

RESEARCH ARTICLE

Review of *Evagetes* (Hymenoptera: Pompilidae: Pompilini), with one new species and ten newly recorded species from China

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ABSTRACT. *Evagetes*, with 18 species from China, is reviewed. One new species from Xinjiang, China, *Evagetes truncantennus* Dong & Ma, **sp. nov.** is described and illustrated. Ten newly recorded species from China are illustrated: *E. transbaicalicus* Lelej, 1995, *E. subglaber* (Haupt, 1941), *E. iconionus* Wolf, 1970, *E. orientalis* Lelej & Loktionov, 2009, *E. crassicornis* (Shuckard, 1837), *E. dubius* (Vander Linden, 1827), *E. littoralis* (Wesmael, 1851), *E. pectinipes* (Linnaeus, 1758), *E. trispinosus* (Kohl, 1886), *E. proximus* (Dahlbom, 1845), *E. deirambo* Ishikawa, 1960, *E. liane* Schmid-Egger, 2019 and *E. shwangtashanus* Yasumatsu, 1935, and 17 known species from China receive updated diagnoses. Additionally, a key to the Chinese species of *Evagetes* is provided. A few diagnostic morphological characters are found useful in species' identifications, further enhancing the understanding of biodiversity within this genus. This study increased the number of known species of *Evagetes*, and expanded the known distribution of the genus to China.

KEY WORDS. China, *Evagetes*, Pompilini, spider wasps, taxonomic key.

INTRODUCTION

Evagetes Lepeletier, 1845 includes 78 species and 12 subspecies. The genus is widely distributed in the Nearctic and Palearctic regions (Day 1988, Evans 1966, Ishikawa 1960, Loktionov and Lelej 2009, 2014, Smissen 2003, Wolf 1970), and is represented in all continents, except Australia. The number of species of *Evagetes* distributed in the Palearctic region account for about 62% of the total number of species in this genus. China spans the Palearctic and Oriental regions, with seven known species, named *E. sikhotealinensis* (Lelej, 1990), *E. taiwanus* Tsuneki, 1989, *E. ishikawai* Lelej, 1995, *E. sahlbergi* (Morawitz, 1893), *E. iconionus* Wolf, 1970, *E. shwangtashanus* Yasumatsu, 1935 and *E. proximus* (Dahlbom, 1845) (Dahlbom 1845, Morawitz 1893, Yasumatsu 1939, Wolf 1970, Tsuneki 1989, Lelej 1990, 1995, Smissen 2003, Ma and Li 2011).

The purpose of this study is to provide a comprehensive review of *Evagetes* and gain a better understanding of their distribution in China. During our study, one new species and 10

newly recorded species were discovered, and the new species and new recorded species are described and illustrated. We also produced a key and a distribution map for the Chinese species. We expect that our findings will contribute to a better understanding of the distribution of *Evagetes*.

MATERIAL AND METHODS

The specimens examined in this study were collected from Xinjiang, Inner Mongolia, Hebei, Beijing, Tibet, Qinghai, Ningxia, Shanxi, Henan, Shandong and Yunnan Province of China and deposited in the Insect Collection of Yunnan Agricultural University, Kunming, P. R. China (YNAU), South China Agricultural University, Guangzhou, P. R. China (SCAU), Hebei University, Baoding, P. R. China (HBU) and Insect Museum of China Agricultural University, Beijing, China (CAU). All specimens were observed and illustrated with the aid of Olympus stereomicroscope (SZ Series) with an ocular micrometer. The photographs were taken with VHX-5000.

The terminology of wing veins and cells follows Day (1988). The term “antennocular line” is found in Shimizu et al. (2021). The following abbreviations are used in the morphological descriptions: HW: Head width; HL: Head length; SL: scape length; PL: pedicel length; F1, F2, F3, etc.: the first, second, third flagellomere, etc; UID: upper interocular distance (distance between eyes on vertex); LID: lower interocular distance (distance between eyes on clypeus); OOD: ocellocular distance; POD: postocellar distance; SMC1, SMC2, SMC3: the first, second, third submarginal cell of the fore wing; T1, T2, T3, etc: the first, second, third metasomal tergum, etc.; S1, S2, S3, etc: the first, second, third metasomal sternum, etc.

TAXONOMY

Evagetes Lepeletier, 1845

- Evagetes* Lepeletier, 1845: 390. Type species: *Evagetes bicolor* Lepeletier, 1845 (= *Aporus dubius* Vander Linden, 1827).
- Eyagates* Lucas, 1852: 418. Subsequent misspelling of *Evagetes* Lepeletier de Saint-Fargeau, 1845. Unavailable name.
- Evagethes* Smith, 1858: 53, 79. Subsequent misspelling of *Evagetes* Lepeletier de Saint-Fargeau, 1845. Unavailable name.
- Sophropompilus* Ashmead, 1902: 84. Type species: *Pompilus ingenuus* Cresson, 1867, by original designation. Junior objective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Evans 1950: 160.
- Nannopompilus* Ashmead, 1902: 82. Type species: *Nannopompilus argenteus* Ashmead, 1902, nom. nudum (= *Pompilus argenteus* Cresson, 1867; = *Pompilus parvus* Cresson, 1865). Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Evans 1950: 160.
- Nanopompilus* Banks, 1914: 301. Subsequent misspelling of *Nannopompilus* Ashmead, 1902. Unavailable name.
- Trichosyrion* Haupt, 1930a: 233. Type species: *Trichosyrion reinigi* Haupt, 1930, by original designation. Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Wahis 1986: 25 and Smissen 2003: 13. Invalid synonymy with *Leuchimon* Haupt, 1930 (Wolf 1988: 237).
- Leuchimon* Haupt, 1930b: 792. Type species: *Leuchimon palmatus* Haupt, 1930, by original designation. Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Wahis 1986: 25.
- Asthenoctenus* Arnold, 1937: 15, 21. Subgen. nov. Type species: *Anoplius argenteodecoratus* Cameron, 1904, by original designation. Junior objective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Wahis 1986: 25.
- Asthenoctenidia* Pate, 1946: 76. Nom. nov. for *Asthenoctenus* Arnold, 1937. Type species: *Anoplius argenteodecoratus* Cameron, 1904, by automatic designation (see *Asthenoctenus* Arnold, 1937). Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Wahis 1986: 25.
- Psammocharoides* Móczár, 1946: 114. Type species: *Pompilus crassicornis* Shuckard, 1837, by original designation. Junior subjective synonym of *Sophropompilus* Ashmead, 1902 according to Móczár 1956: 8.
- Streptosella* Dreisbach, 1950: 570. Type species: *Streptosella michiganensis* Dreisbach, 1950. Unavailable name.

Streptosella Evans, 1951: 310. Type species: *Streptosella steyskali* Dreisbach, 1950 (= *Pompilus crassicornis* (Shuckard, 1837)). Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Evans 1951: 310.

Carinevagetes Wolf, 1970: 52. (as subgenus of *Evagetes* Lepeletier de Saint-Fargeau, 1845). Type species: *Evagetes crassicornis crassicornis* (Shuckard, 1837), by original designation. Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Day 1979: 13.

Contemptevagetes Wolf, 1970: 52. (as subgenus of *Evagetes* Lepeletier de Saint-Fargeau, 1845). Type species: *Evagetes contemptus contemptus* (Tournier, 1889) (= *Pompilus siculus* Lepeletier de Saint-Fargeau, 1845). Junior subjective synonym of *Evagetes* Lepeletier de Saint-Fargeau, 1845 according to Wahis 1986: 26.

Diagnosis. The most prominent feature of *Evagetes* is the short antenna, flagellum thickened toward the middle and antennal segments somewhat flattened on one side in the female. Apical margin of labrum truncated with varying degrees of emargination. Pronotum shorter than mesonotum, nearly straight, arcuate or broadly subangulate behind and never sharply angulate behind. Metapostnotum very short, depressed medially (Evans 1950).

Biology. Species of *Evagetes* are considered primary cleptoparasitism in Pompilinae. These insects use their thickened antennae to find a nest on the ground near a paralyzed host. *Evagetes* bears a distinct tarsal comb with which the female excavates down to the cell of the host pompilid, where she consumes the incumbent egg and substitutes the content with her own eggs. The burrow is then reclosed (Day 1988, Loktionov and Lelej 2014, Shimizu 2000, Smissen 2003).

Distribution. The Nearctic, Neotropics, Palearctic, Oriental and African regions.

Evagetes truncantennus Dong & Ma, sp. nov.

Fig. 1

<https://zoobank.org/04816B99-AD06-43A5-A5BC-74B367807FFF>

Diagnosis. The new species clearly differs from congeners by the following characteristics: propodeum with sharply defined anterior horizontal and posterior vertical surfaces (Fig. 1D); F10 truncated apically (Fig. 1F); narrowest malar space 0.75X pedicel width (Fig. 1A); median length of metapostnotum 0.18X median length of metanotum (Fig. 1D); T1 except basal area, T2 and basal T3 with inconspicuous reddish dark (Fig. 1H); pro- and mesothorax curved in lateral view (Fig. 1H).

