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EREMOCHARES

Eremochares Gribodo, 1882:265. Type species: *Eremochares doriae* Gribodo, 1882:265 (= *Ammophila dives* Brullé, 1833), by monotypy.

Review of known biology: Kazenas, 1972b:93, 2001b:97.

Keys: Myartseva, 1971 (Turkmenistan); Yan, Li, and Ma (world species).

1. *clypevariatus* Yan and Ma

Eremochares clypevariatus Yan and Ma in Yan, Li, and Ma, 2015:9, ♀. Holotype: ♀, China: Xinjiang: Weiwuer [=Uigur] Autonomous Region: Boertala: Bole: A'lashankou 1 km east of Aibi Lake at 45°09'N 82°33'E (Yunnan Agricultural University, Kunming, Yunnan Province, China). – Yan, Li, and Ma, 2015:13 (in key to world species of *Eremochares*).

2. *dives* (Brullé)

Ammophila dives Brullé, 1833a:369, ♀. Lectotype: ♀, Greece: Morée, now Peloponnese: no specific locality (MNHN), designated by Menke in R. Bohart and Menke, 1976:146. – F. Smith, 1856:209 (in catalog of Hymenoptera in British Museum); Kirchner, 1867:217 (in catalog of European Hymenoptera); Gribodo, 1880:401 (Tunisia, identification tentative); F. Morawitz, 1891a:202 (Russia: Astrakhan Government); Radoszkowski, 1892:579 (male genitalia); Dalla Torre, 1897:398 (in catalog of world Hymenoptera); W. Schulz, 1904b:92 (Lebanon: Beirut, 1905:33 (Algeria: Oran); Kohl, 1906b:300 (in revision of Palearctic Ammophilini); Morice, 1911:72 (Algeria: Biskra); Smirnov, 1915:153 (Turkmenistan: Merv, now Mary; nesting habits, preying on acridids); Strand, 1915:96 (Greece: Crete: Candia); Berland, 1921:533 (Greece); von Schulthess, 1926b:208 (Tunisia, Libya: Cyrenaica); Roth, 1928:181 (in revision of North African Ammophilini), 215 (Smirnov's biological observations translated into French, phenology in Algeria); G. Carpenter, 1930b:291 (nest closure); Bischoff, 1933:5 (Morocco: Marrakech); Gussakovskij, 1933b:273 (Iran); Nadig, 1933:100 (Morocco: Marrakech); Guiglia, 1934b:291 (Libya: bibliography and summary of locality records); Maidl, 1934:64 (Greece: Aegean Islands: Milos); Giner Marí, 1945e:219 (Western Sahara); Alfieri, 1946:125 (in revision of Egyptian *Ammophila*); de Beaumont, 1951:263 (Morocco), 1955c:55 (effects of stylopization); de Beaumont and Bytinski-Salz, 1955:36 (Israel); Leclercq, 1955h:70 (bibliographic references, locality records); de Beaumont, 1965a:11 (Greece); de Beaumont and Bytinski-Salz, 1955:36 (Israel); Bytinski-Salz, 1956:223 (Turkey: Acı Göl); de Beaumont, 1960c:169 (Afghanistan), 1961c:44 (Greece: Island of Crete), 1961e:2 (Iraq); Myartseva, 1963b:59 (Turkmenistan: lower Murgab River), 1965:85 (Turkmenistan: Akibay, Iolotan' district, Bairam Ali, Murgab district, and Mary district); de Beaumont, 1967a:264 (Turkey); Kazenas, 1968b:342 (Kazakhstan: Alma Ata, Chimkent, and Gur'yev, now Atyraū, oblast's); de Beaumont, 1970a:387 (Afghanistan); Kazenas, 1970a:292 (nesting habits), 1972b:94 (list of prey), 98 (Kazakhstan: Alma Ata Oblast': vicinity of Ili); Myartseva, 1972a:85, 1972b:106 (parasite: *Senotainia pygmaea* Rond.); Kazenas, 1974b:109 (feeding on flowers of *Tamarix* sp., *Statice gmelini* Willd., Plumbaginaceae, and *Cynanchum sibiricum* Willd., Asclepiadaceae, in Kazakhstan), 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia); Pulawski, 1978:181 (in key to Sphecidae of European part of former USSR); Ebrahimi, 1993:90 (Iran); Piek and Spanjer, 1986:179 (in list of Sphecidae with known prey); Alieva and Humbatov, 2007:77 (preying on acridids and on caterpillar, the latter in error); pEbrahimi, 2014:6 (Iran: Āzarbaijān-e-Fharghi and Fārs Provinces). – **As *Parapsammophila dives***: Ed. André, 1886:88 (new generic assignment, in revision of Sphecidae of Europe and Algeria), 1888:5* (bibliographic references); Kohl, 1889a:22 (redescription). – **As *Sphex dives***: R. Turner, 1917e:177 (new generic assignment, India: Punjab: Rohtak); Morice, 1921:822 (Iraq: Amara); Derwesh, 1965:71 (Iraq: no specific locality). – **As *Eremochares dives***: Menke, 1966a:150 (new generic assignment); Myartseva, 1966:48 (preying on orthopterans), 49 (Turkmenistan: lower course of Murgab and Tedjen rivers; preying on larvae of many acridids including *Anacridium aegyptiacum aegyptiacum* (L.) and *Calliptamus italicus italicus* (L.)), 1969:49 (nest construction and structure, prey, parasites, preimaginal development),

