

## Discovery of Two Unrecorded Species of *Zaglyptus* (Hymenoptera: Ichneumonidae: Pimplinae) from South Korea

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### ABSTRACT

Two species, *Zaglyptus multicolor* (Gravenhorst) and *Zaglyptus semirufus* Momoi, are newly recognized from South Korea. *Zaglyptus iwatai* (Uchida) has only been reported from South Korea to date. Diagnoses of two unrecorded species, illustrations of diagnostic characters and a key to species of this genus are provided.

**Keywords:** Ephialtini, new record, taxonomy, *Zaglyptus multicolor*, *Zaglyptus semirufus*

### INTRODUCTION

The genus *Zaglyptus* Förster, 1869 is a cosmopolitan genus of the tribe Ephialtini (Ichneumonidae: Pimplinae) that was assigned as a genus by Förster (1869) based on *Polysphincta varipes* Gravenhorst and subsequently designed by Woldstedt (1877). *Zaglyptus* contains 26 described species worldwide, with the species richness of this genus being highest in the Oriental region (13 species), followed by the Palaearctic region (five species) (Yu et al., 2016). In South Korea, only one species, *Zaglyptus iwatai* (Uchida, 1936), has been reported to date (Lee et al., 2018).

In the present study, the genus *Zaglyptus* is revised to include two unrecorded species from South Korea. Diagnoses, photographs and a key to species of South Korean *Zaglyptus* are provided.

The terminology used follows that of Townes (1969). The images were captured with an AxioCam MRc5 camera attached to a stereo microscope (Zeiss SteREO Discovery, V20; Carl Zeiss, Göttingen, Germany), processed using the AxioVision SE64 software (Carl Zeiss), and optimized with a Delta imaging system (i-solution, IMT i-Solution Inc., Vancouver, BC, Canada). All examined specimens were deposited in the Yeungnam University, Gyeongsan, South Korea (YNU).

Abbreviations of South Korean regions and type deposi-

tory are as follows: CN, Chungcheongnam-do; GB, Gyeongsangbuk-do; GG, Gyeonggi-do; GN, Gyeongsangnam-do; GW, Gangwon-do; JN, Jollanam-do; MNHN, Muséum National d'Histoire Naturelle, Entomologie, Paris, France; BBM, Bernice P. Bishop Museum, Department of Entomology, Honolulu, Hawaii, USA.

### SYSTEMATIC ACCOUNTS

<sup>1</sup>\*Order Hymenoptera Linnaeus, 1758

<sup>2</sup>\*Family Ichneumonidae Latreille, 1802

<sup>3</sup>\*Subfamily Pimplinae Wesmäl, 1845

<sup>4</sup>\*Genus *Zaglyptus* Förster, 1869

**Diagnosis.** Mandible swollen subapically; fore wing without vein 3rs-m; propodeum with lateral apical tubercles; lower valve of ovipositor with basal tooth.

#### Key to species of South Korean *Zagryptus*

1. Mesosoma entirely black (Fig. 3E); mesoscutum elongate, with weak notauli; metasomal tergites 1–5 reddish yellow (Fig. 3G); tergites 3–5 each with a pair of weak lateral punctate swellings ..... *Z. iwatai*
- Mesosoma yellowish brown to reddish yellow (Fig. 3A–D); mesoscutum stout, with strong notauli; metasomal terg-

Korean name: <sup>1</sup>\*벌목, <sup>2</sup>\*맵시벌과, <sup>3</sup>\*납작맵시벌아과, <sup>4</sup>\*이와타납작맵시벌속

- ites generally dark reddish brown to black; tergites 3–5 each with a pair of lateral impunctate swellings (Figs. 1G, 2G) ..... 2
2. Ovipositor smooth; propodeal spiracle round, not touching pleural carina (Fig. 1E) ..... *Z. multicolor*
- Ovipositor with strong teeth in the dorsal part of the tip (Fig. 2F); propodeal spiracle round, touching the pleural carina ..... *Z. semirufus*

<sup>1\*</sup>*Zaglyptus multicolor* (Gravenhorst, 1829)  
(Figs. 1, 3A, 3B)

*Pimpla fairmairii* Laboulbène, 1858: 797–817. Lectotype: female; type depository: MNHN.