Description. Female. Body length 8.2 mm, fore wing 6.2 mm. Colour: body black (Fig. 1H); mandible medially and subapical margin of clypeus orange-yellow, outer edge of labrum yellowish-brown, apical of mandible reddish dark to brownish dark; apical margin of clypeus brown (Fig. 1A); T1 except basal area, T2 and basal T3 with inconspicuous



Figure 1. *Evagetes truncantennus* sp. nov. female: (A) head, frontal view; (B) head, dorsal view; (C) pronotum, dorsal view; (D) propodeum, dorsal view; (E) mesosoma, lateral view; (F) antennae, frontal view; (G) fore and hind wings; (H) habitus, lateral view; (I) fore tarsus, lateral view; (J) hind tarsus, lateral view. Scale bars: 1 mm.

reddish dark (Fig. 1H); forewing medially light brown, infusate with darker brownish apical band, hindwing mostly hyaline but with brownish apical band (Fig. 1G). Mandible medially, clypeus, frons, gena, pronotum, propleuron, apical of mesoscutum, scutellum, mesopleuron, metanotum, metapostnotum, metapleuron, propodeum except basal area, and coxa covered with greyish-silvery to golden brown pubescence (Fig. 1A–E, H). Apical margin of labrum, mandible and vertex with several irregular in length brown setae (Fig. 1A). Gena with denser and longer greyish-silvery setae; sides of propodeum with sparse, erect, short and greyish-silvery setae. Propleuron, coxa, femur with erect, black and long setae, metasoma except T1–2 with denser erect black and long setae (Fig. 1E, H).

Head. In frontal view, head width 1.25X its height. Mandible with two teeth. Labrum flat with weakly emargination or even straight anterior border. Clypeus wide horizontally, medially slightly convex (lateral view), almost flat and with sparse punctures, anterior margin truncates, its width 2.86X its length (Fig. 1A). Narrowest malar space 0.75X pedicel width. Frons evenly convex, frontal median line complete and fine, extending anterior ocellus. Inner orbits nearly parallel below, emarginate at middle and slightly convergent above, UID length 0.89X LID (Fig. 1A). Ratio median length of gena to median length of eye (lateral view) 0.34X (lateral view). Ocelli approximately in right triangle, POD: OOD=1: 1, vertex flat (Fig. 1B). Relation of scape, pedicel, F1 and F2= 20: 6: 19: 17; flagellomere 1 length 2.5X its width; F10 truncate apically (Fig. 1F).

Mesosoma. Pro- and mesothorax curved in lateral view, pronotum length 0.42X its width, arcuate posteriorly (Fig. 1C). Mesoscutum with parapsidal line, from apical to 1/2 mesoscutum. Scutellum and metanotum strongly convex in middle. Metapostnotum depressed medially with transversal striae, median length of metapostnotum 0.18X metanotum median length. Propodeum with sharply defined anterior horizontal and posterior vertical surfaces, its median length 0.76X maximum width (Fig. 1D).

Legs. Foreleg tarsal comb flattened towards apex, 1st tarsomere with three spines, 2nd tarsomere with two, 3rd tarsomere with one, tarsomeres 4 and 5 without spines. Apical spine of 1st tarsomere slightly longer than 2nd tarsomere, apical spine of 2nd tarsomere slightly longer than 3rd tarsomere (Fig. 1I). Longer spur of hind tibia 0.75x tarsomere 1. Claws symmetrical with additional inner tooth (Fig. 1J).

Wings. Forewing with three submarginal cells, SMC2 nearly rectangle, SMC3 trapezoid, SMC3 size apparently 1/2 SMC2; 1r-rs vein curved, 2rs-m vein straight. Pterostigma

small, slightly shorter than first abscissa of R. First recurrent ending at middle of SMC2, second recurrent ending at middle of SMC3. Length of fore wing marginal cell longer than SMC2 and SMC3 combined. Hind wing M+CuA vein forks after intersection of cu-a and M+CuA (Fig. 1G).

Metasoma. Metasoma subfusiform, without petiole (Fig. 1H).

Type material. Holotype female. CHINA: Xinjiang, Yili state, Yining Country, Samuyuzi Town Yellow plate1, 43°76'N 81°91', 771 m, 6.VII.2023, coll. Zhi-zhi Liu (YNAU).

Etymology. The specific name *truncantennus*: trunc- originates from the Latin 'truncate' (= truncate) and 'antennus' (originates from the Latin 'antenn-' (= antenna), refers to the apical antenna is truncate.

Distribution. China (Xinjiang).

Remarks. The species resembles *E. transbaicalicus* Lelej, 1995 in having setae over the body, in the shape of the labrum, mesothorax and wings, but differs in the apical antennae, profile of pronotum, length of metapostnotum and posterior propodeum.

Evagetes transbaicalicus Lelej, 1995

Figs 2A–E, 7A

Evagetes transbaicalicus Lelej, 1995: 248.

Diagnosis. Forewing with three submarginal cells (Fig. 7A). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 2B). Pronotum arcuate posteriorly (Fig. 2E). Median length of metanotum 2.5–3.3X (in female) or 1.8X (in male) length of median metapostnotum. Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 2D). Fore metatarsus with three spines, not flattened or widened towards apex. In female, mesopleuron with dense, long, dark and erect setae, F10 pointed (Fig. 2C).

Material examined. 1 female, CHINA: Inner Mongolia, Eerduosi City, Wushenqi dongjiao, 38°59'N 108°87', 1300–1400 m, 29.VII.2006, coll. Hai-yan Zhang, YNAU; 1 female, CHINA: Inner Mongolia, Eerduosi City, Wushenqi batuwán, 38°59'N 108°87', 1300–1400 m, 28.VII.2006, coll. Ting-jing Li, YNAU; 1 female, CHINA: Inner Mongolia, Hailaer National Forest Park, 49°15'N 119°31'E, 612 m, 3.VIII.2006, coll. Hai-Yan Zhang, YNAU; 1 female, CHINA: Inner Mongolia, Hailaer East Mountain, 49°60'N 117°48'E, 603–776 m, 9.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Inner Mongolia, Etuokeqianqi, Chengchuan Town, Dundatugacha Village, 38°18'N 107°47'E, 1356 m, 24.VII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Inner Mongolia, Tongliao City, Houqi, daqing gou, 42°76'N 122°20'E, 1330 m, 42°76'N



Figure 2. Female: (A–E) *Evagetes transbaicalicus*; (F–I) *Evagetes subglaber*: (A) habitus, dorsal view; (B) head, frontal view; (C) head, dorsal view; (D) propodeum, dorsal view; (E) pronotum, dorsal view; (F) habitus, lateral view; (G) head, frontal view; (H) pronotum, dorsal view; (I) propodeum, dorsal view. Scale bars: 1 mm.

122°20'E, 1330 m, 11.VIII.2006, coll. Peng Wang, YNAU; 1 female, CHINA: Inner Mongolia, Tongliao City, Xijiao Power Plant, 43°67'N 122°07'E, 1330 m, 14.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Hebei, Xiaowutai Mountain, Wei Country, Wangxidong, 39°32'N 114°47'E, 1495 m, 21.VI.2009, coll. Zhen-hua Zu, YNAU.

Distribution. China (Inner Mongolia and Hebei), Russia.

Remarks. Newly recorded species in China.

Evagetes subglaber (Haupt, 1941)

Figs 2F–I, 7B

Psammochares subglaber Haupt, 1941: 182.

Pompilus (*Sophropompilus*) *coelestis* Bluethgen, 1944: 56–58, synonymized by Smissen, 2003: 213.

Pompilus (*Sophropompilus*) *foveolatus* Bluethgen, 1944: 58–59, synonymized by Smissen, 2003: 213.

Diagnosis. Forewing with three submarginal cells (Fig. 7B). Anterior margin of labrum distinctly emarginat-

ed. Outer surface of mandible with well-developed carina (Fig. 2G). Pronotum slightly angulate in posterior view (Fig. 2H). Median length of metapostnotum depressed and represented by one very thin line (in female). Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 2I). Fore metatarsus with three spines, not flattened or widened towards apex.

Material examined. 1 female, CHINA: Yunnan, Xishuangbanna State, Mengla Country, 21°54'N 101°16'E, 932 m, 3.V.2007, coll. Xin Gao, YNAU.

Distribution. China (Yunnan), Austria, Poland, Ukraine, Turkmenistan, Kyrgyzstan, Mongolia, Russia.

Remarks. Newly recorded species in China.

Evagetus orientalis Lelej & Loktionov, 2009

Figs 3A–H, 7C

Evagetus orientalis Lelej & Loktionov, 2009: 45, 48, 49.

Diagnosis. Forewing with three submarginal cells (Fig. 7C). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 3B). Pronotum angulate posteriorly (Fig. 3D). Median length of metanotum 4.0–5.4X (in female) or 3.3–4.5X (in male) median length of metapostnotum. Propodeum with sharply defined anterior horizontal and posterior vertical surfaces (Fig. 3C, H). Fore metatarsus with three spines, not flattened or widened towards apex.

Material examined. 2 females, CHINA: Inner Mongolia, Helan Mountain, Chagou, 38°74'N 105°52'E, 2000–3000 m, 31.VII.2010, coll. Fang-zhou Ma, YNAU; 2 females, CHINA: Inner Mongolia, Helan Mountain, Luanchaigou, 38°59'N 106°00'E, 2292–2788 m, 26.VII.2010, coll. Fang-zhou Ma, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain, Shuimogou, 3556 m, 39°16'N 106°03'E, 3556 m, 28.VII.2010, coll. Fang-zhou Ma, YNAU; 1 female, CHINA: Inner Mongolia: Liangcheng Country, Daihai, 40°53'N 112°49'E, 1205 m, 6.IV.2013, coll. Li Jiang, YNAU; 3 females, 1 male, CHINA: Inner Mongolia, Helan Mountain, Halawugou, 3556 m, 39°16'N 106°03'E, 3556 m, 20.VII.2006, coll. Ting-jing Li (1 female, 1 male), 21.VII.2006, coll. Hai-yan Zhang (1 female), 26.VIII.2013, coll. Jian Zhu (1 female); YNAU; 1 female, CHINA: Ningxia, Longde Country, Suta Forest Farm, 35°65'N 106°17'E, 2158 m, 1–2.VII.2008, coll. Xin-pu Wang and Xiao-li Liu, HBU; 2 females, CHINA: Ningxia, Guyuan City, Liupan Mountain National Nature Reserve, Erlong River Forest Farm, 35°40'N 106°45'E, 1700 m, 10. VII. 2009, coll. Zhen-hua Zu, YNAU; 1 female, CHINA: Qinghai, Haibei State, Qilian County, Arou Town, Qingyanggou, 38°16'N 100°45'E, 3230 m, 31.VII.2022, coll. Yan Fu, YNAU; 1 female, CHINA: Qinghai, Haibei State, Menyuan County, Xianmi Town, Talihua

