spain); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:150 (in revision of Sphecidae of Finland); Spooner, 1931:16 (Great Britain: Cambridgeshire); Bondroit, 1932:41 (Belgium: abundant in Bruxelles area); Bischoff, 1933:4 (Morocco); Drogoszewski, 1933:117 (Poland: Łowicz, as *elongatus*); Dulac, 1933a:38 (France: Saône-et-Loire: Savianges); Merisuo, 1933a:60 (Finland: city of Turku); Nadig, 1933:76 (Morocco: El Hajeb); E. Nielsen, 1933:271 (summary of nesting habits; prey exceptionally impaled on sting); Balles, 1934:16 (Germany: Baden-Württemberg: Achern, Fautenbach, Hainstadt, Hopfengarten, Oberachern); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Maréchal, 1935:126 (specimen carrying dipteran eggs); Steck, 1935:325 (Switzerland); Vergne, 1935:119 (France: Auvergne: Les Martres-d'Artières); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Minkiewicz, 1936:3 (male of on-place watcher type); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg, Roβbach); Dulac, 1937:20 (France: Saône-et-Loire: Saint-Laurent d'Andenay, Savianges); Zavadil, Šustera, and Bat'a, 1937:165 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:117 (northwestern Germany); Giordani-Soika, 1939b:74 (Italy: Venezia); Balthasar, 1941a:105 (Czech Republic: Bzenecko area), 1941b:112 (Czech Republic: eastern Moravia); Leclercq, 1941a:68, 70 (Belgium: Pays de Liège), 1941b:15 (Belgium: Liège area); Paul, 1941:37 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:245 (in Sphecid Fauna of Spain); Guiglia, 1944b:35 (Italy); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Móczár, 1947b:90 (Hungary: Siebenbürgen: Székelykeresztúr, now Romania: Transylvania: Cristuru Secuiese); Tsuneki, 1947e:431 (Japan: Hokkaido; as *elongaturus*); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); de Hennin and Anciaux, 1948:74 (Belgium: between Sambre and Meuse rivers); Tsuneki, 1948c:7 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:129, 132 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:23 (Portugal); Aerts, 1950b:23 (Germany: Rheinland-Pfalz: Lorelei); Cavro, 1950:38 (France: Département du Nord); Georgel, 1950:64 (France: Seine-

et-Oise: Sucy-en-Brie); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Fæster, 1951:454 (differences between females of *Crabro elongatulus* and *distinguendus*), 458 (distribution in Scandinavia); Caruel, 1952a:62 (France: Marne Department); Móczár, 1953:311 (Hungary); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:97 (Italy); Lehrer, 1955:265 (Romania: Moldova: Dealul Pleşu); Steiner, 1955:141 (France: Dordogne); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vergne, 1955:5 (France: Auvergne); Vogrin, 1955:41 (Yugoslavia); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain); Hertzog, 1956:182 (carrying prey impaled on stinger); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:177 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:19 (in review of Dutch Sphecidae); Lundblad, 1958:48 (Sweden: Gotland); Pulawski, 1958a:188 (Bulgaria: Kniazhevo near Sofia); Diniz, 1959:31 (Portugal: Cascais, Lisboa, Massorra); Noskiewicz and Puławski, 1960:145, 155 (in key to Polish Sphecidae); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:12 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Levi, Sysoletina, and Shernin, 1974:269 (Russia: Kirov Oblast': Klimkovka); Józan, 1981:306 (Hungary: Hortobágy National Park); Skibińska, 1981:358 (Poland: Warszawa-Białołęka) Skibińska, 1982:124 (Poland: Warszawa area); Kowalczyk, 1988b:66 (Poland: environs of Łódź, as *elongatus*); Blagoveshchenskaya, 1994:90 (Russia: Ul'yanovsk Oblast'); Vago, 2005a:14 (*Crabro elongatulus* in Cavro, 1950 is *Crossocerus elongatulus* now). – **As *Coelocrabro elongatulus***: Westerlund, 1893:27 (new generic assignment, Russia: Karelian Republic: northern shore of Lake Ladoga). – **As *Crossocerus elongatulus***: Lepeletier de Saint Fargeau and Brullé, 1835:790 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:193 (in revision of world Hymenoptera, as *elongatus*); Tischbein, 1850:6 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Kirchner, 1854:313 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Ruthe and Stein, 1857:315 (Germany: Berlin area); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:106 (in key to Sphecidae of Germany); Assmuss, 1859:617 (Russia: Moscow Governorate); Funk, 1859:58 (Germany: Bayern: Bamberg); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region), 1864:210 (Germany: Pommern Province, now

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Mošćenice); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 168 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Mokrousov, 2009:282 (Russia: Republic Mari El); Nemkov, 2009b:105 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Jizerské Mountains and Frýdlant region); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); Archer, 2010b:99 (Great Britain: Watsonian Staffordshire: Cannock Chase Country Park); Ermilov and Mokrousov: 2010:89 (phoretic mites *Histiogaster bacchus* Zachvatkin and *Histiostoma sapromyzarum* (Dufour) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (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, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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: Kostroma and Nizhniy Novgorod Oblast's, Mari El Republic, Tatarstan: no specific localities); Rudoiskatel', 2010:156 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:17 (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:336 (Germany: Schleswig-Holstein: locality records), 2010c:396 (Sweden: Öland: Gårdby); Archer, 2011c:43 (Great Britain: Watsonian Yorkshire: Lindrick area); Baghirov, 2011b:145 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Kosh-Agach); 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); Falk, 2011:63 (Great Britain: Sussex: South Downs); Gogala, 2011:19 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Protsenko and Drozdovskaya, 2011:91 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Rudoiskatel', 2011b:68 (Russia: Republic of Bashkortostan), 2011d:242 (Russia: central Ural Mountains); Saure, 2011a:5 (Germany: Berlin: former airport Tempelhof); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen);

Tischendorf, Frommer, Flügel et al., 2011:121 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Flieβ valley); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:182 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Burguet *in* Durand and Burguet, 2012:2, fiche 2 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Di Giovanni and Mei, 2012:42 (Italy: Lazio: Roma: San Paolo Fuori le Mura); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Hellrigl, 2012:128 (Italy: Provincia Autonoma di Bolzano-Alto Adige, as Südtirol); Piguet and Dodelin, 2012:285 (France: Seine-Maritime: côteaux de Saint-Adrien); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Shlyakhtenok, 2012a:171 (Belorussia and Russia: Krasnaya Polyana 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); Akulov and Proshchalykin, 2013:115 (Russia: Siberia: Krasnoyarsk Kray: Krasnoyarsk); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Hopewell House Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Braun-Reichert, 2013:14 (Germany: Bayern: pastures between Regensburg and Nürnberg); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg), 2013c:303 (Germany: Hessen: Kassel); Johansson, 2013:22 (Sweden: Gotland: island of Stora Karlsö); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:196 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:16 (Portugal: Douro International Natural Park and Serras de Aire east of Candeeiros Natural Park); Wiśniowski and Szczepko, 2013:29 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain: urban and suburban gardens); Baldock, 2014:357 (Spain: Island of Mallorca); Bitsch, 2014:400 (Ariège: Ascou-Pailhères); U. Frommer, 2014:26 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1321 (Germany, Hessen: Roβstein); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Jacobs and Schmid-Egger, 2014:28 (in key to females of *Crossocerus elongatulus* species group); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in

Turkey by biogeographic provinces, as *Crossocerus elongatulus elongatulus*); Archer, 2015:202 (Great Britain: English coastal sand dunes); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Lett, 2015:5 (France: Loir-et-Cher: Gièvre); Peeters, Klein, van Kemenade, and Spijkers, 2015:59 (Netherlands: Noord-Brabant: Kaaistoep Nature Reserve); P. Rosa and Pagliano, 2015:100 (Italy: Lombardia and Piemonte: Parco del Ticino); Shorenko, 2015:320 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:116 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe, et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); 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, 2016:18 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Isle of Man); Mokrousov and Popov, 2016:573 (Russia: Abkhazia); Ratzlaff, 2016:25 (Canada: first record from British Columbia: Georgia Depression), 34 (British Columbia: Vancouver); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:45 (Turkey: Erzurum: Palandöken, as *Crossocerus elongatulus elongatulus*); Antropov, 2017b:229 (in catalog of Crabroninae of Russia, as *Crossocerus elongatulus elongatulus*); 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); Mokhtari, and Ramroodi, 2017:47 (Iran: known from Mazandaran Province); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane); Shorenko, 2017:76 (in Crimea collected in July); Jacobs and Liebig, 2018:138 (Russia: Buryat Republic: East Sayan: 30 km northwest of Mondy; Irkutsk Oblast': Angarsk); 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, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:93 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13226 (Russia: Mordovian State Nature Reserve), 2019b:162 (in Mordovian State Nature Reserve known from single specimen); Ben Khedher, Yildirim, and Braham, 2020a:101 (Tunisia: Mahdia Povince); Kejval, Blažej, and Erhart, 2020:96 (western Czech Republic); Shorenko, 2020:48 (Crimea:

Karadag Nature Reserve); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:62 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:34 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey, as *elongatulus elongatulus*); Olszewski, Wiśniowski, and Ljubomirov, 2021:86 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey, as *elongatulus elongatulus*); Langfeld, 2023:61 (Germany: Mecklenburg-Vorpommern: Baltic island Greifswalder Oie); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, Nova Scotia, Onario, Quebec, first records from Manitoba and Saskatchewan: no specific locality).

Crabro stigma Stephens, 1829a:365, nomen nudum (in catalog of British insects, as *Stigma*, incorrect original capitalization). Synonymized with *Crabro elongatulus* Vander Linden, 1829 by F. Smith, 1855:99. – Stephens, 1829b:34 (in checklist of British insects).

Crossocerus varipes Lepeletier de Saint Fargeau and Brullé, 1835:773, ♀, ♂. Syntypes: origin unknown, but probably France (M. Spinola collectin, Torino). Synonymized with ... *elongatulus* by .. – Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:176 (in revision of world Hymenoptera); Kirchner, 1854:313 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice; as *varipes* Dhlb.); Dours, 1874:155 (in catalog of Hymenoptera of France); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria, as *variipes*); Bradley, 1957:47 (type in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Robinson, 2005:35 (erroneously recorded from Great Britain: Cumbria County); Pagliano, 2011a:144 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.). – **As *Crabro varipes***: Dahlbom, 1844:321 (new generic assignment, original description copied); F. Smith, 1856:413 (in catalog of Hymenoptera in British Museum); Routledge, 1933:88 (England: Cumberland). – **As *Crabro elongatulus* var. *variipes***: Dalla Torre, 1897:599 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Crossocerus affinis Lepeletier de Saint Fargeau and Brullé, 1835:781, ♂. Holotype or syntypes: ♂, France: Paris area (destroyed). Neotype: ♂, France: Yvelines: Maison-Laffitte (MNHN), designated by Leclercq, 1974d:262. Synonymized with ... *elongatulus* by ...

– Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:184 (in revision of world Hymenoptera); Funk, 1859:58 (Germany: Bayern: Bamberg); Dours, 1874:155 (in catalog of Hymenoptera of France); Destefani, 1894:216 (Italy: Sicilia), 1895:228 (in catalog of Sicilian Hymenoptera); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Borries, 1897:41 (reference to Wüstnei, 1886, as *Crossocerus affinis* Herrich-Schaeffer). – **As *Crabro affinis***: Dahlbom, 1844:324 (new generic assignment, original description copied); F. Smith, 1856:409 (in catalog of Hymenoptera in British Museum); Krieger, 1894:4 (Germany: Kingdom of Saxony). – **As *Crabro elongatulus* var. *affinis***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Crossocerus luteipalpis Lepeletier de Saint Fargeau and Brullé, 1835:785, ♂. Holotype or syntypes: ♂, France: Paris area (collection Spinola, Torino). Synonymized with .. *elongatulus* by Herrich-Schaeffer, ... – Lepeletier de Saint Fargeau, 1845:188 (in revision of world Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Roebuck, 1878:48 (Great Britain: Yorkshire county); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); R. Perkins, 1916:230 (specimens in F. Smith collection); Bradley, 1957:45 (type in M.Spinola collection, Turin); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:142 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.). – **As *Crabro luteipalpis***: Shuckard, 1837a:155 (new generic assignment, in revision of British Aculeata); F. Smith, 1851c:29 (Great Britain: London district), 1856:406 (in catalog of Hymenoptera in British Museum), 1858c:127 (in review of British Aculeata, redescription); Bold, 1870:149 (Great Britain: Northumberland and Durham); F. Smith, 1871b:13 (in catalog of British Aculeata); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county: Wakefield by F. Smith, 1858). – **As *Crabro elongatulus* var. *luteipalpis***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Coulon, 1925:124 (France: Oise).

Crossocerus morio Lepeletier de Saint Fargeau and Brullé, 1835:781, ♀, ♂. Syntypes: France: Paris area (M. Spinola collection, Torino). Synonymized with *Crabro elongatulus* by Herrich-Schaeffer, 18... – Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:183 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Bradley, 1957:47 (type preserved in Turin);

Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:143 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.). – **As *Crabro morio***: Dahlbom, 1844:323 (new generic assignment, original description copied); F. Smith, 1856:411 (in catalog of Hymenoptera in British Museum). – **As *Crabro elongatulus* var. *morio***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Crossocerus pallidipalpis Lepeletier de Saint Fargeau and Brullé, 1835:779, ♀, ♂. Syntypes: France: Paris area and Pyrénées (destroyed). Synonymized with ... *elongatulus* by Herrich-Schaeffer, 18... – Lepeletier de Saint Fargeau, 1845:182 (in revision of world Hymenoptera); P. Ivanov, 1872:151 (Ukraine: Khar'kov Oblast': Kupyansk); Dours, 1874:155 (in catalog of Hymenoptera of France); Yaroshevskiy, 1881:122 (Ukraine: Khar'kiv Oblast': Kupyansk); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); R. Perkins, 1916:230 (specimens in F. Smith collection); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:142 (specimens in M. Spinola collection, Torino, are *Crossocerus elongatulus* and *Crossocerus* sp.). – **As *Crabro pallidipalpis***: Dahlbom, 1844:314 (new generic assignment, in revision of Sphecidae and Pompilidae); F. Smith, 1851c:31 (Great Britain: London district), 1853:64 (in checklist of British Hymenoptera), 1856:411 (in catalog of Hymenoptera in British Museum), 1858c:140 (in review of British Aculeata, redescription), 1871:14 (in catalog of British Aculeata); Girard, 1879:937 (nesting habits); Bradley, 1957:47 (type in Turin). – **As *Crabro elongatulus* var. *pallidipalpis***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae); Antiga and Bofill, 1904:24 (Spain: Cataluña Province); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Ceballos, 1956:393 (in catalog of Hymenoptera of Spain).

Crabro brevis Eversmann, 1849:418, sex not stated, junior primary homonym of *Crabro brevis* Vander Linden, 1829. Holotype or syntypes: Russia: Ural foothills: no specific locality (ZIN). Synonymized with *Crabro elongatulus* by Kohl, 1916:263.

Crabro scutellaris F. Smith, 1851c:121, ♀, junior primary homonym of *Crabro scutellaris* Gimmerthal, 1836. Holotype: ♀, Great Britain: Newcastle (BMNH). Synonymized with ... *elongatulus* by ... – F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:407 (in catalog of Hymenoptera in British Museum); Kirchner, 1867:226 (in catalog of European Hymenoptera).

Crabro sulcus W. Fox, 1895a:187, ♀. Holotype: ♀, USA: Massachusetts: Beverly (ANSP). Synonymized with *Crossocerus elongatulus* by Leclercq, 1974d:263. – J. Smith, 1910:682 (in new list of insects of New Jersey: probable in New Jersey); Rohwer,

1916b:671 (in catalog of Hymenoptera of Connecticut); Rohwer *in* Viereck, 1925:671 (in key to Sphecidae of Connecticut); Cresson, 1928:56 (holotype in ANSP); Britton, 1938:149 (in addition to checklist of insects of Connecticut). – **As *Crossocerus sulcus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (in catalog of North American Hymenoptera); Leclercq, 1954c:226 (in catalog of world Crabronini); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae), 628 (synonymy with *Crossocerus elongatulus* reported).

Stenocrabro plesius Rohwer, 1912:472, ♂. Holotype: ♂, USA: Connecticut: New Haven (USNM). Synonymized with *Crossocerus sulcus* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021. – **As *Crabro plesius***: Krombein, 1939:144 (new generic assignment, New York State).

Crabro elongatulus berlandi Richards, 1928b:223, ♂ (as *Berlandi*, incorrect original capitalization). Holotype: ♂, France: Lozère: Mende (BMNH). Synonymized with *Crossocerus elongatulus* by Richards, 1951:3. – **As *Crossocerus elongatulus berlandi***: Suárez, 1969:34 (new generic assignment, Spain: Almería Province).

As *Crabro denticrus*: Dittrich, 1911b:20 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region), corrected to *Crabro elongatulus* by Noskiewicz and Chudoba, 1949:408.

As *Crosocerus barbipes*: Lefeber, 1966:209 (Netherlands: Sint-Pietersberg), corrected to *Crossocerus elongatulus* by Lefeber, 1976:152.

As *Crossocerus emarginatus*: Gorobchishin, 1993:47 (Ukraine: Kanev Nature Reserve), corrected to *Crossocerus elongatulus* by Leclercq, 2009:168.

As *Crossocoerus pallidipalpis*: Pagliano, 2011a:142 (specimens in M. Spinola collection, Torino, partim, are *Crossocerus elongatulus*).

As *Crossocerus ornatus*, partim: Pagliano, 2011a:143 (specimens in M. Spinola collection, Torino, are *Crossocerus elongatulus*).

ssp. *annulatus* Lepeletier de Saint Fargeau and Brullé

Crossocerus annulatus Lepeletier de Saint Fargeau and Brullé, 1835:787, ♀ (authorship attributed to Ziegler). Holotype or syntypes: ♀, Austria: Wien area (destroyed). – Lepeletier de Saint Fargeau, 1845:190 (in revision of world Hymenoptera); Kirchner, 1867:215 (in catalog of European Hymenoptera, as *Crossocerus annulatus* Dahlbom); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Kohl, 1916:262 (as synonym of *Crabro*

elongatulus). – **As *Crabro annulatus***: Dahlbom, 1844:325 (new generic assignment, original description copied); F. Smith, 1856:414 (in catalog of Hymenoptera in British Museum). – **As *Crabro elongatulus* var. *annulatus***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae). – **As *Crossocerus elongatulus annulatus***: Bitsch and Leclercq, 1993:122 (new status, in revision of western European Crabroninae, British and northern European race); Leclercq, 1993c:19 (locality records from Europe and Turkey, including Russia: Taganrog), 2007f:190 (references to records from Greece); Ljubomirov and Yildirim, 2008:266 (in catalog of Crabronidae of Turkey), Leclercq, 2009:168 (in list of Asian *Crossocerus*, bibliographic references); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:63 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey), 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

Crabro proximus Shuckard, 1837a:156, ♂. Holotype or syntypes: Great Britain: no specific locality (BMNH). Synonymized with ... *elongatulus* by ... – F. Smith, 1851c:29 (Great Britain: unknown locality), 1853:64 (in checklist of British Hymenoptera), 1856:406 (in catalog of Hymenoptera in British Museum), 1858c:128 (in review of British Aculeata, redescription), 1871:14 (in catalog of British Aculeata); R. Perkins, 1916:230 (specimens in F. Smith collection); D. Baker, 1998:172 (type origin and depository). – **As *Crabro elongatus* var. *proximus***: Dalla Torre, 1897:599 (new status, in catalog of world Sphecidae). – **As *Crosocerus elongatulus proximus***: Richards, 1980:49 (new generic assignment, new status, in key to Sphecidae of British Isles).

Crabro hyalinus Shuckard, 1837a:161, ♀ (as Stephen's manuscript name). Holotype or syntypes: Great Britain: no specific locality (BMNH). Synonymized with ... *elongatulus* by ... – Dahlbom, 1842a:13 (in review of Scandinavian aculeates); F. Smith, 1851c:30 (Great Britain: unknown locality), 1853:64 (in checklist of British Hymenoptera), 1856:405 (in catalog of Hymenoptera in British Museum), 1857d:40 (Great Britain: no specific locality); D. Baker, 1998:172 (type origin and depository). – **As *Crabro elongatulus* var. *hyalinus***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae).

Crabro transversalis Shuckard, 1837a:162, ♂. Holotype or syntypes: Great Britain: no specific locality (OXUM?). Synonymized with ... *elongatulus* by … – Dahlbom, 1844:317 (in revision of Sphecidae and Pompilidae), 1845:521 (in key to *Crabro*), determination corrected to *Crabro anxius* by Thomson, 1870:166; F. Smith,

1851c:30 (Great Britain: unknown locality), 1853:64 (in checklist of British Hymenoptera), 1856:407 (in catalog of Hymenoptera in British Museum); F. Smith, 1858c:130 (in review of British Aculeata, redescription); Taschenberg, 1858:106 (in key to Sphecidae of Germany), 1866:180 (in revision of Hymenoptera of Germany); Thomson, 1870:166 (as synonym of *Crabro anxius*); F. Smith, 1871b:14 (in catalog of British Aculeata); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region); Destefani, 1894:216 (Italy: Sicilia); R. Perkins, 1916:230 (specimens in F. Smith collection); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); D. Baker, 1998:172 (type origin and depository). – **As *Crossocerus transversalis***: Brischke, 1862:106 (new generic assignment, Germany: Preussen Province, now Poland: Pomorze Region), 1864:210 (*Crossocerus transversalis* is a synonym of *elongatulus*); Kirchner, 1867:225 (in catalog of European Hymenoptera); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera); Pagliano, 2011a:145 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.). – **As *Crabro elongatus* var. *transversalis***: Dalla Torre, 1897:599 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Coulon, 1925:124 (France: Colmar, Evreux).

Crabro obliquus Shuckard, 1837a:167, ♀, ♂. Syntypes: Great Britain: London area and Barmouth (depository unknown). Synonymized with ... *elongatulus* by ... – von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); Dahlbom, 1844:315 (in revision of Sphecidae and Pompilidae, probably a variety of *Crabro wesmaeli*), 1845:521 (in key to *Crabro*); Eversmann, 1849:418 (Russia: Ural foothills); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Dresden); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:30 (Great Britain: London district), 1853:64 (in checklist of British Hymenoptera), 1856:406 (in catalog of Hymenoptera in British Museum), 1858c:139 (in review of British Aculeata, redescription); Taschenberg, 1858:105 (in key to Sphecidae of Germany), 1866:180 (in revision of Hymenoptera of Germany); Kirchner, 1867:225 (in catalog of European Hymenoptera); F. Smith, 1869d:77 (Great Britain: Norfolk: Cromer), 1871b:14 (in catalog of British Aculeata); Taschenberg, 1875:382 (specimen in Halle University collection); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county: Wakefield, by F. Smith, 1858); Lange, 1898:70 (Germany: Sachsen: Annaberg-Buchholz); R. Perkins, 1916:230 (specimens in F. Smith collection); D. Baker, 1998:172 (type origin and depository).– **As *Crossocerus obliquus***: Tischbein, 1850:6 (new generic assignment, Germany:

Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); Kirchner, 1854:313 (Czech Republic: Kaplitz in Budweiser District, now České Budějovice; as *obliquus* Dhlb.). – **As *Crabro elongatulus* var. *obliquus***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae); Coulon, 1925:124 (France: Colmar, Evreux).

Crabro propinquus Shuckard, 1837a:168, ♀, ♂. Syntypes: Great Britain: London area (depository unknown). Synonymized with *Crabro pallidipalpis* by F. Smith, 1871b:14. – D. Baker, 1998:172 (type origin and depository). – **As *Crossocerus elongatulus propinquus***: Schmidt, 1977/78:57 (new generic assignment, new status; Germany: Rheinland-Pfalz: Mombach Sand).

ssp. *foveolatus* (Holmberg)

Ischnolynthus foveolatus Holmberg, 1903:472, ♂. Holotype or syntypes: ♂, Argentina: Buenos Aires (destroyed). Neotype: ♂, Argentina: Buenos Aires: Zarate (MACN), designated by Leclercq, 1974d:263. Synonymized with *Crossocerus elongatulus* by Leclercq, 1974d:263. – Schrottky, 1913:233 (Argentina: Buenos Aires). – **As *Crabro foveolatus***: Brèthes, 1910a:282 (new generic assignment, redescription); Brèthes, 1913:139 (description of ♀). – **As *Crossocerus elongatulus foveolatus***: Bitsch and Leclercq, 1993:122 (new generic assignment, new status, in revision of western European Crabroninae, Italian subspecies); Leclercq, 2000d:39 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae), 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Dollfuss, 2006:509 (Argentina: Entre Ríos: Pronunciamento); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:2 (in revision of Sphecidae *sensu lato* of Europe).

ssp. *trinacrius* de Beaumont

Crossocerus elongatulus trinacrius de Beaumont, 1959a:40, ♀, ♂. Holotype: ♂, Italy: Sicily: Palermo (Berne). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Schembri, 1991:182 (Malta); Bitsch and Leclercq, 1993:122 (in revision of western European Crabroninae); Leclercq, 1993c:19 (locality records); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Pagliano, 2003b:128 (Italy: islands of Lampedusa and Pantelleria); Schmid-Egger, 2003:752 (Italy: Sicilia: Agrigento, Armerina, Castelammare, Citelli, Milo, Nebrodi; Malta: Fommir-Rih Bay); Dollfuss, 2006:509 (Italy: Sicilia: Madonia); Leclercq, 2007f:190 (Greece: Akhaias: Chelmos: Armania Ori); G. Turrisi and R. Turrisi, 2007:118 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Bitsch and Leclercq, 2009:217 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*); Schmid-Egger,

Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands).

57. *emarginatus* (Kohl)

Crabro emarginatus Kohl, 1899:307, ♂. Holotype or syntypes: ♂, Mongolia: northern Mongolia: no specific locality (NHMW). – Kohl, 1915:260 (in revision of Palearctic Crabronini); Iwata, 1938d:88 (Russia: Sakhalin); Tsuneki, 1947e:432 (Japan: Hokkaido; as *emarginatus* f. *pacificus*). – **As *Crossocerus emarginatus***: Tsuneki, 1952c:69 (new generic assignment, Japan: Shikoku); Leclercq, 1954c:224 (in catalog of world Crabronini); Tsuneki, 1954b:64, 73 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955b:24 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:71, 76 (in revised key to *Crossocerus* of Japan and Korea), 1960g:47 (nesting habits); Leclercq, 1963:7 (China: Hangchow); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Haneda, 1968a:46 (Japan), 1968b:56 (Japan: Nagano Prefecture: Ina District); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Nambu, 1968b:28 (Japan: Saitama Prefecture); Itami, 1969:51 (Japan: Niigata Prefecture); Tano, 1968:34 (Japan); Haneda, 1969:70 (Japan: Yamanashi Prefecture); Tsuneki, 1970b:11 (Central Japon); Tano, 1971:81 (Japan: Shikoku: Mount Tsurugi); Yamada, 1971:37 (Japan: Aichi Prefecture); Nambu, 1972e:91 (Japan: Saitama Prefecture); Tsuneki, 1972a:151 (Mongolia); Nambu, 1973a:153 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Tsuneki, 1974a:381 (Korea); Nambu, 1975b:77 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Marshakov, 1979a:93, 100 (in key to *Crossocerus* of Russian Far East), 1980c:344, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in Russia: Irkutsk and Amur Oblast's, Khabarovsk and Maritime Provinces, Sakhalin), 360 (redescription); Tsuneki, 1982b:17 (known from Korea), 1982g:63 (known from the Ryukyu archipelago); Paik, 1985:201 (in list of Sphecidae of Korea); Radović, 1985:65 (sting apparatus analyzed); Nemkov, 1986:102 (Russia: Irkutsk Oblast'); Leclercq, 1988:16 (Russia: Siberia: Kongaus; China: Zakow); Tsuneki, 1991:203 (Korea); Nemkov, 1992b:246 (Russia: Far East: Natalino near Khingan Nature Reserve); nec Gorobchishin, 1993:47 (= *Crossocerus elongatulus*); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:432, 439 (in key to Sphecidae of Russian Far East); Yamane, Ikudome, and Terayama, 1999:501 (in Identification Guide to Crabronidae of Nansei = Ryukyu Islands, Japan); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Li and He, 2004:1083 (in hymenopterous fauna

of Zhejiang Province, China); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov, 2005a:151 (Russia: Island of Sakhalin); Dollfuss, 2006:509 (Mongolia: Gobi: Gurvan Saykhan National Park 40 km west of Dalanzadgad); 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); Nemkov, 2006c:248 (Russia: Moneron Island south of Sakhalin), 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Ohkusa and Tajima, 2008:75 (Japan: central Honshu: Aichi Prefecture); S. Takahashi and Haneda, 2008a:59 (Japan: Hokkaido: Sapporo); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 168 (in list of Asian *Crossocerus*, diagnostic characters, bibliographic references, distribution in Asia); Nemkov, 2009b:105 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); S. Takahashi and Haneda, 2009:26 (Japan: Hokkaido: Sapporo); Tano, 2010b:41 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:6, 12 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Akulov, Proshchalykin, and Mokrousov, 2020:46 (Russia: central Krasnoyarsk Kray).

Crabro pacificus Gussakovskij, 1932:25, ♂. Holotype: ♂, Russia: Vladivostok (ZIN). Synonymized with *Crabro emarginataus* by Tsuneki, 1947e:432 (by reducing it to infrasubspecific status). – Yasumatsu, 1942a:89 (Japan: Island of Yakushima); Tsuneki, 1947d:290 (Korea). – **As *Crabro emarginatus* f. *pacificus***: Tsuneki, 1947e:432 (new generic assignment, new status, Japan: Hakodate). – **As *Crabro emarginatus pacificus***: Tsuneki, 1948c:7 (new status, Japan: Hokkaido).

58. *emirorum* Leclercq

Crossocerus emirorum Leclercq, 1998d:235, ♀, ♂. Holotype: ♂, United Arab Emirates: Wadi Bih (BMNH). – Leclercq, 2009:161 (member of subgenus *Crossocerus*), 169 (in list of Asian *Crossocerus*, bibliographic references); Schmid-Egger, 2011b:523 (color photograph of female), 524 (United Arab Emirates: Sharjah Desert Park, Wadi Hayl, Wadi Maidaq, Wadi Shawkah, Wadi Wurayah), 2014:533 (United Arab Emirates); Gadallah, 2020b:34 (in list of aculeate wasps of Arabian Peninsula).

59. *epiri* Leclercq

Crossocerus epiri Leclercq, 2007f:190, ♀, ♂. Holotype: Greece: Ionninon: east of Metsovan: Katara Col (CAS). – Bitsch and Leclercq, 2009:220 (in supplement to vol. I of Faune de France, 1993: male has a pygidial plate on tergum VII).

60. *eques* (Nurse)

Crabro eques Nurse, 1902:89, ♀. Holotype or syntypes: ♀, India: Himachal Pradesh: Simla (BMNH). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Crossocerus eques***: Leclercq, 1956h:293 (new generic assignment, redescription); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 169 (in list of Asian *Crossocerus*, bibliographic references); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

61. *esau* de Beaumont

Crossocerus esau de Beaumont, 1967a:355, ♂ (subgenus *Crossocerus*). Holotype: ♂, Turkey: Erzincan: Rafahiye-Erzincan (BMNH). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Marshakov, 1980c:344, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: Turkmenistan, Uzbekistan), 359 (redescription); Leclercq, 1993c:19 (listed); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Dollfuss, 2006:509 (Turkey, Turkmenistan: Askhabad); Ljubomirov and Yildirim, 2008:267 (in catalog of Crabronidae of Turkey); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 169 (in list of Asian *Crossocerus*, bibliographic references, recorded rom Uzbekistan by Kazenas, 2001); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Kemal and Koçak, 2018:34 (Turkey: in list of pterygot insects of Van Province); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey), 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution).

62. *evansi* Leclercq and Miller

Crossocerus evansi Leclercq and Miller *in* Leclercq, 2000d:40, ♀, ♂. Holotype: ♂, USA: Arizona: Cochise County: Southwestern Research Station 6 mi. west of Portal (Cornell Univ.).

63. *exdentatus* Li and L.F. Yang

Crossocerus exdentatus Li and L.F. Yang, 2002:108, 109, ♀. Holotype: ♀, China: Heilongjiang Province: Tongjiang (Academia Sinica). – Leclercq, 2009:161 (member of subgenus *Crossocerus*), 169 (in list of Asian *Crossocerus*, bibliographic references).

64. *exiguus* (Vander Linden)

Crabro exiguus Vander Linden, 1829:74, ♀. Holotype or syntypes: ♀, Belgium: Bruxelles (Inst. Roy. Sci. Nat. Belgique, Bruxelles). – Herrich-Schaeffer, 1840:293 (Germany: Bayern: Regensburg area); Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:326 (in revision of Sphecidae and Pompilidae), 1845:523 (in key to *Crabro*), determination corrected to *Crabro anxius* by Thomson, 1870:166; Eversmann, 1849:419 (Russia: Kazan' and Orenburg provinces); Wissmann, 1849:15 (Germany: Kingdom of Hannover: Münden); F. Smith, 1851c:32 (Great Britain: London district); Wesmael, 1852:607 (Belgium; redescription based on type material; description of ♂); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:405 (in catalog of Hymenoptera in British Museum); Kawall,scutat 1857:26 (Kurland, now Latvia); A. Morawitz, 1864:457 (Russia: St.-Petersburg); Schenck, 1867a:351 (Germany: Nassau Region); Thomson, 1870:166 (as synonym of *Crabro anxius*); F. Smith, 1871b:14 (in catalog of British Aculeata); Kohl, 1880:127 (Austria: Tirol, and Italy: Trentino-AltoAdige); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Sickmann, 1885:177 (Germany: Niedersachsen: Wellingholthausen); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann 1893:70 (Germany: Niedersachsen: Iburg); Westerlund, 1893:27 (Russia: Karelian Republic: northern shore of Lake Ladoga); Krieger, 1894:5 (Germany: Kingdom of Saxony); Dalla Torre, 1897:599 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary: Ungvár, now Ukraine: Uzhgorod); Kubes, 1905:84 (Czech Republic: Babice); Schmiedeknecht, 1907:198 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:20 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Alfken, 1914:274 (northwestern Germany: Oldenbüttel); Kohl, 1915:269 (in revision of Palearctic Crabronini); Stöckhert, 1919:38 (Germany: Franken); A. Wagner, 1920:46 (Germany: Lower Elbe region); Dubois, 1921a:19 (Belgium: Botassar, Embourg), 1921b:159, 161 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Berland, 1925d:182 (in Sphecid Fauna of France); Blüthgen, 1925:165 (Germany: Saale River valley: Eulau and Roβbach); Schütze, 1925:111 (Germany: Lausitz Region); Zavadil, 1926:35

(Czechoslovakia); Crèvecoeur and Maréchal, 1927:138 (in catalog of Belgian Hymenoptera: Limont); Schmiedeknecht, 1930:653, 655 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:151 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: abundant in Bruxelles area); Crèvecoeur and Maréchal, 1932:67 (in catalog of Belgian Hymenoptera); Gussakovskij, 1932:25 (Russia: Vladivostok); Hoffmeyer, 1932:60 (number and position of forewing sensillae); Bondroit, 1933:32 (Belgium: Forêt de Soignes); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Steck, 1935:326 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (Belgium); Zavadil, Šustera, and Bat'a, 1937:166 (in catalog of Sphecidae of Czechoslovakia); Maréchal, 1938b:211 (Belgium, on leaves of *Tilia*); A. Wagner, 1938a:118 (northwestern Germany); Móczár, 1939:5 (Hungary: Jászberény); Teunissen, 1939:170 (first record from Netherlands: Berg en Dal, Elzeterbosch, Haaren, Voorburg); Balthasar, 1941a:105 (Czech Republic: Bzenecko area); Paul, 1941:37 (Germany: Pommern: Rathsdamnitz, now Poland: Województwo Pomorskie: Dębnica Kaszubska); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); van Lith, 1947:103 (Netherlands); Zavadil *in* Zavadil and Šnoflak, 1948:129, 131 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:38 (France: Département du Nord); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Saint-Béat); de Beaumont, 1954e:97 (Italy); Scobiola, 1954:885 (first record from Romania: several localities); Vogrin, 1955:41 (Yugoslavia); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:177 (Germany: Rheinland-Pfalz: Birkenheide, Dürkheimer Bruch); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:145, 152 (in key to Polish Sphecidae); Wengris, 1962:207 (Lithuania: Vilnius area); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:28 (Latvia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Balthasar, 1972:117 (in Sphecid Fauna of Czechoslovakia); Skibińska, 1982:120, 124 (Poland: Warszawa); Kowalczyk, 1988a:46 (Poland: Rogów), 1988b:66 (Poland: environs of Łódź); Vago, 2005a:14 (*Crabro exiguus* in Cavro, 1950 is *Crossocerus exiguus* now). – **As *Crossocerus exiguus***: Lepeletier de Saint Fargeau and Brullé, 1835:791 (new generic assignment, in revision of Crabronini); Tischbein, 1852:141 (Germany); Assmuss, 1859:618 (Russia: Moscow Governorate); Kirchner, 1867:225 (in catalog of European Hymenoptera); Wierzejski, 1874:261 (Ukraine: Podole Region: Krzywczyce, Sinków); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze

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Kuhlmann, 2000:60, 64 (Germany: Hessen: Diemel River valley); Ljubomirov, 2000:11 (Bulgaria, specimens in N. Nedelkov collection); Pijfers, 2000:4 (Netherlands: Twente Region); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhine River); Deván, 2001:165 (Slovakia: Krasin Nature Reserve in Biele Karpaty Mountains); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Ohl et al., 2001:138 (distribution in Germany by provinces); Reemer and van der Meer, 2001:16 (Netherlands: along Almelo-Nordhorn canal); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: not endangered); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Beavis, 2002:107 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:73 (Liechtenstein); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józan, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:100 (geographic distribution, collecting localities in Kazakhstan); Lukáš, 2002:190 (Slovakia: Hájnica hill near Trenčianske Bohuslavice); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Vischer, 2002:288 (Germany: Sachsen-Anhalt: vineyards in Saale-Unstrut area); Wiśniowski, 2002:71 (Poland: Ojców National Park); Ziska, 2002:7 (Germany: Berlin-Köpenick: Krumme Lake); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Esser and Jakubzik, 2003:291 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Gorobchishin, 2003:48 (Ukraine: Kiev: botanical garden, as *exiguous*); Lukáš, 2003:73 (Slovakia: Bratislava: old fruit orchard); Wiśniowski *in* Dylewska and Wiśniowski, 2003:164 (Poland: Ojców National Park); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Tischendorf and Treiber, 2003:120 (Germany: Hessen: 15 km southwest of Frankfurt am Main: nesting under high power lines); Deván, 2004:146 (western Slovakia, as *exiquus*); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Hellrigl, 2004a:172 (Italy: Trentino-Alto Adige, as Südtirol: Vinschgau = Val Venosta: St. Martin im Kofel); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefeber *in* Peeters, van Achterberg, et al.,

2004:371 (in Wasp and Ant Fauna of Netherlands); Shkuratov, 2004a:80 (Russia: Donetsk Oblast': village Anadol'); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae); G. Allen, 2005b:14 (Great Britain: Kent County: Leeds Castle); Burger, 2005:32 (Germany: Thüringen); Dubitzky, Blank, and Schönitzer, 2005:272 (Germany: Bayern: area north of Dachau); Ebrahimi, 2005:133 (in key to selected Iranian Sphecidae); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Jacobs, 2005a:443 (Bulgaria: Rila Monastery); Kofler, 2005:177 (Austria: Tirol: Lienz District: several localities); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolo, 2005:244 (in Sphecid Fauna of Italy); Pijfers, 2005:49, 50 (Netherlands: Twente: Noordelijke Manderheide); Riemann and Hohmann, 2005:550 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:19 (France: Département du Nord: several localities); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Ziska and Saure, 2005:81 (Germany: Berlin: Biesenhorster Sand); Dollfuss, 2006:510 (Bulgaria, China: Jingangling 50 km west of Linfen, Zhaoyi Zhongtiao Shan; Italy, Mongolia, Romania, Turkmenistan); U. Frommer and Tischendorf, 2006:89 (Germany: Hessen: Schlüchterner Becken); Gorobchishin, 2006:124 (Ukraine: Cherkasy Oblast': Cherkasy, Kaniv Nature Reserve; Kiev); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); N. Schneider, 2006:138 (Luxemburg: anthropogenic habitats); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Abenius and Larsson, 2007:1151 (first record from Sweden: Halland Province); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Guldemond, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap, as *exiquous*); Hallin, 2007a:154 and 2007b:25 (Sweden: Blekinge County); Herrmann, 2007b:94 (Germany: Baden-Württemberg: Fürstenberg in Konstanz); Jacobs, 2007:130, 139 (in key to

Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józan, 2007:179 (Hungary: Zselic hills); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Smit and Megens, 2007:17 (Netherlands: Noort Brabant: vicinity of Leende); Vago, 2007:175 (France: départements d'Aisne and Nord); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Abenius, 2008 (characteristics of species, distribution in Sweden); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:21 (Germany: map of distribution in Niedersachsen and Bremen); Bitsch and Leclercq, 2009:220 (in supplement to vol. I of Faune de France, 1993: France: Isère: Grenoble; Nord: Cambrai and Saint –Amand); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 169 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Livory, Chevin, Lair, Sagot, and Baldock, 2009:33 (France: Département de la Manche: La Meauffe); Nemkov, 2009b:106 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Bílý Potok); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast': no specific localities); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:156 (Russia: 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, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská Nížina); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:336 (Germany: Schleswig-Holstein: locality records); Wurdack and Gack, 2010:153 (Germany: Baden-Württemberg: Kaiserstuhl); Baghirov, 2011b:145 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Chemal, Kosh-Agach, Kuray);

Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:19 (Slovenia: Podčetrtek); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Pagliano, 2011a:140 (specimens in M. Spinola collection, Torino); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof), 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg); Saure, Bohrer, Venne, and Diestelhorst, 2011:224 (Germany: Rheinland-Westfalen: Nature Reserves Doberg and Eiberg, nesting in cliffs); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:122 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (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); Hellrigl, 2012:128 (Italy: Provincia Autonoma di Bolzano-Alto Adige, as Südtirol); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Braun-Reichert, 2013:14 (Germany: Bayern: pastures between Regensburg and Nürnberg); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:197 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:29 (Poland: Kampinos National Park near Warszawa); Ebrahimi, 2014:35 (Iran: Alborz: Karaj: College of Agriculture campus); Flügel, 2014:254 (Brandenburg: Hangelsberger Heide); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); J.-K. Kim, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Seine-Maritime Department: Anneville-Ambourville); Blažej, Macek, and Trýzna, 2016:115 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe, et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); 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, 2016:19 (in checklist of Aculeata of Great

Britain and Ireland: England); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Saure, 2016b:48 (Germany: Sachsen-Anhalt: fruit orchards), 1916c:205 (Germany: center of Berlin: Groβer Tiergarten Park); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:45 (Turkey: Artvin: Yusufeli: Altıparmak); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Doline and Eschkopf near Rockensüß); Jahantigh, Rakhshani. Mokhtari, and Ramroodi, 2017:47 (Iran: known from Alborz and Tehran provinces); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Říha, 2017:174 (Czech Republic: Brno); Jacobs and Liebig, 2018:138 (Russia: Irkutsk Oblast': Sarma); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:93 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13226 (Russia: Mordovian State Nature Reserve), 2019b:162 (in Mordovian State Nature Reserve known from single specimen); Akulov, Proshchalykin, and Mokrousov, 2020:46 (Russia: central Krasnoyarsk Kray); Kejval, Blažej, and Erhart, 2020:96 (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, 2021:64 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:81 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Pytel-Huta and Franchuk, 2024:78 (Ukraine: Rivno Nature Reserve).

Crossocerus aphidum Lepeletier de Saint Fargeau and Brullé, 1835:789, ♀. Holotype or syntypes: ♀, France: Soissons area (destroyed). Synonymized with *Crabro walkeri* by Kohl, 1913b:16 and with ... *exiguus* by ... – Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:192 (in revision of world Hymenoptera); F. Smith, 1856:409 (in catalog of Hymenoptera in British Museum); Taschenberg, 1858:106 (in key to Sphecidae of Germany; as *avidum*); Kirchner, 1867:224 (in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Girard, 1879:935 (preying on aphids); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera, as *aphidium*); Rudow, 1996:329

(Germany: Brandenburg: no specific locality, as *aphidivorus*); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Borries, 1897:39 (reference to Wüstnei, 1886:32); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Rudow, 1912:75 (preying on aphids). – **As *Crabro aphidum***: Dahlbom, 1844:308 (new generic assignment, in revision of Sphecidae and Pompilidae), 1845:522 (in key to *Crabro*); Taschenberg, 1866:180 (in revision of Hymenoptera of Germany); Thomson, 1870:164 (in revision of Swedish Crabroninae), 1874:271 (in revision of Hymenoptera of Scandinavia); E. Saunders, 1880:285 (in revision of British Aculeata); Kohl, 1883e:655 (Switzerland); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Elmshorn); Kohl, 1893a:22 (Austria: Niederösterreich); Krieger, 1894:4 (Germany: Kingdom of Saxony); E. Saunders, 1896:132 (in revision of British Aculeata); Dalla Torre, 1897:582 (in catalog of world Sphecidae); Frecke, 1897:280 (Ireland); A. Carter, 1901b:277 (Great Britain: Scotland: Perthshire: Loch Ard); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Schmiedeknecht, 1907:194 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien: Langenau, now Poland: Dolny Śląsk: Długopole); Schütze, 1925:110 (Germany: Lausitz Region); Blüthgen, 1929:82 (Germany: Saale River valley: Schulpforta); Stelfox, 1939b:205 (Ireland: Kerry County). – **As *Blepharipus aphidum***: R. Perkins, 1913b:390, 393 (new generic assignment, in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset); Stelfox, 1927:299 (Ireland: list of localities). – **As *Coelocrabro aphidum***: Szulczewski, 1950:104 (new generic assignment, Poland: Wielkopolski National Park 15 km south of Poznań).

65. *fabreorum* Leclercq and Terzo

Crossocerus fabreorum Leclercq and Terzo, 2007:90, ♂. Holotype: Singapore (USNM). – Leclercq, 2009:162 (member of subgenus *Yuchiha*), 169 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of *Yuchiha*, in list of Japanese subgenera of *Crossocerus*).

66. *federationis* Leclercq

Crossocerus federationis Leclercq, 1961h:75, ♀. Holotype: ♀, Malaysia: Pahang: Cameron Highlands (BMNH). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Oxycrabro*), 169 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:44 (member of *Oxycrabro*, in list of Japanese subgenera of *Crossocerus*);.

67. *fergusoni* Pate

Crossocerus fergusoni Pate, 1944a:307, ♂. Holotype: ♂, USA: Oregon: Polk County: Rickreall (…). – Krombein *in* Muesebeck,

Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Leclercq, 1954c:236 (in catalog of world Crabronini), 311 (nest and prey records); Evans, 1957b:107 (description of larva), 1959b:165 (additional description of larva); F. Parker and R. Bohart, 1966:94 (California: Putah Canyon near Davis, Nevada: Verdi; nest parasites: *Diomorphus zabriskiei Cresson*, a torymid, *Amobia floridensis* Townsend, a sarcophagid, and *Macronichia* sp., a sarcophagid); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Krombein, 1979b:1670 (in catalog of North American Hymenoptera, nesting sites, list of prey); Spofford, Kurczewski, and Downes, 1989:255, 256 (references to publications on nest parasites *Amobia floridensis* (Townsend) and *Macronychia* sp., miltogrammine flies); Leclercq, 2000d:42 (in revision of New World *Crossocerus*); Dollfuss, 2006:510 (USA: Washington: Klickitat County).

68. *flavissimus* Leclercq

Crossocerus flavissimus Leclercq, 1973c:294, ♀ (subgenus *Ornicrabro*). Holotype: ♀, Taiwan: Taihorin (ZMHU). – Leclercq, 1973c:291 (type of subgenus *Ornicrabro*); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tsuneki, 1977j:281 (Taiwan: Taihorinsho), 1988:25 (additional description, Russia: Primorskiy Kray); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430, 437 (in key to Sphecidae of Russian Far East); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Ornicrabro*), 169 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:111 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Tano, 2010b:44 (member of *Ornicrabro*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Antropov, 2017b:231 (in catalog of Crabroninae of Russia).

69. *flavitarsus* (Tsuneki)

Crabro flavitarsus Tsuneki, 1947e:419, ♂ (subgenus *Coelocrabro*). Holotype: ♂, Japan: Hokkaido: Sapporo (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1948c:6 (Japan: Hokkaido); Hashimoto and Nakanishi, 1997:15 (holotype transferred to Hyogo Mus.) – **As *Crossocerus flavitarsus***: Leclercq, 1954c:234 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1954b:63, 71 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 1959n:70, 75 (in revised key to *Crossocerus* of Japan and Korea), 1960g:45 (nesting habits unknown); Tsuneki and Tano, 1969:31 (distribution in Japan);

Nambu, 1973b:55 (nesting habits); Tsuneki, 1973g:49 (is a member of subgenus *Towada*, as *flarvitarsus*), 1973k:62 (Japan: Fukui Prefecture); Nambu, 1975b:76 (Japan: Saitama Prefecture); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:162 (member of subgenus *Towada*); Nemkov, 2009b:111 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Antropov, 2017b:231 (in catalog of Crabroninae of Russia). – **As *Towada flavitarsus***: R. Bohart and Menke, 1976:412 (new generic assignment, in checklist of world Sphecidae); Marshakov, 1976a:105 (in key to Crabronini of Russian Far East); Tano, 1994a:7 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:447 (in key to Sphecidae of Russian Far East); Tano, Kurokawa, Murota, and Nozaka, 2003:32 (Japan: Nagasaki Prefecture: Tsushima); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:37 (Japan: Gifu Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:67 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:53 (Japan: Gifu Prefecture), 2006a:29 (Japan: Toyama Prefecture); Leclercq, 2007a:41 (generic characters of *Towada*; Japan: Saitama, Sapporo: Russia: Ussuriysk); S. Takahashi, Haneda, and Tano, 2009:43, 54 (distribution in Japan); Haneda, Murota, Kurokawa, and Tano, 2014:1 (in key to *Crossocerus* of Japan); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

Crossocerus leclercqi Tsuneki, 1959f:83, ♀. Holotype: ♀, Japan: Towada (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus flavitarsus* by Tsuneki, 1973a:21. – Tsuneki, 1959n:76 (in revised key to *Crossocerus* of Japan and Korea); 1960g:45 (nesting habits unknown); Tsuneki, 1963j:103 (transferred to *Piyumoides*); Nambu, 1973b:55 (nesting habits, nest in abandoned beetle burrows in wood, use of resin for nest closure); Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.). – **As *Piyumoides leclercqi***: Tsuneki, 1963j:103 (new generic assignment); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Nambu, 1968:28 (Japan); Tsuneki and Tano, 1969:32 (distribution in Japan). – **As *Towada leclercqi***: Tsuneki, 1970f:1 (new generic assignment).

70. *flavomaculatus* Li and He

Crossocerus flavomaculatus Li and He, 2005:158, ♀, ♂. Holotype: ♀, China: Beijing: Maliana (China Agricult. Univ., Beijing). –

Leclercq, 2009:160 (member of subgenus *Acanthocrabro*), 169 (in list of Asian *Crossocerus*, bibliographic references).

71. *flavopictus* (F. Smith)

Crabro flavopictus F. Smith, 1856:391, ♀ (as *flavo-pictus*, incorrect original hyphenation). Holotype or syntypes: ♀, northern India: no specific locality, may be Pakistan (BMNH). – F. Smith, 1871a:369 (in catalog of Oriental Aculeata); Cameron, 1890a:270 (in checklist of Oriental Sphecidae, as *flavopicta*); Bingham, 1897:324 (redescription); Dalla Torre, 1897:600 (in catalog of world Sphecidae); Yasumatsu, 1942a:90 (China: Chekiang: Tienmushan). – **As *Crossocerus flavopictus***: Leclercq, 1950b:16 (new generic assignment), 1954c:240 (in catalog of world Crabronini), 1963:11 (India, Java), 1973c:291 (Taiwan; morphology), 1974e:663 (in key to Asian species of subgenus *Cuphopterus*), 665 (geographic variation, locality records); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tsuneki, 1977c: 17 (Taiwan: Nantou Prefecture: Wushe – Pihu; description of ♂); Leclercq, 1989a:241 (Nepal; India: Simla); Li and He, 2001:757 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E); Li and He, 2004:1087 (in hymenopterous fauna of Zhejiang Province, China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 169 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Tano, 2010b:43 (member of *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

Crabro odontophora Cameron, 1890b:271, ♂, incorrect original termination. Syntypes: ♂, India: West Bengal: Barrackpore (OXUM). Synonymized with *Crossocerus flavopictus* by Leclercq, 1989a:241. – Cameron, 1890b:270 (India: Barrackpore); Bingham, 1897:324 (redescription); Dalla Torre, 1897:613 (in catalog of world Sphecidae); Rothney, 1903:106 (India: West Bengal: Barrackpore). – **As *Crossocerus odontophorus***: Leclercq, 1954c:241 (new generic assignment, in catalog of world Crabronini), 1974e:661 (in key to Asian species of subgenus *Cuphopterus*), 666 (recognition); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae).

ssp. *kansitakuanus* Tsuneki

Crossocerus flavopictus kansitakuanus Tsuneki, 1971a:12, ♀. Holotype: ♀, Taiwan: Chiai Prefecture: Kansitaku (originally K. Tsuneki collection, now USNM). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tsuneki, 1977c:17 (Taiwan); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Por-

ter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 169 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:43 (member of *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*).

72. *floresus* Leclercq

Crossocerus floresus Leclercq, 1978a:123, ♀, ♂. Holotype: ♀, Indonesia: Lesser Sunda Islands: West Flores: Rana Mese (ZMHU). – Leclercq, 1968a:121, 122 (in key to Asian species of subgenus *Yuchiha*), 2009:162 (member of subgenus *Yuchiha*), 169 (in list of Asian *Crossocerus*, bibliographic references).

73. *fossuleus* Leclercq

Crossocerus fossuleus Leclercq, 1958a:22, ♀. Holotype: ♀, Zaire: Haute-Uele (MRAC). – Leclercq, 1958a:15 (in key to Afrotropical *Crossocerus*); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2008a:8 (in key to Afrotropical *Crossocerus*), 18 (bibliographic references).

74. *foxi* Leclercq and Miller

Crossocerus foxi Leclercq and Miller *in* Leclercq, 2000d:42, ♀, ♂. Holotype: ♂, USA: Arizona: Coconino County: Snow Bowl (UCD). – Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Canada: Alberta: no specific locality)

75. *fukuiensis* Tsuneki

Crossocerus congener fukuiensis Tsuneki, 1970f:2, ♀, ♂. Holotype: ♂, Japan: Fukui Prefecture: Arashi (originally K. Tsuneki collection, now Hyogo Mus.). – Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.) – **As *Crossocerus fukuiensis***: Leclercq, 1973c:286 (full species status, Taiwan); Tsuneki, 1973g:49 (full species status, is a member of subgenus *Ablepharipus*, as *fukuianus*); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tano, 1994a:6 (holotype in K. Tsuneki collection); Togashi, 2001:19 (Japan: Ishikawa Prefecture: Shiramine); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:33 (Japan: Gifu Prefecture); Nemkov 2004b:264 (valid subspecies); Suda, 2004:42 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:66 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:48 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:46 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:24 (Japan: Toyama Prefecture); Ohkusa, 2006a:24 (Japan: Honshu: Gifu Prefecture); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido:

Sapporo); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 169 (in list of Asian *Crossocerus*, bibliographic references); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan); Ohkusa and Tajima, 2010:12 (Japan: Island of Honshu: Shiga Prefecture); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*). – **As *Crossocerus assimilis fukuiensis***: Haneda, Murota, Kurokawa, and Tano, 2014:3, 8 (new status, in key to *Crossocerus* of Japan).

As *Crossocerus congener* (corrected to *Crossocerus fukuiensis* by Leclercq, 1973c:286): Tsuneki, 1954b:60, 69 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955a:68 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:68, 74 (in revised key to *Crossocerus* of Japan and Korea), 1960g:40 (nesting habits); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture), 1970b:11 (central Japan).

ssp. *bambosicola* Tsuneki

Crossocerus congener bambosicola Tsuneki, 1971a:20, ♀, ♂. Holotype: ♂, Taiwan, Chiai Prefecture: Kuanhua (originally K. Tsuneki collection, now USNM). – Hua, 2006:279 (in list of Chinese insects, geographic distribution). – **As *Crossocerus fukuiensis bambosicola***: Leclercq, 1973c:287 (new generic assignment, Taiwan;); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Li and Fang, 2003:148, 149 (in key to subgenus *Ablepharipus* of China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 170 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*);.

76. *gaboni* Leclercq

Crossocerus gaboni Leclercq, 2008a:11, ♂. Holotype: ♂, Gabon: Ngounie: Imeno-Nzinga (FSAG). – Leclercq, 2008a:8 (in key to Afrotropical *Crossocerus*).

77. *gemblacensis* Leclercq

Crossocerus gemblacensis Leclercq, 1968c:97, ♀. Holotype: ♀, Costa Rica: San José (FSAG). – Leclercq, 1968c:92 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Hanson and Menke, 1995:640 (known from Costa Rica); Leclercq, 2000d:44 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae, as *gemblacencis*), 2005a:7 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Leclercq, 2007g:194 (holotype in FSAG).

78. *gerardi* Leclercq

Crossocerus gerardi Leclercq, 1956e:223, ♂. Holotype: ♂, India: Bengal: Darjeeling (FSAG). – Leclercq, 1963:7 (individual variation); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Dollfuss, 2006:510 (Thailand: Mae Hong Son: Soppong); Leclercq, 2007g:194 (holotype in FSAG); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 170 (in list of Asian *Crossocerus*, bibliographic references).

79. *glabricornis* (Arnold)

Thyreopus glabricornis Arnold, 1926:355, ♂. Holotype: ♂, South Africa: Western Cape Province: Mossel Bay (BMNH). – Arnold, 1927:127 (description of ♀), 1930:13 (in checklist of Afrotropical Sphecidae). – **As *Crossocerus glabricornis***: Leclercq, 1954c:242 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2008:5 (in key to Afrotropical *Crossocerus*), 14 (bibliographic references, recognition, variation).

80. *guerrerensis* (Cameron),

Crabro guerrerensis Cameron, 1891a:150, ♀. Syntypes: ♀, Mexico: Guerrero: Amula and Chilpancingo (BMNH). – Dalla Torre, 1897:603 (in catalog of world Sphecidae); Ashmead, 1899d:173 (in checklist of North American Crabronidae). – **As *Crossocerus guerrerensis***: Leclercq, 1950e:5 (new generic assignment), 1954c:231 (in catalog of world Crabronini), 1968c:94 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2000d:45 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae and Sphecidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

81. *guichardi* Leclercq

Crossocerus guichardi Leclercq, 1972a:7, ♀, ♂ (subgenus *Neoblepharipus*). Holotype: ♀, France: Var: Valescures (BMNH). – Leclercq, 1975b:3 (France: Var: Pampelonne); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Bitsch and Leclercq, 1993:140 (in revision of western European Crabroninae); Leclercq, 1993c:20 (reference to recent publications); Leclercq and Barbier, 1993:33 (map of distribution in France); Pagliano and Negrisolo, 2005:251 (in Sphecid Fauna of Italy); Dollfuss, 2006:510 (Czech Republic: Vyškov); Bitsch and Leclercq, 2009:222 (in supplement to vol. I of Faune de France, 1993: records from Czech Republic and Italy recorded); van der Smissen, 2010b:384 (France: Ardèche: Saint-Maurice-d'Ibie); Říha, 2011:272 (Czech Republic: Břeclav); Strumia, Pagliano,

and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Bitsch, 2014:400 (France: Ardèche: Saint-Maurice-d'Ibie; Tarn-et-Garone: Montbartier); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:76 (in revision of Sphecidae *sensu lato* of Europe).

As *Crossocerus* sp.: Pagliano, 2011a:144 (*Crossocerus* sp. in M. Spinola collection, Torino, is *Crossocoerus guichardi*, partim).

82. *hakusanus* Tsuneki

Crossocerus hakusanus Tsuneki, 1954b:74, ♂. Holotype: ♂, Japan: Ishikawa Prefecture: Shiramine-mura (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1954b:58 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955b:25 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:67, 73 (in revised key to *Crossocerus* of Japan and Korea, ♀), 1960g:34 (prey: *Fannia canicularis* Linnaeus, Anthomyiidae); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki, 1966a:25 (Japan), 1966d:6 (Ryukyus Islands: Island of Amami. Oshima; variation in maculation), 1967g:44 (western Japan: Mount Hyonosen); Haneda, 1968a:46 (Japan), 1968b:56 (Japan: Nagano Prefecture: Ina District); T. Iida, 1968:21 (Japan); Nambu, 1968b:28 (Japan: Saitama Prefecture); Okuno, 1968:31 (Japan); Tano, 1968:35 (Japan); Tsuneki, 1968d:57 (Ryukyus Islands), 1968g:32 (Taiwan; in key to Crabronini of Taiwan and Ryukyus); Itami, 1969:51 (Japan: Niigata Prefecture); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History), 1969f:28 (Japan: Kyushu), 1970b:11 (central Japan); Suda, 1971:84 (Japan: Kanagawa Prefecture); Nambu, 1972e:91 (Japan: Saitama Prefecture); Leclercq, 1973c:291 (Taiwan); Suda, 1973:124 (Japan: Yamanashi Prefecture); Leclercq, 1974e:662 (in key to Asian species of subgenus *Cuphopterus*), 665 (bibliographic references); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Marshakov, 1979a:91, 99 (in key to *Crossocerus* of Russian Far East); Tsuneki, 1979d:10 (Japan), 1982g:63 (known from the Ryukyu archipelago); Tano, 1994a:6 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430, 437 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Yamane, Ikudome, and Terayama, 1999:501 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Haneda and Tano, 2003:11 (Japan: Nagasaki Prefecture: Tsushima); Tano, Kurokawa, Murota, and Nozaka, 2003:31 (Japan: Nagasaki Prefecture: Tsushima); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:35 (Japan: Gifu Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota,

2005:66 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov 2004b:264 (valid species); Suda, 2004:44 (Japan: Yamanashi Prefecture); Dollfuss, 2006:510 (Japan: Mount Hira; Russia: Primorskiy Kray: Novotsuguevka); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:26 (Japan: Toyama Prefecture); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Ohkusa, 2006a:25 (Japan: Honshu: Gifu Prefecture); Haneda, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2007:54 (Japan: Kagoshima Prefecture: Amami. Oshima Islands); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:58 (Japan: Hokkaido: Sapporo); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 170 (in list of Asian *Crossocerus*, bibliographic references); Murota and Kurokawa, 2009:15 (Japan: Ryukyu Archipelago: Amami. Oshima Islands); Nemkov, 2009b:109 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); Tano, 2010b:43 (member of subgenus *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); N. Yamamoto, 2013:28 (Japan: mainland Nagasaki Prefecture); Haneda, Murota, Kurokawa, and Tano, 2014:2, 8 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:230 (in catalog of Crabroninae of Russia); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

ssp. *sungkangensis* Tsuneki

Crossocerus kakusanus [sic] *sungkangensis* Tsuneki, 1982e:29, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Sungkang (original depository not indicated, now Hyogo Mus.). – Tano, 1995:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid subspecies); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 170 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:43 (member of *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*).

83. *harringtonii* (W. Fox)

Crabro harringtonii W. Fox, 1895a:195, ♀ (as *Harringtonii*, incorrect original capitalization). Lectotype: ♀, Canada: Ontario: Ottawa (ANSP), designated by Cresson, 1928:54. – Dalla Torre, 1897:603 (in catalog of world Sphecidae); J. Smith, 1910:682 (in

new list of insects of New Jersey: Trenton). – **As *Blepharipus harringtonii***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); Harrington, 1902:219 (Canada: Ontario: Ottawa); Viereck, 1903c:62 (Pennsylvania: Montgomery County and Lehigh Gap); Strickland, 1947:127 (Canada: Alberta: Jasper). – **As *Solenius harringtonii***: J.Ch. Bradley, 1928:1021 (new generic assignment, in catalog of New York Sphecidae). – **As *Crossocerus harringtonii***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (new generic assignment, in catalog of North American Hymenoptera); Krombein, 1952b:184 (USA: West Virginia: Lost River State Park, description of ♂), 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:237 (in catalog of world Crabronini); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: reference to Krombein, 1952b), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Krombein, 1979b:1670 (in catalog of North American Hymenoptera); Finnamore, 1982:155 (in Sphecid Fauna of southern Quebec); Sugar *et al*., 1998:16 (Canada: southern Ontario); Leclercq, 2000d:45 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Alaska: no specific locality, Canada: Alberta, British Columbia, Newfoundland Island, Ontario, Quebec, Saskatchewan, first record from New Brunswick: no specific locality).

84. *hasalakae* Leclercq

Crossocerus hasalakae Leclercq, 1986a:247, ♀, ♂. Subgenus *Crossocerus* s. s. Holotype: ♂, Sri Lanka: Monaragala District: Angunakolapelessa (USNM). Paratypes: Pakistan: Faisalabad. – Krombein, 1991:38 (Sri Lanka, nest site and structure); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 170 (in list of Asian *Crossocerus*, bibliographic references).

85. *heinrichi* Leclercq

Crossocerus heinrichi Leclercq, 1974e:665, ♀ (subgenus *Cuphopterus*). Holotype: ♀, Indonesia: Sulawesi: Latimondjong area (ZMHU). – Leclercq, 1974e:660 (in key to Asian species of subgenus *Cuphopterus*), 2009:161 (member of subgenus *Cuphopterus*), 170 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:43 (member of subgenus *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*).

