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PSAMMAECIUS

Psammaecius Lepeletier de Saint Fargeau, 1832:72. Type species: *Gorytes punctulatus* Vander Linden, 1829, by monotypy.

Revision: de Beaumont, 1952d (western Palearctic species).

Key: Nemkov, 1995c:135 (all species).

Review of biology: Kazenas, 2001b:227.

In key to genera of Gorytina: Nemkov, 2010b:502.

1. *austeni* R. Turner

Psammaecius austeni R. Turner, 1919:69, ♀, ♂. Syntypes: Israel: Jerisheh near Jaffa (BMNH). – de Beaumont, 1952d:237 (in revision of Palearctic *Psammaecius*); R. Bohart and Menke, 1976:516 (in checklist of world Sphecidae); Nemkov, 1995c:136 (in key to *Psammaecius* of Russia and neighboring countries); Nemkov, 2017a:Table p. 10 (in zoogeographic analysis of Palearctic Bembicinae). – **As *Gorytes austeni***: de Beaumont and Bytinski-Salz, 1959:103 (new generic assignment, Israel).

2. *eremorum* de Beaumont

Psammaecius eremorum de Beaumont, 1952d:235, ♀, ♂. Holotype: ♂, Algeria: Aïn Sefra (MNHN); R. Bohart and Menke, 1976:516 (in checklist of world Sphecidae); Roche and Zalat, 1994:116 (Egypt: Sinai Peninsula); Nemkov, 1995c:136 (in key to *Psammaecius* of Russia and neighboring countries); Roche, 2007a:115 (in catalog of Egyptian Ampulicidae, Sphecidae, and Crabronidae), 2007b:8 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Nemkov, 2017a:Table p. 10 (in zoogeographic analysis of Palearctic Bembicinae); Ben Khedher, Yildirim, and Braham, 2022:7 (Tunisia: Tataouine: Ghomrasen, Ghordhab at 33°5'6.4"N 10°29'46.2"E). – **As *Gorytes eremorum***: de Beaumont and Bytinski-Salz, 1959:103 (new generic assignment, Israel).

3. *luxuriosus* (Radoszkowski)

Hoplilus luxuriosus Radoszkowski, 1877:42, ♀, ♂. Lectotype: ♀, Kazakhstan: Kyzil-kum: no specific locality (ZMMU), designated by Nemkov, 1995c:136. – Radoszkowski, 1892:584 (male genitalia). – **As *Gorytes luxuriosus***: Handlirsch, 1888b:528 (new generic assignment, in revision of world Bembicini), 1895:939 (reference to Radoszkowski, 1891); Dalla Torre, 1897:545 (in catalog of world Sphecidae); Kokujev, 1902:11 (Turkmenistan: Pereval); Maidl and Klima, 1939:110 (in catalog of world Astatinae and Bembicinae, in subgenus *Psammaecius*). – **As *Psammaecius luxuriosus***: de Beaumont, 1952d:235 (new generic assignment; in revision of Palearctic *Psammaecius*); R. Bohart and Menke, 1976:516 (in checklist of world Sphecidae); Kazenas, 1992c:28 (Turkmenistan: Repetek Nature Reserve); Nemkov, 1995c:135 (in key to *Psammaecius* of Russia and neighboring countries), 136 (distribution: southern Kazakhstan, Turkmenistan); Esenbekova and Kazenas, 2000:63 (southeastern Kazakhstan; near landing place Dubun'); Kazenas, 2002a:125 (geographic distribution, collecting localities in Kazakhstan), 2008a:105 (southeastern Kazakhstan: Ili River valley: 65 km west of Bakanas, 15 km east of Ayak-Kalkan, near Dubun' on Ili River), 2013b:498 (southeastern Kazakhstan: landing place Dubun' on Ili River); Nemkov, 2017a:Table p. 10 (in zoogeographic analysis of Palearctic Bembicinae); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:427 (Uzbekistan: distribution).

Gorytes flaviventris F. Morawitz, 1894:358, ♀. Holotype or syntypes: ♀, Turkmenistan: Tedjen (ZIN). Synonymized with *Psammaecius luxuriosus* by Nemkov, 1995c:136. – Handlirsch, 1895:942 (original description copied); Dalla Torre, 1897:542 (in catalog of world Sphecidae); Maidl and Klima, 1939:50 (in catalog of world Astatinae and Bembicinae); Myartseva, 1963b:60 (Turkmenistan: lower Murgab River), 1965:88 (Turkmenistan: Akibay),

1972a:88 (Turkmenistan); R. Bohart and Menke, 1976:501 (in checklist of world Sphecidae); Kazenas, 1978b:78 (in key to Sphecidae of Kazakhstan and Central Asia).