Village, 37°28'N 102°09'E, 2861 m, 26.VII.2022, coll. Ting-mei Yang, YNAU; 1 female, CHINA: Hebei, Zhuolu Country, Yangjiaping, 39°97'N 115°38'E, 2420 m, 29.VI.2009, coll. Zhen-Hua Zu, YNAU; 1 female, CHINA: Yunnan, Gejiu City, Kafang Town, Wanshouju, Yellow Plate, 23°25'N 103°18'E, 200–2530 m, 14.VII.2022, YNAU; 1 male, CHINA: Ningxia, Guyuan City, Liupan Mountain National Nature Reserve, 35°40'N 106°45'E, 2942m, 3–14.IX.2006, coll. Hua-yan Chen, YNAU; 1 male, CHINA: Inner Mongolia, Helan Mountain, Shatangzi Monitoring station, 39°16'N 106°03'E, 3556m, 29.VII.2010, coll. Fang-zhou Ma, YNAU; 1 male, CHINA: Hebei: Xiaowutai Mountain, Wei Country, Wangxidong, 39°32'N 114°47'E, 1495m, 21.VI.2009, Zhen-hua Zu, YNAU.

Distribution. China (Inner Mongolia, Hebei, Qinghai, Ningxia, Yunnan), Russia.

Remarks. Newly recorded species in China.

Evagetus crassicornis (Shuckard, 1837)

Figs 3I–M, 7D

Pompilus crassicornis Shuckard, 1837: 63.

Diagnosis. Forewing with three submarginal cells, SMC 3 triangular (Fig. 7D). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 3K). Pronotum angulate posteriorly (Fig. 3I). Median length of metanotum 1.7–3.3X (in female) or 1.7–2.5X (in male) median length of metapostnotum. Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 3L). Fore metatarsus with three spines, flattened towards apex (Fig. 3M).

Material examined. 2 females, CHINA: Inner Mongolia, Helan Mountain, Cement plant qiangou, 38°74'N 105°52'E, 2208–2159 m, 28.VII.2010, coll. Ding-jie Zhang, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain, Luanchaigou, 38°59'N 106°00'E, 2292–2788 m, 26.VII.2010, coll. Ding-jie Zhang, YNAU; 3 females, CHINA: Inner Mongolia, Helan Mountain, Qianggangling, 338°74'N 105°52'E, 2208–2159 m, 8.VIII.2010, coll. Fang-zhou Ma, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain, North Temple, 38°98'N 105°87'E, 2924 m, 13.VIII.2010, coll. Mei-ying Lin, YNAU; 1 female, CHINA: Inner Mongolia, Hailaer East Mountain, 49°60'N 117°48'E, 603–776 m, 9. VIII.2006, coll. Ting-jing Li, YNAU; 1 female, CHINA: Inner Mongolia, Hailaer City, Ewenkeqi, Yimin Town, 48°57'N 119°78'E, 804 m, 8.VIII.2006, coll. Ting-jing Li, YNAU; 1 male, CHINA: Inner Mongolia, Alxa League, Xiangchizi, 38°99'N 105°97'E, 900–1400 m, 25.VIII.2013, coll. Jian Zhu, YNAU.

Distribution. China (Inner Mongolia), Morocco, Portugal, Spain, Ireland, The United Kingdom, France, Belgium, Luxembourg, The Kingdom of the Netherlands, Italy, Swit-

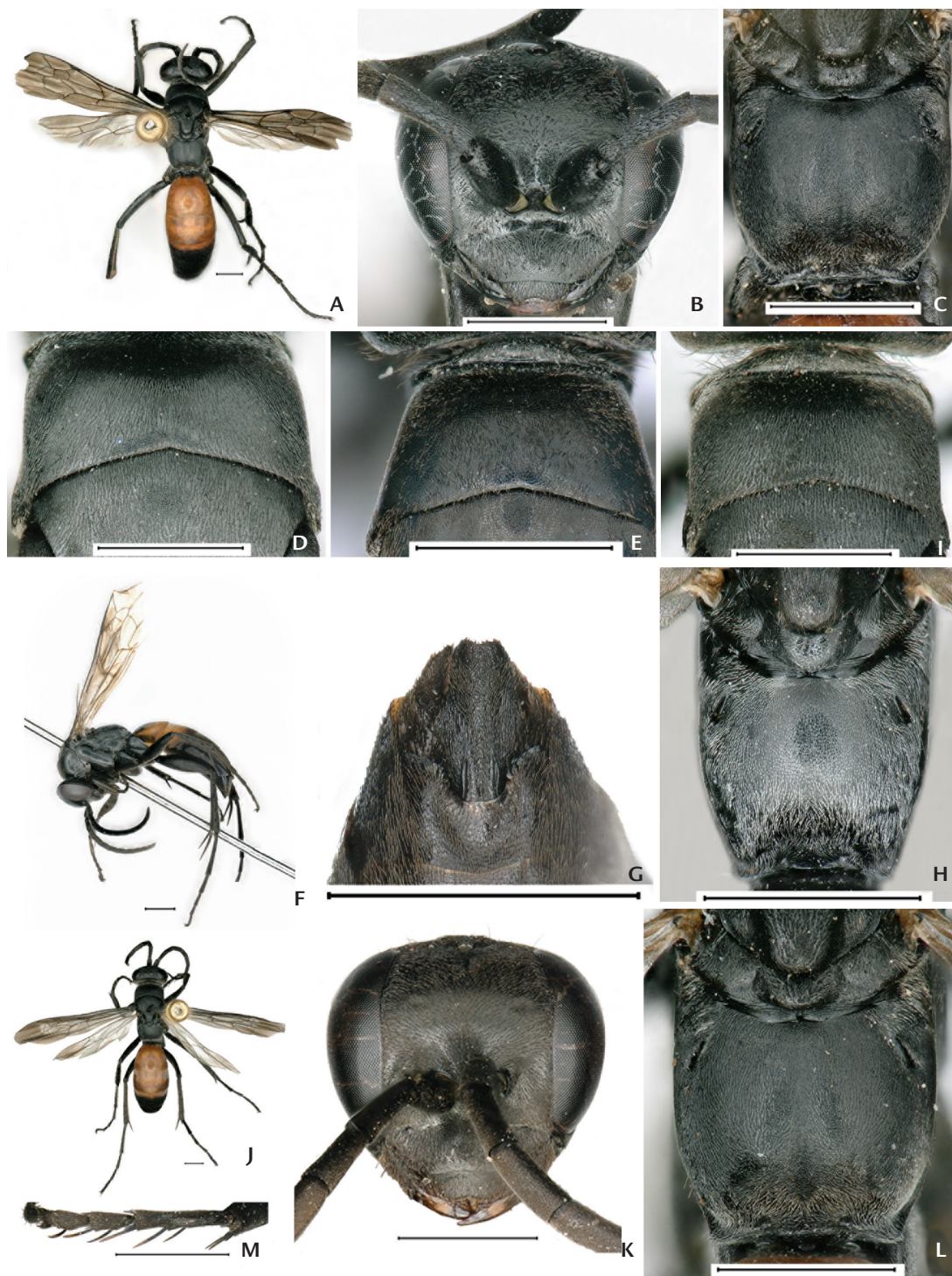


Figure 3. (A–H) *Evagetes orientalis* (A–D) female, (E–H) male; (I–M) *Evagetes crassicornis*, female: (A) habitus, dorsal view; (B) head, frontal view; (C) propodeum, dorsal view; (D) pronotum, dorsal view; (E) pronotum, dorsal view; (F) habitus, lateral view; (G) subgenital plate, ventral view; (H) propodeum, dorsal view; (I) pronotum, dorsal view; (J) habitus, dorsal view; (K) head, frontal view; (L) propodeum, dorsal view; (M) fore tarsus, lateral view. Scale bars: 1 mm.

zerland, Germany, Denmark, Austria, The Czech Republic, Slovakia, Poland, Norway, Sweden, Greece, Albania, Bulgaria, Romania, Turkey, Ukraine, Belarus, Finland, Iran, Kyrgyzstan, Kazakhstan, Mongolia, Russia, The United States.

Remarks. Newly recorded species in China.

Evagetes dubius (Vander Linden, 1827)

Figs 4A–E, 7E

Aporus ? *dubius* Vander Linden, 1827: 351.

Evagetes dubius: Lelej, 1995: 247, 250; Loktionov & Lelej, 2009: 389, 393, 396.

Diagnosis. Forewing with two submarginal cells (Fig. 7E). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 4B). Pronotum angulate posteriorly (Fig. 4C). Median length of metanotum 3.6–5X median length of metapostnotum (in female). Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 4D). Fore metatarsus with three spines, flattened towards apex (Fig. 4E).

Material examined (YNAU). CHINA: Inner Mongolia, Wuliangsu lake wetland, 40°97'N 108°95'E, 1018 m, 1.IX.2013, coll. Li Jiang (4 females), Xiao-qian Shi (1 female), Yellow plate (2 females).

Distribution. China (Inner Mongolia), Portugal, Poland, Turkey, Ukraine, Belarus, Iran, Turkmenistan, Kyrgyzstan, Kazakhstan, Mongolia, Russia.

Remarks. Newly recorded species in China.

Evagetes littoralis (Wesmael, 1851)

Figs 4F–J, 7F

Pompilus pectinipes var. 3 *littoralis* Wesmael, 1851: 466, designated by Wahis 1954: 94.