86. *heydeni* Kohl

Crossocerus heydeni Kohl, 1880:216, ♂ (as *Heydeni*, incorrect original capitalization). Syntypes: Austria: Tirol: Bozen area, now Italy: Alto Adige: Sankt-Gries and Kollern near Bolzano (NHMW). – Leclercq, 1954c:233 (in catalog of world Crabronini); Tsuneki, 1954b:63, 71 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Hellén, 1955b:67 (*heydeni* is correct name for *inermis* of Finnish authors*);* Tsuneki and Tanaka, 1955b:22 (Japan: Nikko 120 km northwest of Tokyo); Hellén, 1956:45 (recorded from Finland); Móczár, 1958b:197 (not collected in Hungary); Tsuneki, 1958c:8 (Japan: Kyoto Prefecture), 1959n:70, 75 (in revised key to *Crossocerus* of Japan and Korea), 1960g:44 (prey); Valkeila, 1962b:68 (southwestern Finland); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); de Beaumont, 1964c:148 (in Sphecid Fauna of Switzerland); Niedl and Deneš, 1967:73 (Czech Republic: Třeboň area); Haneda, 1968a:47 (Japan); Babiy, 1970:21 (Austria: Land Salzburg); Gauss and Perraudin, 1970:362 (Germany: Baden-Württemberg: Wittental); Oehlke, 1970:784 (not recorded from Democratic Germany); Suda, 1973:124 (Japan: Yamanashi Prefecture); Tsuneki, 1973m:78 (comparison with *Crossocerus nikkoensis*); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Lomholdt, 1976:397 (in Sphecid Fauna of Fennoscandia and Denmark); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Pulawski, 1978:262, 265 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Marshakov, 1979a:97, 101 (in key to *Crossocerus* of Russian Far East), 1980c:348, 354 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: European part, Altai, Maritime province, Island of Sahkalin); Schmidt, 1980:341 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:317, 322 (Austria: Niederösterreich: Scheibbs District); Axelsson, 1982:80 (Sweden); Tsuneki, 1982b:8 (Korea), 17 (known from Korea); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Paik, 1985:201 (in list of Sphecidae of Korea); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Nilssen, 1986:87 (Sweden); Vikberg, 1986:77 (Finland); Dollfuss, 1987:22 (Austria), 1989:9 (type material in NHMW); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:123 and 190 (first record from Democratic Germany: Aschbach); Pádr, 1990:85 (Czech Republic: Praha area); Schwammberger and Priesner, 1990:545 (Austria: Kärnten); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:154 (in key to Sphecidae of

North and Central Europe); Nilsson, 1991:84 (Sweden: Lake Mälaren), 90 (found in shady deciduous forest); Bitsch and Leclercq, 1993:109 (in revision of western European Crabroninae); Leclercq, 1993c:20 (reference to recent publications); Leclercq and Barbier, 1993:34 (map of distribution in France); Dollfuss, 1994:100 (endangered in Austria); Koponen, 1994:22 (Finland: Saarijärvi); Schmid-Egger, 1994a:688 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:435, 441 (in key to Sphecidae of Russian Far East); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:173 (Germany: summary of records from Rheinland-Pfalz); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Schmidt and Schmid-Egger, 1997:10 (in checklist of German Sphecidae); Wiśniowski and Kowalczyk, 1998:220 (first record from Poland: Sopot); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Blösch, 2000:303 (in Sphecid Fauna of Germany); Luig and Voolma, 2000:124 (first record from Estonia); Ohl et al., 2001:138 (distribution in Germany by provinces); Bieri, 2002:73 (Liechtenstein); Lukáš, 2002:190 (Slovakia: Hájnica hill near Trenčianske Bohuslavice); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Feitz, Schneider, and Pauly, 2003:81 (first record from Luxemburg: Capellen); Kula and Tyrner, 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (Germany: in catalog of wasps and bees of Bayern); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Nemkov, 2004b:266 (locality records from Russia and Japan); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); Wiśniowski, 2004:47 and 61 (in checklist of Polish Sphecidae);

Burger, 2005:32 (Germany: Thüringen); Kofler, 2005:177 (Austria: Tirol: Lienz District: valley west of Weidenbrünnl in Assling Common); Nemkov, 2005a:153 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:239 (in Sphecid Fauna of Italy); Straka, 2005a:397 (critically endangered in Czech Republic); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Yildirim and Ljubomirov, 2005:1794 (Turkey: Erzincan: Kemaliye); Dollfuss, 2006:510 (Ukraine: Crimea: Evpatoria); Gorobchishin, 2006:127 (Ukraine: Cherkasy Oblast: Kaniv Nature Reserve); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Wiesner, 2006:237 (Germany: first record from Brandenburg: Luisenfelde); Chevin, Livory, Lair, Sagot, and Baldock, 2007:25 (France: Département de la Manche); Hallin, 2007:154 (Sweden: Närke County); Jacobs, 2007:134, 142 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: first record from Sachsen); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia), 229 (Bohemia: České Švýcarsko National Park and Děčinský Sněžnik, not known from Moravia and Slovakia); Józan, 2008:81 (first record from Hungary: Darány: Barcsi borókás); Ljubomirov and Yildirim, 2008:262 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:219 (in supplement to vol. I of Faune de France, 1993: first record from Belgium: Doische; no recent records from France); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 170 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:102 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Budrys, 2010:138 (first record from Lithuania: Daulėnai, Pavejuonis); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Józan, 2010:253 (Hungary: Somogy County); Rudoiskatel', 2010:157 (Russia: central Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:40 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Baghirov, 2011b:145 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Rudoiskatel', 2011d:243

(Russia: central Ural Mountains); Tischendorf, Frommer, Flügel et al., 2011:87 (Germany: Hessen: data insufficient to evaluate endangerment); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Pankov, 2013:229 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:192 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:400 (France: Meurthe-et-Moselle: Laneueville-aux-Bois); U. Frommer, 2014:26 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1321 (Germany: Hessen: Roβstein); Haneda, Murota, Kurokawa, and Tano, 2014:5, 11 (in key to *Crossocerus* of Japan); 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, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:321 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:117 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Bleidorn, Gerth, Hopfe, et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City); Olszewski and Kowalczyk, 2019:93 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:97 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:54 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Saure and Marten, 2021:134 (Germany: Sachsen-Anhalt: Nationalpark Harz); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey). – **As *Crabro heydeni***: Kohl, 1880:129 (new generic assignment, Italy: Trentino-AltoAdige); Dalla Torre, 1897:604 (in catalog of world Sphecidae, as *heydenii*); Schmiedeknecht, 1907:199 (in key to Hymenoptera of Central Europe); Kohl, 1915:236 (in revision of Palearctic Crabronini); Schmiedeknecht, 1930:650, 655 (in keys to Hymenoptera of

North and Central Europe); Zavadil, Šustera, and Bat'a, 1937:162 (in catalog of Sphecidae of Czechoslovakia); de Beaumont, 1945:481 (first record from Switzerland); Balthasar, 1948:140 (Slovakia: Tatranska Lomnica); Zavadil *in* Zavadil and Šnoflak, 1948:126, 133 (in key to Sphecidae of Czechoslovakia); Zavadil, 1951:85 (Czech Republic: Morava: Hodslavice); Noskiewicz and Puławski, 1960:148, 154 (in key to Polish Sphecidae); Balthasar, 1972:102 (in Sphecid Fauna of Czechoslovakia). – **As *Coelocrabro heydeni***: Zavadil, 1946:8 (new generic assignment, Czechoslovakia: Ostrava area); Bat'a, 1952:166 (Czech Republic).

Crabro sutshanicus Gussakovskij, 1932:23, ♀. Holotype: ♀, USRR: Primorskiy Kray: Sutshan (Stockholm). Synonymized with *Crossocerus heydeni* by Bitsch and Leclercq, 1993:109 and Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:435. – **As *Crossocerus sutshanicus***: Leclercq, 1954c:234 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

Crabro hedgreni Kjellander, 1954a:238, ♂. Holotype: ♂, Sweden: Uppland: Björkö (NRS). Synonymized with *Crossocerus heydeni* by Hellén, 1955b:67 and Lomholdt, 1976:397. – **As *Crossocerus hedgreni***: R. Bohart and Menke, 1976:401 (new generic assignment, in checklist of world Sphecidae), 628 (synonymy with *heydeni* reported).

Crossocerus heydeni nipponis Tsuneki, 1966e:35, ♀, ♂. Holotype: ♀, Japan: Mount Haku (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus heydeni* by Nemkov, 2004b:266. – Nambu, 1972e:91 (Japan: Saitama Prefecture), 1975b:76 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tsuneki, 1977f:4 (color variation); Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture), 2006a:25 (Japan: Toyama Prefecture); Ohkusa, 2006a:25 (Japan: Honshu: Gifu Prefecture); Ohkusa and Tajima, 2010:13 (Japan: Island of Honshu: Shiga Prefecture).

Crossocerus murotai Tsuneki, 1992b:52, ♀. Holotype: ♀, Japan: Fukui Prefecture: Natasho-mura: Mashidani (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus heydeni* by Nemkov, 2004b:266. – Tano, 1994a:6 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan).

As *Crabro inermis* (corrected to *Crossocerus heydenii* by Hellén, 1955b:67): Westerlund, 1896:28 (Finland); Pulkkinen, 1931:144 (Finland).

As *Crossocerus inermis*: Hellén, 1954:127 (Finland), corrected to *Crossocerus heydenii* by Hellén, 1955b:67.

87. *hingstoni* Leclercq

Crossocerus hingstoni Leclercq, 1950e:2, ♂. Holotype: ♂, Tibet: Tropde (BMNH). – Leclercq, 1954c:225 (in catalog of world Crabronini); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 1989a:240 (Nepal, additional description); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 170 (in list of Asian *Crossocerus*, bibliographic references).

88. *hirashimai* Tsuneki

Crossocerus hirashimai Tsuneki, 1966d:5, ♂. Holotype: ♂, Japan: Ryukyus Islands: Island of Amami-Oshima: Yuvan Dake (Kyushu Univ.). – Tsuneki, 1968d:57 (Ryukyus), 1968g:32 (Taiwan; in key to Crabronini of Taiwan and Ryukyus); Leclercq, 1973c:288 (Taiwan); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Tsuneki, 1982g:63 (known from Ryukyu archipelago); Tsuneki, 1990a:87 (description of ♀; type of subgenus *Orthocrabro*); Tano, 1994b:43 (allotype in K. Tsuneki collection); Yamane, Ikudome, and Terayama, 1999:501 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Dollfuss, 2006:510 (Thailand: Mae Hong Son: pass near Soppong); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Haneda, Nozaka, Tano, Kurokawa, Murota, and Murota, 2007:54 (Japan: Kagoshima Prefecture: Amami. Oshima Islands, as *hirasimai*); Leclercq, 2009:161 (member of subgenus *Orthocrabro*), 170 (in list of Asian *Crossocerus*, bibliographic references); Murota and Kurokawa, 2009:15 (Japan: Ryukyu Archipelago: Amami. Oshima Islands); Tano, 2010b:44 (member of subgenus *Orthocrabro*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:5, 10 (in key to *Crossocerus* of Japan).

89. *hirtitibia* (Arnold)

Crabro hirtitibia Arnold, 1945:179, ♀, ♂. Syntypes: Madagascar: Bekily (MNHN). – **As *Crossocerus hirtitibia***: Leclercq, 1954c:236 (new generic assignment, in catalog of world Crabronini), 1958a:13 (in key to Afrotropical *Crossocerus*), 25 (Madagascar: Bekily); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); Pulawski, 2003b:796 (in checklist of Malagasy Sphecidae); Leclercq, 2008:6, 9 (in key to Afrotropical *Crossocerus*, as *hirtibia* on p. 9), 12 (bibliographic references);

Madl, 2014a:950(in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality records).

90. *hiurai* Tsuneki

Crossocerus hiurai Tsuneki, 1966a:25, ♂ (subgenus *Coelocrabro*). Holotype: ♂, Japan: Osaka Prefecture: Shimanotani: Kawachinagano (Osaka). – Tsuneki, 1969e:28 (Japan: specimens in Osaka Museum of Natural History), 1968o:67 (recognition characters); Tsuneki and Tano, 1969:31 (distribution in Japan); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 170 (in list of Asian *Crossocerus*, bibliographic references); S. Takahashi, Haneda, and Tano, 2009:42 (distribution in Japan); Tano, 2010b:40 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:4 (in key to *Crossocerus* of Japan).

91. *hospitalis* Leclercq

Crossocerus hospitalis Leclercq, 1961g:169, ♀, ♂. Holotype: ♀, Nigeria: Bamenda Hospital, correctly: Cameroons (BMNH). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2008a:8, 9 (in key to Afrotropical *Crossocerus*), (bibliographic references, Kenya: Kakamega District: Ischeno, west of Okeka).

92. *impressifrons* (F. Smith)

Crabro tibialis Say, 1824:340, ♀, junior primary homonym of *Crabro tibialis* Olivier, 1792. Holotype or syntypes: ♀, USA: Pennsylvania: no specific locality (originally William W. Wood collection, now destroyed). – Le Conte, 1859a:230 (original description copied); Cresson, 1962:236 (in catalog of North American Hymenoptera).

Crabro pusillus Harris, 1835:68. Nomen nudum. – Cresson, 1962:236 (in catalog of North American Hymenoptera).

Crabro impressifrons F. Smith, 1856:417. Substitute name for *Crabro tibialis* Say. – Cresson, 1887:285 (in catalog of North American Hymenoptera); Dalla Torre, 1897:604 (in catalog of world Sphecidae); J. Smith, 1910:682 (in new list of insects of New Jersey: Riverton); Rohwer, 1916b:671 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae); Rohwer *in* Viereck, 1925:671 (in key to Sphecidae of Connecticut); Brimley, 1938:450 (North Carolina: Raleigh, Edgecombe County); Britton, 1938:149 (in addition to checklist of insects of Connecticut). – **As *Blepharipus impressifrons***: Packarad, 1867:374 (new generic assignment, revision); Ashmead, 1899d:217 (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 impressifrons***: J.Ch. Bradley, 1928:1021 (new generic assignment, in catalog of New York Sphecidae). – **As *Crossocerus impressifrons***: Pate, 1944a:309 (new generic assignment, diagnostic characters); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Krombein, 1952b:184 (USA: West Virginia: Lost River State Park), 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:237 (in catalog of world Crabronini); Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Krombein, 1979b:1670 (in catalog of North American Hymenoptera, nesting sites, list of prey); Finnamore, 1982:156 (in Sphecid Fauna of southern Quebec); Radović, 1985:65 (sting apparatus analyzed); Finnamore, 1994:210 (Canada: Alberta: Wagner Natural Area 8 km west of Edmonton); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Sugar *et al*., 1998:16 (Canada: southern Ontario); Leclercq, 2000d:46 (in revision of New World *Crossocerus*); Skevington et al., 2001:127 (Canada: Ontario: Lambton County); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario, Quebec, first record from New Brunswick: no specific locality).

As *Blepharipus scutellatus* (Say): Packard, 1867:375 (in revision of North American Crabronini and Nyssonini). Synonymized with *Crabro impressifrons* by W. Fox, 1895a:194.

Blepharipus harrisi Packard, 1867:376, ♂ (as *Harrisi*, incorrect original capitalization). Holotype or syntypes: ♂, USA Massachussetts: Cambridge (...). Synonymized with *Crossocerus impressifrons* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022. – **As *Crossocerus harrisi***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae). – **As *Crabro harrisi***: Cresson, 1887:285 (new generic assignment, in catalog of North American Hymenoptera); W. Fox, 1895a:203 (original description copied), 1896b:79 (redescription of type); Dalla Torre, 1897:603 (in catalog of world Sphecidae).

Crabro tridentatus Rohwer, 1909c:150, ♀, junior primary homonym of *Crabro tridentatus* Fabricius, 1775, and of *Crabro tridentatus* F. Smith, 1868. Syntypes: USA: District of Columbia: Washington, and Virginia: Falls Church (USNM). Synonymized with *Crossocerus impressifrons* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022.

93. *indonesiae* Leclercq

Crossocerus indonesiae Leclercq, 1961h:71, ♀. Holotype: ♀, Indonesia: Java: Pangerango (FSAG). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2007g:194 (holotype in FSAG), 2009:160 (member of subgenus *Ablepharipus*), 170 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*).

94. *insolens* (W. Fox)

Crabro insolens W. Fox, 1895a:192, ♀. Lectotype: ♀, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:54. – Dalla Torre, 1897:605 (in catalog of world Sphecidae). – **As *Crossocerus insolens***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:231 (in catalog of world Crabronini); F. Parker and R. Bohart, 1966:94 (California: Davis, Nevada: Verdi; nest parasite: *Diomorus zabriskiei* Cresson, a torymid; prey: *Pachyneuron* sp., a pteromalid, *Tetrastichus pattersonae* Fullaway, and *Tetrastichus* sp., Tetrastichidae); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Krombein, 1979b:1668 (in catalog of North American Hymenoptera); Rust, Menke, and Miller, 1985:47 (California: Channel Islands); Leclercq, 2000d:46 (in revision of New World *Crossocerus*). – **As *Epicrossocerus insolens***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae).

Crabro universitatis Rohwer, 1909c:152, ♀. Holotype or syntypes: ♀, USA: Colorado: Boulder (USNM). Synonymized with *Crossocerus insolens* by R. Miller *in* Krombein, 1979b:1668.– **As *Crossocerus universitatis***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:231 (in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

95. *inundatiflavus* Q. Li and He

Crossocerus inundatiflavus Q. Li and He, 2004:1076, 1209, ♂. Holotype: ♂, China: Zhejiang: Songyang (Zhejiang Univ., Hangzhou, Zhejiang Province). – Leclercq, 2009:161 (member of subgenus *Ainocrabro*), 170 (in list of Asian *Crossocerus*, bibliographic references).

96. *italicus* de Beaumont

Crossocerus italicus de Beaumont, 1959a:41, ♀. Holotype: ♀, Italy: Abruzzo: M. Portella (Ist. Ent. Roma). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Pagliano, 1990:84 (in catalog of Italian Sphecidae), 1991b:345 (in key to Italian

Crabroninae); Leclercq, 1993c:20 (in catalog of Crabronini of Europe and Mediterranean Basin); Bitsch and Leclercq, 1993:125 (in revision of western European Crabroninae); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Pagliano and Negrisolo, 2005:245 (in Sphecid Fauna of Italy); Leclercq, 2007f:192 (Greece: Akhaias: Khelmos; Lakmos: Peristetsi; Pindos: Astraka; Fokidos: Parnassus; Killini Oros); Bitsch and Leclercq, 2009:217, 218 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*), 220 (known from Italy and Greece, at altitudes between 1,500 and 2,500 m); Schmid-Egger, 2011a:37 (France: Parc National du Mercantour: Col de Cayolle, Millefonts, Valmasque); Bitsch, 2014:400 (records from France by Schmid-Egger, 1011a noted); Jacobs and Schmid-Egger, 2014:27 (France: Alpes Maritimes; Italy: Abruzzi and Piemonte; Switzerland: Ticino), 28 (in key to females of *Crossoceus elongatulus* species group); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:64 (in revision of Sphecidae *sensu lato* of Europe). – **As *Crabro italicus***: Balthasar, 1972:121 (new generic assignment, in Sphecid Fauna of Czechoslovakia, not yet found in country).

97. *jason* (Cameron)

Crabro jason Cameron, 1891a:155, ♀, ♂. Syntypes: Mexico: Guerrero: Xucumanatlán (BMNH). – Dalla Torre, 1897:604 (in catalog of world Sphecidae). – **As *Podagritus jason***: Ashmead, 1899d:220 (new generic assignment, in checklist of North American Crabronidae). – **As *Crossocerus jason***: Leclercq, 1950e:1 (new generic assignment, diagnostic charactes), 1954c:219 (in catalog of world Crabronini), 1968c:91 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2000d:47 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

Crossocerus derivus Leclercq, 1968c:98, ♀. Holotype: ♀, Mexico: Guerrero: Xucumanatlán (FSAG). Synonymized with *Crossocerus jason* by Leclercq, 2000d:47. – Leclercq, 1968c:94 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Amarante, 2002:25 (in catalog of Neotropical Crabronidae, as valid species); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:10 (correction to his 2002 catalog); Leclercq, 2007g:194 (holotype in FSAG).

98. *jasonoides* Leclercq

Crossocerus jasonoides Leclercq, 2000d:47, ♀. Holotype: ♀, Mexico: Chiapas: Selva Negra above Rayón (CAS). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

99. *jubilans* (Kohl)

Crabro jubilans Kohl, 1915:247, ♀, ♂. Lectotype: ♀, Kyrgyzstan: Alai-Dagh: Karakasyk (NHMW), designated by de Beaumont, 1959c:320. – Gussakovskij, 1935:433 (Tajikistan: Chash; Uzbekistan: Shakhimardan); nec de Beaumont, 1947b:398(= *Crossocerus acanthophorus*); Islamov, 1970:63 (Uzbekistan: Chirchik Basin). – **As *Crossocerus jubilans***: Leclercq, 1954c:224 (new generic assignment, in catalog of world Crabronini); de Beaumont, 1959c:319 (redescription); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Marshakov, 1980c:341, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Mongolia, Tajikistan, Kyrgyzstan, Uzbekistan), 357 (redescription); Dollfuss, 1989:9 (lectotype in NHMW); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:100 (geographic distribution, collecting localities in Kazakhstan), 2004b:107 (Kazakhstan: western Tien Shan); Dollfuss, 2006:510 (Kyrghyzstan: Alei Mount Road: Katta Karakol); Kazenas, 2008a:103 (southeastern Kazakhstan: 12 km south of Sary-Ozek); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 171 (in list of Asian *Crossocerus*, bibliographic references, placement in subgenus *Crossocerus* uncertain); Kazenas, 2014a:136 (Kazakhstan: Karatau Mountain Range); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution).

100. *kamateensis* Tsuneki

Crossocerus kamateensis Tsuneki, 1971a:18, ♀, ♂ (subgenus *Ablepharipus*). Holotype: ♂, Taiwan: Chiai Prefecture: Kamate, now Kuanhua (originally K. Tsuneki collection, now USNM). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Q. Li and Fang, 2003:149 (in key to subgenus *Ablepharipus* of China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 171 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:37 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*).

101.*klapperichi* de Beaumont

Crossocerus klapperichi de Beaumont, 1963c:417, ♂ (subgenus *Crossocerus*). Holotype: ♂, Afghanistan: Hindukush (TMB). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 171 (in list of Asian *Crossocerus*, bibliographic references, Afghanistan: Band-i-Amir); Lampe, Rohwedder, Ingrisch, and Rach, 2010:120 (type material in Mus. A. Koenig, Bonn); Dunford, Turbyville, and Leavengood, 2014:9 (listed as medically important in Afghanistan)p.

102.*kockensis* Leclercq

Crossocerus kockensis Leclercq, 1950g:110, ♀. Holotype: ♀, Indonensia: Sumatra: Fort de Kock (Zool. Mus. Amsterdam). – Leclercq, 1954c:219 (in catalog of world Crabronini); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 1978a:121 (in key to Asian species of subgenus *Yuchiha*), 2009:162 (member of subgenus *Yuchiha*), 171 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Yuchiha*, in list of Japanese subgenera of *Crossocerus*).

103. *kohli* (Bischoff)

Crabro kohli Bischoff, 1921b:6, ♀. Syntypes: ♀, China: Sinkiang Uighur: Kul on Yarkand River (ZMHU). – Bischoff, 1930a:219 (Tajikistan: Pamir; description of ♂). – **As *Crossocerus kohli***: Leclercq, 1954c:225 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1972a:151 (Mongolia); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Marshakov, 1979a:95, 99 (in key to *Crossocerus* of Russian Far East), 1980c:345, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Mongolia, northern India, Kazakhstan, Altai, Uzbekistan, Tajikistan: Sarykolskiy Khrebet), 362 (redescription); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:432, 438 (in key to Sphecidae of Russian Far East); Esenbekova and Kazenas, 2000:50 (southeastern Kazakhstan: no specific locality); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Kazenas, 2002a:100 (geographic distribution, collecting localities in Kazakhstan), 2004b:107 (Kazakhstan: western Tien Shan); Dollfuss, 2006:510 (Kazakhstan, Kyrghyzstan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Kazenas, 2008a:104 (southeastern Kazakhstan: Zailiyskiy Alatau: locality Assy); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 171 (in list of Asian *Crossocerus*, bibliographic references; Mongolia:

Gobi Altai: Dalan Dzadgad); Nemkov, 2009b:106 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Baghirov, 2011b:145 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Jacobs and Liebig, 2018:138 (Russia: Buryat Republic: East Sayan: 30 km northwest of Mondy); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution).

Crabro diacanthus Gussakovskij, 1930b:75, ♂. Holotype: Tajikistan: Pamir: Kara-Kul Lake (ZIN). Synonymized with *Crossocerus kohlii* by Marshakov, 1980c:362. – Leclercq, 1954c:225 (in catalog of world Crabronini); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia).

104.*krombeini* Leclercq and Miller

Crossocerus krombeini Leclercq and Miller *in* Leclercq, 2000d:47, ♀, ♂. Holotype: ♂, USA: New York: Nassau County: Farmingdale (USNM).

105.*kurczewskii* Leclercq and Miller

Crossocerus kurczewskii Leclercq and Miller *in* Leclercq, 2000d:49, ♀, ♂. Holotype: ♂, USA: West Virginia: Hardy County: Lost River State Park (USNM).

106.*larutae* Leclercq

Crossocerus larutae Leclercq, 1961h:72, ♂. Holotype: ♂, Malaysia: Perak: Larut Hills (BMNH). – R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 171 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:37 (member of subgenus *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*).

107.*lentus* (W. Fox)

Crabro scutellatus Say, 1824:341, ♀, junior secondary homonym of *Crabro scutellatus* (Scheven, 1781). Holotype or syntypes: ♀, USA: Pennsylvania: no specific locality (destroyed). – F. Smith, 1856:418 (in catalog of Hymenoptera in British Museum); Le Conte, 1859a:230 (original description copied); Cresson, 1962:236 (in catalog of North American Hymenoptera), 1887:285 (in catalog of North American Hymenoptera); Robertson, 1894:446 (visiting flowers of *Crataegus crus-galli* Linnaeus, Rosaceae); W. Fox, 1895a:190 (in revision of North American Crabronini); Kincaid, 1900a:358 (USA: Washington: Seattle); Krombein, 1939:144 (New York State). – **As *Crossocerus scutellatus***: Ashmead, 1899d:217 (new generic assignment, in checklist

of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey); Rau, 1922:21 (USA: Kansas: Lake View).

Crabro lentus W. Fox, 1895a:190, ♀. Lectotype: ♀, USA: Illinois: Algonquin; Florida: no specific locality (ANSP), designated by Cresson, 1928:54. Synonymized with *Crossocerus scutellatus* Say by R. Miller *in* Krombein, 1979b:1666. – Dalla Torre, 1897:607 (in catalog of world Sphecidae); G. Peckham and E. Peckham, 1905:101 (nest, prey: bugs and flies); H. Smith, 1908b:401 (in revision of Nebraskan Sphecidae); Rohwer, 1916b:671 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae); Rohwer in Viereck, 1925:671 (in key to Sphecidae of Connecticut); . – **As *Crossocerus lentus***: Strickland, 1947:127 (new generic assignment, Canada: Alberta: Edmonton); Krombein, 1951a:143 (Virginia: Dunn Loring; visiting tulip-tree honeydew); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Krombein, 1952b:181 (West Virginia: Lost River State Park), 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:228 (in catalog of world Crabronini), 306 (nest and prey records); Krombein, 1952a:96 (USA: Virginia: Westmoreland State Park), 1952b:181 (USA: West Virginia: Lost River State Park), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Krombein, 1979b:1666 (in catalog of North American Hymenoptera, nesting sites, list of prey); Finnamore, 1982:145 (in Sphecid Fauna of southern Quebec); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Finnamore, 1997:889 (Canada: Yukon); Sugar *et al*., 1998:16 (Canada: southern Ontario); Leclercq, 2000d:50 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Columbia, New Brunswick, Northwest Territories, Nova Scotia, Ontario, Quebec, Yukon Territory, first records from Manitoba, Newfoundland Island, and Saskatchewan: no specific locality).

Crabro scutellifer Dalla Torre, 1897:625. Substitute name for *Crabro scutellatus* Say, 1827. – H. Smith, 1908b:401 (in revision of Nebraskan Sphecidae); J. Smith, 1910:682 (in new list of insects of New Jersey); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae). – **As *Crossocerus scutellifer***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:229

(in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

As *Crabro minimus*: Harrington, 1902:… (…), corrected to *Crossocerus lentus* by Buck, 2004:76.

108.*leucostoma* (Linnaeus)

NOTE: *Crabro leucostoma* (or *Crossocerus leucostoma*) of many authors prior to Richards, 1935a, including Kohl, 1915 = *Crossocerus megacephalus*. See that species for references.

Sphex leucostoma Linnaeus, 1758:571, sex not stated. Holotype: Europe: no specific locality (Linnean Society, London). – O. Müller, 1764:72 (Denmark: Zeeland: Fridrichsdal near Copenhagen); Forster, 1770:14 (in catalog of British insects); O. Müller, 1776:161 (redescription; Denmark and Norway); Schrank, 1781:381 (in revision of insects of Austria); de Villers, 1789:237 (redescription); Christ, 1791 (redescription); Schrank, 1802:322 (Germany: in revision of insects of Bayern); Day, 1979:66 (study of holotype); Day and Fitton, 1978:194 (recuration of Linnean type material). – **As *Pemphredon leucostoma***: Fabricius, 1804:314 (new generic assignment, redescription); Panzer, 1806:185 (in critical review of his previous work); Billberg, 1820:107 (new generic assignment, specimens from Sweden in collection Billberg, as *leucostomus*); Dahlbom, 1845:XXV (specimens in collection Fabricius named *Pemphredon leucostoma* are *Crabro*); Schilling, 1848:105 (Germany: Niederschlesien: Breslau area, now Poland: Wrocław area). – **As *Crabro leucostoma***: Fabricius, 1781:472 (new generic assignment, redescription), 1787:297 (redescription), 1793:301 (redescription); Panzer, 1793, Heft 15:24 (in revision of German insects); Spinola, 1806:105 (Italy: Liguria: Arcata); 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); von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); Wissmann, 1849:15 (Germany: Kingdom of Hannover: common); nec F. Smith, 1851c:28 (= *Crossocerus megacephalus*); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:405 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); A. Morawitz, 1864:457 (Russia: Sankt-Petersburg); Taschenberg, 1866:178 (in revision of Hymenoptera of Germany); A. Costa, 1867c:129 (in revision of Italian Sphecidae); Bold, 1870:149 (Great Britain: Northumberland and Durham); F. Morawitz, 1893a:113 (Russia: Karelian Isthmus); Dalla Torre, 1897:607 (in catalog of world Sphecidae); Peets, 1909-1911:67 (*Crabro leucostoma* of Panzer = *Crabro albilabris*); Zavadil *in* Zavadil and Šnoflak, 1948:127, 132 (in key

to Sphecidae of Czechoslovakia); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Nouvel and Ribaut, 1953:182 (France: Hautes-Pyrénées: Cauterets, Orédon); de Beaumont, 1954e:97 (Italy); Ceballos, 1956:394 (in catalog of Sphecidae of Spain); Pulawski, 1958a:188 (Bulgaria: Mount Vitosha near Sofia; as *leucostomus*; = *carbonarius*); Noskiewicz and Puławski, 1960:149, 153 (in key to Polish Sphecidae, as *leucostomus*); Fæster, 1965:193 (Denmark: Hansted Nature Reserve, as *leucostomus*); Niedl and Deneš, 1967:73 (Czech Republic: Třeboň area; as *leucostomus*); Scobiola-Palade, 1967b:53 (Romania; as *leucostomus*; = *carbonarius*); Tumšs and Maršakovs, 1970:30 (Latvia; as *leucostomus*); Balthasar, 1972:101 (in Sphecid Fauna of Czechoslovakia, as *leucostomus*); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Skibińska, 1982:124 (Poland: Warszawa area, as *leucostomus*). – **As *Coelocrabro leucostoma***: Richards, 1935a:165 (new generic assignment, study of type, valid name for *Crabro carbonarius*), 1937b:106 (in checklist of British aculeates, as *leucostomus*); Kloet, 1941:235 (Great Britain: Wales: Somerford and Wilmslow, as *leucostomus*); Schneid, 1941:1030 (Germany: Bayern: Bamberg area, as *leucostomus*); Nelson, 1958:154 (Great Britain: Isle of Man, as *leucostomus*); Hüsing and Jäger, 1964:192 (Germany: Sachsen–Anhalt: Nietleben near Halle), 195 (males appear earlier than females, nesting in wood). – **As *Crossocerus leucostoma***: nec Brischke, 1862:106 and 1892:29 (= *Crossocerus megacephalus*); Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera); Jaennicke, 1868:8 (Germany: Hessen: Königsbrunnen); Leclercq, 1949a:8 (Austria, France, Germany), 1950f:23 (distribution in Belgium, as *leucostomus*), 1951e:9 (bibliography of Belgian records, as *leucostomus*); Fahlander, 1954:250 (Sweden: Gästrikland Region, as *leucostomus*); Grandi, 1954:242 (Italy); Leclercq, 1954c:234 (in catalog of world Crabronini, as *leucostomus*), 309 (nest and prey records); Tsuneki, 1954b:61, 71 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands; as *leucostomus*; = *carbonarius*); Aerts, 1955:58 (Germany: Rheinland; as *leucostomus*); de Beaumont, 1958c:212 (Swiss National Park); Móczár, 1958a:264, 270 (in annotated catalog of Hungarian Crabronini, correction to Kohl's description of 1915, as *leucostomus*), 1958b:197 (Hungary: collecting localities, as *leucostomus*); Tsuneki, 1959n:69, 75 (in revised key to *Crossocerus* of Japan and Korea, as *leucostomus*; = *carbonarius*); Wolf, 1959b:33 (Germany: Nassau, as *leucostomus*); Tsuneki, 1960g:43 (no observations on nesting habits in Japan); Stritt, 1962:49 (Germany: Baden-Württemberg: Wutach area, as *leucostomus; = carbonarius*); Valkeila, 1962b:68 (southwestern Finland); Babiy, 1964:118 (Austria: Land Salz-

burg); de Beaumont, 1964c:148 (in Sphecid Fauna of Switzerland); Valkeila, Brander, and Käpylä, 1964:75 (Finland: southern Finland: Forssa, Näyte, as *leucostomus*); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Piazzòl); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:351 (Turkey); Gauss, 1967:559 (Germany: Baden-Württemberg; = *carbonarius*); J. Heinrich, 1967:81 (Germany: Bayern: Miltenberg and Obernau; = *carbonarius*); Leclercq, 1967a:33 (Great Britain: locality records); Parré, 1968:124 (Germany: Sachsen-Anhalt: Staβfurt); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Tsuneki and Tano, 1969:30 (distribution in Japan); Oehlke, 1970:784 (Democratic Germany); Leclercq, 1971:214 (Spain; as *leucostomus*); Schmidt, 1971b:50 (Germany: Rheinland-Pfalz: Gonsenheimer Wald; = *carbonarius*); Wolf, 1971:375 (Italy: Trentino–Alto Adige: Alpi Siusi); Haeseler, 1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Kofler, 1972:114 (Austria: eastern Tirol; = *carbonarius*), 1974:320 (Austria: Kärnten; = *carbonarius*); Leclercq, 1975b:3 (France; = *carbonarius*); Stobbe, 1975:19 (first record from Netherlands: Appelscha in Friesland); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Eck, 1976:95 (Democratic Germany); Lomholdt, 1976:400 (in Sphecid Fauna of Fennoscandia and Denmark, as *leucostomus*); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Guichard, 1978:272 (first record from Greece: Aspropotomas, Timfristos); Pulawski, 1978:261, 265 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1455 (Belgium); Marshakov, 1979a:97, 100 (in key to *Crossocerus* of Russian Far East); Schwammberger, 1979:118 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Dathe, 1980:209 (Russia: northern Caucasus: Teberda); Marshakov, 1980c:348, 354 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: European part, Kazakhstan, Altai, Maritime province, Magadan, Sakhalin); Richards, 1980:49, 50 (in key to Sphecidae of British Isles); Schmidt, 1980:371 (Germany: Baden-Württemberg); Westrich, 1980:635 (Germany: Baden-Württemberg: Tübingen area, as *lleucostomus*); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District, as *leucostomus*); Thiede, 1981:47 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes, as *leucostomus*); van der Zanden, 1981:130 (Netherlands); Axelsson, 1982:80 (Sweden; as *leucostomus*); Gayubo, 1982b:25 (Spain: Salamanca: Béjar); Schedl, 1982:101 (Austria: Tirol:

Ötztaler Alps); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria, as *leucostomus*); Jacob-Remacle and Jacob, 1983:242 (Belgium: Liège Province: fagne de Malchamps near Spa); Lefeber, 1983a:85 (Netherlands: Waddendistrict: Island of Terschelling); Riemann, 1983:89 (Germany: Bremen-Daverden area, as *leucostomus*); Steinmann, 1983:163 (Switzerland: Graubünden Canton, nesting in wood buildings); Gayubo, 1984b:96 (Spain: previously recorded from Salamanca Province); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area; as *leucostomus*); Sagvolden, 1984:20 (Norway: Buskerud: Rollag); Archer, 1985c:205 (Great Britain: Yorkshire), 1986:32 (Great Britain: Yorkshire); Nemkov, 1986:102 (Russia: Irkutsk Oblast'); Nilssen, 1986:88 (Sweden, as *leucostomus*); Skibińska, 1986b:158 (Poland: Warszawa area: rural and suburban parks, as *leucostomus*); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:373 (Germany: Mainz area); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Jacobs, 1989:19 (Germany: Mecklenburg-Vorpommern, as *leucostomus*); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae, as *leucostomus*); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:97 (Belorussia: Berezinskiy Nature Reserve); Weiffenbach, 1989:111 (Germany: Hessen: Gießen area, as *leucostomus*); Jacobs and Oehlke, 1990:190 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie, as *leucostomus*); Pádr, 1990:85 (Czech Republic: Praha area, as *leucostomus*); Pagliano, 1990:84 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:545 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:154 (in key to Sphecidae of North and Central Europe, as *leucostomus*); Kowalczyk, 1991a:90, 91 (Poland: Łódź, as *leucostomus*), 1991b:121 (Poland: Augustów Forest); Negrisolo, 1991:320 (Italy: Udine Province); Nilsson, 1991:84 (Sweden: Lake Mälaren, as *leucostomus*); Pagliano, 1991b:337, 343 (in key to Italian Crabroninae); van der Smissen, 1991:96 (northwestern Germany, as *leucostomus*); Budrys, 1992:34 (in list of Sphecidae of Lithuania); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Wolf, 1992c:21 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin, as *leucostomus*); Archer, 1993c:39 (Great Britain: Yorkshire); Bitsch and Leclercq, 1993:111 (in revision of western European Crabroninae); Kuhlmann, 1993:75 (Germany: known from Westfalen, as *leucostomus*); Leclercq, 1993c:20 (locality records from Europe); Leclercq and Barbier, 1993:35 (map of distribution in France); Wiśniowski, 1993a:97 (Poland: in checklist

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Östergötland, Dalsland, and Närke counties, as *leucostomus*); Jacobs, 2007:134, 137 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen, as *leucostomus*); Leclercq, 2007f:192 (references to records from Greece); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve, as *leucostomus*); Vago, 2007:175 (France: Département du Nord); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia); Archer, 2008c:145 (Great Britain: Nottinghamshire: Spalford Warren, as *leucostomus*); Ljubomirov and Yildirim, 2008:264 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:22 (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); Belkheir, 2009:18 (France: Pyrénées-Orientales: commune d'Eyne); Bitsch and Leclercq, 2009:219 (in supplement to vol. I of Faune de France, 1993: France: Haute-Loire: Les Estables; Haut-Rhin: Munster; Savoie: Bonnevaux); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Dvořák, Bogusch, and Smetana, 2009:81 (Czech Republic: Králický Sněžnik National Nature Reserve); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 171 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:102 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Jizerské Mountains and Frýdlant region); S. Takahashi, Haneda, and Tano, 2009:42 (distribution in Japan); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren, as *leucostomus*); Ermilov and Mokrousov: 2010:89 (phoretic mites *Imparipes haeseleri* Ebermann and Hall, *Parawinterschmidtia kneissi* (Krausse), and *Schwiebea nova* (Oudemans) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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:61 (Russia: Kirov and Nizhniy Novgorod Oblast's: no specific localities), 2010c:107

(Russia: Chuvash Republic: State Nature Reserve “Prisurskiy”); Rudoiskatel', 2010:157 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:18 (Ukraine); van der Smissen, 2010a:336 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Baghirov, 2011b:145 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Gogala, 2011:19 (Slovenia); Mokrousov, Berezin, and Egorov, 2011:70 (Russia: Chuvash Republic); Pagliano, 2011a:143 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:122 (Germany: Hessen: not endangered); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots, as *leucostomus*), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow, as *leucostomus*); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: Département d’Ariège: Ascou-Pailhères); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:193 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:401 (France: Ariège: Ascou-Pailhères, Bethmale); Haneda, Murota, Kurokawa, and Tano, 2014:4, 10 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Blažej, Macek, and Trýzna, 2016:117 (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, 2016:16 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, as *leucostomus*); Ratzlaff, 2016:25 (Canada: British Columbia: from Bradley, 1906 and Leclercq, 2000); Reemer and Peeters, 2016:10

(Netherlands: Hulshorsterzand, as *leucostomus*); Ruchin and Antropov, 2016:402 (Russia: Mordovian State Nature Reserve); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park, as *leucostomus*); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:44 (Turkey: Erzurum: Şenkaya: Ormanlı); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols); Jacobs and Liebig, 2018:138 (Russia: Buryat Republic: East Sayan: 30 km northwest of Mondy; Primorskiy Kray: Anisimovka and Dalnegorsk); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Ruchin and Antropov, 2019a:13226 (Russia: Mordovia State Nature Reserve); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray); Kejval, Blažej, and Erhart, 2020:97 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:55 (in revision of Sphecidae *sensu lato* of Europe); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:48 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Saure and Marten, 2021:133 (Germany: Sachsen-Anhalt: Nationalpark Harz); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Columbia, Northwest Territories, New Brunswich, Nova Scotia, Newfoundland Island, Ontario, Quebec, Yukon Territory, first records from Labrador, Manitoba, and Saskatchewan: no specific locality).

Crabro carbonarius Dahlbom, 1839:34 and 1839-40:34, ♀, ♂. Syntypes: Sweden: Åsele Lapland: Borgsjö Nybygge at Lecksele Lappmarks Prestgård; Skåne: Kiviks Esperöd; Östergotland: no specific locality; Finland: no specific locality (Lund). Synonymized with *Coelocrabro leucostoma* by Richards, 1935a:166. – A. Morawitz, 1864:457 (Russia: Sankt-Petersburg), 1866a:270 and 1866b:347 (specimens in Eversmann collection); Thomson, 1870:163 (in revision of Swedish Crabroninae), 1874:268 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:125 (Austria: Tirol, and Italy: Trentino-Alto Adige), 1883e:654 (Switzerland); 1888b:721 (Austria: Tirol, now Italy: Alto Adige), 1893:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Krieger, 1894:4 (Germany: Kingdom of Saxony); Dalla Torre, 1897:586 (in catalog of world Sphecidae); Mocsáry,

1897:83 (Kingdom of Hungary, localities are in today's Croatia, Romania and Slovakia); E. Saunders, 1900a:227 (first record from Great Britain: Scotland: Aviemore); Friese, 1902:477 (Norway: Maalselven at 69°N); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); W. Schulz, 1904b:98 (Austria, Switzerland); E. Saunders, 1906:155 (Great Britain: locality records, recognition); Schmiedeknecht, 1907:194, 196 (in key to Hymenoptera of Central Europe); Sparre Schneider, 1909:106 (Norway: Troms County: Maalselven); Šustera, 1909:34 (Czech Republic: vicinity of Praha); Dittrich, 1911b:19 (Germany: Niederschlesien: Agnetendorf, now Poland: Dolny Śląsk: Jagniątkowo); Birula, 1914:376 (Belorussia: Ambrosovichi near Vitebsk); Kohl, 1915:232 (in revision of Palearctic Crabronini); Dubois, 1920:87 (first record from Belgium: Francorchamps); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: common); Dubois, 1921b:156, 158 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Maidl, 1922:75 (Albania); Lundblad, 1924:22 (Sweden: Lappland: Lycksele); Berland, 1925d:185 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia: Wezkukkul; Lithuania: Dolny near Vilnius; Poland: Białowieża area); Grönblom, 1925:4 (nesting habits); Shestakov, 1925:35 (Russia: Yaroslavl' area); Friese, 1926:149 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Schütze, 1925:110 (Germany: Lausitz Region); Zavadil, 1926:33 (Czechoslovakia); Ward, 1928:47 (Great Britain: Lancashsire: Holker Mosses); F. Day, 1928:52 (Great Britain: Cumbria: Durdar near Carlisle); Gaunitz, 1929:199 (Sweden: Lapland); Schmiedeknecht, 1930:651, 654 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:145 (in revision of Sphecidae of Finland); Crèvecoeur and Maréchal, 1932:67 (in catalog of Belgian Hymenoptera: Hockai); Gussakovskij, 1932:22 (Russia: Kamchatka); E. Nielsen, 1933:267 (nesting in wood); Guiglia, 1934a:147 (Italy: Trentino: Madonna di Campiglio); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:324 (Switzerland); Vergne, 1935:119 (France: Auvergne: Le Mont-Dore); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:161 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Franz, 1949:13 (Austria: Hohe Tauern); Noskiewicz and Chudoba, 1949:420 (Poland: Dolny Śląsk: Kamieniec Ząbkowicki); Cavro, 1950:38 (France: Département du Nord); Fæster, 1951:458 (distribution in Scandinavia); Vogrin, 1955:42

(Yugoslavia); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Pfalz region); Vago, 2005a:14 (*Crabro carbonarius* in Cavro, 1950 is *Crossocerus leucostoma* now). – **As *Blepharipus carbonarius***: R. Perkins, 1913b:390, 393 (new generic assignment, in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset); Hamm and Richards, 1926:313 (summary of nesting habits). – **As *Coelocrabro carbonarius***: Westerlund, 1893:27 (new generic assignment, Russia: Karelian Republic: northern shore of Lake Ladoga); Lange, 1898:70 (Germany: Annaberg-Buchholz); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1910:46 (Sweden; nesting habits); Strand, 1910d:341 (Germany: Hessen: Marburg); Noskiewicz, 1918:138 (Galicia, now western Ukraine: Brzuchowice near Lwów); Łoziński, 1920:121 (Poland: Maków Podhalański); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley). – **As *Crossocerus carbonarius***: Routledge, 1933:89 (new generic assignment, England: Cumberland); Steiner, 1986:107 (references to publications on nesting habits).

Crossocerus rugosus Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area). Nomen nudum (as *Rugosus*, incorrect original capitalization).

Crabro rugosus Herrich-Schaeffer, 1841:.. Synonymized with .. by ..

Crabro melanarius Wesmael, 1852:599, ♀, ♂. Substitute name for *Crabro podagricus* of Dahlbom, 1842. Syntypes: Sweden: no specific locality (Bruxelles). Synonymized with *Crabro carbonarius* by Thomson, 1870:163. – F. Smith, 1856:415 (in catalog of Hymenoptera in British Museum); Bold, 1857:5631 (first record from Great Britain: Cumberland County); Schenck, 1857:126 (in revision of fossorial wasps of Germany); F. Smith, 1857d:41 (first record from Great Britain: Cumberland County: Lannercost); Taschenberg, 1858:108 (in key to Sphecidae of Germany), 1866:178 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (known from Germany); Thomson, 1870:163 (as synonym of *Crabro carbonarius*); Siebke, 1880:69 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Schøyen, 1881:12 (correction to Siebke, 1880); Strand, 1898b:95 (Norway). – **As *Crossocerus melanarius***: Jaennicke, 1868:8 (new generic assignment, Germany: Hessen: Offenbach); Rudow, 1912:75 (nesting in raspberry twigs); Coulon, 1925:124 (France: Evreux).

Blepharipus cinctipes Provancher, 1882:133, ♂. Lectotype: ♂, Canada: Quebec: Petit Cap: Saint Joachim (Laval Univ.), designated by Gahan and Rohwer, 1917:333. Synonymized with *Crossocerus leucostoma* by Bitsch and Leclercq, 1993:111. – Ashmead,

1899d:217 (in checklist of North American Crabronidae); Harrington, 1902:219 (Canada: Ontario: Ottawa). – **As *Crabro cinctipes***: Cresson, 1887:284 (new generic assignment, in catalog of North American Hymenoptera); Dalla Torre, 1897:588 (in catalog of world Sphecidae); Brimley, 1938:450 (North Carolina: Raleigh). – **As *Crossocerus cinctipes***: Pate, 1944a:303 (new generic assignment); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Leclercq, 1954c:237 (in catalog of world Crabronini); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: Wisconsin); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Krombein, 1979b:1670 (in catalog of North American Hymenoptera); Finnamore, 1982:153 (in Sphecid Fauna of southern Quebec); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Finnamore, 1997:890 (Canada: Yukon).

Blepharipus cinctipes Provancher, 1883b:667, ♂. Objective synonym of *Blepharipus cinctipes* Provancher, 1882.

Crabro niger Provancher, 1888:419, ♀, junior secondary homonym of *Crossocerus niger* Lepeletier de Saint Fargeau and Brullé, 1835. Lectotype: ♀, Canada: Ontario: Ottawa (Laval Univ.), designated by Gahan and Rohwer, 1917:391. Synonymized with *Crossocoerus cinctipes* by Krombein, 1958f:198. – W. Fox, 1895a:206 (original description copied); Harrington, 1902:219 (Canada: Ontario: Ottawa). – **As *Crossocerus niger***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (new generic assignment, as questionabale synonym of *Crossocerus harringtonii*).

Crabro nigror W. Fox, 1895a:196, ♀. Holotype: ♀, USA: New Hamshire: no specific locality (ANSP). Synonymized with *Crossocerus cinctipes* by Pate, 1944a:303.

Crabro nigrior W. Fox, 1896b:80. Emendation of *Crabro nigror*. – Cresson, 1928:54 (holotype in ANSP); J. Smith, 1910:682 (in new list of insects of New Jersey). – **As *Blepharipus nigrior***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); Viereck, 1903c:62 (Pennsylvania: Lehigh Gap).

Crabro servus Dalla Torre, 1897:626. Substitute name for *Crabro niger* Provancher, 1888. Synonymized with *Crossocerus cinctipes* by Krombein, 1958f:198.

Stenocrabro cinctitarsis Ashmead, 1901:185, ♂. Holotype: ♂, USA: New Mexico: between Sapello and Pecos Rivers (USNM). Synonymized with … *cinctipes* by ... – **As *Crossocerus cinctitarsis***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:238 (in catalog of world Crabronini).

Blepharipus columbiae Bradley, 1906:380, ♀. Holotype: ♀, Canada: British Columbia, Selkirk Mountains: Ground Hog Basin in Big Bend County (Cornell Univ.). Synonymized with *Crossocerus cinctitarsis* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022. – **As *Crossocerus columbiae***: Pate, 1944a:300 (new generic assignment, diagnostic characters, description of ♂).

Thyreopus stygius Mickel, 1916a:422, ♀. Holotype: ♀, USA: Nebraska: Sioux County: Badlands at mouth of Monroe Canyon (UNL). Synonymized with ... *cinctipes* by ... – Mickel, 1918b:383 (in catalog of Nebraskan Sphecidae); Pate, 1944a:312 (possibly a synonym of *Crosscocerus cinctipes*); Muma, 1952:23 (holotype in UNL). – **As *Crossocerus stygius***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:237 (in catalog of world Crabronini).

Thyreopus utensis Mickel, 1916a:421, ♀. Holotype: ♀, USA: Colorado: Ute Creek (UNL). Synonymized with ... *cinctipes* by ... – Pate, 1944a:311 (discussion of status); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023 (in catalog of North American Hymenoptera); Muma, 1952:23 (holotype in UNL); Leclercq, 1954c:238 (in catalog of world Crabronini).

109.*lindbergi* (de Beaumont)

Crabro lindbergi de Beaumont, 1954b:4. ♀, ♂. Holotype: ♂, Canary Islands: Tenerife: Puerto de San Juan (RMNH). – **As *Crossocerus lindbergi***: de Beaumont, 1968a:274 (new generic assignment, cited from Canary Islands); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Báez and Ortega, 1978:192 (Canary Islands); Wolf, 1980:72 (Canary Islands); Leclercq, 1993c:20 (in catalog of Crabronini of Europe and Mediterranean Basin); Hohmann, La Roche, Ortega, and Barquín, 1993:244 (detailed locality records from Canary Islands).

110.*lipatus* Leclercq

Crossocerus lipatus Leclercq, 1961b:74, ♂. Holotype: ♂, Zaire: Garamba National Park (MRAC). – R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Leclercq, 2008:7, 10 (in key to Afrotropical *Crossocerus*), 19 (bibliographic references, Ivory Coast: 20 km west of Boundiali, Ferkessédougou, determination of female tentative).

111.*lippensi* Leclercq

Crossocerus lippensi Leclercq, 1958a:19, ♂. Holotype: ♂, Zaire: northern Kivu: Rutshuru (MRAC). – Leclercq, 1958a:10 (in key to Afrotropical *Crossocerus*). – Not listed by Bohart and Menke, 1976; Leclercq, 2008a:10 (in key to Afrotropical *Crossocerus*), 19 (bibliographic references).

112.*liqiangi* Leclercq

Crossocerus liquiangi Leclercq, 2009:171, ♀, ♂. Holotype: ♀, China: Szechuan: Mount Omei (USNM). – Leclercq, 2009:161 (member of subgenus *Ainocrabro*); Tano, 2010b:38 (member of *Ainocrabro*, in list of Japanese subgenera of *Crossocerus*).

113.*lokojae* Leclercq

Crossocerus lokojae Leclercq, 2008a:20, ♂. Holotype: ♂, Nigeria: Lokoja: Kabba (CAS). – Leclercq, 2008:5 (in key to Afrotropical *Crossocerus*)

114.*lundbladi* (Kjellander)

Crabro lundbladi Kjellander, 1954a:239, ♀, ♂. Holotype: ♂, Sweden: Härjedalen, Funäsdalen (NRS). – **As *Crossocerus lundbladi***: R. Bohart and Menke, 1976:402 (new generic assignment, in checklist of world Sphecidae); Lomholdt, 1976:386 (in Sphecid Fauna of Fennoscandia and Denmark); Vikberg, 1986:77 (Finland); Nilsson, 1989:48 (Sweden); Bitsch and Leclercq, 1993:126 (in revision of western European Crabroninae, study of types); Leclercq, 1993c:20 (in catalog of Crabronini of Europe and Mediterranean Basin); Koponen, 1994:21 (Finland: Helsinki, Karihaara, Oulu, Sippola, Sund, Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Turku); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: Island of Romelsön); Bergsten, Nilsson, and Hellquist, 2004:7 (Sweden: Västerbotten: Nordmaling); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega: Shoikapolda); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:28 (known from Norway), 42, 71 (Norway: locality records); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:65 (in revision of Sphecidae *sensu lato* of Europe); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Canada: Nunavut: no specific locality).

115.*maculiclypeus* (W. Fox)

Crabro maculiclypeus W. Fox, 1895a:189, ♀. Lectotype: ♀, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:54. – Dalla Torre, 1897:609 (in catalog of world Sphecidae); Kincaid, 1900a:358 (USA: Washington: Olympia, Seattle); J. Smith, 1910:682 (in new list of insects of New Jersey); Brimley, 1938:450 (North Carolina: Raleigh). – **As *Cuphopterus maculiclypeus***: J. Smith, 1900:515 (new generic assignment, in list of

insects of New Jersey). – **As *Crossocerus maculiclypeus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); Strickland, 1947:127 (Canada: Alberta: Medicine Hat, Wainwright); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Leclercq, 1954c:228 (in catalog of world Crabronini); Kurczewski, Burdick, and Gaumer, 1969a:92 (nesting habits); Evans, 1970:491 (Wyoming: Jackson Hole, nesting habits, list of prey); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1666 (in catalog of North American Hymenoptera, nesting sites, list of prey); Finnamore, 1982:147 (in Sphecid Fauna of southern Quebec); Spofford and Kurczewski, 1992:998 (species of miltogrammine parasites listed); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Finnamore, 1997:889 (Canada: Yukon); Kurczewski, 1998d:250 (pine barrens in upstate New York); Sugar *et al*., 1998:16 (Canada: southern Ontario); Leclercq, 2000d:51 (in revision of New World *Crossocerus*); Skevington et al., 2001:127 (Canada: Ontario: Lambton County); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Columbia, Labrador, New Brunswick, Newfoundland Island, Northwest Territories, Ontario, Quebec, Saskatchewan, Yukon Territory, first record from Manitoba: no specific locality).

Thyreopus daeckei Rohwer, 1910a:51, ♀. Holotype: ♀, USA: New Jersey: Lucaston (USNM). Synonymized with *Crossocerus maculiclypeus* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020. – **As *Crabro daeckii*** [sic]: J. Smith, 1910:682 (new generic assignment, in new list of insects of New Jersey);

116.*maculipennis* (F. Smith)

As Crabro maculatus Fabricius (misdetermination): Lepeletier de Saint Fargeau and Brullé, 1835:730 (in *Blepharipus*, in revision of Crabronini), Dahlbom, 1844:344 (new generic assignment, in revision of Sphecidae and Pompilidae), 1845:526 (in key to *Crabro*); Lepeletier de Saint Fargeau, 1845:135 (in *Blepharipus*, in revision of world Hymenoptera).

Crabro maculipennis F. Smith, 1856:417. Substitute name for *Crabro maculatus* of Lepeletier de Saint Fargeau and Brullé, 1835. – Cresson, 1962:236 (in catalog of North American Hymenoptera), 1887:285 (in catalog of North American Hymenoptera); W. Fox, 1895a:180 (in revision of North American Crabronini); Erikson, 1940:172 (nest, prey: *Nephrotoma tenuis* (Loew), a tipulid). – **As**

Blepharipus maculipennis: Packard, 1867:372 (new generic assignment, in revision of North American Sphecidae); Provancher, 1882:132 and 1883b:667 (in revision of Canadian Hymenoptera). – **As *Cuphopterus maculipennis***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); Harrington, 1902:220 (Canada: Ontario: Ottawa). – **As *Solenius maculipennis***: J.Ch. Bradley, 1928:1020 (new generic assignment, in catalog of New York Sphecidae). − **As *Stictoptila maculipennis***: Strickland, 1947:128 (new generic assignment, Canada: Alberta). – **As *Crossocerus maculipennis***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:239 (in catalog of world Crabronini), 313 (nest and prey records); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1670 (in catalog of North American Hymenoptera, nesting sites, list of prey); Finnamore, 1982:157 (in Sphecid Fauna of southern Quebec); Radović, 1985:65 (sting apparatus analyzed); Rust, Menke, and Miller, 1985:47 (California: Channel Islands); Kurczewski and Acciavatti, 1990:61 (New York: Cayuga County); Spofford and Kurczewski, 1990:751 and 1992:1001 (nest parasite: *Eustalomyia vittipes* (Zetterstedt), Anthomyiidae); Finnamore, 1994:210 (Canada: Alberta: Wagner Natural Area 8 km west of Edmonton); Sugar *et al*., 1998:16 (Canada: southern Ontario); Leclercq, 2000d:52 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Alaska: no specific locality, Canada: Alberta, British Columbia, New Brunswick, Ontario, Quebec, first record from Manitoba, Newfoundland Island, Nova Scotia, Saskatchewan, and Yukon Territor: no specific locality).

Crabro pictus F. Smith, 1856:417, junior primary homonym of *Crabro pictus* Fabricius, 1793. Unnecessary (second) substitute name for *Crabro maculatus* (Lepeletier de Saint Fargeau and Brullé, 1835) Dahlbom, 1844:334. – W. Schulz, 1906:207 (valid name for *Crabro maculipennis*).

Crabro confertus W. Fox, 1895a:181, ♀, ♂. Lectotype: ♀, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:53. Synonymized with *Crossocerus maculipennis* by R. Bohart and Levin *in* R. Bohart and Menke, 1976:402. – Dalla Torre, 1897:592 (in catalog of world Sphecidae); Kincaid, 1900a:358 (ranges from Washingon to Colorado); Rohwer, 1908b:246 (USA: Colorado), 258 (in key to *Crabro* of Colorado and New Mexico); Krombein *in* Muesebeck, Krombein, and Townes,

1951:1023 (in catalog of North American Hymenoptera); Leclercq, 1954c:239 (in catalog of world Crabronini). – **As *Cuphopterus confertus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae). – **As *Stictoptila confertus***: Horning and Barr, 1970:106 (new generic assignment, Idaho: Craters of the Moon National Monument).

Crabro ventralis W. Fox, 1895a:183, ♀. Lectotype: ♀, USA: Nevada: no specific locality (ANSP), designated by Cresson, 1928:56. Synonymized with *Crossocerus confertus* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023. – Dalla Torre, 1897:636 (in catalog of world Sphecidae). – **As *Cuphopterus ventralis***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae).

Crabro canonicola Viereck, 1908:402, ♀. Syntypes: USA: Arizona: Coconino County: Oak Creek Canyon 20 mi. east-southwest Flagstaff (Kansas Univ.). Synonymized with *Crossocerus maculipennis* by R. Bohart and Levin *in* R. Bohart and Menke, 1976:402. – LaBerge, 1956:526 (holotype in Snow Entomological Museum). – **As *Crossocerus canonicola***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:240 (in catalog of world Crabronini).

Crabro albertus Carter, 1925:135, ♂. Holotype: ♂, Canada: Alberta: Waterton Lakes (CNC). Synonymized with *Crossocerus maculipennis* by R. Bohart and Levin *in* R. Bohart and Menke, 1976:402. – Sarazin, 1986:306 (holotype in CNC). – **As *Crossocerus albertus***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:240 (in catalog of world Crabronini). – **As "*Solenius*" *albertus***: Strickland, 1947:128 (new generic assignment, Canada: Alberta: Waterton).

117.*maculitarsis* (Cameron)

Crabro maculitarsis Cameron, 1891a:154, ♀. Holotype or syntypes: ♀, Mexico: Guerrero: Omilteme (BMNH). – Dalla Torre, 1897:610 (in catalog of world Sphecidae). – **As *Podagritus maculitarsis***: Ashmead, 1899d:220 (new generic assignment, in checklist of North American Crabronidae).– **As *Crossocerus maculitarsis***: Leclercq, 1950b:17 (new generic assignment, precoxal tubercle), 1954c:229 (in catalog of world Crabronini), 1968c:95 (in key to *Crossocerus* of Latin America), 100 (Mexico: Guerrero: Zucumanatlán, discussion of relationships); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1670 (in catalog of North American Hymenoptera); Leclercq, 2000d:52 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae);

Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

118.*magniceps* Tsuneki

Crossocerus megachephalus Tsuneki, 1976b:109, ♀. Holotype: ♀, Philippines: Tawi Tawi: Tarawakan (ZMUC), junior secondary homonym of *Crossocerus megacephalus* (Rossi, 1790): Article 58.10. – **As *Crossocerus megacephalus***: Tsuneki, 1984f:12 (Philippines), 36 (in key to Crabronini of Philippines).

Crossocerus magniceps Tsuneki, 1977i:4. Substitute name for *Crossocerus megacephalus* Tsuneki, 1976. – Leclercq, 2009:161 (member of subgenus *Paroxycrabro*), 174 (in list of Asian *Crossocerus*, bibliographic references, discussion of name validity); Tano, 2010b:44 (member of sugenus *Paroxycrabro*, in list of Japanese subgenera of *Crossocerus*).

119. *malaisei* (Gussakovskij)

Crabro malaisei Gussakovskij, 1932:21, ♀. Holotype: ♀, Russia: Primorskiy Kray: Sutshan (Stockholm). – **As *Crossocerus malaisei***: Leclercq, 1954c:241 (new generic assignment, in catalog of world Crabronini), 1974e:663 (in key to Asian species of subgenus *Cuphopterus*), 666 (bibliographic referrence); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Marshakov, 1979a:93, 98 (in key to *Crossocerus* of Russian Far East); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430, 437 (in key to Sphecidae of Russian Far East); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:33 (Japan: Gifu Prefecture); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture); Kinota, Haneda, and Tano, 2005:30 (Japan: Hokkaido); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:25 (Japan: Toyama Prefecture); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve); S. Takahashi and Haneda, 2008a:58 (Japan: Hokkaido: Sapporo); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Ainocrabro*), 174 (in list of Asian *Crossocerus*, bibliographic references, differences between Gussakovskij's description of *malaisei* and those of *aino* Tsuneki and Marshakov, distribution in Asia); Nemkov, 2009b:100 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:42 (distribution in Japan); Tano, 2010b:38 (member of subgenus *Ainocrabro*, in list of Japanese subgenera of *Crossocerus*, as *malaise*); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano,

2014:2, 7 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:426 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:227 (in catalog of Crabroninae of Russia).

