

Genus *Eremochares* Gribodo (Hymenoptera: Sphecidae) in China with description of a new species

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The species of the genus *Eremochares* Gribodo (Hymenoptera: Sphecidae: Ammophilinae) in China are revised. A new species, *E. clypevariatus* Yan & Ma, **sp. n.**, is described and illustrated. The key to the *Eremochares* species of the world is updated to include the new species.

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1. Introduction

The genus *Eremochares* proposed by Gribodo (1883) includes five described species, of which four species, *E. ferghanicus* (Gussakovskij, 1930), *E. kohlii* (Gussakovskij, 1928), *E. luteus* (Taschenberg, 1869) and *E. mirabilis* (Gussakovskij, 1928) occur in the Palaearctic region, and one species, *E. dives* (Brullé, 1833) occurs in both the Palaearctic and Afrotropical regions (Kohl 1906, Gussakovskij 1928, 1930, Roth 1928, Kazenas 1972, 1978, Bohart & Menke 1976, Pulawski 2014). In addition, an undescribed species (male) has been reported from the United Arab Emirates (Guichard 1988). Only one species, *E. dives* (Brullé, 1833), has been recorded from China (Xinjiang) (Wu & Zhou 1996).

During our study of *Eremochares* of China,

one new species from Xinjiang, the western part of China, *E. clypevariatus* Yan & Ma, **sp. n.**, was discovered. It is described and illustrated in this paper, and also the key to the world species of *Eremochares* is updated.

2. Material and methods

Materials for the present study were swept using an insect net and preserved in 75% alcohol. They were subsequently pinned and dried.

The specimens were studied and illustrated with the aid of an Olympus stereomicroscope (SZ Series, Japan) with an ocular micrometer. Photographs of the habitus were made with Keyence (VHX-H4M). For the terminology we mainly follow Bohart and Menke (1976).

The abbreviations in the text are as follows:

- ODD, postocellar diameter.
- POD, postocellar distance (distance between inner margins of hind ocelli).
- OOD, ocellocular distance (distance between outer margin of hind ocellus and nearest inner orbit).
- IODP, interocular distance at anterior ocellus.
- IODC, interocular distance at clypeus.

3. Taxonomy

3.1. *Eremochares clypevariatus*

Yan & Ma, sp. n. Figs 1a–g, 2b, d

Material examined. Holotype female, China: Xinjiang Weiwuer Autonomous Region, Boertala, Bole, A'lashankou, 1 km to the east of Aibi Lake, 45°09' N, 82°33' E, 28.V.2006, Li Tingjin leg. The specimen is deposited in the Insect Collections of Yunnan Agricultural University, Kunming, Yunnan Province, P. R. China.

Diagnosis. This species can be distinguished from the similar *E. dives* (Brullé, 1833) by the following combination of characters: anterior margin of clypeus with one lateral tooth on each side; mesosternum with a conspicuous, blunt projection baso-medially, projection broadened basally and nearly truncate apically; petiole and gastral segments coriaceous and dull; mandible with one long, fingerlike inner tooth medially; mesosoma covered with dense, long setae; lateral surface of propodeum without dense appressed setae; scutellum with longitudinal sulcus. *Eremochares dives* (Brullé, 1833) has the following characters: anterior margin of clypeus without lateral tooth; mesosternum with a small, conical projection baso-medially; petiole and gastral segments smooth and shiny; mandible with one blunt inner tooth medially; mesosoma covered with sparse and short setae; lateral surface of propodeum with dense appressed setae; scutellum without longitudinal sulcus.

Description. Holotype female. Body length 21.0 mm. Black. Basal half of mandible, anterior margin of clypeus, tergum I except base area, terga II–III, terga IV–V laterally, sterna I–II apically, sterna III–V, fore and middle legs largely

yellowish red; hind tarsus reddish brown; tegula pale yellowish brown; veins yellowish brown. Clypeus except anterior margin, frons, upper gena, pronotum, mesoscutum, scutellum largely and metanotum with dense, white pubescence and long setae; pronotal lobe and mesopleuron covered with thick, silvery, adpressed setae and long setae; propodeum and metapleuron with dense, long, silvery setae; mesosternum and petiole baso-ventrally with sparse and long setae.