Diagnosis. Forewing with three submarginal cells (Fig. 7F). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 4F). Malar space (minimum value) equal to 0.1–0.3X of greatest width of pedicel, sides of mesosoma covered with gray pubescence. Pronotum arcuate posteriorly (Fig. 4H). Median length of metapostnotum depressed, nearly invisible (in female). Propodeum smooth transition from disc to posterior surface arcuate (Fig. 4I). Fore metatarsus with three spines, flattened towards apex (Fig. 4J).

Material examined. 9 females, CHINA: Inner Mongolia: Dengkou Country, Yellow River, 40°9'N 107°01'E, 1030–1046 m, 28.VIII.2013, coll. Jian Zhu, YNAU; 2 females, CHINA: Inner Mongolia: Yakeshi City, Yakeshi Bridge, 49°29'N 120°84'E, 737m, 7.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Inner Mongolia, Alxa League, Xiangchizi, 38°99'N 105°97'E, 900–1400 m, 25.VIII.2013, coll. Jian Zhu, YNAU; 1 female,

CHINA: Inner Mongolia: Huhehaote City, Helingeer County, Mengniu Town, 40°37'N 111°82'E, 1199 m, 15.VII.2006, coll. Ting-jing Li, YNAU; 2 females, CHINA: Inner Mongolia: Liangcheng Country, Daihai, 40°53'N 112°49'E, 1205 m, 6.IX.2013, coll. Li Jiang YNAU; 1 female, 1 male, CHINA: Inner Mongolia: Inner Mongolia Normal University, 40°46'N 111°86'E, 1050 m, 15.VII.2006, coll. Peng Wang, YNAU; 1 female, CHINA, Inner Mongolia, Eerduosi City, Wushenqi Bus station, 38°59'N 108°87', 1300–1400 m, 27.XII.2006, coll. Ming Luo, YNAU; 1 female, CHINA, Inner Mongolia, Bayannaoer City, Baiyanhua Town, 40°64'N 109°21', 1080–2262 m, 2.IX.2013, coll. Li Jiang, YNAU; 1 female, CHINA: Inner Mongolia: Etuoqeqianqi, Chengchuan Town, Youzhou Ancient Town, 37°71'N 108°16'E, 1356 m, 26. VIII. 2006, coll. Ming Luo, YNAU; 1 female, CHINA, Inner Mongolia, Bayannaoer City, Beitan Village, 40°33'N 106°95', 1040 m, 30.VIII.2013, coll. Jian Zhu, YNAU; 1 female, CHINA, Inner Mongolia, Eerduosi City, Yijinhuoluqi, 39°56'N 109°74'E, 1070–1556 m, 20.VIII.2002, coll. Bo Jia, CAU; 2 females, CHINA: Inner Mongolia, Hailaer City, Yimin Town, 48°57'N 119°78'E, 804 m, 8.VIII.2006, coll. Ting-jing Li (1 female), Ming Luo (1 female), YNAU; 1 female, CHINA: Inner Mongolia, Hailaer City, Yimin River, Beier Bridge, 49°78'N 119°75'E, 1707 m, 2.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Inner Mongolia, Tongliao City, Tongliao Forest Park, 43°67'N 122°07'E, 1330 m, 12.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Inner Mongolia: Tongliao City, Xijiao Power Plant, 43°67'N 122°07'E, 1330m, 13.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Beijing, Changping Heishanzhai, 40°35'N 116°36'E, 265–305 m, IV. 2005, CAU; 1 female, CHINA: Ningxia, Guyuan City, Liupan Mountain National Nature Reserve, Guamagou Forest Farm, Naihe Reservoir, 35°50'N 106°20'E, 1773 m, 7.VII.2009, coll. Zhenhua Zu, YNAU; 1 female, CHINA: Yunnan: Wenshan State, Maguan Country, Nanlao Town, Kouhazhongzhai, Yellow Plate, 22°98'N 104°52'E, 1838 m, 10.VIII.2017, YNAU; 1 male, CHINA, Inner Mongolia, Bayannaoer City, Malaise trap, 40°84'N 104°25'E, 1838 m, 15–22.V.2008, YNAU.

Distribution. China (Inner Mongolia, Beijing, Ningxia, Yunnan), Greece, Belarus, Kyrgyzstan, Russia.

Remarks. Newly recorded species in China.

Evagetes pectinipes (Linnaeus, 1758)

Figs 5A–E, 7G

Sphex pectinipes Linnaeus, 1758: 570.

Evagetes pectinipes pectinipes: Smissen, 2003: 55, 57, 63, 147.

Diagnosis. Forewing with three submarginal cells (Fig. 7G). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 5B). Pronotum arcuate



Figure 4. Female: (A–E) *Evagetes dubius*; (F–J) *Evagetes littoralis*: (A) habitus, lateral view; (B) head, frontal view; (C) pronotum, dorsal view; (D) propodeum, dorsal view; (E) fore tarsus, lateral view; (F) head, frontal view; (G) habitus, dorsal view; (H) pronotum, dorsal view; (I) propodeum, dorsal view; (J) fore tarsus, lateral view. Scale bars: 1 mm.

posteriorly (Fig. 5C). Propodeum smooth transition from disc to posterior surface arcuate (Fig. 5D). Fore metatarsus with four comb spines, flattened and widened towards apex, apical spine of 1st tarsomere equal to 2nd plus 3rd tarsomeres or slightly shorter (in female) (Fig. 5E). Body predominantly covered with greyish-silvery pubescence (Fig. 5A). Median length of metanotum 4.6–5.5X median length of metapostnotum (in female) (Fig. 5D).

Material examined (YNAU). 1 female, CHINA: Inner Mongolia, Hailaer City, Yimin Town, 48°57'N 119°78'E, 804 m, 8.VIII.2006, coll. Ming Luo; 1 female, CHINA: Inner Mongolia, Hailaer East Mountain, 49°60'N 117°48'E, 603–776 m, 9. VIII.2006, coll. Ming Luo; 1 female, CHINA: Yunnan, Dehong State, Ruili City, Baoli brickyard, 24°00'N 97°85'E, 1134 m, 7–13.XII.2012, coll. Jie Zeng; 1 female, CHINA: Yunnan: Xishuangbanna State, Menghai County, Bulang Mountain,

Yellow plate, 21°44'N 100°26'E, 1646 m, 14–15.IX.2019.

Distribution. China (Inner Mongolia and Yunnan), Portugal, The United Kingdom, Italy, Germany, Denmark, Greece, Turkey, Ukraine, Belarus, Iran, Uzbekistan, Kyrgyzstan, Kazakhstan, Russia.

Remarks. Newly recorded species in China.

Evagetes trispinosus (Kohl, 1886)

Figs 5F–J, 7H

Pompilus trispinosus Kohl, 1886: 317, 324–325.

Evagetes trispinosus: Wahis, 1986: 27.

Evagetes pectinipes trispinosus v.d. Smitsen, 2003: 55, 57, 64, 158.

Diagnosis. Forewing with three submarginal cells (Fig. 7H). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 5G). Pronotum arcuate posteriorly (Fig. 5H). Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 5I). Fore metatarsus with four flattened comb spines, widened towards apex, apical spine of 1st tarsomere equal to 2nd plus 3rd tarsomeres or slightly shorter (in female) (Fig. 5J). Body predominantly covered with brown pubescence. Length of metanotum 4.5–5.5X median length of metapostnotum (in female) (Fig. 5I).

Material examined. 1 female, CHINA: Inner Mongolia, Helan Mountain, Heigou, 39°16'N 106°03'E, 1700 m, 4.VIII.2010, coll. Fang-zhou Ma, YNAU; 2 females, CHINA: Inner Mongolia, Helan Mountain, Halawugou, 3556 m, 39°16'N 106°03'E, 3556 m, 20.VII.2004 (1 female), 21.VII.2006 (1 female), coll. Hai-yan Zhang, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain, Shuimogou, 3556 m, 39°16'N 106°03'E, 3556 m, 26.VII.2010, coll. Fang-zhou Ma, YNAU; 1 female, CHINA: Ningxia, Longde Country, Sutai Forest Farm, 35°65'N 106°17'E, 2158 m, 1–2.VII.2018, coll. Xin-pu Wang and Xiao-li Liu, HBU.

Distribution. China (Inner Mongolia and Ningxia), Portugal, Spain, France, Italy, Croatia, Greece, Bulgaria, Cyprus, Turkey, Kyrgyzstan, Kazakhstan, Russia.

Remarks. Newly recorded species in China.

Evagetes deirambo Ishikawa, 1960

Figs 6A–E, 7I

Evagetes deirambo Ishikawa, 1960: 61.

Evagetes yezoensis Ishikawa, 1960: 59. Junior subjective synonym of *Evagetes deirambo* Ishikawa, 1960 according to Lelej et al. 1994: 143.

Diagnosis. Forewing with three submarginal cells (Fig. 7I). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 6B). Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 6D). Fore metatarsus with three spines, flattened towards apex.

Pronotum arcuate posteriorly, malar space (minimum value) equal to 0.1–0.3X of greatest width of pedicel, sides of mesosoma covered with brown pubescence, T1 apically and T2 basally red, rest of metasoma black (in female). Pronotum angulate posteriorly, metasoma black, F1 1.3–1.5X longer than wide, median length of metanotum 4.0–4.5X median length of metapostnotum (in male) (Fig. 6A, C–E).