Crabro aino Tsuneki, 1947e:413, ♀. Holotype: ♀, Japon: Hokkaido: Jozankei (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus malaisei* by Marshakov, 1979a:93. – Tsuneki, 1948c:5 (Japan: Hokkaido); Hashimoto and Nakanishi, 1997:14 (holotype transferred to Hyogo Mus). – **As *Crossocerus aino***: Tsuneki, 1952c:69 (new generic assignment; Japan: Shikoku); Leclercq, 1954c:241 (in catalog of world Crabronini); Tsuneki, 1954b:58, 67 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 74 (type of subgenus *Ainocrabro*); Tsuneki and Tanaka, 1955a:68 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1957f:61 (Korea); Okuno, 1968:31 (Japan); Tsuneki, 1959n:68,73 (in revised key to *Crossocerus* of Japan and Korea), 1960g:35 (prey: *Panorpa bicornuta* MacLachlan, Mecoptera); Haneda, 1968a:46 (Japan), Tano, 1968:35 (Japan); Tsuneki, 1969k:64 (Japan: Mount Hyonosen); Tsuneki and Tano, 1969:30 (distribution in Japan); Tano, 1971:81 (Japan: Shikoku: Mount Tsurugi); Tsuneki, 1970b:11 (central Japan); Yamada, 1970:14 (Japan: Nagano Prefecture: Shimajima Valley); Itami, 1971:28 (Japan: new locality records); Tsuneki, 1971a:19 (Japan: Fukui Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:400 (in checklist of world Sphecidae); Tsuneki, 1979d:10 (Japan), 1982b:17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea).

120.*medidentatus* Q. Li and Wu

Crossocerus medidentatus Q. Li and Wu, 2003:525, ♀, ♂. Holotype: ♀, China: Szechuan: Emeishan: Xixiangchi (Inst. Zoology, Acad. Sinica, Beijing). – Q. Li and Wu, 2003:524 (in key to Chinese members of subgenus *Apocrabro*); Leclercq, 2009:161 (member of subgenus *Apoides*); Ma, Q. Li, Wang, Jiang, and Lu, 2018:825 (China: Shanxi: Qinling Mountains).

121. *megacephalus* (Rossi)

Crabro megacephalus Rossi, 1790:94, sex not stated. Holotype or syntypes: Italy: Etruria, now Toscana: no specific locality (destroyed). – **As *Crossocerus megacephalus***: Leclercq, 1974d:270 (new generic assignment, synonymy), 1975b:3 (France); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Haeseler, 1976b:73 (Germany: Friesian Islands: Island of Amrum); Lomholdt, 1976:403 (in Sphecid Fauna of Fennoscandia and Denmark); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Guichard, 1977:253 (Great Britain: Surrey); van der Zanden, 1977a:19 (Netherlands); Haeseler, 1978c:194 (Germany:

Friesian Islands: Island of Borkum); Pulawski, 1978:261, 264 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:421 (Germany: Württemberg); Haeseler, 1979:10 (Germany: Niedersachsen: 10 km south of Oldenburg); Leclercq, Gaspar, and Verstraeten, 1979:map 1456 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:97, 101 (in key to *Crossocerus* of Russian Far East); Richards, 1979:399 (British Channel Islands); Schmidt, 1979a:56 (Germany: Ost-Holstein); Marshakov, 1980c:348, 354 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Petit, 1980:43 (Belgium: Wéwercé, Wownck; Luxemburg: Pintsch); Richards, 1980:50, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:372 (Germany: Baden-Württemberg); Westrich, 1980:635 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Thiede, 1981:47 (Germany: Baden-Württemberg: Ulm, reared from artificial nest with acrylic tubes); Woydak, 1981:49 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Gayubo, 1982b:25 (Spain: Salamanca: Béjar); Dollfuss, 1983b:17 (in catalog of Sphecidae of Austria); Jacob-Remacle and Jacob, 1983:242 (Belgium: Liège Province: fagne de Malchamps near Spa); Lefeber, 1983a:85 (Netherlands: Waddendistrict: islands of Vlieland, Terschelling, Ameland, and Schiermonnikoog); Riemann, 1983:89 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Gayubo, 1984b:96 (Spain: previously recorded from Salamanca Province); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 1985c:571 (Germany: Friesian Islands); Józan, 1985b:59 (Hungary south of Lake Balaton), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Radović, 1985:65 (sting apparatus analyzed); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:71 (Germany: Südpfalz); Józan, 1986:372 (Hungary: Kiskunság National Park); Nemkov, 1986:102 (Russia: Irkutsk Oblast'); Skibińska, 1986b:151, 155 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 175 (various green urban habitats); Vikberg, 1986:77 (Finland); Crellin, 1987:35 (Great Britain: Isle of Man); Riemann, 1987a:340 (Germany: Niedersachsen: Bremen area); Schmidt and Westrich, 1987:373 (Germany: Mainz area); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford), 1988b:27 (Great

Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Haeseler, 1988:210 (Germany: Friesian Islands); Nilsson, 1988:99 (Sweden); Archer, 1989a:131 (Great Britain: York: found before coniferization); Bałazy, Banaszak, and Michalski, 1989:118 (Poland: Wielkopolski National Park); Jacobs, 1989:19 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:206 (Poland: Warszawa area), 1989b:291 (Poland: moist meadow in Warszawa area); Archer, 1990b:136 (Great Britain: city of Leicester), 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:190 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:23 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Nash, Boston, and Nelson, 1990:249 (Ireland: Down County); Pádr, 1990:85 (Czech Republic: Praha area); Pagliano, 1990:84 (in catalog of Italian Sphecidae); Schwammberger and Priesner, 1990:545 (Austria: Kärnten); Dollfuss, 1991:154 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:407 (Italy: Emilia: Sarsina); Gayubo and Torres, 1991:Table I (Spain: Salamanca; effects of urban pressure); Kowalczyk, 1991a:90, 99, 102, 105 (Poland: Łódź), 1991b:121 (Poland: Augustów Forest); Kuhlmann et al., 1991:88 (Germany: Senne Region); Nilsson, 1991:84 (Sweden: Lake Mälaren); Pagliano, 1991b:339, 345 (in key to Italian Crabroninae); Archer, 1992a:56 (Great Britain: Leicestershire), 1992b:21 (Great Britain: Yorkshire: Skipwith Common); Gusenleitner, 1992:686 (Austria: Steiermark; as *megalocephalus*); Józan, 1992b:174 (Hungary: Boronka-melléki Nature Reserve); Leclercq, 1992c:208 (prey); Nemkov, 1992b:247 (Russia: Far East: Shimanovsk near Khingan Nature Reserve); N. Schneider, 1992:177 (Luxemburg); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Archer, 1993c:39 (Great Britain: Yorkshire); Bitsch and Leclercq, 1993:112 (in revision of western European Crabroninae); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:20 (locality records from Europe, Turkey, Iran, and Kashmir: Gulmarg); Leclercq and Barbier, 1993:36 (map of distribution in France); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife near Altenahr); Józan, 1993:414 (Hungary: Bükk National Park); Sorg and Wolf, 1993:59 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Archer, 1994b:104 (British Channel Islands); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Theunert, 1994c:36 (Germany: summary of records from Niedersachsen and Bremen); Archer, 1995a:21 (Great Britain: Yorkshire: Blaxton);

Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:435, 440 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:90 (Italy: Ferrara Province); Riemann, 1995:52 (Germany: Bremen); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:173 (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, 1996a:58 (Great Britain: Channel Islands), 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); Harvey and Plant, 1996:70 (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, 1996:376 (Germany: Baden-Württemberg: not endangered); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg), 107 (locality records); Woydak, 1996:68 (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, 1997:10 (in checklist of German Sphecidae); 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); Dollfuss, Gusenleitner, and Bregant, 1998:518 (Austria: summary of collecting records from Burgenland); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings, as *megacefalus*); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józan, 1998:311 (Hungary: Duna-Dráva National Park); Kowalczyk, 1998:128 (Poland: Zakopane); Lefeber, 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); Shkuratov, 1998:98 (Russia: Rostov Oblast'); van der Smissen, 1998:56 (Germany: Schleswig-Holstein); K. Weber, 1998:136 (Germany: Bayern: Bamberg area); Archer, 1999a:9 (Great Britain: Lancashire), 1999b:82 (Great Britain: Yorkshire);

Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Gusenleitner, 1999:594 (Austria: Steiermark: locality records); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:9, 14 (in improved key to *Crossocerus* of Benelux); Ljubomirov, 1999b:53 (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 Land 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); Archer, 2000a:45 (Great Britain: Yorkshire), 2000c:115 (Great Britain: Lincolnshire); Beavis, 2000:64 (Great Britain: Cornwall: Isles of Scilly); Blösch, 2000:304 (in Sphecid Fauna of Germany); Dressler, 2000:31 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:50 (southeastern Kazakhstan: 3 km west-northwest of Medeo, 7-8 km south of Talgar); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:107 (Greece); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Luig and Voolma, 2000:124 (first record from Estonia); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire); Gayubo, González, and Torres, 2000:186 (Spain: Salamanca Province); Georgiev and Ljubomirov, 2000:42 (reared from larval galleries of cerambycid *Saperda populnea* L.); Ljubomirov, 2000:11 (Bulgaria: specimens in N. Nedelkov collection); M. Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); Melo, 2000:89 (use of nest by more than one female); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhine River); Archer, 2001b:14 (Great Britain: Watsonian Yorkshire); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 194 (review of known biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:138 (distribution in Germany by provinces); Reemer and van der Meer, 2001:16 (Netherlands: along Almelo-Nordhorn canal); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near

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Nature Reserve); Archer, 2006a:21 (Great Britain: Lincolnshire: Rauceby Warren National Park); Dollfuss, 2006:511 (Bulgaria, Greece, Morocco, Tajikistan); Edwards and Broad, 2006:42 (Great Britain: distribution, status, habitat, flight period, prey, nesting habits, flower visiting, parasites, and distribution map); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Gorobchishin, 2006:127 (Ukraine: Kyiv, village Kruglyk near Kyiv); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Humala, 2006:157 (Russia: Republic of Karelia: Kivach Nature Reserve); Kroupa, 2006b:25 (Germany: Bayern: Oberfranken Region); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Livory, Lair, Sagot, and Baldock, 2007:26 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dorow, 2007:263 (Germany: Hessen: Niddahänge Forest Reserve); Hallin, 2007a:154 (Sweden: Blekinge, Småland, Öland, and Närke counties), 2007b:25 (Sweden: Blekinge County); Herrmann, 2007a:51 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:134, 141 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józan, 2007:171, 179 (Hungary: Zselic hills); Leclercq, 2007f:192 (references to records from Greece); Piper, 2007:58 (nesting in dead wood, prey: *Chrysophilus asiliformis* (Preyssler), a rhagionid); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); G. Turrisi and R. Turrisi, 2007:118 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vago, 2007:175 (France: départements du Nord 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); K. Alexander, 2008:149 (Great Britain: Norfolk: Sheringham Park); Archer, 2008a:144 (Great Britain: Cumbria: Bamburgh Dunes); Haeseler, 2008:308 (Germany: Friesian Islands); Ljubomirov and Yildirim, 2008:264 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:22 (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, 2009:219 (in supplement to vol.

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Crabro aterrimus Stephens, 1829a:365, nomen nudum (in catalog of British insects, as *aterrima*, incorrect original termination). Synonymized with *Crabro leucostoma* = *Crossocerus megacephalus* by Richards, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).

Crabro spiniceps Stephens, 1829a:365, nomen nudum (in catalog of British insects, as Kirby's manuscript name) = *Crossocerus megacephalus* (Rossi, 1790). Synonymized with *Crabro leucostoma* = *Crossocerus megacephalus* by Richards, 1855:99. – Stephens, 1829b:33 (in checklist of British insects, as *spinipes*).

Crabro tarsalis Stephens, 1829a:365, nomen nudum (in catalog of British insects). Synonymized with *Crabro leucostoma* = *Crossocerus megacephalus* by Richards, 1855:99. – Stephens, 1829b:33 (in checklist of British insects).

Crabro bidens Haliday, 1833:516, ♂, junior primary homonym of *Crabro bidens* Schrank, 1802. Holotype or syntypes: ♂, Ireland: Bay of Dundrum N Dublin (depository?). Tentatively synonymized with ... by ..., synonymy confirmed by Bitsch and Leclercq, 1993:112.

Crossocerus niger Lepeletier de Saint Fargeau and Brullé, 1835:782, ♂. Holotype: ♂, France: Paris area (M. Spinola, collection, Torino). Synonymized with *Crossocerus megacephalus* by Leclercq, 1974d:271. – Lepeletier de Saint Fargeau, 1845:185 (in revision of world Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Bradley, 1957:47 (type in Turin); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:142 (specimens in M. Spinola collection, Torino, are *Crossocerus megacephalus*). – **As *Crabro niger***: Dahlbom, 1844:324 (new generic assignment, original description copied); F. Smith, 1856:411 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:611 (in catalog of world Sphecidae).

Crossocerus rufipes Lepeletier de Saint Fargeau and Brullé, 1835:784, ♂. Holotype or syntypes: ♂, France: Paris area (destroyed). Neotype: ♂, France: Forêt de Saint Germain (MNHN), designated by Leclercq, 1974d:271. Synonymized with … – Lepeletier de Saint Fargeau, 1845:187 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); de Gaulle, 1908:122 (in catalog of French Hymenoptera). – **As *Crabro rufipes***: Dahlbom, 1844:324 (new generic assignment, original description copied).

Crabro laeviceps F. Smith, 1856:412. Substitute name for *Crabro rufipes* (Lepeletier de Saint Fargeau and Brullé, 1835:784) Dahlbom, 1844:324, nec *Crabro rufipes* (Lepeletier de Saint Fargeau and Brullé, 1835:741) Dahlbom, 1845:381. – Dalla Torre, 1897:608 (in catalog of world Sphecidae, as *leviceps*).

Crabro bison A. Costa, 1884b:33 and 54, ♂. Holotype: ♂, Italy: Sardegna: Oristano (Napoli). Synonymized with *Crossocerus megacephalus* by Leclercq *in* R. Bohart and Menke, 1976:402. –

As *Crabro bison*: Dalla Torre, 1897:584 (in catalog of world Sphecidae).

Crossocerus bison A. Costa, 1884b:244, ♂. Objective synonym of *Crabro bison* A. Costa, 1884a.

?*Crabro zaidamensis* Radoszkowski, 1887a:45, ♀. Holotype or syntypes: ♀, China: Tsinghai: Zaidam region, now Tsaidam: no specific locality (Kraków). Tentatively synonymized with ... by ... – Kohl, 1915:227 (original description copied); Dalla Torre, 1897:637 (in catalog of world Sphecidae).

Coelocrabro leucostomoides Richards, 1935:166 (substitute name for *Crabro leucostoma* of Kohl, 1915 and authors, nec Linnaeus, 1758). Synonymized with *Crossocerus megacephalus* by Leclercq, 1974d:271. – Richards, 1937b:106 (in checklist of British aculeates); Guichard, 1939a:42 (Great Britain: southern Cornwall: Polperro), 1939b:77 (Great Britain: Surrey: Limpsfield Common); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1029 (Germany: Bayern: Bamberg area); Audcent, 1942:25 (mite parasites: *Microvibrissina villeneuvei* Wainv., *Oebalia cylindrica* Fall., *Moschusa polyodon* Meigen); J. Perkins, 1942:198 (Sweden: southern Skåne:); Spooner, 1942:110 (Great Britain: Bedfordshire); Boyd, 1943:163 (Great Britain: eastern Dorset); Richards, 1944a:118 (Great Britain: Wales: Cardigan); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Chesterton, Rodborough); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Blair, 1946:236 (list of prey); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Bristowe, 1948:30 (nesting habits); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Zavadil *in* Zavadil and Šnoflak, 1948:126, 130 (in key to Sphecidae of Czechoslovakia); Chambers, 1949:227 (Great Britain: Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Boreham, 1955:109 (nest parasites); Felton, 1963:178 (Great Britain: Kent County); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district). – **As *Crabro leucostomoides***: Tsuneki, 1947d:431 (new generic assignment, not occurring in Japan); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Saint-Béat, Hautes-Pyrénées: Cauterets); de Beaumont, 1954e:97 (Italy); Steiner, 1955:141 (France: Dordogne); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:148, 152 (in key to Polish Sphecidae); Ceballos, 1964:94 (in supplement to catalog of Spanish Sphecidae); Fæster, 1965:193 (Denmark: Hansted Nature Reserve); Niedl and Deneš, 1967:73 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:103 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151

(Czech Republic: Třeboň area); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:124 (Poland: Warszawa area); Kowalczyk, 1988b:66 (Poland: environs of Łódź). – **As *Crossocerus leucostomoides***: Leclercq, 1949a:8 (new generic assignment, Germany, Tunisia: Aïn Draham), 1951e:10 (bibliography of Belgian records); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Grandi, 1954:242 (Italy); Leclercq, 1954c:235 (in catalog of world Crabronini), 309 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); Leclercq, 1956i:132 (Luxemburg); Móczár, 1958a:264 (in annotated catalog of Hungarian Crabronini), 1958b:197 (Hungary: collecting localities); de Beaumont, 1959a:39 (Italy); Wolf, 1959b:33 (Germany: Nassau); Hoop, 1961:64 (Germany: Schleswig-Holstein: Kiel-Eichhof, Kronshagen, Steinfurth); de Beaumont, 1962b:28 (Spain); Grandi, 1962:98 (Italy); Valkeila, 1962b:68 (southwestern Finland); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:149 (in Sphecid Fauna of Switzerland); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:351 (Turkey); Gauss, 1967:559 (Germany: Baden-Württemberg); J. Heinrich, 1967:82 (Germany: Bayern: Aschaffenberg, Miltenberg); Leclercq, 1967a:33 (Great Britain: locality records); Benedek, 1968:77 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae and *Solidaga gigantea* Ait., Asteraceae), 1969a:85 (Hungary; marshy meadow); Lefeber, 1969b:99 (Netherlands: Sint-Pietersberg), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Zangheri, 1969:1707 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:103 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Hoop, 1970:60 (Germany: Schleswig-Holstein: Kolberger Heide); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:785 (Democratic Germany); Leclercq, 1971:214 (Spain); Schmidt, 1971c:75 (Germany: Schleswig-Holstein); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1972:157, 165, 200 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:173 (Kazakhstan); Kofler, 1972:115 (Austria: eastern Tirol); Oehlke, 1972:141 (Germany: Island of Hiddensee); Erlandsson, 1974:85 (Italy); Frilli and Pizzaghi, 1975:53 (Italy: Cerignale in Piacenza Province); Lefeber, 1975b:119 (Netherlands: Schiepersberg); Lomholdt, 1975b:32 (Denmark: Anholt Island); Marshakov, 1975b:335 (Mongolia); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:99 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Schmidt, 1977/78:58 (Germany: Rheinland-Pfalz: Mainzer Sand); Benedek, 1979:235

(Hungary: Bakony Hills); Pagliano, 1980:121 (Italy: Piemonte); Salzmann-Wandeler, 1998a:98 (Switzerland: Luzern Canton: Sempach); Srba, 1999:181 (Czech Republic: Chomutov).

As *Crabro leucostoma* (misidentification, corrected by Richards, 1935a): Rossi, 1790:91 (Italy: in revision of insects of Etruria, now Toscana); Olivier, 1792a:518 (redescription); Vander Linden, 1829:63 (bibliographic references, description of ♀, Belgium: Bruxelles, France: Lille); Shuckard, 1837a:153 (in revision of British Aculeata); Dahlbom, 1839:36 and 1839-40 (in revision of Scandinavian Crabronini); Zetterstedt, 1838:444 (in revision of insects of Lapland); Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:341 (in revision of Sphecidae and Pompilidae), 1845:524 (in key to *Crabro*); Lepeletier de Saint Fargeau, 1845:180 (in revision of world Hymenoptera); F. Smith, 1849b:1551 (preying on Diptera); Eversmann, 1849:420 (Russia: between Ural Mountains and Volga); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); F. Smith, 1849b:2551 (nesting habits); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:28 (Great Britain: nesting in decaying wood); Wesmael, 1852:599 (Belgium: Bruxelles); Kirchner, 1854:313 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); F. Smith, 1858c:131 (in review of British Aculeata, redescription); Assmuss, 1859:618 (Russia: Moscow Governorate); Schenck, 1860:146 (Germany: Nassau Region); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region); A. Costa, 1863:66 (Italy: Calabria Ulteriore: Aspromonte); A. Morawitz, 1866a:270 and 1866b:347 (specimens in Eversmann collection); Jaennicke, 1867:146 (Germany: Hessen: Frankfurt area); Schenck, 1867a:351 (Germany: Nassau Region); von Aichinger, 1870:314 (Austria: Tirol); Thomson, 1870:161 (in revision of Swedish Crabroninae); A. Costa, 1871b:58 (in revision of Italian Sphecidae); F. Smith, 1871b:14 (in catalog of British Aculeata); Schlechtendal, 1872:36 (Germany: Sachsen: Zwickau); Dours, 1874:155 (in catalog of Hymenoptera of France); Mocsáry, 1874:120 (Siebenbürgen: Hermannstadt, now Romania: Transylvania: Sibiu, as *leucostomus*); Thomson, 1874:266 (in revision of Hymenoptera of Scandinavia, as *leucostomus*); Wierzejski, 1874:261 (Ukraine: Podole Region: Kalinowce, Sinków, Skała, Warwaryńce); Taschenberg, 1875:382 (Germany: Stralsund); Beuthin, 1876:230 (Germany: Hamburg area); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county: Wakefield, by F. Smith, 1858); Kohl, 1880:124 (Austria:

Tirol, and Italy: Trentino-AltoAdige); E. Saunders, 1880:283 (in revision of British Aculeata); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Schøyen, 1881:12 (correction to Siebke, 1880); Kohl, 1883e:654 (Switzerland); Sickmann, 1883:71 (Germany: Niedersachsen: Wellingholthausen); Harwood, 1884:211 (England: Essex: Colchester area); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Emmelsbüll, Husum, Sonderburg); Dalla Torre, 1889:47 (Germany: Helgoland); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated); Kohl, 1893a:22 (Austria: Niederösterreich); Sickmann, 1893:67 (Germany: Niedersachsen: Iburg); Fletcher, 1889:400 (nesting in willow trunk, prey: Dolichopodidae, nest parasites: *Tryphon* sp. and a tachinid); von Dalla Torre, 1889:47 (Germany: Helgoland); Brischke, 1892:28 (Germany: Radaue River valley west of Danzig, now Poland: Radunia River west of Gdańsk); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); Krieger, 1894:4 (Germany: Kingdom of Saxony); Freke, 1896:41 (Ireland); Meunier, 1896:270 (Belgium: Bruxelles area); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); E. Saunders, 1896:129 (in revision of British Aculeata); Borries, 1897:37 (nesting habits, as *leucostomus*); Mocsáry, 1897:83 (Kingdom of Hungary, localities are in today's Romania and Slovakia); Strand, 1898b:95 (Norway; as *leucostomus*); Nevinson, 1900:62 (Great Britain: Wales: Criccieth, Towyn); A. Carter, 1901a:67 (Great Britain: Scotland: Perthshire: Comrie); N. Arnold, 1902:88 (Russia: Mohilev Province, now Belorussia); Friese, 1902:478 (occurring in Lapland according to Zetterstedt, 1838); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay, as *leucostomus*); E. Saunders, 1902a:52 (southwestern Ireland; as *leucostomus*), 1902b:143 (British Channel Islands: Island of Jersey; as *leucostomus*); J. Nielsen, 1903:111 (nesting habits, as *leucostomus*); Antiga and Bofill, 1904:24 (Spain: Cataluña Province); Aurivillius, 1904:294 (in revision of Swedish Sphecidae); Schmiedeknecht, 1907:193, 196 (in key to Hymenoptera of Central Europe); Morley, 1909:305 (Great Britain: Isle of Wight, as *leucostomus*); Orr, 1909a:25 (Ireland: Down County); Cavro, 1910:685 (France: Département du Nord); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Morley, 1911:24 (Western Ireland: Westport); Hallett, 1912:94 (Great Britain: Glamorgan County, as *leucostomus*); Rudow, 1912:75 (nesting in raspberry twigs, in *Crossocerus*); Alfken, 1914:273 (northwestern Germany); Birula, 1914:376 (Belorussia: Ambrosovichi near Vitebsk); Szilády, 1914:89 (Hungary: Nyirmező); Kohl, 1915:224

(in revision of Palearctic Crabronini); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: Dolina Kościeliska); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921b:156, 158 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Berland, 1925d:184 (in Sphecid Fauna of France); Bischoff, 1925:298 (Poland: Białowieża and Grajewo area); Grönblom, 1925:3 (nesting habits); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); R. Perkins, 1925:152 (Great Britain: Gloucestershire and Somersetshire); Saunt, 1925:257 (preying on Anthomyiidae, Syrphidae, and Trypetidae); Schütze, 1925:110 (Germany: Lausitz Region); Shestakov, 1925:35 (Russia: Yaroslavl' area); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:149 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Lauterborn, 1926:7 (Germany: Baden-Württemberg: Sasbach); Zavadil, 1926:33 (Czechoslovakia); Benoist, 1928:410 (France: Basses-Alpes: Larche); Berland, 1928b:180 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Eidmann, 1928:486 (nesting in tree trunks); Blüthgen, 1929:82 (Germany: Saale River valley: Naumburg); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Bouwman, 1930:99 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:651, 655 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:143 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: Solbosch); Jones, 1932:82 (Great Britain: Nottinghamshire, as *leucostomus*, comparison with *Blepharipus nigritus* and *B. cetratus*); Bondroit, 1933:32 (Belgium: Bruxelles, Forêt de Soignes, Uccle); Chambers, 1933:188 (Great Britain: Bedfordshire; as *leucostomus*); E. Nielsen, 1933:266 (summary of nesting habits); Jansson, 1934:287 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Minkiewicz, 1935:219 (Poland: Lake Garbaś 20 km west of Suwałki); Steck, 1935:324 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:129 (Poland: Łowicz); Wnukowskij, 1936:128 (Russia: Western Siberia: Tomsk); Dulac, 1937:21 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Zavadil, Šustera, and Bat'a, 1937:160 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:86 (Japan: Hokkaido); A. Wagner, 1938a:117 (northwestern Germany); Gussakovskij, 1940:84 (Tajikistan: Hissar Range); Leclercq, 1941b:15 (Belgium: Liège area); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Cavro, 1950:39 (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); Vogrin, 1955:42 (Yugoslavia); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg). – **As *Blepharipus leucostomus***: R. Perkins, 1913b:389, 392 (new generic assignment, in key to British Crabronini), 1924:225 (Great Britain: Devon); Hamm and Richards, 1926:309 (summary of nesting habits, as *leucostomus*), 323 (list of prey); Stelfox, 1927:298 (Ireland: list of localities, as *leucostomus*); Butterfield and Fordham, 1931:157 (Great Britain: Yorkshire); Stelfox, 1931:16 (Great Britain: Cambridgeshire, as *leucostomus*); Jones, 1932:233 (Great Britain: Wicken Fen, as *leucostomus*); Routledge, 1933:89 (England: Cumberland; as *leucostomus*); Hallett, 1938:72 (Great Britain: Herefordshire: Mathon, Ross-on-Wye, West Malvern, Tarrington, as *leucostomus*); Vago, 2005a:14 (*Crabro leucostoma* in Cavro, 1950 is *Crossocerus megacephalus* now). – **As *Coelocrabro leucostoma***: J. Nielsen, 1901a:259 (new generic assignment, nesting habits, as *leucostomus*); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Graeffe, 1911:44 (Italy: Trieste area, as *leucostomus*); Schirmer, 1912:164 (Germany: Berlin area); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Jansson, 1922:25 (Sweden: Island of Öland, as *leucostomus*); Hémon, 1926:199 (France: Finistère: Fouesnant); Maneval, 1928:30 (nest and prey); Baudot, 1931:255 (characteristics of cocoon); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Murray, 1938:172 (Scotland: Dumfriesshire; as *leucostomus*); Coulon, 1925:124 (Germany); Struve, 1937:149 (Germany: Island of Borkum); J. Murray, 1938a:172 (Great Britain: Scotland: Dumfriesshire: Gretna, as *leucostomus*); Głowacki, 1953:518 (Poland: Podkowa Leśna near Warszawa). – **As *Crossocerus leucostoma***: Lepeletier de Saint Fargeau and Brullé, 1835:777 (new generic assignment, in revision of Crabronini); Kirchner, 1854:313 (Czechoslovakia); Ruthe and Stein, 1857:315 (Germany: Berlin area); Taschenberg, 1858:108 (in key to Sphecidae of Germany); Funk, 1859:58 (Germany: Bayern: Bamberg); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Borries, 1897:37 (nesting habits); Nielsen, 1903:111 (nesting habits; as *leucostomus*); Boreham, 1953:181 (nesting habits, communal nesting; as *leucostomus*); Bradley, 1957:47 (Lepeletier's specimens in Turin).

As *Crossocerus niger*: Pagliano, 2011a:142 (*Crossocerus niger* in M. Spinola collection, Torino, are *Crossocerus megacephalus*).

122.*melanius* (Rohwer)

Thyreopus melanius Rohwer, 1911b:565, ♀, ♂. Holotype: sex not stated, Mexico: Chihuahua: "Meadow Valley" (USNM). – **As**

Crossocerus melanius: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:238 (in catalog of world Crabronini), 1968c:94 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1671 (in catalog of North American Hymenoptera); Leclercq, 2000d:53 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Dollfuss, 2006:511 (Mexico: Chiapas: Nexapa).

123.*melanochilos* Pate

Crossocerus melanochilos Pate, 1944a:277, ♀, ♂. Holotype: ♀, Taiwan: Taihoku (USNM). – Leclercq, 1954c:219 (in catalog of world Crabronini); Tsuneki, 1966d:1 (Taiwan, listed), 1968g:28 (Taiwan; in key to Crabronini of Taiwan and Ryukyus); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Leclercq, 1978a:121, 122 (in key to Asian species of subgenus *Yuchiha*); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:162 (member of subgenus *Yuchiha*), 175 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Yuchiha*, in list of Japanese subgenera of *Crossocerus*).

124.*mexicanus* Leclercq and Miller

Crossocerus mexicanus Leclercq and Miller *in* Leclercq, 2000d:53, ♀, ♂. Holotype: ♂, Mexico: México: western slope of Popocatepetl volcano (Cornell Univ.). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Dollfuss, 2006:511 (Mexico: Chiapas: Nexapa).

125.*micemarginatus* Q. Li and He

Crossocerus micemarginatus Q. Li and He, 2004:1083, 1209, ♀, ♂. Holotype: ♀, China: Zhejiang: Zhoushan (Zool. Inst., Acad. Sinica, Beijing). – Leclercq, 2009:161 (member of subgenus *Crossocerus*, as *nicemarginatus*), 176 (in list of Asian *Crossocerus*, bibliographic references, as *nicemarginatus*).

126.*microcollaris* (Q. Li and He)

Crabro microcollaris Q. Li and He, 2001:755 and 758, ♀, ♂. Holotype: ♀, China: Tianmushan Nature Reserve at 30°22'N 119°26'E (Zhejiang Univ.). – Q. Li and Wu, 2003:524 (in key to Chinese members of subgenus *Apocrabro*); Q. Li and He, 2004:1078 (China: in hymenopterous fauna of Zhejiang Province); Leclercq,

2009:161 (member of subgenus *Apoides*), 175 (in list of Asian *Crossocerus*, bibliographic references).

127.*micromegas* (de Saussure)

Crabro micromegas de Saussure, 1892:575, ♀. Holotype: ♀, Madagascar: Anatananarivo (MHNG). – Dalla Torre, 1897:610 (in catalog of world Sphecidae); W. Schulz, 1911b:184 (study of type, subgeneric position). – **As *Microcrabro micromegas***: Arnold, 1945:185 (new generic assignment, Madagascar). – **As *Crossocerus micromegas***: Leclercq, 1954c:221 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Pulawski, 2003b:796 (in checklist of Malagasy Sphecidae); Leclercq, 2008:7, 9 (in key to Afrotropical *Crossocerus*), 19 (bibliographic references, additional description of holotype); Madl, 2014a:950 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality record, as *Crossocerus micromegas micromegas*).

ssp. *bekiliensis* (Arnold)

Crabro brunniventris race *bekiliensis* Arnold, 1945:180, ♀, ♂. Syntypes: Madagascar: Bekily (MNHN). – Leclercq, 1954c:221 (in catalog of world Crabronini), 304 (nest and prey records); 1958a:14, footnote (diagnostic characters), 17 (Madagascar: Bekily, Ivondro). – **As *Crossocerus brunniventris bekiliensis***: R. Bohart and Menke, 1976:400 (new generic assignment, new status, in checklist of world Sphecidae); Pulawski, 2003b:796 (in checklist of Malagasy Sphecidae). – **As *Crossocerus micromegas bekiliensis***: Leclercq, 2008:7 (in key to Afrotropical *Crossocerus*), 19 (new status, bibliographic references, locality records from Madagascar, additional description); Madl, 2014:950 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality records).

128.*miellati* Leclercq

Crossocerus miellati Leclercq, 1961b:73, ♂. Holotype: ♂, Zaire: Garamba National Park (MRAC). – R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Leclercq, 2008a:10 (in key to Afrotropical *Crossocerus*), 19 (bibliographic references).

129.*minamikawai* Tsuneki

Crossocerus minamikawai Tsuneki, 1966e:36, ♀. Holotype: ♀, Japan: Shizuoka Prefecture: Kanayama-machi (originally K. Tsuneki collection, now Hyogo Mus.). – Nambu, 1968:22 (Japan); Tsuneki and Tano, 1969:31 (distribution in Japan); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Tano, 1994b:43 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 440 (in key to

Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species), 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 175 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:103 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:43 (distribution in Japan); Tano, 2010b:40 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Antropov, 2017b:228 (in catalog of Crabroninae of Russia).

130.*mindanaonis* Tsuneki

Crossocerus mindanaonis Tsuneki, 1984f:13, ♀ (subgenus *Blepharipus*). Holotype: ♀, Philippines: Island of Mindanao: Bukidnon: Sungeo (originally K. Tsuneki collection, now USNM). – Tsuneki, 1984f:37 (in key to Crabronini of Philippines); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to C. Nozaka, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:45 (holotype in K. Tsuneki collection); Dollfuss, 2006:511 (Laos: 17 km east-northeast Oudom Xai); Leclercq, 2009:162 (new subgeneric generic assignment, member of subgenus *Yambal*), 175 (in list of Asian *Crossocerus*, bibliographic references, diagnostic caracters of subgenus *Yambal*); Tano, 2010b:45 (member of *Yambal*, in list of Japanese subgenera of *Crossocerus*), 2020:26 (holotype in USNM).

131. *minimus* (Packar) *Blepharipus minimus* Packard, 1867:377, ♀, ♂. Syntypes: USA: Maine: Brunswick (ANSP). – Provancher, 1882:133 and 1883b:667 (in revision of Canadian Hymenoptera). – **As *Crabro minimus***: Cresson, 1887:285 (new generic assignment, in catalog of North American Hymenoptera); W. Fox, 1895a:188 (in revision of North American Crabronini); Dalla Torre, 1897:610 (in catalog of world Sphecidae); nec Harrington, 1902:… (= *Crossocerus lentus*); Rohwer, 1916b:671 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae); Rohwer *in* Viereck, 1925:671 (in key to Sphecidae of Connecticut); Brimley, 1938:450 (North Carolina: Aberdeen). – **As *Solenius minimus***: J.Ch. Bradley, 1928:1020 (new generic assignment, in catalog of New York Sphecidae). – **As *Crossocerus minimus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey); Harrington, 1902:220 (Canada: Ontario: Ottawa, new generic assignment); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Leclercq, 1954c:228 (in catalog of world Crabronini);

Krombein, 1952b:181 (USA: West Virginia: Lost River State Park); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1667 (in catalog of North American Hymenoptera); Finnamore, 1982:148 (in Sphecid Fauna of southern Quebec); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Finnamore, 1997:889 (Canada: Yukon); Leclercq, 2000d:54 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, New Brunswck, Northwest Terriories, Ontario, Quebec, Yukon Territory, first records from Manitoba and Saskatchewan: no specific locality), 287 (synonymy, diagnostic charactrs).

Crabro propinquus W. Fox, 1895a:189, ♀, junior primary homonym of *Crabro propinquus* Shuckard, 1837a. Lectotype: ♀, USA: Texas: no specific locality (ANSP), designated by Cresson, 1928:55. Synonymized with *Crossocerus minimus* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020. – **As *Crossocerus propinquus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae).

Crabro eriogoni Rohwer, 1908b:256, ♀. Holotype or syntypes: ♀, USA: Colorado: Boulder County: Jim Creek (USNM). Synonymized with *Crossocerus minimus* by Buck and Bennett, 2025:287. – Rohwer, 1908b:258 (in key to *Crabro* of Colorado and New Mexico). – **As *Crossocerus eriogoni***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:228 (in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (as new synonym of *Crossocerus scutellifer*); Krombein, 1979b:1666 (as valid name, in catalog of North American Hymenoptera, nesting sites, list of prey); Leclercq, 2000d:39 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae) Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

Crossocerus pelas Pate, 1944a:280. Substitute name for *Crabro propinquus* W. Fox.

ssp. *eriogonoides* Leclercq and Miller

Crossocerus eriogoni eriogonoides Leclercq and Miller *in* Leclercq, 2000d:40, ♀, ♂. Holotype: ♂, USA: California: Inyo County: Westgard Pass (UCD).

132.*minor* Tsuneki

Crossocerus minor Tsuneki, 1990a:90, ♀, ♂ (subgenus *Yambal*). Holotype: ♂, Japan: Okinawa: Kunigami. Mura: Yona (originally

K. Tsuneki collection, now Hyogo Mus.). – Tano, 1994a:7 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype and paratype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species); Leclercq, 2009:162 (member of subgenus *Yambal*), 175 (in list of Asian *Crossocerus*, bibliographic references); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan); Tano, 2010b:45 (member of subgenus *Yambal*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:3, 9 (in key to *Crossocerus* of Japan).

133.*minotaurus* Leclercq

Crossocerus minotaurus Leclercq, 2009:175, ♀. Holotype: ♀, Philippines, Mindanao: Kolambugan (USNM). – Leclercq, 2009:162 (member of subgenus *Yambal*); Tano, 2010b:45 (member of subgenus *Yambal*, in list of Japanese subgenera of *Crossocerus*).

134.*minutulus* (Arnold)

Crabro minutulus Arnold, 1944:33, ♂. Holotype: ♂, Zimbabawe: Vumbu Mountains (SAM). – **As *Crossocerus minutulus***: Leclercq, 1954c:235 (new generic assignment, in catalog of world Crabronini), 1958a:10 and 11 (in key to Afrotropical *Crossocerus*), 25 (Zaire: northern Kivu); R. Bohart and Menke, 76:402 (in checklist of world Sphecidae); Leclercq, 2008:5, 9 (in key to Afrotropical *Crossocerus*), 12 (bibliographic references, Somalia: Afgoi, recognition).

135.*morawitzi* (Gussakovskij)

Crabro morawitzi Gussakovskij, 1952:263, ♀, ♂. Lectotype: ♀, Tajikistan: Kondara Canyon 35 km north of Dushanbe (ZIN), designated by Marshakov, 1980c:358. – **As *Crossocerus morawitzi***: R. Bohart and Menke, 1976:402 (new generic assignment, in checklist of world Sphecidae); Marshakov, 1980c:342, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Tajikistan), 358 (redescription); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Dollfuss, 2006:511 (Kyrghyzstan: Terek-Sai; Tajikistan: Pendzhikent); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 176 (in list of Asian *Crossocerus*, bibliographic references).

136.*mukalanae* Leclercq

Crossocerus mukalanae Leclercq, 1986a:244, ♀ (subgenus *Ablepharipus*). Holotype: ♀, Sri Lanka: Ratnapura District: Sinharaja Forest: Weddagala (USNM). – Krombein, Norden, Rickson, and Rickson, 1999:18 (nesting in domatia of *Humboldtia laurifolia*, nest, prey, immature stages); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 176 (in list of Asian *Crossocerus*, bibliographic references).

137.*neimonmgolensis* Q. Li and L.F.Yang

Crossocerus *neimongolensis* Q. Li and L.F.Yang, 2002:107, 109, ♀. Holotype: ♀, China: Nei Mongol Autonomous Region: Siziwangqi (Academia Sinica). – Leclercq, 2009:161 (member of subgenus *Crossocerus*), 176 (in list of Asian *Crossocerus*, bibliographic references).

138.*nemeci* Říha

Crossocerus nemeci Říha, 2008:131, ♀, ♂. Holotype: ♂. Malaysia: Pahang: Tanah Rata 35 km east-southeast of See Ipoh in Cameron Heights at 4°28'N 101°23'E (M. Říha personal collection, Brno, Czech Republic).

139.*nigritus* (Lepeletier de Saint Fargeau and Brullé)

Blepharipus nigritus Lepeletier de Saint Fargeau and Brullé, 1835:729, ♀ (as *nigrita*, incorrect original termination). Syntypes: ♀, France: Paris area (destroyed). Neotype: ♀, France: Yvelines: Maison Laffitte (MNHN), designated by Leclercq, 1973b:52. – Lepeletier de Saint Fargeau, 1845:134 (in revision of world Hymenoptera, as *nigrita*); Kirchner, 1867:224 (in catalog of European Hymenoptera); P. Ivanov, 1872:151 (Ukraine: Khar'kov Oblast': Kupyansk area, as *nigrita*); Dours, 1874:154 (in catalog of Hymenoptera of France); Yaroshevskiy, 1881:122 (Ukraine: Khar'kiv Oblast': Kupyansk, as *nigrita*); Acloque, 1897:87 (in Sphecid Fauna of France and Algeria, as *nigrita*); R. Perkins, 1913b:389 (in key to British Crabronini), 1925:152 (Great Britain: Gloucestershire and Somersetshire); Hallett, 1927a:39 (Great Britain: Cardiff: Kenfig Castle); Jones, 1932:82 (Great Britain: Nottinghamshire: Bramcote). – **As *Coelocrabro nigritus***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera); R. Perkins, 1924:225 (Great Britain: Devon, as *nigritus*); Spooner, 1931:16 (Great Britain: Cambridgeshire); Spooner, 1935:139 (Great Britain: Northamptonshire: Ashton Wold). – **As *Crabro nigritus***: Dahlbom, 1844:320 (new generic assignment, original description copied); F. Smith, 1856:411 (in catalog of Hymenoptera in British Museum); A. Morawitz, 1864:457 (Russia: Sankt-Petersburg, as *nigrita*), 1866a:270 and 1866b:347 (specimens in E. Eversmann collection); Dalla Torre, 1897:612 (in catalog of world Sphecidae); Aurivillius, 1904:294 (in revision of Swedish Sphecidae); R. Perkins, 1916:14 (*Crabro inermis* and *C. pubescens* are synonyms, color variation, male diagnostic characters), 1919a:9 (*Crabro nigritus* is the correct name for *C. pubescens* of E. Saunders, 1902); Lundblad, 1924:22 (Sweden: Lappland: Lycksele); Scott, 1925:157 (nest and prey); Bondroit, 1933:32 (Belgium: Forêt de Soignes, Uccle; as *nigrita*); Stelfox, 1939b:203 (Ireland: Kerry County). – **As *Crossocerus nigritus***: Kirchner, 1867:225 (new generic assignment, in catalog

of European Hymenoptera, as *nigrita*); Leclercq, 1974d:421 (synonymy), 1975b:3 (France); Lomholdt, 1975b:32 (Denmark: Island of Anholt); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Lomholdt, 1976:402 (in Sphecid Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Schmidt, 1977:99 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Pulawski, 1978:261, 264 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:421 (Germany: Württemberg); Haeseler, 1979:10 (Germany: Niedersachsen: 10 km south of Oldenburg); Leclercq, Gaspar, and Verstraeten, 1979:map 1457 (Belgium); Marchal and Leclercq, 1979:10 (Belgium: Gembloux); Marshakov, 1979a:97, 101 (in key to *Crossocerus* of Russian Far East); Schwammberger, 1979:118 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Marshakov, 1980c:348, 354 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Pagliano, 1980:121 (Italy: Piemonte); Richards, 1980:50, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:372 (Germany: Baden-Württemberg); Westrich, 1980:635 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Woydak, 1981:49 (Germany: Westfalen: Hamm); Dollfuss, 1983b:17 (in catalog of Sphecidae of Austria); Riemann, 1983:89 (Germany: Bremen-Daverden area); Gayubo and Tormos, 1984:18 (Spain: Valencia); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Haeseler, 1985a:350 (Germany: Schleswig-Holstein), 1985c:571 (Germany: Friesian Islands); Józan, 1985b:59 (Hungary south of Lake Balaton: Mernye area), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:71 (Germany: Südpfalz); Nemkov, 1986:102 (Russia: Irkutsk Oblast'); Skibińska, 1986b:155 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 175 (various green urban habitats); Steiner, 1986:107 (references to publications on nesting habits); Vikberg, 1986:77 (Finland); Haeseler, 1987b:668 (Germany: Ipweger Moor near Oldenburg); Riemann, 1987a:340 (Germany: Niedersachsen: Bremen area), 1987b:34 (Germany: Niedersachsen: Nature Reserve Dünengebiet near Neumühlen); Archer, 1988b:26 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:27 (Austria: Niederösterreich: Oberweiden); Archer, 1989a:131 (Great Britain: York:

found before coniferization); Jacobs, 1989:19 (Germany: Mecklenburg-Vorpommern); Skibińska, 1989a:206 (Poland: Warszawa area); Weiffenbach, 1989:111 (Germany: Hessen: Gießen area); Archer, 1990c:16 (Great Britain: Leicestershire); Gayubo, Asís, and Tormos, 1990b:76 (Spain: León Province); Jacobs and Oehlke, 1990:190 (new records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Pagliano, 1990:85 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:545 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:154 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 94, 97, 99, 102, 105 (Poland: Łódź); Negrisolo, 1991:321 (Italy: Treviso Province); Pagliano, 1991b:339, 343 (in key to Italian Crabroninae); von der Heide, 1991:63 (Germany: peat bog near Oldenburg); Archer, 1992a:56 (Great Britain: Leicestershire), 1992b:21 (Great Britain: Yorkshire: Skipwith Common); Budrys, 1992:34 (in list of Sphecidae of Lithuania); Gusenleitner, 1992:686 (Austria: Steiermark); Józan, 1992c:289 (Hungary: Zselic Hills); Nilsson, 1992:55 (Sweden); N. Schneider and Jacob-Remacle, 1992:42 (Luxemburg); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Bitsch and Leclercq, 1993:113 (in revision of western European Crabroninae); Jakubzik and Cölln, 1993a:136 (Germany: Rheinland-Pfalz: Bernkastel-Kues; nesting in stems of *Rubus*), 138 (prey); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:20 (locality records from Europe); Leclercq and Barbier, 1993:37 (map of distribution in France); Koponen, 1994:22 (Finland: Siikajoki); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Theunert, 1994c:36 (Germany: summary of records from Niedersachsen and Bremen); Archer, 1995a:23 (Great Britain: Yorkshire: frequency); Archer and Burn, 1995:59 (Great Britain: Yorkshire: Crow Wood near Finningley); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:435, 440 (in key to Sphecidae of Russian Far East); Scharrer, 1995:26 (Germany: Bayern: Aschaffenburg, Damm); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:173 (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); Arens, 1996:442 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); 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); Menke, 1996b:11 (distribution is Holarctic); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:105 (Germany: Brandenburg); Woydak, 1996:69 (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, 1997:10 (in checklist of German Sphecidae); Blösch, 1998:166 (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, 1998:518 (Austria: summary of collecting records from Burgenland); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Józan, 1998:, 307312 (Hungary: Duna-Dráva National Park); Kowalczyk, 1998:128 (Poland: Zakopane); 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., Polygonacae); N. Schneider and Wahis, 1998:20 (Luxemburg: sandstone quarries); Tscharntke, Gathmann, and Steffan-Deventer, 1998:718 (trap-nesting in Germany); van der Smissen, 1998:56 (Germany: Mecklenburg-Vorpommern, Niedersachsen, Schleswig-Holstein); K. Weber, 1998:137 (Germany: Bayern: Bamberg area); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Herrmann, 1999:8 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:9, 14 (in improved key to *Crossocerus* of Benelux); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Mandery, 1999:104 (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, 1999:87 (Austria: Oberösterreich: city of Linz area); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:305 (in Sphecid Fauna of Germany); Cölln and Jakubzik, 2000:226 (Germany: Rheinland-Pfalz: Gönnersdorf); Georgiev and Ljubomirov, 2000:42 (reared from larval galleries of cerambycid *Saperda populnea* L.); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains, as *nigrizus*); Leclercq, 2000d:55 (in revision of New World *Crossocerus*); Luig and Voolma, 2000:124 (first record from Estonia); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhine River); Archer, 2001b:14 (Great Britain: Watsonian Yorkshire); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 195 (review of known biology); Ohl et al., 2001:138 (distribution in Germany by provinces); Salzmann-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); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: not endangered); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Archer, 2002b:116 (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); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Kazenas, 2002a:100 (geographic distribution, collecting localities in Kazakhstan); Litt, 2002:167 (Belgium); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); 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, 2003:136 (Germany: Hessen: Lahntal near Wetzlar); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert,

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Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald, as *nigrinus*); Chevin, Livory, Lair, Sagot, and Baldock, 2007:26 (France: Département de la Manche); Flügel, 2007:39 (Germany: Hessen: Halberg near Neumorschen); Hallin, 2007:154 (Sweden: Skåne, Blekinge, and Närke counties); Jacobs, 2007:134, 141 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józan, 2007:179 (Hungary: Zselic hills); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Smit and Megens, 2007:17 (Netherlands: Noort Brabant: vicinity of Leende); Vago, 2007:175 (France: départements du Nord 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), 229 (*Crossoceorus pubescens* and *C. inermis* are synonyms of *C. nigritus*); Winkler, 2007:29 (Germany: Niedersachsen: eastern Friesland); Archer, 2008d:21 (Great Britain: Watsonian Yorkshire: Burton Leonard Lime Quarry and Duncombe Park); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Haeseler, 2008:308 (Germany: Friesian Islands); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:59 (Japan: Hokkaido: Sapporo); Theunert, 2008:23 (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, 2009:219 (in supplement to vol. I of Faune de France, 1993: France: Hautes-Alpes: Guil Valley); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of central Hessen); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 176 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Mokrousov, 2009:281 (Russia: Republic Mari El); Nemkov, 2009b:103 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:181 (Italy: recorded from Trentino-

Alto Adige by Kohl, 1880); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Bukovec); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren); Esser, Fuhrmann, and Venne, 2010:35 (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, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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:61 (Russia: Kostroma and Nizhniy Novgorod Oblast's, Mari El Republic: no specific localities); Rudoiskatel', 2010:157 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:40 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:336 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor and Thorne Moor); Baghirov, 2011b:145 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Falk, 2011:64 (Great Britain: Sussex: South Downs); Gogala, 2011:19 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof); Theunert, 2011:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:123 (Germany: Hessen: not endangered); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:182 (Great Britain: urban York); Boillat, 2012:226 (Switzerland: in checklist of insects of Canton de Genève); Burguet *in* Durand and Burguet, 2012:2, fiche 3 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots);

Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); 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, 2013:194 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Piotrowski, 2013:20 (Poland: Poleski National Park); Wiśniowski and Szczepko, 2013:30 (Poland: Kampinos National Park near Warszawa); Bitsch, 2014:401 (France: Ariège: Ascou-Pailhères); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Haneda, Murota, Kurokawa, and Tano, 2014:3, 11 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Seine-Maritime Department: Anneville-Ambourville); Blažej, Macek, and Trýzna, 2016:118 (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, 2016:16 (in checklist of Aculeata of Great Britain and Ireland: England, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Fresno, 2017:153 (Spain: León: Rodiezmo); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:94 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:97 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:57 (in revision of Sphecidae *sensu lato* of Europe); Fresno, 2021a:79 (Spain: Asturias: Pola de Lena); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Alaska: no specific locality, Canada: Alberta, British Co-

lumbia, Newfoundland Island, Nova Scotia, Ontario, Quebec, Yukon Territory, first record from Manitoba, Northwest Territories, Prince Edward Islands, and Saskatchewan: no specific locality).

Crabro pubescens Shuckard, 1837a:165, ♂. Lectotype: ♂, Britain: no specific locality (BMNH), designated by Leclercq, 1973b:53. Synonymized with *Crabro nigritus* by R. Perkins, 1916:14 and with *Crossocerus nigritus* by Leclercq, 1973b:73. – Dahlbom, 1844:311 (in revision of Sphecidae and Pompilidae), 1845:522 (in key to *Crabro*); F. Smith, 1851c:30 (Great Britain: unknown locality), 1853:64 (in checklist of British Hymenoptera); Kawall, 1857:25 (Kurland, now Latvia); F. Smith, 1858c:138 (in review of British Aculeata, redescription); Schenck, 1861:157 (redescription, Germany: Danzig, now Poland: Gdańsk); A. Morawitz, 1866a:270 and 1866b:347 (specimens in Eversmann collection); Taschenberg, 1866:180 (in revision of Hymenoptera of Germany); Schenck, 1867a:351 (known from Germany); Thomson, 1870:162 (in revision of Swedish Crabroninae); F. Smith, 1871b:14 (in catalog of British Aculeata); Thomson, 1874:268 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:129 (Italy: Trentino–Alto Adige); E. Saunders, 1880:284 (in revision of British Aculeata); Kohl, 1883e:654 (Switzerland); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:37 (Germany: Schleswig-Holstein); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:113 (Russia: Karelian Isthmus); Sickmann, 1893:67 (Germany: Niedersachsen: Iburg); Krieger, 1894:4 (Germany: Kingdom of Saxony); Kubes, 1905:84 (Czech Republic: Obora); E. Saunders, 1896:130 (in revision of British Aculeata), 1906:154 (description of ♀), 1907b:67 (Great Britain: West Suffolk and Eastbourne); Schmiedeknecht, 1907:193, 194, 195 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine: Zhytomyr Oblast': Radomyshl'; variation); Alfken, 1914:273 (northwestern Germany); Birula, 1914:376 (Belorussia: Ambrosovichi near Vitebsk); Kohl, 1915:229 (in revision of Palearctic Crabronini); R. Perkins, 1916:231 (specimens in F. Smith collection); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Morley, 1919:209 (Great Britain: Hampshire: New Forest); Stöckhert, 1919:38 (Germany: Franken); Lindemans, 1920:203 (first record from Netherlands: Vorden); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921b:156, 158 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Enslin, 1922c:245 (Germany: Bayern: Fürth, Hersbruck, and Nürnberg); Hellén, 1923:60 (recorded from Finland); Berland, 1925d:185 (in Sphecid Fauna of France); Bischoff, 1925:298 (Poland: Grajewo area); Grönblom, 1925:3 (nesting habits); Schütze, 1925:110

(Germany: Lausitz Region, as *pubesceus*); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:33 (Czechoslovakia); Berland, 1928b:180 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Bouwman, 1930:100 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:650, 651, 657 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:144 (in revision of Sphecidae of Finland); Crèvecoeur and Maréchal, 1932:68 (in catalog of Belgian Hymenoptera); K. Strohm, 1933:338 (Germany: Baden: Württemberg: Kaiserstuhl); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:324 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg); Zavadil, Šustera, and Bat'a, 1937:161 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:86 (Japan: Hokkaido; Russia: Island of Sakhalin, Kuril Islands); A. Wagner, 1938a:117 (northwestern Germany); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Tsuneki, 1947e:417 (Japan: Hokkaido), 1948c:6 (Japan: Hokkaido); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Zavadil *in* Zavadil and Šnoflak, 1948:127, 133 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:39 (France: Département du Nord); Fæster, 1951:457 (distribution in Scandinavia); Leininger, 1951:115 (Germany: Baden-Württemberg: Kaiserstuhl); Tjeder, 1954:69 (Sweden: eastern Skåne: Vitemölla); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1957:144 (Netherlands: Tilburg area, nesting in stems of *Rubus*); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Fannstadt Nature Reserve); Benno, 1958a:129 (nesting in stems of *Spiraea japonica* L., Rosaceae), 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:148, 154 (in key to Polish Sphecidae); Tolstova, 1962:288 (Russia: Pushkin, nesting in raspberry stems); Tumšs and Maršakovs, 1970:30 (Latvia); Niedl and Deneš, 1967:73 (Czech Republic: Třeboň area); Balthasar, 1972:105 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:121, 124 (Poland: Mazovian Voivodship: Białołęka, Hamernia, Młochów, Warszawa, Wola Mrokowska); Pagliano, 2009:180 (Italy: recorded from Trentino-Alto Adige by Kohl, 1880); Vago, 2005a:14 (*Crabro pubescens* in Cavro, 1950 is *Crossocerus nigritus* now). – **As *Blepharipus pubescens***: R. Perkins, 1913b:393 (new generic assignment, in key to British Crabronini); Haines, 1922:13 (Great

Britain: not found in Dorset); Hamm and Richards, 1926:310 (new generic assignment, summary of nesting habits); Butterfield and Fordham, 1931:157 (Great Britain: Yorkshire); Hallett, 1939:16 (Great Britain: Wales: no specific locality). – **As *Coelocrabro pubescens***: Graeffe, 1911:44 (new generic assignment, Italy: Trieste area); Noskiewicz, 1918:138 (Galicia, now western Ukraine: Hołosko near Lwów); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Lauterborn, 1925:355 (Germany: Baden-Württemberg: Limberg near Sasbach); Harttig, 1930b:7 (specimen bearing dipteran egg); Baudot, 1931:255 (characteristics of cocoon); Iwata, 1933b:13 (locality records from Japan); Baudot, 1934:383 (description of larva, cocoon); Richards, 1937b:106 (in checklist of British aculeates); Iwata, 1938b:41 (nesting habits); de Graham, 1941:99 (Great Britain: Lincolnshire); Schneid, 1941:1029 (Germany: Bayern: Bamberg area); J. Perkins, 1942:198 (Sweden: Skåne: Dalby and Löderup); Spooner, 1942:110 (Great Britain: Bedfordshire); Boyd, 1943:163 (Great Britain: eastern Dorset); Batá, 1944a:25 (Czech Republic); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Alderley, Chalford, Wotton); Hallett: 1945:129 (Great Britain: Hereforsdhire: The Lea); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Chambers, 1949:227 (Great Britain: Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Hamann, 1960:196 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1963:178 (Great Britain: Kent County). – **As *Crossocerus pubescens***: Taschenberg, 1858:106 (new generic assignment, in key to Sphecidae of Germany); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region), 1864:210 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:225 (in catalog of European Hymenoptera); Wierzejski, 1868:118 (Poland: Kraków); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region); Leclercq, 1949a:8 (Switzerland), 1951e:8 (bibliography of Belgian records); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Leclercq, 1954c:234 (in catalog of world Crabronini), 312 (nest and prey records); Tsuneki, 1954b:63, 72 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Hellén, 1955a:127 (Finland: six localities, nesting in galleries of *Saperda populnea* L., Cerambycidae, and of *Cryptorhynchidius lapathi* L., Curculionidae); Tsuneki, 1955d:217 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955b:22 (Japan: Nikko 120 km northwest of Tokyo); Leclercq, 1956i:133 (Luxemburg); Evans, 1957b:107 (discussion of larval characters); Grandi, 1957:391 (Italy: Abruzzi); Móczár, 1958a:264 (in annotated catalog of Hungarian Crabronini), 1958b:197 (Hungary: collecting localities); Wolf,

1959b: 33 (Germany: Nassau); Babiy, 1964:118 (Austria: Land Salzburg); Tsuneki, 1959n:70, 76 (in revised key to *Crossocerus* of Japan and Korea), 1960g:44 (nesting habits); Hoop, 1961:64 (Germany: Schleswig-Holstein: Kiel, Rosenfeld); Valkeila, 1962b:68 (southwestern Finland); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); de Beaumont, 1964c:149 (in Sphecid Fauna of Switzerland); Gauss, 1966c:240 (specimen bearing dipteran egg); Lefeber, 1966:209 (Netherlands: Bemelen, Sint-Pietersberg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:559 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Niederfranken); Leclercq, 1967a:33 (Great Britain: locality records); Lefeber, 1967c:220 (Netherlands: Sint-Pietersberg); Tsuneki, 1967e:14 (China: Heilongjiang: Harbin), 1967g:44 (western Japan: Mount Hyonosen); Haneda, 1968c:69 (a European species found in Japan); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide); Nambu, 1968b:28 (Japan: Saitama Prefecture); Itami, 1969:51 (Japan: Niigata Prefecture); Lefeber, 1968a:5 (Netherlands: Amby, Sint-Pietersberg, Vaals), 1968b:95 (Netherlands: Sint-Pietersberg); Okuno, 1968:30 (Japan); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Tsuneki, 1969i:61 (Japan: Fukui Prefecture: Taichôdzi temple), 1970b:11 (central Japan); Oehlke, 1970:785 (Democratic Germany); Schmidt, 1971b:51 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mombacher Feld); Suda, 1971:84 (Japan: Chiba Prefecture); Haeseler, 1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Kofler, 1972:115 (Austria: eastern Tirol); Nambu, 1972e:91 (Japan: Saitama Prefecture); Lefeber, 1975b:120 (Netherlands: Schiepersberg); Nambu, 1975b:76 (Japan: Saitama Prefecture); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schedl, 1982:102 (Austria: Tirol: Ötztaler Alps); Skibińska, 1986b:151 (Poland: suburbs of Warszawa); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pádr, 1990:86 (Czech Republic: Praha area).

Crossocerus diversipes Herrich-Schaeffer, 1841:... Synonymized with *Crabro pubescens* by F. Smith, 1856:405. – Wesmael, 1852:600 (Belgium; interpretation of species); F. Smith, 1856:405 (in catalog of Hymenoptera in British Museum, used as valid name); Kirchner, 1867:225 (in catalog of European Hymenoptera); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); de Gaulle, 1908:122 (in catalog of French Hymenoptera). – **As *Crabro diversipes***: Schenck, 1857:126 (new generic assignment, in revision of fossorial wasps of Germany); A. Morawitz, 1864:457 (Russia: Sankt-Petersburg); Schenck, 1867a:351 (known from Germany); Dalla Torre, 1897:596 (in catalog of world Sphecidae).

Crabro tischbeini Dahlbom: Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld), nomen nudum. Synonymized with *Crosscerus pubescens* by Kohl, 1883e:654 and 1885c:165. – Kirchner, 1867:226 (in catalog of European Hymenoptera).

Crabro inermis Thomson, 1870:162, sex not stated. Holotype or syntypes: Sweden: Skåne: Båstad (Lund). Synonymized with *Crabro pubescens* by Kohl, 1916:232 and with *Crabro nigritus* by R. Perkins, 1916:14. – Thomson, 1874:267 (in revision of Hymenoptera of Scandinavia); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Emmelsbüll); F. Morawitz, 1893a:113 (Russia: Karelian Isthmus); Krieger, 1894:4 (Germany: Kingdom of Saxony); nec Westerlund, 1896:28 (= *Crossocerus heydeni*); Dalla Torre, 1897:605 (in catalog of world Sphecidae); Aurivillius, 1904:294 (in revision of Swedish Sphecidae); Schmiedeknecht, 1907:194, 196 (in key to Hymenoptera of Central Europe); Morice, 1910:271 (first record from Great Britain); nec Dittrich, 1911b:19 (= *Crossocerus cetratus*); Kohl, 1915:232 (in revision of Palearctic Crabronini, as variety of *Crabro pubescens*); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921a:19 (Belgium: Uccle), 1921b:156, 158 (in key to Belgian Sphecidae, as variety of *Crabro pubescens*); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands, as *Crabro pubescens* var. *inermis*); Schmiedeknecht, 1930:651, 657 (in keys to Hymenoptera of North and Central Europe); nec Pulkkinen, 1931:144 (= *Crossocerus heydeni*); Crèvecoeur and Maréchal, 1932:68 (in catalog of Belgian Hymenoptera: Waha); E. Nielsen, 1933:267 (summary of nesting habits); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:161 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:117 (northwestern Germany); Zavadil, 1939:121 (Czech Republic: Morava: Ubušin); Zavadil *in* Zavadil and Šnoflak, 1948:127, 133 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); Koornneef, 1951:248 (Netherlands: Velp, specimen intermediate between *Crossocerus inermis* and *pubescens*); Bischoff and Stadler, 1956:111 (Germany: Bayern Romberg Nature Reserve); Hellén, 1956:42 (recorded from Finland); Noskiewicz and Puławski, 1960:148, 154 (in key to Polish Sphecidae); Balthasar, 1972:105 (in Sphecid Fauna of Czechoslovakia). – **As *Coelocrabro inermis***: Łoziński, 1920:121 (new generic assignment, Poland: Maków Podhalański); Jansson, 1922:25 (Sweden: Island of Öland); Bat'a, 1944a:25 (Czech Republic). – **As *Crossocerus***

inermis: Borries, 1897:39 (new generic assignment, nesting habits unknown); Fahlander, 1954:250 (Sweden: Gästrikland Region); nec Hellén, 1954:127 (= *Crossocerus heydeni*); Hellén, 1955a:127 (recognition characters, Finland: Pargas); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1995:424 (Poland: pine forest in Białowieża Primeval Forest). – **As *Blepharipus pubescens* Shuck. var. *inermis***: Hallett and Norton, 1928:72 (Great Britian: Glamorgan: Kenfig Castle).

Crossocerus melanogaster Kohl, 1880:215, ♀. Syntypes: Austria: Tirol: Gries, now: Italy: Alto Adige: Gries (NHMW). Synonymized with *Crabro pubescens* by Kohl, 1915:230. – **As *Crabro melanogaster***: Kohl, 1880:127 (new generic assignment, Italy: Trentino-AltoAdige); Dalla Torre, 1897:610 (new generic assignment, in catalog of world Sphecidae).