4. *punctulatus* (Vander Linden)

Gorytes punctulatus Vander Linden, 1829:102, ♀, ♂. Syntypes: Dalmatia, now Croatia, and Spain: no specific localities (Inst. Roy. Sci. Nat. Belgique, Bruxelles, and coll. Déjean, now lost?). – Klug in Walzl, 1835:87 (in list of Hymenoptera of Andalusia); F. Smith, 1856:362 (in catalog of Hymenoptera in British Museum); Handlirsch, 1888b:524 (in revision of world Bembicinae); Gasperini, 1889:70 (Dalmatia, now Croatia); Kohl and Handlirsch, 1889:280 (Turkmenistan: Chuli); F. Morawitz, 1893b:421 (Turkestan: Urgut); Handlirsch, 1895:939 (additional bibliography; Spain, Armenia); Dalla Torre, 1897:551 (in catalog of world Sphecidae); Mocsáry, 1900:82 (Kingdom of Hungary: Grebenácz, now in Romania); Ferton, 1901a:105 (prey), 106 (list of prey), 1905:70 (nesting habits); Mantero, 1905:70 (Italy: Toscana: Isola del Giglio); Mercet, 1906a:136, 138 (in key to Spanish *Gorytes*); Ferton, 1908:558 (habitat and nest structure); Maidl, 1922:72 (Croatia); Berland, 1925d:89 (in Sphecidae Fauna of France); Nadig, 1933:90 (Morocco: Tanger); Grandi, 1934:129 (Italy: Lazio: Acilia); Nadig, 1934:32 (Italy: Sardegna: Aritzo, Cagliari, Iglesias); Bernard, 1935:64 (France: Var: Fréjus area); Guiglia, 1938b:9 (Italy: Sardegna); Maidl and Klima, 1939:110 (in catalog of world Astatinae and Bembicinae, in subgenus *Psammaecius*); Guiglia, 1941c:164 (Italy: Calabria: Grande Sila), 1942a:58 (Greece: Island of Rhodes: Villanova); Giner Marí, 1943a:173 (in Sphecidae Fauna of Spain); Giordani Soika, 1944:9 (Italy: Sicilia: Messina); Guiglia, 1944b:20 (Italy), 1948c:201 (Italy: Sardegna: Villasalto); de Beaumont, 1951g:315 (Italy); Cleu, 1953:50 (France: Ardèche River basin); de Beaumont, 1953h:114 (Morocco), 1954e:88 (Italy); Grandi, 1954:231 (Italy); Ceballos, 1956:383 (in catalog of Hymenoptera of Spain); Bajári, 1957a:105 (in key to Hungarian Sphecidae, not yet found in Hungary); de Beaumont, 1959a:22 (Italy); de Beaumont and Bytinski-Salz, 1959:102 (Israel); de Beaumont, 1960a:12 (Greece: Island of Rhodes); Scobiola, 1960a:165 (first record from Romania: Constanța Region: Techirghiol, Tulcea Region: Periprava); de Beaumont 1961c:48 (Greece: Island of Crete), 1962b:23 (Spain); Ceballos, 1964:92 (in supplement to catalog of Spanish Sphecidae); de Beaumont, 1965a:30 (Greece); Scobiola-Palade, 1966b:392 (Romania: Tulcea District: C.A. Rosetti); Balthasar, Hrubant, and Hrubant, 1967:172 (Bulgaria: Slanchev Bryag near Nessebar); de Beaumont, 1967a:312 (Turkey); Scobiola-Palade, 1968b:142 (Romania: Island of Letea in delta of Danube); Balthasar, 1972:319 (in Sphecidae Fauna of Czechoslovakia: not yet found in country); Kazenas, 1972b:151 (Kazakhstan); Diniz, 1973:45 (Portugal: Coimbra, Oliveira do Bairro, Rezende); Erlandsson, 1974:65 (France, Greece, Spain, Yugoslavia); Kazenas, 1974:109 (feeding on flowers of *Statice gmelini* Willd., Plumbaginaceae, in Kazakhstan), 110 (feeding on flowers of *Euphorbia* spp., Euphorbiaceae, and *Nitraria schoberi* L., Zygophyllaceae, in Kazakhstan), 1978b:78 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:204 (in key to Sphecidae of European part of USSR); Radović and Krunić, 1979:unpaginated foldout (nesting in coarse sand and loose soil, foreleg structure); Scobiola-Palade, 1985:96 (Romania: delta of Danube). – *As Euspongos punctulatus*: Herrich-Schaeffer, 1840:290 (new generic assignment, Germany: Bayern: Regensburg area). – *As Hoplisus punctulatus*: A. Costa, 1863:66 (new generic assignment; Italy: Calabria Ulteriore: no specific locality), 1864c:124 (Italy: Campania: Benevento area), 1867c:61 and 1869b:77 (in revision of Italian Sphecidae); Chevrier, 1870:272 (description of ♀); Radoszkowski, 1877:40 (Uzbekistan: Zaravshan valley; Kazakhstan: Syr-Daria steppe); Becker, 1880:151 (Russia: Sarepta, now Krasnoarmeysk south of Volgograd); A. Costa, 1884b:33 (Italy: Sardegna: Montagna di Laconi); De-Stefani, 1895:227 (in catalog of Sicilian Hymenoptera); de Gaulle, 1908:120 (in catalog of French Hymenoptera); Bradley, 1957 (Lepeletier's specimens in M. Spinola collection, Turin); Casolari and Casolari Moreno, 1980:121 (specimens in M. Spinola collection, Torino); Pagliano, 2014:90 (specimens in M. Spinola collection, Torino, are *Psammaecius punctulatus* and *Gorytes* sp.). – *As Psammaecius punctulatus*: Lepeletier de Saint Fargeau, 1832:72 (new generic assignment, in revision of world Hymenoptera; Greece); Wesmael, 1839:79 (possibly a junior synonym of *Gorytes latifrons* Spinola); Herrich-Schaeffer, 1840:291 (Germany: Bayern: Regensburg area); Lepeletier de Saint Fargeau, 1845:75 (in revision of world Hymenoptera); Acloque, 1897:84 (in Sphecidae