Material examined. 1 male, CHINA: Shandong, Qingdao City, Wanggezhuang Village, 36°27'N 120°65'E, 6 m, VIII.2012, coll. Chong-yang Li, YNAU; 2 males, CHINA: Shandong, Shouguang City, Weifang University of Science and Technology, Malaise trap, 36°88'N 118°78'E, 1032 m, 17.VIII.2018, YNAU; 1 male, China, Inner Mongolia, Eerduosi City, Wushenqi batuwan, 38°59'N 108°87', 1300–1400 m, 28.XII.2006, coll. Ming Luo, YNAU; 1 male, CHINA: Inner Mongolia, Wuliangsu lake wetland, 40°97'N 108°95'E, 1018 m, 10.IX.2013, coll. Li Jiang and Xiao-qian Shi, YNAU; 1 male, CHINA: Inner Mongolia, Alxa League, Bayanhaote Town, Yellow Plate, 38°83'N 105°65'E, 1410 m, 24.VIII.2013, coll. Jian Zhu, YNAU; 1 male, CHINA: Inner Mongolia, Huhehaote Forestry Science Research Institute, 40°49'N 111°42'E, 1056 m, 17.VII.2006, coll. Ting-jing Li, YNAU; 1 male, CHINA: Yunnan, Jinghong, Menghai Country, Buguanggang Village, Malaise trap, 21°44'N 101°26'E, 1200 m, 29.V–2.VII.2019, YNAU; 1 male, CHINA: Henan, Neixiang Country, Baotianman National Nature Reserve, 33°05'N 111°91'E, 360–1830 m, 22.VII.2007, coll. Zai-fu Xu, SCNU; 1 male, CHINA: Shanxi, Qinsui Country, Zhuweigou, 35°42'N 112°01'E, 652–1539 m, 23.VII.2012, coll. Jian Zhu and Li Jiang, YNAU.

Distribution. China (Inner Mongolia, Henan, Shanxi, Shandong, Yunnan), South Korea, Japan, Russia.

Remarks. Newly recorded species in China.

Evagetes liane Schmid-Egger, 2019

Figs 6F–J, 7J

Evagetes liane Schmid-Egger, 2019: 1205–1210.

Diagnosis. Forewing with three submarginal cells (Fig. 7J). Anterior margin of labrum nearly flat. Outer surface of mandible without carina (Fig. 6G). Pronotum slightly angulate in posterior view (Fig. 6H). Propodeum smooth, transition from disc to posterior surface arcuate (Fig. 6I). Fore metatarsus flattened, with four spines, widened towards apex, apical spine of 1st tarsomere equal to 2nd plus 3rd tarsomeres, or slightly shorter, SMC 3 approximate 0.3x as large as SMC 2 (in female). Metasoma black, F1 1.1–1.3X its longer than wide, median length of metanotum 3.0X median length of metapostnotum (in male) (Fig. 6F, I, J).

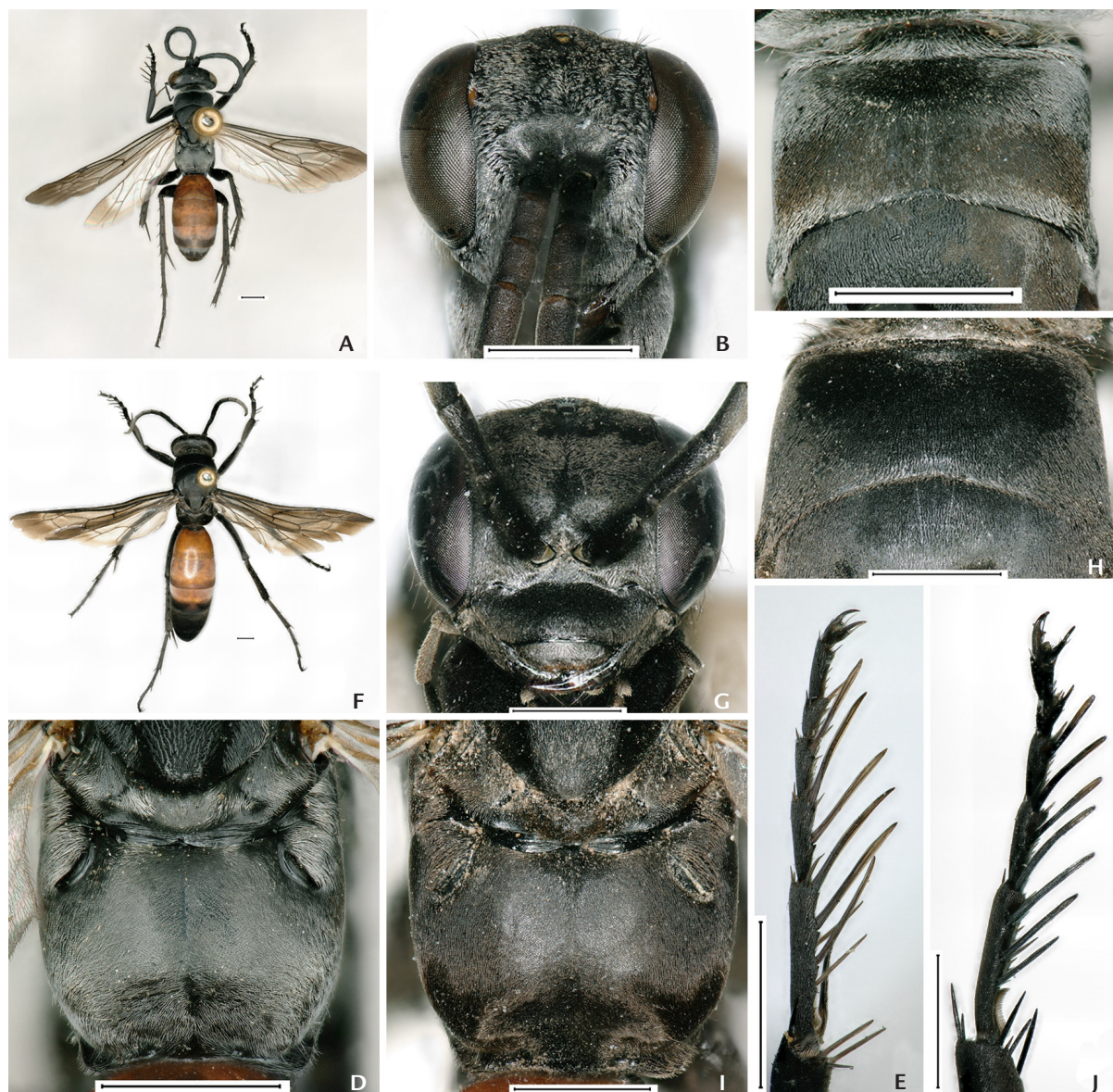


Figure 5. Female: (A–E) *Evagetes pectinipes*; (F–J) *Evagetes trispinosus*: (A) habitus, dorsal view; (B) head, frontal view; (C) pronotum, dorsal view; (D) propodeum, dorsal view; (E) fore tarsus, lateral view; (F) habitus, dorsal view; (G) head, frontal view; (H) pronotum, dorsal view; (I) propodeum, dorsal view; (J) fore tarsus, lateral view. Scale bars: 1 mm.

Material examined (YNAU). 1 male, CHINA: Inner Mongolia: Tongliao City, Daqingou National Nature Reserve, 42°3'N 122°07'E, 1330 m, 11.VIII.2006, coll. Ting-jing Li; 1 male, CHINA: Xinjiang, Yili State, Yining City Erqiao Road, 43°88'N 81°26'E, 552 m, 5.VII.2023, coll. Zhi-yan Song.

Distribution. China (Xinjiang and Inner Mongolia), Spain.

Remarks. Newly recorded species in China.

Evagetes iconionus Wolf, 1970

Evagetes iconionus Wolf, 1970: 79.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum nearly flat. Outer surface of mandible without carina. Pronotum slightly angulate in posterior view. Propodeum smooth, transition from disc to posterior surface arcuate. Fore metatarsus with three spines, not flattened or widened towards apex. Malar space (mini-