Blepharipus nigricornis Provancher, 1888:294, ♂. Lectotype: ♂, Canada: ... (Laval Univ.), designated by Gahan and Rohwer, 1917:333. Synonymized with *Crossocerus nigritus* by Bitsch and Leclercq, 1993:113. – Ashmead, 1899d:217 (in checklist of North American Crabronidae); Harrington, 1902:219 (Canada: Ontario: Ottawa); Blackman and Stage, 1924:196 (New York: Syracuse, nesting in dead wood of hickory). – **As *Crabro nigricornis***: W. Fox, 1895a:195 (new generic assignment, in revision of North American Crabronini); Dalla Torre, 1897:611 (in catalog of world Sphecidae); Rohwer, 1908b:246 (USA: Colorado), 258 (in key to *Crabro* of Colorado and New Mexico), 1916b:671 (in catalog of Hymenoptera of Connecticut); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae); Rohwer *in* Viereck, 1925:671 (in key to Sphecidae of Connecticut); Brues, 1927:82 (Massachusetts: Petersham, nesting in wood, determination tentative); A. Brown, 1934:265 (Canada: Ontario: Timagami); Brimley, 1938:450 (North Carolina: Blowing Rock). – **As *Solenius nigricornis***: J.Ch. Bradley, 1926:175 (new generic assignment, New York: Lloyd-Cornell Reservation near McLean), 1928:1021 (in catalog of New York Sphecidae). – **As *Crossocerus nigricornis***: Pate, 1944a:306 (new generic assignment, nesting and prey); Strickland, 1947:127 (Canada: Alberta); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Krombein, 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:236 (in catalog of world Crabronini), 311 (nest and prey records); Evans, 1970:492 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1671 (in catalog of North American Hymenoptera, nesting sites, list of prey); Finnamore, 1982:1158 (in Sphecid Fauna of southern Quebec); Rust, Menke, and Miller, 1985:47 (California: Channel Islands); Finnamore, 1994:210

(Canada: Alberta: Wagner Natural Area 8 km west of Edmonton); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Finnamore, 1997:890 (Canada: Yukon).

Crabro sambucicola C. Verhoeff, 1891a:147, ♀, ♂. Syntypes: Germany: Nordrhein-Westfalen: mouth of Sieg River (depository unknown). Synonymized with *Crabro pubescens* by Kohl, 1915:232. – C. Verhoeff, 1892b:362 (male cocoons are closer to nest entrance), 363 (nest may include progeny of one sex only), 365 (individuals of both sexes that emerge first are larger), 1892c:720 (nesting habits); Dalla Torre, 1897:624 (in catalog of world Sphecidae).

Crabro pubescens f. *daisetsuzanus* Tsuneki, 1947e:417, ♂. Holotype: ♂, Japan: Hokkaido: Daisetsuzan (originally K. Tsuneki collection, now?). Synonymized with *Crossocerus nigritus* Lepeletier de Saint Fargeau and Brullé by Leclercq, 2009:177.

Crossocerus verhoeffi Tsuneki, 1967e:14. ♂. Holotype: ♂, China: Heilongjiang: Harbin (RMNH). Synonymized with *Crossocerus nigritus* by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:434. – R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae).

Crossocerus verhoeffi sudai Tsuneki, 1976a:71, ♂. Holotype: ♂, Japan: Chiba Prefecture: Kimitsu City: Mount Daifuku (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus nigritus* by Nemkov, 2004b:266. – Tano, 1994b:43 (holotype in K. Tsuneki collection, as *verhoeffi usadai*); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan).

Crossocerus babai Tsuneki, 1979d:11, ♂. Holotype: ♂, Japan: Hokkaido: Wakkanai (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus nigritus* by Nemkov, 2004b:266. – Tano, 1994a:6 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan).

140.*nikkoensis* Tsuneki and Tanaka

Crossocerus nikkoensis Tsuneki and Tanaka, 1955b:22, ♂. Holotype: ♂, Japan: Nikko 120 km northwest of Tokyo (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1954b:62 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands; should this be the original description?), 1956b:10 (description of ♀), 11, 12 (in supplement to 1954b key), 1959n:70, 75 (in revised key to *Crossocerus* of Japan and Korea), 1960g:44 (nesting habits); Tsuneki and Tano, 1969:30 (distribution in Japan); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Tsuneki,

1970b:11 (central Japan), 1973m:78 (comparison with *Crossocerus heydeni*); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Haneda and Inoue, 2003:50 (Japan: Fukui Prefecture: Katsumi. in City of Obama); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Nemkov 2004b:264 (valid species); Suda, 2004:43 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture), 2006a:25 (Japan: Toyama Prefecture); S. Tanaka, 2008:39 (Japan: Yamaguchi Prefecture); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 177 (in list of Asian *Crossocerus*, bibliographic references, diagnostic characters of ♂); S. Takahashi, Haneda, and Tano, 2009:42, 48 (distribution in Japan); Tano, 2010b:40 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:5, 10 (in key to *Crossocerus* of Japan).

141.*nitidicorpus* Tsuneki

Crossocerus nitidicorpus Tsuneki, 1968g:11, ♀, ♂ (subgenus *Coelocrabro*). Holotype: ♂, Taiwan: Chiai Prefecture: Fenchihu (originally K. Tsuneki collection, now USNM). – Tsuneki, 1968g:32 (Taiwan; in key to Crabronini of Taiwan and Ryukyus), 1971a:15 (Taiwan); Haneda, 1972a:6 (Taiwan); Leclercq, 1973c:288 (Taiwan); Murota, 1973b:119 (Taiwan); Tsuneki, 1973f:45 (Taiwan); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Tsuneki, 1982e:33 (Taiwan; type species of subgenus *Thao*); Leclercq, 1986a:250 (in key to subgenus *Thao*; as *nitidicorpus nitidicorpus*), 251 (bibliographic references); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:162 (member of subgenus *Thao*), 177 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Thao*, in list of Japanese subgenera of *Crossocerus*); Saini and Dey, 2022c:118 (in key to subspecies of *Crossocerus nitidicorpus*).

ssp. *indicus* Saini and Dey

Crossocerus nitidicorpus indicus Saini and Dey, 2022c:119, ♀. Holotype: ♀, India: Uttarakhand: Uttarkashi at 31°04'31"N 78°11'12" E (National Pusa Collection, Indian Agricultural Research Institute, New Delhi, India). – Saini and Dey, 2022c:118 (in key to subspecies of *Crossocerus nitidicorpus*).

ssp. *johorensis* Leclercq

Crossocerus nitidicorpus johorensis Leclercq, 1986a:250 (in key to subgenus *Thao*), ♀. Holotype: ♀, Malaysia: Johore: Lombong

(BMNH). – Leclercq, 1986a:251 (bibliographic reference), 2009:162 (member of subgenus *Thao*), 177 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Thao*, in list of Japanese subgenera of *Crossocerus*); Saini and Dey, 2022c:118 (in key to subspecies of *Crossocerus nitidicorpus*).

ssp. *philippinicus* Tsuneki

Crossocerus nitidicorpus philippinicus Tsuneki, 1984f:12, ♀. Holotype: ♀, Philippines: Island of Mindanao: Bukidnon: Sungeo (originally K. Tsuneki collection, now USNM). – Tsuneki, 1984f:37 (in key to Crabronini of Philippines); Leclercq, 1986a:250 (in key to subgenus *Thao*), 251 (bibliographic reference); Nuhn and Menke, 1994:27 (holotype not transferred to USNM, possibly returned to T. Tano, the collector); Menke, 1995:14 (type still in K. Tsuneki collection); Tano, 1995:45 (holotype in K. Tsuneki collection); Leclercq, 2009:162 (member of subgenus *Thao*), 177 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Thao*, in list of Japanese subgenera of *Crossocerus*), 2020:26 (holotype in USNM); Saini and Dey, 2022c:118 (in key to subspecies of *Crossocerus nitidicorpus*).

ssp. *uluanus* Leclercq

Crossocerus nitidicorpus uluanus Leclercq, 1986a:250 (in key to subgenus *Thao*), ♀. Holotype: ♀, Brunei: Ulu Temburong (BMNH). – Leclercq, 1986a:251 (bibliographic reference); Leclercq, 2009:162 (member of subgenus *Thao*), 177 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Thao*, in list of Japanese subgenera of *Crossocerus*); Saini and Dey, 2022c:118 (in key to subspecies of *Crossocerus nitidicorpus*).

ssp. *weddagalae* Leclercq

Crossocerus nitidicorpus weddagalae Leclercq, 1986a:250 (in key to subgenus *Thao*), ♀. Holotype: ♀, Sri Lanka: Ratnapura District: Sinharaja Forest: Weddagala (USNM). Paratype: West Malaysia: Cameron Highlands: Sungai Bok. – Leclercq, 1986a:251 (bibliographic reference), 2009:177 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:45 (member of subgenus *Thao*, in list of Japanese subgenera of *Crossocerus*); Saini and Dey, 2022c:118 (in key to subspecies of *Crossocerus nitidicorpus*).

142.*nitidiventris* (W. Fox)

Crabro nitidiventris W. Fox, 1892a:9, ♀. Lectotype: ♀, USA: Illinois: no specific locality (ANSP), designated by Cresson, 1928:54. – W. Fox, 1895a:182 (in revision of North American Crabronini); Dalla Torre, 1897:612 (in catalog of world Sphecidae); J. Smith,

1910:682 (in new list of insects of New Jersey); Brimley, 1938:450 (North Carolina: Raleigh). – **As *Cuphopterus nitidiventris***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); J. Smith, 1900:515 (in list of insects of New Jersey). – **As *Solenius nitidiventris***: J.Ch. Bradley, 1928:1020 (new generic assignment, in catalog of New York Sphecidae). – **As *Crossocerus nitidiventris***: Krombein, 1951a:143 (new generic assignment, Virginia: Dunn Loring; visiting tulip-tree honeydew); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1023 (in catalog of North American Hymenoptera); Krombein, 1952a:96 (USA: Virginia: Westmoreland State Park), 1953a:338 (North Carolina, extreme color form); Leclercq, 1954c:240 (in catalog of world Crabronini); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: reference to Krombein, 1953a), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); L. Davis, 1978:216 (North Carolina: Kill Devil Hills, data from Krombein, 1953a); Krombein, 1979b:1671 (in catalog of North American Hymenoptera, list of prey); Finnamore, 1982:159 (in Sphecid Fauna of southern Quebec); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Leclercq, 2000d:56 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario, Quebec, first record from New Brunswick: no specific locality).

143.*noonadanus* Tsuneki

Crossocerus noonadanus Tsuneki, 1976b:110, ♀, ♂ (subgenus *Ablepharipus*). Holotype: ♂, Philippines: Palawan: Pinigisan (ZMUC). – Tsuneki, 1984f:12 (Philippines), 35 (in key to Crabronini of Philippines); Dollfuss, 2006:511 (Malaysia: Borneo-Sabah: Mount Kinabalu); Leclercq, 2009:160 (member of subgenus *Ablepharipus*, as *noondanus*), 177 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:37 (member of subgenus *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*, *as noondanus*).

144.*odontochilus* Q. Li and Yang

Crossocerus odontochilus Q. Li and Yang, 1995c:272, ♂ (subgenus *Paroxycrabro*). Holotype: ♂, China: Zhejiang Province: Mount Gutian at 29°03'N 118°02' (Beijing Agricult. Univ.). – Q. Li and He, 2004:1084 (China: in hymenopterous fauna of Zhejiang Province); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 177 (in list of Asian *Crossocerus*, bibliographic references).

145.*onoi* (Yasumatsu)

Crabro onoi Yasumatsu, 1939e:114, ♂. Holotype: ♂, China: Jilin: Changchun (Fukuoka). – **As *Crossocerus onoi***: Leclercq, 1954c:224 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1967e:2 (China: Manchuria); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Hua, 2006:279 (in list of Chinese insects, geographic distribution).

146.*opacifrons* (Tsuneki)

Crabro opacifrons Tsuneki, 1947e:423, ♀. Holotype: ♀, Japan: Hokkaido: Jozankei (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1948c:9 (Japan: Hokkaido); Hashimoto and Nakanishi, 1997:15 (holotype and allotype transferred to Hyogo Mus.). – **As *Crossocerus opacifrons***: Leclercq, 1954c:226 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1954b:74 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955b:25 (Japan: near Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:77 (in revised key to *Crossocerus* of Japan and Korea), 1960g:45 (nesting habits unknown), 1963h:54 (Japan: locality records); Nambu, 1968b:28 (Japan: Saitama Prefecture, as *apacifrons*); Tsuneki and Tano, 1969:31 (distribution in Japan); Yamada, 1971:37 (Japan: Aichi Prefecture); Tsuneki, 1973s:130 (description of ♂); Nambu, 1975b:76 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Tano, 1994a:6 (holotype in K. Tsuneki collection); Yamane, Ikudome, and Terayama, 1999:501 (Japan: in Identification Guide to Crabronidae of Nansei = Ryukyu Islands); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Nemkov 2004b:264 (valid species); Suda, 2004:44 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 177 (in list of Asian *Crossocerus*, bibliographic references); S. Takahashi, Haneda, and Tano, 2009:43, 48 (distribution in Japan); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:7, 12 (in key to *Crossocerus* of Japan); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

147. *ornatipes* (R. Turner)

Rhopalum ornatipes R. Turner, 1918a:92, ♀, actually ♂ (Leclercq, 1958:18). Holotype or syntypes: ♂, Nigeria: Zungeru (BMNH). – **As *Thyreopus* (*Rhopalum*) *ornatipes***: Arnold, 1926:352 (new generic assignment, original description copied), 1930:13 (in checklist of Afrotropical Sphecidae). – **As *Crossocerus ornatipes***: Leclercq, 1954c:222 (new generic assignment, in catalog of world

Crabronini), 1958a:18 (type specimen is a ♂); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Leclercq, 2008:5 (in key to Afrotropical *Crossocerus*), 19 (bibliographic references).

148. *ovalis* Lepeletier de Saint Fargeau and Brullé

Crossocerus ovalis Lepeletier de Saint Fargeau and Brullé, 1835:780, ♀, ♂. Syntypes: France: Paris area (M. Spinola collection, Torino). – Kirchner, 1867:225 (in catalog of European Hymenoptera); de Gaulle, 1908:122 (in catalog of French Hymenoptera); R. Perkins, 1913b:391 (in key to British Crabronini), 1916:15 (variation, diagnostic characters), 1924:226 (Great Britain: Devon), 1925:152 (Great Britain: Gloucestershire: Alderley and Wotton); Spooner, 1931:16 (Great Britain: Cambridgeshire); Hallett, 1938:73 (Great Britain: Herefordshire: Tarrington); Leclercq, 1951e:5 (bibliography of Belgian records); Grandi, 1954:242 (Italy); Leclercq, 1954c:23 (in catalog of world Crabronini), 305 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); Bradley, 1957:47 (Lepeletier's specimens in Turin); Yeo, 1957:19 (Great Britain: Middlesex, now in London); Móczár, 1958a:263, 269 (in annotated catalog of Hungarian Crabronini, correction to Kohl, 1915), 1958b:195 (Hungary: collecting localities); Wolf, 1959b:32 (Germany: Nassau); Hoop, 1961:63 (Germany: Schleswig-Holstein); Valkeila, 1962a:48 (Finland: Vanaja), 1962b:68 (southwestern Finland); Hoop, 1963a:73 (Germany: Schleswig-Holstein: Reher Kratt); Valkeila, Brander, and Käpylä, 1963:41 (Finland: historical region Lounais-Hämeen = southwest Häme); Babiy, 1964:117 (Austria: Land Salzburg); de Beaumont, 1964c:145 (in Sphecid Fauna of Switzerland); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Kahl, Lohr, Miltenberg); Leclercq, 1967a:32 (Great Britain: locality records); Wolf, 1968:11 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Lefeber, 1969b:99 (Netherlands: Sint-Pietersberg), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:775 (Democratic Germany); Leclercq, 1971:215 (Spain); Petit, 1971:22 (Luxemburg: Echternach); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:172 (Kazakhstan); Kofler, 1972:114 (Austria: eastern Tirol); Leclercq, 1974d:265 (synonymy), 1975b:2 (France); Lefeber, 1975b:120 (Netherlands: Schiepersberg); R. Bohart and Menke, 1976:402 (in

checklist of world Sphecidae); Eck, 1976:94 (Democratic Germany); Lomholdt, 1976:379 (in Sphecid Fauna of Fennoscandia and Denmark); Wolf, 1976:30 (Germany: Nordrhein-Westfalen: Victoria Mine near Littfeld); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977/78 (Germany: Rheinland-Pfalz: Gonsenheimer Wald); Pulawski, 1978:258, 265 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1443 (Belgium); Schmidt, 1979a:57 (Germany: Ost-Holstein); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Marshakov, 1980c:342, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: European part, Kazakhstan); Pagliano, 1980:122 (Italy: Piemonte); Richards, 1980:48, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:372 (Germany: Baden-Württemberg); Westrich, 1980:635 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:46 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Haeseler, 1982a:20 (Germany: Niedersachsen: urban habitats in Oldenburg); Leclercq, 1982a:125 (Belgium: Liège); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Lefeber, 1983a:85 (Netherlands: Waddendistrict: Island of Vlieland); Riemann, 1983:88 (Germany: Bremen-Daverden area); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Jacob-Remacle, 1984:260 (Belgium: urban center of Liège); Lefeber, 1984:29 (Netherlands: Maastricht); Józan, 1985b:59 (Hungary south of Lake Balaton), 70 (map of distribution in Hungary), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:71 (Germany: Südpfalz); Józan, 1986:372 (Hungary: Kiskunság National Park); Skibińska, 1986b:151, 154 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 165 (streetside green), 174 (various green urban habitats); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:373 (Germany: Mainz area); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Dollfuss, 1988:16, 28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Riemann, 1988:223 (Germany: Bremen area); Wolf, 1988b:139 (Germany: Rheinland-Westfalen); Archer, 1989a:131, 133 (Great Britain: York: found before and after coniferization); Jacobs,

1989:20 (Germany: Mecklenburg-Vorpommern); Nilsson, 1989:48 (Sweden); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:97 (Belorussya: Berezinskiy Nature Reserve); Skibińska, 1989a:206 (Poland: Warszawa area), 163 (urban parks), 1989b:291 (Poland: moist meadow in Warszawa area); Archer, 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:184 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Pádr, 1990:85 (Czech Republic: Praha area); Pagliano, 1990:85 (in catalog of Italian Sphecidae); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Dollfuss, 1991:154 (in key to Sphecidae of North and Central Europe); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 94, 104 (Poland: Łódź); Kuhlmann et al., 1991:88 (Germany: Senne Region); Pagliano, 1991b:339, 345 (in key to Italian Crabroninae); Schwammberger and Priesner, 1990:546 (Austria: Kärnten); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); von der Heide, 1991:63 (Germany: peat bog near Oldenburg); Archer, 1992a:56 (Great Britain: Leicestershire), 1992b:21 (Great Britain: Yorkshire: Skipwith Common); Budrys, 1992:34 (in list of Sphecidae of Lithuania); Józan, 1992b:174 (Hungary: Boronka-melléki Nature Reserve), 1992c:289 (Hungary: Zselic Hills); Nilsson, 1992:54 (Sweden); N. Schneider, 1992:177 (Luxemburg); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Archer, 1993c:39 (Great Britain: Yorkshire); Bitsch and Leclercq, 1993:126 (in revision of western European Crabroninae); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:20 (Austria); Leclercq and Barbier, 1993:38 (map of distribution in France); Sorg and Wolf, 1993:59 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Wiśniowski, 1993b:280 (Poland: Ojców National Park); Koponen, 1994:21 (Finland: Loimaa, Yläne); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Schmid-Egger, 1994a:688 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert, 1994c:36 (Germany: summary of records from Niedersachsen and Bremen); Archer, 1995a:23 (Great Britain: Yorkshire: frequency); Archer and Burn, 1995:58 (Great Britain: Yorkshire: Crow Wood near Finningley); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Riemann, 1995:52 (Germany: Bremen); Scharrer, 1995:26 (Austria: Wien area; Germany: Bayern: Mainfranken, Rheinland-Pfalz State:

Oberau); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:173 (Germany: summary of records from Rheinland-Pfalz); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Skibińska, 1995:424, 426 (Poland: pine forest in Białowieża Primeval Forest); Archer, 1996b:37 (Great Britain: Nottinghamshire: Sherwood Forest), 1996c:55 (Great Britain: Yorkshire: Shipley Glen); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Harvey and Plant, 1996:70 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (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, 1996:105 (Germany: Brandenburg); Woydak, 1996:58 (Germany: Westfalen: summary of distribution and nesting habits); Archer, 1997a:48 (Great Britain: Yorkshire: Burton Leonard Lime Quarries); Celary, 1997:59 (in checklist of Animals of Poland); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Petit, 1997:351 (Belgium: Liège Province: Lanaye: colonization of new habitat); Schmidt and Schmid-Egger, 1997:11 (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:49 (Ukraine: Kiev and surroundings), 1998b:54 (Ukraine: Sumy Oblast': Vakalivshchina); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River and Steller Heide); 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, 1998:18 (Great Britain: Wales: Carmarthenshire County); van der Smissen, 1998:56 (Germany: Niedersachsen, Schleswig-Holstein); K. Weber, 1998:137 (Germany: Bayern: Bamberg area); Archer, 1999b:82 (Great Britain: Yorkshire); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); Gusenleitner, 1999:600 (Austria: Vorarlberg: locality records);

W. Klein, 1999:7, 13 (in improved key to *Crossocerus* of Benelux); Ljubomirov, 1999b:54 (Bulgaria: Mount Vitosha near Sofia); 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); 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); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:307 (in Sphecid Fauna of Germany); Flügel, 2000:46 (Germany: Hessen: Halberg near Neumorschen); Jacobs, 2000:7 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Kuhlmann, 2000:64 (Germany: Hessen: Diemel River valley); M. Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Pijfers, 2000:4 (Netherlands: Twente Region); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhine River); Archer, 2001b:14 (Great Britain: Watsonian Yorkshire), 2001d:109 (Great Britain: Lincolnshire Kirkby Moor 7.5 km south of Horncastle); Dillier and Neumeyer, 2001:29, 33 (Switzerland: delta of Reuss River on Lake Uri); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 195 (review of known biology); Ohl et al., 2001:138 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Amiet and Moretti, 2002:177, 178 (Switzerland: Tessin); Archer, 2002b:114 (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, 2002:107 (Great Britain: Kent: Tunbridge Wells area); Bieri, 2002:74 (Liechtenstein); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józan, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:101 (geographic distribution, collecting localities in Kazakhstan); Litt, 2002:167 (Belgium); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in

list of Aculeata of Finland); Wiśniowski, 2002:72 (Poland: Ojców National Park); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Bergsten, Ekerholm, Hellquist, Hilszczanski, Nilsson, Pettersson, and Werner, 2003:71 (Sweden: Västerbotten: Island of Romelsön); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Drewes, 2003:136 (Germany: Hessen: Gieβen); Flügel, 2003:8 (Germany: Hessen: Knüllwald); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003a:150 (Czech Republic: Děčin Sandstone Uplands: forest district Snežnik: birch stands in air-polluted area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:64 (in catalog of wasps and bees of Bayern, Germany); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wiśniowski *in* Dylewska and Wiśniowski, 2003:165 (Poland: Ojców National Park); Archer, 2004:47 (Great Britain: Worcestershire: Devils Spittleful Nature Reserve); Bergsten, Nilsson, and Hellquist, 2004:7 (Sweden: Västerbotten: Nordmaling); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Ebermann and Hall, 2004:942 (parasite: scutacarid mite *Imparipes breganti* Ebermann and Hall); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:372 (in Wasp and Ant Fauna of Netherlands); Majzlan and Deván, 2004:30 (Slovakia: Sekule); 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, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:48 and 61 (in checklist of Polish Sphecidae); Archer, 2005a:30 (Great Britain: Watsonian Yorkshire); 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 Schönitzer, 2005:273 (Germany: Bayern: area north of Dachau); Gregory and Wright, 2005:140 (Great Britain: Shotover Hill 5 km east of Oxford); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kofler, 2005:178 (Austria: Tirol: Lienz District: Iselberg, city of Lienz); Kowalczyk and Kurzac, 2005:105 (Poland: Botanical Garden in Łódź); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolo, 2005:245 (in Sphecid Fauna of Italy); Pijfers, 2005:, 4950 (Netherlands:

Twente: Noordelijke Manderheide); Riemann and Hohmann, 2005:550 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:35 (Great Britain: Cumbria County); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:19 (France: Département du Nord: Bugnicourt and Forêt de Saint-Amand); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Archer, 2006c:217 (Great Britain: Staffordshire: Highgate Common), 2006d:76 (Great Britain: Watsonian Yorkshire: Pollington Quarry); Dollfuss, 2006:511 (Finland: Helsinki, Hirvensalmi); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Gorobchishin, 2006:124 (Ukraine: several localities); Józan, 2006:286 (Hungary: Béda-Karapancsa section of Duna-Drava National Park); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); 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, 2006:509 (Czech Republic: Kokořínsko area); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Chevin, Livory, Lair, Sagot, and Baldock, 2007:27 (France: Département de la Manche); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature 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); Guldemond, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap); Hallin, 2007:154 (Sweden: Blekinge, Västergötland, and Närke counties); Herrmann, 2007b:94 (Germany: Baden-Württemberg: Fürstenberg in Konstanz); Jacobs, 2007:129, 140 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Józan, 2007:179 (Hungary: Zselic hills); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Vago, 2007:175 (France: départements d'Aisne, Nord, and Pas-de-Calais); 207:176 (France: département du Nord: Bugnicourt); 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); Theunert, 2008:23 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Bitsch and Leclercq, 2009:220 (in supplement to vol.

I of Faune de France, 1993: male has a pygidial plate on tergum VII), 221 (record from France: Provence by Bernard, 1935 is questionable); Debuyser and Vago, 2009:5 (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); Hessling, 2009:103 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 178 (in list of Asian *Crossocerus*, bibliographic references, recorded from Kazakhstan by Kazenas, 2001); Pagliano, 2009:181 (Italy: recorded from Trentino-Alto Adige by de Cobelli, 1899, as *cinxius*); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Jizerské Mountains and Frýdlant region); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren), 2010b:99 (Great Britain: Watsonian Staffordshire: Cannock Chase Country Park); Baghirov, 2010:678 (Russia: Altai Territories: village Savvushka); Burguet *in* Durand and Burguet, 2010:27 (France Département d'Ardèche: Ardèche Gorges); 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, 2010:64 (Germany: Bayern: vicinity of Dietfurt); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (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 and Nizhniy Novgorod Oblast's: no specific localities); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Rudoiskatel', 2010:156 (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, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:17 (Ukraine: Yekaterinoslav Oblast', now Dnepropetrovsk Oblast': Yekaterinoslav, now Dnepropetrovsk); van der Smissen, 2010a:337 (Germany: Schleswig-Holstein: locality records), 2010b:384 (France: Ardèche: Saint-Thomé); 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:145 (Russia: Altayskiy Kray: Savvushka); Feoktistov, 2011:85 (Russia: Mordovian Nature Reserve); Gogala, 2011:20

(Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Pagliano, 2011a:143 (specimens in M. Spinola collection, Torino); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof), 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:124 (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); Burguet *in* Durand and Burguet, 2012:2, fiche 4 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Piguet and Dodelin, 2012:285 (France: Seine-Maritime: forêt de Brotonne); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia, Russia: Kirov Oblast': Arkhangelskoye, and Krasnaya Polyana 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, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:197 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:401 (France: Eure-et-Loir: several localities); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1321 (Germany, Hessen: Roβstein); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine); Blažej, Macek, and Trýzna, 2016:118 (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, 2016:19 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:573 (Russia: Krasnodarskiy Kray); 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, 2016:45 (Turkey: Artvin: Yusufeli: İşhan); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Flügel, 2017:5 (Germany: Hessen: Doline near Rockensüß); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Franken and Berg, 2018:67 (Netherlands: North Holland: sand dunes); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:94 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13226 (Russia: Mordovia State Nature Reserve, occurrence needs confirmation); Kejval, Blažej, and Erhart, 2020:97 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:66 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:34 (in catalog of Sphecidae *sensu lato* of Portugal); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey). – **As *Crabro ovalis***: Dahlbom, 1844:323 (new generic assignment, original description copied); F. Smith, 1856:411 (in catalog of Hymenoptera in British Museum); A. Morawitz, 1864:456 (Russia: Sankt-Petersburg), 1866a:270 and 1866b:348 (specimens in Eversmann collection); Dalla Torre, 1897:614 (in catalog of world Sphecidae); R. Perkins, 1919a:9 (*ovalis* is correct name for *anxius* of E. Saunders, 1902); de Beaumont, 1954e:97 (Italy).

As *Crabro exiguus*: Shuckard, 1837:174 (in revision of British Aculeata), corrected to .. .. by ..

Crabro punctum Zetterstedt, 1838:445, ♀, ♂. Syntypes: Sweden: Gulf of Botnia and Lapland area: no specific locality (Lund). Synonymized with *Crabro palmipes* by Kohl, 1915:251, with *Crabro varius* by Kohl, 1915:254, and with *Crabro anxius* by Kohl, 1915:256. – Dalla Torre, 1897:620 (in catalog of world Sphecidae); Friese, 1902:478 (occurring in Lapland according to Zetterstedt, 1838).

Crabro anxius Wesmael, 1852:603, ♀, ♂. Syntypes: Belgium: Bruxelles area (Bruxelles). Synonymized with *Crabro exiguus* by F. Smith, 1856:403, and with *Crossocoerus ovalis* by R. Perkins, 1913b:391. – F. Smith, 1856:403 (in catalog of Hymenoptera in British Museum, used as valid name), 1858c:133 (in review of British Aculeata, redescription); Schenck, 1860:146 (Germany: Nassau Region), 1861:141 (Germany: Weilburg); Taschenberg, 1866:179 (in revision of Hymenoptera of Germany); A. Costa, 1867c:126 (in revision of Italian Sphecidae); Schenck, 1867a:351 (Germany: Nassau Region); Thomson, 1870:166 (in revision of

Swedish Crabroninae); A. Costa, 1871b:55 (in revision of Italian Sphecidae); Thomson, 1874:274 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:126 (Austria: Tirol, and Italy: Trentino-AltoAdige), 215 (nesting in sand, prey: *Tachysta* [currently *Tachydromia*] *arrogans* L., Empididae); E. Saunders, 1880:288 (in revision of British Aculeata); Siebke, 1880:69 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Schøyen, 1881:12 (correction to Siebke, 1880); Kohl, 1883e:655 (Switzerland); Sickmann, 1883:71 (Germany: Niedersachsen: Wellingholthausen); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Krieger, 1894:5 (Germany: Kingdom of Saxony); E. Saunders, 1896:135 (in revision of British Aculeata); Strand, 1898b:96 (Norway); Adlerz, 1901:192 (prey transported impaled on stinger); Nevinson, 1900:62 (Great Britain: Wales: Criccieth, Towyn); de Cobelli, 1903:117 (Italy: Province of Trentino); Adlerz, 1904:39 (nesting habits); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); Arnold, 1905:262 (Great Britain: Hampshire: Brockenhurst); Schmiedeknecht, 1907:197, 199 (in key to Hymenoptera of Central Europe); Dittrich, 1911b:20 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Rudow, 1912:75 (nesting in raspberry twigs); Alfken, 1914:274 (northwestern Germany); Birula, 1914:377 (Belorussia: Ambrosovichi near Vitebsk); Kohl, 1915:256 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Nagyilonda); R. Perkins, 1916:231 (specimens in F. Smith collection); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:46 (Germany: Lower Elbe region); Dubois, 1921a:19 (Belgium), 1921b:159, 160 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Lundblad, 1924:22 (Sweden: Lappland: Lycksele); Berland, 1925d:183 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia); Grönblom, 1925:4 (nesting habits); Schütze, 1925:111 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Carpentier, Crèvecoeur and Maréchal, 1926:354 (Belgium: Tilff); Zavadil, 1926:35 (Czechoslovakia); Crèvecoeur and Maréchal, 1927:138 (Belgium: La Chabresse); Berland, 1928b:180 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d); Gaunitz, 1929:199 (Sweden: Lapland); Bouwman, 1930:103 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:652, 656 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:149 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: Forêt de Soignes, Solbosch), 1933:32 (Belgium: Bruxelles), 1934:62 (Belgium: no specific locality); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of

Hymenoptera of Finland); Steck, 1935:325 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:165 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:117 (northwestern Germany); Struve, 1940:823 (Germany: Island of Borkum); Paul, 1941:37 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Benno, 1943:68 (Netherlands); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Zavadil *in* Zavadil and Šnoflak, 1948:128, 133 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:38 (France: Département du Nord); Fæster, 1951:458 (distribution in Scandinavia); Leininger, 1951:115 (Germany: Baden-Württemberg); Vogrin, 1955:41 (Yugoslavia); Hertzog, 1956:183 (carrying prey impaled on stinger); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:145, 154 (in key to Polish Sphecidae); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:28 (Latvia); Balthasar, 1972:115 (in Sphecid Fauna of Czechoslovakia); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:120, 124 (Poland: Mazovian Voivodship: Białołęka, Hamernia, Ursynów, Warszawa, Wola Mrokowska); Kowalczyk, 1988a:46 (Poland: Rogów), 1988b:66 (Poland: environs of Łódź). – **As *Crossocerus anxius***: Taschenberg, 1858:106 (new generic assignment, in key to Sphecidae of Germany); Kirchner, 1867:224 (in catalog of European Hymenoptera); Wierzejski, 1874:261 (Poland: Kraków, Zakopane); Beuthin, 1876:230 (Germany: Hamburg area); De Stefani Perez, 1894:216 (Italy: Sicilia, as *auxius*), 1895:228 (in catalog of Sicilian Hymenoptera, as *auxius*); Borries, 1897:40 (nesting habits); Adlerz, 1904:136 (prey: *Plagiognathus chrysanthemi*. Wolff, Miridae); 1910:51 (Sweden; nesting habits); Graeffe, 1911:44 (Italy: Trieste area); Schirmer, 1912:164 (Germany: Berlin area, as *ancius*); Rudow, 1912:75 (nesting in raspberry twigs, as *auxius*); R. Perkins, 1913b:394 (in key to British Crabronini); Jansson, 1922:25 (Sweden: Island of Öland); Coulon, 1925:124 (Germany); Hamm and Richards, 1926:315 (summary of nesting habits), 326 (list of prey); Butterfield and Fordham, 1931:157 (Great Britain: Yorkshire); Minkiewicz, 1935:196, 209 (Poland: Kazimierz on Wisła at 51°20'N 21°58'E); Routledge, 1933:89 (Great Britain: England: Cumberland); Richards, 1937b:106 (in checklist of British aculeates); J. Murray, 1938a:172 (Great Britain: Scotland: Dumfriesshire: Gretna); Aerts, 1939:134 (Germany: Nordrhein-Westfalen: loess cliff at Weilerswist near Köln); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow);

Schneid, 1941:1030 (Germany: Bayern: Bamberg area); Bristowe, 1948:33 (nesting habits); Chambers, 1949:228 (Great Britain: Bedfordshire); Guichard, 1928:72 (Great Britain: Norfolk coast); Bernard, 1935:67 (France: Var: Fréjus area); Guichard, 1938:72 (Great Britain: Norfolk coast); Murray, 1938:172 (Scotland: Dumfriesshire); Hoop, 1942:87 (Germany: Einfeld); Bat'a, 1944a:25 (Czech Republic); Richards, 1944b:133 (prey: *Tachydromia verralli* Collin, an empidid); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Alderley, Mitcheldean, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Leclercq, 1951e:6, footnote (study of type material); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:250 (Sweden: Gästrikland Region); Hamann, 1960:199 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1963:178 (Great Britain: Kent County); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district); Srba, 1999:181 (Czech Republic: Chomutov); Vago, 2005a:14 (*Crabro anxius* in Cavro, 1950 is *Crossocerus ovalis* now).

Crabro shuckardi F. Smith, 1856:407 (as *Shuckardi*, incorrect original capitalization), junior primary homonym of *Crabro shuckardi* Dahlbom, 1838. Substitute name for *Crabro exiguus* of Shuckard, 1837a:174 (♂ only),.

Crabro ovatus W. Schulz, 1906:201. Emendation of *Crossocerus ovalis* Lepeletier de Saint Fargeau and Brullé, 1835.

As *Crabro cinxius*: Wüstnei, 1886:36 (Germany: Schleswig-Holstein; Emmelsbüll, Sonderburg), corrected to *Crabro anxius* by Wüstnei, 1891a:26.

149.*ovchinnikovi* Kazenas

Crossocerus ovchinnikovi Kazenas, 2007b:87, ♂. Holotype: ♂, Kazakhstan: 40 km south of Tarbagatay village in Tarbagatay Range (ZIN).

150. *palmipes* (Linnaeus)

NOTE. *Crabro palmipes* of many authors is actually *Crossocerus tarsatus*. See Richards, 1935a:167.

Sphex palmipes Linnaeus, 1767:944, sex not stated. Holotype: ♂, Sweden: no specific locality (Linnean Society, London). – Schrank, 1781:384 (in revision of insects of Austria); de Villers, 1789:231 (redescription); Gmelin, 1790:2730 (redescription); Christ, 1791:274 (redescription); Thunberg, 1791:126 (specimens donated to Academia Upsaliensis); Turton, 1801:495 (redescription); Schrank, 1802:327(Germany: in revision of insects of Bayern (= Bavaria)); Day, 1979:69 (study of holotype); Day and Fitton, 1978:193 (recuration of Linnean type material). – **As *Crabro***

palmipes: Vander Linden, 1829:49 (new generic assignment, bibliographic references, Belgium: Bruxelles, redescription); Haliday, 1833:516 (Ireland: eastern coast north of Dublin); Dahlbom, 1839:28 and 1839-40:28 (in revision of Scandinavian Crabronini), 1842a:14 (in review of Scandinavian aculeates), 1844:332 (in revision of Sphecidae and Pompilidae), 1845:524 (in key to *Crabro*); Wissmann, 1849:16 (Germany: Kingdom of Hannover: Münden); Wesmael, 1852:601 (Belgium; diagnostic characters); F. Smith, 1856:397 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); Schenck, 1857:127 (in revision of fossorial wasps of Germany); F. Smith, 1858c:152 (in review of British Aculeata, redescription); A. Morawitz, 1866a:270 and 1866b:348 (specimens in E. Eversmann collection); nec A. Costa, 1767c:122 (= *Crossocerus tarsatus*); Schenck, 1867a:351 (known from Germany); Bold, 1870:150 (Great Britain: Northumberland and Durham); Thomson, 1870:165 (in revision of Swedish Crabroninae); F. Smith, 1871b:15 (in catalog of British Aculeata); A. Costa, 1871b:30 (in revision of Italian Sphecidae); Kohl, 1880:126 (Austria: Tirol, and Italy: Trentino-AltoAdige); Siebke, 1880:69 (Norway); Kohl, 1883e:655 (Switzerland); Sickmann, 1883:71 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:36 (Germany: Schleswig-Holstein: Niebüll, Sonderburg); nec V. Perkins, 1892:205 (= *Crossocerus tarsatus*); Sickmann, 1893:68 (Germany: Niedersachsen: Iburg); Krieger, 1894:5 (Germany: Kingdom of Saxony); Freke, 1896:41 (Ireland); Meunier, 1896:270 (Belgium: Bruxelles area); Dalla Torre, 1897:615 (in catalog of world Sphecidae); R. Bradley, 1900:13 (Great Britain: Birmingham); Nevinson, 1900:62 (Great Britain: Wales: Towyn); E. Saunders, 1900b:266 (Great Britain: Scotland: Nethy Bridge); A. Carter, 1901a:67 (Great Britain: Scotland: Perthshire: Comrie); Rothney, 1901:150 (Great Britain: Cornwall: Tintagel); E. Saunders, 1902a:52 (southwestern Ireland), 1902b:143 (British Channel Islands: islands of Guernsey and Jersey); Antiga and Bofill, 1904:24 (Spain: Cataluña Province); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Orr, 1909a:25 (Ireland: Antrim County); nec Hallett, 1914:99 (= *Crossocerus tarsatus*); Kohl, 1915:251 (in revision of Palearctic Crabronini); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: Dolina Kościeliska); Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921b:159, 161 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Berland, 1925d:183 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); H. Jones, 1926:(13) (Great Britain: Hampshire: no specific locality); Zavadil, 1926:35 (Czechoslovakia); Jansson, 1934:288 (Sweden);

Steck, 1935:325 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:164 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:117 (northwestern Germany); Giner Marí, 1943a:244 (in Sphecid Fauna of Spain); Zavadil *in* Zavadil and Šnoflak, 1948:127, 130 (in key to Sphecidae of Czechoslovakia); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Fæster, 1951:458 (distribution in Scandinavia); Abrahamsen, 1952:124, 129 (nesiting habits); Tjeder, 1954:69 (Sweden: eastern Skåne: Kåseberga); Steiner, 1955:141 (France: Dordogne); Vogrin, 1955:41 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:177 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:144, 151 (in key to Polish Sphecidae); Wengris, 1962:207 (Lithuania: Vilnius area); Miczulski, 1967:189 (Poland: Felin near Lublin); Niedl and Deneš, 1967:73 (Czech Republic: Třeboň area); Schmidt, 1969:166 (Germany: Rhein-Main area: Darmstadt, Kelsterbach near Frankfurt am Main); Tumšs and Maršakovs, 1970:28 (Latvia); Balthasar, 1972:118 (in Sphecid Fauna of Czechoslovakia); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:120, 124 (Poland: Mazovian Voivodship: Białołęka, Hamernia, Wola Mrokowska); Kowalczyk, 1988a:46 (Poland: Rogów), 1988b:66 (Poland: environs of Łódź). – **As *Crossocerus palmipes***: Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera); R. Perkins, 1913b:390 (in key to British Crabronini); Noskiewicz, 1918:138 (Galicia, now western Ukraine: Biłohorszcze and Hołosko near Lwów, Lesienice, Pasieki); Iwata, 1933b:13 (locality records from Japan); Routledge, 1933:89 (England: Cumberland); Minkiewicz, 1935:215, 219 (Poland: Lake Garbaś 20 km west of Suwałki); Richards, 1935a:167 (study of type, which corresponds to *palmarius* of authors), 1937b:106 (in checklist of British aculeates); Struve, 1937:149 (Germany: Island of Borkum); J. Murray, 1938a:172 (Great Britain: Scotland: Dumfriesshire: Gretna); de Graham, 1941:99 (Great Britain: Lincolnshire); Schneid, 1941:1030 (Germany: Bayern: Bamberg area); J. Perkins, 1942:198 (Sweden: Skåne: Genarp); Chambers, 1949:228 (Great Britain: Bedfordshire); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Leclercq, 1949a:5 (Poland: Bydgoszcz, as Bromberg), 1950f:22 (distribution in Belgium), 1951e:6 (bibliography of Belgian records); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Leclercq, 1954c:227 (in catalog of world Crabronini), 308 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); Móczár, 1958a:263 (in annotated catalog of Hungarian Crabronini),

1958b:196 (Hungary: collecting localities); nec Nelson, 1958:154 (= *Crossocerus tarsatus*); Tsuneki, 1959n:76 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:33 (Germany: Nassau); van der Vecht, 1961a:68 (synonymy); Valkeila, 1962b:68 (southwestern Finland); Valkeila, Brander, and Käpylä, 1963:41 (Finland: historical region Lounais-Hämeen = southwest Häme); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:145 (in Sphecid Fauna of Switzerland); Valkeila, Brander, and Käpylä, 1964:75 (Finland: southern Finland: Tammela); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:353 (Turkey); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Aschaffenburg, Grossheubach, Kahl); Scobiola-Palade, 1968c:387 (Romania: Bucureşti); Benedek, 1969a:85 (Hungary; marshy meadow); Dathe, 1969:438 (Germany: Berlin Zoological Garden); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Oehlke, 1970:776 (Democratic Germany); Schmidt, 1971b:49 (Germany: Rheinland-Pfalz: Mainzer Sand); Haeseler, 1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Oehlke, 1972:140 (Germany: Island of Hiddensee); de Beaumont, Bytinski-Salz and Pulawski, 1973:22 (record by Bodenheimer, 1937 is probable); Leclercq, 1974d:266 (synonymy), 1975b:2 (France); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Eck, 1976:94 (Democratic Germany); Lomholdt, 1976:390 (in Sphecid Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Pulawski, 1978:257, 263 (in key to Sphecidae of European part of USSR); Schmidt, 1977-1978:57 (Germany: Rheinland-Pfalz: Gonsenheimer Wald); Schwammberger, 1978:420 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills); Haeseler, 1979:10 (Germany: Niedersachsen: 10 km south of Oldenburg); Leclercq, Gaspar, and Verstraeten, 1979:map 1444 (Belgium); Marshakov, 1979a:93, 99 (in key to *Crossocerus* of Russian Far East); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Marshakov, 1980c:339, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:117 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Richards, 1980:48, 50 (in key to Sphecidae of British Isles); Schmidt, 1980:373 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:316, 323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:48 (Germany: Westfalen: Hamm); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria);

Lefeber, 1983a:85 (Netherlands: islands of Waddendistrict: Vlieland, Terschelling, and Ameland); Riemann, 1983:88 (Germany: Bremen-Daverden area); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Józan, 1985b:59 (Hungary south of Lake Balaton), 70 (map of distribution in Hungary), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Brechtel, 1986:71 (Germany: Südpfalz); Archer, 1986:32 (Great Britain: Yorkshire); Józan, 1986:372 (Hungary: Kiskunság National Park); Nemkov, 1986:103 (Russia: Irkutsk Oblast'); Skibińska, 1986b:151, 155 (Poland: suburbs of Warszawa), 160 (gardens); Vikberg, 1986:77 (Finland); Riemann, 1987b:35 (Germany: Niedersachsen: Nature Reserve Dünengebiet near Neumühlen); Schmidt and Westrich, 1987:373 (Germany: Mainz area); Dollfuss, 1988:16,28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Haeseler, 1988:210 (Germany: Friesian Islands); Riemann, 1988:223 (Germany: Bremen area); Jacobs, 1989:20 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:97 (Belorussya: Berezinskiy Nature Reserve); Skibińska, 1989a:206 (Poland: Warszawa area); Jacobs and Oehlke, 1990:185 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Pádr, 1990:86 (Czech Republic: Praha area); Pagliano, 1990:85 (in catalog of Italian Sphecidae); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:154 (in key to Sphecidae of North and Central Europe); Jacobs, 1991:46 (Germany: Mecklenburg-Vorpommern: Nature Reserve Elbtaldünen); Kowalczyk, 1991a:90, 94, 97, 99, 102, 104 (Poland: Łódź), 1991b:121 (Poland: Augustów Forest); Kuhlmann et al., 1991:89 (Germany: Senne Region); Pagliano, 1991b:337, 345 (in key to Italian Crabroninae); Budrys, 1992:34 (in list of Sphecidae of Lithuania); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Bitsch and Leclercq, 1993:127 (in revision of western European Crabroninae); Kuhlmann, 1993:75 (Germany: known from Westfalen); Leclercq, 1993c:21 (locality records from Europe); Leclercq and Barbier, 1993:39 (map of distribution in France); Archer, 1994a:73 (Great Britain: Yorkshire); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Theunert, 1994c:36 (Germany: summary of records from Niedersachsen and Bremen); Archer, 1995a:23 (Great Britain: Yorkshire: frequency); Archer and Burn, 1995:58 (Great Britain: Yorkshire:

Crow Wood near Finningley); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:6 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:431, 438 (in key to Sphecidae of Russian Far East, as *palmipes palmipes*); Scharrer, 1995:26 (Germany: Bayern: Aschaffenburg); Schmid-Egger, Risch, and Niehuis, 1995:174 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:424, 425 (Poland: pine forest in Białowieża Primeval Forest); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Jakubzik, 1996:252 (Germany: Köln); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Witt, 1996:105 (Germany: Brandenburg); Woydak, 1996:59 (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, 1997:11 (in checklist of German Sphecidae); 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); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Steller Heide); 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); van der Smissen, 1998:56 (Germany: Mecklenburg-Vorpommern, Niedersachsen, Schleswig-Holstein); K. Weber, 1998:137 (Germany: Bayern: Bamberg area); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:6, 10 (in improved key to *Crossocerus* of Benelux); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: threatened with extinction in Nordrhein-Westfalen); Mandery, 1999:105 (Germany: Bayern: Coburg area); Pauly, 1999:110 (in catalog of Belgian aculeates); Riemann, 1999:834 (Germany: Niedersachsen: sand pits near Bremen); Saure, 1999:33 (Germany: Berlin-Köpenick); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Wickl, 1999a:104 (Germany: Bayern: Oberpfalz area); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:307 (in Sphecid Fauna of Germany); Dressler, 2000:31 (Germany: Hessen: Darmstadt area); Jacobs, 2000:7 (Germany: Mecklenburg-Vorpommern: not endangered); Józan, 2000:110 (Hungary: Bakony Mountains); Mokrousov, 2000b:31

(Russia: Nizhniy Novgorod Oblast'); Pijfers, 2000:4 (Netherlands: Twente Region); Zettel, 2000:30 (Austria: Hundsheimer Kogel); Haeseler, 2001:265 (Germany: Niedersachsen: Brookdeich near Oldenburg); Józan, 2001:280 (Hungary: Somogy County); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 195 (review of known biology); Ohl et al., 2001:138 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:76 (Austria: Wien); Archer, 2002b:114 (Great Britain: Watsonian Yorkshire: distribution map), 2002e:42 (Great Britain: Watsonian Yorkshire); Kazenas, 2002a:101 (geographic distribution, collecting localities in Kazakhstan); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); C. Schlüter, 2002:141 (Germany: Niedersachsen: anthropogenic habitats in Ammerland District); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:72 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (Germany: in catalog of wasps and bees of Bayern); von der Heide and Metscher, 2003:101 (Germany: Niedersachsen: Emsland area); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: endangered); Wiśniowski *in* Dylewska and Wiśniowski, 2003:165 (Poland: Ojców National Park); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:373 (in Wasp and Ant Fauna of Netherlands); Raemakers, van den Eijnde, and Kleukers, 2004:292 (Netherlands: Tungelerwalle near Weert); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:48 and 61 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolo, 2005:245 (in Sphecid Fauna of Italy); Reder, 2005:949 (Germany: Rheinland-Pfalz: eight localities); Riemann

and Hohmann, 2005:551 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:35 (Great Britain: Cumbria County); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors), 59 (Germany: Hessen: Fulda: Eichenzell); Straka, 2005a:397 (critically endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:19 (northern France: not collected after 1950); Dathe, 2006:38 (*Crabro scutatus*, recorded from Plauenscher Grund near Dresden, Germany, by von Block, 1799, is now *Crossocerus palmipes*); Dollfuss, 2006:512 (Bulgaria: Slanchev Bryag; Finland: Helsingin Pitaj); Gorobchishin, 2006:125 (Ukraine: village Kruglyk near Kyiv); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Guldemond, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap); Hallin, 2007:154 (Sweden: Blekinge and Närke counties); Herrmann, 2007a:51 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007:129, 134 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Kazenas, 2007a:92 (Kazakhstan: Akmala Oblast': Kurgandzhin Nature Reserve and vicinity); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); 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); Danilov and Tshernyshev, 2008:42 (Russia: Novosibirsk Oblast': Karasuk area); Haeseler, 2008:308 (Germany: Friesian Islands); Ljubomirov and Yildirim, 2008:267 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:24 (Germany: map of distribution in Niedersachsen and Bremen); Bitsch and Leclercq, 2009:221 (in supplement to vol. I of Faune de France, 1993: in Italy, recorded from Veneto, Piemonte, and Toscana by Pagliano and Negrisolo, 2005); 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); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 178 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:106 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:181 (Italy: recorded from Trentino-Alto Adige by Kohl, 1880); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Ermilov and

Mokrousov: 2010:89 (phoretic mite *Acarus psenuli* (Vitzthum) in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Krauss, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast', Chuvash Republic: no specific localities); Rudoiskatel', 2010:156 (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, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:88 (Western Slovakia: Borská Nížina), 101 (Western Slovakia: recorded from Borská Nížina); van der Smissen, 2010a:337 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Archer, 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor); Baghirov, 2011b:145 (Russia: Altay Republic: Chike-Taman); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:71 (Russia: Chuvash Republic); Pagliano, 2011a:144 (specimens in M. Spinola collection, Torino); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:70 (Germany: Hessen: endangered); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Akulov and Proshchalykin, 2013:115 (Russia: Siberia: Krasnoyarsk Kray, as *Crossocerus palmipes palmipes*); Mokrousov, Ruchin, and Egorov, 2013:200 (Russia: Mordovian Republic: Mordovian State Nature Reserve); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:198 (in annotated catalog of aculeate wasps of Belorussia); Flügel, 2014:254 (Brandenburg: Hangelsberger Heide); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:56 (Russia: Republic of Tatarstan); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Saure,

2015:13 (Germany: Berlin-Lichterfelde); Else, Bolton, and Broad, 2016:19 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Isle of Man); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Antropov, 2017b:229 (in catalog of Crabroninae of Russia, as *Crossocerus palmipes palmipes*); Burguet and Durand, 2017:9 (France: Puy-de-Dôme: basin of river Crouël); Jacobs and Liebig, 2018:138 (Russia: Irkutsk Oblast': Sarma, as *Crossocerus palmipes palmipes*); Olszewski and Kowalczyk, 2019:94 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13227 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:97 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:66 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland) Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

Sphex palmarius Schreber, 1784:100, ♂ (as *palmaria*, incorrect original termination). Holotype: ♂, Germany: Neuwarp, now Poland: Nowe Warpno (depository?). Synonymized with *Crossocerus palmipes* by Richards, 1935a:167 – **As *Crabro palmarius***: A. Morawitz, 1864:456 (new generic assignment, Russia: Sankt-Petersburg), 1866a:270 and 1866b:348 (specimens in E. Eversmann collection); Thomson, 1870:165 (in revision of Swedish Crabroninae), 1874:272 (in revision of Hymenoptera of Scandinavia); E. Saunders, 1880:286 (in revision of British Aculeata); Wüstnei, 1886:36 (Germany: Schleswig-Holstein: Husum, Kollund); Schøyen, 1887:11 (Norway: Kristiania, now Oslo); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann, 1883:71 (Germany: Niedersachsen: Wellingholthausen); Sickmann, 1893:68 (Germany: Niedersachsen: Iburg); Krieger, 1894:4 (Germany: Kingdom of Saxony); E. Saunders, 1896:133 (in revision of British Aculeata); Dalla Torre, 1897:614 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Hungary); Strand, 1898b:96 (Norway); Nordenström, 1901:206 (Sweden: Småland: Vernamo); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); E. Saunders, 1907b:67 (Great Britain: West Suffolk and Eastbourne); Schmiedeknecht, 1907:196, 198 (in key to Hymenoptera of Central Europe); Šustera, 1909:34 (Czech Republic: vicinity of Praha); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine: Zhytomyr Oblast': Radomyshl'); Alfken, 1914:274 (northwestern Germany);

Birula, 1914:377 (Belorussia: Ambrosovichi and Luskinopol' near Vitebsk); Kohl, 1915:248 (in revision of Palearctic Crabronini); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921b:158, 160 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Hedicke, 1922:270 (Germany: Brandenburg: Gross Machnower Weinberg); Berland, 1925d:183 (in Sphecid Fauna of France); Bischoff, 1925:298 (Latvia: Wezkukkul; Poland: Grajewo area); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:35 (Czechoslovakia); Berland, 1928b:180 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d: France: Finistère: Fouesnant); Bouwman, 1930:102 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:652, 654 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:148 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: Solbosch, Uccle); Gussakovskij, 1932:26 (Russia: Primorskiy Kray); Minkiewicz, 1933:100 (nesting habits); Balles, 1934:17 (Germany: Baden-Württemberg: Achern); Bondroit, 1934:62 (Belgium: Watermael); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Goebel, 1937:39 (Poland: Poznań District: Strzeszynek); Zavadil, Šustera, and Bat'a, 1937:164 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:117 (northwestern Germany); Dovnar-Zapolskiy, 1940:303 (Russia: Kursk Oblast'); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); Móczár, 1941:96 (Hungary: Ecsen); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); de Beaumont, 1945:481 (Switzerland); Móczár, 1947b:90 (Hungary: Siebenbürgen: Székelykeresztúr, now Romania: Transylvania: Cristuru Secuiese); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavro, 1950:38 (France: Département du Nord); Fæster, 1951:458 (distribution in Scandinavia); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Pfalz region); Vago, 2005a:14 (*Crabro palmarius* in Cavro, 1950 is *Crossocerus palmipes* now). – **As *Crossocerus palmarius***: Borries, 1897:40 (new generic assignment, flying from June to end of August); J. Nielsen, 1901a:262 (nesting habits); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Graeffe, 1911:44 (Italy: Trieste area); Schirmer, 1912:164 (Germany: Berlin area); R. Perkins, 1913b:390, 394 (in key to British Crabronini); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); R. Perkins, 1924:225 (Great Britain: Devon); Coulon, 1925:123 (France: Evreux; Germany); Hamm

and Richards, 1926:314 (summary of nesting habits), 326 (list of prey); Hémon, 1926:199 (France: Finistère: Fouesnant); Minkiewicz, 1935:196, 209 (Poland: Kazimierz on Wisła at 51°20'N 21°58'E), 215 (Poland: Lake Garbaś 20 km west of Suwałki); Bat'a, 1944a:25 (Czech Republic); Szulczewski, 1950:104 (Poland: Wielkopolski National Park 15 km south of Poznań); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology).

Crabro scutatus Fabricius, 1787:296, sex not stated. Holotype: ♂, Denmark: Hafniae, now Copenhagen (ZMUC, Sehestedt collection). Synonymized with *Crabro palmarius* by Peets, 1909-1911:66, 67, and Kohl, 1915:248, synonymy confirmed by van der Vecht, 1961a:68. – Olivier, 1792a:515 (redescription); Fabricius, 1793:298 (redescription); Panzer, 1793, Heft 15:22, 23 (in revision of German insects); Fabricius, 1796:51 (in Index to his Entomologia Systematica, 1793), 1804:312 (redescription); Panzer, 1806:183 (in critical review of his previous work); Jurine, 1807:212 (in checklist of species of *Crabro*); Spinola, 1806:106 (Italy: Liguria); Klug, 1808:54 (male foretibia with shield-like appendage); Stephens, 1829a:364 (in catalog of British insects), 1829b:33 (in checklist of British insects); Vander Linden, 1829:46 (bibliographic references, Belgium: Bruxelles, Denmark: Copenhagen; Germany, identity of female); Shuckard, 1837a:129 (in revision of British Aculeata); Dahlbom, 1838:30 and 1839-40:30 (in revision of Scandinavian Crabronini); von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:329 (in revision of Sphecidae and Pompilidae), 1845:XXV (type material examined), 524 (in key to *Crabro*), determination corrected to *Crabro palmarius* by Thomson, 1870:165; Eversmann, 1849:420 (Russia: Kazan and Orenburg provinces); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Wissmann, 1849:16 (Germany: Kingdom of Hannover: Hedemünden); F. Smith, 1851c:26 (Great Britain: Hampshire: Hawley, Kent: Birch Wood); Wesmael, 1852:601 (Belgium: Bruxelles); F. Smith, 1853:63 (in checklist of British Hymenoptera), 1856:396 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); F. Smith, 1858c:143 (in review of British Aculeata, redescription); Schenck, 1960:146 (Germany: Nassau Region); Taschenberg, 1866:178 (in revision of Hymenoptera of Germany); A. Costa, 1867c:128 (in revision of Italian Sphecidae); Schenck, 1867a:351 (Germany: Nassau Region); A. Costa, 1871b:57 (in revision of Italian Sphecidae); F. Smith, 1871b:15 (in catalog of British Aculeata); Taschenberg, 1875:382 (Germany: Halle); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Meunier, 1896:270 (Belgium:

Bruxelles area); von Heyden, 1905:83 (Germany: Hessen: Frankfurt); Peets, 1909-1911:66 (*Crabro scutatus* of Panzer = *Crabro palmarius*). – **As *Sphex scutata***: de Villers, 1789:244 (new generic assignment, redescription). – **As *Crossocerus scutatus***: Lepeletier de Saint Fargeau and Brullé, 1835:764 (new generic assignment, in revision of Crabronini); Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:168 (in revision of world Hymenoptera); Ruthe and Stein, 1857:315 (Germany: Berlin area); Taschenberg, 1858:108 (in key to Sphecidae of Germany); Assmuss, 1859:618 (Russia: Moscow Governorate); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Wierzejski, 1874 (Ukraine: Podole Region: Mielnica); Beuthin, 1876:230 (Germany: Hamburg area); Friese, 1883:201 (Germany: Sachsen-Anhalt: Weissenfels); Brischke, 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated, as *sculatus*); De Stefani Perez, 1894:216 (Italy: Sicilia), 1895:228 (in catalog of Sicilian Hymenoptera); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Rudow, 1912:75 (nesting in raspberry twigs, up to 24 cells in one nest); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:140 (specimens in M. Spinola collection, Torino, are *Crossocerus palmipes*).

Crossocerus ornatus Lepeletier de Saint Fargeau and Brullé, 1835:774, ♀. Syntypes: France: Bois du Vésinet and Paris area (M. Spinola collection, Torino). Synonymized with *Crabro palmarius* by Kohl, 1915:249. – Lepeletier de Saint Fargeau, 1845:177 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Bradley, 1957:47 (type in M. Spinola collection, Turin); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:143 (specimens in M. Spinola collection, Torino, are *Crossocerus palmipes* and *C. elongatulus*). – **As *Crabro ornatus***: Dahlbom, 1844:321 (new generic assignment, original description copied), 1845:528 (unknown to the author); Kirchner, 1867:226 (in catalog of European Hymenoptera, as *ornatus* Panzer).

Crabro scutellaris Gimmerthal, 1836:435, sex not stated. Holotype or syntypes: Liefland, now Latvia: no specific locality (depository unknown). Synonymized with *Crossocerus palmarius* by

Leclercq, 1974d:266. – Dalla Torre, 1897:625 (in catalog of world Sphecidae).

Crabro gracilis Eversmann, 1849:419, ♀. Holotype or syntypes: ♀, Russia: Ural foothills: no specific locality (ZIN). Synonymized with *Crabro palmarius* by Kohl, 1915:249.

Crabro decoratus F. Smith, 1856:411. Substitute name for *Crabro ornatus* (Lepeletier de Saint Fargeau and Brullé, 1835) nec *Crabro ornatus* Lepeletier de Saint Fargeau and Brullé, 1845, now in *Ectemnius*.

ssp. *chosenensis* Tsuneki

Crossocerus palmipes chosensensis Tsuneki, 1957f:62, ♀, ♂. Holotype: ♀, central Korea: Shinshu (Kioto). – Tsuneki, 1959n:70 (in revised key to *Crossocerus* of Japan and Korea); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Tsuneki, 1982b:17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Leclercq, 1988:17 (redescription; Russia: Chita Oblast', Primorskiy Kray, Vladivostok); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:431, 438 (in key to Sphecidae of Russian Far East); Leclercq, 2009:161 (member of subgenus *Crossocerus*, as *choosenensis*), 178 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:106 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*, as *choosenensis*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); J.-K. Kim, 2014:427 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:229 (in catalog of Crabroninae of Russia).

151. *pakistanus* Leclercq

Crossocerus pakistanus Leclercq, 2009:178, ♂. Holotype: ♂, Pakistan: Rawalindi (FSAG). – Leclercq, 2009:161 (member of subgenus *Blepharipus*).

152. *parcorum* Leclercq

Crossocerus parcorum Leclercq, 1958a:25, ♀. Holotype: ♀, Zaire: Kamitungulu River, an affluent of Lusinga (MRAC). – Leclercq, 1958a:13 (in key to Afrotropical *Crossocerus*); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Leclercq, 2008:6 (in key to Afrotropical *Crossocerus*), 13 (bibliographic references).

153. *patei* Leclercq and Miller

Crossocerus patei Leclercq and Miller *in* Leclercq, 2000d:56, ♀, ♂. Holotype: ♂, Colombia: Buenaventura: Llano Bajo (BMNH). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

154. *pazensis* Leclercq

Crossocerus pazensis Leclercq, 2000d:58, ♂. Holotype: ♂, Bolivia: La Paz (BMNH). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

155. *peckorum* Leclercq

Crossocerus peckorum Leclercq, 2000d:59, ♀. Holotype: ♀, USA: New Mexico: Catron County: 8 mi. southeast of Luna (CNC).

156. *perpolitus* Leclercq

Crossocerus perpolitus Leclercq, 1978a:124, ♀. Holotype: ♀, Malaysia: Sabah (= North Borneo): Mount Kinabalu (BMNH). Paratypes: Malaysia: Cameron Highlands. – Leclercq, 1978a:120 (in key to Asian species of subgenus *Yuchiha*), 2009:162 (member of *subgenus* Yuchiha), 179 (in list of Asian *Crossocerus*, bibliographic references; Thailand: Chiang Mai: Doi Suthep).

157. *perpusillus* (Walker)

Crabro perpusillus Walker, 1871:27, ♂. Holotype or syntypes: ♂, Egypt: Cairo (destroyed). – Dalla Torre, 1897:618 (in catalog of world Sphecidae). – Innes Bey, 1912:112 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected at unknown locality); Leclercq, 1993d:41 (original description copied, may be an *Odontocrabro*). – **As *Crossocerus perpusillus***: Kohl, 1915:271 (tentative new generic assignment, original description copied); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Roche, 2007:140 (unrecognizable species).

158. *phaeochilos* Pate

Crossocerus phaeochilos Pate, 1944a:276, ♀. Holotype: ♀, Mexico: Jalisco: Guadalajara (ANSP). – Leclercq, 1954c:219 (in catalog of world Crabronini), 1968c:91 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); H. Allen, 1995:15 (holotype in ANSP); Leclercq, 2000d:59 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:7 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

159. *pignatus* Leclercq

Crossocerus pignatus Leclercq, 1968c:100, ♀, ♂. Holotype: ♀, Peru: no specific locality (NHMW). Paratype: Bolivia. – Leclercq, 1968c:95, 96 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Leclercq, 2000d:60 (in revision of New World *Crossocerus*); Amarante,

2002:25 (in catalog of Neotropical Crabronidae), 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Dollfuss, 2006:512 (Ecuador: Tungurahua: Baños); Leclercq, 2007g:194 (allotype in FSAG); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

160. *planifemur* Krombein

Crossocerus planifemur Krombein, 1952b:181, ♀, ♂. Holotype: ♀, USA: West Virginia: Hardy County: Lost River State Park (USNM). – Leclercq, 1954c:229 (in catalog of world Crabronini); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: West Virginia, nesting in tunnels in logs), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1667 (in catalog of North American Hymenoptera); Ahlstrom, 1995:111 (in checklist of insects of North Carolina); Leclercq, 2000d:60 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario).