1971:76 (in key to *Eremochares* of Turkmenistan); R. Bohart and Menke, 1976:146 (in checklist of world Sphecidae); Guichard, 1980:224 (Oman); Brockmann, 1985b:312 (nest closure summary); Radović, 1985:64 (sting apparatus analyzed); Islamov, 1986:514 (Uzbekistan: Surkhandarya Oblast'); Steiner, 1986:97 (references to papers on nesting habits); Guichard, 1988a:125 (Saudi Arabia: Abu Arish); Islamov, 1989a:50 (nest and prey); Kazenas and Nasyrova, 1991:38 (Kazakhstan: eight species of prey listed); Roche and Zalat, 1994:114 (Egypt: Sinai Peninsula); Wu and Zhou, 1996a:56 (in revision in Economic Insect Fauna of China); Bitsch, Barbier, Gayubo, Schmidt, and Ohl, 1997:89 (in Sphecidae Fauna of Western Europe); Nazarova and Shomirsaidov, 1997:23 (Tajikistan: fruit tree orchards in Vakhsh River valley); Nazarova, 1998:40 (Tajikistan: Tigrovaya Balka Nature Reserve); Kazenas, 1998b:151 (in Sphecidae Fauna of Kazakhstan); Esenbekova and Kazenas, 2000:10 (southeast Kazakhstan: near Bakanas, 3 km northeast of Borandysu, 5–10 km northwest of Chemolgan, 10 km northwest and 30 km east of Chundzha, Karakul'dek); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 99 (review of known biology), 2002a:35 (geographic distribution, collecting localities in Kazakhstan), 2004d:28 (Kazakhstan: northern Caspian region); Gayubo and Özbek, 2005:12 (Turkey: Ýcel: Silifke); Gülmez and Tüzün, 2005:50 (Turkey: Ankara Province); Nazarova, 2005:93 (alfalfa fields in southwestern Tajikistan); Hua, 2006:275 (in list of Chinese insects, geographic distribution); Roche, 2007a:23 (in checklist of Egyptian Sphecidae, redescription), 2007b:2 (in checklist of Egyptian Ampulicidae, Sphecidae, and Crabronidae); Ljubomirov and Yildirim, 2008:39 (in catalog of Sphecidae of Turkey); Danilov, 2010b:44 (distribution of Tethyan type); Dollfuss, 2010a:537 (locality records from Algeria, Azerbaijan, Morocco, Tunisia, and Turkey); Field, Ohl, and Kennedy, 2011:734 (in molecular cladistic analysis of Ammophilini); Murai and Amr, 2011:108, 119 (first record from Syria: Al Thawrah Nature Reserve at 35°51'N 28°38'E); Protsenko, Fateryga, Ivanov, and Puzanov, 2012:54 (Ukraine: Crimea); Gadallah, Al Dhafer, Aldryhim, Fadl, and Elgharbawy, 2013:360 (in new catalog of Sphecidae of Saudi Arabia); Dunford, Turbyville, and Leavengood, 2014:10 (listed as medically important in Afghanistan); Yildirim, 2014:30 (Turkey: distribution