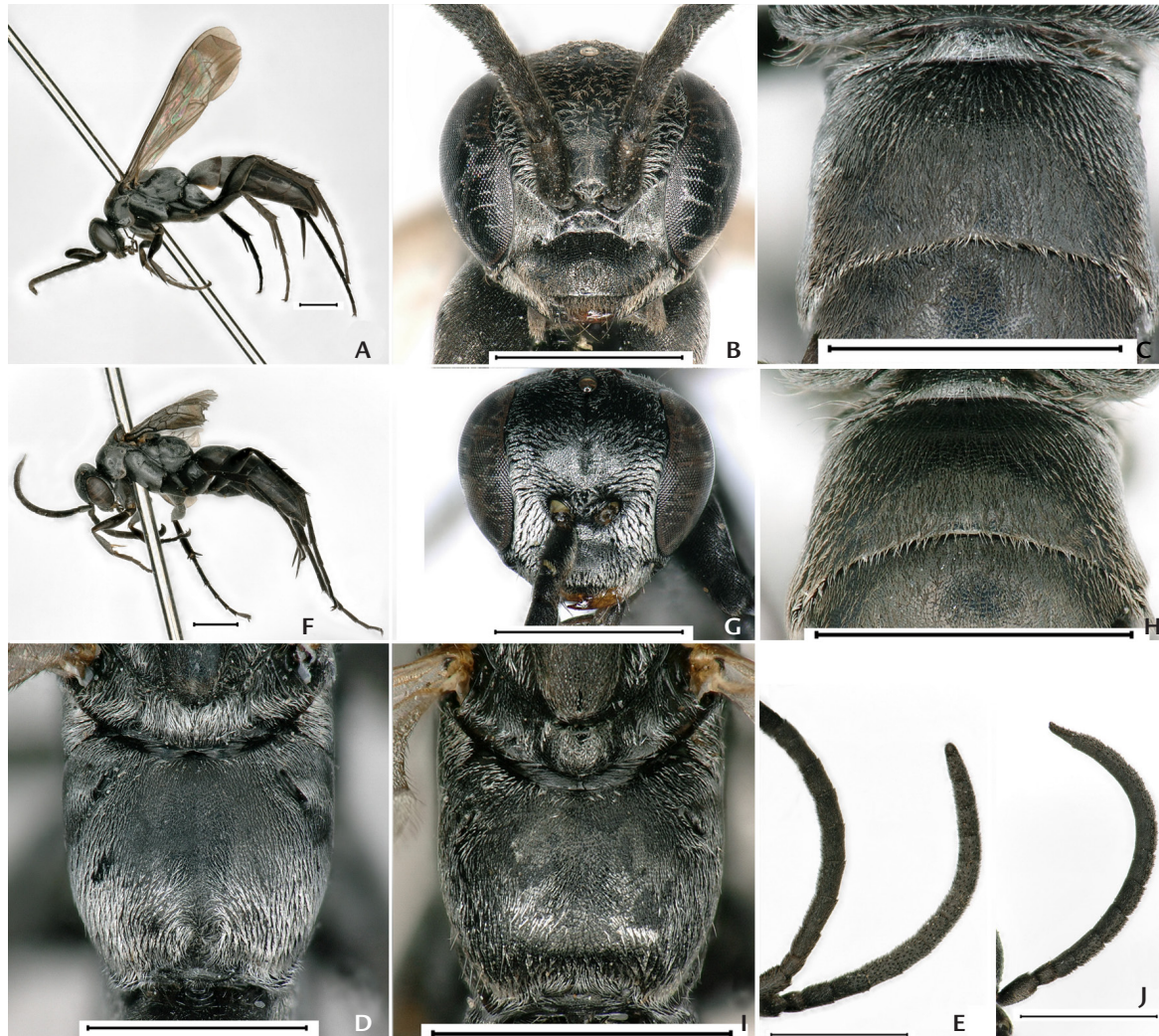


Figure 6. Male: (A–E) *Evagetes deirambo*; (F–J) *Evagetes liane*: (A) habitus, lateral view; (B) head, frontal view; (C) pronotum, dorsal view; (D) propodeum, dorsal view; (E) antennae, lateral view; (F) habitus, lateral view; (G) head, frontal view; (H) pronotum, dorsal view; (I) propodeum, dorsal view; (J) antennae, lateral view. Scale bars: 1 mm.

mum value) equal to 0.4–0.7X of greatest width of pedicel, F1 2.0–2.2X longer than wide (in female), F1 0.95–1.05X longer than wide (in male), median length of metanotum 2.5–3.3X median length of metapostnotum (in female).

Material examined. 1 female, CHINA: Inner Mongolia, Yakeshi City, Yakeshi Bridge, 49°29'N 120°84'E, 737 m, 7.VIII.2006, coll. Ming Luo, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain National Nature Reserve, 38°45'N 105°85'E, 3154 m, 22.VII.2006, coll. Peng Wang, YNAU; 1 female, CHINA: Inner Mongolia, Wulanchabu City, Feng Town, 40°44'N 113°10'E, 1024 m, 7.VII.2006, coll. Guo-dong Ren and Yi-bin Ba, HBU; 1 female, CHINA: Hebei, Wei

Country, Xiaowutai Mountain, 39°32'N 114°47'E, 1900 m, 24.VI.2009, coll. Miao Li, YNAU.

Distribution. China (Inner Mongolia and Hebei), Morocco, Italy, Slovenia, Austria, Hungary, Slovakia, Bulgaria, Turkey, Georgia, Kyrgyzstan, Kazakhstan, Russia.

Evagetes shwangtashanus Yasumatsu, 1935
Psammochares (*Psammochares*) *shwangtashanus* Yasumatsu, 1935: 1, 7.
Evagetes shwangtashanus: Lelej, 1995: 249.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum nearly flat. Outer surface of mandible without carina. Pronotum arcuate posteriorly. Pro-

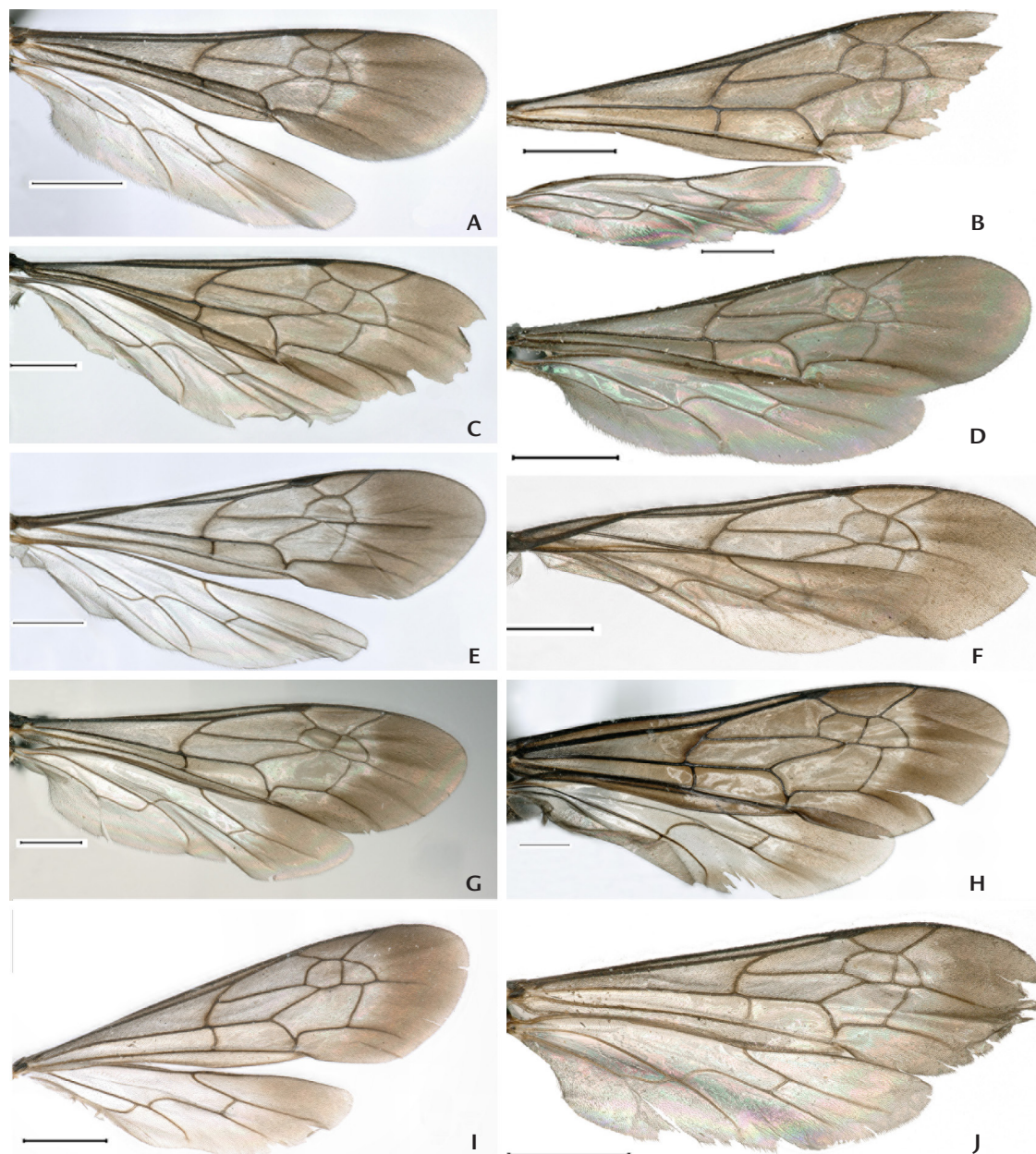


Figure 7. (A–H) Female, (I–J) male, wings. (A) *Evagetes transbaicalicus*; (B) *Evagetes subglaber*; (C) *Evagetes orientalis*; (D) *Evagetes crassicornis*; (E) *Evagetes dubius*; (F) *Evagetes littoralis*; (G) *Evagetes pectinipes*; (H) *Evagetes trispinosus*; (I) *Evagetes deirambo*; (J) *Evagetes liane*. Scale bars: 1 mm.

and mesothorax strongly curved in lateral view. Propodeum smooth, transition from disc to posterior surface arcuate. Fore metatarsus with three spines, not flattened or widened towards apex. F1 2.0–2.2X longer than wide (in female). Median length of metanotum 4.3–5.0X median length of metapostnotum (in female).

Material examined (YNAU). 1 female, CHINA: Xinjiang, Tulufan City, Yaer Town, 42°97'N 89°22'E, 20 m, 23.VI.2023, coll. Wei-xian Chen; 3 females, CHINA: Xinjiang, Boertala State, Bole City, Sayram Lake, 44°64'N 81°31'E, 2035 m, 4.VII.2023, coll. Li-li Dong (1 female), Jing-hong Li (1 female); Zhi-yan Song (1 female); 1 female, CHINA:

Inner Mongolia, Alxa League, Xiangchizi, 38°99'N 105°97'E, 900–1400m, 25.VIII.2013, coll. Jian Zhu and Li Jiang; 1 female, CHINA: Shandong, Shouguang City, Weifang University of Science and Technology, Yellow Plate, 36°88'N 118°78'E, 1032m, 14.X.2013.

Distribution. China (Xinjiang, Inner Mongolia, Hebei and Shandong).

Evagetes proximus (Dahlbom, 1845)

Pompilus proximus Dahlbom, 1845: 451, designated by Smissen 2003: 180.

Evagetes daisetsuzanus Ishikawa, 1960: 58. Junior subjective synonym of *Pompilus proximus* Dahlbom, 1845 according to Lelej 1995: 248.

