

Last updated: 16 December 2025

ASTATA

Astatus Latreille, 1796:114 (no species included). Type species: *Tiphia abdominalis* Panzer, 1798 [= *Sphex boops* Schrank, 1781], designated by Latreille, 1802b:337 (first included species). See also International Commission on Zoological Nomenclature, 1943a:37, Opinion 139.

Astata Latreille, 1796:xiii (in Errata: “au lieu d’*Astatus* lisez *Astata*”).

Dimorpha Panzer, 1806:126. Type species: *Tiphia abdominalis* Panzer, 1798 [= *Sphex boops* Schrank, 1781], by monotypy.

Revisions: Gussakovskij, 1927 (Palearctic Region); de Beaumont, 1942a (Switzerland); Puławski, 1957 (Europe); F. Parker, 1962c (America north of Mexico), 1964 (Mexico and Central America), 1968 (South America); Jacobs, 2023b (Subsaharan Africa).

Key: Leclercq, 1990b:114 (Madagascar).

Review of biology: Kazenas, 2001b:139.

1. *affinis* Vander Linden

Astata affinis Vander Linden, 1829:28, ♂. Holotype: ♂, Spain: no specific locality (Inst. Roy. Sci. Nat. Belgique, Bruxelles). – Dahlbom, 1843:142 (in revision of Sphecidae and Pompilidae), 1845:473 (in key to European *Astata*); F. Smith, 1856:309 (in catalog of Hymenoptera in British Museum); Kirchner, 1867:216 (in catalog of European Hymenoptera); Kohl, 1885a:446 (original description copied); Dalla Torre, 1897:651 (in catalog of world Sphecidae); Mercet, 1910b:162 (listed from Spain); Gussakovskij, 1927:294 (original description copied); Maidl and Klima, 1939:10 (in catalog of world Astatinae and Bembicinae); Giner Marí, 1945d:55 (in revision of Spanish *Astata*); de Beaumont, 1950f:403 (Algeria: Tagramaret), 1953g:125 (Morocco), 1954e:90 (Italy: Puglia); Ceballos, 1956:372 (in catalog of Hymenoptera of Spain); Pulawski, 1956:47 (in revision of European Astatinae); de Beaumont, 1959a:25 (Italy: Puglia); Suárez, 1959:56 (Spain: Almería Province); de Beaumont, 1961c:49 (Greece: Island of Crete); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1965a:44 (Greece); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Kazenas, 1978b:96 (in key to Sphecidae of Kazakhstan and Central Asia); Pagliano, 1980:112 (Italy: Puglia); Mingo and Gayubo, 1986:1004 (distribution in Spain); Pagliano, 1989:348 (Italy: citation of de Beaumont, 1959; redescription); Negrisoló in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia); K. Schmidt and Bitsch in Bitsch et al., 2001:160 (in Sphecid Fauna of Western Europe); Gayubo, Özbek, and Yıldırım, 2003:84 (Turkey: Adana and Erzurum Provinces); Pagliano and Negrisoló, 2005:88 (in Sphecid Fauna of Italy); Pagliano, 2009:176 (Italy: Basilicata: Monte Sirino; Piemonte: San Benedetto Belbo); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Ebrahimi, 2014:28 (Iran: Markazi: Khomein: Khorzān); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:30 (Iran: known from Ardabil Province); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:163 (in Sphecid Fauna of Europe); Cross, Baldock, and Wood, 2021:20 (in catalog of Sphecidae *sensu lato* of Portugal); Can, 2022:223 (supernumerary submarginal cell); Jacobs, 2025b:74, 78, 84 (in key to Palearctic *Astata*), 85 (in revision of Palearctic *Astata*). – **Records obviously erroneous for geographic reasons:** Kiesenwetter, 1849:89 (Germany: Kingdom of Saxony); Taschenberg, 1858:85 (in key to Sphecidae of Germany); Schenck, 1861:161 (redescription, Germany: Sachsen = Saxony); Taschenberg, 1866:199 (in revision of Hymenoptera of Germany); Schenck, 1867a:356 (known from Germany: Sachsen); Wierzejski, 1868:117 (Ukraine: L'viv and Podole Region), 1874:258 (Ukraine: Podole Region); Schmiedeknecht, 1876:186 (Germany: Thüringen: Rothensteiner Felsen); Beuthin, 1879:240 (Germany: Hamburg area); Friese, 1883:202 (Germany: Saale River valley, determination tentative). – **As *Dimorpha affinis*:** Casolari and Casolari

Moreno, 1980:113 (specimens in M. Spinola collection); Pagliano, 2011a:113 (specimens in coll. Spinola, Torino, is *Astata* sp.).

Astata affinis ariadne Pulawski, 1959:365, ♀. Holotype: ♀, Greece: Island of Crete: Candia (NHMW). Synonymized with *Astata affinis* by Jacobs, 2025b:85. – de Beaumont, 1961c:49 (Greece: Island of Crete: Ayia Varvara); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Dollfuss, 1989:7 (holotype in NHMW); K. Schmidt and Bitsch in Bitsch et al., 2001:161 (in Sphecidae Fauna of Western Europe); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E).

Astata jerichoensis Pulawski, 1957:82, ♀. Holotype: ♀, Israel: Jericho (NHMW). Synonymized with *Astata affinis* by Jacobs, 2025b:85. – Pulawski, 1959:368 (description of ♂; Syria: Damascus). – **As *Astata affinis jerichoensis***: de Beaumont, 1965a:44 (new status); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Dollfuss, 1989:7 (holotype in NHMW); Murai and Amr, 2011:118 (recorded from Syria by Pulawski, 1997); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhichevan Autonomous Republic).

ssp. *radoszkowskii* Pulawski

Astata jerichoensis radoszkowskii Pulawski, 1957:82, ♀. Holotype by monotypy: ♀, Transcaspia: no specific locality (Kraków, Radoszkowski collection). – Pulawski, 1959:369 (Turkey: Konya; Rhodes: Kremasti and Petalontes); de Beaumont, 1960a:14 (Greece: Island of Rhodes). – **As *Astata affinis radoszkowskii***: de Beaumont, 1965a:44 (status discussed); Pulawski, 1967a:387 (Turkey); de Beaumont, Bytinski-Salz and Pulawski, 1973:2 (Israel); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia); Ljubomirov and Yildirim, 2008:48 (in catalog of Crabronidae of Turkey); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:8 (Turkey: Tunceli: Pertek: Mercimek); Kaplan and Yildirim, 2021:19 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmez, 2023:67 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey).

2. *albovillosa* Cameron

Astata albovillosa Cameron, 1890a:65, ♀. Holotype or syntypes: ♀, Guatemala: San Gerónimo (BMNH). – Dalla Torre, 1897:651 (in catalog of world Sphecidae); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); F. Parker, 1964:554 (description of ♂; in revision of *Astata* of Mexico and Central America); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae). – **As *Astatus albovillosus***: Ashmead, 1899d:330 (new generic assignment, in checklist of North American Crabronidae).

3. *alpaca* F. Parker

Astata alpaca F. Parker, 1968b:850, ♀, ♂. Holotype: ♂. Peru: Lima (IML). – Pérez d'Angello, 1972:10 (first record from Chile: Tarapaca Province: 12 km from Azapa and Lluta); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Sielfeld, 1980b:72 (in checklist of Chilean Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:6 (in checklist of Crabronidae of Peru).

4. *alpestris* Cameron

Astata alpestris Cameron, 1890a:69, ♀, ♂. Syntypes: Mexico: Guerrero: Omilteme (BMNH). – Dalla Torre, 1897:651 (in catalog of world Sphecidae); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); F. Parker, 1964:554 (in revision of *Astata* of Mexico and Central America); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae). – **As *Astatus alpestris***: Ashmead, 1899d:330 (new generic assignment, in checklist of North American Crabronidae).

5. *apostata* Mercet

Astata apostata Mercet, 1910b:162, ♀. Syntypes: ♀, Spain: Madrid and Escorial (MNCN). – Maidl and Klima, 1939:11 (in catalog of world Astatinae and Bembicinae); de Beaumont, 1942a:414 (France: Banyuls-sur-Mer, Morocco; description of ♂); Giner Marí, 1943a:119 (in Sphecidae Fauna of Spain), 1945d:64 (in revision of Spanish *Astata*); Balthasar, 1948:143 (first record from Czechoslovakia: Slovakia: Kovačov, Parkan); Šnoflák in Zavadil and Šnoflák, 1948:62, 63 (in key to Sphecidae of Czechoslovakia); de Beaumont, 1953g:126 (Morocco); Balthasar, 1954d:182 (Slovakia); Ceballos, 1956:372 (in catalog of Hymenoptera of Spain); Puławski, 1956:60 (in revision of European Astatinae); Bajári, 1957a:62, 64 (in key to Hungarian Sphecidae), 1957b:136 (first record from Hungary); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Puławski, 1958a:171 (Bulgaria: Aitos, mouth of Ropotamo River); de Beaumont, 1959a:25 (Italy: Lazio: Roma); Noskiewicz and Puławski, 1960:112 (in key to Polish Sphecidae, not yet found in Poland); de Beaumont, 1962b:24 (Spain); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); Suárez, 1969:31 (Spain: Almería Province); Balthasar, 1972:291 (in Sphecidae Fauna of Czechoslovakia); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Pulawski, 1978:230, 231 (in key to Sphecidae of European part of USSR); Gayubo, 1982a:94 (northern Spain: Sierra de Béjar); Schmidt and Westrich, 1983:121 (first record from Greece); Gayubo, 1984b:81 (Spain: Salamanca Province); Józán, 1985b:56 (recorded by Bajári, 1957 from Zamardi), 83 (ecological and zoogeographic characteristics), 1986:369 (Hungary: Kiskunság National Park); Mingo and Gayubo, 1986:1005 (distribution in Spain); Gayubo, 1987a:110 (Spain: Ciudad Real Province); Pagliano, 1989:348 (Italy: citation of de Beaumont, 1959; redescription); Pádr in Šedivý, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Pagliano, 1990:64 (in catalog of Italian Sphecidae); Dollfuss, 1991:91 (in key to Sphecidae of North and Central Europe); Gayubo and Torres, 1991:Table I (Spain: Salamanca; effects of urban pressure); Torregrosa, Gayubo, Tormos, and Asís, 1993:18 (Spain: Alicante Province); Tormos, Asís, and Gayubo, 1994:187, 201 (Spain: Albacete Province); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Negrísolo in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); Anan'eva and Kochetkov, 1999:7 (Russia: Ryazan Oblast': no specific locality); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); González, Gayubo, and Torres, 1999:354 (Spain: Valladolid: Viana de Cega); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province); Kazenas, 2000e:190 (in Sphecidae Fauna of Kazakhstan); Shkuratov, 2000:59 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Józán, 2001:278 (Hungary: Somogy County); K. Schmidt and Bitsch in Bitsch et al., 2001:161 (in Sphecidae Fauna of Western Europe); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Shkuratov, 2004a:78 (Russia: Rostov Oblast'), 2004b:167 (Russia: Rostov Oblast': Gosudarstvennyi Muzey-Zapovednik M.A. Sholokhova); Cruz-Sánchez, Gayubo, González, and Torres, 2005:219 (Spain: Salamanca: San Martín del Castañar); Jacobs, 2005a:439 (Bulgaria: Kiten); Pagliano and Negrísolo, 2005:89 (in Sphecidae Fauna of Italy); Yildirim and Ljubomirov, 2005:1788 (Turkey: Konya: Güneysınır); Magdalou, 2006a:6, 10 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Tomarchio and Turrisi, 2006:954 (Italy: first record from Sicilia: Mount Etna); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Slovakia); Yildirim and Ljubomirov, 2007:117 (Turkey: Erzurum: Oltu); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and Yildirim, 2008:48 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park);

Pagliano, 2009:176 (Italy: reported from Sicilia by Tomarchio and Turrisi); Sakenin, Samin, and Bagriacik, 2010:15 (Iran: Kordistan: Bijar, Sanandaj); Shorenko and Kononov, 2010:12 (Ukraine: Dnepropetrovsk Oblast'); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Bayındır, Gürbüz, Ljubomirov, and Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Vieira, Oliveira, Brewster, and Gayubo, 2013:15 (Portugal: Douro International Natural Park); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Rezaei and Fallahzadeh, 2015:3 (Iran: Fars: Kaftarak at 29°34'N 52°41'E); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:9 (Turkey: Tunceli: Ovacık: Gözeler); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:30 (Iran: known from Fars Province); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Forêt de la Massane); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:163 (in Sphecid Fauna of Europe); Ben Khedher, Yildirim, and Braham, 2021a:55 (first record from Tunisia: Mahdia: Sidi Alouane: Saada at 35°22'0.2"N 10°49'52.1"E); Cross, Baldock, and Wood, 2021:20 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:19 (in catalog of Crabronidae of Turkey), 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:77, 81 (in key to Palearctic *Astatata*), 87 (in revision of Palearctic *Astatata*).

6. *arabica* Jacobs

Astatata arabica Jacobs, 2025b:89, ♀, ♂. Holotype: ♀, Yemen: Hawf northeast of Albhaydah at 16°40'N 53°14'E (OÖLM). – Jacobs, 2025b:79, 85 (in key to Palearctic *Astatata*).

7. *aschabadensis* Radoszkowski

Astatata aschabadensis Radoszkowski, 1893b:491, ♀. Holotype or syntypes: ♀, Turkmenistan: Ashkhabad (Kraków). – Dalla Torre, 1897:651 (in catalog of world Sphecidae); Gussakovskij, 1927:285 (in revision of Palearctic Astatinae; as *Astatus*); Maidl and Klima, 1939:11 (in catalog of world Astatinae and Bembicinae); Pulawski, 1957:82 (redescription); Myartseva, 1963b:58 (Turkmenistan: lower Murgab River), 1965:75 (Turkmenistan: Akibay), 1966:48 (preying on Heteroptera), 1972a:76 (Turkmenistan); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Kazenas, 1978b:96, 98 (in key to Sphecidae of Kazakhstan and Central Asia), 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia); Jacobs, 2025b:74, 83 (in key to Palearctic *Astatata*), 91 (in revision of Palearctic *Astatata*).

8. *australasiae* Shuckard

Astatata australasiae Shuckard, 1838:72, ♀ (as *Australasiae*, incorrect original capitalization). Holotype: ♀, New Holland, now Australia: no specific locality, but actually Chile or Argentina (BMNH), see Pulawski, 1975a:320. – F. Smith, 1856:310 (in catalog of Hymenoptera in British Museum); Kohl, 1885a:447 (in checklist of world *Astatus*); Froggatt, 1892:218 (in catalog of Australian Hymenoptera); Dalla Torre, 1897:651 (in catalog of world Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); Pulawski, 1975a:320 (synonymy); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Nascimento and Overall, 1980:3 (Chile, Brazil); Sielfeld, 1980b:72 (in checklist of Chilean Sphecidae); Radović, 1985:64 (sting apparatus analyzed); D. Baker, 1998:173 (type origin and depository); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Rasmussen and Asenjo, 2009:6 (in checklist of Crabronidae of Peru). – **As *Astatus australasiae***: Kohl, 1885a:446 (new generic assignment, original description copied).

Astatata chilensis de Saussure, 1854:23, ♀. Lectotype: ♀, Chile: no specific locality (MHNG), designated by F. Parker, 1968b:848. Synonymized with *Astatata australasiae* by Pulawski, 1975a:320. – F. Smith, 1856:309 (in catalog of Hymenoptera in British Museum); de Saussure, 1867:66 (Chile, redescription); Reed, 1894:629 (in revision of aculeates of Chile); Dalla Torre, 1897:653 (in catalog of world Sphecidae); Maidl and Klima, 1939:21 (in catalog of

world Astatinae and Bembicinae); Ruíz Pereira, 1942:32 (common to Chile and Argentina); F. Parker, 1968b:848 (in revision of South American *Astata*; Chile, Peru); Pérez d'Angello, 1972:9 (in review of *Astata* of Chile); Siel-feld, 1981b:72 (in checklist of Chilean Sphecidae); Chiappa, 2012:8 (Chile: Región de Valparaíso: no specific locality). – **As *Astatus chilensis***: Kohl, 1885a:447 (new generic assignment, in checklist of world *Astatus*).

Astata dimidiata Taschenberg, 1880:779, ♀, junior primary homonym of *Astata dimidiata* A. Costa, 1867 (now in *Dryudella*). Lectotype: ♀, Peru: no specific locality (Halle), designated by F. Parker, 1968b:848. Synonymized with *Astata chilensis* by F. Parker, 1968b:848. – Dalla Torre, 1897:653 (in catalog of world Sphecidae); Maidl and Klima, 1939:21 (in catalog of world Astatinae and Bembicinae). – **As *Astatus dimidiatus***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*).

Astata dispar Reed, 1894:628, ♀, ♂. Syntypes: Chile: no specific locality (depository?). Synonymized with *Astata chilensis* by F. Parker, 1968b:848. – Dalla Torre, 1897:653 (in catalog of world Sphecidae); Ruiz Pereira, 1924:102 (Chile: Cerro San Cristóbal); Jaffuel and Piri6n, 1926:377 (Chile: valle de Marga Marga); Gazulla and Ruiz Pereira, 1929:299 (Chile: Hacienda de "Las Mercedes"); Ruiz Pereira, 1937:164 (Chile: Coquimbo Province); Maidl and Klima, 1939:21 (in catalog of world Astatinae and Bembicinae); Guti6rrez, 1940:34 (Chile: R6o Blanco).

9. *bakeri* F. Parker

Astata bakeri F. Parker, 1962c:647, ♂, ♀. Holotype: ♂. USA: California: Yolo County: Davis (CAS). – F. Parker, 1964:559 (in revision of *Astata* of Mexico and Central America); Evans, 1970:487 (Wyoming: Jackson Hole); Hurd and Linsley, 1975:116 (Arizona: Cochise County: Portal; on flowers of *Larrea tridentata* (De Candolle) Coville, Zygophyllaceae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario), 74 (recorded from Ontario: Prince Edward, by F. Parker, 1962); Ratzlaff, 2016:23 (Canada: British Columbia, after F. Parker, 1962 and Krombein, 1979); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:206 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, Saskatchewan: no specific locality).

10. *bechteli* F. Parker

Astata nubecula bechteli F. Parker, 1962c:649, ♀, ♂. Holotype: ♂. USA: Nevada: Eureka County: 6 mi. south of Be-owawe (CAS). – F. Parker, 1964:559 (in revision of *Astata* of Mexico and Central America). – **As *Astata bechteli***: Horning and Barr, 1970:102 (new status, Idaho: Craters of the Moon National Monument); F. Parker in Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Sand Mountain); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Evans, 1996:68 (Colorado: 25 mi. west of Livermore: nest and prey); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:206 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Canada: Alberta, British Columbia, Saskatchewan: no specific locality).

11. *bicolor* Say

Astata bicolor Say, 1823:78, ♂. Holotype or syntypes: USA: Arkansas: no specific locality (destroyed). – Le Conte, 1859a:166 (original description copied); Cresson, 1862:234 (in catalog of North American Hymenoptera), 1873:218 (Texas); Patton, 1880b:386 (in checklist of North American Larrinae); Snow, 1881:96 (in checklist of Hymenoptera of Kansas: Wallace County: no specific locality); Cresson, 1887:276 (in catalog of North American Hymenoptera); C. Robertson, 1896:73 (visiting flowers of *Polygonum hydropiperoides* Michx., Polygonaceae); Dalla Torre, 1897:651 (in catalog of world Sphecidae); G. Peckham and E. Peckham, 1898:92 (nesting habits);

Bridwell, 1899:209 (Kansas: no specific locality); J. Smith, 1900:522 (in list of insects of New Jersey); Barth, 1910:120 (nest structure); J. Smith, 1910:683 (in new list of insects of New Jersey); Rohwer, 1916b:688 (in catalog of Hymenoptera of Connecticut); Johnson and Ledig, 1918:24 (California: Claremont); Britton, 1920:340 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:688 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1008 (in catalog of Hymenoptera of New York: Rochester Junction); E. Nielsen, 1933:295 (Peckhams 1899 observations reported); Krombein, 1936:98 (New York: Buffalo; floral records); Brimley, 1938:442 (North Carolina: Raleigh); Maidl and Klima, 1939:21 (in catalog of world Astatinae and Bembicinae); Townes in Muesebeck, Krombein, and Townes, 1951:939 (in catalog of North American Hymenoptera); Evans, 1958b:177 (discussion of observation by Peckhams, 1898), 1959b:165 (description of larva), 1962a:30 (nesting behavior); F. Parker, 1962c:652 (in revision of *Astata* of USA and Canada), 1964:558 (in revision of *Astata* of Mexico and Central America); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Finnamore, 1982:88 (in Sphecid Fauna of southern Quebec); Radović, 1985:64 (sting apparatus analyzed); Piek and Spanjer, 1986:180 (in list of Sphecidae with known prey); Steiner, 1986:100 (references to papers on nesting habits); Ahlstrom, 1995:108 (in checklist of insects of North Carolina); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario); Ratzlaff, 2016:23 (Canada: first record from British Columbia: Southern Interior Mountains), 29 (British Columbia: Wycliffe); Buck and Bennett, 2025:206 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Ontario, Quebec, first record from Alberta: no specific locality). – **As *Astatus bicolor***: Kohl, 1885a:447 (new generic assignment, in checklist of world *Astatus*); W. Fox, 1892g:234 (in checklist of North American *Astatus*), 1894a:544 (in revision of North American Larrinae), 1894c:106 (Mexico: Baja California); Ashmead, 1899d:329 (in checklist of North American Crabronidae); Cockerell, 1899a:144 (New Mexico); H. Smith, 1908b:336 (in revision of Nebraskan Sphecidae); Mickel, 1918b:426 (in catalog of Nebraskan Sphecidae).

Astata terminata Cresson, 1873:218, ♂. Holotype: ♂. USA: Texas: Bosque County: no specific locality (USNM). Synonymized with *Astatus bicolor* by W. Fox, 1892g:234. – Cresson, 1887:276 (in catalog of North American Hymenoptera), 1916:96 (holotype in USNM). – **As *Astatus terminatus***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*).

Astatus pygidialis W. Fox, 1892g:234, ♀. Lectotype: ♀, USA: Texas: no specific locality (ANSP), designated by Cresson, 1928:45. Synonymized with *Astata bicolor* by Townes in Muesebeck, Krombein, and Townes, 1951:939. – W. Fox, 1894a:545 (in revision of North American Larrinae); Dalla Torre, 1897:655 (in catalog of world Sphecidae); Ashmead, 1899d:329 (in checklist of North American Crabronidae); J. Smith, 1900:522 (in list of insects of New Jersey), 1910:683 (in new list of insects of New Jersey); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae).

12. *bigeloviae* Cockerell

Astatus bigeloviae Cockerell in Cockerell and W. Fox, 1897:138, ♀. Lectotype: ♀, USA: New Mexico: Las Cruces (ANSP), designated by Cresson, 1928:44. – Cockerell, 1899a:144 (New Mexico). – **As *Astata bigeloviae***: Maidl and Klima, 1939:21 (new generic assignment, in catalog of world Astatinae and Bembicinae); Townes in Muesebeck, Krombein, and Townes, 1951:939 (in catalog of North American Hymenoptera); F. Parker, 1962c:650 (in revision of *Astata* of USA and Canada; California to western Texas), 1964:559 (in revision of *Astata* of Mexico and Central America; Mexico: Jalisco: Plan de Barrancas); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae).

13. *blanda* de Saussure

Astata blanda de Saussure, 1892:519, ♂. Syntypes: ♂. Madagascar: Anosibé in Bezanozano Province (MHNG). – **As *Astata blanda***: Dalla Torre, 1897:652 (new generic assignment, in catalog of world Sphecidae); Maidl and Klima, 1939:18 (in catalog of world Astatinae and Bembicinae); Arnold, 1945:43 (in key to Malagasy *Astata*); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Leclercq, 1990b:114 (Madagascar: Tsimbazaza, in key to Malagasy *Astata*); Pulawski, 2003b:795 (in checklist of Malagasy Sphecidae); Madl, 2014a:938 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality records).

14. *boharti* F. Parker

Astata boharti F. Parker, 1962c:650, ♂. ♀. Holotype: ♂. USA: New Mexico: 18 mi. north of Rodeo (CAS). Paratypes: Arizona. – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Alcock, 2007b:565 (males perching on the ground).

15. *bola* F. Parker

Astata bola F. Parker, 1968b:851, ♂. ♀. Holotype: ♂. Argentina: Salta: Guemes (IML). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae).

16. *boops* (Schrank)

Spheg boops Schrank, 1781:384, [♂]. Holotype or syntypes: ♂, Austria: Wien: Prater (destroyed). – de Villers, 1789:249 (redescription); Gmelin, 1790:2734 (redescription); Turton, 1801:496 (redescription); Haris, 2016:11 (in list of species described by F. Paula von Schrank from Carpathian Basin). – **As *Astata boops***: Kohl, 1885a: 434 and 435 (new generic assignment, in key to European *Astata*), 435 (in revision of European *Astata*), 447 (in checklist of world *Astata*), 1888b:728 (Austria: Tirol, now Italy: Alto Adige); F. Morawitz, 1891a:209 (Russia: Astrakhan); Radoszkowski, 1892:577 (male genitalia); Kohl, 1893a:33 (Austria: Niederösterreich); F. Morawitz, 1893a:111 (Russia: Karelian Isthmus), 1893b:416 (Uzbekistan: Pyanjikent; Tajikistan Takfan in Yagnob River valley); Sickmann, 1893:86 (Germany: Niedersachsen: Iburg); Krieger, 1894:11 (Germany: Kingdom of Saxony); Schletterer, 1894:32 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); de Cobelli, 1903:111 (Italy: Province of Trentino); Luff, 1907:39 (Great Britain: Island of Guernsey); Morley, 1909:304 (Great Britain: Isle of Wight); Morice, 1911:95 (Algeria: Constantine); Gussakovskij, 1927:284 (in revision of Palearctic Astatinae); Barovskij, 1929:149 (Russia: Toksovo north-northeast of Sankt Petersburg); K. Strohm, 1933:338 (Germany: Baden: Württemberg: Kaiserstuhl); Gussakovskij, 1934a:8 (China: Szechuan Province); Maidl, 1934:64 (Greece: Aegean Islands: Seriphos); Gussakovskij, 1935:426 (Tajikistan: Kulab); Piel, 1936:19 (nesting habits: nest in house walls). – **As *Dimorpha boops***: Hamann, 1960:196 (new generic assignment, Austria: Niederösterreich: Mönchgraben at 48°13'N 14°21'E). – **As *Astata boops***: Spinola, 1806:72 (new generic assignment, Italy: Liguria); Vander Linden, 1829:29 (bibliographic references, Austria, Belgium: Bruxelles, France, Italy, taxonomic history); Guérin-Méneville, 1835:pl. 71, Fig. 1 (illustration of habitus); Shuckard, 1836:57 (preying on larvae of *Pentatoma bidens* Linnaeus, now *Picromerus bidens* (Linnaeus), Pentatomidae, 1837a:97 (in revision of British Aculeata), 252 (Great Britain: Hampshire: Blackwater); von Siebold, 1839:48 (Germany: Danzig, now Poland: Gdańsk); Herrich-Schaeffer, 1840:295 (Germany: Bayern: Regensburg area); Dahlbom, 1843:140 (in revision of Sphecidae and Pompilidae), 1845:473 (in key to European *Astata*); Guérin-Méneville, 1844:441 (bibliographic references); Lepeletier de Saint Fargeau, 1845:256 (in revision of world Hymenoptera); Eversmann, 1849:387 (Russia: Astrakhan, Orenburg, Saratov Governorates, southern Ural Mountains); Lucas, 1849:260 (Algeria: Alger, Bône, now Annaba, Constantine, La Calle, now El Kala); F. Smith, 1849b:2551 (nest construction, preying on Pentatomidae); Wissmann, 1849:12 (Germany: Kingdom of Hannover: Münden); Tischbein, 1850:8 (Germany: Rheinland-Pfalz: Herrstein in Fürstenthum Birkenfeld); F. Smith, 1851c:20 (Great Britain: Coombe Wood, Hampstead Heath, Hawley); Wesmael, 1852:86 (Belgium); Kirschbaum, 1853:44 (Germany: Herzogtum Nassau: Mainz-Mombach and Weilburg); F. Smith, 1853:63 (in checklist of British Hymenoptera); Kirchner, 1854:311 (Czechoslovakia: Kaplitz in Budweiser District, now České Budějovice); Fabre, 1856a:139 (France: Vaucluse: Avignon area), 1856b:186