by biogeographic provinces); Dollfuss, 2015b:435 (locality records from Algeria, Oman, Syria); Field, Shreeves, Kennedy, Brace, and Gilbert, 2015:1899 (sex-biased parental care and sexual size dimorphism); Koçak and Kemal, 2015:278 (in checklist of Hymenoptera of Turkey); Shorenko, 2015:312 (in list of Sphecidae *sensu lato* of Crimea); Yan, Li, and Ma, 2015:12 (China: Xinjiang: Weiwuer [= Uyghur] Autonomous Region: Boertala: Bole: Jinghe at 44°50'N 81°51'E), 12 (in key to world species of *Eremochares*); Mokrousov and Popov, 2016:561 (Russia: Krasnodarskiy Krai); Arens, 2017a:637 (Greece: Peloponnese); Danilov, 2017b:213 (in catalog of Sphecidae s.s. of Russia); Danilov and Mokrousov, 2017a:110 (Russia: Dagestan and Kalmykia); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:1t (Iran: known from East Azerbaijan and Fars provinces); Shorenko, 2017:76 (in Crimea collected in June and July); Madl, 2018:944 (in catalog of Hymenoptera of Djibouti); Shorenko, 2018:126 (Crimea, including localities, habitats, and number of specimens); Augul, 2019:494 (recorded from Iraq as *Sphex dives* by Morice, 1921 and Derwesh, 1965); Eroğlu and Yüksel, 2019:5230 (recorded from Niğde Province of Turkey by de Beaumont, 1967, but not rediscovered since then); Gülmez, 2019:3 (Turkey: Ankara Province: no specific locality); Ben Khedher, Yildirim, Braham, and Ljubomirov, 2020a:308 (in list of Tunisian Sphecidae *sensu stricto*; new records: Tunisia: Kebili, Tataouine, and Tozeur provinces); Bitsch, Barbier, and Jacobs *in* Bitsch, Barbier, Gayubo, Jacobs, Leclercq, and Schmidt, 2020:98 (in Sphecidae Fauna of Europe); Danilov, 2020:318 (specimens from Kazakhstan, Kyrgyzstan, Russia: Astrakhan' Oblast', Kalmykia, Dagestan, and from Turkmenistan in Institute of Systematics and Ecology of Animals, Novosibirsk, Russia); Gadallah, 2020d:80 (in list of aculeate wasps of Arabian Peninsula); Maharramov, Mokrousov, and Proshchalykin, 2020:45 (Azerbaijan: Nakichivan Autonomous Republic); Embergenov, Élmurodova, Amirov and Kimyonazarov, 2022:48 (Turkmenistan: Karakum Desert); Embergenov, Akhmedov, and Medetov, 2023:24 (Uzbekistan: southern Lake Aral region); Kaplan and Yildirim, 2023:1692 (in checklist of Sphecidae *sensu lato* of Turkey); Gadallah and Abu El-Ghiet, 2024:91 (Saudi Arabia: Jazan Province: Abu Arish); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:419 (Uzbekistan: distribution).