Evagetes proximus mongoloproximus Wolf & Móczár, 1972: 427. Junior subjective synonym of *Pompilus proximus* Dahlbom, 1845 according to Wahis 1986: 27.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum nearly flat or slightly emarginated. Outer surface of mandible without carina. Pronotum angulate posteriorly. Propodeum with sharply defined anterior horizontal and posterior vertical surfaces. Sides of propodeum with black long and erect setae; propodeum abrupt, with longitudinal groove. Metatarsus usually with three-four spines, sometimes flattened and slightly widened towards apex (in female). Median length of metanotum 2.5–3.3X (in female) or 2.13–3.13X (in male) median length of metapostnotum.

Material examined. 1 female, CHINA: Inner Mongolia, Tongliao City, Xijiao Power Plant, 43°67'N 122°07'E, 1330 m, 13.VIII.2006, coll. Hai-yan Zhang, YNAU; 1 female, CHINA: Inner Mongolia, Tongliao Forest Park, 43°32'N 122°62'E, 1330 m, coll. Ting-jing Li, 12.VIII.2006, YNAU; 1 female, CHINA: Yunnan, Kunming, Yunnan Agricultural University, 25°12'N 102°74'E, 1939 m, 8.IX.2010, coll. Fang-zhou Ma, YNAU; 1 female, CHINA: Hebei, Zhuolu Country, Xiling Mountain, 40°05'N 115°38'E, 2420 m, 26.VI.2009, coll. Xin-pu Wang and Hong-fan Ran, HBU; 1 male, CHINA: Inner Mongolia, Huhehaote City, Wusutu Forest Park, 40°85'N 111°58'E, 500 m, 16.VII.2006, coll. Hai-yan Zhang, YNAU; 1 male, CHINA: Inner Mongolia, Helan Mountain, Zhonggutian, 39°16'N 106°03'E, 1700 m, 3.VIII.2010, coll. Fang-zhou Ma, YNAU; 1 male, CHINA: Inner Mongolia, Helan Mountain, Luanchai-gou, 38°59'N 106°00'E, 2292–2788 m, 6.VIII.2010, coll. Fang-zhou Ma, YNAU; 1 male, CHINA: Inner Mongolia, Helan Mountain, Halawunangou, 3556 m, 39°16'N 106°03'E, 3556 m, 20.VIII.2006, coll. Ming Luo, YNAU; 1 male, CHINA: Inner Mongolia, Yakeshi City, 49°29'N 120°84'E, 737 m, 7.VIII.2006, coll. Ting-jing Li, YNAU; 1 male, CHINA: Yunnan, Dali old City, 25°69'N 100°16'E, 2052 m, 3.V.2007, coll. Rui Zhang, YNAU.

Distribution. China (Inner Mongolia, Hebei and Yunnan), Poland, Turkey, Ukraine, Belarus, Iran, Tajikistan, Kyrgyzstan, Kazakhstan, Mongolia, Japan, Russia.

Evagetes ishikawai Lelej, 1995

Evagetes ishikawai Lelej, 1995: 249.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum with distinct triangular notch. Outer surface of mandible without carina. Pronotum angulate posteriorly. Propodeum smooth transition from disc to posterior surface arcuate. Fore metatarsus with three–four spines, not flattened or widened towards apex. Median length of metanotum 3.3–4X (in female) or 4X (in male) median length of metapostnotum. Ratio of median length of gena to median length of eye (lateral view) 0.50–0.55X, (in female). F1 length 1.25–1.4X its width (in male).

Material examined. 1 female, CHINA: Inner Mongolia, Wuliangsu lake wetland, 40°97'N 108°95'E, 1018 m, 1.IX.2013, coll. Xiao-qian Shi, YNAU.

Distribution. China (Inner Mongolia), Russia.

Evagetes sahlbergi (Morawitz, 1893)

Pompilus sahlbergi Morawitz, 1893: 105, designated by Tobias 1978: 135.

Psammochares subnudus Haupt, 1941: 182. Junior subjective synonym of *Psammochares subglaber* Haupt, 1941 according to Smissen 2003: 213.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum rounded. Outer surface of mandible without carina. Pronotum angulate posteriorly. Fore metatarsus with three spines, not flattened or widened towards apex. Frons with scattered, long, black setae. Propodeum with sharply defined anterior horizontal and posterior vertical surfaces. SMC3 trapeziform. Median length of metanotum 2.55–3.3X median length of metapostnotum. Frons, supraclypeal area with dense, long, erect, black setae.

Material examined. 2 females, CHINA: Qinghai, Haixi State, Dulan Country, Xiangride Town, Qu Rigang Grassland, Yellow Plate, 26°11'N 98°12'E, 3528 m, 10.VIII.2018, YNAU; 5 females, CHINA: Qinghai, Xining City, Huangzhong District, 36°50'N 101°67'E, 2642 m, 14.VIII.2018, Yellow Plate (3 females), coll. Shi-jie Du (2 females), YNAU; 2 females, 1 male, CHINA: Tibet, Rikaze City, Jilong Town, Rema Village, 28°27'N 85°13'E, 3003 m, 2.VIII.2018, Yellow Plate (1 female, 1 male), coll. Shi-jie Du (1 female), YNAU; 2 females, CHINA: Tibet, Rikaze City, Jilong Town, Chongse Village, 28°22'N 85°25'E, 2730m, 30.VII.2018, Yellow Plate (1 female), coll. Shi-jie Du (1 female), YNAU; 1 female, CHINA: Tibet, Rikaze City, KangmaTown, Bailong Village, Yellow Plate, 28°32'N

89°44'E, 4351 m, 21.VII.2018, YNAU; 1 female, CHINA: Tibet, Rikaze City, Shangyadong Town, Galingang Village, Yellow Plate, 27°30'N 88°56'E, 3000 m, 24.VII.2018, YNAU; 1 female, CHINA: Yunnan: Jinghong, Menghai Country. Guanggang Village, Malaise trap, 21°44'N 101°26'E, 1200 m, 29.X–20.XI.2018, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain, Cement plant qiangou, 38°74'N 105°52'E, 2208–2159 m, 8.VII.2006, coll. Ding-jie Zhang, YNAU; 1 female, CHINA: Inner Mongolia, Helan Mountain, Halawugou, 3556 m, 39°16'N 106°03'E, 3556 m, 26.VIII.2013, coll. Hai-yan Zhang, YNAU; 2 females, CHINA: Inner Mongolia, Helan Mountain, Zhonggutian, 3556 m, 39°01'N 106°06'E, 2201 m, 3.VIII.2010, coll. Fang-zhou Ma, YNAU; 1 female, CHINA: Hebei, Zhuolu Country, Xiling Mountain, 40°05'N 115°38'E, 2420 m, 26.VI.2009, coll. Xin-pu Wang and Hong-fan Ran, HBU; 1 male, CHINA: Tibet, Rikaze City, Jilong Town, Madun Bridge, Yellow Plate, 28°24'N 85°18'E, 2900 m, 1.VIII.2018, YNAU; 2 males, CHINA: Tibet, Rikaze City, Yadong Country, Xiayadong Town, Qiema Village, Yellow Plate, 27°26'N 88°54'E, 3020 m, 23.VII.2018, YNAU; 1 male, CHINA: Inner Mongolia, Helan Mountain, Qianggangling, 38°74'N 105°52'E, 2208–2159m, 3.VIII.2010, coll. Ding-jie Zhang, YNAU; 2 males, CHINA: Yunnan, Jinghong, Menghai Country, Bulangshan Town, Yellow Plate, 21°44'N 100°26'E, 1710 m, 17–18.V.2018 (1 male), 17–18.XI.2018 (1 male), YNAU; 3 males, CHINA: Yunnan, Jinghong, Menghai Country. Guanggang Village, Malaise trap, 21°44'N 101°26'E, 1200 m, 17.II–24.III.2019 (1 male), 24.III–22.IV.2019 (2 males), YNAU; 1 male, CHINA: Yunnan, Kunming, Aziying Town, 25°34'N 102°78'E, 2100 m, 30.IV.2012, coll. Chong-yang Li, YNAU; 2 males, CHINA: Yunnan, Jingdong Country, Ailao Mountain National Nature Reserve, Xujiaba Monitoring Station, 24°32'N 101°14'E, 2439 m, 6.VIII.2020, coll. Hui-fen Jiang and Li-yuan Zhao, YNAU; 1 male, CHINA: Xinjiang, Gongliu Country, Hetaogou Nature Reserve, 43°37'N 82°34'E, 1300–1500 m, 2.VII.2016, coll. Yi-cheng Li, SCAU.

Distribution. China (Xinjiang, Inner Mongolia, Hebei, Tibet, Qinghai, Yunnan), Belarus, Tajikistan, Kyrgyzstan, Russia.

Evagetes sikhotealinensis (Lelej, 1990)

Anospilus sikhotealinensis Lelej, 1990: 76.

Evagetes sikhotealinensis: Lelej 1995: 248, 251.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum nearly flat. Outer surface of mandible without carina. Pronotum angulate posteriorly. Propodeum smooth, transition from disc to posterior surface arcuate, without longitudinal groove, if with slight longitudi-

dinal groove, then without pubescence; metatarsus usually with three spines, not flattened or widened towards apex; body with sparse pubescence (in female). Median length of metapostnotum 0.23–0.27X median length of metanotum (in male). Median length of metanotum 4.5X (in female) or 3.7–4.35X (in male) median length of metapostnotum.

Material examined. 2 females, CHINA: Hebei, Wei Country, Xiaowutai Mountain, 39°59'N 115°04'E, 1300–1600 m, 22.VI.2009, coll. Zhen-hua Zu, YNAU.

Distribution. China (Hebei), Kazakhstan, Russia.

Evagetes taiwanus Tsuneki, 1989

Evagetes taiwanus Tsuneki, 1989: 106–108.

Diagnosis. Forewing with three submarginal cells. Anterior margin of labrum slightly emarginated. Outer surface of mandible without carina. Pronotum arcuate posteriorly. Pro- and mesothorax evenly, gently, roundly inclined forward in lateral view. Malar space linear shape. SMC 3 triangular or close to triangular. Fore metatarsus with three spines, not flattened or widened towards apex.