(nesting in ground, prey: *Pentatoma albomarginella* Latreille, Pentatomidae); F. Smith, 1856:308 (in catalog of Hymenoptera in British Museum); Kirchner, 1857:24 (Kurland, now Latvia); F. Smith, 1857d:40 (Great Britain: Surrey: Reigate Common); Ruthe and Stein, 1857:313 (Germany: Berlin area); Schenck, 1857:188 (Germany: in revision of fossorial wasps of Nassau Region); F. Smith, 1858c:95 (in review of British Aculeata, redescription); Taschenberg, 1858:85 (in key to Sphecidae of Germany); Assmuss, 1859:611 (Russia: Moscow Governorate); Funk, 1859:59 (Germany: Bayern: Bamberg); Schenck, 1860:148 (Germany: Nassau Region); Sichel, 1861:752 (Italy: Sicilia); Brischke, 1862:100 (Germany: Preussen Province, now Poland: Pomorze Region); Giraud, 1863a:14 (Italy: Piemonte: Suse; France: Hautes-Alpes: Vallouise near Briançon); Taschenberg, 1866:199 (in revision of Hymenoptera of Germany); A. Costa, 1867b:89 and 1867c:33 (in revision of Italian Sphecidae); Kirchner, 1867:216 (in catalog of European Hymenoptera); Schenck, 1867a:356 (Germany: Nassau Region); Dietrich, 1868:364 (Switzerland: Zurich Canton); Wierzejski, 1868:117 (Ukraine: Podole Region); Palma, 1869:39 (Italy: Sicilia settentrionale); von Aichinger, 1870:320 (Austria: Tirol); Taschenberg, 1870:16 (Germany: Halle); Thomson, 1870:240 (in revision of Swedish wasps); F. Smith, 1871b:10 (in catalog of British Aculeata); P. Ivanov, 1872:152 (Ukraine: Khar'kov Oblast': Kupyansk area); Dours, 1874:140 (in catalog of Hymenoptera of France); Thomson, 1874:211 (in revision of Hymenoptera of Scandinavia); Wierzejski, 1874:258 (Ukraine: Podole Region); Marquet, 1875:204 (France: Béziers, Toulouse); Beuthin, 1876:231 (Germany: Hamburg area); Frivaldszky, 1876:352 (Hungary: Ulma, now Romania: Caraş-Severin or Timiş District); Radoszkowski, 1877:32 (Kazakhstan: Chardara; Uzbekistan: Tashkent, Zeravshan Valley); Girard, 1879:952 (morphology and habits); Kohl, 1880:178 (Austria: Tirol, and Italy: Trentino–Alto Adige); E. Saunders, 1880:252 (in revision of British Aculeata); Siebke, 1880:64 (Norway); Magretti, 1881:109 (Italy: Lombardia), 270 (in list of species discussed in this paper); Marquet, 1881:180 (southern France); Yaroshevskiy, 1881:125 (Ukraine: Khar'kiv Oblast': Kupyansk); A. Costa, 1883:57 (Italy: Sardegna: Tis-si); Friese, 1883:202 (Germany: Sachsen-Anhalt: Kösen, Weissenfels); Kohl, 1883e:672 (Switzerland); Sickmann, 1883:86 (Germany: Niedersachsen: Wellingholthausen); Radoszkowski, 1886a:33 (in list of Hymenoptera of Transcaspiya); Wüstnei, 1886:42 (Germany: Schleswig-Holstein: Kiel); Brischke, 1888b:97 (Germany: Preussen Province, now Poland: Pomorze Region); Riggio and De Stefani Perez, 1888:149 (Italy: Island of Ustica); Assmuss, 1892:52 (Russia: earlier record from Moscow Governorate repeated); V. Perkins, 1892:201 (Great Britain: Gloucestershire: Wotton-under-Edge); A. Costa, 1893b:6 (Tunisia); Baldini, 1894:64 (Italy: Modena area); De Stefani Perez, 1895:226 (in catalog of Sicilian Hymenoptera); Laboulbène, 1895:180 (preying on pentatomids, also cockroach *Ectobia livida* Fabricius according to Lepeletier de Saint-Fargeau); Freke, 1896:40 (Ireland); E. Saunders, 1896:78 (in revision of British Aculeates); Acloque, 1897:94 (in Sphecid Fauna of France and Algeria); Borries, 1897:68 (review of known nesting habits); Cuní y Martorell, 1897:331 (Spain: Cataluña: villa de Cella); Dalla Torre, 1897:652 (in catalog of world Sphecidae); Mocsáry, 1897:78 (Kingdom of Hungary, some localities are in today's Croatia and Romania); Flamary, 1898:38 (France: Saône-et-Loire: Mâcon area); Strand, 1898b:93 (Norway); Adlerz, 1901:187 (nesting habits); nec Ferton, 1901a:102 and 103 (= *Astata gallica*); N. Arnold, 1902:89 (Russia: Mohilev Province, now Belorussia); Chyzer, 1902:33 (Hungary); Ghigi, 1902:190 (Greece: Ionian Islands: Island of Kefalonia: Lardigo); E. Saunders, 1902b:143 (Great Britain: Island of Jersey); W.F. Kirby, 1903:242 (Socotra); Adlerz, 1904:44 (nesting habits); Antiga and Bofill, 1904:9 (Spain: Cataluña Province); Aurivillius, 1904:265 (in revision of Swedish Sphecidae); E. Saunders, 1904c:603 (Spain: Mayorca), 635 (Spain); W. Schulz, 1904b:102 (Turkestan); Zilahi Kiss, 1904:77 (Hungary: Peér); W. Schulz, 1905b:44 (Algeria: Biskra and Djebel Amour); Kubes, 1905:84 (Czech Republic: Babice, Sušice); von Heyden, 1905:81 (Germany: Hessen: Frankfurt, also: Aachen and München); Kohl, 1905c:232 (Turkey: Kayseri: Erciyes Dağı); Mantero, 1905:72 (Italy: Toscana: Isola del Giglio); Vángel, 1905:166 (Hungary); Graeffe, 1906:455 (Tunisia: Tunis area); Kohl, 1906a:221 (citation of W.F. Kirby's, 1900, record from Yemen: Socotra Island, in error); Móczár and Henter, 1907:205 (Romania: Caraş-Severin: Mehadia); Schmiedeknecht, 1907:235, 236 (in key to Hymenoptera of Central Europe); nec Ferton, 1908:558 (= *Astata gallica*); de Gaulle, 1908:121 (in catalog of French Hymenoptera); Cavo, 1910:685 (France: Département du Nord: Mont Cassel); nec Ferton, 1910:158 (= *Astata gallica*); Mercet,

1910b:162 (listed from Spain); Dittrich, 1911b:24 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:46 (Italy: Trieste area); Mantero, 1911:74 (Italy: Sardegna: Isola dell'Asinara); Rudow, 1912:46 (visiting flowers of *Achillea*, Asteraceae, *Artemisia*, Asteraceae, and *Tanacetum*, Asteraceae); Schirmer, 1912:167 (Germany: Berlin area); Torka, 1913:35 (Germany: Provinz Posen, now Poland: Poznań Region); Zavattari, 1913b:3 (Greece: Island of Rhodes); Alfken, 1914:281 (northwestern Germany); Birula, 1914:387 (Belorussia: Ambrosovich near Vitebsk); Szilády, 1914:88 (Hungary: Balánbánya, Igenpataka, Nagyenyed, Radnai havasok); R. Perkins, 1916:230 (specimens in F. Smith collection); Hallett, 1919:262 (Great Britain: British Channel Islands: Island of Sark); J.Ch. Bradley, 1919a:56 (*Astata boops*, first included species, is the type species of *Astata*; *Astata* is the valid genus name); Honoré, 1919:268 (France: Seine-et-Oise: Bouray); O. Meyer, 1919:155 (Germany: Posen Province, now Poland: Poznań Region); Strand, 1920:14 (Germany: Mecklenburg-Vorpommern: Rostock); A. Wagner, 1920:34 (Germany: Lower Elbe region); Berland, 1921:533 (Greece); Dubois, 1922:209 (in key to Belgian Sphecidae); Fahringer, 1922:184 (Turkey); Hedicke, 1922:271 (Germany: Brandenburg: Gross Machnower Weinberg); Jansson, 1922:24 (Sweden: Island of Öland); Lauterborn, 1922:244 (Germany: Baden-Württemberg: Kaiserstuhl); Maidl, 1922:69 (Croatia); nec Ferton, 1923:142 (= *Astata gallica*); Chevalier, 1923b:29 (prey: *Strachia* sp., Pentatomidae); Leininger, 1924:121 (Germany: Baden-Württemberg: Friedrichstal, Waldkirch); R. Perkins, 1924:230 (Great Britain: Devon); Berland, 1925d:108 (in Sphecidae Fauna of France); Bischoff, 1925:301 (Latvia: Jelowka; Poland: Grajewo area); Coulon, 1925:120 (France); R. Perkins, 1925:154 (Great Britain: Gloucestershire: Wotton, and Somersetshire: Minehead); Schütze, 1925:113 (Germany: Lausitz Region); Shestakov, 1925:36 (Russia: Yaroslavl' area); K. Strohm, 1925:212 (Germany: Baden-Württemberg: Sasbach); Bouwman, 1926:280 (in list of Sphecidae of Netherlands); Friese, 1926:161 (in key to Sphecidae of Central Europe, short morphological and biological characteristics); Hémon, 1926:199 (France: Finistère: Fouesnant); von Schulthess, 1926b:213 (Tunisia); Bouwman, 1927:50 (in revision of Sphecidae of Netherlands); Kuznetsov-Ugamskij, 1927:249 (Kazakhstan: Kizil valley in upper Ugam River valley); Stelfox, 1927:309 (records from Ireland are erroneous); F. Werner, 1927:66 (Austria: Niederösterreich: River Kamp valley); Benoist, 1928:409 (France: Alpes-Maritimes, Basses-Alpes); Grandi, 1929:288 (Italy: Toscana: valle della Limentra), 341 (Italy: Toscana: Maremma); Kruger, 1929a:21 and 1929b:56 (Libya: Cyrenaica: Giarabub); Alfken, 1930:10 (Malta); Schmiedeknecht, 1930:696, 697 (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, 1931:72 (in revision of Sphecidae of Finland); Berland, 1932a:23 (France: Var Department; utilizing old charcoal preparation sites for nesting); Bondroit, 1932:37 (Belgium: recorded from Bruxelles area by Wesmael); Giordani Soika, 1932a:22 (Italy: Lido di Venezia); Bischoff, 1933:5 (Spain, Morocco); Dulac, 1933b:41 (description of ♂, France: Saône-et-Loire: Charresey, Montcenis, and Saint-Leu near Le Creusot); E. Nielsen, 1933:295 (summary of nesting habits); Nadig, 1933:86 (Morocco: Agadir, Tanger); Balles, 1934:20 (Germany: Baden-Württemberg: Achem, Hopfengarten, Oberachern); Giner Marí, 1934:132 (Spain); Grandi, 1934:129 (Italy: Lazio: Acilia); Guiglia, 1934b:301 (Libya: bibliography and summary of locality records); Jansson, 1934:290 (Sweden); Minkiewicz, 1934:194 (nesting habits); Nadig, 1934:32 (France: Corse: Cap Corse; Italy: Sardegna: Iglesias); Bernard, 1935:64 (France: Var: Fréjus area); Forsius in Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); Grandi, 1935a:110 (Italy); Marchand and Dulac, 1935:61 (France: Saône-et-Loire: Saint Laurent d'Andenay); Minkiewicz, 1935:195 (Poland: Kazimierz on Wisła at 51°20'N 21°58'E); Vergne, 1935:118 (France: Auvergne: common); Crèvecoeur and Maréchal, 1936:252 (in catalog of Belgian Hymenoptera); Drogoszewski, 1936:130 (Poland: Opatów); Dulac, 1937:13 (France: Saône-et-Loire: Charresey, Montcenis, Saint-Laurent d'Andenay); Goebel, 1937:42 (Poland: Poznań District: Poznań-Dębina, Sławie, Strzeszynek; Środa District: Tulce); Guiglia, 1937:188 (Libya: Cyrenaica: Ain Mara); Richards, 1937b:104 (in checklist of British aculeates); Zavadił, Šustera, and Baťa, 1937:204 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); Poll, 1938 (Belgium: Nadrin); A. Wagner, 1938a:122 (northwestern Germany); Aerts, 1939:134 (Germany: Nordrhein-Westfalen: loess cliff at Weilerswist near Köln); Hallett, 1939:17 (Great Britain: absent from Wales); Maidl and Klima, 1939:11 (in catalog of world

Astatinae and Bembicinae); Maneval, 1939:70 (progressive provisioning reported, temporary closure of nest inside gallery next to cell entrance, description of larva); Maréchal, 1939:341 (Belgium: Loën); Móczár, 1939:5 (Hungary: Jászberény); Yarrow, 1939:15 (Great Britain: Dorset: Lytchett Minster); Yasumatsu, 1939f:101 (Korea); Dovernar-Zapolskiy, 1940:304 (Russia: Kursk Oblast'); Guiglia, 1941c:161 (Italy: Calabria: Grande Sila); Leclercq, 1941b:12 (Belgium: Liège area); Paul, 1941:47 (Germany: Pommern: common in Central- and Ostpommern: no specific locality, now Poland: Województwo Zachodniopomorskie); Schneid, 1941:1046 (Germany: Bayern: Bamberg area); de Beaumont, 1942a:404 (in revision of *Astata* of Switzerland), nec 412 (= *Astata cobosi*); Guiglia, 1942a:56 (Greece: Island of Rhodes: Kremasti, Villanova), 1942b:233 (Libya); Yasumatsu, 1942c:112 (China: Nei Mongol: Apaka at 44°N 114.96°E); Boyd, 1943:162 (Britain: eastern Dorset); Giner Marí, 1943a:118 (in Sphecidae Fauna of Spain); Guiglia, 1943b:71 (Albania: Kopliku); Spooner, 1943:70 (Great Britain: Blackgang Chine, Mudeford, Ramsdown, Stourton Caundle, Wareham); Giordani Soika, 1944:10 (Italy: Sicilia: Falcone, Taormina); Guiglia, 1944b:24 (Italy); Šnoflák, 1944a:144 (Czech Republic: serpentine steppe near Mohelno); T. Fletcher, 1945:53 (Great Britain: Gloucestershire: Mitcheldean, Painswick, Rodborough, Wotton); Giner Marí, 1945d:53 (in revision of Spanish *Astata*); Deleurance, 1946b:62 (nest internal closure), 63 (prey: *Pentatoma viridis* Palisot), 67 (France: Bouche-du-Rhône: Camargue: Bois des Rièges); Giner Marí, 1946:7 (Morocco); Carl and de Beaumont, 1947:68 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); de Beaumont, 1947b:390 (Cyprus); Dupuis, 1947:111, 112 (list of heteropteran prey), 112 (description of larva); Móczár, 1947b:90 (Hungary: Siebenbürgen: Székelykeresztúr, now Romania: Transylvania: Cristuru Secuiese); Tsuneki, 1947c:103 (nesting habits); van Lith, 1947:106 (Netherlands); Balthasar, 1948:143 (Slovakia: Kovačov, Parkan); Guichard and Yarrow, 1948:89 (Britain: London: Hampstead Heath); Muller, 1948:139 (Belgium: Lanaeken); Šnoflák in Zavadil and Šnoflák, 1948:61, 64 (in key to Sphecidae of Czechoslovakia); Aerts, 1950b:23 (Germany: Rheinland-Pfalz: Lorelei); de Beaumont, 1950f:403 (Algeria); Pittioni, 1950:24 (Cyprus); Szulczewski, 1950:108 (Poland: Wielkopolski National Park 15 km south of Poznań); de Beaumont, 1951h:33 (Switzerland: Neuchâtel area); Leininger, 1951:118 (Germany: Baden-Württemberg: Denzlingen, Kaiserstuhl, Karlsruhe); P. Verhoeff, 1951:151 (species group characters), 163 (Netherlands); Caruel, 1952a:62 (France: Marne Department); Cleu, 1953:50 (France: Ardèche River basin); de Beaumont, 1953g:125 (Morocco); Głowacki, 1953:520 (Poland: Podkowa Leśna near Warszawa); Nouvel and Ribaut, 1953:179 (France: Central Pyrénées: Garonne River valley); Bischoff and Stadler, 1954:126 (Germany: Bayern: Romberg); de Beaumont, 1954b:3 (Canary Islands), 1954e:90 (Italy); Fahlander, 1954:252 (Sweden: Gästrikland Region); Grandi, 1954:231 (Italy); Hertzog, 1954:101 (France: Bouches-du-Rhône: Camargue); Aerts, 1955:63 (Germany: Rheinland); Atanassov, 1955:201 (Bulgaria: Lovech, Sandanski, Varna, as Stalin); Lehrer, 1955:263 (Romania: Moldova: Recea in Iași District); Steiner, 1955:137 (France: Dordogne); Teschner, 1955:57 (Germany: Nordrhein-Westfalen: Hohe Ward near Münster); Vogrin, 1955:36 (Yugoslavia); Bytinski-Salz, 1956:226 (Turkey: Dinar, Konya); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain); de Beaumont, 1956a:195 (Libya: Cyrenaica); Hertzog, 1956:182 (carrying prey venter up, keeping it with mandibles by both forelegs); Morel, Nouvel, and Ribaut, 1956:338 (France: Département des Pyrénées-Orientales); Puławski, 1956:44 (in revision of European Astatinae); Bajári, 1957a:61, 64 (in key to Hungarian Sphecidae); Grandi, 1957:384 (Italy); Guiglia, 1957:146 (Italy: Isole Pelagie); Zirngiebl, 1957:183 (Germany: Rheinland-Pfalz: Birkenheide); Benno, 1958b:11 (in review of Dutch Sphecidae); de Beaumont, 1958c:205 (Swiss National Park); Evans, 1958b:178 (review of behavioral studies), 1958c:110 (larva's description by Maneval, 1939); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Puławski, 1958a:170 (Bulgaria: Aitos, mouth of Ropotamo River, Sandanski); Tonapi, 1958a:508 (spiracular structures), 1958b:250 (respiratory system); de Beaumont, 1959a:23 (Italy); Grandi, 1959b:286 (Italy: Livorno: Quercianella); Olberg, 1959:247-252 (photographs of nest digging, prey carrying, and nest closure); Suárez, 1959:56 (Spain: Almería Province); Wolf, 1959b:23 (Germany: Nassau Region); de Beaumont, 1960a:14 (Greece: Island of Rhodes), 1960b:236 (Libya); Guiglia, 1960:361 (Italy: Isole Pelagie: Island of Lampedusa); Noskiewicz and Puławski, 1960:110, 112 (in key to Polish Sphecidae); de Beaumont, 1961e:4 (Iraq), 1962b:24 (Spain: melanic specimens); Grandi, 1962:95 (Italy); Valkeila, 1962b:66

(southwestern Finland); Myartseva, 1963b:58 (Turkmenistan: lower Murgab River); Babiy, 1964:114 (Austria: Land Salzburg); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1964c:69 (in Sphecidae Fauna of Switzerland); Richards, 1964:25 (heath-lands in southern England); de Beaumont, 1965a:41 (Greece); Myartseva, 1965:75 (Turkmenistan: Akibay; Sagar-Chaginsk district); Bonelli, 1966c:216 (Italy: Trentino-Alto Adige: Montagna); Scobiola-Palade, 1966b:392 (Romania: Tulcea District: C.A. Rosetti, Tulcea); Balthasar, M. Hrubant, and E. Hrubant, 1967:171 (Bulgaria: Slanchev Bryag near Nessebar); Benno, 1967:35 (in checklist of Sphecidae of Netherlands); Gauss, 1967:553 (Germany: Baden-Württemberg); J. Heinrich, 1967:74 (Germany: Bayern: Unterfranken District); Maidhof and Maschwitz, 1967:86 (Italy: Foreste Demaniali Casentinesi); Niedl and Deneš, 1967:81 (Czech Republic: Třeboň area); Pulawski, 1967a:386 (Turkey); Scobiola-Palade, 1967a:161 (Romania: Constanța District: Comarova, Hagieni, Mangalia), 1967b:43 (Romania); Benedek, 1968:73 (Hungary, visiting flowers of *Pastinaca sativa* L., Apiaceae); Parré, 1968:123 (Germany: Sachsen-Anhalt: Staßfurt); Scobiola-Palade, 1968b:142 (Romania: Island of Letea in delta of Danube), 1968c:384 (Romania: Budești, Cernica, Comana); Wolf, 1968:11 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:83 (Hungary; marshy meadow); Lefebvre, 1969c:233 (Netherlands: Sint-Pietersberg = Montagne Saint Pierre); Romanova, 1969:134 (Russia: North Caucasus); Tsuneki, 1969c:1-12 (Korea; nesting habits); Zangheri, 1969:1703 (Italy: in catalog of flora and fauna of Romagna Region); Benedek, 1970:98 (Hungary: Tapolca); de Beaumont, 1970a:398 (Afghanistan); Oehlke, 1970:708 (Democratic Germany); Tumšs, 1970:81 (Latvia); Hoop, 1971:83 (Germany: Schleswig-Holstein: Lehmrade); Petit, 1971:22 (Luxemburg: Bourscheid); Schmidt, 1971b:33 (Germany: Rheinland-Pfalz: recorded from Mombach by Kirschbaum, 1853); Tsuneki, 1971i:411 (Mongolia), 1971m:20 (China: Peking: Tiendang; Inner Mongolia: Apaka); Balthasar, 1972:287 (in Sphecidae Fauna of Czechoslovakia); Kazenas, 1972b:157 (Kazakhstan); Kofler, 1972:107 (Austria: eastern Tirol); Krombein, 1972b:384 (Greece; nesting habits); Myartseva, 1972a:76 (Turkmenistan); Niedl and Deneš, 1972:152 (Czech Republic: Třeboň area); Scobiola-Palade, 1972b:253 (Romania); Simon Thomas, 1972:180 (France: Gironde, Landes); de Beaumont, Bytinski-Salz, and Pulawski, 1973:2 (Israel); Erlandsson, 1974a:69 (Italy, Malta); Kazenas, 1974b:110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan), 112 (feeding on flowers of *Atraphaxis spinosa* L., Polygonaceae, in Kazakhstan); Tsuneki, 1974:362 (Korea); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Lomholdt, 1976:231 (in Sphecidae Fauna of Fennoscandia and Denmark); Simon Thomas, 1976:5 (France: Lot-et-Garonne: Forêt de Campet); Georgiou, 1977:189 (Cyprus); Guichard, 1977:252 (Great Britain: Surrey); Haeseler, 1977a:23 (northwestern Germany); Kolesnikov, 1977:318 (Russia: Bryansk Oblast); Kazenas, 1978b:96, 99 (in key to Sphecidae of Kazakhstan and Central Asia); Marion, 1978:88 (France: Nièvre Department); Pulawski, 1978:229, 231 (in key to Sphecidae of European part of USSR); Benedek, 1979:231 (Hungary: Bakony Hills); Edwards, 1979:70 (Great Britain: Sussex County); Leclercq, Gaspar and Verstraeten, 1979:map 1408 (Belgium); Lefebvre, 1979:11 (in checklist of Sphecidae of Netherlands), 62 (Netherlands: distribution map); Radović and Krnić, 1979:unpaginated foldout (nesting in hard soil, foreleg structure); Valetta, 1979:215 (Malta); Dathe, 1980:208 (Russia: northern Caucasus: Teberda); Guichard, 1980:225 (Oman); Kazenas, 1980e:92 (Russia: Primorskiy Krai); Pagliano, 1980:112 (Italy: Piemonte); Richards, 1980:41 (in key to Sphecidae of British Isles); Westrich, 1980:629 (Germany: Baden-Württemberg: Tübingen area); Dollfuss and Ressler, 1981:322 (Austria: Niederösterreich: Scheibbs District); Józán, 1981:305 (Hungary: Hortobágy National Park); Schmidt, 1981:216 (Germany: Baden-Württemberg); Donath, 1982:213 (Germany: Cottbus Bezirk); Gayubo, 1982a:94 (northern Spain: Sierra de Béjar, as *bops boops*), 1982f:248 (Spain: Cádiz Province); Hoop, 1982:51 (Germany: Schleswig-Holstein: Buchhorste Berge); Silvestre de Sacy, 1982:4 (France: Côtes-du-Nord: Paimpol area); Skibińska, 1982:123 (Poland: Warszawa area); Tsuneki, 1982b:15 (known from Korea); Dollfuss, 1983b:9 (in catalog of Sphecidae of Austria); Józán, 1983:100 (Hungary); Chevin and Silvestre de Sacy, 1984:7 (France: Yvelines Department); Gayubo, 1984b:81 (Spain: Salamanca Province; as *boops boops*), 1984c:360 (Portugal: El Algarve Province); Gayubo and Tormos, 1984:13 (Spain: Valencia; as *boops boops*); Janzon and Svensson, 1984:183 (Sweden: Island of Öland); Schmidt and Westrich, 1984:240 (Germany: Rheinland-Pfalz: Bad Münster); Chevin

and Chevin, 1985:39 (France: Aude); Gayubo, 1985a:485 (nest, prey); Józán, 1985b:56 (Hungary south of Lake Balaton), 76 (floral records), 83 (ecological and zoogeographic characteristics); Nilsson, 1985:43 (Sweden); Paik, 1985:198 (in list of Sphecidae of Korea); Radović, 1985:64 (sting apparatus analyzed); Scobiola-Palade, 1985:96 (Romania: delta of Danube); Brechtel, 1986:60 (Germany: Südpfalz); Gayubo, 1986c:32 (Spain: Zamora Province); Gayubo and Heras, 1986:36 (Spain: Segovia and Valladolid provinces; floral records); Gayubo and Sanza, 1986:39 (Spain: Burgos, Segovia); Gayubo and Tormos, 1986a:11 (Spain: Castellón de la Plana); Islamov, 1986:524 (Uzbekistan: Tashkent Oblast'); Józán, 1986:369 (Hungary: Kiskunság National Park); Mingo and Gayubo, 1986:1005 (distribution in Spain; as *boops boops*); Nemkov, 1986:96 (Russia: Siberia: Irkutsk Oblast'); Piek and Spanjer, 1986:180 (in list of Sphecidae with known prey); Steiner, 1986:100 (references to papers on nesting habits); Vikberg, 1986:76 (Finland); Asís and Jiménez, 1987:26 (Spain: Castellón Province); Gayubo, 1987a:110 (Spain: Provincia de Ciudad Real); Riemann, 1987b:32 (Germany: Niedersachsen: Nature Reserve Dünengebiet near Neumühlen); Schmidt and Westrich, 1987:362 (Germany: Mainz area); Scobiola-Palade, 1987:65 (Romania: Dobrogea); Tormos and Jiménez, 1987a:124 (Spain: Valencia; as *boops boops*); Dollfuss, 1988:11, 23 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Karsai, 1988:99 (Hungary: Kiskunság National Park); Kowalczyk, 1988a:45 (Poland: Rogów); Riemann, 1988:222 (Germany: Bremen area); Wolf, 1988b:139 (Germany: Rheinland-Westfalen); Al-Houty, 1989:158 (Kuwait: Al-Wafra); Jacobs, 1989:10 (Germany: Mecklenburg-Vorpommern); Józán, 1989:101 (Hungary: Tihany Nature Reserve); Pádr in Šedivy, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Pagliano, 1989:349 (distribution in Italy; redescription); Gayubo, Asís, and Tormos, 1990a:15 (Spain); Jacobs and Oehlke, 1990:159 (new records from Democratic Germany); Kowalczyk, 1990:291 (Poland: Góry Świętokrzyskie); Kuznetzova, 1990:21 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pádr, 1990:76 (Czech Republic: Praha area); Pagliano, 1990:64 (in catalog of Italian Sphecidae); Riemann and Melber, 1990:119 (northwest Germany: *Calluna*-meadows); Schwammberger and Priesner, 1990:539 (Austria: Kärnten); Dollfuss, 1991:91 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:400 (Italy: Veneto, Sicilia); Kowalczyk, 1991a:90, 97 (Poland: Łódź), 1991b:120 (Poland: Augustów Forest); Negrisol, 1991:317 (Italy: Udine Province); Nilsson, 1991:83 (Sweden: Lake Mälaren); Schembri, 1991:179 (recorded from Malta by Erlandsson, 1974, and Valetta, 1979); H.-J. Schulz, 1991:30 (Germany: Oberlausitz: 5 km southwest of Wittichenau); Sorg and Wolf, 1991:195 (Germany: Koppelstein Reserve southeast of Koblenz); Tsunek, 1991:199 (Korea); van der Smitten, 1991:96 (northwestern Germany); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Gayubo, Borsato, and Osella, 1992:281 (Greece, Turkey); Józán, 1992a:229 (Hungary: Béda-Karapanca Protected Area), 1992b:173 (Hungary: Boronka-melléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:244 (Russia: Far East: 40 km north-northwest of Svobodnyi near Khingan Nature Reserve); N. Schneider, 1992:177 (Luxemburg); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Józán, 1993:413 (Hungary: Bükk National Park); Kuhlmann, 1993:75 (Germany: known from Westfalen); Luig, 1993:43 (Estonia); van der Smitten, 1993:128 (northwestern Germany); Torregrosa, Gayubo, Tormos, and Asís, 1993:18 (Spain: Alicante Province); Blagoveshchenskaya, 1994:87 (Russia: Ul'yanovsk Oblast'); Gayubo and Borsato, 1994:206 (Italy: Emilia, Sardegna); Kowalczyk, 1994:74 (Poland: Łagiewniki forest in Łódź); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula); Theunert, 1994c:33 (Germany: summary of records from Niedersachsen and Bremen); Tormos, Asís, and Gayubo, 1994:187, 201 (Spain: Albacete Province); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Negrisol, 1995a:22 (Italy: Veneto); Negrisol in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:407, 408 (in key to Sphecidae of Russian Far East); Pagliano and Scaramozzino, 1995:729 (Italy: Island of Lampedusa); Scharer, 1995:24 (Germany: Bayern: Kahl, Karlstadt, Mainfranken); Schmid-Egger, 1995:58 (Germany: northwestern Baden-Württemberg); Schmid-Egger, Risch, and Niehuis, 1995:164 (Germany: summary of records from: Rheinland-Pfalz), 186 (color photograph); Wolf, 1995:16 (Germany: Rheinland-Pfalz: near Lorelei Rock on Rhein River); Yeo and Corbet, 1995:38 (in field guide to British solitary wasps); Archer, 1996a:58 (Great Britain: Channel Islands); Arens, 1996:441 (Germany: Bayern: Bayreuth area);

Blösch, 1996:4 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Fowles, 1996:35 (Great Britain: in checklist of aculeates of Wales); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Harvey and Plant, 1996:68 (Great Britain: summary of records from Essex); Jakubzik, 1996:251 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Tischendorf, 1996:46 (Germany: Hessen: near Bensheim); Voblenko, Gorobchishin, and Nesterov, 1996:14 (Ukraine: Polesye Region); Woydak, 1996:35 (Germany: Westfalen: summary of distribution and nesting habits); Witt, 1996:105 (Germany: Brandenburg); Wu and Zhou, 1996a:68 (in revision in Economic Insect Fauna of China); AlHouty, 1997:160 (Kuwait: no specific locality); Celary, 1997:58 (in checklist of Animals of Poland); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); Petit, 1997:351 (Belgium: Liège Province: Lanaye: colonization of new habitat); Schmidt and Schmid-Egger, 1997:6 (in checklist of German Sphecidae); Wolf, 1997a:2 (Germany: Bayern: Hirblinger Höhen near Augsburg); F. Burger, Saure, and Oehlke, 1998:26 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:513 (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:48 (Ukraine: Kiev and surroundings); Jakubzik, Schlüter, and Cölln, 1998:1181, 1183 (Germany: Rheinland-Pfalz); Lefebvre, 1998:181, 182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); Mauss and Schindler, 1998:136 (Germany: Schleswig-Holstein: Nordfriesland District); Petit, 1998b:260 (Belgium: Bassenge, Lanaye); N. Schneider and Wahis, 1998:19 (Luxembourg: sandstone quarries); H.-J. Schulz, 1998c:112 (Germany: Lausitz: former military training area near Mücka); van der Smitten, 1998:53 (Germany: Schleswig-Holstein, Niedersachsen); K. Weber, 1998:133 (Germany: Bayern: Bamberg area); Anan'eva and Kochetkov, 1999:7 (Russia: Ryazan Oblast': no specific locality); Cölln and Jakubzik, 1999:28 (Germany: Rheinland-Pfalz: Keuper-Scharren southwest of Hungerburg); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); Kuhlmann, Wolf, and Woydak, 1999:569 (Germany: strongly endangered in Nordrhein-Westfalen); Majzlan, Rychlík, and Deván, 1999:145 (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); Pagliano and Scaramozzino, 1999:156 (Italy: Piemonte: Borgomale); Pauly, 1999:109 (in catalog of Belgian aculeates); Podgorbunskikh and Rudoi'skatel', 1999:142 (Russia: Chelyabinsk Oblast': Il'men Nature Reserve); 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); Tüzün, Gülmez, and Bağrıaçık, 1999:384 (Turkey: Aegean Region); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Blösch, 2000:208 (in Sphecidae Fauna of Germany); Cölln and Jakubzik, 2000:226 (Germany: Rheinland-Pfalz: Gönnersdorf); Dressler, 2000:30 (Germany: Hessen: Darmstadt area); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:106 (Greece); Gibbs, 2000:13 (Great Britain: Bristol: Troopers Hill); Jacobs, 2000:6 (Germany: Land Mecklenburg-Vorpommern: not endangered); Józán, 2000:107 (Hungary: Bakony Mountains); Kazenas, 2000e:191 (in Sphecidae Fauna of Kazakhstan); Kuhlmann, 2000:64 (Germany: Hessen: Diemel River valley); M. Mader and Chalwatzis, 2000:59 (Germany: Hessen: Oderwald Mountains); Mokrousov, 2000b:30 (Russia: Nizhniy Novgorod Oblast'); Pijfers, 2000:4 (Netherlands: Twente Region); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhein River); Smit, 2000:175 (first record from Madeira); Vicidomini, 2000b:22 (Italy: previously recorded from Campania); Basset, 2001:80 (France: Département de Gironde); Budrys, 2001c:389 (first record from Lithuania: Vilnius area at 54°41'N 25°20'E); Cungs and Jakubzik, 2001:122, 123 (Luxembourg); Esenbekova and Kazenas, 2000:23 (south-eastern Kazakhstan: eight localities); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 141 (review of known biology); Kazenas and Esenbekova, 2001:134 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:48 (Bulgaria: Mount Vitosha near Sofia); Mazzucco, 2001:203 (Austria: Niederösterreich: Steinfeld); Ohl et al., 2001:137 (distribution in Germany by provinces);