As *Ammophila Bonae-Spei*: Lucas, 1849:276 (Algeria), corrected to *Ammophila dives* by Kohl, 1906:300.

Ammophila melanopus Lucas, 1849:276, ♀, ♂. Lectotype: ♂, Algeria: no specific locality (MNHN), designated by Menke *in* R. Bohart and Menke, 1976:146. Synonymized with *Ammophila dives* by Kohl, 1906:300. – F. Smith, 1856:210 (in catalog

- of Hymenoptera in British Museum); Ed. André, 1886:60 (in revision of Sphecidae of Europe and Algeria), 1888:2* (bibliographic references); Dalla Torre, 1897:404 (in catalog of world Hymenoptera). – **As *Ammophila dives melanopus***: de Beaumont, 1950:264 (new status, synonymy), 1950f:395 (Morocco), 1951e:263 (Morocco), 1955:56 (stylopized specimen), 1956:172 (Libya); Grandi, 1959b:287 (Algeria: Biskra, Hodna); de Beaumont, 1960:226 (Libya).
- Ammophila festiva* F. Smith, 1856:211, ♀. Holotype or syntypes: ♀, Tunisia: no specific locality (BMNH). Synonymized with *Ammophila dives* by Kohl, 1885c:164. – **As *Ammophila dives* var. *festiva***: Dalla Torre, 1897:399 (new status, in catalog of world Hymenoptera).
- Ammophila elegans* F. Smith, 1856:216, ♀, ♂. Syntypes: India or Pakistan: Punjab: no specific locality (BMNH). Synonymized with *Ammophila dives* by .. – F. Smith, 1871a:359 (in catalog of Oriental Aculeata); Cameron, 1889c:93 (in list of Sphecidae of Oriental Region); Bingham, 1897:232 (in revision of wasps and bees of British India, India: Punjab, Bombay); Dalla Torre, 1897:399 (in catalog of world Hymenoptera).
- Ammophila limbata* Kriechbaumer, 1869:597, ♀, ♂. Syntypes: Greece: Corfu: no specific locality (NHMW). Synonymized with *Ammophila dives* by Mocsáry, 1881a:18. – **As *Eremochares limbata***: Dollfuss, 1989:9 (new generic assignment, type material in NHMW).
- Ammophila nigritaria* Walker, 1871:18, ♀, ♂. Syntypes: Djibouti: Tajura (destroyed). Synonymized with *Ammophila dives* by Kohl, 1885c:164. – Innes Bey, 1912:111 (specimens recorded by Walker, 1871, now destroyed by dermestids, were collected at Pharaoh's Baths).
- Eremochares doriae* Gribodo, 1882:265, ♀, ♂ (as *Doriae*, incorrect original capitalization). Lectotype: ♀, Tunisia: no specific locality (MSNG), designated by Menke in R. Bohart and Menke, 1976:146. Synonymized with *Ammophila dives* by Kohl, 1889a:17 and 22, Guiglia, 1948a:32, and de Beaumont, 1950e:262. – Ed. André, 1886:92 (in revision of Sphecidae of Europe and Algeria), 1888:5* (bibliographic references); Pérez, 1907:496 (Bahrain); Pennati and Mariotti, 2015:46 (in list of Hymenoptera described by G. Gribodo). – **As *Ammophila dives* var. *doriae***: Graeffe, 1906:456 (new generic assignment, new status, Tunisia: Tunis area). – **As *Ammophila dives doriae***: Schulz, 1905b:33 (new status), 54 (new status; Lebanon: Beirut).
- Parapsammophila retowskii* Konow, 1887:137, ♀, ♂ (as *Retowskii*, incorrect original capitalization). Syntypes: Ukraine: Crimea: Kashka-Chokrakk 2 mi W Theodosia (NHMW). Synonymized with *Ammophila dives* by F. Morawitz, 1891a:202. – **As *Ammophila retowskii***: Dalla Torre, 1897:407 (new generic assignment, in catalog of world Hymenoptera).
- Ammophila orichalceomicans* Strand, 1915:96, ♀, proposed conditionally. Holotype: ♀, Greece: Cyclades: no specific locality (DEI). Synonymized with *Ammophila* .. by .. – Strand, 1927:253 (in list of species described by the author).

3. *ferghanicus* (Gussakovskij)

- Ammophila ferghanica* Gussakovskij, 1930c:201, ♂. Holotype: ♂, Uzbekistan: Ferghana: Kara Yantak (ZIL). – **As *Eremochares ferghanicus***: Menke, 1966a:150 (new generic assignment); Myartseva, 1971a:76 (in key to *Eremochares* of Turkmenistan); R. Bohart and Menke, 1976:146 (new generic assignment; in checklist of world Sphecidae); Kazenas, 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia, as *ferghanica*); Yan, Li, and Ma, 2015:13 (in key to world species of *Eremochares*); Danilow, 2016:349 (holotype preserved in Zoological Institute, Sankt Petersburg, Russia); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:419 (Uzbekistan: distribution, as *ferghanica*).