Crossocerus spangleri Krombein, 1962a:16, ♀, ♂. Holotype: ♂, USA: Maryland: Plummers Island (USNM). Synonymized with *Crossocerus planifemur* by R. Miller *in* Krombein, 1979b:1667.– Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

161. *pleuracutus* Leclercq

Crossocerus pleuracutus Leclercq, 1973c:289, ♂. Holotype: ♂, Taiwan: Taihorin (ZMHU). – R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:11 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 180 (in list of Asian *Crossocerus*, bibliographic references).

162. *pleuralis* Leclercq and Miller

Crossocerus pleuralis Leclercq and Miller *in* Leclercq, 2000d:60, ♀. Holotype: ♀, Panama: Canal Zone: Island of Barro Colorado (UCD). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae)

163. *pleuralituberculi* Q. Li and He

Crossocerus pleuralituberculi Q. Li and He, 2004:1078, 1209, ♀, ♂. Holotype: ♀, China: Szechuan: Emeishan District: Emei Mountain: Xixiangchi (Zool. Inst., Acad. Sinica, Beijing). – Leclercq, 2009:161 (member of subgenus *Apocrabro*, may be

Apoides), 180 (in list of Asian *Crossocerus*, bibliographic references).

164. *podagricus* (Vander Linden)

Crabro podagricus Vander Linden, 1829:62, ♀. Holotype or syntypes: ♀, Belgium: Bruxelles (Inst. Roy. Sci. Nat. Belgique, Bruxelles). – Shuckard, 1837a:157 (in revision of British Aculeata); Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:339 (in revision of Sphecidae and Pompilidae); von Siebold, 1844:132 (Germany: Preussen: vicinity of Danzig, now Poland: Gdańsk); Dahlbom, 1845:524 (in key to *Crabro*); F. Smith, 1849a:2373 (Great Britain: Devonshire), 1851c:29 (Great Britain: London District); Wesmael, 1852:596 (Belgium, interpretation of species and synonymy); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:406 (in catalog of Hymenoptera in British Museum); Kawall, 1857:26 (Kurland, now Latvia); F. Smith, 1858c:134 (in review of British Aculeata, redescription); Six, 1859:18 (Netherlands: no specific locality); Schenck, 1860:145 (Germany: Nassau Region); A. Morawitz, 1866a:270 and 1866b:347 (specimens in E. Eversmann collection); Taschenberg, 1866:179 (in revision of Hymenoptera of Germany); A. Costa, 1867c:128 (in revision of Italian Sphecidae); Schenck, 1867a:351 (Germany: Nassau Region); Bold, 1870:149 (Great Britain: Northumberland and Durham); Thomson, 1870:164 (in revision of Swedish Crabroninae); A. Costa, 1871b:57 (in revision of Italian Sphecidae); F. Smith, 1871b:14 (in catalog of British Aculeata); Thomson, 1874:270 (in revision of Hymenoptera of Scandinavia); Taschenberg, 1875:382 (Germany: Halle); Kohl, 1880:125 (Austria: Tirol, and Italy: Trentino-AltoAdige); E. Saunders, 1880:284 (in revision of British Aculeata); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*), 188 (France: Landes); Kohl, 1883e:655 (Switzerland); Harwood, 1884:211 (England: Essex: Colchester area); Sickmann, 1885:176 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:37 (Germany: Schleswig-Holstein: Husum, Niebüll, Soholmbrück, Sonderburg); Schøyen, 1887:11 (Norway: Helgøen at lake Mjøsen, Kongsberg, Rendalen); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann, 1893:68 (Germany: Niedersachsen: Iburg, analysis of color variation); Krieger, 1894:4 (Germany: Kingdom of Saxony); E. Saunders, 1896:131 (in revision of British Aculeata); Dalla Torre, 1897:618 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in today's Croatia and Romania); Strand,

1898b:96 (Norway); Gardner, 1901:380 (Great Britain: Cheshire: Hazlegrove); Hocking, 1901:68 (Great Britain: Surrey county); E. Saunders, 1902b:143 (Great Britain: Channel Islands: Island of Jersey); de Cobelli, 1903:117 (Italy: Trentino: Alle Porte, Mori, Rovereto); Antiga and Bofill, 1904:23 (Spain: Cataluña Province, as *podagrarius*); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Jourdain 1904:221 (Great Britain: Derbyshire: Little Eaton); Kubes, 1905:84 (Czech Republic: Obora); Roman, 1907:108 (nesting in galleries in oak bark, preying on *Chironomus*, Chironomidae); E. Saunders, 1907b:67 (Great Britain: West Suffolk and Eastbourne); Schmiedeknecht, 1907:193, 195 (in key to Hymenoptera of Central Europe); Morley, 1909:305 (Great Britain: Isle of Wight); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine: Zhytomyr Oblast': Radomyshl'); Hallett, 1912:94 (Great Britain: Glamorgan County); Alfken, 1914:273 (northwestern Germany); Kohl, 1915:240 (in revision of Palearctic Crabronini); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921a:18 (Belgium: Arlon, Malonne), 1921b:156, 157 (in key to Belgian Sphecidae), 165 (phenology, nesting habits), 165 (phenology, nesting habits); Hedicke, 1922:270 (Germany: Brandenburg: Gross Machnower Weinberg); Maidl, 1922:75 (Albania); Berland, 1925d:186 (in Sphecid Fauna of France); Schütze, 1925:110 (Germany: Lausitz Region); Shestakov, 1925:35 (Russia: Yaroslavl' area); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:34 (Czechoslovakia); Crèvecoeur and Maréchal, 1927:138 (Belgium: Tilff forest and Sauheid); Berland, 1928b:180 (add Hamm and Richards, 1926 to bibliography in Berland, 1925d; France: Finistère: Fouesnant); Goidanich, 1928:96 (nesting habits), 103 (description of larva); Bouwman, 1930:101 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:650, 651, 655, 656 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:146 (in revision of Sphecidae of Finland); Bondroit, 1932:40 (Belgium: recorded from Bruxelles area by Vander Linden); Crèvecoeur and Maréchal, 1932:68 (in catalog of Belgian Hymenoptera); Merisuo, 1932:90 (Finland: Turku); Dulac, 1933a:38 (France: Saône-et-Loire: Savianges); Merisuo, 1933a:60 (Finland: city of Turku); E. Nielsen, 1933:267 (nesting in wood); Balles, 1934:15 (Germany: Baden-Württemberg: Baden-Baden, Hopfengarten); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Maréchal, 1935:126 (carrying dipteran eggs); Steck, 1935:324

(Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Haines, 1936:141 (Great Britain: Scotland: Inverness-shire: Grantown); Drogoszewski, 1936:129 (Poland: Łowicz); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg); Dulac, 1937:21 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Goebel, 1937:38 (Poland: Poznań-Dębina); Zavadil, Šustera, and Bat'a, 1937:163 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:116 (northwestern Germany); Maréchal, 1939:341 (Belgium: Loën); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Giner Marí, 1943a:243 (in Sphecid Fauna of Spain); Šnoflák, 1944a:143 (Czech Republic: serpentine steppe near Mohelno); Tsuneki, 1947d:290 (Korea); Zavadil *in* Zavadil and Šnoflak, 1948:124 (in key to Sphecidae of Czechoslovakia); Aerts, 1950a:50 (Germany: Nordrhein-Westfalen: Rheidter Wertchens near Köln); Cavro, 1950:39 (France: Département du Nord); Caruel, 1951:100 (France: Marne Département); Fæster, 1951:458 (distribution in Scandinavia); Leininger, 1951:115 (Germany: Baden-Württemberg); Moczar, 1953:311 (Hungary); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Nouvel and Ribaut, 1953:182 (France: Central Pyrénées: Garonne River valley); de Beaumont, 1954e:96 (Italy) Steiner, 1955:141 (France: Dordogne); Vergne, 1955:6 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:19 (in review of Dutch Sphecidae); Pulawski, 1958a:188 (Bulgaria: Kniazhevo near Sofia); Ceballos, 1959:231 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:146, 155 (in key to Polish Sphecidae); Plavil'shchikov, 1964:122 (Russia: Mordovian State Nature Reserve); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53; Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:95 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Skibińska, 1982:124 (Poland: Warszawa area); Kowalczyk, 1988b:66 (Poland: environs of Łódź). – **As *Ablepharipus podagricus***: R. Perkins, 1913b:390, 394 (new generic assignment, in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset); R. Perkins, 1924:225 (Great Britain: Devon), 1925:152 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:314 (summary of nesting habits), 328 (list of prey); Stelfox, 1927:300 (Ireland: list of localities); Jones, 1928b:14 (Great Britain: Hampshire: Milford-on-Sea); Richards, 1930:134 (Great

Britain: nesting in rotten posts at Bagley Wood near Oxford); Butterfield and Fordham, 1931:157 (Great Britain: Yorkshire); Spooner, 1931:16 (Great Britain: Cambridgeshire); Jones, 1932b:233 (Great Britain: Wicken Fen); Routledge, 1933:89 (England: Cumberland); Spooner, 1935:139 (Great Britain: Northamptonshire: Ashton Wold); Richards, 1937b:106 (in checklist of British aculeates); Guichard, 1938:72 (Great Britain: Norfolk coast); Hallett, 1938:73 (Great Britain: Herefordshire: Tram Inn); Yarrow, 1939:16 (Great Britain: Dorset: Lytchett Minster); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1030 (Germany: Bayern: Bamberg area); Spooner, 1942:110 (Great Britain: Bedfordshire); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Bristol, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Chambers, 1949:228 (Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Yeo, 1957:19 (Great Britain: Middlesex, now in London); Guichard, 1972:245 (Great Britain: London: Bushey Park); Vago, 2005a:14 (*Crabro podagricus* in Cavro, 1950 is *Crossocerus podagricus* now). – **As *Coelocrabro podagricus***: de Gaulle, 1908:122 (new generic assignment, in catalog of French Hymenoptera); Graeffe, 1911:44 (Italy: Trieste area); Schirmer, 1912:164 (Germany: Berlin area); Schütze, 1916:42 (Germany: Sachsen: Rachlau, visiting flowers of parseley, *Petroselinum crispum* (Mill.) Fuss, Apiaceae; Coulon, 1925:124 (France: Evreux; Germany); Hémon, 1926:199 (France: Finistère: Fouesnant); Harttig, 1930b:7 (specimen bearing dipteran egg); Baudot, 1931:255 (characteristics of cocoon); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Struve, 1937:149 (Germany: Island of Borkum). – **As *Crossocerus podagricus***: Herrich-Schaeffer, 1840:294 (new generic assignment, Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau and Brullé, 1835:786 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:189 (in revision of world Hymenoptera); Taschenberg, 1858:106 (in key to Sphecidae of Germany); Funk, 1859:58 (Germany: Bayern: Bamberg); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Wierzejski, 1874:261 (Ukraine: Podole Region: Mielnica); Friese, 1883:201 (Germany: Sachsen-Anhalt: Weissenfels); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Borries, 1897:39 (Denmark); Rudow, 1912:75 (nesting in raspberry twigs); Maréchal, 1930a:46 (visiting flowers of *Sambucus ebulus* L., Adoxaceae); Leclercq, 1949a:5 (Germany, France); Leclercq, 1951e:7 (bibliography of Belgian records); Bischoff and Stadler,

1954:127 (Germany: Bayern: Romberg); Grandi, 1954:242 (Italy); Leclercq, 1954c:231 (in catalog of world Crabronini), 308 (nest and prey records); Tsuneki, 1954b:59, 69 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Hellén, 1955a:128 (Finland: Naantali, Nagu); Evans, 1957b:108 (discussion of larval characters); Móczár, 1958b:196 (Hungary: collecting localities); Tsuneki, 1959n:68, 74 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:33 (Germany: Nassau); Tsuneki, 1960g:41 (no observations on nesting habits conducted in Japan); Grandi, 1962:98 (Italy); Valkeila, 1962b:68 (southwestern Finland); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:147 (in Sphecid Fauna of Switzerland); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Gauss, 1966c:240 (specimen bearing dipteran egg); Lefeber, 1966:210 (Netherlands: Sint-Pietersberg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:351 (Turkey); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Karlstadt); Leclercq, 1967a:32 (Great Britain: locality records); Lefeber, 1967c:220 (Netherlands: Sint-Pietersberg); Benedek, 1968:77 (Hungary, floral records); Haneda, 1968c:69 (a European species found in Japan); Leclercq, 1968b:39 (Great Britain: Kent); Lefeber, 1968a:5 and 1968b:95 (Netherlands: Sint-Pietersberg); Wolf, 1968:12 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:85 (Hungary: marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena pruni* (Geoffroy)); Lefeber, 1969a:79 (Netherlands: Sint-Pietersberg), 1969b:99 (Netherlands: Kanne, Sint-Pietersberg; Belgium: Lanaye), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Zangheri, 1969:1707 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970 (Hungary: Tapolca); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Oehlke, 1970:781 (Democratic Germany); Leclercq, 1971:215 (Spain); Schmidt, 1971b:50 (Germany: Rheinland-Pfalz: Gonsenheimer Wald), 1971c:75 (Germany: Schleswig-Holstein); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Kazenas, 1972b:171 (Kazakhstan); Kofler, 1972:114 (Austria: eastern Tirol); Erlandsson, 1974:85 (Italy); Leclercq, 1975b:2 (France); Lomholdt, 1975b:32 (Denmark: Island of Anholt); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Lomholdt, 1976:392 (in Sphecid Fauna of Fennoscandia and Denmark); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Guichard, 1977:253 (Great Britain: Surrey); Schmidt, 1977:98 (Germany:

Baden-Württemberg: Enzklösterle in Schwarzwald), 1977-1978:58 (Germany: Rheinland-Pfalz: Mainzer Sand); Haeseler, 1978c:194 (Germany: Friesian Islands: Island of Borkum); Marion, 1978:90 (France: Nièvre Department); Pulawski, 1978:260, 263 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills); Leclercq, Gaspar, and Verstraeten, 1979:map 1450 (Belgium); Marshakov, 1979a:95, 99 (in key to *Crossocerus* of Russian Far East); Preuss, 1979c:86 (Germany: Rheinland-Pfalz: several localities); Richards, 1979:398 (British Channel Islands); Schmidt, 1979a:57 (Germany: Ost-Holstein); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino, as *podagrius*); Marshakov, 1980c:346, 349 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Pagliano, 1980:121 (Italy: Piemonte); Richards, 1980:48 (in key to Sphecidae of British Isles); Schmidt, 1980:373 (Germany: Baden-Württemberg); Westrich, 1980:635 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Woydak, 1981:48 (Germany: Westfalen: Hamm); Gayubo, 1982b:25 (Spain: Ávila, Cáceres, and Salamanca provinces); Silvestre de Sacy, 1982:4 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:16 (in catalog of Sphecidae of Austria); Józan, 1983:101 (Hungary); Riemann, 1983:88 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Gayubo, 1984b:96 (Spain: previously recorded from Salamanca Province); Gayubo and Tormos, 1984:18 (Spain: Valencia); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Nilsson, 1984:104 (Sweden: Västmanland Province); Sagvolden, 1984:20 (Norway: Telemark: Kjølebrønn); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Haeseler, 1985c:571 (Germany: Friesian Islands); Józan, 1985b:59 (Hungary south of Lake Balaton), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Tyrner, 1985:9 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Brechtel, 1986:71 (Germany: Südpfalz); Gayubo and Heras, 1986:56 (Spain: Segovia Province; floral records); Gayubo and Sanza, 1986:66 (Spain: Burgos); Józan, 1986:372 (Hungary: Kiskunság National Park); Skibińska, 1986b:163 (Poland: Warszawa: urban parks), 165 (streetside green), 175 (various green urban habitats); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:373 (Germany: Mainz area); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:16, 28 (Austria:

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and Malaise traps); Bitsch and Leclercq, 2009:218 (in supplement to vol. I of Faune de France, 1993: diagnostic characters from Jacobs, 1999; France: Cantal: Lake Cregut; Sarthe: Saint-Cosme-en-Vairais); Burguet, 2009:15 (France: Département de Puy-de-Dôme: Bois de la Comté); Debuyser and Vago, 2009:5 (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); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Józan, 2009:166 (Croatia: Mošćenice, Rovini); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 180 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:99 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Pagliano, 2009:181 (Italy: recorded from Sicilia by Tomarchio and Turrisi, 2006, as *podagritus*); Ruchin, Antropov, and Shibayev, 2009:169 (Russia: Republic of Mordovia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořak, and Bogusch, 2009:259 (Czech Republic: Jizerské Mountains and Frýdlant region); Venne, 2009:111 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Ermilov and Mokrousov: 2010:89 (phoretic mite *Acarus psenuli* (Vitzthum) 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, Krauss, von der Dunk, and Wickl, 2010:26 (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, Tatarstan: no specific localities); Rudoiskatel', 2010:156 (Russia: central and southern Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:133 (Germany: Bayern: collected along Main-Donau canal); Shorenko and Konovalov, 2010:17 (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:337 (Germany: Schleswig-

Holstein and Mecklenburg-Vorpommern: locality records), 2010b:384 (France: Drôme: Dieulefit); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011c:43 (Great Britain: Watsonian Yorkshire: Lindrick area), 2011d:187 (Great Britain: Watsonian Yorkshire: Thorne Moor); Saure, 2011a:6 (Germany: Berlin: former airport Tempelhof); Baghirov, 2011b:145 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Falk, 2011:64 (Great Britain: Sussex: South Downs); Gogala, 2011:20 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:70 (Russia: Chuvash Republic); Pagliano, 2011a:144 (specimens in M. Spinola collection, Torino, are *Lindenius* sp.); Rudoiskatel', 2011d:242 (Russia: central Ural Mountains); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg); Schmid-Egger, 2011a:37 (France: Parc National du Mercantour: Mollières); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:124 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Flieβ 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); Burguet *in* Durand and Burguet, 2012:2, fiche 5 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Hellrigl, 2012:129 (Italy: Provincia Autonoma di Bolzano-Alto Adige, as Südtirol); Larivière, Chapelin-Viscardi, and Maillet-Mezeray, 2012:296 (France: Essonne: Boigneville and Maisse); Prisniy, 2012:49 (Russia: Belgorod Oblast'); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia, Russia: Kirov Oblast': Arkhangelskoye, and Krasnaya Polyana near Sochi: collected in private plots); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:82 (Turkey: Bayburt: Aydıntepe); Zettel, 2012:78 (Austria: Niederösterreich: Golitsch and Windmühle); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg), 2013b:57 (Germany: Hessen: Knüllköpfchen), 2013c:303 (Germany: Hessen: Kassel); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:190 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and

Gayubo, 2013:16 (Portugal: Douro International Natural Park); Zettel, Zimmermann, and Wiesbauer, 2013:12 (Austria: Wien: Donaupark); Bitsch, 2014:401 (France: Loiret: Ardon; Tarn:Magdeleine-sur-Tarn); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roβstein); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:56 (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, 2015:141 (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); Shorenko, 2015:320 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:118 (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, 2016:14 (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, 2016:572 (Russia: Krasnodarskiy Kray); Saure, 2016b:48 (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, 2016:44 (Turkey: Tunceli: Pülümür: Sağlamtaş, as *Crossocerus podagricus podagricus*); Antropov, 2017b:227 (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 canopy and understory); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Doline and Eschkopf near Rockensüß); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane); Shorenko, 2017:76 (in Crimea collected in June and August); Tosser, Chapelin-Viscardi, and Le Divelec**,** 2017:31 (France; found in agricultural landscape); Shorenko, 2018:127 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:14 (France: in list of Sphecidae

sensu lato of Franche-Comté); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:10 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:94 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13227 (Russia: Mordovia State Nature Reserve); Vane-Wright, 2019:37 (Great Britain: Kent: Island of Bingley); Kejval, Blažej, and Erhart, 2020:97 (western Czech Republic); Shorenko, 2020:48 (Crimea: Karadag Nature Reserve); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:48 (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, 2021:47 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:81 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Jakubzik and Cölln, 2022:11 (Germany: Rheinland-Pfalz: Moselle River valley between Drohn and Kattenes); Japoshvili and Ljubomirov, 2022:277 (Georgia: Lagodekhi Protected Areas); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

Crabro tibialis Stephens, 1829a:366, nomen nudum (in catalog of British insects). Junior secondary homonym in *Crabro* of *Vespa* (*Crabro*) *tibialis* Gmelin, 1790. Synonymized with *Crabro podagricus* Vander Linden, 1829 by .... – Stephens, 1829b:34 (in checklist of British insects).

Crossocerus vicinus Dahlbom, 1842:14, ♀. Holotype or syntype: Sweden: Scania [= Skåne]: no specific locality (Lund). Synonymized with *Crabro varus* by Dahlbom, 1845:523 and with *Crabro podagricus* by Wesmael, 1852:596 and Thomson, 1870:164. – Dahlbom, 1844:333 (in revision of Sphecidae and Pompilidae); Ruthe and Stein, 1857:315 (Germany: Berlin area); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region), 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region).

Crabro snoflaki Zavadil *in* Zavadil and Šnoflak, 1948:124, ♀, ♂, (as *Snoflaki*, incorrect original capitalization). Syntypes: Czechoslovakia: Brno (NMPC). Synonymized with *Crabro podagricus* by Balthasar, 1972:95. – Zavadil *in* Zavadil and Šnoflak, 1948:124 (in key to Sphecidae of Czechoslovakia); Leclercq, 1954c:231 (in catalog of world Crabronini, original description translated into French); Pulawski, 1978:260, 263 (in key to Sphecidae of European part of USSR).

Crabro podagricus var. *punctatus* Šnoflak *in* Zavadil and Šnoflak, 1948:124, ♀ (as *punctata*, incorrect original termination). Holotype or syntypes: Czechoslovakia: no specific locality (NMPC). Synonymized with *Crabro podagricus* by Leclercq, 1954c:231 and Balthasar, 1972:95.

ssp. *hokusenensis* Tsuneki

Crossocerus podagricus hokusenensis Tsuneki, 1974a:378, ♀. Holotype: ♀, Korea: Ryang-gang Province: Sam-zi-yan (TMB). – R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Tsuneki, 1982b:17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 180 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:38 (member of subgenus *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*); J.-K. Kim, 2014:427 (in catalog of Sphecidae *sensu lato* of Korean Peninsula).

Crossocerus podagricus hokusenensis Tsuneki, 1991:202, as new subspecies. Nomen nudum.

165.*porexus* Leclercq

Crossocerus porexus Leclercq, 1968c:100, ♀, ♂. Holotype: ♀, Brazil: Santa Catarina: Nova Teutonia (FSAG). – Leclercq, 1968c:95 (in key to *Crossocerus* of Latin America); Fain, 1973:169 (parasite: *Crabrovidia crossocerus* Fain, a saproglyphid mite); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2000d:60 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae), 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Leclercq, 2007g:194 (holotype in FSAG); Rasmussen and Asenjo, 2009:8 (in checklist of Crabronidae of Peru).

166.*pseudochromatipus* Leclercq and Miller

Crossocerus pseudochromatipus Leclercq and Miller *in* Leclercq, 2000d:61, ♀, ♂. Holotype: ♂, USA: Washington: Seattle (USNM). – Ratzlaff, 2016:25 (Canada: British Columbia: from Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia, Yukon Territory, first record from Alberta: no specific locality).

167.*pseudomexicanus* Leclercq and Miller

Crossocerus pseudomexicanus Leclercq and Miller *in* Leclercq, 2000d:62, ♀, ♂. Holotype: ♀, Mexico: Jalisco: Atenquiqui 18 mi. west of Jalisco (Los Angeles). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

168.*pseudopalmarius* (Gussakovskij)

Crabro pseudopalmarius Gussakovskij, 1932:26, ♀. Holotype: ♀, Russia: Primorskiy Kray: Sutshan (Stockholm). – **As *Crossocerus pseudopalmarius***: Leclercq, 1954c:228 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1965b:36 (China: Heilongjiang: Harbin), 1967e:2 (China: Manchuria), 1974a:379 (Korea); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Marshakov, 1979a:91, 97 (in key to *Crossocerus* of Russian Far East); Tsuneki, 1982b:17 (known from Korea); Paik, 1985:201 (in list of Sphecidae of Korea); Tsuneki, 1991:202 (Korea); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430, 436 (in key to Sphecidae of Russian Far East); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Hoplocrabro*), 180 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:110 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Tano, 2010b:44 (member of subgenus *Hoplocrabro*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); J.-K. Kim, 2014:427 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:230 (in catalog of Crabroninae of Russia).

Crossocerus asiaticus Tsuneki, 1967e:12, ♀. Holotype: ♀, China: Heilongjiang: Kharbin (RMNH). Synonymized with *Crossocerus pseudopalmarius* by Tsuneki, 1974:379. – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae), 628 (synonymy with *Crossocerus pseudopalmarius* reported).

169.*pueblensis* Leclercq

Crossocerus pueblensis Leclercq, 2000d:62, ♀. Holotype: ♀, Mexico: Puebla: 31 mi. northeast of Teziutlán (KU). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

170.*puertagarnicae* Leclercq and Miller

Crossocerus puertagarnicae Leclercq and Miller *in* Leclercq, 2000d:63, ♀, ♂. Holotype: ♂, Mexico: Michoacán: Puerta Garnica (Cornell Univ.). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

171.*pullulus* (A. Morawitz)

Crabro pullulus A. Morawitz, 1866a:259, ♂. Holotype: ♂, Russia: Siberia: Okhotsk (ZIN). – Dalla Torre, 1897:619 (in catalog of world Sphecidae); Kohl, 1915:268 (original description copied). – **As *Crossocerus pullulus***: Leclercq, 1954c:227 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Marshakov,

1979a:93, 100 (in key to *Crossocerus* of Russian Far East), 1980c:339, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic), 356 (redescription); Nemkov, 1986:103 (Russia: Irkutsk Oblast'); Dollfuss, 1991:155 (in key to Sphecidae of North and Central Europe); Bitsch and Leclercq, 1993:128 (in revision of western European Crabroninae); Leclercq, 1993c:21 (reference to synonymy with *Crossocerus imitans*); Theunert, 1994c:37 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:431, 438 (in key to Sphecidae of Russian Far East); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Gusenleitner, 1996a:9 (first record from Austria: Niederösterreich: Gainfarn west of Bad Vöslau); Haeseler, 1997:30 (Germany: Friesian Islands; nesting in coastal dunes); Schmidt and Schmid-Egger, 1997:11 (in checklist of German Sphecidae); W. Klein, 1999:6, 11 (in improved key to *Crossocerus* of Benelux); Blösch, 2000:308 (in Sphecid Fauna of Germany); Jacobs, 2000:7, 17 (Germany: Land Mecklenburg-Vorpommern: rare); Ohl et al., 2001:138 (distribution in Germany by provinces); van der Smissen, 2001:59 (Germany: Schleswig-Holstein: threatened with extinction); Kazenas, 2002a:101 (geographic distribution, collecting localities in Kazakhstan); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:374 (in Wasp and Ant Fauna of Netherlands); Kuhlmann, 2004:230 (Germany is responsible for preservation of this species on its territory); Shkuratov, 2004a:80 (Russia: Rostov Oblast': Migulinskaya), 2004b:168 (Russia: Rostov Oblast': Gosudarstvennyi Muzey-Zapovednik M.A. Sholokhova); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:48 and 61 (in checklist of Polish Sphecidae); Nemkov, 2005a:151 (Russia: Island of Sakhalin); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Gorobchishin, 2006:124 (Ukraine: Cherkasy Oblast': Cherkasy, Kaniv Nature Reserve); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Jacobs, 2007:129, 140 (in key to Crabronidae of Germany); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia), 229 (record from Slovakia by Balthasar, 1972, as *Crabro imitans*, is misidentification); Winkler, 2007:29 (Germany: Niedersachsen: eastern Friesland); Haeseler, 2008:308 (Germany: Friesian Islands); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:25 (Germany: map of distribution in Niedersachsen and Bremen);

Bitsch and Leclercq, 2009:221 (in supplement to vol. I of Faune de France, 1993: recorded from Niederösterreichm, Austria, by Gusenleitner, 1996, and from Beskid mountains, Poland, by Wiśniowski, 2004); Leclercq, 2009:161 (member of subgenus *Crossocerus*) 180 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Mokrousov, 2009:282 (Russia: Republic Mari El); Nemkov, 2009b:107 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast', Mari El Republic: no specific localities), 2010b:100 (Russia Nizhniy Novgorod Oblast', Mari El Republic: no specific localities); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: extremely rare); van der Smissen, 2010a:337 (Germany: Mecklenburg-Vorpommern: Wampen); Baghirov, 2011b:145 (Russia: Altay Republic: Kosh-Agach); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2013:199 (in annotated catalog of aculeate wasps of Belorussia); Ebrahimi, 2014:35 (Iran: Karaj: College of Agriculture campus); Antropov, 2017b:229 (in catalog of Crabroninae of Russia); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:47 (Iran: known from Alborz Province); Olszewski and Kowalczyk, 2019:9 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:67 (in revision of Sphecidae *sensu lato* of Europe); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey, first record from Turkey probably in error); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey, probably in error).

Crabro pullulus A. Morawitz, 1866b:332. Objective synonym of *Crabro pullulus* A. Morawitz, 1866a:259.

Crabro imitans Kohl, 1915:267, ♂. Holotype: ♂, Germany: Mecklenburg: no specific locality (NHMW). Synonymized with *Crossocerus pullulus* by Marshakov, 1980c:356. – A. Wagner, 1938a:117 (northwestern Germany); Paul, 1941:37 (Germany: Pommern: Divenow, now Poland: Województwo Zachodniopomorskie: Dziwnów); van Rossem, 1948 :XXIII (first record from Netherland: Terschelling, Vlieland); Zavadil *in* Zavadil and Šnoflak, 1948:128, 131 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); Preuss, 1956:15 (Germany: Island of Amrum); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:144, 153 (in key to Polish Sphecidae); Balthasar, 1972:120 (in Sphecid Fauna of Czechoslovakia:

Slovakia: Štúrovo). – **As *Crossocerus imitans***: Schmiedeknecht, 1930:656 (new generic assignment, in keys to Hymenoptera of North and Central Europe); Hartig, 1932a:95 (description of ♀); Struve, 1937:149 (Germany: Island of Borkum); Leclercq, 1954c:227 (in catalog of world Crabronini); Wolf, 1959b:33 (known from Germany, but not from Nassau); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Kazenas, 1972b:171 (Kazakhstan; determination tentative); Oehlke, 1970:775 (Democratic Germany), 1972:140 (Germany: Island of Hiddensee); Lomholdt, 1973a:107 (first record from Denmark: West Jutland: Skallingen Peninsula); Marshakov, 1975b:335 (Mongolia); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Lomholdt, 1976:387 (in Sphecid Fauna of Fennoscandia and Denmark); Haeseler, 1978c:194 (Germany: Friesian Islands: Island of Borkum); Pulawski, 1978:257, 263 (in key to Sphecidae of European part of USSR); Preuss, 1980a:21 (in Germany occurs on coastal dunes); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Lefeber, 1983a:85 (Netherlands: Waddendistrict: islands of Vlieland and Terschelling); Haeseler, 1985c:571 (Germany: Friesian Islands); Lomholdt, 1987:93 (Denmark: western Jutland: Skallingen Peninsula); Haeseler, 1988:210 (Germany: Friesian Islands); Kowalczyk, 1988c:222 (Poland: Jastarnia); Dollfuss, 1989:9 (type material in NHMW); Jacobs, 1989:19 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Scobiola-Palade, 1989:88 (Romania: delta of Danube); Jacobs, 1990:9 (Germany: Rostock area); Jacobs and Oehlke, 1990:184 (new records from Democratic Germany); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Budrys, 1992:34 (in list of Sphecidae of Lithuania); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Celary, 1997:59 (in checklist of Animals of Poland); Shlyakhtenok, Blinov, and Belyavskaya, 1997:154 (Belorussia: Pripyatskiy National Park); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:100 (geographic distribution, collecting localities in Kazakhstan).

172.*punctivertex* Leclercq and Miller

Crossocerus punctivertex Leclercq and Miller *in* Leclercq, 2000d:64, ♀. Holotype: ♀, Venezuela: Aragua: Rancho Grande (USNM). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

173.*pusanoides* Leclercq

Crossocerus pusanoides Leclercq, 1963:7, ♀, ♂. Holotype: ♂, India: Tamil Nadu: Yercaud in Shevaroy Hills (originally G.R. Ferguson

collection, now CAS). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 180 (in list of Asian *Crossocerus*, bibliographic references, comparison with *Crossocerus pusanus*; India: Nilgiri Hills: Cherangoole and Madras: Anamalai: Kadamparai).

174.*pusanus* Leclercq

Crossocerus pusanus Leclercq, 1956e:224, ♀, ♂. Holotype: ♂, India: Bihar: Pusa (BMNH). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 180 (in list of Asian *Crossocerus*, comparison with *Crossocerus pusanoides*), 181 (bibliographic references; India: Rajasthan: Mount Abu, Udaipur); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

175. *pyrrhus* Leclercq

Crossocerus pyrrhus Leclercq, 1956e:231, ♀. Holotype: ♀, India: Himachal Pradesh: Dalhousie (FSAG). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2007g:194 (holotype in FSAG), 2009:161 (member of subgenus *Apocrabro*), 181 (in list of Asian *Crossocerus*, bibliographic references); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

176. *quadrimaculatus* (Fabricius)

Crabro quadrimaculatus Fabricius, 1793:294, sex not stated. Holotype: ♂, Dania, now Denmark: no specific locality (ZMUC, Lund collection). – Fabricius, 1796:51 (in Index to his Entomologia Systematica, 1793), 1804:308 (redescription); Jurine, 1807:211 (in checklist of species of *Crabro*); Spinola, 1808:177 (Italy: Liguria); nec Stephens, 1829a:365 and 1829b:33 (= *Crossocerus dimidiatus*); Haliday, 1833:516 (Ireland: eastern coast north of Dublin); Dahlbom, 1839:52 and 1839-40:52 (in revision of Scandinavian Crabronini), 1842a:15 (in review of Scandinavian aculeates), 1844:351 (in revision of Sphecidae and Pompilidae, as *4-maculatus*), 1845:526 (in key to *Crabro*, as *4-maculatus*); Eversmann, 1849:421 (Russia: Ural foothills and Kazan' and Orenburg governorates); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Wissmann, 1849:16 (Germany: Kingdom of Hannover: Münden); Wesmael, 1852:605 (Belgium); F. Smith, 1856:407 (in catalog of Hymenoptera in British Museum, as *4-maculatus*); Kawall, 1857:26 (Kurland, now Latvia); F. Smith, 1858c:142 (in review of British Aculeata, redescription); Schenck, 1960:146 (Germany: Nassau Region); Funk, 1864:156 (Germany: Bayern: Bamberg); A. Morawitz, 1866a:270 and 1866b:347 (specimens in Eversmann collection); Taschenberg, 1866:177 (in revision of Hymenoptera of Germany); A. Costa,

1867c:132 (in revision of Italian Sphecidae); Schenck, 1867a:350 (Germany: Nassau Region); von Aichinger, 1870:314 (Austria: Tirol); Bold, 1870:149 (Great Britain: Northumberland and Durham); Thomson, 1870:168 (in revision of Swedish Crabroninae, as *4-maculatus*); A. Costa, 1871b:61 (in revision of Italian Sphecidae); F. Smith, 1871b:15 (in catalog of British Aculeata); Thomson, 1874:277 (in revision of Hymenoptera of Scandinavia, as *4-maculatus*); Taschenberg, 1875:382 (Germany: Halle); Kohl, 1880:127 (Austria: Tirol, and Italy: Trentino-AltoAdige); E. Saunders, 1880:292 (in revision of British Aculeata); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:655 (Switzerland, as *4-maculatus*); Sickmann, 1883:72 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Sickmann, 1886:280 (Germany: Friesian Islands: Island of Spiekeroog); Wüstnei, 1886:35 (Germany: Schleswig-Holstein: Elmshorn, Husum, Sonderburg); Kohl, 1888b:722 (Austria: Tirol, now Italy: Alto Adige); C. Verhoeff, 1891b:29 (nesting habits); Kohl, 1893a:23 (Austria: Niederösterreich); F. Morawitz, 1893b:425 (Tajikistan: Takfan in Yagnob River valley); Sickmann, 1893:70 (Germany: Niedersachsen: Iburg, analysis of color variation); Baldini, 1894:70 (Italy: Modena area); Krieger, 1894:5 (Germany: Kingdom of Saxony); Freke, 1895:282 (Ireland: Wexford County: Courtown), 1896:41 (Ireland); Meunier, 1896:270 (Belgium: Bruxelles area); E. Saunders, 1896:137 (in revision of British Aculeata); Westerlund, 1896:28 (Finland: no specific locality, as *4-maculatus*); Dalla Torre, 1897:621 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in today's Croatia and Romania); Ferton, 1901a:113 (list of prey, egg position on prey); Gardner, 1901:381 (Great Britain: Cheshire: Bowden, Chester, and Delamere); Ferton, 1902:518 (prey); E. Saunders, 1902a:52 (southwestern Ireland), 53 (var. *geniculatus*), 1902b:144 (British Channel Islands: Island of Jersey); de Cobelli, 1903:117 (Italy: Trentino: Varenna in Val di Fiemme); Nielsen, 1903:110 (nesting habits); Antiga and Bofill, 1904:24 (Spain: Cataluña Province); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); Ferton, 1905:71 (cocoon, pupa); Kubes, 1905:84 (Czech Republic: Kolín); Schmiedeknecht, 1907:192 (in key to Hymenoptera of Central Europe); Morley, 1909:306 (Great Britain: Isle of Wight); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine: Zhytomyr Oblast': Radomyshl'); Alfken, 1914:273 (northwestern Germany); Szilády, 1914:89 (Hungary: Mirszló);Kohl, 1915:219 (in revision of Palearctic Crabronini); R. Perkins, 1916:230 (specimens in F. Smith collection); O. Meyer,

1919:148 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921b:154 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Fahringer, 1922:183 (Turkey); Hedicke, 1922:270 (Germany: Brandenburg: Gross Machnower Weinberg); nec Karvonen, 1922:94 (= *Crossocerus dimidiatus*); Goetghebuer, 1923:125 (list of tipulid prey); Lauterborn, 1924:287 (Germany: Baden-Württemberg: Kaiserstuhl); Stelfox, 1924:16 (Ireland: Glenasmole, Lucan); Berland, 1925d:186 (in Sphecid Fauna of France); Bischoff, 1925:298 (Poland: Białowieża); Koornneef, 1925:362 (Netherlands: Gelderland: Dieren); Schütze, 1925:110 (Germany: Lausitz Region); K. Strohm, 1925:110 (Germany: Baden-Württemberg: Kaiserstuhl); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:149 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); K. Strohm, 1926:74 (reference to Lauterborn, 1924); Hellén, 1926:94 (recorded from Finland); Zavadil, 1926:33 (Czechoslovakia); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Berland, 1928b:180 (add F. Smith, 1858, Hamm and Richards, 1926, and Maneval, 1928 to bibliography in Berland, 1925d); Grandi, 1929:289 (Italy: Toscana: valle della Limentra); Bouwman, 1930:98 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:649 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:141 (in revision of Sphecidae of Finland); Bondroit, 1932:40 (Belgium: abundant in Bruxelles area); Zavadil, 1932:95 (Czechoslovakia, var. *bimaculatus*); Chambers, 1933:188 (Great Britain: Bedfordshire); Drogoszewski, 1933:117 (Poland: Łowicz); Balles, 1934:16 (Germany: Baden-Württemberg: Brutau, Fautenbach, Oberachern); Jansson, 1934:288 (Sweden); Nadig, 1934:31 (Italy: Sardegna: Aritzo); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Steck, 1935:323 (Switzerland); Vergne, 1935:119 (France: Auvergne: common); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Roller, 1936:316 (Austria: loess cliffs at Bisamberg near Vienna); Zavadil, Šustera, and Bat'a, 1937:159 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:116 (northwestern Germany); Móczár, 1939:5 (Hungary: Jászberény); Gussakovskij, 1940:84 (Tajikistan: Hissar Range); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); Grandi, 1941:33 (nesting habits); Leclercq, 1941b:15 (Belgium: Liège area); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Balthasar, 1943:40 (Czech Republic: Moravia: Zlin area); Giner Marí,

1943a:242 (in Sphecid Fauna of Spain); Guiglia, 1944b:35 (Italy); Hachfeld, 1945:75 (nesting sites, nest structure, list of prey, description of larva, cocoon); Guiglia, 1947a:28 (Italy: Piano Maiuri); Balthasar, 1948:140 (Slovakia: Kovačov, Parkan); de Hennin and Anciaux, 1948:76 (Belgium: between Sambre and Meuse rivers); Zavadil *in* Zavadil and Šnoflak, 1948:122 (in key to Sphecidae of Czechoslovakia); de Andrade, 1949:23 (Portugal); Cavro, 1950:39 (France: Département du Nord, as *4-maculatus*); Caruel, 1951:100 (France: Marne Department); de Beaumont, 1951h:35 (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: Cauterets); de Beaumont, 1954e:96 (Italy); Steiner, 1955:141 (France: Dordogne); Teschner, 1955:56 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vogrin, 1955:42 (Yugoslavia); Ceballos, 1956:395 (in catalog of Sphecidae of Spain); Hellén, 1956:42 (recorded from Finland); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:176 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:19 (in review of Dutch Sphecidae); Puławski, 1958a:188 (Bulgaria: Makotsevo); Ceballos, 1959:231 and 1964:95 (in supplements to catalog of Spanish Sphecidae); Diniz, 1959:32 (Portugal: Évora, Massorra, Soure, Vale de Gaio); Noskiewicz and Puławski, 1960:143, 149 (in key to Polish Sphecidae); Wengris, 1962:207 (Lithuania: Vilnius area); Lehrer and Scutaru, 1963:285 (Romania: Moldova: Huşi in Iaşi District); Fæster, 1965:193 (Denmark: Hansted Nature Reserve); Niedl and Deneš, 1967:71 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:27 (Latvia); Balthasar, 1972:87 (in Sphecid Fauna of Czechoslovakia); Józan, 1981:306 (Hungary: Hortobágy National Park); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:120, 124 (Poland: Mazovian Voivodship: Białołęka, Hamernia, Młochów, Ursynów, Warszawa, Wola Mrokowska); Kowalczyk, 1988a:46 (Poland: Rogów), 1988b:66 (Poland: environs of Łódź); Vago, 2005a:14 (*Crabro 4-maculatus* in Cavro, 1950 is *Crossocerus quadrimaculatus* now). – **As *Vespa quadrimaculata***: Turton, 1801:530 (new generic assignment, Denmark). – **As *Blepharipus quadrimaculatus***: Tischbein, 1852:141 (new generic assignment, Germany); Ruthe and Stein, 1857:315 (Germany: Berlin area); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:110 (in key to Sphecidae of Germany); Assmuss, 1859:618 (Russia: Moscow Governorate); Brischke, 1862:107 (Germany: Preussen Province, now: Poland: Pomorze Region); Kirchner, 1867:224 (in catalog of European Hymenoptera, as *quatuormaculatus*); A. Costa, 1869:17 (Italy:

Alpes); A. Costa, 1883:58 (Italy: Sardegna: Oristano, as *4-maculatus*); Brischke, 1888:101 (Germany: Preussen Province, now Poland: Pomorze Region); Assmuss, 1892:53 (Russia: earlier record from Moscow Governorate repeated). – **As *Hoplocrabro quadrimaculatus***: Lange, 1898:70 (new generic assignment, southeastern Germany: Annaberg-Buchholz); Adlerz, 1904:136 (list of known prey, all Diptera, as *IV-maculatus*); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1910:53 (Sweden; nesting habits); Schirmer, 1912:164 (Germany: Berlin area); R. Perkins, 1916:16 (diagnostic characters of *Hoplocrabro*); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Noskiewicz, 1920b:155 (Poland, now Ukraine: forest district Kopanki near Kałusz); R. Perkins, 1913b:392, 395 (in key to British Crabronini); Alfken, 1924:426 (Germany: Island of Memmert); R. Perkins, 1924:225 (Great Britain: Devon); Coulon, 1925:124 (France); R. Perkins, 1925:152 (Great Britain: Gloucestershire and Somersetshire); Hamm and Richards, 1926:317 (summary of nesting habits), 327 (list of prey); Hémon, 1926:199 (France: Finistère: Fouesnant); Stelfox, 1927:297 (Ireland: list of localities); Maneval, 1928:29 (nest structure, list of prey); Baudot, 1931:255 (characteristics of cocoon); Butterfield and Fordham, 1931:158 (Great Britain: Yorkshire); Spooner, 1931:16 (Great Britain: Cambridgeshire), 1933:203 (Great Britain: Bedfordshire: Sandy); Bernard, 1935:67 (France: Var: Fréjus area); Minkiewicz, 1935:209 (Poland: Kazimierz on Wisła), 219 (Poland: Lake Garbaś 20 km west of Suwałki); Richards, 1936a:171 (the type corresponds to current interpretation of species); Richards, 1937b:106 (in checklist of British aculeates); Hallett, 1938:72 (Great Britain: Herefordshire: Ross-onWye); Aerts, 1939:134 (Germany: Nordrhein-Westfalen: loess cliff at Weilerswist near Köln); Maneval, 1939:84 (list of prey, description of larva and cocoon); Yarrow, 1939:16 (Great Britain: Dorset: Lytchett Minster); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1029 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); Pate, 1942c:179 (prey record summary); J. Perkins, 1942:198 (Sweden: Skåne: Kivik); Spooner, 1942:110 (Great Britain: Bedfordshire: Warren); Boyd, 1943:163 (Great Britain: eastern Dorset); T. Fletcher, 1945:54 (Great Britain: Gloucestershire: Forest of Dean); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Chambers, 1949:229 (Great Britain: Bedfordshire); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Szulczewski, 1950:104 (Poland: Wielkopolski National Park 15 km south of Poznań); Yeo, 1957:20 (Great Britain: Middlesex, now in London); Tonapi,

1958a:510 (spiracular structures), 1958b:250 (study of respiratory system); Hamann, 1960:199 (Austria: Oberösterreich: Mönchgraben at 48°13'N 14°21'E); Felton, 1963:178 (Great Britain: Kent County); Lyngnes, 1963:101 (Norway, nesting in galleries of anobiid *Grynobius*, preying on aphids, obviously species misidentification); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle), 195 (nesting in sand cliffs); H. Schulz, 1967:59 (Germany: Brandenburg: Ruhlsdorf near Potsdam); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district); Piek and Spanjer, 1986:184 (in list of Sphecidae with known prey); Blagoveshchenskaya, 1994:89 (Russia: Ul'yanovsk Oblast'). – **As *Crossocerus quadrimaculatus***: Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera); Jaennicke, 1868:8 (Germany: Hessen: Mombach, as *quatrimaculatus*); Wierzejski, 1868:118 (Ukraine: Podole Region), 1874:261 (Poland: Kraków; Ukraine: L'viv, Stanisławów, now Ivano-Frankivsk, Podole Region: Okopy on Dniestr River, Sinków, Skała); Beuthin, 1876:230 (Germany: Hamburg area); Friese, 1883:201 (Germany: Sachsen-Anhalt: Weissenfels); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region), 1892:28 (Germany: Radaue River valley west of Danzig, now Poland: Radunia River west of Gdańsk), 1894:53 (Germany: Brösen west of Danzig, now Poland: west of Gdańsk); De Stefani Perez, 1895:228 (in catalog of Sicilian Hymenoptera, as *4-maculatus*); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); Borries, 1897:31 (nesting habits); Chyzer, 1902:34 (Hungary); Rudow, 1912:75 (nesting in rotten twigs of various trees and bushes, or in wood); Leclercq, 1949a:8 (Poland: Bydgoszcz, as Bromberg), 1951e:10 (bibliography of Belgian records); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:250 (Sweden: Gästrikland Region); Grandi, 1954:181 (nesting habits, list of prey), 242 (Italy); Leclercq, 1954c:222 (in catalog of world Crabronini), 304 (nest and prey records); Aerts, 1955:58 (Germany: Rheinland); Janvier, 1956b:203 (nests destroyed by rainy period); Leclercq, 1956i:132 (Luxemburg); de Beaumont, 1957b:138 (northern Iran); Evans, 1957b:108 (discussion of larval characters); Grandi, 1957:391 (Italy); Móczár, 1958b:194 (Hungary: collecting localities); de Beaumont, 1959a:39 (Italy: Sicilia); Wolf, 1959b:32 (Germany: Nassau); Grandi, 1961:243 (nesting habits); Hoop, 1961:63 (Germany: Schleswig-Holstein); van der Vecht, 1961a:68 (study of holotype); de Beaumont, 1962b:28 (Spain); Grandi, 1962:98 (Italy); Hoop, 1963a:73 (Germany: Schleswig-Holstein: Reher Kratt); Leclerq, 1963:13 (Russia: Siberia: Ust Balei); Babiy, 1964:119 (Austria: not found in Land Salzburg); de Beaumont, 1964c:144 (in Sphecid Fauna of Switzerland), 1965a:60 (Greece);

B. Klug, 1965:142 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Roberti, Frilli and Pizzaghi, 1965:110 (Italy: Emilia-Romagna: Passo Penice in Piacenza Province); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Bonelli, 1967:299 (nesting habits); de Beaumont, 1967a:351 (Turkey); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Unterfranken District); Leclercq, 1967a:31 (Great Britain: locality records); Benedek, 1968:76 (Hungary, floral records); Bonelli, 1968b:50 (Italy: Trentino–Alto Adige: Cavalese); Leclercq, 1968b:39 (Great Britain: Kent); Parré, 1968:124 (Germany: Sachsen-Anhalt: Staβfurt); Scobiola-Palade, 1968c:387 (Romania: Budeşti); Benedek, 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena* pruni (Geoffroy)); Dathe, 1969:438 (Germany: Berlin Zoological Garden); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Zangheri, 1969:1707 (Italy: in catalog of flora and fauna of Romagna Region); Oehlke, 1970:787 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Leclercq, 1971:215 (Spain); Schmidt, 1971b:48 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand), 1971c:75 (Germany: Schleswig-Holstein); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Haeseler, 1972:157, 168, 171, 175, 197 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:170 (Kazakhstan); Lomholdt, 1972:123 (Denmark: Island of Læsø); Scobiola-Palade, 1972:152 (Romania: delta of Danube: Caraorman); Tsuneki, 1972a:150 (Mongolia); Simon Thomas, 1972:186 (France: Landes); de Beaumont, Bytinski-Salz and Pulawski, 1973:23 (record of Bodenheimer, 1937 is probable); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp., Tamaricaceae, in Kazakhstan); Leclercq, 1974d:272 (synonymy); Simon Thomas, 1974:57 (Netherlands: Limburg: Tienray); Leclercq, 1975b:2 (France); Lefeber, 1975b:120 (Netherlands: Schiepersberg); Lomholdt, 1975b:32 (Denmark: Island of Anholt); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Haeseler, 1976b:73 (Germany: Friesian Islands: Island of Amrum); Leclercq, Gaspar, Lajoinie, and Thirion, 1976:178 (Belgium: Chaumont-Gistoux); Lomholdt, 1976:376 (in Sphecid Fauna of Fennoscandia and Denmark); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'; also var. *bimaculatus*); Guichard, 1978:272 (Greece); Marion, 1978:90 (France: Nièvre Department); Pulawski, 1978:257, 262 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:421 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills, as *quadricinctus*);

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(France: Département du Bas-Rhin); van der Smissen, 2010a:337 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern), 2010b:384 (France: Ardèche: Saint-Maurice-d'Ibie), 2010c:396 (Sweden: Öland and Södermanland: locality records); 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:145 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Kosh-Agach); 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 burned areas); Falk, 2011:64 (Great Britain: Sussex: South Downs); Gogala, 2011:20 (Slovenia); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:72 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm Oblast': Tyuinsk village), 2011d:242 (Russia: central Ural Mountains); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg); Saure, Bohrer, Venne, and Diestelhorst, 2011:224 (Germany: Rheinland-Westfalen: Nature Reserves Doberg and Eiberg, nesting in cliffs); 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., 2011:125 (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); Burguet *in* Durand and Burguet, 2012:2 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); 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 (Russia: Krasnaya Polyana 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 and Erzurum provinces); Archer, 2013a:148 (Great Britain: Watsonian Yorkshire: Manor Farm), 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Danilov and Odintseva, 2013:333 (Russia: Western Siberia: 65 km north-northeast of Tobol'sk at 58°45'N 68°74'E); Dyuzhaeva, 2013:116

(Russia: Samara Oblast': Zhiguli Nature Reserve); Kazenas, 2013b:497 (southeastern Kazakstan: Kurtogay on Sharyn River 45 km southwest of Chundzha); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:203 (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 Szczepko, 2013:30 (Poland: Kampinos National Park near Warszawa); Bitsch, 2014:401 (France: Ariège: Bonac-Irazin, Ax-les-Thermes; Meurthe-et-Moselle: Laneuveville-aux-Bois); Flügel, 2014:254 (Brandenburg: Hangelsberger Heide); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roβstein); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Mokrousov and Vafin, 2014:56 (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); Archer, 2015:202 (Great Britain: English coastal sand dunes); Koçak and Kemal, 2015:142 (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); Shorenko, 2015:321 (in list of Sphecidae *sensu lato* of Crimea); Blažej, Macek, and Trýzna, 2016:115 (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); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes); Mokrousov and Popov, 2016:574 (Russia: Krasnodarskiy Kray); Reemer and Peeters, 2016:10 (Netherlands: Hulshorsterzand); Saure, 1916c:205 (Germany: center of Berlin: Groβer Tiergarten Park); A. Scholz, 2016:71 (Germany: Sachsen: Kleinraschützer Heide); U. Sörensen, 2016:426 (Germany: Schleswig-Holstein: der Ochsenweg south of Leck); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Vas, Szöllősi-Tóth, and Muskovits, 2016:153 (Romania: Sălaj County); Wiśniowski, 2016:128 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:45 (Turkey: Bayburt, Erzurum, Kars, and Tunceli provinces); Antropov,

2017b:230 (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); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:47 (Iran: known from East Azerbaijan and Mazandaran provinces); Jansen, 2017:8 (Germany: Sachsen: Leipzig); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane, Mas Larrieu); Říha, 2017:174 (Czech Republic: Brno); Shorenko, 2017:77 (in Crimea collected in June through August); Jacobs and Liebig, 2018:139 (Russia: Irkutsk Oblast': Sarma); 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, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:95 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13227 (Russia: Mordovia State Nature Reserve); Kejval, Blažej, and Erhart, 2020:98 (western Czech Republic); Saure, 2020:276 (Germany: Sachsen-Anhalt: sand dunes); Shorenko, 2020:48 (Crimea: Karadag Nature Reserve); Turrisi, Altadonna, Lo Cascio, Nobile, and Selis, 2020:728 (Italy: Aeolian Archipelago: island of Lipari); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:75 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:35 (in catalog of Sphecidae *sensu lato* of Portugal); Danilov, Odintseva, and Odintsev, 2021:22 (Russia: Omsk Oblast'); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (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); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution).

Crabro quadripunctatus Fabricius, 1793:301, sex not stated (as *4punctatus*, incorrect original spelling). Syntypes: ♂, France: no specific locality (MNHN, Bosc collection, and ZMUC). Synonymized with *Crossocerus quadrimaculatus* by van der Vecht, 1961a:68. – Fabricius, 1796:51 (in Index to his Entomologia Sys-

tematica, 1793); Dalla Torre, 1897:622 (in catalog of world Sphecidae); Leclercq, 1954:363 (unrecognizable species). – **As *Pemphredon quadripunctatus***: Fabricius, 1804:315 (new generic assignment, redescription); Dahlbom, 1845:XXV (type material not examined). – **As *Crossocerus quadripunctatus***: Coulon, 1925:124 (new generic assignment, Germany).

Crabro murorum Latreille, 1805:324, sex not stated. Holotype or syntypes: France: Paris (destroyed). Synonymized with *Crossocerus quadrimaculatus* by Leclercq, 1974d:272.

Crabro levipes Vander Linden, 1829:67. ♀, ♂. Syntypes: Belgium: Bruxelles (Inst. Roy. Sci. Nat. Belgique, Bruxelles). Synonymized with *Crabro quadrimaculatus* by Wesmael, 1852:606. – Dahlbom, 1845:521 (in key to *Crabro*); Eversmann, 1849:418 (Russia: lower Volga); Dalla Torre, 1897:622 (in catalog of world Sphecidae, as *Crabro quadrimaculatus* var. *levipes*, new status). – **As *Crabro laevipes*** (misspelling or emendation): Dahlbom, 1844:313 (in revision of Sphecidae and Pompilidae, original description copied); F. Smith, 1856:413 (in catalog of Hymenoptera in British Museum). – **As *Crossocerus levipes***: Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera). – **As *Crossocerus laevipes*** (misspelling or emendation): Lepeletier de Saint Fargeau and Brullé, 1835:790 (new generic assignment, in revision of Crabronini). – **As *Crabro quadrimaculatus* form *levipes***: Bischoff, 1921b:5 (new status, Germany: Niederlehme near Königswusterhausen). – **As *Crabro quadrimaculatus* var. *levipes***: Dubois, 1921a:19 (new status, Belgium: Uccle); Crèvecoeur and Maréchal, 1927: 138 (Belgium: La Rosière).

Crossocerus bimaculatus Lepeletier de Saint Fargeau and Brullé, 1835:788, ♂. Holotype or syntypes: ♂, Austria: Wien area (destroyed). Synonymized with *Crabro quadrimaculatus* by Schenck, 1867a:350. – Lepeletier de Saint Fargeau, 1845:191 (in revision of world Hymenoptera); Belke, 1853:433 (Ukraine: Kamieniec Podolski); Taschenberg, 1858:106 (in key to Sphecidae of Germany); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region); Taschenberg, 1866:180 (in revision of Hymenoptera of Germany); Kirchner, 1867:224 (in catalog of European Hymenoptera); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Bradley, 1957:47 (type in Torino); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:144 (specimen in M. Spinola collection, Torino, is *Crossocoerus* sp.). – **As *Crabro bimaculatus***: Dahlbom, 1844:310 (new generic assignment, in revision of Sphecidae and Pompilidae), 1845:522 (in key to *Crabro*); Tischbein, 1850:10 (Germany:

Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:31 (Great Britain: Surrey: Ripley), 1853:64 (in checklist of British Hymenoptera), 1856:404 (in catalog of Hymenoptera in British Museum), 1858c:137 (in review of British Aculeata, redescription); von Aichinger, 1870:314 (Austria: Tirol); F. Smith, 1871b:14 (in catalog of British Aculeata); von Heyden, 1905:83 (Germany: Hessen: Frankfurt); Zilahi Kiss, 1915:80 (Hungary: Szent-Lőrincz). – **As *Crabro quadrimaculatus* var. *bimaculatus***: Dalla Torre, 1897:622 (new status, in catalog of world Sphecidae); Móczár, 1958a:262, 269 (in annotated catalog of Hungarian Crabronini).

Crabro quinquemaculatus Dahlbom, 1838:54, ♀, ♂ (as *5-macutatus* [sic], incorrect original spelling). Syntypes: Sweden: no specific locality (depository: ?). Synonymized with *Crossocerus quadrimaculatus* by Leclercq, 1974d:272.

Crabro rotundarius Dahlbom, 1838:54, ♀, ♂. Syntypes: Sweden: no specific locality (depository?). Synonymized with *Crossocerus quadrimaculatus* by Leclercq, 1974d:272.

As *Crabro subpunctatus*: Curtis, 1838:pl.680 (illustration), *Crabro quadrimaculatus* given as synonym; Yaroshevskiy, 1881:122 (Ukraine: Khar'kiv Oblast': Khar'kiv area, Kupyansk, *Crabro quadrimaculatus* given as synonym); Pagliano, 2011a:146 (specimens in M. Spinola collection, Torino, are *Crossocerus dimidiatus* and *C. quadrimaculatus*).

As *Crabro assimilis*: Pulawski, 1958a:188 (Bulgaria: Vitosha Mtn. near Sofia, misidentification), present correction.

As *Blepharipus pauperatus* partim: Pagliano, 2011a:147 (specimens in M. Spinola collection, Torino, are *Crossocerus quadrimaculatus*).

177.*quinlani* Leclercq

Crossocerus quinlani Leclercq, 1989a:238, ♂. Holotype: ♂, Nepal: 2 mi. southeast of Sikha (BMNH). Subgenus *Blepharipus*. – Dollfuss, 2006:512 (Nepal: Terhatum District: Basantpur in Tamur valley, description of ♀); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 182 (in list of Asian *Crossocerus*, bibliographic references; Pakistan: Murre).

178.*quinquedentatus* Tsuneki

Crossocerus quinquedentatus Tsuneki, 1971a:13, ♀. Holotype: ♀, Taiwan, Chiai Prefecture: Kuanhua (originally K. Tsuneki collection, now USNM). – Tsuneki, 1971a:13 (type of subgenus *Fentis*); Leclercq, 1972:7 (is a member of subgenus *Neoblepharipus*); Tsuneki, 1973g:49 (is a member of subgenus *Neoblepharipus*); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:11 (in checklist of Sphe-

cidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Neoblepharipus*), 182 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:44 (member of subgenus *Neoblepharipus*, in list of Japanese subgenera of *Crossocerus*).

179.*rasnitsyni* Kazenas

Crossocerus rasnitsyni Kazenas, 2011:291, ♀, ♂. Holotype: ♀, Kazakhstan: Sholak (= Chulak) Ridge: Taygak Gorge at 43°55'45"N 77°52'13" (ZIN).

180.*raui* Rohwer

Crossocerus raui Rohwer, 1923a:99, ♀. Holotype: ♀, USA: Missouri: Saint-Louis (USNM). – Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (in catalog of North American Hymenoptera); Leclercq, 1954c:231 (in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

181.*rectangularis* (Gussakovskij)

Crabro rectangularis Gussakovskij, 1952:265, ♀. Holotype: ♀, Tajikistan: Dashtijum on Pyanj River (ZIN). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Marshakov, 1980c:339 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Tajikistan), 356 (redescription); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 182 (in list of Asian *Crossocerus*, bibliographic references, recorded from Tajikistan by Kazenas, 2001).

182.*repositus* (Arnold)

Crabro repositus Arnold, 1944:34, ♀. Holotype: ♀, Zimbabwe: Rhodesdale (SAM). – **As *Crossocerus repositus***: Leclercq, 1954c:221 (new generic assignment, in catalog of world Crabronini), 1958a:14 (in key to Afrotropical *Crossocerus*), 23 (bibliographic references); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2008:6 (in key to Afrotropical *Crossocerus*), 20 (bibliographic references).

183.*rimatus* Leclercq

Crossocerus rimatus Leclercq, 1963:14, ♀, ♂. Holotype: ♂, India: Tamil Nadu: Naduvatam in Hilgiri Hills (originally G.R. Ferguson collection, now CAS). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 1978a:121, 122 (in key to Asian species of subgenus *Yuchiha*), 2009:162 (member of subgenus *Yuchiha*), 182 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:46 (member of *Microcrabro* according to Leclercq, 1963, in list of Japanese subgenera of *Crossocerus*).

184.*riparius* (Arnold)

Thyreopus riparius Arnold, 1926:352, ♀ (as *riparium*, incorrect original termination; in subgenus *Rhopalum)*. Holotype: ♀, Zimbabwe, Sawmills, sandy alluvium of Umguza River (SAM). – Arnold, 1930:13 (in checklist of Afrotropical Sphecidae). – **As *Crossocerus riparius***: Leclercq, 1954c:221 (new generic assignment, in catalog of world Crabronini, as *riparium*), R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); Leclercq, 2008:7, 9 (in key to Afrotropical *Crossocerus*), 20 (bibliographic references, species interpretation based on females only).

As *Crossocerus brunniventris*: Leclercq, 1958a:8 and 14 (in key to Afrotropical *Crossocerus*), 17 (Zaire: Upemba National Park), 1961b:75 (Zaire: Garamba National Park), corrected to *Crossocerus riparius* by Leclercq, 2008a:20

ssp. *bifidus* Leclercq

Crossocerus brunniventris var. *bifidus* Leclercq, 1958:17, ♀. Holotype: ♀, Zaire: Upemba National Park: Lusinga (MRAC). – **As *Crossocerus bekiliensis bifidus***: R. Bohart and Menke, 1976:400 (new status, in checklist of world Sphecidae). –**As *Crossocerus nemoralis bifidus***: Leclercq, 2008a:7 (in key to Afrotropical *Crossocerus*), 20 (new subspecific generic assignment).

ssp. *nemoralis* (Arnold)

Thyreopus riparium var. *nemoralis* Arnold, 1926:353, ♀ (subgenus *Rhopalum*). Holotype: ♀, Zimbabwe: Vumbu Mountains near Umtali (SAM). – Arnold, 1929c:409 (description of ♂), 1930:13 (in checklist of Afrotropical Sphecidae); Hancock, Chahwanda, and Mhlanga, 1995:40 (paratypes in Bulawayo Museum, as synonym of *Thyreopus dubiosus*, now *Dasyproctus dubiosus*). – **As *Crossocerus riparius nemoralis***: Leclercq, 2008a:7 (in key to Afrotropical *Crossocerus*), 20 (new subspecific generic assignment)**.**

ssp. *wittei* Leclercq

Crososocerus brunniventris var. *wittei* Leclercq, 1958:17, ♀. Holotype: ♀, Zaire: Upemba National Park: Masombwe (MRAC). – Leclercq, 1958a:15 (in key to Afrotropical *Crossocerus*). – **As *Crossocerus brunniventris wittei:*** R. Bohart and Menke, 1976:400 (new status, in checklist of world Sphecidae). – **As *Crossocerus riparius wittei***: Leclercq, 2008a:20 (new subspecific generic assignment).