K. Schmidt and Bitsch *in* Bitsch et al., 2001:162 (in Sphecidae Fauna of Western Europe); Szczepko and Kowalczyk, 2001:188 (Poland: Kampinos National Park near Warszawa); Tüzün, 2001:44 (Turkey); van der Smissen, 2001:58 (Germany: Schleswig-Holstein: not endangered); Wolf, 2001a:171 (Germany: Bayern: Lech valley from Augsburg to Donau); Zettel, Gross, and Mazzucco, 2001:71 (Austria: Wien); Archer and Edwards, 2002:102 (Great Britain: West Sussex: Ambersham and Iping commons); Beavis, 2002:106 (Great Britain: Kent: Tunbridge Wells area, prey: pentatomids *Palomena prasina* (Linnaeus) and *Eysarcoris fabricii* (Kirkaldy)); Bieri, 2002:72 (Liechtenstein); Herrmann and Zinnert, 2002:25 (Germany: Baden-Württemberg: Bettenberg near Konstanz); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:55 (geographic distribution, collecting localities in Kazakhstan); Shlyakhtenok and Skibinska, 2002:33 (Belorussia: no specific locality); Söderman and Vikberg, 2002:51 (in list of Aculeata of Finland); Vischer, 2002:288 (Germany: Sachsen-Anhalt: vineyards in Saale-Unstrut area); Wiśniowski, 2002:70 (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, 2003:133 (Croatia: Mošćenicka Draga, Germany: Bayern: Erlangen); Gayubo, Özbek, and Yıldırım, 2003:84 (Turkey: many localities); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Haeseler, 2003:339, 345 (Germany: Niedersachsen: Harriersand Island near Bremen); Józán, 2003:227 (Hungary: Látányi Pusztá Nature Conservation Area); Lukáš, 2003:73 (Slovakia: Bratislava: old fruit orchard); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:63 (Germany: in catalog of wasps and bees of Bayern); Ohl and Linde, 2003:149 (number of ovarioles); Pagliano, 2003b:127 (Italy: islands of Lampedusa and Pantelleria); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Malyi Tataru island in Danube delta at 45.21°N 29.00°E); Schmid-Egger, 2003:749 (Italy: Sicilia: Castelammare, Nebrodi); Tischendorf and Treiber, 2003:120 (Germany: Hessen: 15 km southwest of Frankfurt am Main: nesting under high power lines); Wiśniowski *in* Dylewska and Wiśniowski, 2003:150 (Poland: Ojców National Park); Wu, Zhou, Q. Li, and Yang, 2003:811 (China: Fujian Province); Archer, 2004h:44 (Great Britain: Watsonian West Norfolk: Roydon Common); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany in checklist of Sphecidae of Nordrhein-Westfalen); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Kazenas, 2004b:102 (Kazakhstan: western Tien Shan); Klein and Lefebvre *in* Peeters, van Achterberg, et al., 2004:359 (in Wasp and Ant Fauna of Netherlands); Nazarova, 2004:106 (Tajikistan: Badakhshan Region: Tusen District: villages Lakshin and Ridzef); Schneider and Carrières, 2004:98 (Luxemburg: Bon-Pays Region); Shkuratov, 2004a:78 (Russia: Rostov Oblast'); Skibińska *in* Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); van Achterberg and Peeters, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:43 and 60 (in checklist of Polish Sphecidae); G. Allen, 2005b:14 (Great Britain: Kent County: Maidstone); Archer, 2005c:56 (Great Britain: Suffolk County); Blösch, 2005:4 (Germany: Bayern: Tennenloher Forst Nature Reserve near Erlangen); Burger, 2005:31 (Germany: Thüringen); Ebrahimi, 2005:128 (in key to selected Iranian Sphecidae); Fuhrmann, 2005:89 (Germany: Nordrhein-Westfalen: Grubengelände Littfeld Nature Reserve); Gülmez and Tüzün, 2005:55 (Turkey: Ankara Province); Haeseler, 2005:628 (Germany: Niedersachsen: Steller Heide near Bremen); Hallin, 2005:29 (Sweden: Örebro County: Nydalen); Jacobs, 2005a:439 (Bulgaria: Sofia, Starosel near Hissarya); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:172 (Austria: Tirol: Lienz District: Untergaimberg in Gaimberg Common); Kraatz, 2005:102 (Germany: Niedersachsen: Bümmerstede near Oldenburg); Landeck, Wöhler, and Landgraf, 2005:18 (Germany: Lausitz Region: visiting flowers of *Reseda luteola* Linnaeus, Resedaceae, and *Carthamus tinctorius* Linnaeus, Asteraceae); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Pagliano and Negrisoló, 2005:89 (in Sphecidae Fauna of Italy); Pijfers, 2005:50 (Netherlands: Twente: Noordelijke Manderheide); Riemann and Hohmann, 2005:546 (Germany: Niedersachsen: city of Bremen and vicinity); Saure, 2005:13 (Germany: Berlin); Schmalz, 2005:57 (references to XIXth century authors); Shorenko, 2005a:166 (Ukraine: Crimea), 2005b:99 (Ukraine: Crimea: Karadagh Nature Reserve); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Nieder-

sachsen and Bremen); Yildirim and Ljubomirov, 2005:1788 (Turkey: Aydin, Erzurum, Konya, and Rize provinces); Gadoum and Barbier, 2006:42 (France: départements of Val-d'Oise and Yvelines: Parc Naturel Régional du Vexin Français: Jambville); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Hua, 2006:277 (in list of Chinese insects, geographic distribution); Liebig, 2006:37 (Germany: Sachsen: Muskauer Heide); Liška, 2006:88 (Slovakia: Váh river valley near Trenčín); Magdalou, 2006b:109 (France: Pyrénées-Orientales: Mas-Larrieu Nature Reserve near Argelès-sur-Mer), 2006c:7 (France: Pyrénées-Orientales: Réserve Naturelle du Mas-Larrieu); Peeters, Krekels, and Megens, 2006:22 (Netherlands: Reichswald forest near Nijmegen); Petit, 2006:476 (Belgium: Liège Province: Bassenge); N. Schneider, 2006:138, 142 (Luxemburg: anthropogenic habitats); Shlyakhtenok, 2006:111 (Belorussia: Polesye Radiological Nature Reserve); Standfuss and Standfuss, 2006a:86 (Germany: Nordrhein-Westfalen: Dortmund), 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek, 2006:508 (Czech Republic: Kokořínsko area); Archer, 2007a:151 (Great Britain: Norfolk: Thetford Warren Lodge), 2007c:152 (Great Britain: South Devon coast); Baghirov, 2007:93 (Russia: southwestern Siberia); Beavis, 2007:92 (Great Britain: Tunbridge Wells and Central High Weald); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:458 (France: first records from département de Loire-Atlantique: Saint-Nazaire; Seine-et-Marne: Montigny-le-Guesdier; and Lot: many localities), 462 (France: Var: Le Muy, prey: Hemiptera Acanthosomatidae: *Cyphostethus tristriatus* (Fabricius), nests bicellular); Burguet, 2007:unnumbered p. 7 (France: Puy-de-Dôme: sands Girauds-Faures in Orléat commune); Cungs, Jakubzik, and Cölln, 2007:139 (Luxemburg: Haardt Nature Reserve); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:167 (Czech Republic: Vyšenské Kopce National Nature Reserve); Guldemon, Pijfers, and den Belder, 2007:202 (Netherlands: Gelderland: dairy farm in de Graafschap); Herrmann, 2007b:94 (Germany: Baden-Württemberg: Fürstenberg in Konstanz); Jacobs, 2007:88, 89 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Józán, 2007:179 (Hungary: Zselic hills); Kazenas, 2007a:90 (Kazakhstan: Akmalá Oblast': Kurgandzhin Nature Reserve and vicinity); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Roche, 2007a:52 (in checklist of Egyptian Crabronidae, first record from Egypt: Kerdasah near Cairo), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae, as *boops boops*); Saure, 2007:81 (Germany: in checklist of Aculeata of Land Brandenburg); Vago, 2007:174 (France: département du Nord); Venne, Bleidorn, and Lauterbach, 2007:300 (Germany: Nordrhein-Westfalen: Bielefeld); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia), 220 (records from Slovakia are misidentifications of *jucunda*); Vicidomini and Pignataro, 2007:2 (Italy: Salerno: known from Parco Nazionale del Cilento e Vallo di Diano), 15 (Italy: Provincia di Salerno: ubiquitous); Danilov, 2008:348 (Russia: Altayskiy Kray: Barnaul area); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Danilov and Tshernyshev, 2008:42 (Russia: Novosibirsk Oblast': Karasuk area); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Gros, 2008:265 (France: Var: Muy and Aisne: Condé-sur-Aisne; nesting habits; prey: *Cyphostethus tristrigatus* (Fabricius), an acanthosomatid, and *Palomena* sp., a pentatomid); Kazenas, 2008b:112 (Kazakhstan: foothills of Zailiskiy Alatau: occurring on both loess cliffs and flat areas); Ljubomirov and Ban-Calefariu, 2008:203 (Romania: recorded from Maramureş District by Szilády, 1914); Ljubomirov and Yildirim, 2008:48 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:19 (in catalog of Crabronidae of Asiatic Russia); Protsenko and Drozdovskaya, 2008:126 (Ukraine: Sumy Oblast': Mogritsa village); Theunert, 2008:10 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Debuyser and Vago, 2009:4 (in list of Sphecidae *sensu lato* of northern France); Donie, 2009:9 (Germany: Niedersachsen: Oldenburg); Fallahzadeh, Ostovan, and Saghaei, 2009:236 (Iran: Fars: Estahban, Shiraz), 241 (color photograph); Flügel, 2009b:63 (Germany: Hessen: Borken, in inactive open brown coal mine); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria:

Maleshevska Planina, as *boops boops*); Hessling, 2009:103 (Germany: Niedersachsen: Hunte River valley south of Oldenburg); Józán, 2009:166 (Croatia: Most-Raša, Rovini); Kowalczyk, Kurzac, and Nadolski, 2009:62 (Poland: between Warta and Widawka rivers); Livory, Chevin, Lair, Sagot, and Baldock, 2009:22 (France: Département de la Manche); Mokrousov, 2009:278 (Russia: Republic Mari El); Nemkov, 2009b:74 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia), 2009c:236 (Russia: Primorskiy Kray: Lazovsky Nature Reserve); Ødegaard, Sverdrup-Thygeson, Hansen, Hanssen, and Öberg, 2009:70 (Norway: locality records); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); van Die-men, 2009:49 (Netherlands: airbase Gilze-Rijen); Baghirov, 2010:678 (Russia: Altai Territories: village Savvushka); Burguet *in* Durand and Burguet, 2010:47 (France Département d'Ardèche: Ardèche Gorges); Ermilov and Mokrousov, 2010:89 (phoretic mites *Acarus psenuli* (Vitzthum), Acaridae, and *Histiostoma gordius* (Vitzthum), Anoetidae, in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Kraus, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:60 (Russia: Ivanov, Kirov, Kostroma, Nizhniy Novgorod, and Yaroslavl' Oblast's, Chuvash Republic, Mari El Republic: no specific localities); J. Neumayer, 2010:334 (Austria: Niederösterreich: Thayatal National Park); Reder, 2010:12 (Germany: Rheinland-Pfalz: Flörsheim-Dalsheim: nest parasite: chrysidid *Hedychridium valesiense* Linsenmaier); Rudoiskatel', 2010:153 (Russia: central and southern Ural Mountains); Saure, 2010b:174 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: relatively common); Shorenko and Kononov, 2010:12 (Ukraine); Smetana, Roller, Beneš, Bogusch, Dvořák, Holý, Karas, Macek, Straka, Šima, Tyrner, Vepřek, and Zeman, 2010:101 (Western Slovakia: recorded from Borská nížina); Treiber, 2010:134 (France: départements du Bas-Rhin and du Haut-Rhin); Tüzün and Yüksel, 2010:4470 (Turkey: Niğde Province); van der Smissen, 2010a:332 (Germany: Schleswig-Holstein: locality records), 2010b:383 (France: Ardèche and Vaucluse: locality records), 2010c:395 (Sweden: Öland Högsrum and Rönnerum); Wurdack and Gack, 2010:153 (Germany: Baden-Württemberg: Kaiserstuhl); Baghirov, 2011b:140 (Russia: Altayskiy Kray: Savvushka; Altay Republic: Kosh-Agach); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire), 501 (exclusive species of burned areas); Falk, 2011:62 (Great Britain: Sussex: South Downs); Gogala, 2011:13 (Slovenia); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:66 (Russia: Chuvash Republic); Murai and Amr, 2011:110, 118 (first record from Syria: Al Thawrah Nature Reserve at 35°51'N 28°38'E); Protsenko and Drozdovskaya, 2011:90 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Rudoiskatel', 2011b:68 (Russia: Republic of Bashkortostan), 2011d:241 (Russia: central Ural Mountains); Saure, 2011a:5 (Germany: Berlin: former airport Tempelhof), 2011c:197 (Germany: Berlin-Spandau: Fort Hahneberg); Schmid-Egger, 2011a:36 (France: Parc National du Mercantour); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:18 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:110 (Germany: Hessen: not endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Burguet *in* Durand and Burguet, 2012:2 (France: Puy-de-Dôme: sands Giraults-Faures in Orléat commune); Boillat, 2012:225 (Switzerland: in checklist of insects of Canton de Genève); Colln, Jakubzik, and Kinkler, 2012:24 (Germany: Nordrhein-Westfalen: Leverkusen); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Franzén, Molander, Norén, and Nilsson, 2012:26 (Sweden: Skåne: Kullaberg Peninsula); Kazenas, 2012b:169 (Kazakhstan: Korgalzhin State Nature Reserve); Nemkov, 2012c:438 (in catalog of Crabronidae of Russian Far East); Prismaniy, 2012:47 (Russia: Belgorod Oblast'); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Shibayev and Polumordvinov, 2012:278 (Russia: Penza Oblast'); Shlyakhtenok, 2012a:171 (Belorussia: collected in private plots), 2012b:91 (Belorussia: Beresina National Reserve: overgrowing dry meadow); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:75 (Turkey: Bayburt, Erzurum, and Kars provinces); Akulov and Proshchalykin, 2013:113 (Russia: Siberia: Krasnoyarsk Kray: Krasnoyarsk); Bayındır, Gürbüz, Ljubomirov, and

Pohl, 2013:146 (Turkey: Isparta: Kasnak Oak Forest Nature Reserve); Flügel, 2013a:119 (Germany: Brandenburg: Pimpinellenberg near Oderberg); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:346 (in new catalog of Sphecidae of Saudi Arabia, first record from country: Al Kharj); Kazenas, 2013a:51-54 (color photographs of adult wasps, short information on geographic distribution and nesting habits), 2013b:494 (southeastern Kazakhstan: almost everywhere on the plains, in foothills, and in lower mountains); Mokrousov, Ruchin, and Egorov, 2013:198 (Russia: Mordovian Republic: Mordovian State Nature Reserve); Pankov, 2013:228 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:162 (in annotated catalog of aculeate wasps of Belorussia); Vieira, Oliveira, Brewster, and Gayubo, 2013:15 (Portugal: Serras de Aire e Candeeiros Natural Park); Wiśniowski and Piotrowski, 2013:20 (Poland: Poleski National Park); Baldock, 2014:353 (Spain: Island of Mallorca: Ca'n Picafort and Deià); Bitsch, 2014:397 (France: Ardèche: Rieucros; Isère: Arandon et Grenoble; biological observations by Gros, 2008, recorded); Dunford, Turbyville, and Leavengood, 2014:9 (listed as medically important in Afghanistan); Ebrahimi, 2014:28 (Iran: Alborz, Ardebil, and Tehrān provinces); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:90 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Józán, 2014:132 (Croatia: Karlobag, Tribanj Krušćica); Kazenas, 2014a:133 (Kazakhstan: Karatau Mountain Range); J.-K. Lett, 2015:5 (France: Loir-et-Cher: Gièvre); Rosa and Pagliano, 2015:97 (Italy: Lombardia and Piemonte: Parco del Ticino); Saure, 2015:12 (Germany: Berlin-Lichterfelde); Schedl, 2015:947 (Austria: Tirol: Innsbruck: Botanical Garden); Shorenko, 2015:333 (in list of Sphecidae *sensu lato* of Crimea); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine and Seine-Maritime Department: Anneville-Ambourville); Blažej, Macek, and Trýzna, 2016:112 (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, 2016:16 (Germany: Rheinland-Pfalz: Vulkaneifel District); Else, Bolton and Broad, 2016:8 (in checklist of Aculeata of Great Britain and Ireland: England); Le Divelec, Chapelin-Viscardi, and Larivière, 2016:108 (northern France: in agricultural landscapes, as *boops boops*); Mokrousov and Popov, 2016:565 (Russia: Abkhazia, Krasnodarskiy Krai); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2016:431 (Iran: Fars Province, as *boops boops*); Saure, 2016b:48 (Germany: Sachsen-Anhalt: fruit orchards); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Stolle and Saure, 2016:921 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Wiśniowski, 2016:127 (Poland: Ojców National Park); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:9 (Turkey: Erzurum, Kars, and Tunceli provinces); Durand and Burguet, 2017:2 (France: Puy-de-Dôme: Réserve Naturelle Nationale Chastreix-Sancy); Flügel, 2017:5 (Germany: Hessen: Doline near Rockensüß); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:30 (Iran: known from Alborz, Ardabil, Fars, and Tehran provinces); Magdalou, 2017:14 (France: Pyrénées-Orientales: Réserves Naturelles Catalanes: Julols, Mas Larrieu); Nemkov, 2017b:218 (in catalog of Astatinae of Russia, as *boops boops*); Shorenko, 2017:79 (in Crimea collected in May through August); Twerd, Krzyżyński, Waldon-Rudzionek, and Olszewski, 2017:6 (Poland: Inowrocław and Janikowo: nesting in postindustrial soda ash dumping sites); Creutzburg, Winter, Baumbach, and Ssymank, 2018:216 (Germany: Thüringen: Wachsenburg Nature Reserve); Fallahzadeh, Ljubomirov, Tavakoli Roodi, and Saghaei, 2018:626 (Iran: Hormozgan: Sar Kahnān at 27°24'N 57°07'E);); Jacobs and Liebig, 2018:136 (Russia: Irkutsk Oblast': Bol'shoye Goloustnoye and Ust'-Ordynski steppe); Lett, 2018:202 (France: Loir-et-Cher: Gièvres at 47°16'39"N 1°41'52"E); Ma, Zhang, Ch. Li, Ji, and Q. Li, 2018:486 (China: Shanxi: Lishan National Nature Reserve); Shorenko, 2018:129 (Crimea, including localities, habitats, and number of specimens); Carminati, Mora, and Cretin, 2019:8 (France: in list of Sphecidae *sensu lato* of Franche-Comté); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:89 (Poland: Pomorze Gdańskie = Gdańsk Pomerania); Ruchin and Antropov, 2019a:13221 (Russia: Mordovia State Nature Reserve); Shorenko, 2019:211 (among the commonest sphecid species in Crimea); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:164 (in Sphecid Fauna of Europe); Gadallah, 2020b:21 (in list of aculeate wasps of Arabian Peninsula); Kejval, Blažej, and Erhart, 2020:90 (western Czech Re-

public); Poláček, 2020:59 (Czech Republic: Opava District: Jakartovice: occurring on mine spoil heaps); Saure, 2020:276 (Germany: Sachsen-Anhalt: sand dunes); Shorenko, 2020:48 (Crimea: Karadag Nature Reserve); Ben Khedher, Yildirim, and Braham, 2021a:55 (Tunisia: Mahdia: Sidi Alouane: Ghlalba at 35°22' 49.6" 10°49'50.6"E); Cross, Baldock, and Wood, 2021:20 (in catalog of Sphecidae *sensu lato* of Portugal); Danilov, Odintseva, and Odintsev, 2021:21 (Russia: Omsk Oblast'); Herb and Schmid-Egger, 2021:9 (Germany: Bayern: Kaufbeuren area); Kaplan and Yildirim, 2021:19 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:83 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:81 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Saure and Marten, 2021:134 (Germany: Sachsen-Anhalt: Nationalpark Harz); Can, Çubuk, and Gülmez, 2023:67 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:420 (Uzbekistan: distribution); Jacobs, 2025b:79, 85 (in key to Palearctic *Astata*); 91 (in revision of Palearctic *Astata*).

Tiphia abdominalis Panzer, 1798, Heft 53:5, [♂]. Holotype or syntypes: ♂. Austria: no specific locality (depository?). Synonymized with *Astata boops* by Spinola, 1806:72. – Peets, 1909-1911:68 (*Tiphia abdominalis* of Panzer = *Astata boops*). – **As *Dimorpha abdominalis***: Panzer, 1806:124 (new generic assignment, in critical review of his previous work); Jurine, 1807:147 (in list of European *Dimorpha*); J.Ch. Bradley, 1919a:60 (*Astata boops* is the type species of *Dimorpha* by monotypy); Pagliano, 2011a:112 (specimens in coll. Spinola, Torino, are *Astata boops*, *rufipes*, *sicula*, *Astata* sp. from Chile, and *Dryudella tricolor*), 113 (specimen in coll. Spinola, Torino, is *Astata* sp. from South Africa). – **As *Astata abdominalis***: Latreille, [1805]:297 (new generic assignment, redescription); Audouin, 1822b:34 (in Dictionnaire classique d'histoire naturelle); Stephens, 1829:363 (in catalog of British insects), 1829b:33 (in checklist of British insects); Dufour, 1841a:507 and 1841b:243 (digestive tract), 1841a:508 and 1841b:244 (male reproductive system), 1841a:509 and 1841b:245 (female reproductive system); Ghiliani, 1842:25 (listed from Italy: Sicilia); nec Spinola, 1851:321 (= *Astata spinolae*); de Saussure, 1867:67 (redescription).

Dimorpha oculata Jurine, 1807:147 and pl. 9, Fig. 10, ♂. Holotype or syntypes: ♂. Europe: no specific locality, may be Switzerland (MHNG). Synonymized with *Astata boops* by Frei-Gessner, Kohl, and Kriechbaumer, 1882:393. – **As *Astata oculata***: Vander Linden, 1829:30 (new generic assignment, bibliographic references, Europe); Dahlbom, 1843:141 (in revision of Sphecidae and Pompilidae); F. Smith, 1856:309 (in catalog of Hymenoptera in British Museum); nec Costa, 1867b:89 and 1867c:33 (= *Astata kashmirensis* and *rufipes*); Kirchner, 1867:216 (in catalog of European Hymenoptera); Wierzejski, 1868:117 (Ukraine: Podole Region); Dours, 1874:141 (in catalog of Hymenoptera of France); Wierzejski, 1874:258 (Ukraine: Podole Region: Sinków, now Synkiv; as *oculata*). – **As *Astata boops* var. *oculatus***: Kohl, 1885a:436 (new generic assignment, new status); de Gaulle, 1908:121 (in catalog of French Hymenoptera; as *oculata*); Giner Marí, 1945d:55 (in revision of Spanish *Astata*) – **As *Astata boops* var. *oculata***: Dalla Torre, 1897:653 (in catalog of world Sphecidae); Maidl and Klima, 1939:13 (in catalog of world Astatinae and Bembicinae); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain). – **As *Astata oculatus***: Antiga and Bofill, 1904:9 (Spain: Cataluña Province).

Astata victor Curtis, 1829:261, ♀, ♂. Syntypes: Great Britain: no specific locality (BMNH). Synonymized with *Astata boops* by F. Smith, 1856:309. – Stephens, 1829:363 (in catalog of British insects), 1829b:33 (in checklist of British insects).

As *Larra gibba* Linnaeus: Dahlbom, 1831:48 (redescription).

Astata vanderlindenii Robert, 1833:76, [♀] (as *Vanderlindenii*, incorrect original capitalization). Holotype: ♀, Belgium: Liège (depository?). Synonymized with *Astata boops* by Wesmael, 1852:86, synonymy confirmed by F. Smith, 1856:309. – Guérin-Ménéville, 1844:441 (listed); F. Smith, 1856:310 (in catalog of Hymenoptera in British Museum, as valid species); Brischke, 1862:100 (Germany: Preussen Province, now Poland: Pomorze Region); Kirchner, 1867:216 (in catalog of European Hymenoptera); Kohl, 1883e:672 (Switzerland); Brischke, 1888b:97 (Germany: Preussen Province, now Poland: Pomorze Region); Kohl, 1912a:63 (Austria: Südtirol: Riva, now in Trentino-Alto Adige Region of Italy); Coulon, 1925:120 (France: Evreux, as *Vander Lindenii* Kohl); Bondroit, 1932:38 (is a syno-

nym of *Astata minor*); Maidl and Klima, 1939:18 (in catalog of world Astatinae and Bembicinae); Giner Marí, 1945d:71 (probable synonym of *Astata minor*); Ceballos, 1956:374 (in catalog of Hymenoptera of Spain). – **As *Astatus vanderlinden***: Kohl, 1885a:449 (new generic assignment, in checklist of world *Astatus*).

Astata fuscipes Robert, 1833:76. Not available: published as junior synonym of *Astata vanderlinden* Roberts (Article 11.5).

Astata agilis F. Smith, 1875:39, ♀. Holotype: ♀, India: Nischiudipore, now Bangladesh: Nischindipur at 23°16'N 90°00'E (OXUM). Synonymized with *Astata boops* by Pulawski, 1975a:320. – Kohl, 1885a:447 (in checklist of world *Astatus*); Cameron, 1889c:150 (India, redescription); Bingham, 1897:184 (redescription); Dalla Torre, 1897:651 (in catalog of world Sphecidae); Rothney, 1903:103 (India: West Bengal: Barrackpore); Maxwell-Lefroy, 1909:201 (India: probably widespread); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae).

As *Astata affinis*: Kiesenwetter, 1849:89 (Germany: Kingdom of Saxony: Dresden, Lusitz area).

17. *brevitarsis* Pulawski

Astata brevitarsis Pulawski, 1958b:193, ♀. Holotype: ♀, Hungary: Dömsöd (TMB). – Pulawski, 1967a:387 (Turkey); Balthasar, 1972:288 (in Sphecidae Fauna of Czechoslovakia: not yet found in country); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Pulawski, 1978:229 (in key to Sphecidae of European part of USSR); Schmidt and Westrich, 1983:121 (first record from Greece, description of ♂); Józán, 1986:369 (Hungary: Kiskunság National Park); K. Schmidt and Bitsch in Bitsch et al., 2001:165 (in Sphecidae Fauna of Western Europe); Yildirim and Ljubomirov, 2005:1789 (Turkey: Erzurum: Konaklı, Şenkaa; Iğdir: no specific locality); Ljubomirov and Yildirim, 2008:48 (in catalog of Crabronidae of Turkey); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Standfuss and Standfuss, 2012:427 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Protsenko, Fateryga, and Ivanov, 2014:26 (Crimea: Simferopol' and Opuksk Nature Reserve); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:334 (in list of Sphecidae *sensu lato* of Crimea); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:9 (Turkey: Kars: Sarıkamış: Karakurt; Tunceli: Ovacı); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Shorenko, 2017:79 (in Crimea collected in July and August), 2018:129 (Crimea, including localities, habitats, and number of specimens); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:165 (in Sphecidae Fauna of Europe); Kaplan and Yildirim, 2021:19 (in catalog of Crabronidae of Turkey), 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:78, 80 (in key to Palearctic *Astata*). 96 (in revision of Palearctic *Astata*).

18. *bulbosa* Jacobs

Astata bulbosa Jacobs, 2025b:96, ♂. Holotype: ♂, Mongolia: Segnezer river 90 km north of Ulanbaator (OÖLM). – Jacobs, 2025b:77 (in key to Palearctic *Astata*).

19. *canariensis* Pulawski

As *Astata* sp. aff. *boops*: de Beaumont, 1968a:259 (Canary Islands: Lanzarote, Gran Canaria), corrected to *Astata boops canariensis* by Pulawski, 1974b:299.

Astata boops canariensis Pulawski, 1974b:299, ♀, ♂. Holotype: ♀: Canary Islands: Gran Canaria: Maspalomas (originally W.J. Pulawski coll., now CAS). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Wolf, 1980:72 (Canary Islands); Hohmann, La Roche, Ortega, and Barquín, 1993:214 (detailed locality records from Canary Islands). – **As *Astata canariensis***: Jacobs, 2025b:78, 85 (in key to Palearctic *Astata*), 97 (full species status, in revision of Palearctic *Astata*).

20. *centralis* F. Parker

Astata centralis F. Parker, 1964:556, ♂, ♀. Holotype: ♂. Honduras: Zamorano 20 mi. from Tegucigalpa (MCZ). Paratype: Costa Rica. Not listed by Bohart and Menke, 1976. – Maes, 1989:99 (in catalog of Nicaraguan Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae).

21. *cleopatra* Pulawski

Astata cleopatra Pulawski, 1959:372, ♀, ♂. Holotype: ♀, Egypt: Kom Osheim on Cairo-Fayum road (originally W.J. Pulawski coll., now CAS). – de Beaumont, Bytinski-Salz and Pulawski, 1973:2 (Israel); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Guichard, 1980:225 (Oman); Gadallah and Assery, 2004a:220 (in key to Sphecidae of Jeddah Region, Saudi Arabia), 225 (first record from Saudi Arabia: Hadasham 120 km east of Jeddah); Roche, 2007a:53 (in checklist of Egyptian Crabronidae), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:347 (in new catalog of Sphecidae of Saudi Arabia); Schmid-Egger, 2014:523 (in key to *Astata* of United Arab Emirates), 523 (United Arab Emirates, diagnosis and locality records), 524 (color photographs of male); Gadallah, 2020b:21 (in list of aculeate wasps of Arabian Peninsula); Jacobs, 2025b:76, 81 (in key to Palearctic *Astata*), 99 (in revision of Palearctic *Astata*).

22. *clypeata* F. Parker

Astata clypeata F. Parker, 1962c:651, ♂, ♀. Holotype: ♂, USA: Nebraska: Alliance (CAS). Paratypes: Montana, South Dakota. – F. Parker, 1964:559 (in revision of *Astata* of Mexico and Central America); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); C. Ward et al., 1977:56 (associated with mesquite (*Prosopis laevigata* Humb. and Bonpl. ex Willd.) M.C. Johnst., Fabaceae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae).

23. *cobosi* Giner Marí

As *Astata boops* var. *méridionale* de Beaumont, 1942a:412 (description; southern France).

Astata cobosi Giner Marí, 1946:10, ♀. Syntypes: Morocco: Melilla and Ixmoart (MNCN). – Giner Marí, 1946:8 (Morocco: Ixmoart, Melilla); de Beaumont, 1953g:125 (as synonym of *Astata boops*); Pulawski, 1956:44 (as synonym of *Astata boops*); de Beaumont, 1962b:24 (Spain), 37 (valid species; diagnostic characters); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); R. Bohart and Menke, 1976:212 (as synonym of *Astata boops*); Pagliano, 1989:350 (Italy: Liguria; redescription), 1990:64 (in catalog of Italian Sphecidae); Negrisoló in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province); K. Schmidt and Bitsch in Bitsch et al., 2001:165 (in Sphecidae Fauna of Western Europe); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Pagliano and Negrisoló, 2005:94 (in Sphecidae Fauna of Italy); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia), 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Pagliano, 2009:176 (Italy: Piemonte: Macra, San Benedetto Belbo; Toscana: Venturina); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); van der Smissen, 2010b:383 (France: Ardèche: Font Just, Saint-Thomé, Valvigneres-Intras); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Vieira, Oliveira, Brewster, and Gayubo, 2013:15 (Portugal: Serras de Aire e Candeeiros Natural Park); Bitsch, 2014:397 (France: record from Ardèche Department by van der Smissen, 2010c reported); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:165 (in Sphecidae Fauna of Europe); Cross, Baldock, and Wood, 2021:20 (in catalog of Sphecidae *sensu lato* of Portugal); Jacobs, 2025b:79, 84 (in key to Palearctic *Astata*), 100 (in revision of Palearctic *Astata*).