Head. Clypeus with several fine punctures, median area moderately convex; anterior margin with broad prominence, slightly wavy medially, and with one lateral tooth on each side (Fig. 1a). Mandible with one long, fingerlike inner tooth medially (Fig. 1a). Frons slightly concave, without supra-antennal projection, and with dense, fine to midsize punctures 1–2 × diameters apart. Ocellar area slightly elevated, and with shallow grooves around ocelli. Inner orbits convergent at lower part of Clypeus (Fig. 1a). Vertex with fine, sparse punctures 2–4 × diameters apart. Gena ventrally smooth and shiny, with several tiny punctures. ODD: POD: OOD: IODP: IODC = 1: 2.9: 3: 10: 6.3; relative length of antennal pedicel: flagellomere I: II: III: VIII: IX: X = 0.9: 3.9: 2.6: 2.6: 1.4: 1.4: 1.3 (Fig. 1b).

Mesosoma. Width of pronotal collar 1.75 times its length. Pronotum coarse and dull, with sparse, midsize punctures 1–3 × diameters apart; collar with median furrow (Fig. 1c). Scutum with dense midsize punctures less than one diameter apart and complete admedian line and parapsidal lines (Fig. 1c), antero-medial area with inconspicuous, short, longitudinal rugae. Scutellum sparsely and finely punctate 1–3 × diameters apart, with longitudinal sulcus and one protuberance on each side of sulcus (Fig. 1c). Propodeal enclosure well defined with slender and complete carina, median area with dense, transverse rugae and large punctures less than one diameter apart, lateral area with dense, sturdy, oblique rugae; posterior surface with dense, irregular, transverse rugae and large punctures less than one diameter apart; lateral surface with dense, oblique rugae, and mixed with sparse, midsize to large punctures 1–2 × diameters apart. Mesopleuron with midsize, sparse punctures 1.5–3 × diameters apart and complete episternal sulcus extending towards mesosternum (Fig. 1d). Metapleuron with mid-