Fauna of France and Algeria); de Beaumont, 1952d:233 (in revision of Palearctic *Psammaecius*); Evans, 1966d:70 (summary of known behavior); R. Bohart and Menke, 1976:516 (in checklist of world Sphecidae); Guichard, 1978:270 (Greece); Gayubo, 1982b:45 (Spain: Salamanca: Calzada de Béjar); Radović, Krnić and Brajković, 1982:29 (Yugoslavia); Schmidt and Westrich, 1983:124 (Greece); Chevin and Chevin, 1985:39 (France: Aude); Gayubo, 1986a:65 (Spain: Ciudad Real Province); Gayubo and Sanza, 1986:78 (Spain: Burgos); Gayubo, Asís, and Tormos, 1990:78 (Spain: Cáceres Province); Pagliano, 1990:74 (in catalog of Italian Sphecidae); Gayubo, Borsato, and Osella, 1991:414 (Italy), 1992:288 (Greece: Island of Euboea); Pagliano, 1992:42 (in key to Italian Nyssoninae); Luchetti, 1993:105 (Italy: Sardegna: Maddalena archipelago); Negrisolo and Pagliano, 1993:91 (Italy: Sardegna); Kazenas and Esenbekova, 1995:80 (Kazakhstan; bibliographic reference to leafhopper prey); Negrisolo in Minelli, Ruffo, and La Posta, 1995b:5 (in catalog of Italian fauna); Nemkov, 1995c:135 (in key to *Psammaecius* of Russia and neighboring countries), 136 (distribution in former Soviet Union, as *punctulatus*); Minoranskiy and Shkuratov, 1996:81 (Russia: Rostov Oblast'); Wu and Zhou, 1996a:147 (in revision in Economic Insect Fauna of China); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:236 (in Sphecidae Fauna of Western Europe); Pagliano and Alma, 1997:179 (known prey listed); Esenbekova and Kazenas, 2000:63 (southeastern Kazakhstan: 70 km east of Alma Ata, near Chilik, 30 km east of Chilik, near Masak, 1-3 km northwest of Zhabagly); Giachino, Grosso, Marchetti, Pagliano, Scaramozzino, and Vailati, 2000:109 (Greece); Shkuratov, 2000:57 (Russia: Rostov Oblast': Vëshenskaya village area at 49°37'N 41°45'E); Kazenas, 2001b:47 (in checklist of Sphecidae of Kazakhstan and Central Asia), 227 (review of known biology); Kazenas and Esenbekova, 2001:136 (Kazakhstan: Almatinskiy Nature Reserve); Kazenas, 2002a:125 (geographic distribution, collecting localities in Kazakhstan); Generani, Pagliano, Scaramozzino, and Strumia, 2003:64 (Italy: Arcipelago Toscano); Schmid-Egger, 2003:757 (Italy: Sicilia: Bronte, Linguaglossa); Kazenas, 2004b:110 (Kazakhstan: western Tien Shan), 2004d:34 (Kazakhstan: Ak-Bas and Fort Shevchenko in Mangyshlak Peninsula); Shkuratov, 2004a:75 (Russia: Rostov Oblast'); Cruz-Sánchez, Gayubo, González, and Torres, 2005:219 (Spain: Salamanca: San Martín del Castañar); Gayubo and Özbek, 2005:20 (Turkey: many localities); Jacobs, 2005a:450 (first record from Bulgaria: Nessebar); Pagliano and Negrisolo, 2005:168 (in Sphecidae Fauna of Italy); Shorenko, 2005a:167 (Ukraine: Crimea); Yildirim and Ljubomirov, 2005:1792 (Turkey: Erzurum, Iğdır, and Konya provinces); Hua, 2006:282 (in list of Chinese insects, geographic distribution); Standfuss and Standfuss, 2006c:306 (Greece: Thessalia: Magnisia Peninsula at 39°N 23°E); Yildirim and Ljubomirov, 2007:118 (Turkey: Erzurum and Kars provinces); Kazenas, 2008c:255 (Kazakhstan: village Koktum south of Lake Alakol'); Ljubomirov and Yildirim, 2008:94 (in catalog of Crabronidae of Turkey); Baños-Picón, Asís, Gayubo, and Tormos, 2009:311 (Spain: frequency of specimens collected with hand nets and Malaise traps); González, Gayubo, Asís, and Tormos, 2009:625 (Spain: Salamanca and Zamora provinces: Arribes del Duero Natural Park); Józán, 2009:167 (Croatia: Gornj Poličnik, Nin, Polača); Pagliano, 2009:178 (Italy: Piemonte: San Benedetto Belbo); Shorenko, 2009:368 (in list of Sphecidae *sensu lato* of Crimea); Bitsch, 2010:114 (in supplement to vol. II of Faune de France, 1997: recent record from Bulgaria reported); Józán, 2010:254 (first record from Hungary: Somogy County); Józán, 2011:184 (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); Nemkov, 2012b:121 (review of known prey); Prisniy, 2012:51 (Russia: Belgorod Oblast'); Yildirim, 2012:76 (Turkey: Erzurum: Oltu); Kazenas, 2013a:112 (color photograph of adult wasp, short information on geographic distribution and nesting habits), 2013b:498 (southeastern Kazakhstan: Ili River valley), 2014a:138 (Kazakhstan: Karatau Mountain Range); Protsenko, Fateryga, and Ivanov, 2014:32 (Crimea: several localities); Yildirim, Ljubomirov, and Lelej, 2014:6 (distribution in Turkey by biogeographic provinces); Koçak and Kemal, 2015:150 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:341 (in list of Sphecidae *sensu lato* of Crimea); Mokrousov and Popov, 2016:569 (Russia: Krasnodarskiy Kray); Yildirim, Ljubomirov, Özbek, and Yüksel, 2016:17 (Turkey: Antalya, Erzincan, Erzurum, and Tunceli provinces); Nemkov, 2017a:Table p. 10 (in zoogeographic analysis of Palearctic Bembicinae), 2017b:224 (in catalog of Bembicinae of Russia); Shorenko, 2017:80 (in Crimea collected in June and July), 2018:130 (Crimea, including localities, habitats, and number of specimens); Mokrousov, Proshchalykin, Aliyev,