24. *compta* Nurse

Astata compta Nurse, 1909:510, ♀. Holotype: ♀, India: Rajasthan: Mount Abu (BMNH). – Ramakrishna Aiyar, 1916:551 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Jacobs, Rezaei, and Fallahzadeh, 2023:562 (Iran: Fars: Larestan County: Hormood Abbasi at 27°32'07"N 54°59'02"E, diagnostic characters, redescription of ♂); Jacobs, 2025b:74 (in key to Palearctic *Astata*), 101 (in revision of Palearctic *Astata*).

Astata absoluta Nurse, 1909:511, ♂. Holotype: ♂. India: Rajasthan: Mount Abu (BMNH). Synonymized with *Astata compta* by Pulawski, 1975a:320. – Ramakrishna Aiyar, 1916:551 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae).

25. *cosquin* F. Parker

Astata cosquin F. Parker, 1968b:849, ♀, ♂. Holotype: ♂. Argentina: Sierra de Córdoba: Cosquín (Cornell Univ.). Paratypes: Argentina, Brazil. – Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae).

26. *costae* A. Costa

Astata costae A. Costa, 1867b:90, ♀ (authorship attributed to Piccioli who dedicated it to Oronzio Gabriele Costa; as *Costae*, incorrect original capitalization). Holotype: ♀, Italy: Toscana: no specific locality (Napoli). – A. Costa, 1893b:6 (Tunisia); Baldini, 1894:64 (Italy: Modena area); Dalla Torre, 1897:653 (in catalog of world Sphecidae); Mocsáry, 1897:78 (Hungary: Budapest); Ferton, 1901a:102 (position of egg on prey), 104 (list of prey); Mantero, 1905:72 (Italy: Toscana: Isola del Giglio); Schmiedeknecht, 1907:235 (in key to Hymenoptera of Central Europe); de Gaulle, 1908:121 (in catalog of French Hymenoptera); Mercet, 1910b:163 (listed from Spain); Zilahi Kiss, 1915:80 (Hungary: Boksánbánya); Ferton, 1923:142 (position of egg on prey); Berland, 1925d:109 (in Sphecidae Fauna of France, as *costai*); Schmiedeknecht, 1930:696 (in keys to Hymenoptera of North and Central Europe); Giner Marí, 1934:132 (Spain); Grandi, 1934:129 (Italy: Lazio: Acilia); Nadig, 1934:32 (France: Corse: Bastia); Zavadil, 1937a:73 (eastern Slovakia, as *Costai*); Zavadil, Šusterka, and Bat'a, 1937:204 (in catalog of Sphecidae of Czechoslovakia, as *costai*); Maidl and Klima, 1939:14 (in catalog of world Astatinae and Bembicinae, as *costai*); de Beaumont, 1942a:408 (in revision of *Astata* of Switzerland; in Switzerland only in Valais; as *costai*), 414 (France: Vaucluse, Hérault, Pyrénées-Orientales, Corse); Guiglia, 1942a:57 (Greece: Island of Rhodes: Villanova); Giner Marí, 1943a:118 (in Sphecidae Fauna of Spain, as *costai*), 1945d:60 (in revision of Spanish *Astata*, as *costai*); de Beaumont, 1947b:390 (Cyprus, as *costai*); Dupuis, 1947:112 (list of known heteropteran prey); Šnoflák in Zavadil and Šnoflák, 1948:61, 64 (in key to Sphecidae of Czechoslovakia, as *costai*); de Beaumont, 1950f:403 (Algeria: Aflou); Pittioni, 1950:24 (Cyprus, as *costai*); Balthasar, 1952:66 (Slovakia); de Beaumont, 1953g:126 (Morocco), 1953i:2 (study of holotype; as *costai* Piccioli); Balthasar, 1954d:182 (Slovakia, as *costai* Piccioli); de Beaumont, 1954e:90 (Italy; as *costai* Piccioli); Grandi, 1954:231 (Italy); Vogrin, 1955:36 (Yugoslavia, as *costai* Piccioli); Pulawski, 1956:50 (in revision of European Astatinae); Bajári, 1957a:60, 64 (in key to Hungarian Sphecidae); de Beaumont, 1957b:136 (northern Iran; as *costai* Piccioli); Grandi, 1957:385 (Italy: Abruzzi); Balthasar, 1958:337 (Czechoslovakia: Seleška); Evans, 1958b:179 (discussion of observations by Ferton, 1901); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Pulawski, 1958a:170 (Bulgaria: Aitos, Kniazhevo near Sofia); de Beaumont, 1959a:25 (Italy; as *costai* Piccioli); Suárez, 1959:56 (Spain: Almería Province); de Beaumont, 1960a:14 (Greece: Island of Rhodes; as *costai* Piccioli), 1961c:49 (Greece: Crete Island; as *costai*); Grandi, 1962:95 (Italy); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae, as *costai*); de Beaumont, 1964c:69 (in Sphecidae Fauna of Switzerland, as *costai*), 1965a:44 (Greece; as *costai*); Pulawski, 1965c:571 (synonymy); Bonelli, 1966c:216 (Italy: Trentino–Alto Adige: Montagna); Pulawski, 1967a:387 (Turkey; as *costai*); Balthasar, 1972:289 (in Sphecidae Fauna of Czechoslovakia, as *costai*); Kazenas, 1972:157 (Kazakhstan); Simon Thomas, 1972:181 (France); nec Simon Thomas, 1974:57 (= *Astata minor*);

R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Simon Thomas, 1976:5 (France: Lot-et-Garonne: Forêt de Campet); Georghiou, 1977:189 (Cyprus); Kazenas, 1978b:96, 99 (in key to Sphecidae of Kazakhstan and Central Asia); Marion, 1978:88 (Morocco: Fort de Sidi Bettache, as *costai*); Pulawski, 1978:229, 231 (in key to Sphecidae of European part of USSR); Pagliano, 1980:112 (Italy: Lazio, Toscana); Schmidt and Westrich, 1983:122 (Greece); Gayubo, 1982a:94 (northern Spain: Sierra de Béjar), 1982f:248 (Spain: Cádiz Province), 1984b:82 (Spain: Salamanca Province), 1984c:360 (Portugal: El Algarve Province); Józán, 1985b:56 (Bajári's 1957 record from Simontornya), 69 (map of distribution in Hungary), 83 (ecological and zoogeographic characteristics); Gayubo, 1986c:32 (Spain: Zamora Province); Gayubo and Sanza, 1986:39 (Spain: Burgos); Gayubo and Tormos, 1986a:11 (Spain: Castellón de la Plana); Islamov, 1986:524 (Uzbekistan: Tashkent Oblast'); Józán, 1986:369 (Hungary: Kiskunság National Park); Mingo and Gayubo, 1986:1006 (Spain: many localities); Asís and Jiménez, 1987:26 (Spain: Castellón Province); Karsai, 1988:99 (Hungary: Kiskunság National Park); Pádr in Šedivý, 1989a:168 (in checklist of Czechoslovakian Sphecidae, as *costai*); Gayubo, Asís, and Tormos, 1990a:15 (Spain); Pagliano, 1989:350 (Italy, redescription), 1990:65 (in catalog of Italian Sphecidae); Dollfuss, 1991:91 (in key to Sphecidae of North and Central Europe); Schembri, 1991:179 (first record from Malta); Delarze, 1992:67 (Switzerland: Valais: Les Folletères); Józán, 1992b:173 (Hungary: Boronka-melléki Protected Area); Torregrosa, Gayubo, Tormos, and Asís, 1993:18 (Spain: Alicante Province); Tormos, Asís, and Gayubo, 1994:188, 202 (Spain: Albacete Province); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:406, 407 (in key to Sphecidae of Russian Far East); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); Shkuratov, 1998:97 (Russia: Rostov Oblast'); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); Gonzáles, Gayubo, and Torres, 1999:354 (Spain: Valladolid: Viana de Cega); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Esenbekova and Kazenas, 2000:23 (southeastern Kazakhstan: Borandysu); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province); Józán, 2000:107 (Hungary: Bakony Mountains: Csopak); Kazenas, 2000e:194 (in Sphecidae Fauna of Kazakhstan); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 142 (review of known biology); Ljubomirov, 2001b:48 (Bulgaria: Mount Vitosha near Sofia); K. Schmidt and Bitsch in Bitsch et al., 2001:166 (in Sphecidae Fauna of Western Europe); Kazenas, 2002a:55 (geographic distribution, collecting localities in Kazakhstan); Shkuratov, 2002b:142 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Drewes, 2003:133 (Spain: Tarragona); Gayubo, Özbek, and Yıldırım, 2003:84 (Turkey: Antalya and Erzurum Provinces); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Schmid-Egger, 2003:750 (Italy: Sicilia: six localities); Gayubo, Nieves-Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Shkuratov, 2004a:78 (Russia: Rostov Oblast'); Jacobs, 2005a:439 (Bulgaria: Kiten); Pagliano and Negrisolo, 2005:95 (in Sphecidae Fauna of Italy); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Baños-Picón, Gayubo, Asís, and González, 2007:255, 258 (Spain: Zamora: Cabañas de Aliste); G. Turrisi and R. Turrisi, 2007:116 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Slovakia); Yıldırım and Ljubomirov, 2007:117 (Turkey: Erzurum: Oltu); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and Yıldırım, 2008:49 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina, as *costae costae*); Nemkov, 2009b:74 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:176 (Italy: Valle d'Aosta); Burguet in Durand and Burguet, 2010:47 (France Département d'Ardèche: Ardèche Gorges); Shorenko and Kononov, 2010:12

(Ukraine: Lugansk Oblast'); van der Smissen, 2010b:384 (France: Ardèche: Plateau du Coirion, Saint-Maurice-d'Ibie; Vaucluse: Bédoin); Baghirov, 2011b:140 (Russia: Altay Republic: Kosh-Agach); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Protsenko and Drozdovskaya, 2011:90 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:75 (Turkey: Iğdır: Tuzluca: Mendere); Vieira, Oliveira, Brewster, and Gayubo, 2013:15 (Portugal: Serras de Aire e Candeeiros Natural Park); Bitsch, 2014:397 (France: Ardèche: Saint-Remèze); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Atbaei, Fallahzadeh, and Ljubomirov, 2015:4 (Iran: Fars Province); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Rezaei and Fallahzadeh, 2015:3 (Iran: Fars: Kaftarak at 29°34'N 52°41'E and Dasht e Arzhan at 29°38'N 51°58'E, as *costae costae*); Shorenko, 2015:333 (in list of Sphecidae *sensu lato* of Crimea); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2016:431 (Iran: Fars Province, as *costae costae*); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:9 (Turkey: Ağrı, Artvin, Edirne, Erzurum, Kars, Konya, and Tunceli provinces); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:30 (Iran: known from Fars and Mazandaran provinces); Nemkov, 2017b:218 (in catalog of Astatinae of Russia, as *costae costae*); Shorenko, 2017:79 (in Crimea collected in June), 2018:129 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:166 (in Sphecidae Fauna of Europe); Ben Khedher, Yildirim, and Braham, 2020a:101 (Tunisia: several locality records); Cross, Baldock, and Wood, 2021:21 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:20 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmez, 2023:67 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:420 (Uzbekistan: distribution); Jacobs, 2025b:78,83 (in key to Palearctic *Astatata*), 102 (in revision of Palearctic *Astatata*). – **As *Astatus costae***: Kohl, 1885a:434 (new generic assignment, in key to European *Astatus*), 439 (in revision of European *Astatus*), 448 (in checklist of world *Astatus*), 1885b:728 (Austria: Tirol, now Italy: Alto Adige); Gasperini, 1887:16 (recorded from Dalmatia, now Croatia, by Kohl, 1885a); Gussakovskij, 1927:292 (in revision of Palearctic Astatinae). – **As *Astatata boops* var. *costai***: Ceballos, 1956:373 (new status, in catalog of Hymenoptera of Spain).

Astatata costae A. Costa, 1867c:34. Objective synonym of *Astatata costae* A. Costa, 1867b:90.

Astatata costae Piccioli, 1869a:38, ♀ (as *Costae*, incorrect original capitalization). Objective synonym of *Astatata costae* A. Costa, 1867b:90.

Astatus gracilis Gussakovskij, 1927:210, ♂, nec ♀ (which is *Astatata jucunda*). Lectotype: ♂, Ukraine: Crimea: Sebastopol (ZIN), designated by Pulawski, 1965c:571. Synonymized with *Astatata costae* by de Beaumont, 1942a:409. – Gussakovskij, 1935:426 (Tajikistan: Stalinabad, now Dushanbe); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Myartseva, 1963b:58 (Turkmenistan: lower Murgab River).

ssp. *parvula* Gussakovskij

Astatus parvulus Gussakovskij, 1927:292, ♀. Holotype: ♀, Uzbekistan: Mayskoe near Tashkent (ZIN). – Maidl and Klima, 1939:17 (in catalog of world Astatinae and Bembicinae); Pulawski, 1956:50 (as synonym of *Astatata costae*). – **As *Astatata costae parvula***: de Beaumont, 1942a:409 (new generic assignment, new status); Myartseva, 1972a:76 (Turkmenistan; as *costai* var. *parvula*); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Kazenas, 1978b:96, 99 (in key to Sphecidae of Kazakhstan and Central Asia), 1992c:25 (Turkmenistan: Repetek Nature Reserve); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Kazenas, 2000e:196 (in Sphecidae Fauna of Kazakhstan), 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:55 (geographic distribution, collecting localities in Kazakhstan).

27. *diabolica* Balthasar

Astata diabolica Balthasar, 1957b:188, ♀, ♂. Holotype: ♀, Afghanistan: Kundus Valley: Doab (originally V. Balthasar coll., now NMPC). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Dunford, Turbyville, and Leavengood, 2014:9 (listed as medically important in Afghanistan); Jacobs, 2025b:105 (in revision of Palearctic *Astata*).

28. *diversipes* Pulawski

Astata diversipes Pulawski, 1955a:93, ♂. Holotype: ♂. Turkey: Sivas (originally W.J. Pulawski coll., now CAS). – Pulawski, 1959:379 (description of ♀, Syria: Damascus); Pulawski, 1967a:387 (Turkey); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Gayubo, Özbek, and Yıldırım, 2003:85 (Turkey: Erzincan); Ljubomirov and Yildirim, 2008:50 (in catalog of Crabronidae of Turkey); Murai and Amr, 2011:118 (recorded from Syria by Pulawski, 1955); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces), 19 (is an endemic of Turkey); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Kaplan and Yildirim, 2021:20 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmez, 2023:68 (Turkey: Sivas: Zara: Kumoğu; Tokat: Niksar: Akıncı); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:74, 81 (in key to Palearctic *Astata*), 105 (in revision of Palearctic *Astata*).

29. *dominica* Pate

Astata dominica Pate, 1948a:230, ♀. Holotype: ♀, Dominican Republic: no specific locality (ANSP). – F. Parker, 1968a:328 (in review of *Astata* of Caribbean Islands); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); H. Allen, 1995:15 (type in ANSP); Perez-Gelabert, 2008:240 (in list of arthropods of island of Hispaniola).

30. *enslini* Maidl

Astata enslini Maidl, 1924:239, ♂. Holotype: ♂. Sudan: Kordofan: Sennar (NHMW). – von Schulthess, 1926a:157 (differences with *Astata bifasciata*, now in *Dryudella*); Maidl and Klima, 1939:18 (in catalog of world Astatinae and Bembicinae); Pulawski, 1959:370 (redescription); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Dollfuss, 1989:7 (holotype in NHMW); Jacobs, 2023b:252 (redescription), 265 (in key to Subsaharan *Astata*), 2025b:73 (in key to Palearctic *Astata*), 106 (in revision of Palearctic *Astata*).

31. *evansi* F. Parker

Astata evansi F. Parker, 1964:556, ♂. Holotype: ♂. Mexico: Puebla: 3 mi. northwest of Petalcingo (UCD). Not listed by Bohart and Menke, 1976; Amarante, 2002:6 (in catalog of Neotropical Crabronidae).

32. *femorata* F. Parker

Astata femorata F. Parker, 1963:185, ♀. Holotype: ♂. USA: Arizona: Santa Cruz County: Peña Blanca (CAS). – F. Parker, 1964:559 (in revision of *Astata* of Mexico and Central America); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera).

33. *flavipennis* (R. Turner)

Dimorpha flavipennis R. Turner, 1917f:296, ♂. Holotype or syntypes: ♂, Kenya: 30 mi. from Magadi Junction (BMNH). – **As *Astata flavipennis***: Arnold, 1923c:41 (new generic assignment, original description copied), 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:18 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Jacobs, 2023b:252 (Ethiopia: near Wachile at 4°32'N 39°03'E), 266 (in key to Subsaharan *Astata*).

34. *fumipennis* E. Saunders

Astata fumipennis E. Saunders, 1910:519, ♀. Holotype: ♀, Algeria: Biskra (OXUM). – Morice, 1911:96 (Algeria: Biskra). – **As *Astata fumipennis***: von Schulthess, 1926b:213 (new generic assignment, Tunisia: Nefta, Sfax, description of ♂); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Honoré, 1943:60 (Egypt: Gebel Asfar near Cairo); Pulawski, 1957:84 (redescription); R. Bohart and Menke, 1976:212 (in checklist

of world Sphecidae); Roche, 2007a:53 (in checklist of Egyptian Crabronidae recorded from Egypt by Honoré, 1942), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae, old record, not confirmed by recent collecting); Ben Khedher, Yildirim, Braham, and Chaaban, 2019:190 (known from Tunisia: Tozeur Province); Jacobs, 2025b:82 (in key to Palearctic *Astata*), 107 (in revision of Palearctic *Astata*).

35. *fuscistigma* Cameron

Astata fuscistigma Cameron, 1905g:258, ♂. Holotype or syntypes: ♂. South Africa: Eastern Cape Province: Dunbrody at 33°29'S 25°33'E (BMNH). – Arnold, 1923c:42 (original description copied, description of ♀), 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); Arnold, 1946:87 (geographic variation), 1951:119 (Ghana: Accra); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Gess, 1981:19 (South Africa: Hilton Farm 18 km west-northwest of Grahamstown; nesting in friable soils); S. Gess and F. Gess, 2003:101 (Namibia: visiting flowers of *Limeum argutecarinatum* Wawra and Peyr., Aizoaceae, and *Deverra denudata* (Viv.) Pfisterer and Podl., Apiaceae); Jacobs, 2023b:252 (redescription of *Astata fuscistigma* species complex), 264, 265 (in key to Subsaharan *Astata*).

ssp. albopilosella Cameron

Astata albopilosella Cameron, 1910a:130, ♂. Holotype or syntypes: ♂. South Africa: Transvaal, now Gauteng, Limpopo, and Mpumalanga provinces: no specific locality (TMP). – Brauns, 1917:241 (type in TMP); Arnold, 1923c:41 (description of ♀, in revision of southern African *Astata*), 1924:37 (*albopilosella* is a northern variety of *fuscistigma*), 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:18 (in catalog of world Astatinae and Bembicinae, as *albopisella*). – As *Astata fuscistigma albopilosella*: R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae).

ssp. nana Arnold

Astata fuscistigma race *nana* Arnold, 1946:87, ♀, ♂. Syntypes: South Africa: Western Cape Province: Mossel Bay (SAM). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae).

36. *gallica* de Beaumont

Astata gallica de Beaumont, 1942a:413, ♀, ♂. Holotype: ♀, France: Var: Callian (Basel). – Giner Marí, 1946:8 (Morocco: Muley Rechid, Ixmoart); nec Šnoflák in Zavadil and Šnoflák, 1948:62, 64 (= *Astata jucunda*); de Beaumont, 1953g:125 (Morocco); Pulawski, 1956:48 (in revision of European Astatinae); nec Bajári, 1957a:62, 64 and 1957b:135 (= *Astata jucunda*); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer area); nec Pulawski, 1958a:170 (= *Astata jucunda*); de Beaumont, 1959a:25 (Italy); Noskiewicz and Pulawski, 1960:110, 113 (in key to Polish Sphecidae, not yet found in Poland); Balthasar, 1972:288 (in Sphecidae Fauna of Czechoslovakia: may be expected in country); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Pagliano, 1980:112 (Italy: Puglia); Gayubo, 1982f:249 (Spain: Cádiz Province: Los Barrios, Guadiaro), 1983f:277 (first record from Spain: Cáceres and Salamanca Provinces), 1984b:82 (Spain: Salamanca Province), 1984c:360 (Portugal: El Algarve Province); nec Józán, 1985b:56 (= *Astata jucunda*); Gayubo, 1986c:32 (Spain: Zamora Province); Gayubo and Heras, 1986:37 (Spain: Segovia and Valladolid Provinces; floral records); Gayubo and Sanza, 1986:39 (Spain: Burgos, Soria); Gayubo and Tormos, 1986a:11 (Spain: Castellón de la Plana); nec Józán, 1986:369 (= *Astata jucunda*); Mingo and Gayubo, 1986:1007 (distribution in Spain); Asís and Jiménez, 1987:26 (Spain: Castellón Province); Gayubo, 1987a:110 (Spain: Ciudad Real Province); Pádr in Šedivy, 1989a:168 (in checklist of Czechoslovakian Sphecidae, probably in error); Pagliano, 1989:351 (Italy, redescription), 1990:65 (in catalog of Italian Sphecidae); Negrisol and Pagliano, 1993:91 (Italy: Sardegna); Negrisol in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Kuhlmann, 1996:219 (Portugal: Serra de Estrela); K. Schmidt and Bitsch in Bitsch et al., 2001:167 (in Sphecidae Fauna of Western Europe); Drewes, 2003:133 (Spain: Tarragona); nec Józán, 2001:278 and 2002:53 (= *Astata jucunda*); Gayubo, Özbek, and Yildirim, 2003:85 (first record from Turkey: Erzurum: Dutçu, probably *Astata jucunda*); Schmid-Egger, 2003:75050 (Italy: Sicilia: Castelammare); Gayubo, Nieves-

Aldrey, González, Tormos, Rey del Castillo, and Asís, 2004:108 (Spain: Madrid: Monte de El Pardo); Pagliano and Negrisoló, 2005:95 (in Sphecidae Fauna of Italy); Tomarchio and Turrise, 2006:954 (Italy: Sicilia: Catania); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia, probably *Astata jucunda*); Ljubomirov and Yildirim, 2008:50 (in catalog of Crabronidae of Turkey, probably in error); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Pagliano, 2009:176 (Italy: Piemonte: San Benedetto Belbo); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary, probably *Astata jucunda*); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:75 (Turkey: Erzurum: Oltu: Sarisaz, probably in error); Bitsch, 2014:397 (recent record from Italy: Sicilia reported; France: Ariège: Rieucros and Haute-Garonne: Grépiac); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces, probably in error); Baldock, 2015:68 (Spain: Mallorca: Cala Mesquida); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey, probably in error); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:9 (Turkey: Erzurum and Kars provinces, probably in error); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:166 (in Sphecidae Fauna of Europe); Ben Khedher, Yildirim, and Braham, 2021a:55 (first record from Tunisia: Mahdia: Sidi Alouane: Oued Beja: Khdhara at 35°19'52.2"N, 10°53'16.9"E); Cross, Baldock, and Wood, 2021:21 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:20 (in catalog of Crabronidae of Turkey, probably a misdetermination of *Astata jucunda*); Can, Çubuk, and Gülmez, 2023:68 (Turkey: Kelkit Valley, probably a misdetermination of *Astata jucunda*); Jacobs, 2025b:78, 84 (in key to Palearctic *Astata*), 107 (in revision of Palearctic *Astata*).

As *Astata boops*: Ferton, 1901a:102 (position of egg on prey) and 103 (list of prey), 1908:558 (prey), 1910:158 (prey), 1923:142 (position of egg on prey), present correction based on examination of Ferton's specimens on 12 May 1978.

37. *gigas* Taschenberg

Astata gigas Taschenberg, 1870:17, ♀. Holotype: ♀, Brazil: Nova Friburgo (Halle). – Dalla Torre, 1897:653 (in catalog of world Sphecidae); Maidl and Klima, 1939:21 (in catalog of world Astatinae and Bembicinae); F. Parker, 1968b:849 (in revision of South American *Astata*; Argentina to Mexico); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae).

Astata strigosus Kohl, 1888a:147, ♀. Holotype or syntypes: ♀, Mexico: Orizaba: no specific locality (NHMW, but MHNG according to F. Parker, 1968b:849). Synonymized with *Astata gigas* by F. Parker, 1968b:849. – Ashmead, 1899d:330 (in checklist of North American Crabronidae). – As *Astata strigosa*: Dalla Torre, 1897:656 (new generic assignment, in catalog of world Sphecidae); Cameron, 1890a:65 (redescription, determination tentative); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae); F. Parker, 1964:558 (in revision of *Astata* of Mexico and Central America); Dollfuss, 1989:7 (type series in NHMW).

38. *glabra* (Kohl)

Astata glaber Kohl, 1892:230, ♀. Holotype or syntypes: ♀, Brazil: Rio Grande do Sul: no specific locality (NHMW, now lost: F. Parker, 1968b:845). – As *Astata glabra*: Dalla Torre, 1897:653 (new generic assignment, in catalog of world Sphecidae); Maidl and Klima, 1939:21 (in catalog of world Astatinae and Bembicinae); F. Parker, 1968b:845 (in revision of South American *Astata*; Venezuela); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae).

39. *gobiensis* Jacobs

Astata gobiensis Jacobs, 2025b:108, ♂. Holotype: ♂, Mongolia: Bayanzag 100 km southwest of Dalanzadgad (OÖLM). – Jacobs, 2025b:79 (in key to Palearctic *Astata*).

40. *gracilicornis* Arnold

Astata gracilicornis Arnold, 1924:33, ♀, ♂. Syntypes: Zimbabwe: Bulawayo, Sawmills (SAM). – Arnold, 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Hancock, Chahwanda, and Mhlanga, 1995:37 (specimens in Bulawayo Museum); Jacobs, 2023b:254 (redescription of ♂ after Arnold, 1924), 264, 265 (in key to Sub-Saharan *Astata*).

41. *graeca* de Beaumont

As *Astata boops* var.: de Beaumont, 1947b:390 (Cyprus), present correction.

Astata boops graeca de Beaumont, 1965a:42, ♀, ♂. Holotype: ♀, Greece: Corinth (M. Schwarz coll., Linz). – Pulawski, 1967a:386 (Turkey); Krombein, 1972b:384 (prey: *Lygaeus pandurus* (Scopoli), Lygaeidae); de Beaumont, Bytinski-Salz and Pulawski, 1973:2 (Israel); Piek and Spanjer, 1986:180 (in list of Sphecidae with known prey); Dollfuss, 1989:7 (paratype in NHMW). – As *Astata graeca*: Pulawski, 1974b:301 (full species status); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Gayubo and Borsato, 1994:206 (first record from Italy: Veneto: Cancellò); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:106 (Greece); K. Schmidt and Bitsch in Bitsch et al., 2001:167 (in Sphecidae Fauna of Western Europe); Gayubo, Özbek, and Yıldırım, 2003:85 (Turkey: Kars: Digor: Karaköy); Pagliano and Negrisolo, 2005:96 (in Sphecidae Fauna of Italy); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Ljubomirov and Yıldırım, 2008:50 (in catalog of Crabronidae of Turkey); Pagliano, 2009:176 (France: Corse: Bastia); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Schmid-Egger, 2014:522, 523 (in key to *Astata* of United Arab Emirates), 525 (United Arab Emirates, diagnosis and locality records), 526 (color photographs of female), 527 (color photographs of male); Bitsch, 2014:397 (record of Pagliano, 2008 from France: Corse reported); Ebrahimi, 2014:29 (Iran: Markazi: Khomein: Majdiān); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from Markazi Province); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:167 (in Sphecidae Fauna of Europe); Gadallah, 2020b:21 (in list of aculeate wasps of Arabian Peninsula); Kaplan and Yıldırım, 2021:21 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmöz, 2023:68 (Turkey: Kelkit Valley); Kaplan and Yıldırım, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:78, 85 (in key to Palearctic *Astata*), 109 (in revision of Palearctic *Astata*).

42. *hera* Arens

Astata hera Arens, 2014:133, ♂. Holotype: ♂, Greece: Peloponnesus: plateau near Kato Loussi (ZSBS). – Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:167 (in Sphecidae Fauna of Europe); Jacobs, 2025b:78 (in key to Palearctic *Astata*), 111 (in revision of Palearctic *Astata*).

43. *hirsuta* Jacobs

Astata hirsuta Jacobs, 2025b:112, ♂. Holotype: ♂, Saudi Arabia: Jizan river 2 km southeast of Al Hasamah at 16.824°N 42.978°E (personal collection of Ch. Schmid-Egger, Berlin, Germany). – Jacobs, 2025b:74 (in key to Palearctic *Astata*).

44. *iranica* Jacobs

Astata iranica Jacobs, 2025b:113, ♂. Holotype: ♂, Iran: East Azerbaijan Province: Sis 10 km east of Shabestar at 38°26'N 45°86'E (OÖLM). – Jacobs, 2025b:79 (in key to Palearctic *Astata*).

45. *jucunda* Pulawski

As *Astata gracilis*: Gussakovskij, 1927:290 (♀ only), corrected to *Astata jucunda* by Pulawski, 1965c:571.

As *Astata gallica*, present correction to *Astata jucunda* based on geographic distribution: Šnoflák in Zavadil and Šnoflák, 1948:62, 64 (in key to Sphecidae of Czechoslovakia); Bajári, 1957a:62, 64 (in key to Hungarian Sphecidae), 1957b:135 (first record from Hungary); Józán, 1985b:56 (Hungary: Pécs: Cserkút), 76 (floral records), 83 (ecological and zoogeographic characteristics), 1986:369 (Hungary: Kiskunság National Park), 2001:278 (Hungary: Somogy County), 2002:53 (Hungary: Mecsek Mountains), 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Shorenko, 2015:334 (in list of Sphecidae *sensu lato* of Crimea); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from West Azerbaijan Province); Kaplan and Yildirim, 2021:20 (in catalog of Crabronidae of Turkey).

As *Astata gallica* var.: Pulawski, 1958a:170 (Bulgaria: Kniazhevo near Sofia), corrected to *Astata jucunda* by Pulawski, 1959:361.

Astata jucunda Pulawski, 1959:361, ♀, ♂. Holotype: ♀, Bulgaria: Kniazhevo south of Sofia (originally W.J. Pulawski coll., now CAS). – de Beaumont, 1965a:44 (Greece); Pulawski, 1967a:387 (Turkey); Balthasar, 1972:289 (in Sphecidae Fauna of Czechoslovakia: not yet found in country); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Pulawski, 1978:229, 231 (in key to Sphecidae of European part of USSR); Dollfuss, 1991:91 (in key to Sphecidae of North and Central Europe); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Józán, 2000:107 (Hungary: Bakony Mountains); Ljubomirov, 2000:9 (Bulgaria, specimens in N. Nedelkov collection); Ivanov and Ljubomirov, 2001:211 (Bulgaria: Kresna Gorge at 41°48'N 23°10'E); Ljubomirov, 2001b:48 (Bulgaria: Mount Vitosha near Sofia); K. Schmidt and Bitsch in Bitsch et al., 2001:168 (in Sphecidae Fauna of Western Europe); Gayubo, Özbek, and Yildirim, 2003:85 (Turkey: Artvin, Bilecik, Erzurum, and Tekirdağ Provinces); Yildirim and Ljubomirov, 2005:1789 (Turkey: Erzincan: no specific locality: Erzurum: Olur, University campus; Konya: Güneysınır); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Vepřek and Straka, 2007:201 (in catalog of Sphecidae of Czech Republic and Slovakia, known only from Slovakia), 221 (Slovakia: Kamenica nad Hronom, Slovenské Nové Mesto); Yildirim and Ljubomirov, 2007:117 (Turkey: Erzurum: Oltu; Kars: Sarkamış; Karakurt); Ljubomirov and Yildirim, 2008:52 (in catalog of Crabronidae of Turkey); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Sakenin, Samin, and Bagriacik, 2010:16 (Iran: West Azarbayjan: Osnavieh); Shorenko and Konovalov, 2010:12 (Ukraine: Crimea, Lugansk Oblast'); Baghirov, 2011b:140 (Russia: Altayskiy Kray: Savvushka); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Protsenko and Drozdovskaya, 2011:90 (Ukraine: Mikolaiv Oblast': Bugskiy Guard National Park); Protsenko, Fateryga, and Ivanov, 2014:26 (Crimea: two localities); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Mokrousov and Popov, 2016:565 (Russia: Krasnodarskiy Kray); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from West Azerbaijan Province); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Shorenko, 2017:79 (in Crimea collected in June and July), 2018:129 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:167 (in Sphecidae Fauna of Europe); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey), 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:79, 84 (in key to Palearctic *Astata*), 114 (in revision of Palearctic *Astata*).