4. *kohlui* (Gussakovskij)

- As *Ammophila turanica*: Kohl, 1906b:303 (in revision of Palearctic Ammophilini), corrected to *Ammophila kohlii* by Gussakovskij, 1928a:7.
- Ammophila kohlii* Gussakovskij, 1928a:7, substitute name for *Ammophila turanica* of Kohl, 1906:303. – Gussakovskij, 1933b:274 (Iran, Transcaspia); Kazenas, 1978b:35 (in key to Sphecidae of Kazakhstan and Central Asia). – **As *Eremochares kohlii***: Menke, 1966a:150 (new generic assignment), 1966c:58 (may be a synonym of *Eremochares lutea*); Myartseva, 1971a:76 (in key to species of Turkmenistan); R. Bohart and Menke, 1976:146 (in checklist of world Sphecidae, as new generic assignment); Kazenas, 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia);

Yan, Li, and Ma, 2015:13 (in key to world species of *Eremochares*); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:18 (Iran: known from Sistan-o Baluchestan Province); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:419 (Uzbekistan: distribution).

5. *luteus* (Taschenberg)

Parapsammophila lutea Taschenberg, 1869:431, ♀, ♂. Lectotype: ♂, Sudan: Khartoum (Halle), designated by Menke, 1966c:58. – Ed. André, 1888:5* (bibliographic references); Kohl, 1889a:22 (as new synonym of *Parapsammophila dives*); nec Kohl, 1906b, and subsequent authors until Kazenas, 1978b (= *Parapsammophila turanica*). – **As *Ammophila lutea***: Dalla Torre, 1897:404 (in catalog of world Hymenoptera); Storey, 1916:107 (Egypt: Heliopolis, Maadi). – **As *Eremochares luteus***: Menke, 1966a:150 (new generic assignment), 151 (study of type), 1966c:58 (species identity); Myartseva, 1971b:80 (occurring only in sand deserts of southern Palearctic Region, as *lutea*); R. Bohart and Menke, 1976:146 (in checklist of world Sphecidae); Yan, Li, and Ma, 2015:12 (in key to world species of *Eremochares*); Ben Khedher, Yildirim, Braham, and Ljubomirov, 2020a:308 (in list of Tunisian Sphecidae *sensu stricto*; first record from Tunisia: Tataouine: km 33 of Tataouine-Medenine road).

6. *mirabilis* (Gussakovskij)

Ammophila mirabilis Gussakovskij, 1928a:6, ♀, ♂. Syntypes: Uzbekistan: Khiva at 41°23'N 60°22'E (ZIN). – Gussakovskij, 1933b:274 (Iran, Transcaspiya). – **As *Eremochares mirabilis***: Menke, 1966a:150 (new generic assignment), 1966c:61 (diagnostic characters); R. Bohart and Menke, 1976:146 (in checklist of world Sphecidae); Kazenas, 1978b:34 (in key to Sphecidae of Kazakhstan and Central Asia), 1998b:151 (in Sphecid Fauna of Kazakhstan), 2001b:17 (in checklist of Sphecidae of Kazakhstan and Central Asia), 2002a:35 (geographic distribution, collecting localities in Kazakhstan); Danilov, 2010b:44 (distribution of Tethyan type); Yan, Li, and Ma, 2015:12 (in key to world species of *Eremochares*); Danilov, 2016:349 (syntypes preserved in Zoological Institute, Sankt Petersburg, Russia); Jahantigh, Rakhshani, Mokhtari, and Ramroodi, 2017:18 (Iran: known from Sistan-o Baluchestan Province); Kazenas, 2019:87 (endangered in Uzbekistan); Medetov, Embergenov, Kholmatov, Elmurodova, Rakhimov, and Tajibaeva, 2024:419 (Uzbekistan: distribution).

sp.

Guichard, 1988a:125 (United Arab Emirates); Gadallah, 2020d:80 (in list of aculeate wasps of Arabian Peninsula).

SPECIES DESCRIBED IN *EREMOCHARES* AND TRANSFERRED TO *ISODONTIA*

simoni du Buysson, 1897 = *Isodontia*