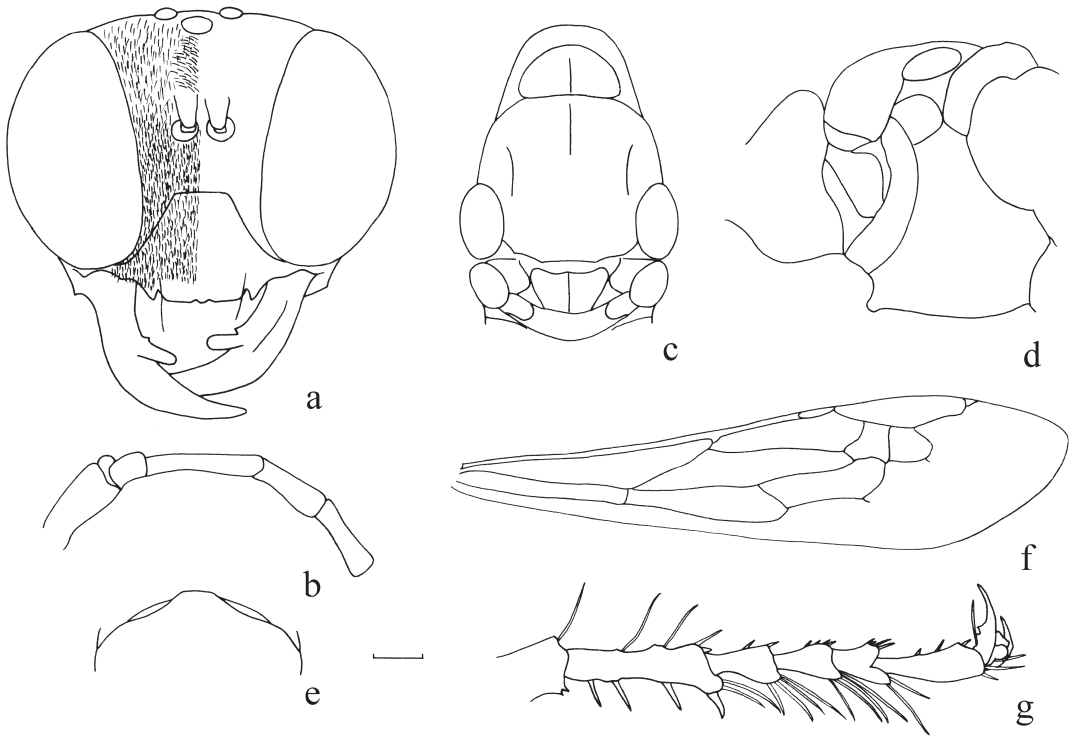


Fig. 1. *Eremochares clypevariatus* Yan & Ma, **sp. n.**, female holotype. – a. Head, front view. – b. Antennal joints 1–5, lateral view. – c. Pronotum, mesoscutum and metanotum, dorsal view. – d. Pronotum and mesoscutum, lateral view. – e. Basal mesosternum, ventral view. – f. Fore wing. – g. Fore tarsi and claw, lateral view. Scale bars (mm), a: 2.03, b: 2.52, c–e: 1.6. f: 1, g: 2.79.

size, dense punctures less than one diameter apart. Mesosternum with sparse, midsize to large punctures 1–3 × diameters apart, and with a conspicuous, blunt projection baso-medially in lateral view, prominence broadened basally and nearly truncate apically (Fig. 1e).

Wings. Submarginal cell III of forewing without petiole. Second recurrent vein of forewing received by submarginal cell II (Fig. 1f).

Legs. Tarsi with plantulae. Claw with two basal teeth. Foretarsus I–IV asymmetrical, weakly and angularly produced apico-laterally, and with rake of long spines (Fig. 1g); outside margin of forecoxa with a process; midtibia with two rows of dark brown spines on outer surface. Hind leg, relative length of tibia: tarsus I: II: III = 100: 60: 31: 25.

Metasoma. Petiole and gastral segments coriaceous and dull. Length of petiole : tergum I : tergum II : apical width of tergum II = 95 : 55 : 58 : 38.

Male. Unknown.

Distribution. China (Xinjiang).

Etymology. The name *clypevariatus* is derived from the Latin *clype* (= clypeus) and Latin *variatus* (= varying), referring to the free margin of the clypeus that is slightly wavy medially and has one lateral tooth on each side. The character of the clypeus is one of the main recognition characters of this species.

Habitat. The species was collected in very special surroundings with saline-alkali soil and sparse vegetation, close (about 1 km) to a salty lake. It was captured by a sweep net. The other biology is unknown.

3.2. *Eremochares dives* (Brullé, 1833)

Figs 2a, c

Ammophila dives Brullé 1833: 369; Smith 1856: 209; Morawitz 1891: 202; Kohl 1906: 300;