46. *kashmirensis* Nurse

Astata kashmirensis Nurse, 1909:511, ♂. Holotype: ♂, Kashmir: no specific locality (BMNH). – Ramakrishna Aiyar, 1916:551 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Pulawski, 1978:230, 231 (in key to Sphecidae of European part of USSR); Pagliano, 1980:112 (Italy: Piemonte); Schmidt,

1981:216 (Germany: first record from Baden-Württemberg: Jöhlingenm, Karlsruhe, Stutensee); Gayubo, 1982a:95 (northern Spain: Sierra de Béjar), 1984b:96 (Spain: previously recorded from Salamanca Province), 1984c:361 (Portugal: El Algarve Province); Gayubo, 1985c:168 (Spain: Valladolid: Valladolid); Józán, 1985b:56 (Hungary south of Lake Balaton), 83 (ecological and zoogeographic characteristics); Westrich and Schmidt, 1985b:110 (Germany: endangered in Baden-Württemberg); Gayubo, 1986c:32 (Spain: Zamora Province); Gayubo and Sanza, 1986:40 (Spain: Burgos); Islamov, 1986:524 (Uzbekistan: Tashkent Oblast'); Mingo and Gayubo, 1986:1008 (distribution in Spain); Dollfuss, 1987:20 (first record from Austria), 1988:12 (Austria: Bisamberg near Vienna); Karsai, 1988:99 (Hungary: Kiskunság National Park); Jacobs, 1989:10 (Germany: Mecklenburg-Vorpommern); Pagliano, 1989:351 (Italy, redescription); Jacobs and Oehlke, 1990:122 (not collected in Democratic Germany after 1960), 160 (Democratic Germany: Waren); Kuznetsova, 1990:21 (Russia: Voronezh Oblast': Galich'ya Gora Nature Reserve); Pagliano, 1990:65 (in catalog of Italian Sphecidae); Day, 1991:xiii (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:91 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1991:400 (Italy: Emilia, Sicilia); Józán, 1992a:229 (Hungary: Béda-Karapancsa Protected Area), 1992c:289 (Hungary: Zselic Hills); Dollfuss, 1994:103 (endangered in Austria); Gayubo and Borsato, 1994:206 (Italy: Veneto); Theunert, 1994c:33 (Germany: summary of records from Niedersachsen and Bremen); Gusenleitner, 1995:160 (Austria: Burgenland); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Negrisoló *in* Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:406, 407 (in key to Sphecidae of Russian Far East); Pagliano and Pesarini, 1995:86 (Italy: Ferrara Province); Schmid-Egger, Risch, and Niehuis, 1995:165 (Germany: summary of records from Rheinland-Pfalz); Gusenleitner, 1996a:8 (Austria: Niederösterreich), 1996b: (Austria: Burgenland); Schmid-Egger, Schmidt, and Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:6 (in checklist of German Sphecidae); Schnee, 1997:100, 101 (Germany: Sachsen: gravel pit Reibitz), 101 (sand pit Trossin); F. Burger, Saure, and Oehlke, 1998:26 (Germany: in list of Sphecidae of Brandenburg), 34 (endangered); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); Gorobchishin, 1998a:48 (Ukraine: Kiev and surroundings); Gusenleitner, 1998:498 (Austria: Niederösterreich: Falkenstein-Übermaiß); K. Weber, 1998:134 (Germany: Bayern: Bamberg area); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Blösch, 2000:211 (in Sphecid Fauna of Germany); Esenbekova and Kazenas, 2000:23 (southeastern Kazakhstan: five localities); Jacobs, 2000:6, 16 (Germany: Land Mecklenburg-Vorpommern: extinct); Józán, 2000:107 (Hungary: Bakony Mountains); Kazenas, 2000e:197 (in Sphecid Fauna of Kazakhstan); Shkuratov, 2000:59 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia); Kazenas and Esenbekova, 2001:134 (Kazakhstan: Almatinskiy Nature Reserve); Ljubomirov, 2001b:48 (Bulgaria: Mount Vitosha near Sofia); Ohl et al., 2001:137 (distribution in Germany by provinces); K. Schmidt and Bitsch *in* Bitsch et al., 2001:169 (in Sphecid Fauna of Western Europe); Zettel, Gross, and Mazzucco, 2001:71 (Austria: Wien); Kazenas, 2002a:55 (geographic distribution, collecting localities in Kazakhstan); Gayubo, Özbek, and Yıldırım, 2003:85 (Turkey: many localities); Józán, 2003:227 (Hungary: Látrányi Pusztá Nature Conservation Area); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:63 (Germany: in catalog of wasps and bees of Bayern); Protsenko, 2003:68, 69 (Ukraine: Odessa Oblast': Malyi Tataru island in Danube delta at 45.21°N 29.00°E); Schmid-Egger, 2003:750 (Italy: Basilicata: Lauria, Sicilia: Castalammare); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:195 (Germany: Bayern: extinct or no longer collected); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Kazenas, 2004b:102 (Kazakhstan: western Tien Shan); Shkuratov, 2004a:78 (Russia: Rostov Oblast'), 2004b:167 (Russia: Rostov Oblast': Gosudarstvennyi Muzei-Zapovednik M.A. Sholokhova); 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, 2004:43 and 60 (in checklist of Polish Sphecidae); Burger,

2005:31 (Germany: Thüringen); Ebrahimi, 2005:128 (in key to selected Iranian Sphecidae); Gülmez and Tüzün, 2005:55 (Turkey: Ankara Province); Gusenleitner, 2005:1204 (Austria: Niederösterreich: Absdorf northwest of Tulln at 48°24'N 15°59'E); Pagliano and Negrisol, 2005:96 (in Sphecid Fauna of Italy); Reder, 2005:948 (Germany: Rheinland-Pfalz: ten localities); Saure, 2005:13 (Germany: Berlin); Straka, 2005a:397 (critically endangered in Czech Republic); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Yıldırım and Ljubomirov, 2005:1789 (Turkey: Ankara: Şereflikoçhisar; Erzurum: Şenkaya); Ziska and Saure, 2005:80 (Germany: Berlin: Biesenhorster Sand); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Jacobs, 2007:89 (in key to Crabronidae of Germany); Józán, 2007:179 (Hungary: Zselic hills); Saure, 2007:81 (Germany: in checklist of Aculeata of Brandenburg); Shorenko, 2007b:257 (Ukraine: Crimea: Feodosiya); Vepřek and Straka, 2007:202 (in catalog of Sphecidae of Czech Republic and Slovakia); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Ljubomirov and Yıldırım, 2008:52 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:19 (in catalog of Crabronidae of Asiatic Russia); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Fallahzadeh, Ostovan, and Saghaei, 2009:236 (Iran: Fars: Dasht-e Arzan, Jahrom, Kazeron, Zarghan), 242 (color photograph); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina, as *kashmirensis kashmirensis*); Nemkov, 2009b:74 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:177 (France: Corse: Fautea); Ermilov and Mokrousov, 2010:89 (phoretic mites *Acarus psenuli* (Vitzthum), Acaridae, and *Parawinterschmidtia kneissli* (Krausse), Winterschmidtidae, in Middle Volga Region of Russia); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Burguet in Durand and Burguet, 2010:47 (France Département d'Ardèche: Ardèche Gorges); Ghazi-Soltani, Ebrahimi, Iranipour, and Pour Abad, 2010:799 (Iran: East Azerbaijan: Tabriz: Khalatpoushan); Ghazi-Soltani, Khaghaninia, and Shahim, 2010:638 (Iran: East Azerbaijan: Horand Forests); Mokrousov, 2010a:60 (Russia: Nizhniy Novgorod Oblast: no specific localities), 2010c:107 (Russia: Chuvash Republic: State Nature Reserve Prisurskiy); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: very rare); Shorenko and Konovalov, 2010:13 (Ukraine); van der Smitten, 2010b:384 (France: Ardèche: Saint-Maurice-d'Ibie, Saint-Thomé; Gard: Collias); Baghirov, 2011b:140 (Russia: recorded from Altay by Nemkov in Nemkov, Kazenas, Budrys, et Antropov, 1995:406, 407); Burger, 2010:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire), 501 (exclusive species of burned areas); Gogala, 2011:13 (Slovenia: Podčetrtek); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Mokrousov, Berezin, and Egorov, 2011:66 (Russia: Chuvash Republic); Saure, 2011a:5 (Germany: Berlin: former airport Tempelhof); Schmid-Egger, 2011a:36 (France: Parc National du Mercantour); Theunert, 2011a:18 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:55 (Germany: Hessen: strongly endangered); Boillat, 2012:225 (Switzerland: in checklist of insects of Canton de Genève); R. Burger, 2012:32 (Germany: Rheinland-Pfalz: Sandrennbahn near Altrip); Nemkov, 2012c:438 (in catalog of Crabronidae of Russian Far East); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yıldırım, 2012:75 (Turkey: Erzurum, Iğdır, and Kars provinces); Olszewski, Wiśniowski, Pawlikowski, and Szpila, 2013:131 (Poland: near Pińczów, Góry Pieprzowe near Sandomierz); Pankov, 2013:228 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Vieira, Oliveira, Brewster, and Gayubo, 2013:15 (Portugal: Serras de Aire e Candeeiros Natural Park); Bitsch, 2014:397 (France: Ardèche: Saint-Remèze; Haut-Rhin: Turckheim; records from France by van der Smitten, 2010b, and Schmid-Egger, 2011a reported); Ebrahimi, 2014:29 (Iran: Khorāsān-e Razavi: Mashad: Ābkouh); Kazenas, 2014a:133 (Kazakhstan: Karatau Mountain Range); Protsenko, Fateryga, and Ivanov, 2014:26 (Crimea: several localities); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:137 (in checklist of Hyme-

- noptera of Turkey); Mokrousov and Egorov, 2015:424 (Russia: Republic of Mordovia: Nature State Reserve Pri-surskiy); Saure, 2015:12 (Germany: Berlin-Lichterfelde); Shorenko, 2015:334 (in list of Sphecidae *sensu lato* of Crimea); Mokrousov and Popov, 2016:565 (Russia: Krasnodarskiy Kray); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2016:431 (Iran: Fars Province, as *kashmirensis kashmirensis*); Samin and Bagriacik, 2016:495 (Iran: West Azarbaijan Province: Oshnavieh); Stolle and Saure, 2016:921 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:9 (Turkey: Erzurum, Isparta, Kars, Şanlıurfa, and Tunceli provinces); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from East Azerbaijan, Fars, Khorasan-e Razavi, and Qazvin provinces); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Shorenko, 2017:79 (in Crimea collected in June through September), 2018:129 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:6 (Azerbaijan: Nakhi-chevan Autonomous Republic); Akulov, Proshchalykin, and Mokrousov, 2020:46 (Russia: central Krasnoyarsk Kray); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:168 (in Sphecidae Fauna of Europe); Shorenko, 2020:48 (Crimea: Karadag Nature Reserve); Cross, Baldock, and Wood, 2021:21 (in catalog of Sphecidae *sensu lato* of Portugal); Danilov, Odintseva, and Odintsev, 2021:21 (Russia: Omsk Oblast'); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:83 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:81 (Germany: Brandenburg: Nature Reserve Fer-bitzer Bruch near Potsdam); Can, 2022a:222 (supernumerary vein in forewing); Can, Çubuk, and Gülmez, 2023:68 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:420 (Uzbekistan: distribution); Jacobs, 2025b:73, 75, 81 (in key to Palearctic *Astata*), 115 (in revision of Palearctic *Astata*).
- As *Astata oculata*: Costa, 1867:89 and 1867c:33(♀ only, in revision of Italian Sphecidae), corrected to *Astata stecki* by de Beaumont, 1953i:2.
- As *Astata rufipes*: Gussakovskij, 1927:288 (♂ only; in revision of Palearctic Astatinae); Zavadil, 1932:96 (Czechoslovakia), author's correction in the reprint.
- As *Astata minor* (corrected to *Astata stecki* by Pulawski, 1959:369): Minkiewicz, 1934:191 (nesting habits), 1935:195 (Poland: Kazimierz on Wisła at 51°20'N 21°58'E).
- Astata stecki* de Beaumont, 1942a:407, ♀, ♂. Holotype: Switzerland: Valais: Euseigne (Basel). Synonymized with *Astata kashmirensis* by Pulawski, 1975a:320. – de Beaumont, 1942a:414 (France: Carpentras, Digne, Banyuls-sur-Mer); Blüthgen, 1944:30 (Germany: Naumburg); Balthasar, 1945:115 (Czech Republic: southeastern Morava Region); Giner Marí, 1945d:62 (in revision of Spanish *Astata*); de Beaumont, 1947b:390 (Cyprus); Balthasar, 1948:143 (Slovakia: Parkan); Šnoflák in Zavadil and Šnoflák, 1948:61, 63 (in key to Sphecidae of Czechoslovakia); Pittioni, 1950:24 (Cyprus); de Beaumont, 1951h:33 (Switzerland: Neuchâtel area), 1953g:126 (Morocco), 1954e:90 (Italy); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain); Pulawski, 1956:55 (in revision of European Astatinae); Bajári, 1957a:62, 64 (in key to Hungarian Sphecidae), 1957b:135 (first record from Hungary); de Beaumont, 1957b:136 (northern Iran); Grandi, 1957:385 (Italy: Abruzzi); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Pulawski, 1958a:171 (Bulgaria: Aitos, Kniazhevo near Sofia, mouth of Ropotamo River); de Beaumont, 1959a:25 (Italy); Wolf, 1959b:23 (found in Germany, but not in Nassau); Noskiewicz and Puławski, 1960:111, 112 (in key to Polish Sphecidae); Grandi, 1962:95 (Italy); de Beaumont, 1964c:70 (in Sphecidae Fauna of Switzerland), 1965a:44 (Greece); Balthasar, M. Hrubant, and E. Hrubant, 1967:171 (Bulgaria: Slanchev Bryag near Nessebar); Niedl and Deneš, 1967:82 (Czech Republic: Třeboň area); Pulawski, 1967a:387 (Turkey); Benedek, 1969b:421 (Hungary: Csopak, collected in vicinity of aphid *Hyalopteritena pruni* (Geoffroy)); Schmidt, 1969:163 (Germany: Rhein-Main area: Stromberg, Wiesbaden); Oehlke, 1970:709 (Democratic Germany); Tsuneki, 1971m:20 (China: Peking, now Beijing); Balthasar, 1972:290 (in Sphecidae Fauna of Czechoslovakia); Myartseva, 1972a:76 (Turkmenistan); Kazenas, 1972b:158 (Kazakhstan; determination tentative); Erlandsson, 1974:70 (France); Georghiou, 1977:189 (Cyprus); Haeseler, 1977a:24 (Germany: Niedersachsen: Braunschweig); Kolesnikov, 1977:318 (Russia: Bryansk Oblast'); Kazenas, 1978b:97, 99 (in key to Sphecidae of Kazakhstan and

Central Asia); Benedek, 1979:231 (Hungary: Bakony Hills: Csopak); Kazenas, 1980e:92 (Russia: Primorskiy Kray); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:119 (Russia: Siberia: Altayskiy Kray: basin of Aley River); Preuss, 1980a:23 (Germany; nesting in loess cliffs); Józán, 1986:369 (Hungary: Kiskunság National Park); Pádr in Šedivý, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Pádr, 1990:76 (Czech Republic: Praha area); Delarze, 1992:67 (Switzerland: Valais: Les Folatères).

ssp. *melanotica* Pulawski

Astata stecki melanotica Pulawski in de Beaumont, Bytinski-Salz and Pulawski, 1973:2, ♀, ♂. Holotype: ♀: Syria: Damascus (originally A. Mochi coll., Roma, now Torino?). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Murai and Amr, 2011:118 (recorded from Syria by de Beaumont, Bytinski-Salz, and Pulawski, 1955).

47. *laeta* E. Saunders

Astata laetus E. Saunders, 1910:520, ♀. Holotype: ♀, Algeria: Biskra (OXUM). – Morice, 1911:96 (Algeria: Biskra). – **As *Astata laeta***: von Schulthess, 1926b:213 (new generic assignment, Tunisia, determination tentative); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Honoré, 1942:60 (Egypt: Saqqara and Hawamdieh); Giner Marí, 1945b:359 (Morocco: Muley Rechid), 1946:8 (Morocco: Muley Rachid); de Beaumont, 1950f:404 (Algeria, Morocco, Tunisia; diagnostic characters), 1953g:126 (Morocco); Pulawski, 1957:84 (redescription); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Roche, 2007a:53 (in checklist of Egyptian Crabronidae, recorded from Egypt by Honoré, 1942), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae, old record, not confirmed by recent collecting); Jacobs, 2025b:76, 82 (in key to Palearctic *Astata*), 118 (in revision of Palearctic *Astata*).

As *Astata* aff. *laeta*: Nadig, 1933:86 (♂ only; Morocco: Marrakech; ♀ = *Astata trochanterica*), corrected to *Astata laeta* by de Beaumont, 1950f:404.

48. *leila* Pulawski

Astata leila Pulawski, 1967b:387, ♀, ♂. Holotype: ♂. Turkey: Ankara: 16 km west of Kirikkale (BMNH). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Ljubomirov and Yildirim, 2008:53 (in catalog of Crabronidae of Turkey); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces), 19 (is an endemic of Turkey); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey), 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:75, 80 (in key to Palearctic *Astata*), 119 (in revision of Palearctic *Astata*).

49. *leuthstromi* Ashmead

Astata leuthstromi Ashmead, 1897b:129, ♀. Holotype: ♀, USA: Wisconsin: Waukesha County: Haitland, correctly Hartland (USNM). – G. Peckham and E. Peckham, 1898:98 (nesting habits); G. Carpenter, 1930b:299 (nest closure); Maidl and Klima, 1939:22 (in catalog of world Astatinae and Bembicinae); Krombein, 1951a:143 (Virginia: Dunn Loring; visiting tulip-tree honeydew); Townes in Muesebeck, Krombein, and Townes, 1951:939 (in catalog of North American Hymenoptera); Evans, 1958b:177 (nesting behavior); Krombein, 1958a:52 (USA: West Virginia: Lost River State Park); Gittins, 1960:135 (Idaho); Evans, 1962a:31 (nesting behavior); F. Parker, 1962c:648 (in revision of *Astata* of USA and Canada); Horning and Barr, 1970:102 (USA: Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Finnamore, 1982:89 (in Sphecid Fauna of southern Quebec); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Evans, 1996:68 (Colorado: 25 mi. west of Livermore); Finnamore, 1997:894 (expected to occur in Yukon); Kurczewski, 1998d:250 (pine barrens in upstate New York); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario); Giles and Ascher, 2006:231 (New York: Black Rock Forest Preserve); Ratzlaff, 2016:23 (Canada: British Columbia, after F. Parker, 1962); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:206 (in

checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: USA: Alaska, Canada: British Columbia, Ontario, Quebec, first records from: Alberta, Manitoba, New Brunswick, Northwest Territories, Nova Scotia, Prince Edward Island, Saskatchewan, Yukon Territory: no specific locality). – *As Astatus leustromi* [sic]: Ashmead, 1899d:329 (new generic assignment, in checklist of North American Crabronidae).

50. *Ijubomirovi* Jacobs, Rezaei, and Fallahzadeh

Astata Ijubomirovi Jacobs, Rezaei, and Fallahzadeh, 2023:558, ♀. Holotype: ♀, Iran: Fars: Larestan County: Karmostajat 27°31'55"N 54°26'01"E (ZSBS). – Jacobs, 2025b:83 (in key to Palearctic *Astata*), 120 (in revision of Palearctic *Astata*).

51. *lubricata* Nurse

Astata lubricata Nurse, 1903a:514, ♀, ♂. Lectotype: ♀, India: Gujarat: Deesa (BMNH), designated by Pulawski, 1975a:320. – Ramakrishna Aiyar, 1916:550 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Guichard, 1980:225 (Oman); Roche, 2007a:53 (in checklist of Egyptian Crabronidae), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Schmid-Egger, 2014:522, 523 (in key to *Astata* of United Arab Emirates), 525 (United Arab Emirates, diagnosis and locality records), 528 (color photographs of female), 529 (color photographs of male); Atbaei, Fallahzadeh, and Ljubomirov, 2015:5 (first record from Iran: Fars Province); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from Fars Province); Gadallah, 2020b:21 (in list of aculeate wasps of Arabian Peninsula); Jacobs, 2023b:254 (locality records from Ethiopia and Kenya, redescription), 264, 265 (in key to Sub-Saharan *Astata*), 2025b:73, 80 (in key to Palearctic *Astata*), 121 (in revision of Palearctic *Astata*).

Astata eremita Pulawski, 1959:359, ♂. Holotype: ♂, southeastern Egypt: Gebel Elba (originally W.J. Pulawski coll., now CAS). Synonymized with *Astata lubricata* by Pulawski, 1975a:320.

52. *lugens* Taschenberg

Astata lugens Taschenberg, 1870:16, ♀, ♂. Lectotype: ♂, Argentina: Mendoza: no specific locality (Halle), designated by F. Parker, 1968b:849. – Dalla Torre, 1897:653 (in catalog of world Sphecidae); Schrottky, 1903b:177 (in checklist of Hymenoptera of Argentina, Paraguay, and Uruguay); Jørgensen, 1912:292 (Argentina: Mendoza Province, floral records); Schrottky, 1913a:226 (Argentina, Uruguay); Maidl and Klima, 1939:22 (in catalog of world Astatinae and Bembicinae); F. Parker, 1968b:849 (in revision of South American *Astata*); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Silvestre, Demétrio, Trad, de Oliveira Lima, Auko, and de Souza, 2014:67 (Brazil: Mato Grosso do Sul: dry forests in Bodoquena Mountain Range and Brazilian Chaco); Trad and Silvestre, 2017:4 (Brazil: Mato Grosso do Sul); Trad, Carbonari, and Silvestre, 2019:163 (Brazil: Goiás: Chapada dos Veadeiros National Park; unusual prey: juvenile gryllid). – *As Astatus lugens*: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*).

53. *lusitanica* Pulawski

Astata lusitanica Pulawski, 1974b:301, ♀, ♂. Holotype: ♀, Portugal: Sines (originally W.J. Pulawski coll., now CAS). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Gayubo, 1982f:249 (first record from Spain: Cádiz Province: Cañas de Meca, San Roque, Zahara de los Atunes); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); K. Schmidt and Bitsch *in* Bitsch et al., 2001:170 (in Sphecidae Fauna of Western Europe); Gayubo, González, Tormos, and Asís, 2002:84 (distribution in Iberian Peninsula); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:169 (in Sphecidae Fauna of Europe); Cross, Baldock, and Wood, 2021:21 (in catalog of Sphecidae *sensu lato* of Portugal); Jacobs, 2025b:77, 83 (in key to Palearctic *Astata*), 122 (in revision of Palearctic *Astata*).

54. *maculata* Radoszkowski

Astata maculata Radoszkowski, 1877:31, ♀, ♂. Syntypes: Uzbekistan: Samarkand, Tashkent, Zaravshan valley (ZMMU). – Kohl, 1885a:446 (original description copied); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Pulawski, 1957:81 (redescription); Myartseva, 1963b:58 (Turkmenistan: lower Murgab River, as *maculatus*), 1965:76 (Turkmenistan: Akibay), 1972a:76 (Turkmenistan); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Kazenas, 1978b:96, 98 (in key to Sphecidae of Kazakhstan and Central Asia); Islamov, 1986:52 (Uzbekistan: Tashkent Oblast'); Kazenas, 2000e:201 (in Sphecid Fauna of Kazakhstan), 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 142 (male perching behavior), 2002a:56 (geographic distribution, collecting localities in Kazakhstan), 2008a:100 (southeastern Kazakhstan: Ili River Valley: 65 km west of Bakanas, 20 km northeast of Ayak-Kalkan); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:420 (Uzbekistan: distribution); Jacobs, 2025b:73, 80 (in key to Palearctic *Astata*), 123 (in revision of Palearctic *Astata*). – *As Astatus maculatus*: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); Gussakovskij, 1927:283 (in revision of Palearctic Astatinae).

55. *maghrebensis* Jacobs

Astata maghrebensis Jacobs, 2025b:124, ♂. Holotype: ♂, Morocco: Icht 100 km east of Bouzakame (OÖLM). Paratype: Tunisia: Nefta. – Jacobs, 2025b:77 (in key to Palearctic *Astata*).

56. *melanaria* Cameron

Astata melanaria Cameron, 1905g:257, ♂. Holotype or syntypes: ♂, South Africa: Eastern Cape Province: Dunbrody at 33°29'S 25°33'E (BMNH). – Arnold, 1923c:41 (original description copied), 1924:35 (in revision of southern African *Astata*), 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Jacobs, 2023b:255 (South Africa: southwest of Springbok, redescription of ♂), 265 (in key to Subsaharan *Astata*).

57. *mexicana* Cresson

Astata mexicana Cresson, 1881:v, ♂. Lectotype: ♂. Mexico: no specific locality (ANSP), designated by Cresson, 1916:96. – Cameron, 1890a:69 (listed); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Maidl and Klima, 1939:22 (in catalog of world Astatinae and Bembicinae); F. Parker, 1962c:653 (in revision of *Astata* of USA and Canada; western Rocky Mountains, Canada to Mexico), 1964:559 (in revision of *Astata* of Mexico and Central America); Evans, 1973c:148 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Parks, 1986:34 (California: Torrey Pine State Reserve); Wcislo, 1998:181 (proportions of antennae in relations to parasitic/non-parasitic behavior); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007:45 and 47 (Mexico: Tamaulipas); Ratzlaff, 2016:23 (Canada: British Columbia, after F. Parker, 1962 and Krombein, 1979); Buck and Bennett, 2025:207 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia: no specific locality). – *As Astatus mexicanus*: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); Ashmead, 1899d:330 (in checklist of North American Crabronidae, as *mexicana*).

58. *miegii* Dufour

Astata miegii Dufour, 1861:11, ♀, ♂ (as *Miegii*, incorrect original capitalization). Syntypes: Spain: Barcelona, Ferrol, Madrid (MNHN). – Kirchner, 1867:216 (in catalog of European Hymenoptera); Kohl, 1885a:443 (as tentative synonym of *Astatus tricolor*), 446 (original description copied); Mercet, 1910b:162 (listed from Spain); Gussakovskij, 1927:294 (original description copied); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Giner Mari, 1945d:58 (in revision of Spanish *Astata*); P. Verhoeff, 1951:151 (species group characters); Ceballos,

1956:373 (in catalog of Hymenoptera of Spain); Pulawski, 1956:41 (in revision of European Astatinae); de Beaumont, 1957b:136 (northern Iran), 1962b:24 (Spain); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); Balthasar, M. Hrubant, and E. Hrubant, 1967:171 (Bulgaria: Aytos, Slanchev Bryag near Nessebar); Balthasar, 1972:292 (in Sphecidae Fauna of Czechoslovakia: not yet found in country); Gayubo, 1982a:95 (northern Spain: Sierra de Béjar), 1982f:249 (Spain: Cádiz Province: Arcos de la Frontera, Guadiaro, Palmones), 1984b:96 (Spain: previously recorded from Salamanca Province); Gayubo and Sanza, 1986:40 (Spain: Burgos); Mingo and Gayubo, 1986:1008 (distribution in Spain); Gayubo, 1987a:110 (Spain: Ciudad Real Province); Dollfuss, 1991:91 (in key to Sphecidae of North and Central Europe); Torregrosa, Gayubo, Tormos, and Asís, 1993:18 (Spain: Alicante Province); Gayubo, García, Torres, and González, 1999:89 (Spain: Soria Province); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province); Kazenas, 2000e:203 (in Sphecidae Fauna of Kazakhstan), 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia); K. Schmidt and Bitsch *in* Bitsch et al., 2001:170 (in Sphecidae Fauna of Western Europe); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castronuño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Cruz-Sánchez, Asís, Gayubo, Tormos, and González, 2011:498 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park: effects of wildfire), 501 (exclusive species of burned areas); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from Qazvin Province); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:7 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:169 (in Sphecidae Fauna of Europe); Cross, Baldock, and Wood, 2021:21 (first record from Portugal: Algarve: Pêra); Jacobs, 2025b:73, 80 (in key to Palearctic *Astata*), 125 (in revision of Palearctic *Astata*).

Astata provincialis Richards, 1928b:219, ♂. Holotype: ♂. France: Var: Le Trayas (BMNH). Synonymized with *Astata miegii* by de Beaumont, 1942a:415. – Richards, 1928:220 (in key to black *Astata* of France); Bernard, 1934a:61 (France: Var: near Saint-Aygulf), 1935:64 (France: Var: Fréjus area); Maidl and Klima, 1939:17 (in catalog of world Astatinae and Bembicinae); Giner Marí, 1945:70, (synonym of *Astata miegii*); Erlandsson, 1974:70 (Spain).

Astatus scapularis Kohl, 1889b:194, ♀. Syntypes: Armenia: Arax Valley; Russia: Sarepta, now Krasnoarmeysk (NHMW). Synonymized with *Astata miegii* by Jacobs, 2025b:125. – Dalla Torre, 1897:655 (in catalog of world Sphecidae); Gussakovskij, 1927:282 (in revision of Palearctic Astatinae). – **As *Astata scapularis***: Maidl and Klima, 1939:15 (new generic assignment, in catalog of world Astatinae and Bembicinae); Bytinski-Salz, 1956:226 (Turkey: Ürgüp). – **As *Astata miegii scapularis***: de Beaumont, 1942a:415 (new status); Pulawski, 1956:41 (in revision of European Astatinae), 1958a:170 (Bulgaria: Aitos, Sandanski); de Beaumont, 1960a:14 (Greece: Island of Rhodes), 1965a:45 (Greece); Pulawski, 1967a:386 (Turkey); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Pulawski, 1978:229, 230 (in key to Sphecidae of European part of USSR); Dollfuss, 1989:7 (syntypes in NHMW); Gorobchishin, 1993:46 (Ukraine: Kanev Nature Reserve); K. Schmidt and Bitsch *in* Bitsch et al., 2001:171 (in Sphecidae Fauna of Western Europe); Gayubo, Özbek, and Yıldırım, 2003:85 (Turkey: many localities); Tezcan and Yildirim, 2004:245 (Turkey: Manisa: Muradiye); Gülmez and Tüzün, 2005:55 (Turkey: Ankara Province); Shorenko, 2005a:166 (Ukraine: Crimea); Yildirim and Ljubomirov, 2005:1789 (Turkey: Erzurum: Ilıca); Standfuss and Standfuss, 2006b:96, 100 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Yildirim and Ljubomirov, 2007:117 (Turkey: Erzurum: Oltu; Kars: Digor: Bostankale); Ljubomirov and Yildirim, 2008:53 (in catalog of Crabronidae of Turkey); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Yildirim, 2012:75 (Turkey: Erzurum and Kars provinces); Protsenko, Fateryga, and Ivanov, 2014:26 (Crimea: Tarkhankut Promontory); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Shorenko, 2015:334 (in list of Sphecidae *sensu lato* of Crimea); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:10 (Turkey: Aksaray, Antalya, Erzurum, Isparta, Kars, and Tunceli provinces); Nemkov, 2017b:218 (in catalog of As-

tatinae of Russia); Shorenko, 2017:79 (in Crimea collected in June), 2018:129 (Crimea, including localities, habitats, and number of specimens); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmez, 2023:69 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey).