and Maharramov, 2019:16 (Azerbaijan: Nakhichevan Autonomous Republic); Bitsch, Barbier, and Jacobs *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:278 (in Sphecidae Fauna of Europe); Cross, Baldock, and Wood, 2021:28 (in catalog of Sphecidae *sensu lato* of Portugal); Kaplan and Yildirim, 2021:39 (in catalog of Crabronidae of Turkey); Can, 2022a:222 (supernumerary vein in forewing); Kaplan and Yildirim, 2023:1682 (in checklist of Sphecidae *sensu lato* of Turkey); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:427 (Uzbekistan: distribution).

5. *versicolor* (de Beaumont)

Gorytes versicolor de Beaumont *in* de Beaumont and Bytinski-Salz, 1959:103, ♀, ♂. Holotype: ♀, Israel: Beersheba (Lausanne). – **As *Psammaecius versicolor***: R. Bohart and Menke, 1976:516 (new generic assignment, in checklist of world Sphecidae); Nemkov, 1995c:136 (in key to *Psammaecius* of Russia and neighboring countries), 2017a:Table p. 10 (in zoogeographic analysis of Palearctic Bembicinae).

sp.

Krombein and Evans, 1954:234 (Florida), 1955:233 (Florida).

FOSSIL PSAMMAECIUS

sepultus (Cockerell)

Hoplisis sepultus Cockerell, 1906:48, sex not stated. Holotype: USA: Colorado: Florissant, Lower Oligocene (MCZ). – Evans, 1966d:96 (redescription)– **As *Psammaecius sepultus***: Pulawski and Rasnitsyn, 1979:393 (new generic assignment, redescription).

SPECIES DESCRIBED IN PSAMMAECIUS AND TRANSFERRED TO HOPLISOIDES

alaya Pate, 1947 = *Hoplisoides*

confusus Alayo, 1969 = *Hoplisoides*

jaumei Alayo, 1969 = *Hoplisoides*

jibacoa Alayo, 1969 = *Hoplisoides*