Distribution. China (Taiwan).

Key to Chinese species of *Evagetes*

Female

1. Forewing with two submarginal cells *E. dubius* (Vander Linden, 1827)
- 1'. Forewing with three submarginal cells 2
2. Anterior margin of labrum with distinct notch 3
- 2'. Anterior margin of labrum flat, rounded or slightly notched 4
3. Pronotum elongated, outer surface of mandible without carina *E. ishikawai* Lelej, 1995
- 3'. Pronotum not elongated, outer surface of mandible with well-developed carina. *E. subglaber* (Haupt, 1941)
4. Spines on fore metatarsus flattened, widened towards apex, spine of 1st tarsomere apically equal to 2nd tarsomere and 3rd combined or slightly shorter than them 5
- 4'. Spines on fore not flattened, not widened towards apex, spine of 1st tarsomere apically equal to 2nd tarsomere or slightly shorter than tarsomere 2nd 7
5. SMC 3 approximate 0.3X as large as SMC 2, ratio median length of gena to median length of eye (lateral view) 0.5X *E. liane* Schmid-Egger, 2019
- 5'. SMC 3 approximate as large as SMC 2, ratio median length of gena to median length of eye (lateral view) 0.3X 6

6. Body predominantly covered with greyish-silvery pubescence, gena and propleuron with silvery erect setae *E. pectinipes* (Linnaeus, 1758)
- 6'. Body predominantly covered with brown pubescence, gena and propleuron with brown erect setae.....
..... *E. trispinosus* (Kohl, 1886)
7. Pronotum arcuate posteriorly 8
- 7'. Pronotum angulate posteriorly..... 14
8. Mesopleuron with long, dark and erect setae. F1 length 2.4–2.5X its width 9
- 8'. Mesopleuron with short erect setae or without setae. F1 length 2.0–2.3X its width..... 10
9. Propodeum with sharply defined anterior horizontal and posterior vertical surfaces. F10 truncate *E. truncantennus* Dong et Ma, sp. nov.
- 9'. Propodeum smooth transition from disc to posterior surface arcuate. F10 pointed... *E. transbaicalicus* Lelej, 1995
10. Malar space (minimum value) equal to 0.4–0.7X of greatest width of pedicel *E. iconionus* Wolf, 1970
- 10'. Malar space (minimum value) equal to 0.1–0.3X of greatest width of pedicel 11
11. Pro- and mesothorax more or less curved in lateral view 12
- 11'. Pro- and mesothorax flat in lateral view 13
12. Pro- and mesothorax strongly curved in lateral view. Legs brown..... *E. shwangtashanus* Yasumatsu, 1935
- 12'. Pro- and mesothorax evenly, gently, roundly inclined forward in lateral view. Legs black.....
..... *E. taiwanus* Tsuneki, 1989
13. Sides of mesosoma covered with gray pubescence, T1–T2, T3 basally red, rest of metasoma black
..... *E. littoralis* (Wesmael, 1851)
- 13'. Sides of mesosoma covered with brown pubescence, T1 apically and T2 basally red, rest of metasoma black..... *E. deirambo* Ishikawa, 1960
14. Sides of propodeum with black long and erect setae..
..... 15
- 14'. Sides of propodeum without erect setae or with short light setae 16
15. Propodeum abrupt, with longitudinal groove. Metatarsus usually with four spines. Body with dense pubescence *E. proximus* (Dahlbom, 1845)
- 15'. Propodeum gentle, without longitudinal groove, if with slight longitudinal groove, then without pubescence. Metatarsus usually with three spines. Body with sparse pubescence
..... *E. sikhotealinensis* (Lelej, 1990)
16. Propodeum with smooth transition from disc to posterior surface arcuate. SMC3 triangular
..... *E. crassicornis* (Shuckard, 1837)
- 16'. Propodeum with sharply defined anterior horizontal and posterior vertical surfaces. SMC3 trapeziform.. 17
17. Median length of metanotum 4.0–5.4X median length of metapostnotum. Frons with short sparse setae
..... *E. orientalis* Lelej & Loktionov, 2009
- 17'. Median length of metanotum 2.55–3.3X median length of metapostnotum. Frons with long dense setae *E. sahlbergi* (F. Morawitz, 1893)
- ### Male
- Male is unknown for *E. shwangtashanus* Yasumatsu, 1935, *E. taiwanus* Tsuneki, 1989 and *Evagetes truncantennus* Dong & Ma, sp. nov.)
1. Forewing with two submarginal cells
..... *E. dubius* (Vander Linden, 1827)
- 1'. Forewing with three submarginal cells 2
2. Subgenital plate basally with two polished, adjacent and longitudinal carinae 3
- 2'. Subgenital plate basally without carinae 5
3. Median length of metanotum 3.3–4.5X median length of metapostnotum. T1 laterally and T2 baso-laterally ferruginous-red, T3 black
..... *E. orientalis* Lelej & Loktionov, 2009
- 3'. Median length of metanotum 1.7–2.9X median length of metapostnotum. T1–T2 wholly and T3 basally ferruginous-red..... 4
4. F1 length 1.6–1.9X its width. Median length of metanotum 1.7–2.5X median length of metapostnotum. SMC3 usually triangular, rarely weakly trapeziform. Frons, supraclypeal area lacking setae or with sparse, short and pale setae *E. crassicornis* (Shuckard, 1837)
- 4'. F1 length 1.1–1.4X its width. Median length of metanotum 2.4–2.9X median length of metapostnotum. SMC3 trapeziform always. Frons, supraclypeal area with dense, long, erect and black setae
..... *E. sahlbergi* (F. Morawitz, 1893)
5. Marginal subgenital plate at apex with hard and thickened setae..... 6
- 5'. Marginal subgenital plate at apex with soft and thin setae 13
6. Head and mesosoma without erect setae or with sparse short setae 7
- 6'. Head and mesosoma with long setae 10
7. Basal tergum of metasoma or all black 8
- 7'. Basal tergum of metasoma red..... 9

8. F1 length 1.1–1.3X its width. Median length of metanotum 3.0X median length of metapostnotum *E. liane* Schmid-Egger, 2019
- 8'. F1 length 1.3–1.5X its width. Median length of metanotum 4.0–4.5X median length of metapostnotum.. *E. deirambo* Ishikawa, 1960
9. Outer surface of mandible with well-developed carina, temple and propleuron with brownish setae *E. subglaber* (Haupt, 1941)
- 9'. Mandible without carina, temple and propleuron with whitish setae *E. littoralis* (Wesmael, 1851)
10. Propodeum marked with brown pubescence. Digitus rounded apically..... 11
- 10'. Propodeum marked with silvery-white pubescence. Digitus pointed apically 12
11. Median length of metanotum 2.13–3.13x median length of metapostnotum. Propodeum abrupt, with longitudinal groove..... *E. proximus* (Dahlbom, 1845)
- 11'. Median length of metanotum 3.7–4.35X median length of metapostnotum. Propodeum gentle, without longitudinal groove..... *E. sikhotealinensis* (Lelej, 1990)
12. Body marked with silvery-white pubescence. Scape below, frons, vertex, temples and propleuron with sparse whitish setae *E. pectinipes* (Linnaeus, 1758)
- 12'. Body marked with brown pubescence. Scape below, frons, vertex, temples and propleuron with dense brown setae..... *E. trispinosus* (Kohl, 1886)
13. F1 0.95–1.05X longer than wide..... *E. iconionus* Wolf, 1970
- 13'. F1 1.2–1.4X longer than wide..... 14
14. Pronotum arcuate posteriorly, anterior margin of labrum weakly emarginated *E. transbaicalicus* Lelej, 1995
- 14'. Pronotum angulate posteriorly, anterior margin of labrum with distinct notch *E. ishikawai* Lelej, 1995

DISCUSSION

One new species and 10 newly recorded species have been discovered in China, which enriches the species distribution of *Evagetes* in the Palearctic and Oriental Regions.

In the distribution map, we found that 16 species of *Evagetes* were distributed in the Palearctic region and two species were only distributed in the Oriental region, accounting for 88.9% and 11.1% of the distributed species in China. Species of *Evagetes* are most widely distributed in northern cities such as Inner Mongolia, Xinjiang, Qinghai, Tibet and Hebei in China, and the overall trend is more in

the north and less in the south. We think that there are two main reasons for this: firstly, the climate in northern China is arid and dry. The main vegetation types include deserts, gobi, hills, river valleys, broad-leaved forest, which are poor vegetation types. In contrast, the climate in southern China is warm and humid, and the main vegetation types include tropical rain forest and evergreen broad-leaved forest. In addition, nesting and cleptoparasitism are more likely to be found in deserts and river valleys, so it can be inferred that *Evagetes* is more well adapted to the climate environment in northern China. Secondly, as mentioned above, the species in *Evagetes* distributed in the Palearctic region account for about 62% of the global species in this genus, and the north of China belongs to the Palearctic region. Therefore, this study involves multiple species in the Palearctic region.

Researchers have long been interested in the discovery of new geographic distribution and previously unknown species, as it reveals species diversity and evolution. Typically, species identification and classification in *Evagetes* rely on morphological features, such as the pubescence on body, number and size of submarginal cells, shape of labrum and pronotum, ratio of metanotum to metapostnotum, number and length of metatarsal spines and genital structure. The species in *Evagetes* are difficult to identify, as Evans (1950) suggested that this may be due to the unusual host-parasite relationships exhibited by species of the genus (Day 1988, Wasbauer and Kimsey 1985). The males are distinguished based on their genitalia to differentiate between species. With the latest advancements in molecular technology, researchers can now rely on this technique to acquire more comprehensive information and address taxonomic issues.

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