185.*ruandensis* (Arnold)

Thyreopus ruandensis Arnold, 1932:20, ♂. Holotype: ♂, Rwanda: Nyundo (ZOOL. MUS. HAMBURG). – **As *Rhopalum ruandense***: Leclercq, 1954:185 (new generic assignment, in catalog of world Crabronini). – **As *Crossocerus ruandensis***: Leclercq, 1958a:10 and 15 (in key to Afrotropical *Crossocerus*), 19 (new generic assignment, diagnostic characters, Zaire; description of ♀); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Dollfuss, 2006:513 (Uganda: Kasese 10 km from Kilenbe); Leclercq, 2008a:8, 9 (in key to Afrotropical *Crossocerus*), 20 (bibliographic references, locality records from Cameroon, Kenya, and Uganda).

186.*rubromaculatus* Tsuneki

Crossocerus rubromaculatus Tsuneki, 1982e:30, ♀, ♂. Holotype: ♀, Taiwan: Nantou Prefecture: Pempuchi (originally K. Tsuneki collection, now Hyogo Mus.). – Q. Li and Yang, 1995c:273, ♂ (China: Zhejiang Province: Mount Gutian at 29°03'N 118°02'); Tano, 1995:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:162 (member of *Crossocerus rubromaculatus* species group), 182 (in list of Asian *Crossocerus*, bibliographic references, discussisons of subgeneric placement); Tano, 2010b:46 (member of *Crossocerus rubromamculatus* species group, in list of Japanese subgenera of *Crossocerus*).

187.*rudipunctatus* Q. Li and Wu

Crossocerus rudipunctatus Q. Li and Wu, 2006:290, ♀, ♂. Holotype: ♀, China: Yunnan: Lushui: Yaojiaping (Academia Sinica). – Q. Li and Wu, 2006:289, 290 (in key to *Blepharipus* of southwestern China); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 182 (in list of Asian *Crossocerus*, bibliographic references).

188. *rufiventris* Tsuneki

Crossocerus rufiventris Tsuneki, 1968g:7, ♀. Holotype: ♀, Taiwan: Chai Prefecture: Mount Ali (originally K. Tsuneki collection, now USNM). – Tsuneki, 1968g:7 (type of subgenus *Alicrabro*), 31 (Taiwan; in key to Crabronini of Taiwan and Ryukyus); Leclercq, 1973c:287 (Taiwan: Taihorin); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Alicrabro*), 182 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:39 (member

of subgenus *Alicrabro*, in list of Japanese subgenera of *Crossocerus*).

189. *rugosilateralis* Q. Li nd Yang

Crossocerus rugosilateralis Q. Li and Yang, 2003:145, ♀, ♂. Holotype: China: Tibet: Gongshang (Inst. Zool. Acad. Sinica). – Q. Li and Fang, 2003:149 (in key to subgenus *Ablepharipus* of China); Dollfuss, 2006:513 (China: Kansu: Xiahe); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 182 (in list of Asian *Crossocerus*, bibliographic references).

190.*ruwenzoriensis* (Arnold)

Thyreopus ruwenzoriensis Arnold, 1926:354, ♀, ♂. Lectotype: Uganda: Mount Ruwenzori (MRAC), designated by Leclercq, 2008a:14. – Arnold, 1930:13 (in checklist of Afrotropical Sphecidae); Schouteden, 1930:94 (Zaire). – **As *Crabro ruwenzoriensis***: Arnold, 1943:82 (new generic assignment, Zaire: Albert National Park, now Virunga National Park). – **As *Crossocerus ruwenzoriensis***: Leclercq, 1954c:242 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2008:4, 5 (in key to Afrotropical *Crossocerus*), 14 (bibliographic references, Burundi: Bururi, and Zaire: Rwindi on Lake Edward, additional description).

191.*sabahensis* Leclercq

Crossocerus sabahensis Leclercq, 1974e:667, ♀. Holotype: ♀, Malaysia: Sabah (= northern Borneo): Mount Kinabalu (BMNH). – Leclercq, 1974e:660 (in key to Asian species of subgenus *Cuphopterus*); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 182 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:43 (member of subgenus *Cuphopterus*, in list of Japanese of *Crossocerus*).

192.*sauteri* Tsuneki

Crossocerus krusemani sauteri Tsuneki, 1977j:283, ♀. Holotype: ♀, Taiwan: Taihorinsho (TMB). Should be considered full species, as *Crossocerus krusemani* Leclercq, 1950, was transferred to *Ectemnius* by Leclercq 1958c:108. – Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:182 (in list of Asian *Crossocerus*, member of subgenus *Acanthocrabro*, bibliographic references, comparison with *Crossocerus vagabundus*; India: Anamalai Hills: Cinchona); Tano, 2010b:38 (member of subgenus *Acanthocrabro*, in list of Japanese subgenera of *Crossocerus*, as *sauter*).

193. *sciaphillus* Leclercq

Crossocerus sciaphillus Leclercq, 1961b:78, ♂. Holotype: ♂, Zaire: Garamba National Park (MRAC). – R. Bohart and Menke,

1976:403 (in checklist of world Sphecidae); Leclercq, 2008a:9 (in key to Afrotropical *Crossocerus*), 13 (bibliographic references, recognition).

194. *segregatus* Leclercq

Crossocerus segregatus Leclercq, 1958a:23, ♀. Holotype: ♀, Zaire: Equateur: Eala (MRAC). – Leclercq, 1958a:13 (in key to Afrotropical *Crossocerus*); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2008:5, 8 (in key to Afrotropical *Crossocerus*), 14 (bibliographic references).

195.*senonus* Leclercq

Crossocerus senonus Leclercq, 1961b:76, ♀. Holotype: ♀, Zaire: Garamba National Park (MRAC). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2008a:8 (in key to Afrotropical *Crossocerus*), 20 (locality records).

196.*shibuyai* (Iwata)

Crabro shibuyai Iwata, 1934:20, ♀. Holotype: ♀, Japan: Honshu: Tamba: Kitakuwata: Serifu (Kyoto Univ.). – Tsuneki, 1947e:418 (Japon: Hokkaido, description of ♂), 1948c:6 (Japan: Hokkaido). – **As *Crossocerus shibuyai***: Leclercq, 1954c:236 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1954b:60, 68 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands), 1955d:216 (Russia: Kuril Islands), 1959n:68, 73 (in revised key to *Crossocerus* of Japan and Korea), 1960g:40 (nesting habits); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Haneda, 1968a:46 (Japan); Okuno, 1968:31 (Japan); Tano, 1968:35 (Japan); Tsuneki, 1973b:14 (nesting habits); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Marshakov, 1979a:95, 99 (in key to *Crossocerus* of Russian Far East); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:434, 437 (in key to Sphecidae of Russian Far East); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:33 (Japan: Gifu Prefecture); Suda, 2004:42 (Japan: Yamanashi Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:48 (Japan: Gifu Prefecture); Nemkov, 2005a:152 (Russia: Island of Sakhalin); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:24 (Japan: Toyama Prefecture); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir), 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 183 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:99 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:3, 8 (in key to *Crossocerus* of Japan); Antropov, 2017b:227 (in catalog of

Crabroninae of Russia); Komeda, 2021b:63 (Japan: Honshu: Yamanashi Prefecture).

197.*shirakii* Tsuneki

Crossocerus shirakii Tsuneki, 1986:31, ♂. Holotype: ♂, Japan: Ryukyus Islands: Amami. Oshima: Mount Yuwandake (Entomol. Lab. Minist. Agric. Forest. Japan at Tsukuba, Ibaragi Prefecture). Subgenus *Blepharipus*. – Leclercq, 2009:161 (member of subgenus *Blepharipus*), 183 (in list of Asian *Crossocerus*, bibliographic references); S. Takahashi, Haneda, and Tano, 2009:44, 48 (distribution in Japan); Tano, 2010b:40 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:5, 7 (in key to *Crossocerus* of Japan).

198.*similis* (W. Fox)

Crabro similis W. Fox, 1895a:191, ♀. Holotype or syntypes: ♀, USA: Florida: Jacksonville (ANSP). – Dalla Torre, 1897:629 (in catalog of world Sphecidae). – **As *Crossocerus similis***: Krombein, 1951a:143 (new generic assignment, Virginia: Dunn Loring; visiting tulip-tree honeydew); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, in catalog of North American Hymenoptera); Krombein, 1952a:96 (USA: Virginia: Westmoreland State Park), 1952b:184 (USA: West Virginia: Lost River State Park), 1953a:297 (visiting foliage of *Liquidambar styraciflua* L., Altingiaceae), 337 (North Carolina), 1954a:7 (West Virginia: Lost River State Park); Leclercq, 1954c:229 (in catalog of world Crabronini); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: Michigan, West Virginia), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); L. Davis, 1978:216 (South Carolina: Kill Devil Hills, data from Krombein, 1953a); Krombein, 1979b:1667 (in catalog of North American Hymenoptera); Leclercq, 2000d:64 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario: no specific locality).

Stenocrabro flavitrochantericus Viereck, 1904c:242, ♀. Holotype: ♀, USA: New Jersey: Riverton (ANSP). Synonymized with *Crossocerus similis* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021. – Cresson, 1928:53 (holotype in ANSP). – **As *Crabro flavitrochantericus***: J. Smith, 1910:682 (new generic assignment, in new list of insects of New Jersey).

199.*simlaensis* (Nurse)

Crabro simlaensis Nurse, 1902:89, ♀. Holotype or syntypes: ♀, India: Himachal Pradesh: Simla (BMNH). – Ramakrishna Aiyar,

1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Crossocerus simlaensis***: Leclercq, 1650e:4 (new generic assignment), 1954c:225 (in catalog of world Crabronini), 1956e:227 (redescription), 1963:8 (India: Tamil Nadu; Indonesia: Java; individual variation); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 183 (in list of Asian *Crossocerus*, bibliographic references; India: Nilgiri Hills: Cherangoole); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

200.*sinicus* Leclercq

Crabro chinensis Gussakovskij, 1934a:11, ♂, junior primary homonym of *Crabro chinensis* Sickmann, 1894. Holotype: ♂, China: southern Kansu: no specific locality (Stockholm).

Crossocerus sinicus Leclercq, 1954c:234. Substitute name for *Crabro chinensis* Gussakovskij, 1936. – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 183 (in list of Asian *Crossocerus*, bibliographic references, diagnostic characters).

201.*slimmatus* Leclercq

Crossocerus slimmatus Leclercq, 1963:9, ♀, ♂ (subgenus *Crossocerus*). Holotype: ♂, Philippines: Luzon: Baguio (USNM). – Baltazar, 1966:354 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Tsuneki, 1984b:18 (Philippines), 1984f:12 (Philippines), 36 (in key to Crabronini of Philippines); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 184 (in list of Asian *Crossocerus*, bibliographic references; Philippines : Baguio: Benguet); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*).

202.*sotirus* Leclercq

Crossocerus sotirus Leclercq, 1963:3, ♀. Holotype: ♀, Philippines: Island of Mindanao: Zamboanga (USNM). – Baltazar, 1966:353 (in catalog of Hymenoptera of Philippines); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Tsuneki, 1984f:12 (Philippines), 35 (in key to Crabronini of Philippines); Leclercq, 2009:161 (member of subgenus *Paroxycrabro*), 184 (in list of Asian *Crossocerus*, bibliographic references; Philippines: Luzon: Mount Makiling).

203.*spinigeroides* Leclercq and Miller

Crossocerus spinigeroides Leclercq and Miller *in* Leclercq, 2000d:65, ♀, ♂. Holotype: ♂, Mexico: Durango: 24 mi. west of La Ciudad (CNC). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

204.*spiniger* (Cameron)

Rhopalum spinigerum Cameron, 1904i:263, ♂ (as *spinigerus*, incorrect original termination). Holotype or syntypes: ♂, Mexico: no specific locality (BMNH). – Leclercq, 1950b:6 (in checklist of world Sphecidae, generic position tentative). – **As *Crossocerus spinigerus***: Leclercq, 1954c:229 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2000d:66 (in revision of New World *Crossocerus*); Amarante, 2002:25 (in catalog of Neotropical Crabronidae, as *spiniger*); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae), 10 (correction to his 2002 catalog).

Crabro ezrae Cameron, 1904i:266, ♀. Holotype or syntypes: ♀, Mexico: Chilpancingo (BMNH). Synonymized with *Crossocerus spinigerus* by Leclercq, 2000d:66. – **As *Crossocerus ezrae***: Leclercq, 1950e:4 (new generic assignment), 1954c:229 (in catalog of world Crabronini), 1968c:92 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:401 (in checklist of world Sphecidae); Amarante, 2002:25 (in catalog of Neotropical Crabronidae), 2005a:10 (correction to his 2002 catalog); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae).

205.*stangei* Leclercq

Crossocerus stangei Leclercq, 2000d:66, ♂. Holotype: ♂, Mexico: Nuevo León: Mesa de Chipinque (FSCA). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

206.*stictochilos* Pate

Crossocerus stictochilos Pate, 1944a:304, ♀, ♂. Holotype: ♀, USA: New Jersey: Burlington County: Medford Lakes (ANSP). – Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Leclercq, 1954c:237 (in catalog of world Crabronini); Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.), 1964a:90 (nest, prey, cocoon, life cycle); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Krombein, 1979b:1671 (in catalog of North American Hymenoptera), 1991:20 (figure of cocoon fabric); H. Allen, 1995:15 (holotype in ANSP); Leclercq, 2000d:67 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario: no specific locality).

207.*strangulatus* (Bischoff)

Crabro strangulatus Bischoff, 1930a:220, ♀, ♂. Tajikistan: Pamir: road Dyol Mazar to Maz (ZMHU). – Gussakovskij, 1935:433 (Tajikistan; Uzbekistan: Tashkent area; Kazakhstan: Semirechye). – **As *Crossocerus strangulatus***: Leclercq, 1954c:223 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1972a:150 (Mongolia); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Marshakov, 1975b:335 (Mongolia), 1980c:342, 350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Mongolia, northwestern China, Tajikistan, Kazakhstan), 358 (redescription); Islamov, 1986:531 (Uzbekistan: Tashkent Oblast'); Esenbekova and Kazenas, 2000:50 (southeastern Kazakhstan: near Alma Ata, 5-20 km west, 3-9 km south, and 2-10 km southwest of Alma Ata, 45 km southwest of Chundzha, 3 km west of Kamenka, 4-8 km south of Talgar); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 196 (two-cell nest in loess cliff, prey: small Diptera); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Kazenas, 2002a:102 (geographic distribution, collecting localities in Kazakhstan), 2004b:107 (Kazakhstan: western Tien Shan); Dollfuss, 2006:513 (Kazakhstan, Kyrghyzstan, Tadjikistan); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 184 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia; Kazakhstan: Alma Ata: Medeo; Uzbekistan: Tashkent); Kazenas, 2013a:87(color photograph of male, short information on geographic distribution and nesting habits). 2013b:497 (southeastern Kazakstan: foothills and low mountains, Ili River valley); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution).

Crossocerus tersus Kazenas, 1971:156, ♀, ♂. Holotype: ♀, southeastern Kazakhstan: near village Podgornoye in Khetmen' Range (ZIN). Synonymized with *Crossocerus strangulatus* by Marshakov, 1980c:358. – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae)

208.*stricklandi* Pate

Crossocerus stricklandi Pate, 1944a:301, ♂. Holotype: ♂, Canada: Alberta: Jasper (ANSP). – Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (as new synonym of *Crossocerus melanius*); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Krombein, 1979b:1671 (in catalog of North American Hymenoptera); H. Allen, 1995:15 (holotype in ANSP); Leclercq, 2000d:67 (in revision of New World *Crossocerus*); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and

Leclercq, 2000); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, Yukon Territory: no specific locality).

209.*styrius* (Kohl)

Crabro styrius Kohl, 1892:198, ♀. Holotype: ♀, Austria: Steiermark: Admont (NHMW). – Dalla Torre, 1897:630 (in catalog of world Sphecidae); E. Saunders, 1906:154 (Great Britain: locality records), 1907a:67 (Great Britain: Porthcawl); Schmiedeknecht, 1907:193 (in key to Hymenoptera of Central Europe); Hallett, 1912:94 (Great Britain: Glamorgan County); Kohl, 1915:235 (in revision of Palearctic Crabronini); Hallett, 1916:221 (Great Britain: South Wales: Porthcawl); R. Perkins, 1919a:9 (addition to E. Saunders, 1902 catalog); Bischoff, 1921b:5 (description of ♂, Germany: Bayern: Kochel and Kreuth); Schmiedeknecht, 1930:649, 650 (in keys to Hymenoptera of North and Central Europe); Stelfox, 1933:51 (Ireland: Down, Sligo, Waterford and Wicklow counties), 1936:24 (Ireland: Mullaghmore County: Trawallun; prey: *Limnophora triangulifera* Fallén, Muscidae); de Beaumont, 1945:481 (first record from Switzerland); Ribaut, 1946:271 (first record from France: Haute Garonne: Saint-Béat); Zavadil *in* Zavadil and Šnoflak, 1948:126 (in key to Sphecidae of Czechoslovakia); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Saint-Béat); Kjellander, 1954a:243 (Sweden; description of ♂); Scobiola, 1954:885 (first record from Romania: Braşov Region: Dumbrava-Sibiu); Vogrin, 1955:42 (Yugoslavia); Noskiewicz, 1958:227 (Poland: Krynica); Noskiewicz and Puławski, 1960:148, 153 (in key to Polish Sphecidae); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:106 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:153 (Czech Republic: Třeboň area); Skibińska, 1982:121, 124 (Poland: Mazovian Voivodship: Hamernia); Kowalczyk, 1988b:66 (Poland: environs of Łódź). – **As *Blepharipus styrius***: R. Perkins, 1913b:389, 393 (new generic assignment, in key to British Crabronini); Haines, 1922:14 (Great Britain: not found in Dorset); Stelfox, 1927:299 (Ireland: list of localities); Jones, 1931:98 (Great Britain: Nottinghamshire); Hallett, 1939:16 (Great Britain: Wales: no specific locality). – **As *Coelocrabro styrius***: Richards, 1937b:106 (new generic assignment, in checklist of British aculeates); Guichard, 1939b:77 (Great Britain: Surrey: Limpsfield Common); Graham, 1949:18 (Great Britain: Lincolnshsire: Tetford Hills); Blüthgen, 1952a:127 (Germany: Bayern: Illasberg, Kochel, Kreuth). – **As *Crossocerus styrius***: Leclercq, 1954c:233 (new generic assignment, in catalog of world Crabronini); de Beaumont, 1956c:186 (Switzerland); Wolf, 1959b:33 (known from Germany, but not from Nassau); Babiy, 1964:118 (Austria:

Land Salzburg); de Beaumont, 1964c:149 (in Sphecid Fauna of Switzerland); Vegter, 1966:141 (first record from Netherlands: Emmen); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); J. Heinrich, 1967:81 (Germany: Bayern: Engelsberg near Grossheubach); Leclercq, 1967a:33 (Great Britain: locality records); Lefeber, 1967c:220 (Netherlands: Sint-Pietersberg), 1968a:5 (Netherlands: Sint-Pietersberg); Scobiola-Palade, 1968c:387 (Romania: Mogoşoaia); Lefeber, 1969a:79 (Netherlands: Gaasterland, Zeist), 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Babiy, 1970:21 (Austria: Land Salzburg); Gauss and Perraudin, 1970:362 (Germany: Baden-Württemberg: Wittental); Oehlke, 1970:787 (first record from Democratic Germany); Vegter, 1971:230 (first record from Netherlands: Drenthe Province: Emmen); Kofler, 1972:115 (Austria: eastern Tirol); Scobiola-Palade, 1972b:255 (Romania); Lefeber, 1974:77 (Netherlands: t'Rooth); Leclercq, 1975b:3 (France); Lefeber, 1975b:153, 154 (Netherlands: Schiepersberg); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Lomholdt, 1976:398 (in Sphecid Fauna of Fennoscandia and Denmark); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Lefeber, 1978:138 (first record from Belgium: Vroenhoven); Marion, 1978:90 (France: Nièvre Department); Pulawski, 1978:261, 263 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:421 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1458 (Belgium); Marshakov, 1979a:96, 101 (in key to *Crossocerus* of Russian Far East, discussion of relationship to *Crossocerus pauxillus, C. sugiharai, C. nikkoensis*, and *C. tanoi*); Richards, 1980:50, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:375 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:317, 323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Axelsson, 1982:80 (Sweden); Dollfuss, 1983b:17 (in catalog of Sphecidae of Austria); Lefeber, 1983a:85 (Netherlands: Waddendistrict: Island of Terschelling); Haack, Tscharntke, and Vidal, 1984:127 (Germany: Hamburg area); Haeseler, 1984:108 (Germany: Flensburg); Lefeber, 1985:87 (Netherlands: southern Limburg); Westrich and Schmidt, 1985a:117 (Germany: Baden-Württemberg); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Skibińska, 1986b:151 (Poland: suburbs of Warszawa), 158 (rural and suburban parks); Vikberg, 1986:77 (Finland); Archer, 1987:110 (Great Britain: Yorkshire); Dollfuss, 1987:22 (Austria); Haeseler, 1987a:115 (nesting habits); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford); Dollfuss, 1989:9 (type

material in NHMW); Jacobs, 1989:20 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Jacobs and Oehlke, 1990:191 (new record from Democratic Germany); Pádr, 1990:86 (Czech Republic: Praha area); Schwammberger and Priesner, 1990:546 (Austria: Kärnten); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:155 (in key to Sphecidae of North and Central Europe); van der Smissen, 1991:96 (northwestern Germany); Gusenleitner, 1992:687 (Austria: Steiermark); Nilsson, 1992:55 and 56 (Sweden); N. Schneider, 1992:178 (Luxemburg); Bitsch and Leclercq, 1993:115 (in revision of western European Crabroninae); Leclercq, 1993c:22 (references to recent publications); Leclercq and Barbier, 1993:42 (map of distribution in France); Wiśniowski, 1993b:281 (Poland: Ojców National Park); Dollfuss, 1994:100 (endangered in Austria); Koponen, 1994:22 (Finland: Siikajäravi); Theunert, 1994c:37 (Germany: summary of records from Niedersachsen and Bremen); Wickl and Wickl, 1994:194 (Germany: Bayern: Oberpfalz: Bischofsreuth); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 441 (in key to Sphecidae of Russian Far East); Riemann, 1995:52 and 58 (Germany: Bremen); Schmid-Egger, Risch, and Niehuis, 1995:174 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:424, 425 (Poland: pine forest in Białowieża Primeval Forest); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: probably endangered); Archer, 1997b:97 (Great Britain: Watsonian Yorkshire); Celary, 1997:59 (in checklist of Animals of Poland); Kowalczyk, 1997:53 (Poland: Konewka Nature Reserve east-northeast of Tomaszów Mazowiecki, Święty Krzyż in Świętokrzyski National Park); Schmidt and Schmid-Egger, 1997:11 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 37 (extremely rare); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River); Lefeber, 1998:182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); van der Smissen, 1998:57 (Germany: Schleswig-Holstein: Seeretz); Archer, 1999b:82 (Great Britain: Yorkshire); Gusenleitner, 1999:600 (Austria: Vorarlberg: Vandans northwest of Schruns); W. Klein, 1999:10, 12 (in improved key to *Crossocerus* of Benelux); Ljubomirov, 1999b:54 (Bulgaria: Mount Vitosha near Sofia); Majzlan, Rychlík, and Deván, 1999:146 (Slovakia: Čenkovská Step Nature Reserve); Pauly, 1999:110 (in catalog of Belgian aculeates); M.

Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:312 (in Sphecid Fauna of Germany); Jacobs, 2000:7, 17 (Germany: Land Mecklenburg-Vorpommern: data insufficient to evaluate how endangered); Luig and Voolma, 2000:124 (first record from Estonia); Vepřek, 2000:236 (recorded from Czech Republic: Trabice by Tyrner, 1957, and from Slovakia: Biele Karpaty by Devan, 1999); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Ohl et al., 2001:138 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); van der Smissen, 2001:60 (Germany: Schleswig-Holstein: extremely rare); Archer, 2002b:116 (Great Britain: Watsonian Yorkshire: distribution map); Beavis, 2002:108 (Great Britain: Kent: Tunbridge Wells area); Gayubo, González, Tormos, and Asís, 2002:86 (first record from Spain: Navarra: Artikutza); Kraus and Floren, 2002:100 (Germany: Bayern: Münnerstadt, as *styrus*); Martínez de Murguia, Vázquez, and Nieves Aldrey, 2002:202 (Spain: Navarra: Artikutza Forest Reserve at 43°09'28"–43°14'52"N 0°1'45'35"–01°49'30"E); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Wiśniowski, 2002:72 (Poland: Ojców National Park); Haeseler, 2003:339 (Germany: Niedersachsen: Island of Harriersand near Bremen); Kula and Tyrner, 2003b:202 (northern Czech Republic: spruce stands in air-pollution region); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (in catalog of wasps and bees of Bayern, Germany); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:197 (Germany: Bayern: probably endangered); Wiśniowski *in* Dylewska and Wiśniowski, 2003:167 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:374 (in Wasp and Ant Fauna of Netherlands); Nemkov, 2004b:267 (locality records from Russian Far East and Japan); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:43 (Japan: Yamanashi Prefecture); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:48 and 61 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:49 (Japan: Gifu Prefecture); Kofler, 2005:178 (Austria: Tirol: Lienz District:

Etschberg in Nikolsdorf Common); Nemkov, 2005a:153 (Russia: Island of Sakhalin); Riemann and Hohmann, 2005:551 (Germany: Niedersachsen: city of Bremen and adjacent area); Straka, 2005a:400 (endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Dollfuss, 2006:513 (Czech Republic); Gorobchishin, 2006:128 (Ukraine: Lviv Oblast': Roztochchya Nature Reserve); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:25 (Japan: Toyama Prefecture); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Chevin, Livory, Lair, Sagot, and Baldock, 2007:28 (France: Département de la Manche); Jacobs, 2007:133, 143 (in key to Crabronidae of Germany); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:81 (Germany: in checklist of Aculeata of Brandenburg); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia), 229 (first recorded from Moravia and Slovakia by Vepřek, 2000; additional locality records from Bohemia and Moravia); Haeseler, 2008:308 (Germany: Friesian Islands); Mei, 2008:182 (first record from Italy: Lombardia: Valmalenco); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Theunert, 2008:26 (Germany: map of distribution in Niedersachsen and Bremen); Wiśniowski, 2008:635 (Poland: Ojców National Park, collected in 1992-2003); Bitsch and Leclercq, 2009:220 (in supplement to vol. I of Faune de France, 1993: the latest record from France is from Haute-Savoie: Bossy/Frangy, in 1990); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 184 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:103 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Straka, Dvořak, and Bogusch, 2009:260 (Czech Republic: Oldřichov v Hájích); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Budrys, 2010:138 (first record from Lithuania: Bargailiai, Garliava, Karkazai, 2 km south-southeast of Puvočiai); 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); Mokrousov, 2010c:107 (Russia: Chuvash Republic: State Nature Reserve "Prisurskiy"); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: relatively common); Schmidt, 2010:134 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:40 (member of *Blepharipus*, in list of Japanese subgenera

of *Crossocerus*); van der Smissen, 2010a:337 (Germany: Schleswig-Holstein: Sereetz); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Mokrousov, Berezin, and Egorov, 2011:70 (Russia: Chuvash Republic); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:182 (Germany: never found in Hessen, but may be expected there); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Pankov, 2013:229 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:195 (in annotated catalog of aculeate wasps of Belorussia); Haneda, Murota, Kurokawa, and Tano, 2014:5, 10 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); J.-K. Kim, 2014:427 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Blažej, Macek, and Trýzna, 2016:118 (Czech Republic: České Švýcarsko = Bohemian Switzerland National Park); Else, Bolton, and Broad, 2016:17 (in checklist of Aculeata of Great Britain and Ireland: England); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Fresno, 2018:233 (Spain: Asturias: Pola de Lena); Carminati, Mora, and Cretin, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:95 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:98 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:58 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Olszewski, Sparks, Twerd, and Wiśniowski, 2024:5 (central Poland: common in river valleys: no specific localities).

Crabro pauxillus Gussakovskij, 1932:22, ♀. Holotype: ♀, Russia: Primorskiy Kray: Sedanka (Stockholm). Synonymized with *Crossocerus styrius* by Bitsch and Leclercq, 1993:113. – **As *Crossocerus pauxillus***: Leclercq, 1954c:235 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1954b:62, 72 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands), 1955d:217 (Russia: Kuril Islands: Island of Kunashir; synonymy); Tsuneki and Tanaka, 1955b:22 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:70, 75 (in revised key to *Crossocerus* of Japan and Korea), 1960g:44 (nesting habits unknown); Haneda, 1968a:47 (Japan); Nambu, 1968:22 (Japan); Okuno, 1968:30 (Japan); Tsuneki, 1968l:54 (South Korea: Island of Quelpart, now

Island of Cheju), 1969e:27 (Japan: specimens in Osaka Museum of Natural History); 1969f:28 (Japan: Kyushu); Nambu, 1973a:153 (Japan: Saitama Prefecture); Tsuneki, 1973q:126 (taxonomy); Nambu, 1975b:76 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Paik, 1985:202 (in list of Sphecidae of Korea).

Crabro sugiharai Iwata, 1938d:86, ♀, ♂. Holotype: ♀, Russia: Kuril Islands: Seseki: Etorofu (Hokkaido Univ.). Synonymized with *Crossocerus pauxillus* by Tsuneki, 1955d:217, also 1959n:70, 75 (in revised key to *Crossocerus* of Japan and Korea). – **As *Crossocerus sugiharai***: Leclercq, 1954c:234 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae, as valid species).

Crossocerus pilicornis Tsuneki, 1977f:2, ♂. Holotype: ♂, Japan: Fukui Prefecture: near Hatogayu (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus styrius* by Nemkov, 2004b:267. – Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan).

210.*subulatus* (Dahlbom)

Crabro subulatus Dahlbom, 1845:525, ♂. Holotype or syntypes: ♂, origin unknown, probably Sweden (Lund). – Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld, as *sabulatus*); A. Morawitz, 1866a:270 and 1866b:348 (specimens in E. Eversmann collection); Dalla Torre, 1897:631 (in catalog of world Sphecidae). – **As *Crossocerus subulatus***: Leclercq, 1974d:275 (new generic assignment, correct interpretation, taxonomy), 1974e:660, 662 (in key to Asian species of subgenus *Cuphopterus*); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Lomholdt, 1976:411 (in Sphecid Fauna of Fennoscandia and Denmark); Pulawski, 1978:257, 262 (in key to Sphecidae of European part of USSR); Marshakov, 1979a:93, 98 (in key to *Crossocerus* of Russian Far East), 1980c:339, 349 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; in USSR: Orenburg and Amur oblast's, Maritime Province, Island of Sakhalin, Kuril Islands); Scobiola-Palade, 1985:98 (first record from Romania: delta of Danube); Vikberg, 1986:77 (Finland); Hedström, 1987:156 (Sweden); Bitsch and Leclercq, 1993:137 (in revision of western European Crabroninae); Leclercq, 1993c:22 (Finland: Lohikoski); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430, 437 (in key to Sphecidae of Russian Far East); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Luig and Voolma, 2000:125 (first record from Estonia);

Mokrousov, 2000b:31 (Russia: Nizhniy Novgorod Oblast'); Kazenas, 2001b:40 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:102 (geographic distribution, collecting localities in Kazakhstan); Mokrousov, 2002:149 (Russia: Nizhniy Novgorod Oblast': Kerzhenskiy Nature Reserve); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Ohl and Linde, 2003:151 (number of ovarioles); Nemkov, 2005a:150 (Russia: Island of Sakhalin); Budrys, 2006:80 (Lithuania: Varėna District at 54°05'59"N 24°19'24"E); Gorobchishin, 2006:128 (Ukraine: Kyiv); Nemkov, 2006b:168 (Russia: Primorskiy Kray: Kedrovaya Pad' Nature Reserve); Hallin, 2007:154 (Sweden: Skåne, Blekinge, Småland, Östergötland, and Närke counties); Nemkov, 2007b:71 (Russia: Kuril Islands: islands of Iturup and of Kunashir), 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Bitsch and Leclercq, 2009:222 (in supplement to vol. I of Faune de France, 1993: records from Finland and Estonia reported); Leclercq, 2009:184 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:109 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:28 (known from Norway), 42 (Norway: locality records); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod Oblast', Chuvash Republic: no specific localities), 2010b:100 (Russia: Nizhniy Novgorod Oblast': no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve “Prisurskiy”); Rudoiskatel', 2010:156 (Russia: central and southern Ural Mountains); Baghirov, 2011b:145 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Mokrousov, Berezin, and Egorov, 2011:71 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm Oblast': Tyuinsk village), 2011c:231 (Russia: Sverdlovsk Oblast': Natural Park «Chusovaya River»), 2011d:242 (Russia: central Ural Mountains); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2013:202 (in annotated catalog of aculeate wasps of Belorussia); Hellqvist, Abenius, and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Antropov, 2017b:230 (in catalog of Crabroninae of Russia); Żyła and Huflein, 2020:3 (first record from Poland: Białowieski National Park and Mielnik); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:74 (in revision of Sphecidae *sensu lato* of Europe); Olszewski, Wiśniowski, and Ljubomirov, 2021:87 (in commented list of Sphecidae *sensu lato* of Poland); Pytel-Huta and Franchuk, 2024:78 (Ukraine: Rivno Nature Reserve).

As *Crabro monstrosus* (collectively corrected to *Crossocerus subulatus* by Leclercq, 1974d:275): Eversmann, 1849:421 (Russia: Ural foothills); Kohl, 1915:214 (in revision of Palearctic Crabronini); Gussakovskij, 1932:21 (Russia: Primorskiy Kray); Kjellander, 1954b:245 (first record from Sweden); Leclercq, 1954c:241 (in catalog of world Crabronini), 313 (nest and prey records); Hellén, 1956:45 (recorded from Finland); Noskiewicz and Puławski, 1960:143, 150 (in key to Polish Sphecidae, not yet found in Poland). – **As *Crossocerus monstrosus***: Valkeila, 1962b:68 (new generic assignment, southwestern Finland); Valkeila, Brander, and Käpylä, 1963:41 (Finland: historical region Lounais-Hämeen = southwest Häme); Lomholdt, 1973a:107 (first record from Denmark: North Zealand: Tisvilde Hegn; North Jutland: Faurholt Hede); Pärn, Soon, Vallisoo, Hovi, and Luig, 2015:94 (Estonia: no specific locality). – **As *Ectemnius monstrosus***: Hellén, 1955a:129 (new generic assignment, recognition characters, Finland: seven localities).

211.*sulcatus* Q. Li and Fang

Crossocerus sulcatus Q. Li and Fang, 2003:147, ♀, ♂. Holotype: ♀, China: Sichuan: Emeishan: Xixiangchi (Inst. Zool. Acad. Sinica). – Q. Li and Fang, 2003:149 (in key to subgenus *Ablepharipus* of China); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 184 (in list of Asian *Crossocerus*, bibliographic references).

212.*surusumi.* Tsuneki

Crossocerus surusumi. Tsuneki, 1971a:10, ♀. Holotype: ♀, Taiwan: Chiai Prefecture: Mount Ali (originally K. Tsuneki collection, now USNM). – Leclercq, 1974e:662 (in key to Asian species of subgenus *Cuphopterus*), 667 (bibliographic reference); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Tsuneki, 1982e:29 (Taiwan; description of ♂); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 184 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:43 (member of subgenus *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*).

213.*suzukii* (Matsumura)

Crabro monstrosus suzukii Matsumura, 1912:169, 170, ♀. Holotype or syntypes: ♀, Japan: Honshu: Kyoto (depository?). – Tsuneki, 1947e:408 (Japan: Hokkaido), 1948c:5 (Japan: Hokkaido). – **As *Crossocerus monstrosus suzukii***: Iwata, 1955:30 (new generic assignment, egg size, number of oocytes), 1938d:85 (Japan: Hokkaido, Honshu; Russia: Island of Sakhalin); Tsuneki, 1955d:215 (Russia: Kuril Islands); Tsuneki, 1952c:68 (Japan: Shikoku),

1954b:58, 65 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955a:68 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:67, 73 (in revised key to *Crossocerus* of Japan and Korea), 1960g:34 (prey: Diptera); Iwata, 1960:210 (number of ovarioles and oocytes, egg size); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Tsuneki,1966a:25 (Japan), 1967g:44 (western Japan: Mount Hyonosen); Haneda, 1968a:46 (Japan); T. Iida, 1968:22 (Japan); Okuno, 1968:31 (Japan); Tano, 1968:34 (Japan); Itami, 1969:51 (Japan: Niigata Prefecture); Tsuneki, 1969e:27 (Japan: specimens in Osaka Museum of Natural History), 1970b:11 (cental Japan); Tano, 1971:81 (Japan: Shikoku: Mount Tsurugi); Haneda, 1972c:59 (Japan: Fukui Prefecture); Nambu, 1973a:153 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Hamanashi Prefecture); Nambu, 1975b:74 (Japan: Saitama Prefecture). – **As *Crossocerus subulatus suzukii***: Leclercq, 1974e:661 (new subspecific generic assignment, in key to Asian species of subgenus *Cuphopterus*), 667 (bibliographic references); R. Bohart and Menke, 1976:403 (as synonym of *Crossocerus subulatus*); Miyatake, 1996:102 (specimens in Hiroshi Aoki collection); 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, 2005:50 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:26 (Japan: Toyama Prefecture); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); S. Takahashi and Haneda, 2008a:58 (Japan: Hokkaido: Sapporo); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 184 (in list of Asian *Crossocerus*, bibliographic references); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Tano, 2010b:43 (member of *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:2, 8 (in key to *Crossocerus* of Japan). – **As *Crossocerus suzukii***: Marshakov, 1979a:91 (full species status, in key to *Crossocerus* of Russian Far East); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430 (in key to Sphecidae of Russian Far East); Nemkov, 2005a:150 (Russia: Island of Sakhalin), 2006c:247 (Russia: Island of Moneron south of Sakhalin), 2007b:71 (Russia: Kuril Islands: Island of Kunashir), 2008b:22 (in catalog of Crabronidae of Asiatic Russia), 2009b:110 (in new catalog of

Sphecidae and Crabronidae of Asiatic Russia), 2012c:442 (in catalog of Crabronidae of Russian Far East); Antropov, 2017b:230 (in catalog of Crabroninae of Russia).

214.*taiwanus* Tsuneki

Crossocerus taiwanus Tsuneki, 1968g:10, ♂. Holotype: ♂: Taiwan: Nantou Prefecture: Tsuifeng (originally K. Tsuneki collection, now USNM). – Tsuneki, 1968g:32 (Taiwan; in key to Crabronini of Taiwan and Ryukyus islands), 1971a:17 (Taiwan; description of ♀); Haneda, 1972a:6 (Taiwan); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Q. Li and Fang, 2003:149 (in key to subgenus *Ablepharipus* of China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 185 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:38 (member of *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*).

215.*takasago* Tsuneki

Crossocerus takasago Tsuneki, 1966d:3, ♀, ♂. Holotype: ♂, Taiwan: Chiayi Hsien: Arishan (Kyushu Univ.). – Tsuneki, 1968d:56 (Taiwan), 1968g:13 (Taiwan), 32 (in key to Crabronini of Taiwan and Ryukyus); Tsuneki and Iida, 1969:7 (nesting habits); Haneda, 1972a:6 (Taiwan); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Dollfuss, 2006:513 (Thailand: Mae Hong Son: pass near Soppong); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 185 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*).

216.*takeuchii* Tsuneki

Crossocerus takeuchii Tsuneki, 1957f:61, ♀. Holotype: ♀, North Korea: Sanyodai (K. Takeuchi collection, now?). – Tsuneki, 1959n:75 (in revised key to *Crossocerus* of Japan and Korea), 1982b:17 (known from Korea); not included in R. Bohart and Menke, 1976; Paik, 1985:201 (in list of Sphecidae of Korea); Leclercq, 1988:19 (diagnostic characters; Russia: Primorskiy Kray: 40 km southeast of Ussuriysk); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:435, 441 (in key to Sphecidae of Russian Far East); Tano, Kurokawa, Murota, and Nozaka, 2003:31 (Japan: Nagasaki Prefecture: Tsushima); Haneda, 2004:23 (recognition characters); Nemkov, 2004b:267 (locality records from Russian Far East and Japan); Haneda, Inoue,

Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:66 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture), 2006b:48 (Japan: Nagasaki Prefecture: Tsushima); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 185 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:104 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:44, 48 (distribution in Japan); Tano, 2010b:41 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:5, 10 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:427 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

Crossocerus etizenensis Tsuneki, 1992b:50, ♂. Holotype: ♂, Japan: Fukui Prefecture: Natasho-Mura: Mushidani (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus takeuchii* by Nemkov, 2004b:267. – Tano, 1994a:6 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:16 (holotype transferred to Hyogo Mus.); S. Takahashi, Haneda, and Tano, 2009:44 (distribution in Japan).

217.*tanakai* Tsuneki

Crossocerus tanakai Tsuneki, 1954b:76, ♀. Holotype: ♀, Japan: Nikko (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1954b:70 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955b:25 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1956b:9 (description of ♂), 11 (in supplement to 1954b key), 1959n:69, 74 (in revised key to *Crossocerus* of Japan and Korea), 1960g:43 (nesting habits); Tsuneki and Tano, 1969:30 (distribution in Japan); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 1988:22 (Russia: Primorskiy Kray: Khabarovsk and Ussuriysk areas); Tano, 1994a:6 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:436, 440 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture), 2006a:25 (Japan: Toyama Prefecture); Nemkov, 2008b:21 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:58 (Japan: Hokkaido: Sapporo); Leclercq, 2009:185 (in list of Asian *Crossocerus*, bibliographic references); Nemkov,

2009b:104 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:42, 48 (distribution in Japan); Tano, 2010b:41 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:4, 9 (in key to *Crossocerus* of Japan); Antropov, 2017b:228 (in catalog of Crabroninae of Russia).

218.*tanoi* Tsuneki

Crossocerus tanoi Tsuneki, 1968g:12, ♂. Holotype: ♂, Taiwan: Chiai Prefecture: Mount Ali (originally K. Tsuneki collection, now USNM). – Tsuneki, 1968g:32 (in key to Crabronini of Taiwan and Ryukyus); Leclercq, 1973c:288 (Taiwan); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Q. Li and He, 2001:757 (China: Tianmushan Nature Reserve at 30°22'N 119°26'E), 2004:1080 (in hymenopterous fauna of Zhejiang Province, China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 185 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:41 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*).

219.*tarsalis* (W. Fox)

Crabro tarsalis W. Fox, 1895:193, ♂. Holotype: ♂, USA: New York: no specific locality (ANSP). – Dalla Torre, 1897:631 (in catalog of world Sphecidae); Kincaid, 1900a:359 (USA: Washington: Seattle); Cresson, 1928:56 (holotype in ANSP); Krombein, 1939:144 (New York State). – **As *Stenocrabro tarsalis***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae). – **As *Solenius tarsalis***: J.Ch. Bradley, 1928:1020 (new generic assignment, in catalog of New York Sphecidae). – **As *Crossocerus tarsalis***: Pate, 1944a:310 (new generic assignment, diagnostic characters); Krombein, 1951a:143 (Virginia: Dunn Loring; visiting tulip-tree honeydew); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1022 (in catalog of North American Hymenoptera); Krombein, 1952a:96 (USA: Virginia: Westmoreland State Park), 1952b:184 (USA: West Virginia: Lost River State Park); Leclercq, 1954c:237 (in catalog of world Crabronini); Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Krombein, 1979b:1671 (in catalog of North American Hymenoptera); Finnamore, 1982:160 (in Sphecid Fauna of southern Quebec); Ahlstrom, 1995:111 (in

checklist of insects of North Carolina); Leclercq, 2000d:68 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Nova Scotia, Ontario, Quebec, first records from Alberta, British Columbia, and Manitoba: no specific locality).

220. *tarsatus* (Shuckard)

Crabro tarsatus Shuckard, 1837a:133, ♂. Holotype or syntypes: ♂, Britain: Highgate (depository unknown). – F. Smith, 1849a:2373 (Great Britain: Devonshire), 1851c:27 (Great Britain: Highgate), 1853:64 (in checklist of British Hymenoptera); Schenck, 1867a:351 (known from Germany); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton); de Beaumont, 1947b:398 (Cyprus); Zavadil *in* Zavadil and Šnoflak, 1948:128, 130 (in key to Sphecidae of Czechoslovakia); Pittioni, 1950:28 (Cyprus); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Leininger, 1951:115 (Germany: Baden-Württemberg); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Saint-Béat, a form similar to true *Crabro tarsatus*); de Beaumont, 1954e:96 (Italy); Steiner, 1955:141 (France: Dordogne); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Benno, 1958b:19 (in review of Dutch Sphecidae); Ceballos, 1959:231 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:144, 152 (in key to Polish Sphecidae); Fæster, 1965:193 (Denmark: Hansted Nature Reserve); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Marshakov, 1970:36 (nesting habits); Tumšs and Maršakovs, 1970:28 (Latvia); Balthasar, 1972:118 (in Sphecid Fauna of Czechoslovakia); Georghiou, 1977:190 (Cyprus); Skibińska, 1982:120, 124 (Poland: Mazovian Voivodship: Wola Mrokowska); D. Baker, 1998:172 (type origin and depository). – **As *Crossocerus tarsatus***: Richards, 1937b:106 (new generic assignment, in checklist of British aculeates); Spooner, 1937:20 (Great Britain: Scotland: Lochinver); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1030 (Germany: Bayern: Bamberg area); J. Perkins, 1942:198 (Sweden: Skåne: Dalby and Genarp); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Painswick, Rodborough, Wotton); Hallett: 1945:129 (Great Britain: Hereforsdhire: Hope Mansell); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Chambers, 1949:228 (Great Britain: Bedfordshire); Leclercq, 1949a:5 (France: Bretagne; Morocco: Tanger); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Leclercq,

1951e:5 (bibliography of Belgian records); Richards, 1951:3 (British populations are different from continental ones); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:250 (Sweden: Gästrikland Region); Tsuneki, 1954b:63, 72 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands), 306 (nest and prey records); Leclercq, 1954c:224 (in catalog of world Crabronini); Aerts, 1955:58 (Germany: Rheinland); Hellén, 1955a:127 (Finland: known only from Helsinki); Grandi, 1957:391 (Italy: Sardegna); Tsuneki, 1957f:62 (Korea); Móczár, 1958a:263, 270 (in annotated catalog of Hungarian Crabronini, Hungarian specimens are identical to those from Switzerland), 1958b:195 (Hungary: collecting localities); Nouvel and Ribaut, 1958:16 (France: Pyrénées-Orientales: Banyuls-sur-Mer); de Beaumont, 1959a:39 (Italy; geographic variation); Tsuneki, 1959n:70, 76 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:32 (Germany: Nassau); Hoop, 1961:63 (Germany: Schleswig-Holstein: Ihlkate); Grandi, 1962:98 (Italy); Valkeila, 1962b:68 (southwestern Finland); Felton, 1963:178 (Great Britain: Kent County); de Beaumont, 1964c:145 (in Sphecid Fauna of Switzerland); Richards, 1964:11 (endemic race occurring in Britain), 25 (heathlands in southern England); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); de Beaumont, 1967a:353 (Turkey); Gauss, 1967:558 (Germany: Baden-Württemberg); Leclercq, 1967a:31 (Great Britain: locality records; specimen from Channel Islands is closer to continental than to British forms); Yarrow, 1967:64 (Great Britain: Cornwall: Isles of Scilly); Benedek, 1968:76 (Hungary, visiting flowers sof *Solidago gigantea* Ait., Asteraceae); Leclercq, 1968b:39 (Great Britain: Kent); Benedek, 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena* pruni (Geoffroy)); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Babiy, 1970:21 (Austria: Land Salzburg); Hoop, 1970:60 (Germany: Schleswig-Holstein: Heiligenhafen); Oehlke, 1970:777 (Democratic Germany); Hoop, 1971:83 (Germany: Schleswig-Holstein: Buchorste Berge); Leclercq, 1971:215 (Spain); Schmidt, 1971b:49 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand), 1971c:75 (Germany: Schleswig-Holstein); Haeseler, 1972:157 (Germany: Schleswig-Holstein); Kofler, 1972:114 (Austria: eastern Tirol); Lomholdt, 1972:123 (Denmark: Island of Læsø); Haeseler, 1974:124 (Germany: Schleswig-Holstein); Kofler, 1974:320 (Austria: Kärnten); Leclercq, 1974d:267 (synonymy), 1975b:2 (France); Lefeber, 1975b:153 (Belgium); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Eck, 1976:94 (Democratic Germany);

Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Lomholdt, 1976:382 (in Sphecid Fauna of Fennoscandia and Denmark); Simon Thomas and Wiering, 1976:109 (Netherlands: IJsselmeer Polders); Cretin and Robert, 1977:47 (France: Doubs: Chassagne-Saint Denis); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Haeseler, 1978b:62 (Germany: Niedersachsen: bog near Oldenburg), 1978c:194 (Germany: Friesian Islands: Island of Borkum); Pulawski, 1978:257, 265 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:420 (Germany: Württemberg); Benedek, 1979:235 (Hungary: Bakony Hills); Marshakov, 1979a:93, 100 (in key to *Crossocerus* of Russian Far East); Schmidt, 1979a:57 (Germany: Ost-Holstein); Leclercq, Gaspar, and Verstraeten, 1979:map 1446 (Belgium); Richards, 1979:398 (British Channel Islands); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Marshakov, 1980c:339, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Richards, 1980:48, 50 (in key to Sphecidae of British Isles); Schmidt, 1980:375 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:316, 323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Woydak, 1981:47 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Gayubo, 1982b:24 (Spain: Ávila and Salamanca provinces), Tsuneki, 1982b:17 (known from Korea); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Lefeber, 1983a:85 (Netherlands: Waddendistrict: northern coast dunes, West Friesian Islands); Riemann, 1983:88 (Germany: Bremen-Daverden area); Gayubo, 1984b:94 (Spain: Salamanca Province); Haack, Tscharntke, and Vidal, 1984:127 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Veenendaal, 1984:19 (Netherlands: Amsterdam); Archer, 1985d:50 (Great Britain: Yorkshire: Pompocali near Leeds); Haeseler, 1985c:571 (Germany: Friesian Islands); Józan, 1985b:59 (recorded from Simontornya by Móczár, 1958), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Paik, 1985:201 (in list of Sphecidae of Korea); Gayubo, 1986d:117 (Spain: Zamora Province); Gayubo and Sanza, 1986:66 (Spain: Burgos); Skibińska, 1986b:160 (Poland: Warszawa: gardens); Vikberg, 1986:77 (Finland); Schmidt and Westrich, 1987:374 (Germany: Mainz area); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Dollfuss, 1988:28 (Austria: Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Haeseler,

1988:210 (Germany: Friesian Islands); Nilsson, 1988:98 (Sweden); Riemann, 1988:223 (Germany: Bremen area); Archer, 1989a:131, 133 (Great Britain: York: found before and after coniferization); Jacobs, 1989:20 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belorussya: Berezinskiy Nature Reserve); Archer, 1990c:16 (Great Britain: Leicestershire); Gayubo, Asís, and Tormos, 1990b:76 (Spain: Cáceres Province); Jacobs and Oehlke, 1990:186 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:23 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Nash, Boston, and Nelson, 1990:249 (Ireland: Down County); Pagliano, 1990:86 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg forest); Schwammberger and Priesner, 1990:546 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:155 (in key to Sphecidae of North and Central Europe); Józan, 1991:604 (Hungary: Bátorliget Nature Reserve); Kowalczyk, 1991a:90 (Poland: Łódź); Pagliano, 1991b:337, 345 (in key to Italian Crabroninae); von der Heide, 1991:63 (Germany: peat bog near Oldenburg); Archer, 1992a:56 (Great Britain: Leicestershire); Budrys, 1992:34 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józan, 1992c:289 (Hungary: Zselic Hills); Nilsson, 1992:54 (Sweden); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); Archer, 1993d:129 (Great Britain: Lincolnshire: Risby Warren 3 km northeast of Scunthorpe); Bitsch and Leclercq, 1993:129 (in revision of western European Crabroninae); Leclercq, 1993c:22 (locality records from Europe); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq and Barbier, 1993:43 (map of distribution in France, as *Crossocerus tarsatus tarsatus*); Negrisolo and Pagliano, 1993:92 (Italy: Sardegna); Torregrosa, Gayubo, Tormos, and Asís, 1993:20 (Spain: Alicante Province); Koponen, 1994:21 (Finland); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); Tormos, Asís, and Gayubo, 1994:215 (Spain: Albacete Province); Archer, 1995a:3 (Great Britain: Yorkshire: frequency); Archer and Burn, 1995:59 (Great Britain: Yorkshire: Crow Wood near Finningley); 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, 1995:431, 438 (in key to Sphecidae of Russian Far East); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Archer, 1996a:58 (Great Britain: Channel Islands),

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Crossocerus palmatus De Stefani Perez, 1884b:221, ♂, junior secondary homonym of *Crabro palmatus* Panzer, 1797. Holotype or syntypes: ♂, Italy: Sicilia: Santa Ninfa (depository unknown). Synonymized with *Crabro palmipes* (correctly: *Crossocerus tarsatus*) by Kohl, 1915:252. – **As *Crabro palmatus***: Dalla Torre, 1897:615 (new generic assignment, in catalog of world Sphecidae). – **As *Crossocerus tarsatus* var. *palmatus***: van Achterberg and Peeters, 2004:30 (new status, in checklist of Sphecidae of Netherlands).

As *Crabro palmipes* (collectively corrected to *Crossocerus tarsatus* by Richards, 1935a:167): F. Smith, 1865b:91 (redescription); Taschenberg, 1866:178 (in revision of Hymenoptera of Germany); A. Costa, 1867c:127 (in revision of Italian Sphecidae); von Aichinger, 1870:314 (Austria: Tirol); Dours, 1874:155 (in catalog of Hymenoptera of France); Thomson, 1874:272 (in revision of Hymenoptera of Scandinavia); E. Saunders, 1880:287 (in revision of British Aculeata); V. Perkins, 1892:205 (Great Britain:

Gloucestershire: Wotton-under-Edge); Rudow, 1996:329 (Germany: Brandenburg: no specific locality); E. Saunders, 1896:134 (in revision of British Aculeata); Westerlund, 1896:28 (Finland: no specific locality); Strand, 1898b:95 (Norway); Gardner, 1901:380 (Great Britain: Cheshire: Chester); Malloch, 1901:6 (Great Britain: Scotland: Dumbartonshsire); E. Saunders, 1902a:52 (southwestern Ireland), 1902b:143 (Great Britain: Channel Islands); Graeffe, 1906:455 (Tunisia: Tunis area); Schmiedeknecht, 1907:196, 198 (in key to Hymenoptera of Central Europe); Morley, 1909:305 (Great Britain: Isle of Wight); Šustera, 1909:34 (Czech Republic: vicinity of Praha); Morley, 1911:24 (Western Ireland: Belclare, Island of Clare); Hallett, 1914:99 (Great Britain: Glamorgan: Taffs Well); R. Perkins, 1925:152 (Great Britain: Gloucestershire and Somersetshire); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Berland, 1928b:180 (add Grandi, 1926 and Hamm and Richards, 1926 to bibliography in Berland, 1925d); Bouwman, 1930:102 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:652, 654 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:148 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: abundant in Bruxelles area); Giordani Soika, 1932a:23 (Italy: Lido di Venezia); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Paul, 1941:36 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Cavro, 1950:38 (France: Département du Nord); Vago, 2005a:14 (*Crabro palmipes* in Cavro, 1950 is *Crossocerus tarsatus* now). – **As *Crossocerus palmipes***: Lepeletier de Saint Fargeau and Brullé, 1835:765 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:169 (in revision of world Hymenoptera); Taschenberg, 1858:107 (in key to Sphecidae of Germany); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Engel, 1894:53 (Germany: Reinbek near Hamburg); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); Borries, 1897:40 (Denmark: flying from June to end of September); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1910:52 (Sweden; nesting habits); Graeffe, 1911:44 (Italy: Trieste area); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Rudow, 1912:75 (nesting in raspberry twigs); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); R. Perkins, 1913b:390, 394 (in key to British Crabronini), 1924:226 (Great Britain: Devon); Hamm and Richards, 1926:314 (summary of nesting habits), (list of prey); Harttig, 1927:16 (Germany: Niedersachsen: Oldenbüttel, Oyte); Stelfox, 1927:300 (Ireland: list of localities); Butterfield and Fordham, 1931:157 (Great

Britain: Yorkshire); W. Johnson, 1931:139 (Great Britain: Down County: Greencastle); Spooner, 1931:16 (Great Britain: Cambridgeshire); Harttig, 1935:4 (northwestern Germany); Guichard, 1938:72 (Great Britain: Norfolk coast); Murray, 1938:172 (Scotland: Dumfriesshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Bat'a, 1944a:25 (Czech Republic); Nelson, 1958:154 (Great Britain: Isle of Man), corrected to *Crossocerus tarsatus* by Nelson, 1981:145.

ssp. *planipes* (W. Fox)

Crabro planipes W. Fox, 1895a:193, ♂. Lectotype: ♂, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:55. – Dalla Torre, 1897:618 (in catalog of world Sphecidae); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae); Carter, 1925:131 (Canada: Alberta: Lethridge). – **As *Stenocrabro planipes***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae). – **As *Crossocerus planipes***: Strickland, 1947:127 (new generic assignment, Canada: Alberta); Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (new generic assignment, in catalog of North American Hymenoptera); Krombein, 1963f:278 (Maryland: Plummers Island near Washington, D.C.); Kurczewski and Kurczewski, 1963:148 (Pennsylvania: Presque Isle State Park); Krombein, 1964b:119 (nest and prey); Leclercq, 1954c:224 (in catalog of world Crabronini), 306 (nest and prey records); R. Bohart and Menke, 1976:402 (in checklist of world Sphecidae); Krombein, 1979b:1667 (in catalog of North American Hymenoptera, nesing sites, list of prey); Finnamore, 1982:149 (in Sphecid Fauna of southern Quebec); Bitsch and Leclercq, 1993:129 (as new synonym of *Crossocerus tarsatus*); Finnamore, 1997:889 (Canada: Yukon). – **As *Crossocerus tarsatus planipes*:** Leclercq, 2000d:68 (new status, in revision of New World *Crossocerus*); Ratzlaff, 2016:25 (Canada: British Columbia: from Krombein, 1979 and Leclercq, 2000).

Crabro incavus W. Fox, 1895a:188, ♀. Lectotype: ♀, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1928:54. Synonymized with *Crossocerus planipes* by R. Bohart *in* R. Bohart and Menke, 1976:402. – Dalla Torre, 1897:604 (in catalog of world Sphecidae); H. Smith, 1908b:401 (in revision of Nebraskan Sphecidae); Mickel, 1918b:382 (in catalog of Nebraskan Sphecidae). – **As *Crossocerus incavus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae); Rau, 1922:21 (USA: Kansas: Lake View); Krombeini *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Leclercq, 1954c:228 (in catalog of world Crabronini); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: Wisconsin).

Crabro cockerelli Rohwer, 1908b:255, ♀, ♂. Syntypes: USA: Colorado: Florissant (USNM). Synonymized with *Crossocerus planipes* by Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021. – Rohwer, 1908b:258 (in key to *Crabro* of Colorado and New Mexico).

ssp. *richardsi* de Beaumont

Crossocerus tarsatus richardsi de Beaumont, 1950f:411, ♂. Holotype: ♂, Algeria: Maison Carrée (BMNH). – de Beaumont, 1957a:153 (Morocco); Leclercq, 1971:215 (Gibraltar); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 1993c:22 (Algeria: El Kseur: forêt d'Akfadou); Gayubo, González, Tormos, and Asís, 2002:86 (distribution in Iberian Peninsula).

221.*taru* de Beaumont

Crossocerus taru de Beaumont, 1967a:352, ♀. Holotype: ♀, Turkey: Ankara: Kavaklidere (BMNH). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae, as *tara*); Bitsch and Leclercq, 1993:141 (probably belongs in subgenus *Oxycrabro*); Leclercq, 1993c:22 (in catalog of Crabronini of Europe and Mediterranean Basin); Ljubomirov and Yildirim, 2008:271 (in catalog of Crabronidae of Turkey); Leclercq, 2009:161 (member of subgenus *Oxycrabro*); 185 (in list of Asian *Crossocerus*, bibliographic references); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces), 19 (is an endemic of Turkey); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Kaplan and Yildirim, 2021:50 (in catalog of Crabronidae of Turkey), 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey).

222.*taxus* Leclercq

Crossocerus taxus Leclercq, 1956e:220, ♂. Holotype: ♂, India: Assam: Shillong (BMNH). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 185 (in list of Asian *Crossocerus*, bibliographic references; Nepal: Katmandu and 27°56'N 85°00'E', variation in material examined).

223.*tolucae* Leclercq

Crossocerus tolucae Leclercq, 2000d:69, ♂. Holotype: ♂, Mexico: México: 20 mi. east of Toluca (KU). – Amarante, 2005a:7 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Dollfuss, 2006:514 (Mexico: Chiapas: 15 km southeast of San Cristóbal de las Casas).

224.*toledensis* Leclercq

Crossocerus toledensis Leclercq, 1971:211, ♀, ♂. Holotype: ♀, Spain: Toledo (MNCN). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Bitsch and Leclercq, 1993:132 (in revision

of western European Crabroninae); Leclercq, 1993c:22 (in catalog of Crabronini of Europe and Mediterranean Basin); Gonzáles, Gayubo, and Torres, 1998:74, 75 (Spain: Valladolid Province); Gayubo, García, Torres, and González, 1999:91 (Spain: Soria Province); González, Gayubo, and Torres, 1999:355 (Spain: Valladolid: Viana de Cega); Dollfuss, 2006:514 (Spain: Tarragona: Catanula 40 km north of Tortosa); Baños-Picón, Asís, Gayubo, and Tormos, 2009:313 (Spain: frequency of specimens collected with hand nets and Malaise traps); Bitsch and Leclercq, 2009:217 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*); 221 (recent records from Spain reported); Gayubo, González, Tormos, and Asís, 2009:364 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:624 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:69 (in revision of Sphecidae *sensu lato* of Europe).

225.*topilego* Leclercq and Miller

Crossocerus topilego Leclercq and Miller *in* Leclercq, 2000d:70, ♀, ♂. Holotype: ♂, Mexico: Distrito Federál: Topilego (Cornell Univ.). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae)

226.*traductor* (Nurse)

Crabro traductor Nurse, 1902:88, ♂. Holotype or syntypes: ♂, India: Himachal Pradesh: Simla (BMNH). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Crossocerus traductor***: Leclercq, 1950b:16 (new generic assignment), 1954c:241 (in catalog of world Crabronini), 1963:12 (India; individual variation), 1974e:661, 662 (in key to Asian species of subgenus *Cuphopterus*), 668 (type specimens examined); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 186 (in list of Asian *Crossocerus*, bibliographic references; Kashmir: Gulmarg; Sikkim: Lachung); Mawadda and Girish Kumar, 2023a:107 (in checklist of Crabroninae of Northern India).

Crabro octomaculatus: Leclercq, 1974e:668 (as *8-maculatus* Cameron). Nomen nudum.

227.*tropicalis* (Arnold)

Crabro tropicalis Arnold, 1947:160, ♂. Holotype: ♂, Tanzania: Malonje (SAM). – **As *Crossocerus tropicalis***: Leclercq, 1954c:242 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:403 (in checklist of world

Sphecidae); Leclercq, 2008:5 (in key to Afrotropical *Crossocerus*), 15 (bibliographic references, Zaire: Uélé: Bambesa).

228.*trucidus* Leclercq

Crossocerus trucidus Leclercq, 1974e:668, ♀. Holotype: ♀, China: Szechuan: near Tatsienlu (USNM). – Leclercq, 1974e:663 (in key to Asian species of subgenus *Cuphopterus*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 186 (in list of Asian *Crossocerus*, bibliographic references).

229.*tsuifengensis* Tsuneki

Crossocerus tsuifengensis Tsuneki, 1968g:8, ♂. Holotype: ♂, Taiwan: Nantou Prefecture: Tsuifeng (originally K. Tsuneki collection, now USNM). – Tsuneki, 1968g:32 (in key to Crabronini of Taiwan and Ryukyus); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Nuhn and Menke, 1994:26 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:12 (in checklist of Sphecidae of Taiwan); Q. Li and Yang, 2003:149 (in key to subgenus *Ablepharipus* of China); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 186 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:38 (member of subgenus *Ablepharipus*, in list of Japanese subgenera of *Crossocerus*).

230.*tsunekii* Leclercq and Miller

Crossocerus tsunekii Leclercq and Miller *in* Leclercq, 2000d:71, ♀, ♂. Holotype: ♂, Mexico: Michoacán*:* Tuxpán (Cornell Univ.). – Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae); Dollfuss, 2006:514 (Mexico: Oaxaca: Tlaxiaco).

231.*turneri* (Arnold)

Thyreopus turneri Arnold, 1927:129, ♀ (as *Turneri*, incorrect original capitalization). Holotype: ♀, South Africa: Cape Province: Pondoland: Port Saint Johns (BMNH). – Arnold, 1930:13 (in checklist of Afrotropical Sphecidae). – **As *Crossocerus turneri***: Leclercq, 1954c:236 (new generic assignment, in catalog of world Crabronini), 1958a:13 (in key to Afrotropical *Crossocerus*), 24 (Zaire: Lubumbashi); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 2008:6 (in key to Afrotropical *Crossocerus*), 13 (bibliographic references, locality records from South Africa, recognition, characteristics of a subspecies from Central African Republic and Kenya).