Astata pelops Morice, 1902:104, ♂. Syntypes: ♂. Greece: Olympia (OXUM). Synonymized with *Astata miegii scapularis* by de Beaumont, 1942a:415. – Kohl, 1905c:232 (additional description); Maidl and Klima, 1939:17 (in catalog of world Astatinae and Bembicinae).

Astata escalerae Giner Marí, 1946:12, ♂. ♀. Syntypes: Morocco: Mogador (MNCN). – Giner Marí, 1946:8 (Morocco: Mogador). Synonymized with *Astata miegii* by Jacobs, 2025b:125. – **As *Astata miegii escalerae***: de Beaumont, 1953g:129 (new status; Morocco); Pulawski, 1956:41 (in revision of European Astatinae); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae).

59. *minax* Arnold

Astata minax Arnold, 1945:43, ♀, ♂. Syntypes: Madagascar: Bekily (MNHN). – R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Leclercq, 1990b:114 (Madagascar, in key to Malagasy *Astata*); Hancock, Chahwanda, and Mhlanga, 1995:37 (one syntype in Bulawayo Museum); Pulawski, 2003b:795 (in checklist of Malagasy Sphecidae); Madl, 2014a:938 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality records).

60. *minor* (Kohl)

Astata minor Kohl, 1885a:438, ♀, ♂. Syntypes: Austria, Belgium, France, Germany, Hungary, northern Russia, Switzerland, Yugoslavia (NHMW). – Kohl, 1885a: 434 (in key to European *Astata*), 438 (in revision of European *Astata*), 448 (in checklist of world *Astata*); Gasperini, 1887:16 (recorded from Dalmatia: Spalato, now Croatia: Split, by Kohl, 1885a); Kohl, 1893:33 (Austria: Niederösterreich); F. Morawitz, 1893a:111 (Russia: Karelian Isthmus), 1893b:416 (Uzbekistan: Pyanjikent); Sickmann, 1893:86 (Germany: Niedersachsen: Iburg); Krieger, 1894:11 (Germany: Kingdom of Saxony); Schletterer, 1894:32 (Istria Peninsula, now part of Croatia, Slovenia, and Italy); Schmiedeknecht, 1907:235, 236 (in key to Hymenoptera of Central Europe); Šusterka, 1909:35 (Czech Republic: vicinity of Praha); Morice, 1911:95 (Algeria: Bône, now Annaba, Biskra, Constantine, Hippône, now Annaba, Le Tarf, now El Taref); Gussakovskij, 1927:287 (in revision of Palearctic Astatinae); Levi, Syssoletina, and Shernin, 1974:269 (Russia: Kirov Oblast': Kirov). – **As *Astata minor***: Kohl, 1888b:728 (new generic assignment, Austria: Tirol, now Italy: Alto Adige); A. Costa, 1893b:6 (Tunisia); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Mocsáry, 1897:78 (Kingdom of Hungary, some localities are in today's Croatia and Romania); Ferton, 1901a:102 (position of egg on prey), 1034 (list of prey); de Cobelli, 1903:111 (Italy: Province of Trentino: Levico, Riva); Antiga and Bofill, 1904:9 (Spain: Cataluña Province); Mantero, 1905:72 (Italy: Toscana: Isola del Giglio); Móczár and Henter, 1907:205 (Hungary: Koroncs); de Gaulle, 1908:121 (in catalog of French Hymenoptera); Mercet, 1910b:162 (listed from Spain); Dittrich, 1911b:25 (Germany: Niederschlesien Province, now Poland: Dolny Śląsk Region); Graeffe, 1911:46 (Italy: Trieste area); Birula, 1912:543 (Ukraine: Zhytomyr Oblast': Radomyshl'); Schirmer, 1912:167 (Germany: Berlin area); Kohl, 1913b:15 (Russia: Voronezh Oblast': Valuyki at 50°14'N 38°08'E); Birula, 1914:387 (Belorussia: Vitebsk); Szilády, 1914:88 (Hungary: Nagyoklos); Noskiewicz, 1918:138 (Galicia, now western Ukraine: Hołosko near Lwów); O. Meyer, 1919:155 (Germany: Posen Province, now Poland: Poznań Region); A. Wagner, 1920:34 (Germany: Lower Elbe region); Dubois, 1922:209 (in key to Belgian Sphecidae); Maidl, 1922:69 (Croatia); Ferton, 1923:142 (position of egg on prey); Berland, 1925d:109 (in Sphecidae Fauna of France); Schütze, 1925:113 (Germany: Lausitz Region: Baruth); Shestakov, 1925:36 (Russia: Yaroslavl' area); Grandi, 1926:309 (nesting habits), 310 (description of larva); von Schulthess, 1926b:213 (Tunisia); Benoist, 1928:409 (France: Alpes-Maritimes: between Isola and Saint-Étienne); Berland, 1928b:177 (add Grandi, 1926 to bibliography in Berland, 1925d); Grandi, 1930:341 (Italy: Toscana: Maremma); Schmiedeknecht, 1930:696, 697 (in keys to Hymenoptera of North and Central Europe); Dusmet y Alonso, 1931:7 (Portugal: Monte do Escaropim,

determination tentative); Grandi, 1931:57 (Italy: Toscana: Vallata delle Pozze near Le Mandriole); Pulkkinen, 1931:73 (in revision of Sphecidae of Finland); Giordani Soika, 1932a:22 (Italy: Lido di Venezia); Bernard, 1933:62 (France: Drôme: Dieulefit); Masi, 1933:196 (Italy: Toscana: Isola di Capraia); Nadig, 1933:86 (Morocco: Ifrane, Meknès); nec Minkiewicz, 1934:191 (= *Astata kashmirensis*); Nadig, 1934:32 (France: Corse: Bastia; Italy: Sardegna: Iglesias); Dusmet y Alonso, 1935:65 (Spain: Avila: Las Navas del Marqués); Forsius in Forsius and Hellén, 1935:11 (in checklist of Hymenoptera of Finland); nec Minkiewicz, 1935:195 (= *Astata kashmirensis*); Bischoff, 1937b:2 (Canary Islands); Crèvecoeur and Maréchal, 1936:252 (in catalog of Belgian Hymenoptera); Minkiewicz, 1936:5 (male of perching watcher type); Blüthgen, 1937:236 (Germany: Saale River valley: Eulau, Goseck, and Roßbach); Goebel, 1937:42 (Poland: Poznań District: Sławie); Zavadil, Šustera, and Bat'a, 1937:205 (in catalog of Sphecidae of Czechoslovakia); Móczár, 1938c:81 (Hungary: Kőszeg Hills); A. Wagner, 1938a:122 (northwestern Germany); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Balthasar, 1941b:112 (Czech Republic: eastern Moravia); Paul, 1941:47 (Germany: Pommern: Stettin area, now Poland: Województwo Zachodniopomorskie: Szczecin area); Schneid, 1941:1046 (Germany: Bayern: Bamberg area); de Beaumont, 1942a:406 (in revision of *Astata* of Switzerland), 412 (France: Haute-Savoie, Pyrénées-Orientales); Giner Marí, 1943a:119 (in Sphecidae Fauna of Spain), 1945d:59 (in revision of Spanish *Astata*); van Rossem, 1946a:28 (first record from Netherlands; nest left open during the provisioning period, prey: *Sehirus bicolor* (Linnaeus), Cydnidae); Carl and de Beaumont, 1947:68 (Switzerland: Graubünden = Grisons Canton: Swiss National Park); Dupuis, 1947:112 (list of known heteropteran prey); van Lith, 1947:106 (Netherlands); Šnoflák in Zavadil and Šnoflák, 1948:61, 63 (in key to Sphecidae of Czechoslovakia); Noskiewicz and Chudoba, 1949:424 (Poland: Dolny Śląsk: many localities, comparison with *Astata boops*); Leininger, 1951:118 (Germany: Baden-Württemberg); P. Verhoeff, 1951:163 (Netherlands); Caruel, 1952b:101 (France: Marne Department); Valkeila, 1952:48 (Finland: Taipalsaari); de Beaumont, 1953g:125 (Morocco); Głowacki, 1953:520 (Poland: Podkova Leśna near Warszawa); Móczár, 1953:310 (Hungary); de Beaumont, 1954e:90 (Italy); Grandi, 1954:231 (Italy); Kjellander, 1954b:247 (first record from Sweden); Aerts, 1955:63 (Germany: Rheinland); Hellén, 1955a:122 (southern Finland); Steiner, 1955:138 (France: Dordogne); Vogrin, 1955:36 (Yugoslavia); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain); Morel, Nouvel, and Ribaut, 1956:338 (France: Département des Pyrénées-Orientales); Pulawski, 1956:53 (in revision of European Astatinae); Bajári, 1957a:61, 64 (in key to Hungarian Sphecidae); Grandi, 1957:375 (Italy: Abruzzi); Zirngiebl, 1957:183 (Germany: Rheinland-Pfalz: Birkenheide, Dreihof); Benno, 1958b:11 (in review of Dutch Sphecidae); de Beaumont, 1958c:205 (Swiss National Park); Evans, 1958b:179 (review of behavioral studies), 1958c:112 (larva's description by Grandi, 1926); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Pulawski, 1958a:170 (Bulgaria: Mount Vitosha near Sofia); de Beaumont, 1959a:25 (Italy); Diniz, 1959:28 (Portugal: Monte do Escaroupim); Suárez, 1959:56 (Spain: Almería Province); Wolf, 1959b:23 (Germany: Nassau); de Beaumont, 1960a:14 (Greece: Island of Rhodes: Kremasti); Noskiewicz and Puławski, 1960:111, 113 (in key to Polish Sphecidae); Grandi, 1961:106 (nesting habits), 457 (larva); Atanasov, 1962:124 (Bulgaria: Petrich area); Grandi, 1962:95 (Italy); Valkeila, 1962b:66 (southwestern Finland); Erlandsson, 1963:66 (Denmark: Island of Bornholm); Scobiola, 1963:825 (Romania: Periprava in Danube delta); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1964c:69 (in Sphecidae Fauna of Switzerland), 1965a:44 (Greece); Scobiola-Palade, 1966b:392 (Romania: Tulcea District: C.A. Rosetti); Balthasar, Hrubant, and Hrubant, 1967:171 (Bulgaria: Slanchev Bryag near Nessebar); Benno, 1967:35 (in checklist of Sphecidae of Netherlands); J. Heinrich, 1967:74 (Germany: Bayern: Unterfranken District); Niedl and Deneš, 1967:82 (Czech Republic: Třeboň area); Pulawski, 1967a:387 (Turkey); Scobiola-Palade, 1967a:161 (Romania: Constanța District: Băneasa), 1967b:44 (Romania), 1968b:142 (Romania: Island of Letea in delta of Danube), 1968c:384 (Romania: Budești, Comana, Herestrău); Stritt, 1968:110 (Germany: Baden-Württemberg); Wolf, 1968:11 (Germany: Nordrhein-Westfalen: Siegen, inhabitant of forest edge); Benedek, 1969a:83 (Hungary: marshy meadow); Schmidt, 1969:163 (Germany: Rhein-Main area: Köln, Stromberg); Lefebvre and Petit, 1970:130 (Belgium: Plombières); Oehlke, 1970:708 (Democratic Germany); Lefebvre, 1971a:17 (Netherlands: Nijmegen), 1971b:222 (Belgium: Plombières);

Lomholdt, 1971:123 (first record from Denmark: Bornholm: Bjergbakke Stenbrud near Vestermarie); Petit, 1971:22 (Luxemburg: Bourscheid.); Balthasar, 1972:290 (in Sphecidae Fauna of Czechoslovakia); Kazenas, 1972b:157 (Kazakhstan); Kofler, 1972:107 (Austria: eastern Tirol); Myartseva, 1972a:76 (Turkmenistan); de Beaumont, Bytinski-Salz and Pulawski, 1973:2 (Israel); Kazenas, 1974:110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, in Kazakhstan); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Eck, 1976:90 (Democratic Germany); Lomholdt, 1976:234 (in Sphecidae Fauna of Fennoscandia and Denmark); Haeseler, 1977a:23 (northwestern Germany); Georgiou, 1977:189 (Cyprus); Kolesnikov, 1977:318 (Russia: Bryansk Oblast'); Báez and Ortega, 1978:191 (Canary Islands); Kazenas, 1978b:97, 99 (in key to Sphecidae of Kazakhstan and Central Asia); Lefebvre, 1978:137 (Netherlands: Venlo); Pulawski, 1978:230, 231 (in key to Sphecidae of European part of USSR); Leclercq, Gaspar and Verstraeten, 1979:map 1409 (Belgium); Lefebvre, 1979:11 (in checklist of Sphecidae of Netherlands), 63 (Netherlands: distribution map); Radović and Krunić, 1979:unpaginated foldout (nesting in hard soil, foreleg structure); Dathe, 1980:208 (Russia: northern Caucasus: Teberda); Pagliano, 1980:112 (Italy: Piemonte); Petit, 1980:42 (Luxemburg: Grevenmacher); Józán, 1981:305 (Hungary: Hortobágy National Park); Schmidt, 1981:217 (Germany: Baden-Württemberg); Gayubo, 1982a:95 (northern Spain: Sierra de Béjar), 1982f:249 (Spain: Cádiz Province: Palmones, Zahara); Skibińska, 1982:123 (Poland: Warszawa area); Dollfuss, 1983b:9 (in catalog of Sphecidae of Austria); Józán, 1983:100 (Hungary); Gayubo, 1984b:82 (Spain: Salamanca Province); Józán, 1985b:57 (Hungary south of Lake Balaton), 83 (ecological and zoogeographic characteristics); Lefebvre, 1985:87 (Netherlands: southern Limburg); Radović, 1985:64 (sting apparatus analyzed); Scobiola-Palade, 1985:96 (Romania: delta of Danube); Brechtel, 1986:60 (Germany: Südpfalz: Sandbuckel); Gayubo, 1986c:32 (Spain: Zamora Province); Gayubo and Sanza, 1986:40 (Spain: Segovia); Gayubo and Tormos, 1986a:11 (Spain: Castellón de la Plana); Józán, 1986:369 (Hungary: Kiskunság National Park); Mingo and Gayubo, 1986:1008 (distribution in Spain); Nemkov, 1986:96 (Russia: Siberia: Irkutsk Oblast'); Nilsson, 1986:87 (Sweden); Vikberg, 1986:76 (Finland); Scobiola-Palade, 1987:65 (Romania: Dobrogea); Dollfuss, 1988:11, 23 (Austria: Bisamberg near Vienna; Niederösterreich: Oberweiden); Karsai, 1988:99 (Hungary: Kiskunság National Park); Kowalczyk, 1988a:45 (Poland: Rogów); Wolf, 1988b:139 (Germany: Rheinland-Westfalen); Dollfuss, 1989:7 (type series in NHMW); Jacobs, 1989:11 (Germany: Mecklenburg-Vorpommern); Józán, 1989:101 (Hungary: Tihany Nature Reserve); Pádr *in* Šedivý, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Gayubo, Asís, and Tormos, 1990a:15 (Spain); Pagliano, 1989:353 (Italy, redescription); Jacobs and Oehlke, 1990:160 (new records from Democratic Germany); Pádr, 1990:76 (Czech Republic: Praha area); Pagliano, 1990:65 (in catalog of Italian Sphecidae); Schwammbberger and Priesner, 1990:539 (Austria: Kärnten); Day, 1991:xiii (summary of European Endangered Hymenoptera Lists); Dollfuss, 1991:92 (in key to Sphecidae of North and Central Europe); Kowalczyk, 1991a:90 (Poland: Łódź); Delarze, 1992:67 (Switzerland: Valais: Les Follatères); Józán, 1992b:173 (Hungary: Boronkameilléki Protected Area), 1992c:289 (Hungary: Zselic Hills); Nemkov, 1992b:245 (Russia: Far East: 40 km north-northwest of Svobodnyi near Khingan Nature Reserve); K. Weber, 1992:86 (Germany: Bayern: Bamberg District); Józán, 1993:413 (Hungary: Bükk National Park); Kuhlmann, 1993:75 (Germany: known from Westfalen); Luig, 1993:43 (Estonia); van der Smissen, 1993:128 (northwestern Germany); Blagoveshchenskaya, 1994:87 (Russia: Ul'yanovsk Oblast'); Schmid-Egger, 1994a:687 (Germany: Rheinland-Pfalz: Höllenberg near Grünstadt); Theunert, 1994c:33 (Germany: summary of records from Niedersachsen and Bremen); Gorobchishin, 1995:17 (Ukraine: Kanev Nature Reserve); Jansen and Kaluza, 1995:7 (Germany: endangered in Sachsen); Józán, 1995:104 (Hungary: projected Duna-Dráva National Park); Negrisolo *in* Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Nemkov *in* Nemkov, Kazenas, Budrys, et Antropov, 1995:406, 407 (in key to Sphecidae of Russian Far East); Scharrer, 1995:24 (Croatia: Island of Krk; Germany: Bayern: Aschaffenburg, Kahl, Oberrau); Schmid-Egger, Risch, and Niehuis, 1995:165 (Germany: summary of records from Rheinland-Pfalz); Arens, 1996:441 (Germany: Bayern: Bayreuth area); Gorobchishin, 1996:53 (Ukraine: Kanev Nature Reserve); Jakubzik, 1996:251 (Germany: Köln); Jakubzik and Cölln, 1996b:398 (Germany: Rheinland-Pfalz); Minoranskiy and Shkuratov, 1996:82 (Russia: Rostov Oblast'); Saure, 1996:502 (Germany: Berlin-Pankow: sewage irrigation field); Schmid-Egger, Schmidt, and

Doczkal, 1996:376 (Germany: Baden-Württemberg: endangered); 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, 1996:35 (Germany: Westfalen: summary of distribution and nesting habits), 104 (not recorded after 1950); Celary, 1997:58 (in checklist of Animals of Poland); Schmidt and Schmid-Egger, 1997:6 (in checklist of German Sphecidae); F. Burger, Saure, and Oehlke, 1998:26 (Germany: in list of Sphecidae of Brandenburg); Dollfuss, Gusenleitner, and Bregant, 1998:513 (Austria: summary of collecting records from Burgenland); Flügel, 1998:59 (Germany: Brandenburg: Unteres Odertal National Park); González, Gayubo, and Torres, 1998:72, 73 (Spain: Valladolid Province); Gorobchishin, 1998a:48 (Ukraine: Kiev and surroundings); Józán, 1998:311 (Hungary: Duna-Dráva National Park); Lefeber, 1998:181, 182 (Netherlands: Limburg: Sint-Pietersberg near Maastricht at 50°50'N 5°41'E); van der Smissen, 1998:53 (Germany: Schleswig-Holstein: Büchen); K. Weber, 1998:134 (Germany: Bayern: Bamberg area); González, Gayubo, and Torres, 1999:354 (Spain: Valladolid: Viana de Cega); Kuhlmann, Wolf, and Woydak, 1999:568 (Germany: extinct or presumably extinct in Nordrhein-Westfalen); Ljubomirov, 1999b:49 (Bulgaria: Mount Vitosha near Sofia); Mandery, 1999:104 (Germany: Bayern: Coburg area); Neumayer, Schwarz, and Bregant, 1999:223 (Austria: in checklist of Sphecidae of Land Kärnten); Pauly, 1999:109 (in catalog of Belgian aculeates); Saure, 1999:33 (Germany: Berlin-Köpenick); M. Schwarz, 1999:86 (Austria: Oberösterreich: city of Linz area); Wickl, 1999a:103 (Germany: Bayern: Oberpfalz area); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Blösch, 2000:213 (in Sphecidae Fauna of Germany); Dressler, 2000:30 (Germany: Hessen: Darmstadt area); Esenbekova and Kazenas, 2000:24 (southeastern Kazakhstan: seven localities); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province); Jacobs, 2000:6, 17 (Germany: Land Mecklenburg-Vorpommern: vulnerable); Józán, 2000:107 (Hungary: Bakony Mountains); Kazenas, 2000e:205 (in Sphecidae Fauna of Kazakhstan); Ljubomirov, 2000:9 (Bulgaria: specimens in N. Nedelkov collection); Schmid-Egger, 2000b:275 (Germany: Baden-Württemberg: shores of Rhine River); Cungs and Jakubzik, 2001:122, 123 (Luxemburg); Józán, 2001:278 (Hungary: Somogy County); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 142 (review of known biology); Kazenas and Esenbekova, 2001:134 (Kazakhstan: Almatinskiy Nature Reserve); Ohl et al., 2001:137 (distribution in Germany by provinces); K. Schmidt and Bitsch in Bitsch et al., 2001:171 (in Sphecidae Fauna of Western Europe); van der Smissen, 2001:58 (Germany: Schleswig-Holstein: threatened with extinction); Zettel, Gross, and Mazzucco, 2001:71 (Austria: Wien); Józán, 2002:53 (Hungary: Mecsek Mountains); Kazenas, 2002a:56 (geographic distribution, collecting localities in Kazakhstan); Shkuratov, 2002b:142 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Shlyakhtenok and Skibinska, 2002:33 (Belorussia: no specific locality); Söderman and Vikberg, 2002:51 (in list of Aculeata of Finland); Vischer, 2002:288 (Germany: Sachsen-Anhalt: vineyards in Saale-Unstrut area); Esser and Jakubzik, 2003:290 (Germany: Nordrhein-Westfalen: Niederrheinisches Tiefland); Gayubo, Özbek, and Yıldırım, 2003:86 (Turkey: Bilecik and Erzurum Provinces); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Józán, 2003:227 (Hungary: Látrányi Pusztá Nature Conservation Area); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Mandery, Kraus, Voith, Wickl, Scheuchl, Schubert, and Warncke, 2003:63 (Germany: in catalog of wasps and bees of Bayern); Wickl, Voith, Mandery, Weber, Kraus, Bausenwein, and Blösch, 2003:196 (Germany: Bayern: endangered); Deván, 2004:146 (western Slovakia); Esser, Jakubzik, and Sonnenburg, 2004:18 (Germany: Nordrhein-Westfalen); Esser, Jakubzik, Sonnenburg, and Woydak, 2004:261 (Germany: in checklist of Sphecidae of Nordrhein-Westfalen); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama); Jakubzik, Niehuis, and Cölln, 2004:457 (Germany: Rheinland-Pfalz: Roßstein in Rhein valley at 50°06'42"N 7°43'87"E); Kazenas, 2004b:102 (Kazakhstan: western Tien Shan); Klein and Lefeber in Peeters, van Achterberg, et al., 2004:360 (in Wasp and Ant Fauna of Netherlands); Shkuratov, 2004a:78 (Russia: Rostov Oblast'), 2004b:167 (Russia: Rostov Oblast': Gosudarstvennyi Muzey-Zapovednik M.A. Sholokhova); 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, 2004:31 (in checklist of Sphecidae of Netherlands); Wiśniowski, 2004:43 and 60 (in checklist of Polish Sphecidae); Burger, 2005:31 (Germany: Thüringen); Ebrahimi, 2005:128 (in key to selected Iranian Sphecidae); Gülmez and Tüzün, 2005:55 (Turkey: Ankara Province); Jacobs, 2005a:439 (Bulgaria: Krasново and Starosel near Hissarya); Jakubzik and Cölln, 2005:63 (Germany: Rheinland-Pfalz: Bausenberg near Niederzissen); Kofler, 2005:172 (Austria: Nordtirol: Innsbruck District: Hötting); Kowalczyk and Kurzac, 2005:104 (Poland: Botanical Garden in Łódź); Mandery, 2005:173 (Germany: Bayern: Hainberg Nature Reserve near Nürnberg); Pagliano and Negrisolo, 2005:97 (in Sphecid Fauna of Italy); Riemann and Hohmann, 2005:546 (Germany: Niedersachsen: city of Bremen and vicinity); Saure, 2005:13 (Germany: Berlin); Theunert, 2005a:16 (Germany: in checklist of Sphecidae of Niedersachsen and Bremen); Yildirim and Ljubomirov, 2005:1789 (Turkey: Erzurum: five localities); Ziska and Saure, 2005:80 (Germany: Berlin: Biesenhorster Sand); Budrys, 2006:80 (Lithuania: Šalčininkai District at 54°10'27"N 25°42'08"E); Feitz, Gloden, Melchior, and Schneider, 2006:82 (Luxemburg: Baggerweieren area in Haff Réimech Nature Reserve); Petit, 2006:476 (Belgium: Liège Province: Bassenge); N. Schneider, 2006:138 (Luxemburg: anthropogenic habitats); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Tomarchio and Turrisi, 2006:954 (Italy: Sicilia: Catania); Burguet, 2007:unnumbered p. 7 (France: Puy-de-Dôme: sands Girauds-Faures in Orléat commune); Dvořák, Straka, Smetana, Halada, Vepřek, and Karas, 2007:167 (Czech Republic: Vyšenské Kopce National Nature Reserve); Hallin, 2007b:25 (Sweden: Blekinge County); Jacobs, 2007:88, 89 (in key to Crabronidae of Germany); Jansen and Kaluza, 2007:22 (Germany: northwestern Sachsen); Józán, 2007:179 (Hungary: Zselic hills); Kowalczyk and Nadolski, 2007:283 (Poland: Łódź: railway areas); Saure, 2007:81 (Germany: in checklist of Aculeata of Brandenburg); Vago, 2007:174 (France: départements d'Aisne and Nord); Vepřek and Straka, 2007:202 (in catalog of Sphecidae of Czech Republic and Slovakia); Danilov, 2008:348 (Russia: Altayskiy Kray: Barnaul area); Danilov and Tshernyshev, 2008:42 (Russia: Novosibirsk Oblast: Karasuk area); Dvořák, Bogusch, Malenovský, Bezděčka, Bezděčková, Holý, Liška, Macek, Roller, Říha, Smetana, Straka, and Šima, 2008:66 (Czech Republic: Hády Hill near Brno); Gayubo, González, Tormos, and Asís, 2008:136 (Spain: Salamanca: Parque Natural de Las Batuecas – Sierra de Francia); Kazenas, 2008b:112 (Kazakhstan: foothills of Zailiskiy Alatau: occurring on loess cliffs); Ljubomirov and Yildirim, 2008:54 (in catalog of Crabronidae of Turkey); Nemkov, 2008b:19 (in catalog of Crabronidae of Asiatic Russia); Theunert, 2008:10 (Germany: map of distribution in Niedersachsen and Bremen); Baños-Picón, Asís, Gayubo, and Tormos, 2009:310 (Spain: frequency of specimens collected with hand nets and Malaise traps); Debuyser and Vago, 2009:4 (in list of Sphecidae *sensu lato* of northern France); U. Frommer, 2009a:26 (Germany: in checklist of Sphecidae of central Hessen), 30 (locality records, in Germany widely distributed but rare); Gayubo, González, Tormos, and Asís, 2009:363 (Spain: Valladolid: Reserva Natural Riberas de Castroño – Vega del Duero); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Józán, 2009:166 (Croatia: Dvigrad, Sveta Jelena); Nemkov, 2009b:75 (in new catalog of Sphecidae and Crabronidae of Asiatic Russia); Pagliano, 2009:177 (Italy: recorded from Sicilia by Tomarchio and Turrisi, 2006); Szczepko and Wiśniowski, 2009:68 (Poland: Spała Landscape Park); Ermilov and Mokrousov, 2010:89 (phoretic mite *Schwiebea nova* (Oudemans), Acaridae, in Middle Volga Region of Russia); Esser, Fuhrmann, and Venne, 2010:35 (Germany: in checklist of aculeates of Nordrhein-Westfalen); Hable, Kraus, von der Dunk, and Wickl, 2010:26 (Germany: Bayern: Sulz- and Ottmaringer Tal); Johansson, 2010:121 (Sweden: Småland: upper Emå river valley); Mokrousov, 2010a:60 (Russia: Kirov, Kostroma, and Nizhniy Novgorod Oblast's: no specific localities); Saure, 2010b:174 (Germany: Berlin-Reinickendorf: airport Tempel and Flughafensee Protected Area); Schmid-Egger, 2010a:14 (in red list of Aculeata of Germany: rare); Shorenko and Konovalov, 2010:13 (Ukraine); van der Smissen, 2010a:332 (Germany: Schleswig-Holstein: Büchen), 2010b:384 (France: Ardèche: Saint-Thomé); Baghirov, 2011b:140 (Russia: Altayskiy Kray: Savvushka); Burger, 2011a:286 (Germany: in red list of Sphecidae *sensu lato* of Thüringen); Gogala, 2011:13 (Slovenia); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Saure, 2011b:197 (Germany: Berlin-Spandau: Fort Hahneberg); Schmid-Egger, 2011a:36 (France: Parc National du

Mercantour); Shlyakhtenok, 2011:94 (Belorussia: city of Minsk); Theunert, 2011a:18 (Germany: in checklist of aculeates of Niedersachsen including city of Bremen); Tischendorf, Frommer, Flügel et al., 2011:99 (Germany: Hessen: may be endangered); Ziska and Saure, 2011:108 (Germany: Berlin: Tegeler Fließ valley); Boillat, 2012:225 (Switzerland: in checklist of insects of Canton de Genève); R. Burger, 2012:32 (Germany: Rheinland-Pfalz: Sandrennbahn near Altrip); 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: Skåne: Kullaberg Peninsula); Gerth, Mayer, Hering, Wolf, Schaffer, and Bleidorn, 2012:9 (Germany: Sachsen: Bienitz in Leipzig); Kazenas, 2012b:169 (Kazakhstan: Korgalzhin State Nature Reserve); Nemkov, 2012c:438 (in catalog of Crabronidae of Russian Far East); Saure, 2012b:228 (Germany: Berlin-Spandau: Spandauer Forst); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Yildirim, 2012:75 (Turkey: Artvin, Erzurum, Iğdır, and Kars provinces); Pankov, 2013:228 (Russia: Ivanovo Oblast'); A. Scholz and Liebig, 2013:16 (Germany: Sachsen: in list of Sphecidae *sensu lato*); Shlyakhtenok, 2013:162 (in annotated catalog of aculeate wasps of Belorussia); Bitsch, 2014:397 (recent records from Sicily and France reported; France: Ariège: Rieucros); Ebrahimi, 2014:29 (Iran: Alborz: Malārd: Khoshnām); U. Frommer, 2014:26 (Germany: Hessen: Lorch); Hellqvist, Abenius, and Norén, 2014:90 (in catalog of Ampulicidae, Sphecidae, and Crabronidae of Sweden, by provinces); Protsenko, Fateryga, and Ivanov, 2014:26 (Crimea: several localities); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Atbaei, Fallahzadeh, and Ljubomirov, 2015:5 (Iran: Fars Province); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Samin, Bagriacik, and Monaem, 2015:195 (Iran: East Azarbaijan: Tabriz); Saure, 2015:12 (Germany: Berlin-Lichterfelde); Shorenko, 2015:334 (in list of Sphecidae *sensu lato* of Crimea); Simon, Lorthiois, and Macé, 2015:53 (France: alluvial terraces in Eure Department: Courcelles-sur-Seine and Seine-Maritime Department: Anneville-Ambourville); Bleidorn, Gerth, Hopfe, et al., 2016:10 (Germany: Sachsen: Trages circa 20 km south of Leipzig); Stolle and Saure, 2016:921 (Germany: in list of Sphecidae *sensu lato* of Sachsen-Anhalt); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:10 (Turkey: Ağrı, Erzincan, Erzurum, Iğdır, Isparta, Kars, Kayseri, and Tunceli provinces); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from Alborz, East Azerbaijan, and Fars provinces); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Shorenko, 2017:79 (in Crimea collected in May through July); Twerd, Krzyżyński, Waldon-Rudzionek, and Olszewski, 2017:7 (Poland: Inowrocław: nesting in postindustrial soda ash dumping sites); Witt, 2017:37 (Germany: Niedersachsen: Hannover); Jacobs and Liebig, 2018:136 (Russia: Irkutsk Oblast': Bol'shoye Goloustnoye and Ust'-Ordynski steppe); Lett, 2018:202 (France: Loir-et-Cher: Gièvres at 47°16'39"N 1°41'52"E); Shorenko, 2018:129 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev, and Maharramov, 2019:7 (Azerbaijan: Nakhichevan Autonomous Republic); Olszewski and Kowalczyk, 2019:90 (Poland: Pomorze Gdańskie = Gdańsk Pomerania); Akulov, Proshchalykin, and Mokrousov, 2020:46 (Russia: central Krasnoyarsk Krai); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:170 (in Sphecidae Fauna of Europe); Kejval, Blažej, and Erhart, 2020:90 (western Czech Republic); Saure, 2020:276 (Germany: Sachsen-Anhalt: sand dunes); Shorenko, 2020:48 (Crimea: Karadag Nature Reserve); Cross, Baldock, and Wood, 2021:22 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey); Olszewski, Wiśniowski, and Ljubomirov, 2021:83 (in commented list of Sphecidae *sensu lato* of Poland); Saure, 2021:81 (Germany: Brandenburg: Nature Reserve Ferbitzer Bruch near Potsdam); Can, 2022a:222 (supernumerary vein in forewing); Can, Çubuk, and Gülmez, 2023:69 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:420 (Uzbekistan: distribution); Jacobs, 2025b:77, 81 (in key to Palearctic *Astata*), 127 (in revision of Palearctic *Astata*).