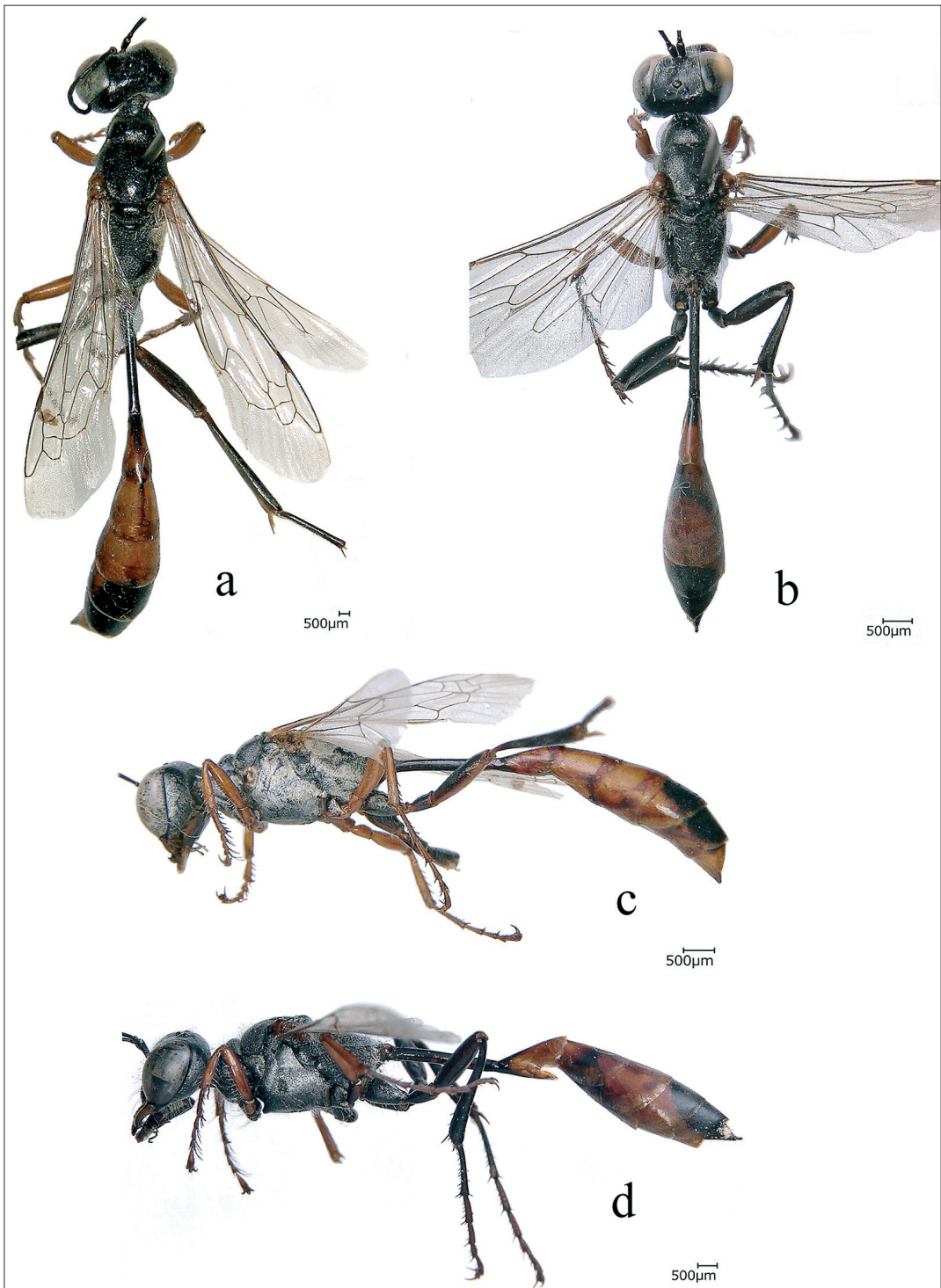


Fig. 2. – a, c. *Eremochares dives* (Brullé, 1833), habitus of female, dorsal and lateral view, respectively. – b, d. *Eremochares clypevariatus* Yan et Ma, **sp. n.**, habitus of female holotype dorsal and lateral view, respectively.

Alfieri 1946: 125; Kazenas 1972: 98, 1978: 35.

Ammophila melanopus Lucas 1849: 276; Synonymized with *Ammophila dives* by Kohl 1906: 300.

Ammophila festiva F. Smith 1856: 211; Synonymized with *Ammophila dives* by Kohl 1885: 164.

Ammophila elegans F. Smith 1856: 216; Synonymized with *Ammophila dives* by F. Smith 1871: 359.

Ammophila limbata Kriechbaumer 1869: 597; Synonymized with *Ammophila dives* by Mocsáry 1881: 18.

Ammophila nigritaria Walker 1871: 18; Synonymized with *Ammophila dives* by Kohl 1885: 164.

Eremochares doriae Gribodo 1883: 265; Synonymized with *Ammophila dives* by Kohl 1889: 17 and 22. Bohart and Menke 1976: 146.