232.*tyuzendzianus* Tsuneki

Crossocerus tyuzendzianus Tsuneki, 1954c:46, ♀. Holotype: ♀, Japan: Nikko: Tyuzendzi (originally K. Tsuneki collection, now Hyogo

Mus.). – Tsuneki, 1956b:10 (description of ♂), 11, 12 (in supplement to 1954b key), 1959n:69, 70, 75 (in revised key to *Crossocerus* of Japan and Korea), 1960g:44 (nesting habits unknown); Tsuneki and Tano, 1969:30 (distribution in Japan); Haneda, 1971a:19 (Japan: Fukui Prefecture); Nambu, 1972c:16 (Japan: Hokkaido); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 1988:23 (additional description; Russia: Primorskiy Kray: Ussuriysk area); Nemkov, 1990c:84 (Russia: Primorskiy Kray); Antropov, 1993e:157 (Russia: Moskva-Yasenevo, first record from Europe); Tano, 1994b:43 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:434, 440 (in key to Sphecidae of Russian Far East); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid species); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2008a:58 (Japan: Hokkaido: Sapporo), 186 (bibliographic references, distribution in Asia); Nemkov, 2009b:104 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi and Haneda, 2009:25 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:42, 48 (distribution in Japan); Tano, 2010b:41 (member of *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:441 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:4, 9 (in key to *Crossocerus* of Japan); Antropov, 2017b:228 (in catalog of Crabroninae of Russia).

233.*ungyo* Terayama

Crabro uchidai Tsuneki, 1947e:421, ♀, ♂, junior primary homonym of *Crabro uchidai* Takeuchi, 1931:19 = *Cimbex femorata* (Linnaeus, 1758). Holotype: ♂, Japan: Hokkaido: Józankei (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1948c:7 (Japan: Hokkaido); Hashimoto and Nakanishi, 1997:15 (holotype transferred to Hyogo Mus.). – **As *Crossocerus uchidai***: Leclercq, 1954c:226 (new generic assignment, in catalog of world Crabronini); Tsuneki, 1954b:65, 73 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands), 1959n:71, 77 (in revised key to *Crossocerus* of Japan and Korea), 1960g:45 (nesting habits unknown); Tsuneki and Tano, 1969:31 (distribution in Japan); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Marshakov, 1979a:93, 100 (in key to *Crossocerus* of Russian Far East), 1980c:345, 353 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Japan, Mongolia, Russia: Chita and Amur oblast's, Maritime Province, Chukotskiy Peninsula: middle portion of Omolon River), 360 (redescription); Nemkov,

1986:103 (Russia: Irkutsk Oblast'), 1992b:246 (Russia: Far East: Khingan Nature Reserve); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:432, 439 (in key to Sphecidae of Russian Far East); Tano, 1994a:6 (holotype in K. Tsuneki collection); Nemkov 2004b:264 (valid species), 2007b:71 (Russia: Kuril Islands: Island of Kunashir), 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 186 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:107 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:43, 48 (distribution in Japan); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2011:94 (Russia: one of three sphecid wasps occurring in Chukotka Peninsula); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:7, 12 (in key to *Crossocerus* of Japan, as *Crossocerus uchidai uchidai*).

Crossocerus ungyo Terayama *in* Terayama and Takahashi, 2017:27, substitute name for Crabro *uchidai* Tsuneki, 1947. – Antropov, 2017b:230 (in catalog of Crabroninae of Russia); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray).

ssp. *hondonis* Tsuneki

Crossocerus uchidai hondonis Tsuneki, 1976a:74, ♂. Holotype: ♂, Japan: Akita Prefecture: Kazono City: Fukenoyu Spa (originally K. Tsuneki collection, now Hyogo Mus.). – Tano, 1994b:43 (holotype in K. Tsuneki collection); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.); Nemkov 2004b:264 (valid subspecies); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 186 (in list of Asian *Crossocerus*, bibliographic references); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:7, 12 (in key to *Crossocerus* of Japan); Kurokawa, Tano, and Murota, 2019:39 (Japan: Gifu Prefecture: Gero City).

234.*unicus* (Patton)

Blepharipus unicus Patton, 1879b:214, ♀. Holotype or syntypes: ♀, USA: Connecticut: New Haven (depository unknown). – Krombein *in* Muesebeck, Krombein, and Townes, 1951:1029 (generic position unknown). – **As *Crabro unicus***: Cresson, 1887:285 (new generic assignment, in catalog of North American Hymenoptera); W. Fox, 1895a:206 (original description copied); Dalla Torre, 1897:632 (in catalog of world Sphecidae); Rohwer, 1916b:663 (original description copied); Britton, 1920:339 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:663

(in key to Sphecidae of Connecticut, original description copied). – **As *Stenocrabro unicus***: Ashmead, 1899d:217 (new generic assignment, in checklist of North American Crabronidae). – **As *Crossocerus unicus***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, as tentative synonym of *Crossocerus nelli*); R. Bohart and Menke, 1976:402 (as synonym of *Crossocerus nelli*); Finnamore, 1982:150 (in Sphecid Fauna of southern Quebec); Leclercq, 2000d:72 (in revision of New World *Crossocerus*); Buck, 2004:26 (Canada: in checklist of Crabronidae of Ontario), 30 (distribution within Ontario), 58 (first record from Ontario: Kerney, Ohsweken); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Manitoba, Ontario, Quebec).

Stenocrabro nelli Viereck, 1904c:241, ♀. Holotype: ♀, USA: Pennsylvania: Philadelphia (ANSP). Synonymized with *Crossocerus unicus* by Krombein, 1951:1021. – Cresson, 1928:54 (holotype in ANSP). – **As *Crossocerus nelli***: Krombein *in* Muesebeck, Krombein, and Townes, 1951:1021 (new generic assignment, in catalog of North American Hymenoptera); Leclercq, 1954c:232 (in catalog of world Crabronini).

235.*unidentatus* Q. Li and L. Yang

Crossocerus unidentatus Q. Li and L. Yang, 2001:147 and 151, ♀. Holotype: ♀, China: Fujian Province: Changba: Huangkeng: Jianyang (Academia Sinica). – Q. Li and Wu, 2006:289 (in key to *Blepharipus* of southwestern China); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 186 (in list of Asian *Crossocerus*, bibliographic references).

236.*upembae* Leclercq

Crossocerus upembae Leclercq, 2008a:15, ♀. Holotype: ♀, Zaire: Upemba National Park: Lusinga: Kamalongiru (FSAG). – Leclercq, 2008a:4 (in key to Afrotropical *Crossocerus*).

237.*ursidus* Leclercq

Crossocerus ursidus Leclercq, 1956e:233, ♂. Holotype: ♂, India: Assam: Shillong (BMNH). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Leclercq, 1989a:237 (Nepal; China: Szechuan, Tibet); Q. Li and Wu, 2003:524 (in key to Chinese members of subgenus *Apocrabro*); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Leclercq, 2009:161 (member of subgenus *Apocrabro*), 186 (in list of Asian *Crossocerus*, bibliographic references, placement in *Apocrabro* needs confirmation).

238. *vagabundus* (Panzer)

Crabro vagabundus Panzer, 1798, Heft 53:16, [♀]. Holotype or syntypes: Austria: no specific locality (ZSBS, collection Sturm). –

Roth von Schreckenstein, 1802:32 (Germany: Baden-Württemberg); Panzer, 1806:184 (in critical review of his previous 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, 1829:59 (bibliographic references, Belgium: Bruxelles, diagnostic characters); Lepeletier de Saint Fargeau and Brullé, 1835:809 (discussion of species identity); Shuckard, 1837a:149 (in revision of British Aculeata); Dahlbom, 1838:51 (as synonym of *Crabro subpunctatus*); von Siebold, 1839:50 (Germany: Danzig, now Poland: Gdańsk); F. Smith, 1849b:2551 (preying on Diptera); F. Smith, 1851c:28 (Great Britain: Darenth, Highgate); Wesmael, 1852:598 (Belgium: Bruxelles); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:408 (in catalog of Hymenoptera in British Museum), 1858c:141 (in review of British Aculeata, redescription); Schenck, 1860:146 (Germany: Nassau Region); A. Morawitz, 1864:457 (Russia: Sankt-Petersburg), 1866a:270 and 1866b:347 (specimens in E. Eversmann collection); Taschenberg, 1866:177 (in revision of Hymenoptera of Germany); A. Costa, 1867c:133 (in revision of Italian Sphecidae); Schenck, 1867a:350 (Germany: Nassau Region); Dietrich, 1868:362 (Switzerland: Zurich Canton); von Aichinger, 1870:314 (Austria: Tirol); Thomson, 1870:169 (in revision of Swedish Crabroninae); A. Costa, 1871b:62 (in revision of Italian Sphecidae); F. Smith, 1871b:15 (in catalog of British Aculeata); Schlechtendal, 1872:36 (Germany: Sachsen: Zwickau); Thomson, 1874:279 (in revision of Hymenoptera of Scandinavia); Taschenberg, 1875:382 (Germany: Halle); Kohl, 1880:130 (Austria: Tirol, and Italy: Trentino–AltoAdige); E. Saunders, 1880:291 (in revision of British Aculeata); Siebke, 1880:70 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:656 (Switzerland); Sickmann, 1883:74 (Germany: Niedersachsen: Wellingholthausen); Harwood, 1884:212 (England: Essex: Colchester area); von Heyden, 1884:124 (Germany: Frankfurt am Main area); V. Perkins, 1892:206 (Great Britain: Gloucestershire: Wotton-under-Edge); Kohl, 1893a:23 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann, 1893:71 (Germany: Niedersachsen: Iburg, analysis of color variation); Krieger, 1894:5 (Germany: Kingdom of Saxony); E. Saunders, 1896:139 (in revision of British Aculeata); Dalla Torre, 1897:633 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in today's Croatia, Romania, and Slovakia); Strand, 1898b:96 (Norway); Gardner, 1901:380 (Great Britain: Cheshire: Bebington,

Delamere); de Cobelli, 1903:118 (Italy: Trentino: Loppio, Rovereto, Val di Fiemme); Antiga and Bofill, 1904:23 (Spain: Cataluña Province); Aurivillius, 1904:297 (in revision of Swedish Sphecidae); Kubes, 1905:84 (Czech Republic: Sušice); Schmiedeknecht, 1907:191 (in key to Hymenoptera of Central Europe); Peets, 1909-1911:66 (*Crabro vagabundus* of Panzer = *Crabro vagabundus*); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine: Zhytomyr Oblast': Radomyshl'); Alfken, 1914:272 (norhwestern Germany); Birula, 1914:376 (Belorussia: Ambrosovichi and Luskinopol' near Vitebsk); Kohl, 1915:215 (in revision of Palearctic Crabronini); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); Stöckhert, 1919:38 (Germany: Franken); A. Wagner, 1920:44 (Germany: Lower Elbe region); Dubois, 1921b:153 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Fahringer, 1922:183 (Turkey); Maidl, 1922:75 (Albania); Berland, 1925d:189 (in Sphecid Fauna of France); Bischoff, 1925:297 (Latvia); Grönblom, 1925:4 (nesting habits); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Friese, 1926:149 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Zavadil, 1926:32 (Czechoslovakia); Berland, 1928b:181 (add Fahringer, 1922, Bristowe, 1925, and Hamm and Richards, 1926 to bibliography in Berland, 1925d; France: Finistère: Fouesnant); Bouwman, 1930:98 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:648 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:140 (in revision of Sphecidae of Finland); Bondroit, 1932:40 (Belgium: Auderghem, Solbosch); Giordani Soika, 1932a:23 (Italy: Lido di Venezia); Gussakovskij, 1932:22 (Russia: Primorskiy Kray); Bondroit, 1933:32 (Belgium: Bruxelles, Hal); Chambers, 1933:188 (Great Britain: Bedfordshire); Drogoszewski, 1933:117 (Poland: Łowicz); Giordani Soika, 1933a:212 (coloration of nymph); Merisuo, 1933a:60 (Finland: city of Turku); E. Nielsen, 1933:268 (nesting in beetle galleries in wood, preying on Diptera); K. Strohm, 1933:338 (Germany: Baden-Württemberg: Kaiserstuhl); Bondroit, 1934:62 (Belgium: Boendael); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Steck, 1935:323 (Switzerland); Vergne, 1935:119 (France: Auvergne: Lezoux); Crèvecoeur and Maréchal, 1936:256 and 257 (in catalog of Belgian Hymenoptera); Blüthgen, 1937:235 (Germany: Saale River valley: Naumburg); Dulac, 1937:22 (France: Saône-et-Loire: Saint-Laurent d'Andenay); Zavadil, Šustera, and Bat'a, 1937:159 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:85 (Japan: islands od

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Crabro varus Panzer, 1799, Heft 62:17, [♂]. Holotype or syntypes: ♂, Austria: no specific locality (lost). Synonymized with *Crabro quadrimaculatus* Fabricius, 1793 by Peets, 1909-1911:66, and with *Crossocerus vagabundus* Panzer, 1798 by Leclercq, 1979a:25. – Kohl, 1915:348 (original description copied).

Crabro bojus Schrank, 1802:340, sex not stated. Holotype or syntypes: Germany: Bayern (= Bavaria): Ingolstadt (destroyed). Synonymized with *Crossocerus vagabundus* by Leclercq, 1974d:273. – Dalla Torre, 1897:584 (in catalog of world Sphecidae).

Blepharipus quinquemaculatus Lepeletier de Saint Fargeau and Brullé, 1835:738, ♂ (as *5 maculatus*, incorrect original spelling). Holotype or syntypes: ♂, France: Paris area (destroyed). Neotype: ♂, France, Paris area (MNHN), designated by Leclercq, 1974d:273. Synonymized with *Blepharipus mediatus* (a nomen nudum = *Crabro vagabundus*) by Dours, 1875:155 and with *Crossocerus vagabundus* by Leclercq, 1974d:273. – von Siebold, 1844:132 (Germany: Preussen: vicinity of Danzig, now Poland: Gdańsk); Lepeletier de Saint Fargeau, 1845:144 (in revision of world Hymenoptera); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria). –As ***Crabro vagabundus* forme *quinquemaculata*:** Bischoff, 1921b:5 (new generic assignment, new status, Latvia: Wetzkukkul near Tauerkalln). – **As *Crabro vagabundus* subsp. *quinquemaculata***: Bischoff, 1925:298 (new status, Latvia: Wezkukkul and Jelowka; Poland: Białowieża).

Crossocerus lefebvrei Lepeletier et Brullé, 1835:771, ♀. Holotype or syntypes: ♀, France: Paris area (destroyed). Neotype: ♂, France: Paris area (MNHN), designated by Leclercq, 1974d:273. Synonymized with *Crossocerus vagabundus* by Leclercq, 1974d:273. – Lepeletier de Saint Fargeau, 1845:174 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Acloque, 1897:89 (in Sphecid Fauna of France and Algeria); de Gaulle, 1908:122 (in catalog of French Hymenoptera). – **As *Crabro lefebvrei***: Dahlbom, 1845:385 (new generic assignment, original description copied), 528 (species transitional to *Blepharipus*, unknown to author); F. Smith, 1856:410 (in catalog of Hymenoptera in British Museum); Dalla Torre, 1897:607 (in catalog of world Sphecidae).

Crabro vagabundus varietas *fasciatus* A. Costa, 1871:62, ♀. Holotype: ♀, Italy: Calabria: Sile (Napoli). Synonymized with *Crabro vagabundus* by Kohl, 1915:216. – Dalla Torre, 1897:633 (in catalog of world Sphecidae).

Crabro vagabundus forme *melanotica* Bischoff, 1921b:5. Holotype: ♂, Kurland, now Latvia: Wezkukkul near Tauerkalln (ZMHU). – Bischoff, 1925:298 (Latvia: Wezkukkul).

Corenocrabro ectemiformis Tsuneki, 1974a:375, ♀, ♂. Holotype: ♂, Korea: Pyongyang (TMB). Synonymized with *Crossocerus vagabundus* by Marshakov, 1979a:96 and by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:428 (as new synonym). – Tsuneki, 1974:374 (type of genus *Corenocrabro*); R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae).

Corenocrabro ectemiformis Tsuneki, 1991:202, as new species. Nomen nudum.

As *Blepharipus pauperatus* partim: Pagliano, 2011a:147 (specimens in M. Spinola collection, Torino, are *Crossocerus vagabundus*).

ssp. *esakii* (Yasumatsu)

Crabro esakii Yasumatsu, 1942:91, ♀. Holotype: ♀, Japan: Honshu: Nagaoka: Etigo (Kyushu Univ.). – Tsuneki, 1959e:8 (as new synonym of *Crossocerus vagabundus*). – **As *Crossocerus vagabundus esakii***: Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:33 (new status, Japan: Gifu Prefecture); Suda, 2004:42 (Japan: Yamanashi Prefecture); Haneda, Inoue, Nozaka, Tano, Kurokawa, H. Murota, and T. Murota, 2005:66 (Japan: Fukui Prefecture: Mount Monju); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:48 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:46 (Japan: Toyama Prefecture); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:24 (Japan: Toyama Prefecture); Nagase, 2006a:54 (Japan: Kanagawa Prefecture: Mount Komagatake near Hakone); Nambu, 2006:247 (Japan: Tokyo: Imperial Palace garden); S. Takahashi and Haneda, 2008a:57 (Japan: Hokkaido: Sapporo); Leclercq, 2009:160 (member of subgenus *Acanthocrabro*), 187 (in list of Asian *Crossocerus*, bibliographic references; validity of subspecific name confirmed); S. Takahashi and Haneda, 2009:24 (Japan: Hokkaido: Sapporo); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Ohkusa and Tajima, 2010:12 (Japan: Island of Honshu: Shiga Prefecture); Tano, 2010b:38 (member of subgenus *Acanthocrabro*, in list of Japanese subgenera of *Crossocerus*); Haneda, Murota, Kurokawa, and Tano, 2014:2, 7 (in key to *Crossocerus* of Japan); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

Crabro vagabundus yamatonicus Tsuneki, 1947:408, ♀, ♂. Syntypes: Japan: Hokkaido: Sapporo area (originally K. Tsuneki collection, now?). Synonymized with *Crossocerus vagabundus esakii* by Haneda, Murota, Kurokawa, and Tano, 2014:2. – **As *Crossocerus vagabundus yamatonicus***: Tsuneki, 1952c:67 (new generic assignment, Japan: Shikoku), 1954b:58, 67 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955a:68 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1959n:67, 73 (in revised key to *Crossocerus* of Japan and Korea), 1960g:35 (nesting habits); Tsuneki and Shimoyama, 1963:49 (Japan: Towada Prefecture); Itami, 1968a:16 (Japan: Yamagata Prefecture: foot of Mount Iide), 1969:51 (Japan: Niigata Prefecture); Tsuneki, 1969f:28 (Japan: Kyushu; as *bagabundus yamatonicus*), 1970b:11 (Central Japan); Suda, 1971:83 (Japan: Chiba and Kanagawa Prefectures); Yamada, 1971:36 (Japan: Aichi Prefecture); Nambu, 1972b:14 (Japan:

Saitama Prefecture), 1972e:91 (Japan: Saitama Prefecture); Tsuneki, 1973g:49 (is a member of subgenus *Acanthocrabro*); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae).

ssp. *koreanus* Tsuneki

As *Crabro vagabundus*: Tsuneki, 1947:289 (Korea, f. *quadricinctus*; corrected by Tsuneki, 1957f:61), 1957d:78 (Korea).

Crossocerus vagabundus koreanus Tsuneki, 1957f:61, ♀, ♂. Holotype: ♂, northern Korea: Zokurisan (Entomological Laboratory, Kyoto Univ.). – R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Tsuneki, 1982b:17 (known from Korea); Q. Li and He, 2005:160 (first record from China: Sichuan Province, Yunnan Province, and Tibet); Leclercq, 2009:160 (member of subgenus *Acanthocrabro*), 187 (in list of Asian *Crossocerus*, bibliograpahic references); Tano, 2010b:38 (member of subgenus *Acanthocrabro*, in list of Japanese subgenera of *Crossocerus*); J.-K. Kim, 2014:427 (in catalog of Sphecidae *sensu lato* of Korean Peninsula).

239. *varus* Lepeletier de Saint Fargeau and Brullé

Crossocerus varus Lepeletier de Saint Fargeau and Brullé, 1835:775, ♀, ♂, junior secondary homonym of *Crossocerus varus* (Panzer, 1799) Leclercq, 1979a:25, now in *Tracheliodes*. Syntypes: France: no specific locality (M. Spinola collection, Torino). – Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Eversmann, 1849:419 (Russia: Ural foothills); Tischbein, 1850:6 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Alfken, 1924:231 (northern Germany); Richards, 1935a:167 (*varus* and not *varius* is correct spelling), 1937b:106 (in checklist of British aculeates); Guichard, 1939:42 (Great Britain: southern Cornwall: Polperro); de Graham, 1941:99 (Great Britain: Lincolnshire); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1030 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Bristol, Rodborough, Wotton); R. Perkins, 1945:147 (Great Britain: Devon: moorland near Lydford); Spooner, 1946:27 (Britain: Leicestershire: Charnwood Forest); Guichard and Yarrow, 1948:91 (Great Britain: London: Hampstead Heath); Chambers, 1949:228 (Great Britain: Bedfordshire); Leclercq, 1949a:5 (Norway); Graham, 1950:349 (eggs of unknown insect deposited on thorax); Leclercq, 1951e:6 (bibliography of Belgian records); Richards, 1950:79 (Great Britain: Wales: Pembrokeshire: Cwm-yr-Eglwys); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Fahlander, 1954:250 (Sweden: Gästrikland

Region); Leclercq, 1954c:223 (in catalog of world Crabronini), 306 (nest and prey records); Tsuneki, 1954b:64, 72 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Tsuneki, 1955d:217 (Russia: Kuril Islands); Tsuneki and Tanaka, 1955b:25 (Japan: near Nikko 120 km northwest of Tokyo); Leclercq, 1956i:132 (Luxemburg); Bradley, 1957:45 (type material); Evans, 1957b:108 (discussion of larval characters); Yeo, 1957:19 (Great Britain: Middlesex, now in London); Móczár, 1958a:263 (in annotated catalog of Hungarian Crabronini), 1958b:195 (Hungary: collecting localities); Tsuneki, 1959n:71, 76 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:32 (Germany: Nassau); Tsuneki, 1960g:45 (nesting habits); Hoop, 1961:63 (Germany: Schleswig-Holstein); Valkeila, 1962b:68 (southwestern Finland); Hoop, 1963a:73 (Germany: Schleswig-Holstein: Reher Kratt); Valkeila, Brander, and Käpylä, 1963:41 (Finland: historical region Lounais-Hämeen = southwest Häme); Babiy, 1964:117 (Austria: Land Salzburg); B. Klug, 1965:140 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Bonelli, 1966c:220 (Italy: Trentino–Alto Adige: Piazzòl); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Leclercq, 1967a:32 (Great Britain locality records); Haneda, 1968a:47 (Japan); T. Iida, 1968:22 (Japan); Leclercq, 1968b:39 (Great Britain: Kent); Okuno, 1968:30 (Japan); Tano, 1968:35 (Japan); Wolf, 1968:11 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Bonelli, 1969c:173 (nesting habits); Dathe, 1969:438 (Germany: Berlin Zoological Garden); Itami, 1969:51 (Japan: Niigata Prefecture); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Zangheri, 1969:1707 (Italy: in catalog of flora and fauna of Romagna Region); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:777 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Petit, 1971:22 (Luxemburg: Bourscheid); Lefeber, 1975b:120 (Netherlands: Schiepersberg); Eck, 1976:94 (Democratic Germany); Guichard, 1977:253 (Great Britain: Surrey); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Gayubo, 1982b:24 (Spain: Ávila: San Bartolomé de Béjar); Tyrner, 1985:10 (Czech Republic: Jezerka Nature Reserve in Krušné Hory = Erzgebirge); Bitsch and Leclercq, 1993:132 (in revision of western European Crabroninae, as valid name); Leclercq, 1993c:23 (in catalog of Crabronini of Europe and Mediterranean Basin); Leclercq and Barbier, 1993:45 (map of distribution in France); Gayubo and Borsato, 1994:212 (Italy: Veneto); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of

Italian fauna); Archer and Burn, 1995:59 (Great Britain: Yorkshire: Crow Wood near Finningley); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:175 (Germany: summary of records from Rheinland-Pfalz); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: not endangered); Petit, 1997:351 (Belgium: Liège Province: Lanaye: colonization of new habitat); Schmidt and Schmid-Egger, 1997:11 (in checklist of German Sphecidae); 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); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Island of Harriersand in Weser River); N. Schneider and Wahis, 1998:20 (Luxemburg: sandstone quarries); van der Smissen, 1998:57 (Germany: Mecklenburg-Vorpommern, Schleswig-Holstein); K. Weber, 1998:137 (Germany: Bayern: Bamberg area); Dorow, 1999:573 (Germany: Hessen: Niddahänge east of Rudingshain Forest Reserve); Erhardt, 1999:75 (Germany: Niedersachsen: Ammerland area); Herrmann, 1999:7 (Germany: Niedersachsen: Oldenburg area; habitats size); W. Klein, 1999:7, 12 (in improved key to *Crossocerus* of Benelux); Löhr, 1999:62 (Germany: Hessen: Mücke-Merlau near Gemünden); Mandery, 1999:105 (Germany: Bayern: Coburg area); Pauly, 1999:110 (in catalog of Belgian aculeates); Blösch, 2000:315 (in Sphecid Fauna of Germany); Jacobs, 2000:7 (Germany: Mecklenburg-Vorpommern: not endangered); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Vicidomini, 2000b:23 (Italy: previously recorded from Campania); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Dorow, 2001:136 (Germany: Hessen: Schönbuche Forest Reserve); Haeseler, 2001:266 (Germany: Niedersachsen: Brookdeich near Oldenburg); Ohl et al., 2001:138 (distribution in Germany by provinces); van der Smissen, 2001:60 (Germany: Schleswig-Holstein: not endangered); Zettel, Gross, and Mazzucco, 2001:77 (Austria: Wien); Dorow, 2002:16 (Germany: Hessen: Weiherskopf Forest Reserve); Esser and Cölln, 2002:1136 (southwestern Germany: Eifel region); Gayubo, González, Tormos, and Asís, 2002:86 (Andorra: Santa Coloma); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); 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); 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); Schmid-Egger, 2003:752 (Italy: Sicilia: Citelli, Mareneve, Randazzo); Dorow, 2004a:127 (Germany: Hessen: Schönbuche Nature Reserve); Ebermann and Hall, 2004:942 (parasite: scutacarid mite *Imparipes breganti* Ebermann and Hall); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:131 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Hellrigl, 2004a:172 (Italy: Trentino-Alto Adige, as Südtirol: Tschögglberg = Monzoccolo); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:375 (in Wasp and Ant Fauna of Netherlands); Schneider and Carrières, 2004:97 (Luxemburg: Bon-Pays Region); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); 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 Schönitzer, 2005:273 (Germany: Bayern: area north of Dachau); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov, 2005a:151 (Russia: Island of Sakhalin); Pagliano and Negrisolo, 2005:246 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:551 (Germany: Niedersachsen: city of Bremen and adjacent area); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Vago, 2005a:19 (France: Département du Nord: Forêt de Saint-Amand); Venne and Bleidorn, 2005:42 (Germany: Nordrhein-Westfalen: Moosheide Nature Reserve); Yildirim and Ljubomirov, 2005:1794 (Turkey: Rize: İkizdere: Ovit); Dollfuss, 2006:514 (Bulgaria, Finland); Gayubo, González, de la Nuez, Asís, and Tormos, 2006:208 (Spain: Asturias: Proaza; Cantabria: Matienzo de Ruesga, Ruesga, San Roque de Riomiera); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:26 (Japan: Toyama Prefecture); Kroupa, 2006b:25 (Germany: Bayern: Oberfranken Region); Liebig, 2006:38 (Germany: Sachsen: Muskauer Heide); Ljubomirov, 2006:539 (Bulgaria: Rhodope Mountains: Naretchen Village); Magdalou, 2006a:7, 11 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Peeters, Krekels, and Megens,

2006:22 (Netherlands: Reichswald forest near Nijmegen); N. Schneider, 2006:142 (Luxemburg: anthropogenic habitats); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Chevin, Livory, Lair, Sagot, and Baldock, 2007:29 (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); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:168 (Czech Republic: Vyšenské Kopce National Nature Reserve); Guldemond, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap); Hallin, 2007:154 (Sweden: Blekinge, Småland, Öland, Gotland, Östergötland, Närke, Västmanland, and Värmland counties); Herrmann, 2007a:52 (Germany: Niedersachsen: Ostfriesland); Jacobs, 2007: 137, 139 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:23 (Germany: northwestern Sachsen); Leclercq, 2007f:192 (references to records from Greece); Nemkov, 2007b:71 (Russia: Kuril Islands: Island of Kunashir); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Smit and Megens, 2007:17 (Netherlands: Noort Brabant: vicinity of Leende); G. Turrisi and R. Turrisi, 2007:119 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vago, 2007:175 (France: départements du Nord and Pas-de-Calais); 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); Ljubomirov and Yildirim, 2008:268 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:27 (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, 2009:217 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*), 220 (male has a pygidial plate on tergum VII), 221 (recent records from Spain, Andorra, Bulgaria, and Czech Republic reported); Debuyser and Vago, 2009:5 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); Dvořák, Bogusch, and Smetana, 2009:81 (Czech Republic: Králický Sněžnik National Nature Reserve); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Guéorguiev and Ljubomirov, 2009:265 (Bulgaria: Maleshevska Planina); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 187 (in list of Asian *Crossocerus*, bibliographic references; distribution in Asia; Armenia: Tsaghkadzor 50 km north

of Yerevan, geographic variation); Mokrousov, 2009:282 (Russia: Republic Mari El); Nemkov, 2009b:108 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Pagliano, 2009:181 (France: Corse: Pirio); Straka, Dvořak, and Bogusch, 2009:260 (Czech Republic: Jizerské Mountains and Frýdlant region); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Venne, 2009:111 (Germany: Nordrhein-Westfalen: Holte-Stukenbrock, associated with *Frangula alnus* Miller, Rhamnaceae); Dorow, 2010:208 (Germany: Hessen: Nature Forest Reserves Goldbachsrück and Ziebachsrück); Esser, Fuhrmann, and Venne, 2010:36 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, von der Dunk, and Knipfer, 2010:64 (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, Mari El Republic: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve “Prisurskiy”); Rudoiskatel', 2010:157 (Russia: recorded from 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 Konovalov, 2010:17 (Ukraine: near Khar'kov); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:338 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records); Gogala, 2011:20 (Slovenia); Mokrousov, Berezin, and Egorov, 2011:71 (Russia: Chuvash Republic); Pagliano, 2011a:140 (specimens in M. Spinola collection, Torino, are *Crossocerus varus* and *Crossocerus* sp.); Rudoiskatel', 2011d:243 (Russia: central Ural Mountains); Saure, 2011d:199 (Germany: Sachsen-Anstalt: conservation area “Heide südlich Burg”); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:126 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Flieβ valley); Burguet *in* Durand and Burguet, 2012:3, fiche 7 (France: Puy-de-Dôme: sands Girauts-Faures in Orléat commune); Cölln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skäne: Kullaberg Peninsula); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East);

Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Akulov and Proshchalykin, 2013:115 (Russia: Siberia: Krasnoyarsk Kray: 55 km southeast of Krasnoyarsk); Bitsch, Grouet, and Savina, 2013:292 (France: Pyrénées centrales: département d'Ariège: Ascou-Pailhères); Saure, 2013:18 (Berlin: Treptow-Köpenick: Gosener Wiesen); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:200 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:401 (France: Ariège: Ascou-Pailhères, Ax-les-Thermes, Bethmale, Bonac-Irazein; Meurthe-et-Moselle: Laneuveville-aux-Bois); U. Frommer, 2014:27 (Germany: Hessen: Lorch); U. Frommer, M. Niehuis, and O. Niehuis, 2014:1322 (Germany, Hessen: Roβstein); Haneda, Murota, Kurokawa, and Tano, 2014:6, 11 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91 (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); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); Saure, 2015:13 (Germany: Berlin-Lichterfelde); Blažej, Macek, and Trýzna, 2016:118 (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, 2016:20 (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, 2016:573 (Russia: Krasnodarskiy Kray); Saure, 2016b:48 (Germany: Sachsen-Anhalt: fruit orchards); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:45 (Turkey: Erzurum: Şenkaya: Gaziler); Antropov, 2017b:230 (in catalog of Crabroninae of Russia); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Eschkopf near Rockensüß); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane); Lett, 2018:203 (France: Loir-et-Cher: Gièvres at 47°16'39"N 1°41'52"E); Carminati, Mora, and Cretin, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:95 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Kejval, Blažej, and Erhart, 2020:98 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo,

Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:70 (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, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:88 (in commented list of Sphecidae *sensu lato* of Poland); Japoshvili and Ljubomirov, 2022:277 (Georgia: Lagodekhi Protected Areas); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:425 (Uzbekistan: distribution). – **As *Crabro varus***: Dahlbom, 1844:322 (new generic assignment, original description copied), 1845:523 (in key to *Crabro*); von Kiesenwetter, 1849:91 (Germany: Kingdom of Saxony: Oberlausitz area); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1856:414 (in catalog of Hymenoptera in British Museum); Radoszkowski, 1877:79 (Uzbekistan: Zaravshan valley, Shahimardan; Kyrghyzstan: Obburden, Payshambe); Guichard, 1939b:77 (Great Britain: Surrey: Limpsfield Common); Stelfox, 1939a:41 (Great Britain: Scotland: Garelochhead); Zavadil *in* Zavadil and Šnoflak, 1948:128, 132 (in key to Sphecidae of Czechoslovakia); Caruel, 1953:101 (France: Marne Department); Benno, 1958b:19 (in review of Dutch Sphecidae); Balthasar, 1972:114 (in Sphecid Fauna of Czechoslovakia).

Crossocerus pusillus Lepeletier de Saint Fargeau and Brullé, 1835:778, ♂. Holotype: ♂, France: Landes: Saint Sever (M. Spinola collection, Torino). Synonymized with *Crossocerus varus* by Bitsch and Leclercq, 1993:297. – Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:181 (in revision of world Hymenoptera); Lucas, 1849:245 (Algeria: Oran); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Marquet, 1875:210 (France: Haute-Garonne: Toulouse); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Bradley, 1957:45 (type in M. Spinola collection, Torino); Leclercq, 1974d:266 (synonymy), 1975b:2 (France); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae, as synonym of *varius*), 628 (*Crossocerus varus* is the valid name for *C. varius*); Haeseler, 1976b:72 (Germany: Friesian Islands: Island of Amrum); Lomholdt, 1976:380 (in Sphecid Fauna of Fennoscandia and Denmark); Leclercq, Gaspar, Lajoinie, and Thirion, 1976:178 (Belgium: Chaumont-Gistoux); Schmidt, 1977:98 (Germany: Baden-Württemberg: Enzklösterle in Schwarzwald); Haeseler, 1978c:194 (Germany: Friesian Islands: Island of Borkum); Pulawski, 1978:258, 265 (in key to Sphecidae of European part of

USSR); Schwammberger, 1978:420 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1445 (Belgium); Radović and Krunić, 1979:unpaginated foldout (nesting in sand, foreleg structure); Schmidt, 1979a:57 (Germany: Ost-Holstein); Schwammberger, 1979:117 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve; as *pussilus*); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Jacob-Remacle and Leclercq, 1980:193 (Belgium: gardens in Liège); Richards, 1980:49, 50, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:374 (Germany: Baden-Württemberg); Westrich, 1980:635 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Woydak, 1981:46 (Germany: Westfalen: Hamm); Axelsson, 1982:80 (Sweden); Haeseler, 1982a:20 (Germany: Niedersachsen: urban habitats in Oldenburg); Leclercq, 1982a:125 (Belgium: Liège), 1982e:100 (Norway: Sør-Trøndelag: Trondheim); Silvestre de Sacy, 1982:4 (France: Côtes-du-Nord: Paimpol area); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Jacob-Remacle and Jacob, 1983:242 (Belgium: Liège Province: fagne de Malchamps near Spa); Riemann, 1983:88 (Germany: Bremen-Daverden area); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Haack, Tscharntke, and Vidal, 1984:126 (Germany: Hamburg area); Janzon and Svensson, 1984:183 (Sweden: Island of Öland); Lefeber, 1984:29 (Netherlands: Maastricht); Nilsson, 1984:104 (Sweden: Västmanland Province); Sagvolden, 1984:20 (Norway: Telemark: Kjølebrønn); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Veenendaal, 1984:19 (Netherlands: Amsterdam); Haeseler, 1985c:571 (Germany: Friesian Islands); Brechtel, 1986:71 (Germany: Südpfalz); Nilssen, 1986:87 (Sweden); Vikberg, 1986:77 (Finland); Crellin, 1987:35 (Great Britain: Isle of Man); Riemann, 1987b:35 (Germany: Niedersachsen: Nature Reserve Voßberg); Schmidt and Westrich, 1987:374 (Germany: Mainz area); Archer, 1988a:33 (Great Britain: Bernwood Forest near Oxford), 1988b:27 (Great Britain: Yorkshire: Strensall Common); Dollfuss, 1988:16 (Austria: Bisamberg); Riemann, 1988:223 (Germany: Bremen area); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Archer, 1989a:131, 133 (Great Britain: York: found before and after coniferization); Jacobs, 1989:20 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:206 (Poland: Warszawa area, as *pussillus*); Weiffenbach, 1989:110 (Germany: Hessen: Gießen area); Archer, 1990c:16 (Great Britain: Leicestershire); Jacobs and Oehlke, 1990:185 (new records from Democratic Germany); Kowalczyk,

1990:291 (Poland: Góry Świętokrzyskie); Nash, Boston, and Nelson, 1990:249 (Ireland: Down County); Pádr, 1990:86 (Czech Republic: Praha area); Pagliano, 1990:85 (in catalog of Italian Sphecidae); Rohe, 1990:1048 (Germany: Rheinland-Pfalz: Lenneberg Forest); Schwammberger and Priesner, 1990:546 (Austria: Kärnten); Dollfuss, 1991:155 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:407 (Italy: Emilia: Monti di Modena; as *pusillus* Harris); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 94, 97, 104 (Poland: Łódź); Kuhlmann et al., 1991:89 (Germany: Senne Region); Pagliano, 1991b:337, 339, 345 (in key to Italian Crabroninae); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); von der Heide, 1991:63 (Germany: peat bog near Oldenburg); Wiśniowski, 1993a:95 (Poland: Białowieża Primeval Forest); Archer, 1992a:56 (Great Britain: Leicestershire), 1992b:21 (Great Britain: Yorkshire: Skipwith Common); Budrys, 1992:34 (in list of Sphecidae of Lithuania); Nilsson, 1992:54 (Sweden); N. Schneider, 1992:177 (Luxemburg); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Archer, 1993c:39 (Great Britain: Yorkshire); Kuhlmann, 1993:76 (Germany: known from Westfalen); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife near Altenahr); Sorg and Wolf, 1993:59 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Koponen, 1994:21 (Finland: Kittilä, Loimaa, Rautalampi, Kalajanvuori, Ylihärmä); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); U. Peters, Sohmen, Stuke, and Prüter, 1994:66 (Germany: Schleswig-Holstein: gardens in Hof Möhr); Theunert, 1994c:37 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Riemann, 1995:52 (Germany: Bremen); Skibińska, 1995:424, 425, 426, 427 (Poland: pine forest in Białowieża Primeval Forest); Archer, 1996b:37 (Great Britain: Nottinghamshire: Sherwood Forest), 1996c:55 (Great Britain: Yorkshire: Shipley Glen); Arens, 1996:441 (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, 1996:70 (Great Britain: summary of records from Essex); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt,

1996:105 (Germany: Brandenburg); Woydak, 1996:59 (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); Gauss, 1997:27 (egg of miltogrammatid flies deposited on adult specimens); Drewes, 1998:49 (Germany: Niedersachsen: Goldbeck 26 km west-southwest of Hamburg); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); 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); Mauss and Schindler, 1898:136 (Germany: Schleswig-Holstein: Nordfriesland District); Morgan, 1998:18 (Great Britain: Wales: Carmarthenshire County); Archer, 1999b:82 (Great Britain: Yorkshire); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Ljubomirov, 1999b:54 (Bulgaria: Mount Vitosha near Sofia); Neumayer, Schwarz, and Bregant, 1999:224 (Austria: in checklist of Sphecidae of Land Kärnten); Riemann, 1999:835 (Germany: Niedersachsen: sand pits near Bremen); Salzmann-Wandeler and Rezbanyai-Reser, 1999:100 (Switzerland: Tessin: Monte Generoso); Sörensen, Mauss, and Schindler, 1999:503 (Germany: Schleswig-Holstein); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Archer, 2000a:45 (Great Britain: Yorkshire); Kuhlmann, 2000:64 (Germany: Hessen: Diemel River valley); Wiśniowski, 2000:162 (Poland: Bieszczady Mountains); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire), 2001b:14 (Great Britain: Watsonian Yorkshire); Ivanov and Ljubomirov, 2001:212 (Bulgaria: Kresna Gorge at 41°48'N 23°10'E); Kuhlmann, 2001:19 (Germany: Nordrhein-Westfalen: Nature Reserve Bleikuhlen near Blankenrode); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Archer, 2002b:114 (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, 2002:107 (Great Britain: Kent: Tunbridge Wells area); Kraus and Floren, 2002:100 (Germany: Bayern: Steigerwald); Kuhlmann, 2002:66 (Germany: Bayern: National Park Bayerischer Wald); 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); Archer, 2003a:58 (Great Britain: Watsonian Yorkshire); Drewes, 2003:136 (Austria: Tirol: Patznauntal); Kuhlmann and Quest, 2003:50 (Germany: Bayern: Bayerischer Wald National Park); Kula and Tyrner, 2003b:202 (northern Czech Republic: spruce

stands in air-pollution region); Wiśniowski *in* Dylewska and Wiśniowski, 2003:166 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Wolf, 2003:260 (Germany: Nordrhein-Westfalen: Bommecketal Nature Reserve in Plettenberg); 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, 2004:146 (western Slovakia); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roβstein in Rhein valley at 50°06'42"N 7°43'87"E); Majzlan and Deván, 2004:30 (Slovakia: Sekule); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Suda, 2004:44 (Japan: Yamanashi Prefecture); Wiśniowski, 2004:48 and 61 (in checklist of Polish Sphecidae); Archer, 2005b:92 (Great Britain: Watsonian Yorkshire), 2005c:56 (Great Britain: Suffolk County); Beavis, 2005:195 (Great Britain: Islands of Scilly); Gregory and Wright, 2005:140 (Great Britain: Shotover Hill 5 km east of Oxford); Kofler, 2005:178 (Austria: Tirol: Lienz District: several localities); Robinson, 2005:35 (Great Britain: Cumbria County); Archer, 2006c:217 (Great Britain: Staffordshire: Highgate Common); Gorobchishin, 2006:125 (Ukraine: several localities); Shlyakhtenok, 2006:112 (Belorussia: Polesye Radiological Nature Reserve); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:93 (Great Britain: Tunbridge Wells and Central High Weald); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Sipos and Móczár, 2007:205 (Hungary: Bács-Kiskun megye: vicinity of Foktő); Archer, 2008a:144 (Great Britain: Cumbria: Bamburgh Dunes), 2009:24 (Great Britain: Yorkshire: Sheffield), 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren), 2010b:99 (Great Britain: Watsonian Staffordshire: Cannock Chase Country Park); Falk, 2010:93 (Great Britain: heathland sites in West Midlands region); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor and Thorne Moor); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Pagliano, 2011a:142 (specimen in M. Spinola collection, Torino, is *Crossocerus annulipes*), 143 (specimens in M. Spinola collection, Torino, are *Crossocerus annulipes* and *Crossocerus* sp.); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common), 2012b:183 (Great Britain: urban York);

Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Krasnaya Polyana near Sochi: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); Wiśniowski and Szczepko, 2013:30 (Poland: Kampinos National Park near Warszawa); Archer, 2014b:178 (Great Britain: urban and suburban gardens); Bitsch, 2014:401 (treated as valid species by some authors; known from Bulgaria, Germany, Great Britain, Poland, and Switzerland); Wiśniowski, 2016:128 (Poland: Ojców National Park). – **As *Crabro pusillus***: Dahlbom, 1844:323 (new generic assignment, original description copied); F. Smith, 1856:412 (in catalog of Hymenoptera in British Museum).

Crossocerus striatulus Lepeletier de Saint Fargeau and Brullé, 1835:775, ♀. Holotype: ♀, France: Landes: Saint Sever (M. Spinola collection, Torino). Synonymized with *Crosocerus pusillus* by Leclercq, 1974d:266. – Lepeletier de Saint Fargeau, 1845:143 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera, as *striolatus* Lepeletier de Saint Fargeau and Brullé, 1835:737). – **As *Crabro striatulus***: Dahlbom, 1844:321 and 1845:367 (new generic assignment, original description copied), 527 (in key to *Crabro*, unknown to author); F. Smith, 1856:412 (in catalog of Hymenoptera in British Museum). – **As *Blepharipus striatulus***: Kirchner, 1867:224 (new generic assignment, secondary homonym of *Blepharipus striatulus* Lepeletier de Saint Fargeau and Brullé, 1835:737 (= *Ectemnius cephalotes*), in catalog of European Hymenoptera); Dours, 1874:155 (in catalog of Hymenoptera of France); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria); Coulon, 1925:123 (France: Evreux); Bradley, 1957:47 (type in M. Spinola collection, Torino); Casolari and Casolari Moreno, 1980:118 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:145 (specimens in M. Spinola collection, Torino, are *Ectemnius cephalotes*). – **As *Crabro elongatulus* var. *striatulus***: Dalla Torre, 1897:599 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Crabro scutellatus Stephens, 1829a:365, nomen nudum (in catalog of British insects). Junior secondary homonym of *Crabro scutellatus* (von Scheven, 1781). Synonymized with *Crabro spinipectus* Shuckard, 1837 by F. Smith, 1855:99. – Stephens, 1829b:34 (in checklist of British insects, as *Crabro scutellata*).

Crabro spinipectus Shuckard, 1837a:163, ♀, ♂. Syntypes: Britain: London area (depository unknown). Lectotype or neotype: Great Britain: no specific locality (BMNH), designated by Leclercq, 1974d:267. Synonymized with *Crossocerus pusillus* by Leclercq,

1974d:267. – Dahlbom, 1842a:14 (in review of Scandinavian aculeates), 1844:327 (in revision of Sphecidae and Pompilidae), 1845:524 (in key to *Crabro*), determination corrected to *Crabro varius* by Thomson, 1870:166; Wissmann, 1849:16 (Germany: Kingdom of Hannover: Münden); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:30 (Great Britain: London district), 1853:64 (in checklist of British Hymenoptera); Kawall, 1857:26 (Kurland, now Latvia); Kirchner, 1867:225 (in catalog of European Hymenoptera, as *spinipes*); Schenck, 1867a:351 (known from Germany); Radoszkowski, 1877:78 (Tajikistan: Varzaminor; Kyrgyzstan: Mount Alai, later Pik Lenina, now Ibn Sina Pik; also: Obburden, Karakazuk); Daly, 1878:46 (Great Britain: Dorset: Glanville's Wootton, as *spinispectus*); D. Baker, 1998:172 (type origin and depository). – **As *Crossocerus spinipectus***: Brischke, 1862:106 (new generic assignment, Germany: Preussen Province, now Poland: Pomorze Region), 1888b:101 (Germany: Preussen Province, now Poland: Pomorze Region); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino, as *spinipestus*); Pagliano, 2011a:140 (specimens in M. Spinola collection, Torino, are *Crossocerus varus* and *Crossocerus* sp., as *spinipestus*).

Crossocerus striatus Lepeletier de Saint Fargeau, 1845:178 (lapsus for or emendation of *striatulus*). – Lucas, 1849:245 (Algeria: Alger, Bône, now Annaba); A. Costa, 1885a:5 (Italy: Sardegna); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Bradley, 1957:47 (type in M. Spinola collection, Torino); Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:143 (specimens in M. Spinola collection, Torino, are *Crossocerus varus*). – **As *Crabro striatus***: F. Smith, 1856:412 (new generic assignment, in catalog of Hymenoptera in British Museum).

Crossocerus varius Lepeletier de Saint Fargeau, 1845:179, emendation of *Crosocerus varus* Lepeletier de Saint Fargeau and Brullé, 1835. – F. Smith, 1856:408 (in catalog of Hymenoptera in British Museum); Taschenberg, 1858:107 (in key to Sphecidae of Germany), 1866:179 (in revision of Hymenoptera of Germany); Kirchner, 1867:225 (in catalog of European Hymenoptera); Jaennicke, 1868:8 (Germany: Hessen: Mombach); Thomson, 1870:166 (in revision of Swedish Crabroninae); Dours, 1874:155 (in catalog of Hymenoptera of France); Wierzejski, 1874:261 (Ukraine: Podole Region: Pieniaki); Beuthin, 1876:230 (Germany: Hamburg area); Friese, 1883:201 (Germany: Sachsen-Anhalt: Kösen, as *varius* Wesmael); Kohl, 1888b:722 (Austria: Tirol, now Italy: Alto Adige); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); Acloque, 1897:90 (in Sphecid Fauna of

France and Algeria); Borries, 1897:40 (Denmark: flying from July to September); Chyzer, 1902:34 (Hungary); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1910:51 (Sweden; nesting habits); A. Costa, 1882b:23 (Italy: Sardegna); Graeffe, 1911:44 (Italy: Trieste area); Rudow, 1912:75 (nesting in raspberry twigs); Schirmer, 1912:164 (Germany: Berlin area); R. Perkins, 1913b:391, 394 (in key to British Crabronini); Łoziński, 1920:121 (Poland: Kraków); Noskiewicz, 1920a:155 (Poland: Tatry Mountains: common); R. Perkins, 1924:226 (Great Britain: Devon); Coulon, 1925:123 (France: Evreux, Maisons-Laffitte); Bischoff, 1925:298 (Latvia); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Hamm and Richards, 1926:314 (summary of nesting habits); Zavadil, 1926:35 (Czechoslovakia); Stelfox, 1927:301 (Ireland: list of localities); Hallett and Norton, 1928:72 (Great Britain: Glamorgan: Kenfig Castle); Jones, 1928a:5 (nesting in old oak-stump at Wollaton Park, Nottingham, Great Britain); Harttig, 1930b:8 (specimen bearing dipteran egg); Butterfield and Fordham, 1931:157 (Great Britain: Yorkshire); W. Johnson, 1931:139 (Great Britain: Down County: Greencastle); Spooner, 1931:16 (Great Britain: Cambridgeshire); Routledge, 1933:89 (Great Britain: Cumberland); Marchand and Dulac, 1935:60 (France: Saône-et-Loire: Saint Laurent d'Andenay); Minkiewicz, 1935:215 (Poland: Lake Garbaś 20 km west of Suwałki); Faris, 1936:144 (Ireland: Cavan County); Struve, 1937:149 (Germany: Island of Borkum); Hallett, 1938:73 (Great Britain: Herefordshire: Cusop, Tarrington); Iwata, 1938d:87 (Russia: Island of Sakhalin, Kuril Islands); Maneval, 1939:81 (nest structure, position of egg on prey, list of prey, description of larva); Paul, 1941:37 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); de Beaumont, 1954e:97 (Italy), 1958c:212 (Swiss National Park), 1959a:39 (Italy: Sicily), 1964c:145 (in Sphecid Fauna of Switzerland); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle), 196 (collected on bushes); Gauss, 1966c:240 (specimen bearing dipteran egg); de Beaumont, 1967a:354 (Turkey); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Aschaffenburg, Marktheidenfeld, Miltenberg); Lefeber, 1969a:79 (Netherlands: Sint-Pietersberg); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area); Schmidt, 1971b:49 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand), 1971c:75 (Germany: Schleswig-Holstein); Stritt, 1971a:105 (Germany: Baden-Württemberg: Karlsruhe); Wolf, 1971:375 (Italy: Trentino–Alto Adige: Alpi Siusi); Haeseler,

1972:157 (Germany: Schleswig-Holstein; anthropogenic habitats); Kofler, 1972:114 (Austria: eastern Tirol); Lomholdt, 1972:123 (Denmark: Island of Læsø); Tsuneki, 1972a:152 (Mongolia); Nambu, 1973a:153 (Japan: Saitama Prefecture); Erlandsson, 1974:85 (Italy); Simon Thomas, 1974:57 (Netherlands: Limburg: Tienray); Tsuneki, 1974a:381 (Korea); Burn, 1975:144 (Great Britain: Yorkshire: Doncaster district); Lomholdt, 1975b:32 (Denmark: Island of Anholt); Nambu, 1975b:76 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:403 (in checklist of world Sphecidae); Guichard, 1978:272 (first record from Greece: Aspropotomas); Marshakov, 1979a:93, 100 (in key to *Crossocerus* of Russian Far East), 1980c:342, 351 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic,); Pagliano, 1980:122 (Italy: Piemonte); Skibińska, 1982:120 (Poland: Mazovian Voivodship: Białołęka, Hamernia, Młochów, Radziejowice, Ursynów, Wola Mrokowska, Warszawa); Tsuneki, 1982b:17 (known from Korea); Lefeber, 1983a:85 (Netherlands: Waddendistrict: northern coast dunes, islands of Texel, Terschelling, and Ameland), 1985:87 (Netherlands: southern Limburg); Paik, 1985:202 (in list of Sphecidae of Korea); Nemkov, 1986:103 (Russia: Irkutsk Oblast'); Skibińska, 1986b:151, 155 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 187 (green areas of housing estates), 175 (various green urban habitats); Tsuneki, 1991:203 (Korea); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józan, 1992b:175 (Hungary: Boronka-melléki Nature Reserve); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:431, 438 (in key to Sphecidae of Russian Far East); Papp and Józan, 1995:145 (Hungary: Síkfőfőt oak forest); Celary, 1998b:211 (Poland: Babia Góra National Park); Salzmann-Wandeler, 1998a:98 (Switzerland: Luzern Canton: Sempach); M. Schwarz, 1999:87 (Austria: Oberösterreich: city of Linz area); Esenbekova and Kazenas, 2000:51 (southeastern Kazakhstan: 3-5 km south, 5 km west, and 2 km southwest of Alma Ata); Józan, 2000:111 (Hungary: Bakony Mountains), 2001:280 (Hungary: Somogy County); Kazenas, 2001b:41 (in checklist of Sphecidae of Kazakhstan and Central Asia), 197 (review of known biology); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Kazenas, 2002a:102 (geographic distribution, collecting localities in Kazakhstan); Kowalczyk, Szczepko, and Świątek, 2002:154 (Poland: Kampinos National Park near Warszawa); Litt, 2002:167 (Belgium); von der Heide and Metscher, 2003:102 (Germany: Niedersachsen: Emsland area); Szczepko and Kowalczyk, 2004:126 (Poland: Kampinos National Park near Warszawa); Baghirov, 2011b:145

(Russia: Altayskiy Kray: Savvushka; Altay Republic: Chemal). – **As *Crabro varus***: Stelfox, 1939:41 (new generic assignment, Great Britain: Scotland: Garelochhead); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area). – **As *Crabro varius***: Wissmann, 1849:16 (Germany: Kingdom of Hannover: Münden); Wesmael, 1852:603 (Belgium: Bruxelles); Schenck, 1857:128 (in revision of fossorial wasps of Germany); F. Smith, 1858c:129 (in review of British Aculeata, redescription); Six, 1859:18 (Netherlands: Driebergen); A. Morawitz, 1864:456 (Russia: Sankt-Petersburg); A. Costa, 1867c:127 (in revision of Italian Sphecidae); Schenck, 1867a:351 (known from Germany); Bold, 1870:149 (Great Britain: Northumberland and Durham); A. Costa, 1871b:56 (in revision of Italian Sphecidae); F. Smith, 1871b:14 (in catalog of British Aculeata); Thomson, 1874:273 (in revision of Hymenoptera of Scandinavia); Kohl, 1880:126 (Austria: Tirol, and Italy: Trentino-Alto Adige); E. Saunders, 1880:288 (in revision of British Aculeata); Siebke, 1880:69 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1883e:655 (Switzerland); Sickmann, 1883:71 (Germany: Niedersachsen: Wellingholthausen); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Sickmann, 1885:176 (Germany: Niedersachsen: Wellingholthausen); Wüstnei, 1886:36 (Germany: Schleswig-Holstein: Emmelsbüll, Husum); Alfken, 1893:120 (Germany: Friesian Islands: Island of Juist); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus); Sickmann, 1893:69 (Germany: Niedersachsen: Iburg); Baldini, 1894:69 (Italy: Modena area); Krieger, 1894:5 (Germany: Kingdom of Saxony); Freke, 1896:41 (Ireland); E. Saunders, 1896:135 (in revision of British Aculeata); Dalla Torre, 1897:635 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Kingdom of Hungary, some localities are in Romania and Slovakia); Strand, 1898b:95 (Norway); R. Bradley, 1900:13 (Great Britain: Birmingham); W. Evans, 1900:266 (Great Britain: Scotland: Aberlady, North Queensferry); Malloch, 1901:6 (Great Britain: Scotland: Dumbartonshsire); Ferton, 1902:518 (nesting habits); E. Saunders, 1900b:266 (Great Britain: Scotland: Golspie); A. Carter, 1901a:67 (Great Britain: Scotland: Perthshire: Comrie); Friese, 1902:478 (Norway: Saltdalen at 67°N); E. Saunders, 1902a:52 (southwestern Ireland); Aurivillius, 1904:295 (in revision of Swedish Sphecidae); Kubes, 1905:84 (Czech Republic: Kolín, Maria Sorg u Jáchymova, Sušice); Schmiedeknecht, 1907:197, 199 (in key to Hymenoptera of Central Europe); Morley, 1909:305 (Great Britain: Isle of Wight); Sparre Schneider, 1909:107 (Norway: Nordlands District: Saltdalen); Dittrich, 1911b:19 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Birula, 1912:536 (Ukraine:

Zhytomyr Oblast': Radomyshl'); Alfken, 1914:274 (northwestern Germany); Birula, 1914:377 (Belorussia: Ambrosovichi and Luskinopol' near Vitebsk); Kohl, 1915:254 (in revision of Palearctic Crabronini); R. Perkins, 1916:230 (specimens in F. Smith collection); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:46 (Germany: Lower Elbe region); Dubois, 1921b:159, 161 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Berland, 1925d:183 (in Sphecid Fauna of France); Grönblom, 1925:4 (nesting habits); R. Perkins, 1925:152 (Great Britain: Gloucestershire and Somersetshire); Schütze, 1925:110 (Germany: Lausitz Region); Bouwman, 1930:102 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:652, 654 (in keys to Hymenoptera of North and Central Europe); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:149 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: Forêt de Soignes, Solbosch); Balles, 1934:17 (Germany: Baden-Württemberg: Hopfengarten, Oberachern); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Grandi, 1935a:109 (Italy); Steck, 1935:325 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Dulac, 1937:21 (France: Saône-et-Loire: Saint-Laurent d'Andenay); A. Wagner, 1938a:117 (northwestern Germany); Balthasar, 1943:41 (Czech Republic: Moravia: Zlin area); Carl and de Beaumont, 1947:69 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Tsuneki, 1947e:421 (Japan: Hokkaido), 1948d:52 (nesting habits), 1948c:7 (Japan: Hokkaido); de Andrade, 1949:23 (Portugal); Cavro, 1950:38 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); de Beaumont, 1951h:35 (Switzerland: Neuchâtel area); Fæster, 1951:458 (distribution in Scandinavia); Leininger, 1951:115 (Germany: Baden-Württemberg); Abrahamsen, 1952:127, 130 (nesting habits); Nouvel and Ribaut, 1953:182 (France: Haute-Garonne: Luchon, Saint-Béat; Hautes-Pyrénées: Cauterets); de Beaumont, 1954c:97 (Italy); Steiner, 1955:141 (France: Dordogne); Teschner, 1955:56 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vergne, 1955:5 (France: Auvergne); Vogrin, 1955:42 (Yugoslavia); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:177 (Germany: Rheinland-Pfalz: Pfalz region); Diniz, 1959:32 (Portugal: Lisboa, Quinta do Mato); Noskiewicz and Puławski, 1960:145, 153 (in key to Polish Sphecidae); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:28 (Latvia); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:124 (Poland: Warszawa area); Kowalczyk,

1988b:66 (Poland: environs of Łódź); Celary, 1997:59 (in checklist of Animals of Poland); Vago, 2005a:14 (*Crabro varius* in Cavro, 1950 is *Crossocerus varus* now).

Crabro intricatus F. Smith, 1856:410. Substitute name for *Crabro striatus* (Lepeletier, 1845).

Crabro lepeletieri F. Smith, 1856:411 (as *Lepeletieri*, incorrect original capitalization). Substitute name for *Crabro striatulus* (Lepeletier de Saint Fargeau and Brullé, 1835:737), nec *Crabro striatulus* (Lepeletier et Brullé, 1835:737). Synonymized with *Crossocerus pusillus* by Leclercq, 1974d:267.

240.*vepectineus* Q. Li and He

Crossocerus vepectineus Q. Li and He, 2004:1085, ♀, ♂. Holotype: ♀, China: Zhejiang: Hangzhou (Inst. Zoology, Academia Sinica, Beijing). – Leclercq, 2009:161 (member of subgenus *Crossocerus*), 187 (in list of Asian *Crossocerus*, bibliographic references).