As *Astata costai*: Simon Thomas, 1974:57 (Netherlands: Limburg: Tienray), corrected to *Astata minor* by Simon Thomas, 1974:Errata.

61. *mongolica* Jacobs

Astata mongolica Jacobs, 2025b:130, ♀, ♂. Holotype: ♂, Mongolia: 100 km west of Choibalsan (OÖLM). – Jacobs, 2025b:79, 84 (in key to Palearctic *Astata*).

62. *moralesi* Giner Mari

Astata moralesi Giner Mari, 1945e:232, ♂. Holotype: ♂, Morocco: Western Sahara: Amuiserat (Mus. Barcelona). – Pulawski, 1959:378, footnote (additional description); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2025b:132 (in revision of Palearctic *Astata*).

63. *namibiensis* Jacobs

Astata namibiensis Jacobs, 2023b:255, ♀. Holotype: ♀, Namibia: western inlet to Omaruru River west of Omaruru (OÖLM). – Jacobs, 2023b:264 (in key to Subsaharan *Astata*).

64. *nevadica* Cresson

Astata nevadica Cresson, 1881:v, ♀. Holotype: ♀, USA: Nevada: no specific locality (ANSP). – Cresson, 1887:276 (in catalog of North American Hymenoptera); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Snow, 1906:134 (Arizona); Cresson, 1916:96 (holotype in ANSP); Maidl and Klima, 1939:22 (in catalog of world Astatinae and Bembicinae); Strickland, 1947:129 (Canada: Alberta: Lethbridge, Medicine Hat); Townes in Muesebeck, Krombein, and Townes, 1951:939 (in catalog of North American Hymenoptera); Krombein, 1961a:81 (visiting flowers of mat euphorbia, *Euphorbia albomarginata* Torrey and A. Gray), Euphorbiaceae; F. Parker, 1962c:654 (in revision of *Astata* of USA and Canada; western North America, Canada to Mexico), 1964:559 (in revision of *Astata* of Mexico and Central America); Evans, 1973c:148 (Wyoming: Jackson Hole); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Evans, 1996:69 (nest structure); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Ratzlaff, 2016:23 (Canada: British Columbia, after F. Parker, 1962); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:207 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: Alberta, British Columbia, first record from Saskatchewan: no specific locality). – **As *Astatus nevadicus***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); W. Fox, 1892g:235 (in checklist of North American *Astatus*), 1894a:545 (in revision of North American Larrinae); Ashmead, 1899d:329 (in checklist of North American Crabronidae); Cockerell, 1899a:144 (New Mexico); H. Smith, 1908b:337 (in revision of Nebraskan Sphecidae); Mickel, 1918b:426 (in catalog of Nebraskan Sphecidae).

65. *nigra* F. Smith

Astata unicolor Lepeletier de Saint Fargeau, 1845:258, ♂, junior primary homonym of *Astata unicolor* Say, 1824. Holotype or syntypes: Algeria: Oran (depository?). – Lucas, 1849:261 (Algeria: Oran; original description copied with modifications); Acloque, 1897:94 (in Sphecid Fauna of France and Algeria).

Astata nigra F. Smith, 1856:310. Substitute name for *Astata unicolor* Lepeletier de Saint Fargeau, 1845. – Maidl and Klima, 1939:16 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae). – **As *Astatus niger***: Kohl, 1885a:447 (new generic assignment, original description copied), 448 (in checklist of world *Astatus*); Gussakovskij, 1927:295 (Lepeletier de Saint Fargeau's original description copied); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2025b:132 (in revision of Palearctic *Astata*). – **As *Dimorpha nigra***: Casolari and Casolari Moreno, 1980:113 (new generic assignment, specimens in M. Spinola collection, Torino); Pagliano, 2011a:113 (specimen in coll. Spinola, Torino is *Astata* sp. from Brazil).

66. *nigricans* Cameron

Astata nigricans Cameron, 1889c:151, ♂. Holotype or syntypes: ♂, India: Maharashtra: Poona, now Pune (OXUM). – Bingham, 1897:183 (redescription); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Rothney, 1903:103 (India: West Bengal: Barrackpore); Nurse, 1909:512 (discussion of characters); Maidl and Klima, 1939:20 (in cata-

log of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Wu and Zhou, 1996a:68 (in revision in Economic Insect Fauna of China); Hua, 2006:277 (in list of Chinese insects, geographic distribution); Jacobs, 2023:517 (first record from Laos: Khamnouan Province: Ban Khoun Ngeun at 18°07'N 104°29'E, redescription of ♂, description of ♀).

67. *nubecula* Cresson

Astata nubecula Cresson, 1865b:466, ♂. Holotype: ♂, USA: Colorado Territory: no specific locality (ANSP). – Patton, 1880b:386 (in checklist of North American Larrinae); Snow, 1881:96 (in checklist of Hymenoptera of Kansas: Wallace County: no specific locality); Cresson, 1887:276 (in catalog of North American Hymenoptera); Ashmead, 1890:33 (in checklist of Hymenoptera of Colorado); nec Ashmead, 1894:64 (= *Astata occidentalis*); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Snow, 1906:134 (Arizona: Tucson); Cresson, 1916:96 (holotype in ANSP); Carter, 1925:133 (Canada: Alberta: Lethbridge, as *nubeculus*); Krombein, 1939:135 (New York State, as *nubeculus*); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae); Strickland, 1947:129 (Canada: Alberta); Townes in Muesebeck, Krombein, and Townes, 1951:940 (in catalog of North American Hymenoptera); Krombein, 1958a:52 (USA: West Virginia: Lost River State Park); Evans, 1958b:177 (prey); F. Parker, 1962c:649 (in revision of *Astata* of USA and Canada; as *nubecula nubecula*); G. Bohart, Nye, and Hawthorn, 1970:49 (Utah: Logan, onion pollinator); Horning and Barr, 1970:102 (USA: Idaho: Craters of the Moon National Monument); Evans, 1970:487 (nesting habits); Steiner, 1973:22 (Canada: Northwest Territories); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Krombein, 1979b:1614 (in catalog of North American Hymenoptera); Finnamore, 1982:90 (in Sphecid Fauna of southern Quebec); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Spofford, Kurczewski, and Downes, 1989:256, 258 (references to publications on nest parasites *Hilarella hilarella* (Zetterstedt) and *Senotainia trilineata* (Wulp), miltogrammine flies); Evans, 1996:68 (Colorado: 25 mi. west of Livermore); Finnamore, 1997:887 (Canada: Yukon); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario), 29 (distribution within Ontario), 4r (first record from Ontario and British Columbia: list of localities); Ratzlaff, 2016:23 (Canada: British Columbia, after F. Parker, 1962); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:207 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: USA: first record from Alaska, Canada: Alberta, British Columbia, Northern Territories, Ontario, Quebec, Yukon Territory, first records from Manitoba and Saskatchewan: no specific locality). – **As *Astatus nubeculus***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); W. Fox, 1892g:234 (in checklist of North American *Astatus*), 1894a:543 (in revision of North American Larrinae); Ashmead, 1899d:329 (in checklist of North American Crabronidae); H. Smith, 1908b:336 (in revision of Nebraskan Sphecidae); Stevens, 1917:421 (North Dakota); Mickel, 1918b:426 (in catalog of Nebraskan Sphecidae). *Astata nigropilosa* Cresson, 1881:iv, ♀, ♂. Lectotype: ♀, USA: Colorado: no specific locality (ANSP), designated by Cresson, 1916:96. Synonymized with *Astata nubecula* by W. Fox, 1892g:234. – Cresson, 1887:276 (in catalog of North American Hymenoptera); Ashmead, 1890:33 (in checklist of Hymenoptera of Colorado). – **As *Astatus nigropilosus***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*). – **As *Astatus nubeculus* var. *nigropilosus***: Cockerell, 1899a:144 (new status, New Mexico).

68. *obscura* Arnold

Astata obscura Arnold, 1932:4, ♀, ♂. Syntypes: Zimbabwe: Sanyati Valley (SAM). – Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Hancock, Chahwanda, and Mhlanga, 1995:37 (one syntype in Bulawayo Museum); Jacobs, 2023b:255 (redescription of ♂ and ♀ after Arnold, 1932), 264, 265 (in key to Subsaharan *Astata*).

69. *occidentalis* Cresson

Astata occidentalis Cresson, 1881:iii, ♂. Lectotype: ♂, USA: Washington State: no specific locality (ANSP), designated by Cresson, 1916:96. – Cresson, 1887:276 (in catalog of North American Hymenoptera); Dalla Torre, 1897:654 (in catalog of world Sphecidae); J. Smith, 1910:683 (in new list of insects of New Jersey: “probable in New Jer-

sey”); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae); Townes in Muesebeck, Krombein, and Townes, 1951:940 (in catalog of North American Hymenoptera); Evans, 1958b:168 (nesting habits), 1958c:111 (description of larva); Powell and Burdick, 1980:25 (nesting behavior); F. Parker, 1962c:651 (in revision of *Astata* of USA and Canada), 1964:559 (in revision of *Astata* of Mexico and Central America); Horning and Barr, 1970:102 (Idaho: Craters of the Moon National Monument); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Krombein, 1979b:1615 (in catalog of North American Hymenoptera); Rust, Hanks and Bechtel, 1983:406 (Nevada: Churchill County: Blow Sand Mountains); Rust, Menke, and Miller, 1985:46 (California: Channel Islands); Piek and Spanjer, 1986:180 (in list of Sphecidae with known prey); Steiner, 1986:100 (references to papers on nesting habits); Spofford, Kurczewski, and Downes, 1989:258 (reference to publication on nest parasite *Senotainia trilineata* (Wulp), a miltogrammine fly); Evans, 1996:68 (Colorado: 25 mi. west of Livermore), 69 (nest structure); Blades and Maier, 1996:72 (Canada: British Columbia: Osoyoos - Mount Kobau area at 49°05'N 119°40'W); Millar, Rice, Steffan, Daane, Cullen, and Zalom, 2001:244 (attraction of female to sex pheromone of pentatomid *Thyanta pallidovirens* Stål); Amarante, 2002:6 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario), 29 (distribution within Ontario), 44 (first record from Ontario: list of localities); Alcock, 2007b:565 (males perching on outer twigs of limbs of trees and shrubs); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007:45 and 47 (Mexico: Tamaulipas); Cottrell, Landolt, Zhang, and Zack, 2014:233 (*Astata occidentalis* is attracted to methyl (E,E,Z)-2,4,6-decatrienoate emitted by stink bugs); Ratzlaff, 2016:23 (Canada: British Columbia, after F. Parker, 1962 and Blades and Maier, 1992); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:207 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia, Ontario, first records from Alberta and Saskatchewan: no specific locality). – ***As Astatus occidentalis***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); W. Fox, 1892g:234 (in checklist of North American *Astatus*), 1894a:542 (in revision of North American Larrinae); Ashmead, 1899d:329 (in checklist of North American Crabronidae).

Astata apicipennis Cameron, 1890a:66, sex not stated. Holotype or syntypes: Mexico: Sinaloa: Presidio near Mazatlán (BMNH). Synonymized with *Astata occidentalis* by F. Parker in R. Bohart and Menke, 1976:213. – Dalla Torre, 1897:651 (in catalog of world Sphecidae); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae). – ***As Astatus apicipennis***: Ashmead, 1899d:330 (new generic assignment, in checklist of North American Crabronidae).

Astata tinctipennis Cameron, 1890a:67, ♀. Holotype or syntypes: ♀, Mexico: Sinaloa: Presidio near Mazatlán (BMNH). Synonymized with *Astata occidentalis* by F. Parker in R. Bohart and Menke, 1976:213. – Dalla Torre, 1897:656 (in catalog of world Sphecidae); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae). – ***As Astatus tinctipennis***: Ashmead, 1899d:330 (new generic assignment, in checklist of North American Crabronidae).

Astatus sayi W. Fox, 1894a:542, ♀ (as *Sayi*, incorrect original capitalization). Lectotype: ♀, USA: Virginia: no specific locality (ANSP), designated by Cresson, 1928:46. Synonymized with *Astata occidentalis* by Townes in Muesebeck, Krombein, and Townes, 1951:940. – Ashmead, 1899d:330 (in checklist of North American Crabronidae). – ***As Astata sayi***: Dalla Torre, 1897:655 (new generic assignment, in catalog of world Sphecidae); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae).

As *Astata nubecula*: Ashmead, 1894:64 (prey), corrected to *Astata occidentalis* by Evans, 1958b:168 and 177.

70. *picea* A. Costa

Astata picea A. Costa, 1867b:90, ♀. Holotype: ♀, Italy: Sardegna: no specific locality (Torino). – A. Costa, 1883:57 (Italy: Sardegna: Alghero, Simaxis, Tempio), 90 (redescription), 1884b:32 (Italy: Sardegna: Gonnese); Kohl, 1885a:447 (original description copied); Dalla Torre, 1897:654 (in catalog of world Sphecidae); Fertton, 1899:336

(stinging prey just behind mouth), 1901a:102 (prey capture), 103 (list of prey); Mantero, 1911:74 (Italy: Sardegna: Isola dell'Asinara); Ferton, 1923:143 (prey paralyzing, cephalic malaxation), 334 (common to Sardinia and Corsica); Berland, 1925d:110 (in Sphecid Fauna of France); Richards, 1928b:220 (in key to black *Astata* of France); E. Nielsen, 1933:295 (Ferton's observations reported); Nadig, 1934:32 (France: Corse: Bastia; Italy: Sardegna: Cagliari); Maidl and Klima, 1939:17 (in catalog of world Astatinae and Bembicinae); de Beaumont, 1942a:412 (discussion; relation to melanic *boops* from southern France); Giner Mari, 1943a:120 (in Sphecid Fauna of Spain), 1945d:57 (in revision of Spanish *Astata*); Dupuis, 1947:113 (list of known heteropteran prey); Guiglia, 1948c:201 (Italy: Sardegna: Villasalto); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain); Evans, 1958b:179 (review of known behavior); Suárez, 1969:31 (Spain: Almería Province); Marion, 1978:88 (France: Pyrénées-Orientales: Canet-Plage); Piek and Spanjer, 1986:180 (in list of Sphecidae with known prey); Jacobs, 2025b:74, 84 (in key to Palearctic *Astata*), 132 (as full species, in revision of Palearctic *Astata*). – **As *Astatus piceus***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); Gussakovskij, 1927:295 (original description copied). – **As *Astata boops picea***: Antiga and Bofill, 1904:9 (new status; Spain: Cataluña Province; as *piceus*); de Beaumont in Pulawski, 1956:44 (new status); Steiner, 1955:138 (France: Dordogne; as *boops* f. *picea*); Grandi, 1957:385 (Italy: Sardegna); R. Bohart and Menke, 1976:212 (in checklist of world Sphecidae); Gayubo, 1982a:94 (northern Spain: Sierra de Béjar), 1984b:96 (Spain: previously recorded from Salamanca Province); Gayubo and Tormos, 1984:13 (Spain: Valencia); Mingo and Gayubo, 1986:1006 (distribution in Spain); Steiner, 1986:100 (references to papers on nesting habits); Pagliano, 1989:350 (Italy: Sardinia); redescription, 1990:64 (in catalog of Italian Sphecidae); Negrisoló in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); K. Schmidt and Bitsch in Bitsch et al., 2001:163 (in Sphecid Fauna of Western Europe); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Pagliano and Negrisoló, 2005:94 (in Sphecid Fauna of Italy); Bitsch, Dollfuss, Bouček, Schmidt, Schmid-Egger, Gayubo, Antropov, and Barbier, 2007:462 (Spain: Tarragona: La-Pineda-de-Salou, prey: Hemiptera Pentatomidae: *Dolycoris baccarum* (Linnaeus) and *Chlorochroa* sp., nest bicellular); Gros, 2008:267 (Spain: Tarragona: Pineda de Salou; nesting habits: prey: *Chlorochroa* sp. and *Dolycoris baccarum* (Linnaeus), Pentatomidae); Pagliano, 2009:176 (Italy: Arcipelago Toscano: islands of Capraia and Gorgona); Cross, Baldock, and Wood, 2021:20 (in catalog of Sphecidae *sensu lato* of Portugal).

Astata picea A. Costa, 1867c:34, ♀. Objective synonym of *Astata picea* A. Costa, 1867b:90.

Astatus carbonarius Kohl, 1885a:437, ♂. Holotype or syntypes: ♂. France: Corse: no specific locality (NHMW). Synonymized with *Astata boops picea* by ... – Kohl, 1885a:434 (in key to European *Astatus*), 447 (in checklist of world *Astatus*); Dalla Torre, 1897:653 (in catalog of world Sphecidae); Gussakovskij, 1927:294 (original description copied). – **As *Astata carbonaria***: Antiga and Bofill, 1904:9 (new generic assignment, Spain: Cataluña Province); de Gaulle, 1908:121 (in catalog of French Hymenoptera); de Beaumont, 1942:412 (discussion; relation to melanic *boops* from southern France); Dollfuss, 1989:7 (type series in NHMW).

71. *pontica* Pulawski

Astata pontica Pulawski, 1958a:171, ♀, ♂. Holotype: ♀, Bulgaria: mouth of Ropotamo River (originally W.J. Pulawski coll., now CAS). – Pulawski, 1959:378 (additional description); Balthasar, M. Hrubant, and E. Hrubant, 1967:171 (Bulgaria: Slanchev Bryag near Nessebar); Balthasar, 1972:287 (in Sphecid Fauna of Czechoslovakia: may occur in the country); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Pulawski, 1978:229, 230 (in key to Sphecidae of European part of USSR); Dollfuss, 1991:92 (in key to Sphecidae of North and Central Europe); Shkuratov, 2000:58 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); K. Schmidt and Bitsch in Bitsch et al., 2001:173 (in Sphecid Fauna of Western Europe: first record from Greece); Shkuratov, 2004a:78 (Russia: Rostov Oblast': Yelanskaya), 2004b:167 (Russia: Rostov Oblast': Gosudarstvennyi Muzey-Zapovednik M.A. Sholokhova); Tüzün and Yüksel, 2010:4470 (first record from Turkey: Niğde Province); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Japoshvili and Ljubomirov, 2012:96 (Turkey: Isparta: Gölcük Nature Park 8 km southwest of city of Isparta); Yıldırım, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by bi-

ogeographic provinces); Mokrousov, Shlyakhtenok, and Grebennikov, 2016:19 (Russia: Volgograd Oblast': 16 km north-northeast of Kalach-on-Don at 48.838°N 43.603°E); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:170 (in Sphecidae Fauna of Europe); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmez, 2023:70 (Turkey: Sivas: Koyulhisar: 20 km of Suşehri road; Tokat: Erbaa: Tepekışla); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:75, 81 (in key to Palearctic *Astata*), 134 (in revision of Palearctic *Astata*).

72. *prosii* Schmid-Egger

Astata prosii Schmid-Egger, 2014:525, ♀, ♂. Holotype: ♂, United Arab Emirates: Um-al-Quwain at 25.51°N 55.51°E (Ch. Schmid-Egger coll.). – Schmid-Egger, 2014:523 (in key to *Astata* of United Arab Emirates), 530 (color photographs of female), 531 (color photographs of male); Gadallah, 2020b:21 (in list of aculeate wasps of Arabian Peninsula); Jacobs, 2025b:76, 82 (in key to Palearctic *Astata*), 135 (in revision of Palearctic *Astata*).

73. *quettae* Nurse

Astata quettae Nurse, 1903b:1, ♀, ♂ (♂ = *Astata resoluta*). Lectotype: ♀, Pakistan: Quetta (BMNH), designated by Nurse, 1909:510. – Ramakrishna Aiyar, 1916:551 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Pulawski, 1978:229, 231 (in key to Sphecidae of European part of USSR); Dollfuss, 1991:92 (in key to Sphecidae of North and Central Europe); Esenbekova and Kazenas, 2000:24 (southeastern Kazakhstan: near Bakanas, 20 km west of Chundzha, 30 km south-southwest of Koktal on Ili River); Kazenas, 2000e:208 (in Sphecidae Fauna of Kazakhstan), 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia); K. Schmidt and Bitsch *in* Bitsch et al., 2001:174 (in Sphecidae Fauna of Western Europe); Kazenas, 2002a:56 (geographic distribution, collecting localities in Kazakhstan), 2004d:29 (Kazakhstan: northern Caspian region); Hua, 2006:277 (in list of Chinese insects, geographic distribution); Yildirim and Ljubomirov, 2007:117 (first record from Turkey: Erzurum: Oltu); Ljubomirov and Yildirim, 2008:54 (in catalog of Crabronidae of Turkey); Sakenin, Samin, and Bagriacik, 2010:16 (Iran: Ilam: Dehloran); Shorenko and Konovalov, 2010:13 (Ukraine: Lugansk Oblast': village D'yakovo); Baghirov, 2011b:140 (Russia: recorded from Altayskiy Kray by Kazenas, Mityaev, Matesova, Kulenova and Zhdanko, 1979); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Kazenas, 2013b:494 (southeastern Kazakhstan: 35 km north of Chilik, 20 km west of Chundzha, 30 km south-southwest of Koktal on Ili River); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Atbaei, Fallahzadeh, and Ljubomirov, 2015:4 (Iran: Fars Province); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Sadeghi, Fallahzadeh, Ostovan, Ljubomirov, and Hesami, 2016:431 (Iran: Fars Province); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:31 (Iran: known from Fars and Ilam provinces); Nemkov, 2017b:218 (in catalog of Astatinae of Russia); Fallahzadeh, Ljubomirov, Tavakoli Roodi, and Saghaei, 2018:626 (Iran: Hormozgan: Band e Molla at 27°25'N 57°09'E); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:171 (in Sphecidae Fauna of Europe); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey), 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Jacobs, 2025b:76, 82 (in key to Palearctic *Astata*), 136 (in revision of Palearctic *Astata*).

Dimorpha fletcheri R. Turner, 1917e:193, ♀. Lectotype: ♀, India: Bihar: Pusa (BMNH), designated by Pulawski, 1975a:320. Synonymized with *Astata quettae* by Pulawski, 1975a:320. – Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae).

Astatus hirsutulus Gussakovskij, 1927:281, ♀. Holotype: ♀, China: Sachzhou oasis in Gashun-Gobi (ZIN). Synonymized with *Astata quettae* by Pulawski, 1975a:320. – *As Astata hirsutula*: Maidl and Klima, 1939:15 (new generic assignment, in catalog of world Astatinae and Bembicinae, as *hirtula*); Balthasar, 1972:288 (in Sphecidae Fauna of Czechoslovakia: not yet found in the country); Kazenas, 1978b:97, 99 (in key to Sphecidae of Kazakhstan and Cen-

tral Asia); Mityaev, Matesova, Kulenova, Kazenas, and Zhdanko, 1980:119 (Russia: Siberia: Altayskiy Kray: basin of Aley River).

Astata tibialis Gussakovskij, 1927:286, ♂. Holotype: ♂, Mongolia: northern slopes of Ikhe-Bogdo near Oroknar Lake 600 km southwest of Ulan Baator (ZIN). Synonymized with *Astata hirsutula* by Pulawski, 1965c:572. – Gussakovskij, 1934a:8 (Mongolia), 1935:8 (Mongolia); Maidl and Klima, 1939:18 (in catalog of world Astatinae and Bembicinae).

Astata hungarica Pulawski, 1958b:195, ♀. Holotype: ♀, Hungary: Orszent Miklós (TMB). Synonymized with *Astata hirsutula* by Pulawski, 1965c:572.

74. *radialis* E. Saunders

Astata radialis E. Saunders, 1910:521, ♀, ♂ (♂ assigned to *radialis* conditionally). Syntypes: Algeria: Bône, Le Tarf (OXUM). – Morice, 1911:95 (Algeria: Bône, now Annaba, and Le Tarf, now El Taref); Maidl and Klima, 1939:17 (in catalog of world Astatinae and Bembicinae); Honoré, 1942:60 (Egypt: Saqqara); Giner Marí, 1947:25 (Morocco: Western Sahara: Gulta Zemur); de Beaumont, 1950f:404 (Algeria; redescription), 1953g:126 (Morocco); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Roche, 2007a:53 (in checklist of Egyptian Crabronidae, recorded from Egypt by Honoré, 1942), 2007b:3 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae, old record, not confirmed by recent collecting); Jacobs, 2025b:76, 82 (in key to Palearctic *Astata*), 137 (in revision of Palearctic *Astata*).

75. *resoluta* Nurse

As *Astata quettae*: Nurse, 1903b:1 (♂ only), corrected to *Astata resoluta* by Nurse, 1909:510.

Astata resoluta Nurse, 1909:510, ♂. Syntypes: ♂. Pakistan: Quetta (BMNH). – Ramakrishna Aiyar, 1916:551 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); Bohart and Menke, 1976:213 (in checklist of world Sphecidae).

76. *rubra* Jacobs

Astata rubra Jacobs, 2025b:138, Holotype: ♀. Holotype: ♀, Turkmenistan: Tsarshanga 45 km northeast of Karlyuk (OÖLM). Paratypes: Kazakhstan, Uzbekistan. – Jacobs, 2025b:83 (in key to Palearctic *Astata*).

77. *rubriventris* Jacobs, Rezaei, and Fallahzadeh

Astata rubriventris Jacobs, Rezaei, and Fallahzadeh, 2023:560, ♀. Holotype: ♀, Iran: Fars: Teyhon at 29°36'37"N 51°38'08"E (ZSBS). – Jacobs, 2025b:83 (in key to Palearctic *Astata*), 139 (in revision of Palearctic *Astata*).

78. *ruficaudata* (R. Turner)

Dimorpha ruficaudata R. Turner, 1917b:318, ♀. Holotype or syntypes: ♀, Malawi: Zomba (BMNH). – **As *Astata ruficaudata***: Arnold, 1923c:39 (in revision of southern African *Astata*), 1924:35 (description of ♂), 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2023b:257 (Kenya: near Voi, redescription of ♂, redescription of ♀ after R. Turner, 1917b and Arnold, 1923), 264, 265 (in key to Subsaharan *Astata*).

ssp. hova Arnold

Astata ruficaudata hova Arnold, 1945:46, ♀, ♂. Syntypes: Madagascar: Behara, Bekily (MNHN). – Leclercq, 1960a:96 (Madagascar); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Leclercq, 1990b:114 (Madagascar, in key to Malagasy *Astata*); Hancock, Chahwanda, and Mhlanga, 1995:37 (syntypes in Bulawayo Museum); Pulawski, 2003b:795 (in checklist of Malagasy Sphecidae); Madl, 2014a:938 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality records).

79. *rufipes* Mocsáry

As *Astata oculata*: Costa, 1867:89 and 1867c:33 (♂ only, in revision of Italian Sphecidae), corrected to *Astata rufipes* by de Beaumont, 1953i:2. – Maidl and Klima, 1939:16 (in catalog of world Astatinae and Bembicinae).