Parapsammophila retowskii Konow 1887: 137; Synonymized with *Ammophila dives* by F. Morawitz 1891: 202.

Ammophila orichalceomicans Strand 1915: 96; Synonymized with *Ammophila* by Strand 1927: 253.

Sphex dives: Turner 1917: 177 (new combination); Wu and Zhou, 1996: 56.

Eremochares dives: Menke 1966: 150; (new combination); Dollfuss, 2010: 537. Roth, 1928: 160, 181.

Eremochares limbata: Dollfuss 1989: 9 (new combination).

Material examined. One female. China: Xinjiang Weiwuer Autonomous Region, Boertala, Bole, Jinghe, 44°50' N, 81°51' E, 24.VII.2005, Wanzhi Cai leg. Jinghe Town is about 90 km to the southeast of A'lashankou Town.

Distribution. China (Xinjiang); Afghanistan, Algeria, Azerbaijan, Bahrain, Djibouti, Egypt, Greece, India, Iran, Iraq, Israel, Italy, Kazakhstan, Lebanon, Libya, Morocco, Oman, Pakistan, Russia, Saudi Arabia, Syria, Tajikistan, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan (Alfieri 1946, Brullé 1833, Dollfuss 2010, Gribodo 1883, Guichard 1988, Kazenas 1978, Lucas 1849, Morawitz 1891, Pulawski 2014,

Roth 1928, Strand 1915, Turner 1917, Wu & Zhou 1996).

Remark. *Eremochares dives* occurs only in Xinjiang Weiwuer Autonomous Region in China, and preys on locust nymphae (Wu & Zhou 1996). The other biology is unknown.

4. Key to the world species of *Eremochares* Gribodo

Below the key published by Kazenas (1978) is updated to include *E. clypevariatus*, **sp. n.**

1. Mesosternum baso-medially normal, without tubercular projection; foretarsi asymmetrical and apico-lateral area strongly, angularly produced. Legs partly light red; most of head and thorax with thick snow-white pubescence. ♀, 25–29 mm; ♂, 23–28 mm. Sudan, Egypt
E. luteus (Taschenberg)
- Mesosternum baso-medially with tubercular or conical projection; foretarsi normal or asymmetrical but apico-lateral area weakly, angularly produced 2
2. Vertex and mesonotum with very dense pubescence concealing sculpture; minimum distance between eyes equal to length of antennal joint 3; reddish brown in female thorax. ♀, 24–28 mm; ♂, 22–26 mm. Iran, Turkmenistan, Kazakhstan
E. mirabilis Menke
- Vertex and mesonotum less densely pubescent, not hiding sculpture; minimum distance between eyes more than length of antennal joint 3; usually black in female thorax 3
3. Inner margin of eyes very close together below 4
- Inner margin of eyes weakly approximated below, sometimes almost parallel 5
4. Anterior margin of clypeus without teeth; mandible with one blunt inner tooth medially; mesosternum with a small, conical projection baso-medially; petiole and gastral segments smooth and shiny. ♀, 24–28 mm; ♂, 20–25 mm. Palaeartic regions, Djibouti
E. dives (Brullé)
- Anterior margin of clypeus slightly wavy medially, with one lateral tooth on each side; mandible with one long, fingerlike inner tooth

medially; mesosternum with a conspicuous, blunt projection baso-medially, projection broadened basally and nearly truncate apically; petiole and gastral segments coriaceous and dull. ♀, 21 mm. China (Xinjiang)

E. clypevariatus sp. n.

5. Legs entirely black; head and thorax without silvery pubescence; foretarsi apico-laterally angularly produced. ♂, 24 mm. Uzbekistan, Turkmenistan, Kazakhstan

E. ferghanicus (Gussakovskij)

- Legs partly red; head and thorax well covered with silvery setae; foretarsi normal. ♀, 24–28 mm; ♂ 20–23 mm. Iran, Turkmenistan, Kazakhstan

E. kohlii Menke

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