241.*viennensis* Leclercq

Crossocerus viennensis Leclercq, 1968c:97, ♀. Holotype: Costa Rica: San José: Tres Ríos (NHMW). – Leclercq, 1968c:91 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Hanson and Menke, 1995:640 (known from Costa Rica); Leclercq, 2000d:72 (in revision of New World *Crossocerus*); Amarante, 2005a:7 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

242.*walkeri* (Shuckard)

Crabro walkeri Shuckard, 1837a:170, ♂ (as *Walkeri*, incorrect original capitalization). Holotype: ♂, Great Britain: no specific locality (BMNH). – Dahlbom, 1842a:13 (in review of Scandinavian aculeates); F. Smith, 1851c:31 (Great Britain: Scotlannd: no specific locality); Wesmael, 1852:606 (Belgium: Charleroi); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:408 (in catalog of Hymenoptera in British Museum); Schenck, 1857:129 (in revision of fossorial wasps of Germany); F. Smith, 1858c:135 (in review of British Aculeata, redescription); Schenck, 1867a:351 (known from Germany); F. Smith, 1869d:77 (Great Britain: Norfolk: Cromer), 1871b:14 (in catalog of British Aculeata); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Kohl, 1913b:16 (Russia: Voronezh Oblast': Valuyki at 50°14'N 38°08'E), 1915:244 (in revision of Palearctic Crabronini); R. Perkins, 1916:231 (specimens in F. Smith collection); O. Meyer, 1919:148 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:45 (Germany: Lower Elbe region); Dubois, 1921a:19 (Belgium: Botassart), 1921b:155, 157 (in key to Belgian Sphecidae), 165 (phenology, nesting habits); Berland, 1925d:186 (in Sphecid Fauna of France); Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Carpentier,

Crèvecoeur and Maréchal, 1926:354 (Belgium: Fèchereux); Zavadil, 1926:34 (first record from Czechoslovakia); Bouwman, 1930:101 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:650, 651, 657 (in keys to Hymenoptera of North and Central Europe); Hellén, 1931:6 (first record from Finland); Pulkkinen, 1931:147 (in revision of Sphecidae of Finland); Giordani Soika, 1932a:23 (Italy: lido di Venezia); Gussakovskij, 1932:22 (Russia: Primorskiy Kray); E. Nielsen, 1933:266 (summary of nesting habits); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:325 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Hellén, 1936:67 (recorded from Finland); Goebel, 1937:38 (Poland: Poznań District: Strzeszynek); Zavadil, Šustera, and Bat'a, 1937:163 (in catalog of Sphecidae of Czechoslovakia); A. Wagner, 1938a:117 (northwestern Germany); Teunissen, 1939:174 (Netherlands: Voorburg); Tsuneki, 1947e:417 (Japan: Hokkaido); de Hennin and Anciaux, 1948:75 (Belgium: between Sambre and Meuse rivers); Tsuneki, 1948c:6 (Japan: Hokkaido); Zavadil *in* Zavadil and Šnoflak, 1948:125, 131 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:39 (France: Département du Nord); Georgel, 1950:64 (France: Seine-et-Oise: Sucy-en-Brie); Fæster, 1951:457 (distribution in Scandinavia); de Beaumont, 1954e:97 (Italy); Vogrin, 1955:42 (Yugoslavia); Benno, 1958b:19 (in review of Dutch Sphecidae); Noskiewicz and Puławski, 1960:147, 153 (in key to Polish Sphecidae); Scobiola-Palade, 1965:107 (first record from Romania: Sibiu); Niedl and Deneš, 1967:72 (Czech Republic: Třeboň area); Scobiola-Palade, 1967b:53 (Romania); Tumšs and Maršakovs, 1970:29 (Latvia); Balthasar, 1972:106 (in Sphecid Fauna of Czechoslovakia); Niedl and Deneš, 1972:151 (Czech Republic: Třeboň area); Skibińska, 1982:121, 124 (Poland: Mazovian Voivodship: Hamernia, Łomna); D. Baker, 1998:172 (type origin and depository); Vago, 2005a:14 (*Crabro walkeri* in Cavro, 1950 is *Crossocerus walkeri* now). – **As *Blepharipus walkeri***: Hamm and Richards, 1926:313 (new generic assignment, summary of nesting habits). – **As *Coelocrabro walkeri***: Baudot, 1929:492 (new generic assignment, preying on various Ephemeroptera), 1931:255 (characteristics of cocoon); Richards, 1937b:106 (in checklist of British aculeates); Bat'a, 1944a:25 (Czech Republic); Zavadil, 1946:8 (Czechoslovakia: Ostrava area); Spooner, 1947:151 (Great Britain: Devon: banks of river Tavy near Virtuous Lady Mine); Bat'a, 1952:167 (Czech Republic). – **As *Crossocerus walkeri***: Kirchner, 1867:225 (new generic assignment, in catalog of European Hymenoptera); Leclercq, 1950f:23 (distribution in Belgium), 1951e:9 (bibliography of Belgian records); Fahlander, 1954:250 (Sweden: Gästrikland Region); Leclercq, 1954c:233

(new generic assignment, in catalog of world Crabronini), 309 (nest and prey records); Tsuneki, 1954b:57, 62, 67, 69 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Hellén, 1955a:128 (Finland: Karkku, Lojo, Vichtis); Tsuneki and Tanaka, 1955b:21 (Japan: Nikko 120 km northwest of Tokyo); Tsuneki, 1956b:11 (in supplement to 1954b key); Evans, 1957b:107 (discussion of larval characters); Tsuneki, 1958c:8 (Japan: Kyoto Prefecture), 1959n:67, 69, 71, 74 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:33 (Germany: Nassau); Tsuneki, 1960g:41 (nesting habits); Stritt, 1962:49 (Germany: Baden-Württemberg: Wutach area); Valkeila, 1962b:68 (southwestern Finland); Tsuneki and Shimoyama, 1963:50 (Japan: Towada Prefecture); Babiy, 1964:118 (Austria: Land Salzburg); de Beaumont, 1964c:148 (in Sphecid Fauna of Switzerland); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:559 (Germany: Baden-Württemberg); Leclercq, 1967a:33 (type specimen present in BMNH); Haneda, 1968a:46 (Japan); Gauss and Perraudin, 1970:360 (Germany: Baden-Württemberg: Bodensee area), 362 (Germany: Baden-Württemberg: Taubergiessen near Kappel am Rhein); Oehlke, 1970:786 (Democratic Germany); Tsuneki, 1970f:4, 7 (Japan: yellow gastral markings); Yamada, 1970:14 (Japan: Nagano Prefecture: Shimajima Valley); Haneda, 1972c:59 (Japan: Fukui Prefecture); Nambu, 1972b:14 (Japan: Saitama Prefecture); Tsuneki, 1972a:150 (Mongolia); Leclercq, 1974d:272 (synonymy), 1975b:3 (France); Lefeber, 1975a:37 (Netherlands: Delden), 1975b:120 (Belgium); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Lomholdt, 1976:395 (in Sphecid Fauna of Fennoscandia and Denmark); Kolesnikov, 1977:320 (Russia: Bryansk Oblast'); Pulawski, 1978:261, 263 (in key to Sphecidae of European part of USSR); Schwammberger, 1978:421 (Germany: Württemberg); Leclercq, Gaspar, and Verstraeten, 1979:map 1459 (Belgium); Marshakov, 1979a:96, 100 (in key to *Crossocerus* of Russian Far East), 1980c:347, 353 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Mongolia; Russia: Irkutsk and Chita Oblast's, Maritime Province); Pagliano, 1980:122 (Italy: Trentino Alto Adige); Richards, 1980:49, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:376 (Germany: Baden-Württemberg); Dollfuss and Ressl, 1981:323 (Austria: Niederösterreich: Scheibbs District); Dollfuss, 1983b:17 (in catalog of Sphecidae of Austria); Chevin and Silvestre de Sacy, 1984:8 (France: Yvelines Department); Schmidt and Westrich, 1984:241 (Germany: Rheinland-Pfalz: Bad Münster); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Nemkov, 1986:102 (Russia: Irkutsk Oblast');

Skibińska, 1986b:151 (Poland: suburbs of Warszawa); Nilsson, 1988:98 (Sweden); Jacobs, 1989:21 (Germany: Mecklenburg-Vorpommern); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Skibińska, 1989a:206 (Poland: Warszawa area); Jacobs and Oehlke, 1990:191 (new records from Democratic Germany); Pádr, 1990:87 (Czech Republic: Praha area); Pagliano, 1990:86 (in catalog of Italian Sphecidae); Day, 1991:xiv (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:155 (in key to Sphecidae of North and Central Europe); Gusenleitner, 1991:647 (Austria: Oberösterreich); Nilsson, 1991:84 (Sweden: Lake Mälaren), 90 (general information about species); Pagliano, 1991b:339, 343 (in key to Italian Crabroninae); van der Smissen, 1991:96 (northwestern Germany); Budrys, 1992:35 (in list of Sphecidae of Lithuania); Gusenleitner, 1992:687 (Austria: Steiermark); Wolf, 1992c:22 (Germany: Nordrhein-Westfalen: Plettenberg: castle Schwarzenberg ruin); Archer, 1993c:39 (Great Britain: Yorkhire); Bitsch and Leclercq, 1993:116 (in revision of western European Crabroninae); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq, 1993c:23 (Ireland: Athdown); Leclercq and Barbier, 1993:46 (map of distribution in France); Sorg, 1993:407 (Germany: Rheinland-Pfalz: Nature Reserve Ahrschleife near Altenahr); Felton and Schneider, 1994:289 (Luxemburg); Junck, Schoos, and Schoos, 1994:96 (Luxemburg: Bettendorf); Theunert, 1994c:38 (Germany: summary of records from Niedersachsen and Bremen); Jansen and Kaluza, 1995:7 (Germany: extinct in Sachsen); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:435, 440 (in key to Sphecidae of Russian Far East); Riemann, 1995:52 and 58 (Germany: Bremen); Scharrer, 1995:26 (Germany: Bayern: Karlstadt); Schmid-Egger, 1995:59 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:175 (Germany: summary of records from Rheinland-Pfalz); Shlyakhtenok, 1995:193 (Belorussia: Berezinsky Nature Reserve); Skibińska, 1995:424, 426, 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); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and D. Doczkal, 1996:375, 376 (endangered in Baden-Württemberg); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye Region); Witt, 1996:105 (Germany:

Brandenburg), 108 (locality records); Woydak, 1996:70 (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, 1997:11 (in checklist of German Sphecidae); Shlyakhtenok, Blinov, and Belyavskaya, 1997:155 (Belorussia: Pripyatskiy National Park); Archer, 1997b:97 (Great Britain: Watsonian Yorkshire); F. Burger, Saure, and Oehlke, 1998:27 (Germany: in list of Sphecidae of Brandenburg), 34 (endangered); Dollfuss, Gusenleitner, and Bregant, 1998:518 (Austria: summary of collecting records from Burgenland); Gorobchishin, 1998a:49 (Ukraine: Kiev and surroundings); Haeseler and Ritzau, 1998:50 (Germany: Bremen: Steller Heide); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); van der Smissen, 1998:57 (Germany: Schleswig-Holstein: Bad Schwarta); Archer, 1999b:82 (Great Britain: Yorkshire), 1999d:212 (male with all black clypeus); W. Klein, 1999:8, 12 (in improved key to *Crossocerus* of Benelux); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: threatened with extinction in Nordrhein-Westfalen); Pauly, 1999:110 (in catalog of Belgian aculeates); Archer, 2000a:45 (Great Britain: Yorkshire); Blösch, 2000:315 (in Sphecid Fauna of Germany); Jacobs, 2000:7, 17 (Germany: Land Mecklenburg-Vorpommern: vulnerable); Luig and Voolma, 2000:124 (first record from Estonia); Schmid-Egger, 2000b:275, 278 (Germany: Baden-Württemberg: shores of Rhine River); Archer, 2001a:107 (Great Britain: Watsonian Yorkshire); Józan, 2001:280 (Hungary: Somogy County); Ohl et al., 2001:138 (distribution in Germany by provinces); Skibińska, 2001:220 (Poland: Białowieża Primeval Forest); Smit, 2001:87 (Netherlands: Westervoort); van der Smissen, 2001:60 (Germany: Schleswig-Holstein: threatened with extinction); Archer, 2002b:116 (Great Britain: Watsonian Yorkshire: distribution map); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Bergsten, Hoffsten, and Hellqvist, 2002:38 (Sweden: Hälsingland: Övre Tälningsån); Bieri, 2002:74 (Liechtenstein); Litt, 2002:167 (Belgium); Shlyakhtenok and Skibinska, 2002:34 (Belorussia: no specific locality); Söderman and Vikberg, 2002:52 (in list of Aculeata of Finland); van der Meer, 2002:15 (Netherlands: costal dunes at Meijendel); Wiśniowski, 2002:72 (Poland: Ojców National Park); Cölln, Esser, and Jakubzik, 2003:62 (Germany: northwestern Rheinland-Pfalz: excavation sites and quarries); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:65 (in catalog of wasps and bees of Bayern, Germany); Reemer, 2003:62 (Netherlands: Gelderland: Zaltbommel area); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:194, 196

(Germany: Bayern: strongly endangered); Wiśniowski *in* Dylewska and Wiśniowski, 2003:167 (Poland: Ojców National Park); Wiśniowski and Werstak, 2003:78 (Poland: Pieniny National Park); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:262 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Haneda, Nosaka, Tano, Kurokawa, and Murota, 2004:34 (Japan: Gifu Prefecture); Klein and Lefeber *in* Peeters, van Achterberg, et al., 2004:376 (in Wasp and Ant Fauna of Netherlands); Salzmann-Wandeler and Rezbanyai-Reser, 2004:26 (central Switzerland); Shkuratov, 2004a:80 (Russia: Rostov Oblast': Rostov-on-Don); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Stolle et al., 2004:371 (Germany: Sachsen-Anhalt: in red list of Sphecidae); van Achterberg and Peeters, 2004:30 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:48 and 61 (in checklist of Polish Sphecidae); Burger, 2005:32 (Germany: Thüringen); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Pagliano and Negrisolo, 2005:241 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:551 (Germany: Niedersachsen: city of Bremen and adjacent area); Robinson, 2005:35 (Great Britain: Cumbria County); Saure, 2005:14 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors), 59 (Germany: Hessen: Fulda: Eichenzell); Shorenko, 2005a:165 (Ukraine: Crimea); Straka, 2005a:397 (critically endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Dollfuss, 2006:514 (Bulgaria, France); Gorobchishin, 2006:128 (Ukraine: Kyiv; Lviv Oblast': Roztochchya Nature Reserve; Vinnitsa Oblast': village Udalovo); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2006a:26 (Japan: Toyama Prefecture); Vepřek, 2006:509 (Czech Republic: Kokořínsko area); Hallin, 2007:154 (Sweden: Blekinge and Östergötland counties); Jacobs, 2007:132, 141 (in key to Crabronidae of Germany); Nemkov, 2007b:73 (Russia: Kuril Islands: Island of Kunashir); Shlyakhtenok, 2007a:298 (Belorussia: Berezinsky Nature Reserve); Vepřek and Straka, 2007:205 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Bohemia and Moravia), 330 (recently recorded from Bohemia by Vepřek, 2006; Bohemia: Děčin-Podmokly, Hradčany; Moravia: Lednice, Podyj National Park); Archer, 2008c:145 (Great Britain: Nottinghamshire: Spalford Warren); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:28 (Germany: map of distribution in Niedersachsen and Bremen); Wiśniowski, 2008:635 (Poland: Ojców National Park, collected in 1995); Bitsch and Leclercq, 2009:220 (in supplement to vol. I of Faune de France, 1993: France: Alpes-de-

Haute-Provence: Montagne de Lure; Puy-de-Dôme: Mirefleurs); U. Frommer, 2009a:27 (Germany: in checklist of Sphecidae of Hessen); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 188 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Nemkov, 2009b:104 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Shorenko, 2009:367 (in list of Sphecidae *sensu lato* of Crimea); Straka, Dvořak, and Bogusch, 2009:260 (Czech Republic: Minkovice); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); 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); 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: no specific localities), 2010b:100 (Russia: Kirov and Nizhniy Novgorod Oblast's: no specific localities); Rudoiskatel', 2010:156 (Russia: central Ural Mountains); Schmid-Egger, 2010a:15 (in red list of Aculeata of Germany: rare); Schmidt, 2010:134 (Germany: Bayern: collected along Main-Donau canal); Tano, 2010b:41 (member of subgenus *Blepharipus*, in list of Japanese subgenera of *Crossocerus*); van der Smissen, 2010a:338 (Germany: Schleswig-Holstein: locality records); Baghirov, 2011b:145 (Russia: Altayskiy Kray: Biysk, Savvushka; Altay Republic: Chemal); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:71 (Russia: Chuvash Republic); Rudoiskatel', 2011a:66 (Russia: Perm Oblast': Tyuinsk village), 2011d:242 (Russia: central Ural Mountains); Theunert, 2011a:19 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:79 (Germany: Hessen: threatened with extinctin 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); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Kirov Oblast': Arkhangel'skoye: collected in private plots); Archer, 2013b:118 (Great Britain: Leicestershire: suburban garden in Leicester); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:195 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:401 (France: Eure-et-Loir: Marboué, as *walkleri*); Haneda, Murota, Kurokawa, and Tano, 2014:1, 4, 7, 9 (in key to *Crossocerus* of Japan); Hellqvist, Abenius, and Norén, 2014:91

(in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Archer, 2015:203 (Great Britain: English coastal sand dunes); Shorenko, 2015:321 (in list of Sphecidae *sensu lato* of Crimea); 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, 2016:17 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales); Stolle and Saure, 2016:922 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:128 (Poland: Ojców National Park); Antropov, 2017b:228 (in catalog of Crabroninae of Russia); Shorenko, 2017:77 (in Crimea collected in June); Jacobs and Liebig, 2018:138 (Russia: Irkutsk Oblast': Sarma); 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); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City); Kejval, Blažej, and Erhart, 2020:98 (western Czech Republic); Bitsch and Leclercq *in* Bitsch, Antropov, Gayubo, Leclercq, Schmid-Egger, K. Schmidt, and Straka, 2021:59 (in revision of Sphecidae *sensu lato* of Europe); Fresno, 2021a:79 (Spain: Asturias: Pola de Lena); Olszewski, Wiśniowski, and Ljubomirov, 2021:88 (in commented list of Sphecidae *sensu lato* of Poland).

Crabro geniculatus Shuckard, 1837a:169, ♂, actually ♀ (as Stephen's manuscript name), junior primary homonym of *Crabro geniculatus* Olivier, 1792 and *Crabro geniculatus* Fabricius, 1793. Holotype: ♀, England: Ripley (BMNH). Synonymized with *Crabro bimaculatus* by F. Smith, 1871b:14, and with *Crossocerus walkeri* by Leclercq, 1974d:272. – D. Baker, 1998:172 (type origin and depository).

Crossocerus scaposus Zetterstedt: Dahlbom, 1844:.., nomen nudum.

Crabro clypearis Schenck, 1857:83, ♀. Holotype: ♀, Germany: historical region of Nassau: no specific locality (depository?). Synonymized with *Crabro walkeri* by Kohl, 1915:245. – Dietrich, 1868:362 (Switzerland: Zurich Canton); Schenck, 1867a:351 (Germany: Nassau Region). – **As *Crossocerus clypearis***: Kirchner, 1867:225 (new comination, in catalog of European Hymenoptera); Graeffe, 1911:44 (Italy: Trieste area); Coulon, 1925:124 (France: Evreux).

Crabro clypearis Schenck, 1860:116. Nomen nudum.

Crabro cloevorax Nielson, 1901a:260, ♀ (as *cloëvorax*, incorrect diacritic mark). Holotype or syntypes: ♀, Denmark: no specific locality (ZMUC). Synonymized with *Crabro walkeri* by Kohl, 1915:245. – Adlerz, 1904:136 (known prey: Diptera, in error, should be *Cloe*, Ephemeroptera); Rudow, 1912:75 (preying on small Ephemeroptera, as *cloëvorus* Kl.).

243.*weeratungei* Leclercq

Crossocerus weeratungei Leclercq, 1986a:245, ♀. Subgenus *Ablepharipus*. Holotype: ♀, Sri Lanka: Kandy District: Kandy: Udawattakele Sanctuary (USNM). – Krombein, 1991:38 (Sri Lanka, collecting site); Leclercq, 2009:160 (member of subgenus *Ablepharipus*), 188 (in list of Asian *Crossocerus*, bibliographic references).

244.*wesmaeli* (Vander Linden)

Crabro wesmaeli Vander Linden, 1829:65, ♀, ♂. Syntypes: Belgium: Bruxelles area (originally Inst. Roy. Sci. Nat. Belgique, Bruxelles, now lost). Neotype: ♂, Belgium: Bruxelles (Inst. Roy. Sci. Nat. Belgique), designated by Leclercq, 1974d:268. – Shuckard, 1837a:164 (in revision of British Aculeata); Dahlbom, 1842a:13 (in review of Scandinavian aculeates), 1844:312 (in revision of Sphecidae and Pompilidae), 1845:521 (in key to *Crabro*); Eversmann, 1849:418 (Russia: Ural foothills); von Kiesenwetter, 1849:91 (Germ Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario, first records from Manitoba and Saskatchewan: no specific locality)any: Kingdom of Saxony: Oberlausitz area); F. Smith, 1849b:2551 (preying on Diptera); Tischbein, 1850:10 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:30 (Great Britain: Kent: Charlton, also Scotland); Wesmael, 1852:603 (Belgium: Bruxelles); F. Smith, 1853:64 (in checklist of British Hymenoptera), 1856:408 (in catalog of Hymenoptera in British Museum); Kawall, 1857:25 (Kurland, now Latvia); F. Smith, 1858c:136 (in review of British Aculeata, redescription); Schenck, 1860:146 (Germany: Nassau Region); A. Morawitz, 1864:456 (Russia: Sankt-Petersburg); F. Smith, 1865b:86 (Great Britain: Dorset County: Bournemouth); Taschenberg, 1866:180 (in revision of Hymenoptera of Germany); A. Costa, 1867c:125 (in revision of Italian Sphecidae); Schenck, 1867a:351 (Germany: Nassau Region); Thomson, 1870:166 (in revision of Swedish Crabroninae); A. Costa, 1871b:54 (in revision of Italian Sphecidae); F. Smith, 1871b:14 (in catalog of British Aculeata); Thomson, 1874:274 (in revision of Hymenoptera of Scandinavia); Roebuck, 1878:48 (Great Britain: recorded from Yorkshire county by F. Smith, 1858); Kohl, 1880:127 (Italy: Trentino-AltoAdige: Sankt Anton near Bolzano); E. Saunders, 1880:289 (in revision of British Aculeata); Siebke, 1880:69 (Norway); Marquet, 1881:187 (in Wesmael's classification scheme of subgenus *Crossocerus*); Sickmann, 1883:72 (Germany: Niedersachsen: Wellingholthausen); Harwood, 1884:211 (England: Essex: Colchester area); von Heyden, 1884:123 (Germany: Frankfurt am Main area); Wüstnei, 1886:36 (Germany:

Schleswig-Holstein: Elmshorn); Kohl, 1888b:722 (Austria: Tirol, now Italy: Alto Adige); Wüstnei, 1891a:26 (Germany: Schleswig-Holstein: Leck, Niebüll, Soholmbrück); V. Perkins, 1892:205 (Great Britain: Gloucestershire: Wotton-under-Edge); Alfken, 1893:120 (Germany: Friesian Islands: Island of Juist); Kohl, 1893a:22 (Austria: Niederösterreich); F. Morawitz, 1893a:114 (Russia: Karelian Isthmus), 1893b:425 (Tajikistan: Takfan in Yagnob River valley); Sickmann, 1893:69 (Germany: Niedersachsen: Iburg); Krieger, 1894:5 (Germany: Kingdom of Saxony); Freke, 1896:41 (Ireland); E. Saunders, 1896:136 (in revision of British Aculeata); Dalla Torre, 1897:636 (in catalog of world Sphecidae); Mocsáry, 1897:83 (Hungary); O. Schneider, 1898:102 (Germany: Island of Borkum); Strand, 1898b:95 (Norway); Ferton, 1899:344 (prey); Nevinson, 1900:62 (Great Britain: Wales: Towyn); Carr, 1901:16 (Great Britain: Lincolnshire: Skegness); A. Carter, 1901a:67 (Great Britain: Scotland: Perthshire: Comrie); Nevinson, 1901:72 (Great Britain: Wales: Criccieth); Thornley, 1901b:63 (Great Britain: Lincolnshire: Skegness); R. Bradley, 1902:267 (northern Wales); Nevinson, 1902:12 (Great Britain: Cornwall: Newquay); de Cobelli, 1903:117 (Italy: Trentino: Serrada, Val di Non); E. Saunders, 1903a:16 (Great Britain: Woking); Antiga and Bofill, 1904:23 (Spain: Cataluña Province); Aurivillius, 1904:296 (in revision of Swedish Sphecidae); W. Schulz, 1904b:98 (Germany: Island of Borkum); Kubes, 1905:84 (Czech Republic: Kolín); Schmiedeknecht, 1907:197, 199 (in key to Hymenoptera of Central Europe); Morley, 1909:306 (Great Britain: Isle of Wight); Cavro, 1910:685 (France: Département du Nord); Dittrich, 1911b:20 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Alfken, 1914:274 (northwestern Germany); Birula, 1914:377 (Belorussia: Ambrosovichi near Vitebsk); Hallett, 1914:99 (Great Britain: Glamorgan: Porthcawl); Szilády, 1914:89 (Hungary: Bólya, Nagyenyed); Kohl, 1915:258 (in revision of Palearctic Crabronini); Zilahi Kiss, 1915:80 (Hungary: Szaloncza); Hallett, 1916:221 (Great Britain: South Wales: Porthcawl); O. Meyer, 1919:149 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:46 (Germany: Lower Elbe region); Dubois, 1921b:160, 161 (in key to Belgian Sphecidae), 166 (phenology, nesting habits); Hedicke, 1922:270 (Germany: Brandenburg: Gross Machnower Weinberg); Maidl, 1922:75 (Albania); Ferton, 1923:89, footnote (prey: minuscule flies of genus *Oscinis*, Chloropidae); Alfken, 1924:426 (Germany: Memmert); Lundblad, 1924:22 (Sweden: Lappland: Lycksele); Berland, 1925d:182 (in Sphecid Fauna of France); Blüthgen, 1925:165 (Germany: Saale River valley: Eulau and Roβbach); Bischoff, 1925:298 (Latvia; Poland: Białowieża and Grajewo area); Schütze, 1925:111 (Germany: Lausitz Region);

Bouwman, 1926:279 (in list of Sphecidae of Netherlands); Zavadil, 1926:35, footnote (Czechoslovakia); Berland, 1928b:180 (add Hallett, 1916, Pissot, 1888, and Hamm and Richards, 1926 to bibliography in Berland, 1925d; France: Finistère: Fouesnant); Bouwman, 1930:103 (in revision of Sphecidae of Netherlands); Schmiedeknecht, 1930:653, 657 (in keys to Hymenoptera of North and Central Europe); Pulkkinen, 1931:149 (in revision of Sphecidae of Finland); Bondroit, 1932:41 (Belgium: abundant in Bruxelles area); Minkiewicz, 1933:102 (preying on Heteroptera and Diptera Nematocera); E. Nielsen, 1933:271 (summary of nesting habits); Bondroit, 1934:62 (Belgium: Ostende); Jansson, 1934:288 (Sweden); Forsius *in* Forsius and Hellén, 1935:10 (in checklist of Hymenoptera of Finland); Steck, 1935:325 (Switzerland); Crèvecoeur and Maréchal, 1936:256 (in catalog of Belgian Hymenoptera); Zavadil, Šustera, and Bat'a, 1937:165 (in catalog of Sphecidae of Czechoslovakia); Iwata, 1938d:88 (Russia: Island of Sakhalin); A. Wagner, 1938a:117 (northwestern Germany); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); Paul, 1941:37 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Giner Marí, 1943a:244 (in Sphecid Fauna of Spain); Guiglia, 1944b:35 (Italy); Zavadil *in* Zavadil and Šnoflak, 1948:129, 133 (in key to Sphecidae of Czechoslovakia); Cavro, 1950:38 (France: Département du Nord); Fæster, 1951:458 (distribution in Scandinavia); Caruel, 1952b:101 (France: Marne Department); Scobiola, 1954:885 (first record from Romania: Goleşti in Birlad Region, Gemenea in Ploeşti Region, as *wasmaeli*); Tjeder, 1954:69 (Sweden: eastern Skåne: Klammersbäcks, Vitemölla); Steiner, 1955:141 (France: Dordogne); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Ceballos, 1956:396 (in catalog of Sphecidae of Spain); Preuss, 1956:15 (Germany: Schleswig-Holstein: Mölln in Lauenburg); Zirngiebl, 1957:177 (Germany: Rheinland-Pfalz: Pfalz region); Benno, 1958b:19 (in review of Dutch Sphecidae); Ceballos, 1959:231 (in supplement to catalog of Spanish Sphecidae); Noskiewicz and Puławski, 1960:145, 155 (in key to Polish Sphecidae); Fæster, 1965:193 (Denmark: Hansted Nature Reserve); Balthasar, M. Hrubant, and E. Hrubant, 1967:169 (Bulgaria: Slanchev Bryag near Nessebar); Niedl and Deneš, 1967:74 (Czech Republic: Třeboň area); Tumšs and Maršakovs, 1970:28 (Latvia), Balthasar, 1972:113 (in Sphecid Fauna of Czechoslovakia); Levi, Sysoletina, and Shernin, 1974:269 (Russia: Kirov Oblast': Kirov); Skibińska, 1981:358 (Poland: Warszawa-Białołęka), 1982:121, 124 (Poland: Mazovian Voivodship: Ursynów, Warszawa, Wola Mrokowska); Kowalczyk, 1988b:66 (Poland: environs of Łódź); Vago, 2005a:14 (*Crabro wesmaeli* in Cavro, 1950 is *Crossocerus*

wesmaeli now). – **As *Crossocerus wesmaeli***: Lepeletier de Saint Fargeau and Brullé, 1835:783 (new generic assignment, in revision of Crabronini); Lepeletier de Saint Fargeau, 1845:186 (in revision of world Hymenoptera); Kirchner, 1854:313 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Ruthe and Stein, 1857:315 (Germany: Berlin area); A. Costa, 1858:20 (Italy: Campania: Monti Partenii in Benevento Region); Taschenberg, 1858:105 (in key to Sphecidae of Germany); Funk, 1859:58 (Germany: Bayern: Bamberg); Brischke, 1862:106 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:225 (in catalog of European Hymenoptera); Dours, 1874:156 (in catalog of Hymenoptera of France); Wierzejski, 1874:261 (Poland: Borek Fałęcki near Kraków; Ukraine: Stanisławów, now Ivano-Frankivsk); Beuthin, 1876:230 (Germany: Hamburg area); Brischke, 1888b:100 (Germany: Preussen Province, now Poland: Pomorze Region), 1891:56 (Germany: Steegen 1 mi. off Karthaus, now Poland: 1 mi. off Kartuzy); Ferton, 1892:345 (prey: small tipulids); Westerlund, 1893:27 (Russia: Karelian Republic: northern shore of Lake Ladoga); Acloque, 1897:90 (in Sphecid Fauna of France and Algeria); Borries, 1897:41 (review of nesting habits); de Gaulle, 1908:122 (in catalog of French Hymenoptera); Adlerz, 1910:52 (Sweden; nesting habits); Rudow, 1912:75 (nesting in raspberry twigs, in error); Schirmer, 1912:164 (Germany: Berlin area); R. Perkins, 1913b:391, 394 (in key to British Crabronini); Dubois, 1919:95 (Belgium: Bruxelles: Uccle); Jansson, 1922:25 (Sweden: Island of Öland); Alfken, 1924:231 (northern Germany); R. Perkins, 1924:226 (Great Britain: Devon); Coulon, 1925:123 (France: Evreux, Oise; Germany); R. Perkins, 1925:153 (Great Britain: Somersetshire: Berrow and Brean Down); Hamm and Richards, 1926:315 (summary of nesting habits), 326 (list of prey); Hémon, 1926:199 (France: Finistère: Fouesnant); Stelfox, 1927:301 (Ireland: locality records); Butterfield and Fordham, 1931:158 (Great Britain: Yorkshire); Minkiewicz, 1935:196 (Poland: Kazimierz on Wisła at 51°20'N 21°58'E); Iwata, 1933b:13 (locality records from Japan); Spooner, 1933:203 (Great Britain: Bedfordshire: Sandy), 1934b:278 (Great Britain: Devon: Braunton Burrows); Richards, 1937b:106 (in checklist of British aculeates); Hallett, 1938:73 (Great Britain: Herefordshire: Mathon); Kloet, 1941:235 (Great Britain: Wales: Wilmslow); Schneid, 1941:1030 (Germany: Bayern: Bamberg area); Alfken, 1942:231 (Germany: Niedersachsen: Lüneburger Heide); J. Perkins, 1942:199 (Sweden: Skåne: Genarp and Löderup); Boyd, 1943:163 (Great Britain: eastern Dorset); Bat'a, 1944b:92 (Czech Republic: Veselí); Guichard and Yarrow, 1948:92 (Great Britain: London: Hampstead Heath); Chambers, 1949:228 (Great Britain: Bedfordshire);

Leclercq, 1949a:4 (miscellaneous locality records); Graham, 1950a:37 (Great Britain: Lincolnshire: Theddlethorpe, Woodhall Spa); Leclercq, 1951e:4 (bibliography of Belgian records); Bat'a, 1952:167 (Czech Republic); Richards, 1952:142 (Great Britain: Anglesea); Bischoff and Stadler, 1954:127 (Germany: Bayern: Romberg); Grandi, 1954:242 (Italy); Leclercq, 1954c:226 (in catalog of world Crabronini), 307 (nest and prey records); Puławski, 1954:105 (Poland: Błędów); Tsuneki, 1954b:65, 74 (in key to *Crossocerus* of Japan, Korea, Sakhalin, and Kuril Islands); Aerts, 1955:58 (Germany: Rheinland); Tsuneki and Tanaka, 1955b:25 (Japan: near Nikko 120 km northwest of Tokyo); Móczár, 1958a:263, 270 (in annotated catalog of Hungarian Crabronini, color variation), 1958b:196 (Hungary: collecting localities); Nouvel and Ribaut, 1958:16 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Tsuneki, 1959n:71, 77 (in revised key to *Crossocerus* of Japan and Korea); Wolf, 1959b:32 (Germany: Nassau), 1960:98 (Sweden); Tsuneki, 1960g:47 (nesting habits); Hoop, 1961:63 (Germany: Schleswig-Holstein: Rosenkranz); Valkeila, 1962b:68 (southwestern Finland); Felton, 1963:178 (Great Britain: Kent County); Babiy, 1964:117 (Austria: Land Salzburg); de Beaumont, 1964c:145 (in Sphecid Fauna of Switzerland); Hüsing and Jäger, 1964:192 (Germany: Sachsen-Anhalt: Nietleben near Halle),visiting flowers of *Daucus carota* L., Apiaceae, nesting in sand; Richards, 1964:25 (heathlands in southern England); B. Klug, 1965:142 (Germany: Baden-Württemberg: Freiburg im Breisgau area); Gauss, 1966c:240 (specimen bearing dipteran egg); Benno, 1967:40 (in checklist of Sphecidae of Netherlands); Gauss, 1967:558 (Germany: Baden-Württemberg); J. Heinrich, 1967:81 (Germany: Bayern: Unterfranken District); Leclercq, 1967a:32 (Great Britain: locality records); Tsuneki, 1967e:15 (China: Heilongjiang: Kharbin); Benedek, 1968:76 (Hungary, floral records); Leclercq, 1968b:39 (Great Britain: Kent); Scobiola-Palade, 1968c:387 (Romania: Budeşti); Benedek, 1969a:85 (Hungary; marshy meadow), 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena* pruni (Geoffroy)); Dathe, 1969:438 (Germany: Berlin Zoological Garden); Lefeber, 1969c:235 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:135 (Russia: North Caucasus); Hoop, 1970:60 (Germany: Schleswig-Holstein: Wendtorfer Schleuse); Lefeber and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:778 (Democratic Germany); Dathe, 1971:234 (Germany: Berlin Zoological Garden; phenology); Leclercq, 1971:216 (Spain); Schmidt, 1971b:49 (Germany: Rheinland-Pfalz: Gonsenheimer Wald, Mainzer Sand), 1971c:75 (Germany: Schleswig-Holstein); Stritt, 1971a:105 (Germany: Baden-Württemberg:

Karlsruhe); Haeseler, 1972:157, 200 (Germany: Schleswig-Holstein; anthropogenic habitats); Kazenas, 1972b:171 (Kazakhstan); Kofler, 1972:114 (Austria: eastern Tirol); Lomholdt, 1972:123 (Denmark: Island of Læsø); Oehlke, 1972:140 (Germany: Island of Hiddensee); Scobiola-Palade, 1972b:255 (Romania); Simon-Thomas, 1972:186 (France: Landes); Leclercq, 1974d:268 (synonymy); Simon-Thomas, 1974:57 (Netherlands: Limburg: Tienray); Leclercq, 1975b:2 (France); Lefeber, 1975b:120 (Netherlands: Schiepersberg); Lomholdt, 1975b:32 (Denmark: Island of Anholt); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Leclercq, Gaspar, Lajoinie, and Thirion, 1976:178 (Belgium: Chaumont-Gistoux); Lomholdt, 1976:385 (in Sphecid Fauna of Fennoscandia and Denmark); Tsuneki, 1976a:75 (remarkably maculated female); Simon Thomas and Wiering, 1976:109 (Netherlands: IJsselmeer Polders); Haeseler, 1976b:73 (Germany: Friesian Islands: Island of Amrum); Wolf, 1976:30 (Germany: Nordrhein-Westfalen: Victoria Mine near Littfeld); 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, 1978:90 (France: Nièvre Department); Pulawski, 1978:260, 265 (in key to Sphecidae of European part of USSR); Benedek, 1979:235 (Hungary: Bakony Hills); Krombein, 1979b:1667 (in catalog of North American Hymenoptera, nesting sites, list of prey); Leclercq, Gaspar, and Verstraeten, 1979:map 1447 (Belgium); Marshakov, 1979a:93, 100 (in key to *Crossocerus* of Russian Far East); Schmidt, 1979a:57 (Germany: Ost-Holstein); Schwammberger, 1979:118 (Germany: Nordrhein-Westfalen: Gildehauser Venn Nature Reserve); Marshakov, 1980c:344, 352 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; transpalearctic); Richards, 1980:49, 51 (in key to Sphecidae of British Isles); Schmidt, 1980:377 (Germany: Baden-Württemberg); Haeseler, 1981:50 (Germany: Friesian Island: Island of Amrum); Woydak, 1981:47 (Germany: Westfalen: Hamm); Crosskey, 1982:252 (preying on *Simulium equinum* L., Simuliidae); Haeseler, 1982a:20 (Germany: Niedersachsen: urban habitats in Oldenburg), 1982c:60, 63 (Germany: Friesian Islands: Island of Mellum); Leclercq, 1982e:100 (Norway: Nord-Trøndelag: Røra); Dollfuss, 1983b:15 (in catalog of Sphecidae of Austria); Janzon, 1983:171 (Sweden: Öland); Józan, 1983:101 (Hungary); Lefeber, 1983a:85 (Netherlands: Waddendistrict: northern coast sand dunes, West Friesian Islands); Riemann, 1983:88 (Germany: Bremen-Daverden area); Haack, Tscharntke, and Vidal, 1984:127 (Germany: Hamburg area); Lefeber, 1984:29 (Netherlands: Maastricht); Veenendaal, 1984:19 (Netherlands: Amsterdam); Archer,

1985d:50 (Great Britain: Yorkshire: Pompocali near Leeds); Haeseler, 1985c:571 (Germany: Friesian Islands), 577 (Island of Mellum); Józan, 1985b:59 (Hungary south of Lake Balaton), 79 (floral records), 84 (ecological and zoogeographic characteristics); Lefeber, 1985:87 (Netherlands: southern Limburg); Plachter, 1985:60 (Germany: Bayern: lower Brombach valley); Brechtel, 1986:72 (Germany: Südpfalz); Józan, 1986:372 (Hungary: Kiskunság National Park); Nemkov, 1986:103 (Russia: Irkutsk Oblast'); Nilssen, 1986:87 (Sweden); Skibińska, 1986a:62 (population level increasing in urbanized habitats), 1986b:151, 155 (Poland: suburbs of Warszawa), 158 (rural and suburban parks), 160 (gardens), 163 (urban parks), 165 (streetside green), 187 (green areas of housing estates), 175 (various green urban habitats); Vikberg, 1986:77 (Finland); Holtappels, 1987:26 (Germany: Nordrhein Westfalen: Effelder Waldsee); Lomholdt, 1987:94 (Denmark: western Jutland: Skallingen Peninsula); Riemann, 1987b:36 (Germany: Niedersachsen: Nature Reserves Dünengebiet near Neumühlen and Voßberg); Schmidt and Westrich, 1987:374 (Germany: Mainz area); Archer, 1988b:27 (Great Britain: Yorkshire: Strensall Common); Chevin, 1988:15 (France: La Manche Department); Dollfuss, 1988:16, 28 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Düweke, 1988:688 (Germany: Baden-Württemberg: Kaiserstuhl); Haeseler, 1988:210 (Germany: Friesian Islands); Nilsson, 1988:98 (Sweden); Riemann, 1988:223 (Germany: Bremen area); Wolf, 1988b:140 (Germany: Rheinland-Westfalen); Archer, 1989a:131, 133 (Great Britain: York: found before and after coniferization); Jacobs, 1989:21 (Germany: Mecklenburg-Vorpommern); Józan, 1989:101 (Hungary: Tihany Nature Reserve); Pádr *in* Šedivy, 1989a:170 (in checklist of Czechoslovakian Sphecidae); Pankevich, Belyavskaya, Molchanova, Shlyakhtenok, and Blinov, 1989:98 (Belorussya: Berezinskiy Nature Reserve); Skibińska, 1989a:206 (Poland: Warszawa area), 1989b:291 (Poland: moist meadow in Warszawa area); Archer, 1990c:16 (Great Britain: Leicestershire); Barbier, Rasmont, and Wahis, 1990:32 (Belgium: Hainaut); Jacobs and Oehlke, 1990:186 (additional records from Democratic Germany); Kowalczyk, 1990:292 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:23 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:87 (Czech Republic: Praha area); Pagliano, 1990:86 (in catalog of Italian Sphecidae); Riemann and Melber, 1990:119 (northwestern Germany: *Calluna*-meadows); Schwammberger and Priesner, 1990:546 (Austria: Kärnten); von der Heide and Witt, 1990:63 (Germany: Niedersachsen); Dollfuss, 1991:155 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:407 (It-

aly: Piemonte: Settimo); Jacobs, 1991:46 (Germany: Mecklenburg-Vorpommern: Nature Reserve Elbtaldünen); Jakubzik, 1991:75 (Germany: Köln); Kowalczyk, 1991a:90, 99, 102 (Poland: Łódź), 1991b:121 (Poland: Augustów Forest); Pagliano, 1991b:339, 345 (in key to Italian Crabroninae); Budrys, 1992:35 (in list of Sphecidae of Lithuania); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Leclercq, 1992c:208 (prey); Nemkov, 1992b:246 (Russia: Far East: Blagoveshchensk); Sorg and Cölln, 1992:132 (Germany: Rheinland-Pfalz: Gönnersdorf); K. Weber, 1992:87 (Germany: Bayern: Bamberg District); Archer, 1993d:129 (Great Britain: Lincolnshire: Risby Warren 3 km northeast of Scunthorpe); Bitsch and Leclercq, 1993:133 (in revision of western European Crabroninae); Kuhlmann, 1993:76 (Germany: known from Westfalen); Leclercq and Barbier, 1993:47 (map of distribution in France); Sorg and Wolf, 1993:60 (Germany: Rheinland-Westfalen: Nature Reserve Die Spey); Wiśniowski, 1993a:97 (Poland: in checklist of Sphecidae of Białowieża Primeval Forest); Koponen, 1994:21 (Finland: Imatra, Sippola, Sodankylä); Kowalczyk, 1994:75 (Poland: Łagiewnuki Forest in Łódź); U. Peters, Sohmen, Stuke, and Prüter, 1994:66 (Germany: Schleswig-Holstein: gardens in Hof Möhr); Theunert, 1994c:38 (Germany: summary of records from Niedersachsen and Bremen); Archer, 1995a:23 (Great Britain: Yorkshire: frequency); Archer and Burn, 1995:59 (Great Britain: Yorkshire: Crow Wood near Finningley); Gorobchishin, 1995:18 (Ukraine: Kanev Nature Reserve); Józan, 1995:105 (Hungary: projected Duna-Dráva National Park); Kazenas and Esenbekova, 1995:79 (Kazakhstan; bibliographic reference to leafhopper prey); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:7 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:432, 439 (in key to Sphecidae of Russian Far East); Riemann, 1995:52 (Germany: Bremen); Schmid-Egger, Risch, and Niehuis, 1995:175 (Germany: summary of records from Rheinland-Pfalz); Skibińska, 1995:424, 425 (Poland: pine forest in Białowieża Primeval Forest); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:70 (Great Britain: summary of records from Essex); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Jakubzik, 1996:252 (Germany: Köln); Jakubzik and Cölln, 1996b:399 (Germany: Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Saure, 1996:503 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: probably endangered); Shlyakhtenok, 1996:303 (Belorussia: Berezinsky Nature Reserve); Voblenko, Gorobchishin, and Nesterov, 1996:15 (Ukraine: Polesye

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Maramureş District: Vişeu Valley); Ljubomirov and Yildirim, 2008:269 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:28 (Germany: map of distribution in Niedersachsen and Bremen); Archer, 2009a:24 (Great Britain: Yorkshire: Sheffield); Bitsch and Leclercq, 2009:217 (in supplement to vol. I of Faune de France, 1993: in modified key to European *Crossocerus*), 221 (recent records from France reported); Debuyser and Vago, 2009:5 (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); Hessling, 2009:104 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Humala and Polevoi, 2009:63 (Russia: Republic of Karelia east of Lake Onega); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 188 (in list of Asian *Crossocerus*, bibliographic references, distribution in Asia); Mokrousov, 2009:282 (Russia: Republic Mari El); Nemkov, 2009b:108 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:71 (Norway: locality records); Straka, Dvořak, and Bogusch, 2009:260 (Czech Republic: Meandry Smědé Nature Reserve); Szczepko and Wiśniowski, 2009:69 (Poland: Spała Landscape Park); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Vago, 2009:front cover (France: Pas-de-Calais: Wissant); van Diemen, 2009:49 (Netherlands: airbase Gilze-Rijen); Archer, 2010a:52 (Great Britain: Watsonian Nottinghamshire: Spalford Warren); 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, Krauss, von der Dunk, and Wickl, 2010:27 (Germany: Bayern: Sulz- and Ottmaringer Tal); Howe, Knight, and Clee, 2010:100 (Great Britain: occurring on coastal sand dunes); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:61 (Russia: Nizhniy Novgorod and Vladimir oblast's, Chuvash Republic, Mari El Republic: no specific localities); Rudoiskatel', 2010:156 (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, 2010:134 (Germany: Bayern: collected along Main-Donau canal); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská Nížina); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese

subgenera of *Crossocerus*); van der Smissen, 2010a:338 (Germany: Schleswig-Holstein and Mecklenburg-Vorpommern: locality records), 2010c:396 (Sweden: Öland: Byrums Sandvik, Gårdby); Archer, 2011a:42 (Great Britain: Yorkshire: Strensall Common), 2011b:54 (Great Britain: North Norfolk sand dunes), 2011c:43 (Great Britain: Watsonian Yorkshire: Lindrick area), 2011d:187 (Great Britain: Watsonian Yorkshire: Hatfield Moor); Baghirov, 2011b:146 (Russia: Altayskiy Kray and Altay Republic); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Józan, 2011:181 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:71 (Russia: Chuvash Republic); Saure, 2011c:198 (Germany: Berlin-Spandau: Fort Hahneberg); 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., 2011:101 (Germany: Hessen: may be endangered); Tripotin, 2011:22 (France: Seine-Maritime: artificial sand site near Sandouville); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fliеβ valley); Archer, 2012a:130 (Great Britain: Watsonian Yorkshire: Allerthorpe Common); 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: Skäne: Kullaberg Peninsula); Klimsa, 2012:69 (Germany: Bayern: Schwandorf District); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Piguet and Dodelin, 2012:285 (France: Seine-Maritime: rive nord de l'estuaire de la Seine); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shlyakhtenok, 2012a:171 (Belorussia, and Russia: Krasnaya Polyana near Sochi: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Tripotin, 2012:22 (France: Seine-Maritime: estuary of Seine River); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Danilov and Odintseva, 2013:333 (Russia: Western Siberia: 65 km north-northeast of Tobol'sk at 58°45'N 68°74'E); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Pankov, 2013:229 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:18 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:200 (in annotated catalog of aculeate wasps of Belorussia); Wiśniowski and Szczepko, 2013:31 (Poland: Kampinos National Park near Warszawa); Bitsch, 2014:401 (record from France by Piguet et Dodelin, 2013 noted); Flügel, 2014:254 (Brandenburg: Hangelsberger Heide); Haneda, Murota, Kurokawa, and Tano, 2014:7, 12 (in key to *Crossocerus* of Japan); Hellqvist, Abenius,

and Norén, 2014:91 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Yıldırım, Ljubomirov, and Lelej, 2014:14 (distribution in Turkey by biogeographic provinces); Archer, 2015:202 (Great Britain: English coastal sand dunes); Koçak and Kemal, 2015:142 (in checklist of Hymenoptera of Turkey); Paukkunen and Kozlov, 2015:63 (Russia: Murmansk Oblast'); P. Rosa and Pagliano, 2015:100 (Italy: Lombardia and Piemonte: Parco del Ticino); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine); Voigt, 2015:70 (Germany: Schleswig-Holstein: Sorgwohld area); Blažej, Macek, and Trýzna, 2016:118 (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, 2016:20 (in checklist of Aculeata of Great Britain and Ireland: England, Scotland, Wales, Ireland); Mokrousov and Popov, 2016:574 (Russia: Krasnodarskiy Kray); Reemer and Peeters, 2016:10 (Netherlands: Hulshorsterzand); Saure, 2016c:205 (Germany: center of Berlin: Groβer Tiergarten Park); U. Sörensen, 2016:426 (Germany: Schleswig-Holstein: der Ochsenweg south of Leck); 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, 2016:45 (Turkey: Erzurum: Oltu: İriağaç, as *Crossocerus wesmaeli wesmaeli*); Antropov, 2017b:230 (in catalog of Crabroninae of Russia, as *Crossocerus wesmaeli wesmaeli*); Carminati, Mora, and Cretin, 2019:15 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Olszewski and Kowalczyk, 2019:96 (northern Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13227 (Russia: Mordovia State Nature Reserve); Akulov, Proshchalykin, and Mokrousov, 2020:47 (Russia: central Krasnoyarsk Kray); Kejval, Blažej, and Erhart, 2020:98 (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, 2021:71 (in revision of Sphecidae *sensu lato* of Europe); Cross, Baldock, and Wood, 2021:35 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:49 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:88 (in commented list of Sphecidae *sensu lato* of Poland); Kaplan and Yildirim, 2023:1683 (in checklist of Sphecidae *sensu lato* of Turkey); Buck and Bennett, 2025:212 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Alaska: no

specific locality, Canada: Northwest Territories, first records from Yukon Territory: no specific locality).

Ceratocolus maurus Lepeletier de Saint Fargeau and Brullé, 1835:747, ♀. Holotype: ♀, Austria: Vienna area (destroyed). Synonymized with *Crossocerus wesmaeli* by Leclercq, 1974d:269. – Lepeletier de Saint Fargeau, 1845:153 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria). – **As *Crabro maurus***: Dahlbom, 1845:382 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*); F. Smith, 1856:401 (in catalog of Hymenoptera in British Museum). – **As *Crabro elongatulus* var. *maurus***: Dalla Torre, 1897:598 (new status, in catalog of world Sphecidae); de Gaulle, 1908:122 (in catalog of French Hymenoptera).

Ceratocolus ziegleri Lepeletier de Saint Fargeau and Brullé, 1835:748, ♀. Holotype: ♀, Austria: Wien area (destroyed). Synonymized with *Crossocerus wesmaeli* by Leclercq, 1974d:269. – Lepeletier de Saint Fargeau, 1845:154 (in revision of world Hymenoptera); Kirchner, 1867:225 (in catalog of European Hymenoptera); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria). – **As *Crabro ziegleri***: Dahlbom, 1845:383 (new generic assignment, original description copied), 527 (unknown to author, but belonging to subgenus *Ceratocolus*); F. Smith, 1856:403 (in catalog of Hymenoptera in British Museum).

ssp. *majusculus* (Kohl)

Crabro jubilans var. *majusculus* Kohl, 1915:248, ♀ (as *majuscula*, incorrect original termination). Lectotype: ♀, Uzbekistan: Fergana Valley: Shahimardan (NHMW), designated by de Beaumont, 1959c:320. – **As probable synonym of *Crossocerus wesmaeli***: de Beaumont, 1959c:320. – **As *Crossocerus jubilans majusculus***: R. Bohart and Menke, 1976:401 (new generic assignment, new status, in checklist of world Sphecidae). – **As *Crossocerus wesmaeli majusculus***: Leclercq, 2009:161, 171 (new specific generic assignment, member of subgenus *Crossocerus*), 188 (in list of Asian *Crossocerus*, bibliographic references).

ssp. *parvicorpus* Tsuneki

Crossocerus wesmaeli parvicorpus Tsuneki, 1974a:381, ♀, ♂. Holotype: ♀, Korea: South Pyongan: Pyongan (TMB). – R. Bohart and Menke, 1976:629 (in checklist of world Sphecidae); Tsuneki, 1982b:17 (known from Korea); Paik, 1985:202 (in list of Sphecidae of Korea); Leclercq, 1988:18 (Russia: Ussuriysk), 2009:161 (member of subgenus *Crossocerus*), 188 (in list of Asian *Crossocerus*, bibliographic references, Russian and Siberian specimens may be *lundbladi* (Kjellander) or *opacifrons* (Tsuneki));

Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); J.-K. Kim, 2014:428 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:230 (in catalog of Crabroninae of Russia).

Crossocerus wesmaeli parvicorpus Tsuneki, 1991:203, as new subspecies. Nomen nudum.

245.*xanthochilos* Pate

Crossocerus xanthochilos Pate, 1944a:274, ♀. Holotype: ♀, USA: Georgia: Macon County: Oglethorpe (...). – Krombein *in* Muesebeck, Krombein, and Townes, 1951:1020 (in catalog of North American Hymenoptera); Krombein, 1952a:95 (Virginia: Westmoreland State Park, description of ♂, corrections to subgeneric diagnosis of subgenus *Yuchiha*); Leclercq, 1954c:219 (in catalog of world Crabronini), 304 (nest and prey records); Krombein, 1958f:198 (in supplement to catalog of North American Hymenoptera: reference to Krombein, 1952a), 1963f:278 (Maryland: Plummers Island near Washington, D.C.); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Krombein, 1979b:1668 (in catalog of North American Hymenoptera); Leclercq, 2000d:73 (in revision of New World *Crossocerus*).

246.*xanthognathus* (Rohwer)

Thyreopus xanthognathus Rohwer, 1911b:566, ♀. Holotype: ♀, Mexico: Chihuahua: "Meadow Valley" (USNM). – **As *Crossocerus xanthognathus***: Leclercq, 1954c (new generic assignment, in catalog of world Crabronini), 1968c:92 (in key to *Crossocerus* of Latin America); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Krombein, 1979b:1667 (in catalog of North American Hymenoptera); Amarante, 2002:25 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Amarante, 2005a:6 (in addendum to his 2002 catalog of Neotropical Crabronidae and Sphecidae).

247.*xizangensis* Q. Li and L. Yang

Crossocerus xizangensis Q. Li and L. Yang, 2001:148, ♀. Holotype: ♀, China: Xizang Province: Dongya (Academia Sinica, Beijing). – Q. Li and Wu, 2006:290 (in key to *Blepharipus* of southwestern China); Leclercq, 2009:161 (member of subgenus *Blepharipus*), 188 (in list of Asian *Crossocerus*, bibliographic references, pronotal collar with large lateral tubercle is a distinctive character).

248.*yanoi* (Tsuneki)

Crabro yanoi Tsuneki, 1947e:409, ♀, ♂. Holotype: ♂, Japan: Hokkaido: Sapporo (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1948c:5 (Japan: Hokkaido); Hashimoto and Nakanishi, 1997:15 (holotype and allotype transferred to Hyogo

Mus.). – **As *Crossocerus yanoi***: Tsuneki, 1952c:68 (new generic assignment; Japan: Shikoku); Leclercq, 1954c:241 (in catalog of world Crabronini); Tsuneki, 1954b:59, 67 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands); Tsuneki and Tanaka, 1955b:25 (Japan: near Nikko 120 km northwest of Tokyo); Tsuneki, 1957f:61 (Korea), 1959n:68, 73 (in revised key to *Crossocerus* of Japan and Korea), 1960g:35 (nesting habits unknown); Itami, 1971:28 (Japan: new locality records); Yamada, 1971:37 (Japan: Aichi Prefecture); Nambu, 1972e:91 (Japan: Saitama Prefecture); Suda, 1973:124 (Japan: Yamanashi Prefecture); Leclercq, 1974e:660 (in key to Asian species of subgenus *Cuphopterus*), 668 (bibliographic references); Nambu, 1975b:75 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Marshakov, 1979a:91, 99 (in key to *Crossocerus* of Russian Far East); Tsuneki, 1982b:17 (known from Korea); Tano, 1994a:6 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:430, 437 (in key to Sphecidae of Russian Far East); Nemkov 2004b:264 (valid species); Suda, 2004:44 (Japan: Yamanashi Prefecture); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Cuphopterus*), 188 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:110 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:42, 48 (distribution in Japan); Tano, 2010b:43 (member of *Cuphopterus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:2, 8 (in key to *Crossocerus* of Japan); J.-K. Kim, 2014:428 (in catalog of Sphecidae *sensu lato* of Korean Peninsula); Antropov, 2017b:230 (in catalog of Crabroninae of Russia).

249.*yasumatsui* (Tsuneki)

Crabro yasumatsui Tsuneki, 1947e:424, ♀, ♂. Holotype: ♂, Japan: Hokkaido: Sapporo (originally K. Tsuneki collection, now Hyogo Mus.). – Tsuneki, 1948c:8 (Japan: Hokkaido); Hashimoto and Nakanishi, 1997:15 (holotype and allotype transferred to Hyogo Mus.). – **As *Crossocerus yasumatsui***: Tsuneki, 1952c:69 (new generic assignment, Japan: Shikoku); Leclercq, 1954c:225 (in catalog of world Crabronini); Tsuneki, 1954b:65, 72 (in key to *Crossocerus* of Japan, Korea, Island of Sakhalin, and Kuril Islands), 1959n:71, 76 (in revised key to *Crossocerus* of Japan and Korea), 1960g:47 (nesting habits unknown); T. Iida, 1968:22 (Japan); Matsuura, 1968:29 (Japan); Okuno, 1968:30 (Japan); Nambu, 1975b:77 (Japan: Saitama Prefecture); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Marshakov,

1979a:95, 99 (in key to *Crossocerus* of Russian Far East), 1980c:345, 350 (in key to *Crossocerus* of Mongolia, Kazakhstan, and Central Asia; Mongolia, Japan, Kazakhstan; Russia: Yakutia, Amur Oblast', Chukotskiy Poluostrov: middle course of Omolon River), 361 (redescription); Nemkov, 1986:103 (Russia: Irkutsk Oblast'), 1992b:446 (25 km southwest of Shimanovsk near Khingan Nature Reserve); Tano, 1994b:44 (holotype in K. Tsuneki collection); Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995:432, 438 (in key to Sphecidae of Russian Far East); Esenbekova and Kazenas, 2000:50 (southeastern Kazakhstan: no specific locality, as *jasumatsui*); Kazenas, 2001b:41 (in checklist of Sphecidae of Kazakhstan and Central Asia); Kazenas and Esenbekova, 2001:135 (Kazakhstan: Almatinskiy Nature Reserve, as *jasumatsui*); Kazenas, 2002a:103 (geographic distribution, collecting localities in Kazakhstan); Nemkov 2004b:264 (valid species, locality records from Russian Far East, Mongolia, Taiwan, and Japan); Haneda, Nozaka, Tano, Kurokawa, and Murota, 2005:50 (Japan: Gifu Prefecture); Negoro, Haneda, and Tano, 2005:47 (Japan: Toyama Prefecture); Nemkov, 2005a:151 (Russia: Island of Sakhalin); Dollfuss, 2006:514 (Kyrghyzstan: 40 km south of Yani-Bazar); Hua, 2006:279 (in list of Chinese insects, geographic distribution); Nemkov, 2007b:72 (Russia: Kuril Islands: Island of Kunashir); Kazenas, 2008a:104 (southeastern Kazakhstan: 25 km south of village Turgen', near Bakanas); Nemkov, 2008b:22 (in catalog of Crabronidae of Asiatic Russia); Leclercq, 2009:161 (member of subgenus *Crossocerus*), 188 (in list of Asian *Crossocerus*, bibliographic references); Nemkov, 2009b:108 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); S. Takahashi, Haneda, and Tano, 2009:48 (distribution in Japan); Tano, 2010b:42 (member of subgenus *Crossocerus*, in list of Japanese subgenera of *Crossocerus*); Nemkov, 2011:94 (Russia: one of three sphecid wasps occurring in Chukotka Peninsula); Baghirov, 2011b:146 (Russia: recorded from Altay by Nemkov *in* Nemkov, Kazenas, Budrys, and Antropov, 1995); Nemkov, 2012c:442 (in catalog of Crabronidae of Russian Far East); Haneda, Murota, Kurokawa, and Tano, 2014:6, 11 (in key to *Crossocerus* of Japan); Antropov, 2017b:230 (in catalog of Crabroninae of Russia); Jacobs and Liebig, 2018:139 (Russia: Buryat Republic: East Sayan: 30 km northwest of Mondy; Tyva Republic: Kysyl); Kurokawa, Tano, and Murota, 2019:40 (Japan: Gifu Prefecture: Gero City).

Crossocerus yasumatsui mongolensis Tsuneki, 1972a:151, ♀. Holotype: ♀, Mongolia: Hovd Aymag: Mongol-Altai (TMB). Synonymized with *Crossocerus yasumatsui* by Nemkov, 2004b:264. – R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae).

Crossocerus nambui Tsuneki, 1982e:33, ♀, ♂. Holotype: ♀, Taiwan: Nantou Prefecture: Yingfeng (originally K. Tsuneki collection, now Hyogo Mus.). Synonymized with *Crossocerus yasumatsui* by Nemkov, 2004b:264. – Tano, 1995:43 (holotype in K. Tsuneki collection, as *nambuis*); Hashimoto and Nakanishi, 1997:17 (holotype transferred to Hyogo Mus.)

250.*yerburii* (Cameron)

Crabro yerburii Cameron, 1898b:32, ♀. Holotype or syntypes: ♀, Sri Lanka: Trincomali (OXUM). – Ramakrishna Aiyar, 1916:559 (in catalog of Indian aculeates described after Bingham, 1897). – **As *Crossocerus yerburii***: Leclercq, 1954c:241 (new generic assignment, in catalog of world Crabronini); R. Bohart and Menke, 1976:404 (in checklist of world Sphecidae); Leclercq, 1986a:249 (study of holotype, redescription; member of *Crossocerus* s. s.), 2009:161 (member of subgenus *Crossocerus*); 188 (in list of Asian *Crossocerus*, bibliographic references).

sp.

de Motschoulsky, 1859:500 (Russia: eastern Siberia: between Shilka and Nikolayevsk: no specific locality); Bischoff, 1931:9 (Spain); Tsuneki, 1947e:432 (Japan: Hokkaido); Tsuneki and Tanaka, 1956b:25 (Japan: Nikko 120 km northwest of Tokyo; as n. sp.); de Beaumont, 1961c:51 (Greece: Crete); Tsuneki and Iida, 1969:8 (nesting habits); Horning and Barr, 1970:106 (USA: Idaho: Craters of the Moon National Monument); Steiner, 1973:28 (Canada: Northwest Territories); Käpylä, 1974:64 (Finland: diurnal activity); Rodgers and Homewood, 1982:233 (Tanzania: Usambara Mountains); D. Evans, 1985:22 (Canada: British Columbia: Island of Southern Vancouver: associated with *Quercus garryana* Douglas, Fagaceae); Spofford and Kurczewski, 1990:734 (sp. near *maculiclypeus*; nest parasite: *Metopia luggeri* (Townsend), a sarcophagid fly); Blades and Maier, 1996:72 (Canada: British Columbia: Osoyoos–Mount Kobau area at 119°40'W 49°05'N, two species); Weissmann and Kondratieff, 1999:78 (Colorado: Great Sand Dunes National Monument); Gonzáles, Gayubo, and Tormos, 2000:20 (Andorra: Santa Coloma); Esenbekova and Kazenas, 2003:15 and 68 (Kazakhstan: foothills of Zailiyskiy Alatau: nesting in artificial nests, nest structure); Dollfuss, 2006:514, 515 (China, India, Thailand, Tunesia); Pagliano, 2011a:142 (*Crossocerus capitosus*, *luteipalpis* and partim *pallidipalpis* in M. Spinola collection, Torino, are *Crossocerus* sp.), 143 (*Crossocerus leucostoma* and *Crossocerus pusillus* in M. Spinola collection, Torino, are *Crossocerus* sp.), 144 (*Crossocerus varipes* in M. Spinola collection, Torino, are *Crossocerus* sp., *Crossocerus* sp. in M. Spinola collection, Torino, are *Crabro alpinus*, partim, *Cros-*

socerus bimaculatus in M. Spinola collection, Torino, is *Crossocerus* sp.), 145 (*Crossocerus transversalis* in M. Spinola collection, Torino, are *Crossocerus* sp.), *Blepharipus signatus* in M. Spinola collection, Torino, are *Crossocerus* sp.); Barthélémy and Guénard, 2025:11 (China: Hong Kong).

NOMINA NUDA IN *CROSSOCERUS*

Blepharipus bilineatus Dahlbom: Kirchner, 1867:224 (in catalog of European Hymenoptera).

Blepharipus flavipes Dahlbom: Kirchner, 1867:224 (in catalog of European Hymenoptera); Dours, 1874:154 (in catalog of Hymenoptera of France).

Blepharipus mediatus Lepeletier de Saint Fargeau: Dours, 1874:155 (in catalog of Hymenoptera of France); Acloque, 1897:88 (in Sphecid Fauna of France and Algeria, as *mediatus* Fabricius); Palma, 1869:41 (Italy: Sicilia settentrionale); Pagliano, 2011a:146 (specimen in M. Spinola collection, Torino, is *Crabro peltatus*.).

Blepharipus politus A. Costa: Palma, 1869:41 (Italy: Sicilia settentrionale).

Blepharipus quatuorcinctus (Fabricius): Kirchner, 1867:224 (in catalog of European Hymenoptera).

Crossocerus analis Lepeletier de Saint Fargeau: Kirchner, 1867:224 (in catalog of European Hymenoptera).

Crossocerus clavipes Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area), as *Clavipes*, incorrect original capitalization.

Crossocerus laevipes Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area), as *Laevipes*, incorrect original capitalization.

Crossocerus leiocnemis Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:144 (specimens in M. Spinola collection, Torino, are *Crossocerus* sp.).

Blepharipus rondani: Pagliano, 2011a:146 (only label, but no specimens in M. Spinola collection, Torino).

Crossocerus subcornutus: Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:140 (specimen from Sicilia in M. Spinola collection, Torino, is *Crossocerus guichardi*).

Crossocerus texianus: Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino); Pagliano, 2011a:141 (specimens in M. Spinola collection, Torino, are *Ectemnius* sp.).

Crossocerus trichyinemis: Casolari and Casolari Moreno, 1980:117 (specimens in M. Spinola collection, Torino);

Pagliano, 2011a:144 (specimen in M. Spinola collection, Torino, is *Crossocerus* sp.).

SPECIES DESCRIBED *IN CROSSOCERUS* AND TRANSFERRED TO OTHER GENERA

bougainvilleae Pate, 1946 = *Eupliloides*
cheesmanae Leclercq, 1955 = *Eupliloides*
chrysis Lepeletier de Saint Fargeau and Brullé, 1835 = *Enoplolindenius*
dentatus Tsuneki, 1946 = *Eupliloides*
festivus Jurine, 1807 = *Tracheliodes*
Blepharipus flavipes Lepeletier and Brullé, 1835 = *Crabro peltatus*
hollandicus Tsuneki, 1983 = *Eupliloides*
holtensis Leclercq, 1950 = *Eupliloides*
inondensis Tsuneki, 1983 = *Eupliloides*
krusemani Leclercq, 1950 = *Ectemnius*
leontopolites Pate, 1946 = *Eupliloides*
luteicollis Lepeletier de Saint Fargeau and Brullé, 1835 = *Tracheliodes quinquenotatus* Jurine, 1807
olthofi Tsuneki, 1983 = *Eupliloides*
papuanus Tsuneki, 1977 = *Eupliloides*
princesa Pate, 1946 = *Eupliloides*
sociabilis (Arnold, 1932), described in *Thyreopus* = *Pericrabro*
triangularis Herrich-Schaeffer, 1840:294 (Germany: Bayern: Regensburg area), as *Triangularis*, incorrect original capitalization = ?

MISIDENTIFICATION

Crabro quadricinctus: Dahlbom, 1845:526 (in key to *Crabro*: clypeus and propodeal enclosure yellow).

INCORRECTLY PLACED IN *CROSSOCERUS*

hewitti (Cameron, 1908): Bohart and Menke, 1976:401 (correctly listed under *Piyumoides* on p. 411).