Astata rufipes Mocsáry, 1883:22, ♀. Holotype or syntypes: ♀, Hungary: Budapest area (TMB). – Dalla Torre, 1897:655 (in catalog of world Sphecidae); Mocsáry, 1897:78 (Hungary); Ferton, 1901a:104 (list of prey); Antiga and Bofill, 1904:9 (Spain: Cataluña Province); Schmiedeknecht, 1907:235 (in key to Hymenoptera of Central Europe); Ferton, 1908:558 (prey); de Gaulle, 1908:121 (in catalog of French Hymenoptera); Mantero, 1915:326 (Libya); Gribodo, 1919:857 (Italy: Piemonte: Susa); Noskiewicz, 1924a:114 (Poland: vicinity of Kraków, record questionable); Berland, 1925d:109 (in Sphecid Fauna of France); Schmiedeknecht, 1930:696 (in keys to Hymenoptera of North and Central Europe); nec Zavadil, 1932:96 (= *Astata kashmirensis*); Guiglia, 1934b:301 (Libya: bibliography and summary of locality records); Nadig, 1934:32 (France: Corse: Bastia); Zavadil, 1937a:73 (eastern Slovakia); Zavadil, Šusterka, and Bat'a, 1937:204 (in catalog of Sphecidae of Czechoslovakia); Maidl and Klima, 1939:17 (in catalog of world Astatinae and Bembicinae); Zavadil, 1939:121 (Czech Republic: Čejč, Káraný); de Beaumont, 1942a:403, 404 (in key to *Astata* of Switzerland, description of ♂), 407 (in revision of *Astata* of Switzerland; only Swiss localities are Martigny and Sierre); Giner Marí, 1943a:119 (in Sphecid Fauna of Spain); Dupuis, 1947:113 (list of known heteropteran prey); Šnoflák in Zavadil and Šnoflák, 1948:61, 63 (in key to Sphecidae of Czechoslovakia, not yet found in Czechoslovakia); Vogrin, 1955:36 (Yugoslavia); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain); Pulawski, 1956:57 (in revision of European Astatinae); Bajári, 1957a:63, 64 (in key to Hungarian Sphecidae); Evans, 1958b:180 (discussion of known prey); Nouvel and Ribaut, 1958:12 (France: Pyrénées-Orientales: Banyuls-sur-Mer); Noskiewicz and Pulawski, 1960:111, 112 (in key to Polish Sphecidae, not yet found in country); Balthasar and Hrubant, 1961:14 (first record from Slovakia: Mužla and Štúrovo); Myartseva, 1963b:58 (Turkmenistan: lower Murgab River); de Beaumont, 1964c:69 (in Sphecid Fauna of Switzerland), 1965a:44 (Greece); Myartseva, 1965:76 (Turkmenistan: Akibay); Benedek, 1968:73 (Hungary, visiting flowers of *Angelica silvestris* L., Apiaceae), 1969a:83 (Hungary; marshy meadow); Islamov, 1970:63, 64 (Uzbekistan: Chirchik Basin); Balthasar, 1972:291 (in Sphecid Fauna of Czechoslovakia); Kazenas, 1972b:157 (Kazakhstan); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Kazenas, 1978b:97, 99 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:230, 231 (in key to Sphecidae of European part of USSR); Benedek, 1979:231 (Hungary: Bakony Hills: Káptalanfüred); Pagliano, 1980:112 (Italy: Lazio); Józán, 1985b:57 (recorded from Simontornya by Bajári, 1957), 69 (map of distribution in Hungary), 83 (ecological and zoogeographic characteristics); Dollfuss, 1983b:9 (in catalog of Sphecidae of Austria); Karsai, 1988:99 (Hungary: Kiskunság National Park); Pádr in Šedivý, 1989a:168 (in checklist of Czechoslovakian Sphecidae); Pagliano, 1989:355 (Italy, redescription, as *rufipes rufipes*), 1990:65 (in catalog of Italian Sphecidae); Dollfuss, 1991:92 (in key to Sphecidae of North and Central Europe); Gayubo, Borsato, and Osella, 1992:281 (France: Corse); Negrisoló in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); Celary, 1997:58 (in checklist of Animals of Poland); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Pagliano and Scaramozzino, 1999:156 (Italy: Piemonte: Borgomale); Zehnder and Zettel, 1999:131 (Switzerland: recolonization of flooded area in Valais Canton); Esenbekova and Kazenas, 2000:24 (southeastern Kazakhstan: no specific locality); Kazenas, 2000e:212 (in Sphecid Fauna of Kazakhstan); Ljubomirov, 2000:9 (Bulgaria: specimens in N. Nedelkov collection); Kazenas, 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 143 (male perching behavior); Kazenas and Esenbekova, 2001:134 (Kazakhstan: Almatinskiy Nature Reserve); K. Schmidt and Bitsch in Bitsch et al., 2001:174 (in Sphecid Fauna of Western Europe); Kazenas, 2002a:57 (geographic distribution, collecting localities in Kazakhstan); Shkuratov, 2002b:142 (Russia: Rostov Oblast': Rostovskiy Nature Reserve at 46°27'N 42°41'E); Kazenas, 2004b:102 (Kazakhstan: western Tien Shan); Shkuratov, 2004a:78 (Russia: Rostov Oblast': Rostovskiy Nature Reserve); Skibińska in Bogdanowicz, Chudzicka, Pilipiuk, and Skibińska, 2004:355 (in catalog of Polish Crabronidae); Wiśniowski, 2004:43 and 60 (in checklist of Polish Sphecidae: recorded from Poland in error by Noskiewicz, 1924); Pagliano and Negrisoló, 2005:97 (in Sphecid Fauna of Italy); Yildirim and Ljubomirov, 2005:1789 (first record from Turkey: Bitlis: Adilcevaz); Standfuss and Standfuss, 2006b:96 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Veřek and Straka, 2007:202 (in catalog of Sphecidae of Czech Republic and Slovakia), 221 (records from Czech Re-

- public and Slovakia are misidentifications); Ljubomirov and Yildirim, 2008:54 (in catalog of Crabronidae of Turkey); Guéorguiev and Ljubomirov, 2009:262 (Bulgaria: Maleshevska Planina); Shorenko and Konovalov, 2010:13 (Ukraine); Józán, 2011:180 (in checklist of Sphecidae *sensu lato* of Hungary); Strumia, Pagliano, and Gayubo, 2012:56 (Italy: Toscana: Riserva di San Rossore); Kazenas, 2013a:55 (color photograph of adult wasp, short information on geographic distribution and nesting habits); Protsenko, Fateryga, and Ivanov, 2014:26 (Crimea: Simferopol'); Yildirim, Ljubomirov, and Lelej, 2014:5 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:137 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:334 (in list of Sphecidae *sensu lato* of Crimea); Haris, 2016:16 (in list of species described by S. Mocsáry from Carpathian Basin); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:10 (Turkey: Bitlis, Kars, and Tunceli provinces); Nemkov, 2017b:218 (in catalog of Astatinae of Russia, as *rufipes rufipes*); Shorenko, 2017:79 (in Crimea collected in August), 2018:129 (Crimea, including localities, habitats, and number of specimens); Bitsch and Schmidt *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:171 (in Sphecidae Fauna of Europe); Kaplan and Yildirim, 2021:21 (in catalog of Crabronidae of Turkey); Can, Çubuk, and Gülmez, 2023:70 (Turkey: Kelkit Valley); Kaplan and Yildirim, 2023:1679 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:420 (Uzbekistan: distribution); Jacobs, 2025b:73, 75, 81 (in key to Palearctic *Astata*), 140 (in revision of Palearctic *Astata*). – **As *Astatus rufipes***: Kohl, 1885a:434 (new generic assignment, in key to European *Astatus*), 439 (in revision of European *Astatus*, Austria: Hainburg), 448 (in checklist of world *Astatus*), 1893:33 (Austria: Niederösterreich: Hainburg); Gussakovskij, 1927:288 (in revision of Palearctic Astatinae; ♂ = *Astata stecki* according to de Beaumont, 1942a:409), 1935:426 (Tajikistan: Kulab).
- Astatus sareptanus* Gussakovskij, 1927:291, ♂. Syntypes: ♂. Russia: Sarepta south of Volgograd, now Krasnoarmeysk (ZIN). Synonymized with *Astata rufipes* by de Beaumont, 1942a:409. – **As *Astata sareptana***: Maidl and Klima, 1939:18 (new generic assignment, in catalog of world Astatinae and Bembicinae); Kazenas, 1971:161 (in Kazakhstan found only in southeastern mountains).
- Astata massiliensis* Morice, 1902:106, ♂. Holotype: ♂. France: Marseille (OXUM). Synonymized with *Astata rufipes* by Jacobs, 2025b:140. – de Gaulle, 1908:121 (in catalog of French Hymenoptera); Berland, 1925d:110 (in Sphecidae Fauna of France), 1928b:177 (correctly recorded from France: Lyon); Richards, 1928b:220 (in key to black *Astata* of France); Giner Marí, 1934:133 (Spain); Dusmet y Alonso, 1935:49 (Spain: Madrid: Montarco and Vaciamadrid); Maidl and Klima, 1939:15 (in catalog of world Astatinae and Bembicinae); Giner Marí, 1942a:70 (Spain: Valencia Province), 78 (redescription), 1943a:118 (in Sphecidae Fauna of Spain), 1945d:63 (in revision of Spanish *Astata*); Ceballos, 1956:373 (in catalog of Hymenoptera of Spain). – **As *Astata rufipes massiliensis***: de Beaumont, 1942a:413 (new status; as var. *massiliensis*); Suárez, 1959:56 (Spain: Almería Province); Ceballos, 1964:89 (in supplement to catalog of Spanish Sphecidae); R. Bohart and Menke, 1976:213 (as synonym of *Astata rufipes*), 628 (as subspecies of *Astata rufipes*); Pagliano, 1980:112 (Italy: Liguria); Mingo and Gayubo, 1986:1009 (distribution in Spain); Pagliano, 1989:355 (Italy: Liguria; redescription), 1990:65 (in catalog of Italian Sphecidae); Negrisola *in* Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); K. Schmidt and Bitsch *in* Bitsch et al., 2001:175 (in Sphecidae Fauna of Western Europe); Pagliano and Negrisola, 2005:100 (in Sphecidae Fauna of Italy); González, Gayubo, Asís, and Tormos, 2009:623 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Vieira, Oliveira, Brewster, and Gayubo, 2013:15 (Portugal: Douro International Natural Park); Cross, Baldock, and Wood, 2021:22 (in catalog of Sphecidae *sensu lato* of Portugal).
- Astata rufipes echingol* Tsuneki, 1971l:411, ♀. Holotype: ♀, Mongolia: Bayanhongor Aymag: Ehingol oasis (TMB). Synonymized with *Astata rufipes* by Jacobs, 2025b:140. – R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae).
- As *Astata abdominalis*: Pagliano, 2011a:112 (some specimens in coll. Spinola, Torino, are *Astata rufipes*).

80. rufitarsis F. Smith

Astata rufitarsis F. Smith, 1856:310, ♂. Holotype or syntypes: ♂, South Africa: Western Cape Province: Cape of Good Hope (BMNH). – Dalla Torre, 1897:655 (in catalog of world Sphecidae); Arnold, 1923c:40 (in revision of southern African *Astata*), 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2023b:257 (South Africa: Western Cape: Barrydale in Klein Karoo, redescription of ♂), 265 (in key to Subsaharan *Astata*). – **As *Astatus rufitarsis***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*).

81. rufoatra Jacobs

Astata rufoatra Jacobs, 2023b:256, ♀. Holotype: ♀, Namibia: 25 km east-northeast of Usakos at 21°52'S 15°19'E (OÖLM). – Jacobs, 2023b:265 (in key to Subsaharan *Astata*).

82. rufofemorata Arnold

Astata rufofemorata Arnold, 1945:44, ♀, ♂. Syntypes: Madagascar: Behara, Bekily (MNHN). – Leclercq, 1960a:97 (Madagascar); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Leclercq, 1990b:114 (in key to Malagasy *Astata*), 115 (Madagascar); Hancock, Chahwanda, and Mhlanga, 1995:37 (syntypes in Bulawayo Museum); Pulawski, 2003b:795 (in checklist of Malagasy Sphecidae); Madl, 2014a:939 (in catalog of Ampulicidae, Crabronidae, and Sphecidae of Malagasy subregion, with synonymy and locality records).

83. rugifrons Arnold

Astata rugifrons Arnold, 1946:87, ♀. Syntypes: ♀, Zambia: Abercorn, now Mbala (SAM). – R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2023b:258 (redescription of ♀ after Arnold, 1946), 264 (in key to Subsaharan *Astata*).

84. sabulosa (Gussakovskij)

Astatus sabulosus Gussakovskij, 1927:293, ♂. Syntypes: ♂, Turkmenistan: vicinity of Ashkhabad and Repetek (ZIN). – **As *Astata sabulosa***: Maidl and Klima, 1939:18 (new generic assignment, in catalog of world Astatinae and Bembicinae); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp., Tamaricaceae, in Kazakhstan); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Kazenas, 1978b:98 (in key to Sphecidae of Kazakhstan and Central Asia), 1992c:25 (Turkmenistan: Repetek Nature Reserve), 2000e:214 (in Sphecid Fauna of Kazakhstan), 2001:24 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:57 (geographic distribution, collecting localities in Kazakhstan), 2008a:100 (southeastern Kazakhstan: Ili River valley: near Kapchagay, and Sarytaukum Desert: near Aidarly); Jacobs, 2025b:75, 82 (in key to Palearctic *Astata*), 142 (in revision of Palearctic *Astata*).

85. schmideggeri Jacobs

Astata schmideggeri Jacobs, 2025b:142, ♂. Holotype: ♂, Tunisia: Ghar el Melh 35 km southeast of Bizerte (Ch. Schmid-Egger personal collection, Berlin, Germany). – Jacobs, 2025b:77 (in key to Palearctic *Astata*).

86. selecta Nurse

Astata selecta Nurse, 1909:511, ♀. Syntypes: ♀, India: Gujarat: Deesa (BMNH). – Ramakrishna Aiyar, 1916:551 (in catalog of Indian aculeates described after Bingham, 1897); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Schmid-Egger, 2014:523 (in key to *Astata* of United Arab Emirates), 532 (Israel: Hazeva in Arava valley, redescription), 533 (color photographs of female), 534 (color photograph of male); Gadallah, 2020b:21 (in list of aculeate wasps of Arabian Peninsula); Jacobs, 2025b:76, 82 (in key to Palearctic *Astata*), 143 (in revision of Palearctic *Astata*).

87. sicula Kohl

Astatus boops var. *siculus* Kohl, 1884:436, ♀, ♂. Syntypes: Italy: Sicilia: no specific locality (NHMW). – Kohl, 1885a:434 and 435 (in key to European *Astatus*); Gussakovskij, 1927:285 (original description copied); nec Giner Marí, 1946:7 (= *Astata trochanterica*). – **As *Astata boops* var. *sicula***: Maidl and Klima, 1939:13 (in catalog of

world Astatinae and Bembicinae). – **As *Astata sicula***: Kohl in Dalla Torre, 1897:655 (new generic assignment, full species status, in catalog of world Sphecidae); Pulawski, 1956:44 (in revision of European Astatinae, as synonym of *Astata boops*); de Beaumont, 1959a:24 (valid species, redescription; Italy: Sicilia: Taormina); R. Bohart and Menke, 1976:211 (as synonym of *Astata boops*), 628 (as valid species); Dollfuss, 1989:7 (type series in NHMW); Pagliano, 1989:357 (Italy: Sicilia; redescription), 1990:65 (in catalog of Italian Sphecidae); Schembri, 1991:179 (first record from Malta); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:3 (in catalog of Italian fauna); K. Schmidt and Bitsch in Bitsch et al., 2001:175 (in Sphecidae Fauna of Western Europe); Schmid-Egger, 2003:750 (Italy: Sicilia: Castelammare; Malta: Mgarr); Pagliano and Negrisolo, 2005:100 (in Sphecidae Fauna of Italy); G. Turrisi and R. Turrisi, 2007:116 (Italy: Sicilia: Mount Etna: Botanical Garden Nuova Gussonea and vicinity); Schmid-Egger, Dandria, and Xuereb, 2016:80 (in checklist of Crabronidae of Maltese Islands); Bitsch and Schmidt in Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:172 (in Sphecidae Fauna of Europe); Jacobs, 2025b:75, 83 (in key to Palearctic *Astata*), 144 (in revision of Palearctic *Astata*).

As *Dimorpha abdominalis*: Pagliano, 2011a:112 (some specimens in M. Spinola collection, Torino, are *Astata sicula*).

88. *spinolae* de Saussure

As *Astata abdominalis*: Spinola, 1851a:321 (in revision of Chilean Hymenoptera), corrected to *Astata spinolae* by de Saussure, 1854:22. – **As *Dimorpha abdominalis***: Casolari and Casolari Moreno, 1980:113 (specimens in M. Spinola collection, Torino).

Astata spinolae de Saussure, 1854:22, ♂ (as *Spinolae*, incorrect original capitalization). Holotype or syntypes: ♂, Chile: no specific locality (MHNG). – F. Smith, 1856:309 (in catalog of Hymenoptera in British Museum); de Saussure, 1867:67 (Chile, redescription); Taschenberg, 1870:16 (Argentina: Mendoza and Parana); Dalla Torre, 1897:655 (in catalog of world Sphecidae); Schrottky, 1903b:177 (in checklist of Hymenoptera of Argentina, Paraguay, and Uruguay); Jörgensen, 1912:292 (Argentina: Mendoza Province); Schrottky, 1913a:226 (Argentina); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae); Ruíz Pereira, 1942:32 (common to Chile and Argentina); F. Parker, 1968b:848 (in revision of South American *Astata*); Pérez d'Angello, 1972:9 (in review of *Astata* of Chile); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Sielfeld, 1980b:72 (in checklist of Chilean Sphecidae); Amarante, 2002:7 (in catalog of Neotropical Crabronidae). – **As *Astatus spinolae***: Kohl, 1885a:449 (new generic assignment, in checklist of world *Astatus*).

89. *stangei* F. Parker

Astata stangei F. Parker, 1964:556, ♀, ♂. Holotype: ♂. Mexico: Sinaloa: Chupaderos (UCD). – Not listed by R. Bohart and Menke, 1976.

90. *stevensoni* Arnold

Astata stevensoni Arnold, 1924:32, ♀, ♂ (as *Stevensoni*, incorrect original capitalization). Syntypes: Zimbabwe: Bulawayo (SAM). – Arnold, 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Hancock, Chahwanda, and Mhlanga, 1995:37 (syntypes in Bulawayo Museum); Jacobs, 2023b:260 (redescription of ♂ and ♀ after Arnold, 1924), 264, 266 (in key to Subsaharan *Astata*).

91. *tarda* Cameron

Astata tarda Cameron, 1897a:80, ♂. Holotype or syntypes: Sri Lanka: no specific locality (OXUM). – Bingham, 1897:184 (redescription); Maidl and Klima, 1939:20 (in catalog of world Astatinae and Bembicinae); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae).

92. *trochanterica* de Beaumont

As *Astata* sp. aff. *laeta*: Nadig, 1933:86 (♀ only; Morocco: Asni), corrected to *Astata trochanterica* by de Beaumont, 1953g:127.

As *Astata boops* var. *sicula*: Giner Marí, 1946:7 (Morocco: Mogador), corrected to *Astata trochanterica* by de Beaumont, 1953g:127.

Astata trochanterica de Beaumont, 1953g:126, ♀, ♂. Holotype: ♀, Morocco: Marrakech (Lausanne). – R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2025b:75, 80 (in key to Palearctic *Astata*), 145 (in revision of Palearctic *Astata*).

93. *tropicalis* Arnold

Astata tropicalis Arnold, 1924:31, ♀. Holotype: ♀, Zambia: Ndola (SAM). – Arnold, 1930:8 (in checklist of Afrotropical Sphecidae); Maidl and Klima, 1939:19 (in catalog of world Astatinae and Bembicinae); Arnold, 1952:471 (Zambia: Abercorn, now Mbala, description of ♂); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Jacobs, 2023b:260 (redescription of ♂ and ♀ after Arnold, 1924 and 1952), 264, 266 (in key to Subsaharan *Astata*).

94. *tropicana* Jacobs

Astata tropicana Jacobs, 2023b:261, ♀, ♂. Holotype: ♂, Namibia: Gobabis 40 km west of Witvlei (OÖLM). Paratypes: Namibia, South Africa. – Jacobs, 2023b:264, 266 (in key to Subsaharan *Astata*).

1. *nevadica* Cresson

2. *unicolor* Say

Astata unicolor Say, 1824:337, ♀. Syntypes: USA: Northwest Territory (now area around Great Lakes and between the Ohio and Mississippi Rivers) and Missouri: no specific locality (destroyed). – F. Smith, 1856:310 (in catalog of Hymenoptera in British Museum); Cresson, 1862:234 (in catalog of North American Hymenoptera), 1865a:467 (specimen in ANSP collection), 1873:218 (Texas), 1875:715 (New Mexico), 1876:208 (Colorado: Plains); Patton, 1880b:386 (in checklist of North American Larrinae); Provancher, 1882:48 and 1883b:631 (in revision of Canadian Hymenoptera); Cresson, 1887:276 (in catalog of North American Hymenoptera); Ashmead, 1890:33 (in checklist of Hymenoptera of Colorado); C. Robertson, 1892:108 (visiting flowers of *Pycnanthemum lanceolatum* Pursh. and *P. linifolium* Ph., Lamiaceae); Dalla Torre, 1897:656 (in catalog of world Sphecidae); G. Peckham and E. Peckham, 1898:88 (nesting habits); Bridwell, 1899:209 (Kansas: no specific locality); J. Smith, 1900:522 (in list of insects of New Jersey); Viereck, 1903d:120 (Maryland: College Park); Snow, 1906:134 (Arizona); Barth, 1910:120 (nest structure); J. Smith, 1910:683 (in new list of insects of New Jersey); Faull, 1913:385 (Canada: Toronto region); Rohwer, 1916b:688 (in catalog of Hymenoptera of Connecticut); Britton, 1920:340 (in checklist of insects of Connecticut); Rohwer in Viereck, 1925:688 (in key to Sphecidae of Connecticut); J.Ch. Bradley, 1928:1008 (in catalog of Hymenoptera of New York); Hendrickson, 1930:159 (Iowa); E. Nielsen, 1933:295 (Peckhams', 1899, observations reported); Krombein, 1936:98 (New York: Buffalo; floral records); Brimley, 1938:442 (North Carolina: Cumberland and Wilson counties); Maidl and Klima, 1939:23 (in catalog of world Astatinae and Bembicinae); Townes in Muesebeck, Krombein, and Townes, 1951:940 (in catalog of North American Hymenoptera); Krombein, 1952a:93 (USA: Virginia: Westmoreland State Park); Evans, 1958b:160 (male behavior, female nesting behavior), 1958c:110 (description of larva); F. Parker, 1962c:652 (in revision of *Astata* of USA and Canada); Evans, 1963c:fig. 4 after p. 38 (photograph of female with prey), 41 (nesting behavior); F. Parker, 1964:558 (in revision of *Astata* of Mexico and Central America; Canada to El Salvador); Evans, 1975a:263 (slow colonizer of new habitats); R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Krombein, 1979b:1615 (in catalog of North American Hymenoptera); Finnamore, 1982:92 (in Sphecid Fauna of southern Quebec); Piek and Spanjer, 1986:180 (in list of Sphecidae with known prey); Steiner, 1986:100 (references to papers on nesting habits); Spofford, Kurczewski, and Downes, 1989:257 (nest parasite: *Metopia luggeri* Townsend, a miltogrammine fly); Kurczewski and Acciavatti, 1990:60 (New York: Cayuga County); Spofford and Kurczewski, 1990:745 (nest parasite: *Metopia luggeri* (Townsend), Sarcophagidae); Genaro and Sánchez, 1992c:220 (nesting behavior in Cuba); Spofford and Kur-

czewski, 1992:996 (species of miltogrammine parasites listed); Ahlstrom, 1995:108 (in checklist of insects of North Carolina); Fernández, Garcés, Portuondo, Valdés and Expósito, 2001:1022 (Cuba: collected on weed flowers in Botanical Garden of Santiago de Cuba); Amarante, 2002:7 (in catalog of Neotropical Crabronidae); Ruíz Cancino, Coronado Blanco, Varela Fuente, and Horta Vega, 2002:663 (in checklist of Mexican Sphecidae); Buck, 2004:25 (Canada: in checklist of Crabronidae of Ontario); Portuondo and Fernández, 2004:134 (Cuba: Sierra Maestra); Genaro, 2006:52 (in checklist of Cuban Sphecidae and Crabronidae; other countries: North America, Mexico to El Salvador, Jamaica); Horta Vega, Pinson Domínguez, Barrientos Lozano, and Correa Sandoval, 2007: 45 (Mexico: Tamaulipas); Ratzlaff, 2016:23 (Canada: British Columbia, after Parker, 1962); Biddinger and Joshi, 2017:809 (prey: nymphal *Halyomorpha halys* (Stål), Pentatomidae); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (historical records from Oregon counties); Buck and Bennett, 2025:207 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: Canada: British Columbia, Ontario, Quebec, first records from Alberta, New Brunswick, Nova Scotia: no specific locality). – **As *Astatus unicolor***: Kohl, 1885a:449 (new generic assignment, in checklist of world *Astatus*); W. Fox, 1892g:234 (in checklist of North American *Astatus*), 1894a:541 (in revision of North American Larrinae); Ashmead, 1899d:329 (in checklist of North American Crabronidae); Harrington, 1902:224 (Canada: Ontario: Ottawa); H. Smith, 1908b:336 (in revision of Nebraskan Sphecidae); Mickel, 1918b:425 (in catalog of Nebraskan Sphecidae).

Astata insularis Cresson, 1865a:140, ♀. Lectotype: ♀, Cuba: no specific locality (IZAC), designated by Cresson, 1916:95. Synonymized with *Astata unicolor* by F. Parker, 1968a:328. – Patton, 1880b:386 (in checklist of North American Larrinae); Dalla Torre, 1897:653 (in catalog of world Sphecidae); Ashmead, 1900:308 (in checklist of Caribbean Hymenoptera); Maidl and Klima, 1939:21 (in catalog of world Astatinae and Bembicinae); Alayo Dalmau, 1973:176 (in catalog of Cuban Hymenoptera), 1976:21 (in checklist of Cuban Sphecidae); de Zayas, 1981:76 (is the only Cuban member of the genus, illustration of habitus). – **As *Astatus insularis***: Kohl, 1885a:448 (new generic assignment, in checklist of world *Astatus*); Ashmead, 1899d:330 (in checklist of North American Crabronidae).

Astata rufiventris Cresson, 1873:218, ♀. Holotype: ♀, USA: Texas: Bosque County: no specific locality (USNM). Synonymized with *Astatus bicolor* by W. Fox, 1892g:234 and with *Astata unicolor* by F. Parker, 1962c:652. – Patton, 1880b:386 (in checklist of North American Larrinae); Cresson, 1887:276 (in catalog of North American Hymenoptera), 1916:96 (holotype in USNM). – **As *Astatus rufiventris***: Kohl, 1885a:449 (new generic assignment, in checklist of world *Astatus*). – **As *Astata unicolor* var. *rufiventris***: Townes in Muesebeck, Krombein, and Townes, 1951:940 (new status, in catalog of North American Hymenoptera).

3. **vaquero F. Parker**

Astata vaquero F. Parker, 1967:850, ♂, ♀. Holotype: ♂, Argentina: Santiago del Estero: near Icano (MNHN). Paratypes: Bolivia, Uruguay. – R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Amarante, 2002:7 (in catalog of Neotropical Crabronidae).

4. **westcotti F. Parker**

Astata westcotti F. Parker, 1964:558, ♀, ♂. Holotype: ♂, Mexico: Guerrero: 10 mi. north of Zumpango (UCD). Paratype: El Salvador. – F. Parker, 1968b:851 (in revision of South American *Astata*; Venezuela); Amarante, 2002:7 (in catalog of Neotropical Crabronidae), 2005a:8 (in corrections to his 2002 catalog of Neotropical Crabronidae and Sphecidae,). Not listed by Bohart and Menke, 1976.

5. **williamsi F. Parker**

Astata williamsi F. Parker, 1962c:653, ♀, ♂. Holotype: ♂, USA: Nevada: 20 mi. south of Goldfield (CAS). Paratypes: California (Sierra Nevada). – R. Bohart and Menke, 1976:213 (in checklist of world Sphecidae); Krombein, 1979b:1615 (in catalog of North American Hymenoptera); Lowenstein, Andrews, Rudolph, Wiman, and Marshall, 2018:3 (Oregon: historical record from Polk county); Buck and Bennett, 2025:207 (in checklist of Sphecidae *sensu lato* of Canada, Alaska, and Greenland: first record from Canada: Alberta: no specific locality).

sp.

Cockerell, 1901:40 (visiting flowers of *Cleome serrulata* Pursh, Capparidaceae); Poulton, 1918:xxxvii (Brazil, prey); von Schulthess, 1926b:213 (Tunisia); Schouteden, 1930:92 (Zaire, as *Dimorpha*); Nadig, 1933:86 (Morocco, aff. *laeta*); Giner Marí, 1945b:359 (eastern Morocco: Muley Rechid and Ixmoart), 1947:25 (Western Sahara); de Beaumont, 1960c:171 (Afghanistan); Myartseva, 1965:76 (Turkmenistan: Akibay); de Beaumont, 1967b:508 (South Africa: Cape Town); Pulawski, 1967a:387 (Turkey); Zapata, 1974:37 (Chile: Lampa near Santiago); Báez and Ortega, 1978:192 (Canary Islands); Roche, 1981:2 (in checklist of Sphecidae of United Arab Emirates, sp. near *cleopatra*); Hilchie, 1982:107 (Alberta: Empress); Quicke, Ingram, Baillie, and Gattens, 1992:386 (sperm structure and ultrastructure); Amarante, 1993:19 (northeastern Brazil); Gayubo, González, and Torres, 2000:185 (Spain: Salamanca Province, sp. aff. *apostata*); Pagliano, 2003b:127 (Italy: Island of Lampedusa); Nieves-Aldrey, Fontal-Cazalla, Garrido-Torres, and Rey del Castillo, 2003:42 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama; sp. aff. *apostata*); Gayubo et al. 2004:130 (Spain: Madrid: Estación Biogeológica de El Ventorrillo in Sierra de Guadarrama; sp. aff. *apostata*); Magdalou, 2006a:7, 10 (France: Pyrénées-Orientales: Réserve Naturelle de la Massane; sp. aff. *boops*); Ljubomirov and Yildirim, 2008:55 (in catalog of Crabronidae of Turkey); Schmid-Egger, 2014:532 (United Arab Emirates, as *Astata* sp. A), 535 (color photograph of male *Astata* sp. A); Gadallah, 2020b:22 (in list of aculeate wasps of Arabian Peninsula, two species).

NOMINA NUDA IN ASTATA

frontalis Perris: Dours, 1874:141 (in catalog of Hymenoptera of France).

hungarica Mocsáry: Kohl, 1883e:672 (Switzerland).

nigra Herrich-Schaeffer, 1840:295 (Germany: Bayern: Regensburg area), as *Nigra*, incorrect original capitalization.

SPECIES DESCRIBED IN ASTATA AND TRANSFERRED TO OTHER GENERA

amenartais Pulawski, 1959 = *Dryudella*

ammochtona Pulawski = *Dryudella osiriaca ammochtona*

anatolica Pulawski, 1967 = *Dryudella tricolor anatolica*

aquitana Pulawski, 1970 = *Dryudella*

argenteofacialis Cameron, 1889 = *Lyroda*

aspera W. Fox, 1894 = *Dryudella picta* (Kohl, 1888)

asperiformis Rohwer, 1909 = *Dryudella picta* (Kohl, 1888)

bajanica Tsuneki, 1971 = *Dryudella stigma bajanica*

beaumonti Pulawski, 1959 = *Dryudella*

bella Cresson, 1881 = *Dryudella*

bifasciata von Schulthess, 1926 = *Dryudella*

caerulea Cresson, 1881 = *Dryudella*

calopteryx Gussakovskij, 1952 = *Dryudella tricolor* (Vander Linden, 1829)

elbae Pulawski, 1959 = *Dryudella amenartais elbae*

elegans Cresson, 1881 = *Dryudella*

erythrosoma Pulawski, 1959 = *Dryudella*

eurygnatha Pulawski, 1967 = *Dryudella tricolor eurygnatha*

femoralis Mocsáry = *Dryudella*

flavoundata Arnold, 1923 = *Dryudella*

freygessneri Carl, 1920 = *Dryudella*

frontalis Radoszkowski, 1877 = *Dryudella*

histrion Lepeletier de Saint Fargeau, 1845 = *Palarus*

immigrans F. Williams, 1946 = *Dryudella*
intermedia Dahlbom, 1943 = *Dryudella stigma* (Panzer, [1807-1809])
jaculator F. Smith, 1845 = *Dryudella pinguis* (Dahlbom, 1832)
interstitialis Cameron, 1907 = *Dryudella orientalis* (F. Smith, 1856)
kaszabi Tsuneki, 1971 = *Dryudella*
kohli Cameron, 1890 = *Dryudella picta* (Kohl, 1888)
lucinda Nurse, 1904 = *Dryudella*
maculifrons Cameron, 1889 = *Dryudella*
major Grönblom, 1946 = *Dryudella stigma* (Panzer, [1807-1809])
maroccana Giner Marí, 1946 = *Dryudella*
melanica Giner Marí, 1946 = *Dryudella maroccana* var. *melanica*
mongolica Tsuneki, 1971 = *Dryudella*
monochroma Pulawski, 1973 = *Dryudella tricolor monochroma*
montana Cresson, 1881 = *Dryudella*
monticola Giner Marí, 1945 = *Dryudella*
nephertiti Pulawski, 1959 = *Dryudella*
nitida Spinola, 1805 = *Tachysphex nitidus* (Spinola, 1805)
nuristanica Balthasar, 1957 = *Dryudella*
obo Tsuneki, 1971 = *Dryudella*
opaca Pulawski, 1959 = *Dryudella*
orientalis F. Smith, 1856 = *Dryudella*
osiriaca Pulawski, 1959 = *Dryudella*
picta Kohl, 1888 = *Dryudella*
picticornis Gussakovskij, 1927 = *Dryudella*
quadripunctata Radoszkowski, 1877 = *Dryudella*
sepulchralis de Beaumont, 1968 = *Dryudella*
similis Gussakovskij, 1927 = *Dryudella*
tegaris F. Morawitz, 1889 = *Dryudella*
tricolor Vander Linden, 1829 = *Dryudella*
xanthocera Pulawski, 1961 = *Dryudella*