*Polysphincta moldavicus* Constantineanu, 1929: 387–642. Type: lost.

**Material examined.** South Korea: 1♀, Busan-si: Geumjeong-gu, Mt. Geumjeongsan, Seongbul temple, 9 Oct 2015, Lee JW (YNU); 2♀♀, CN: Boryeong-gun, Mt. Oseosan, 29 Jun–9 Sep 1999, Ku DS (YNU); 1♂, GB: Gyeongsan-si, Yeungnam Univ., 25 Apr 2013, Kim KB (YNU); 1♀, Mt. So-baeksan National Park, 31 Jul 1986, Kim HG (YNU); 1♀, GG: Gapyeong-gun, Oeseo-myeon, Cheongpyeongdaem, 14 Jun 1991, Lee JW (YNU); 1♀, GN: Jinju-si, Ibanseong-myeon, Daecheon-ri, 26 Sep–5 Oct 2005, Ahn BK (YNU); 1♀, GW: Wonju-si, Heungjuop-myeon, Maeji-ri, Yensei Univ., 21 Apr–29 May 2015, Han HY (YNU); 1♀, Daejeon-si, Dong-gu, Daejeon Univ., 19–28 Apr 2006, Lee JW (YNU).

**Diagnosis.** Female: Body length 7.0–7.5 mm.

Color: Head black (Fig. 1B); clypeus reddish yellow; palpi pale yellow; ventral part of scape yellowish brown, basal half of antenna blackish brown, apical half of antenna yellowish brown. Mesosoma yellow, reddish yellow to black, generally black; lateral lobes of mesoscutum, mesopleuron and metapleuron reddish yellow; tegula, scutellum and postscutellum yellow; lateral apical tubercles of propodeum reddish yellow in dorsal view (Fig. 1D). All legs pale yellow to yellowish brown; mid tibia with weak brown marks; hind tibia with distinct basal and apical dark brown bands; hind basitarsus and second tarsus darken apically. Metasoma black, basal parts of tergites 3–5 yellowish brown. Ovipositor reddish brown and ovipositor sheath black.

Face polished, with hairs; apical margin of clypeus emarginated (Fig. 1B); antenna with 24 flagellomeres; malar space densely granulate. Pronotum shiny (Fig. 1C), with short and distinct epomia; mesoscutum roughly punctate; with strong notauli, extending at the middle of mesoscutum; propodeum rugosely punctate, without carina except for the pleural carina (Fig. 1D); propodeal spiracle round, not touching the pleu-

ral carina (Fig. 1E); hind wing with five distal hamuli; hind tarsal claw strongly curved with tooth. Metasoma depressed, tergites 3–5 each with a pair of lateral impunctate swellings (Fig. 1G).

Male: Body length 5.0 mm. Similar to female except antenna with 25 flagellomeres; apical margins of hind tarsi with weakly dark brown bands; metasoma slender and compressed (Fig. 3B).

**Distribution.** South Korea (new record), Austria, Belarus, Belgium, Bulgaria, China, Czech Republic, Finland, France, Georgia, Germany, Hungary, Iran, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Moldova, Mongolia, Netherlands, Norway, Poland, Romania, Russia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, Uzbekistan.

**Host.** [Arachnida] *Araniella cucurbitina*, *Clubiona phragmitis*, *Enoplognatha lineata*, *Euryclubiona reclusa*, *Metamerianae* (Yu et al., 2016).

<sup>2\*</sup>*Zaglyptus semirufus* Momoi, 1970 (Figs. 2, 3C, 3D)

*Zaglyptus semirufus* Momoi, 1970: 327–399. Type: female; type depository: BBM.

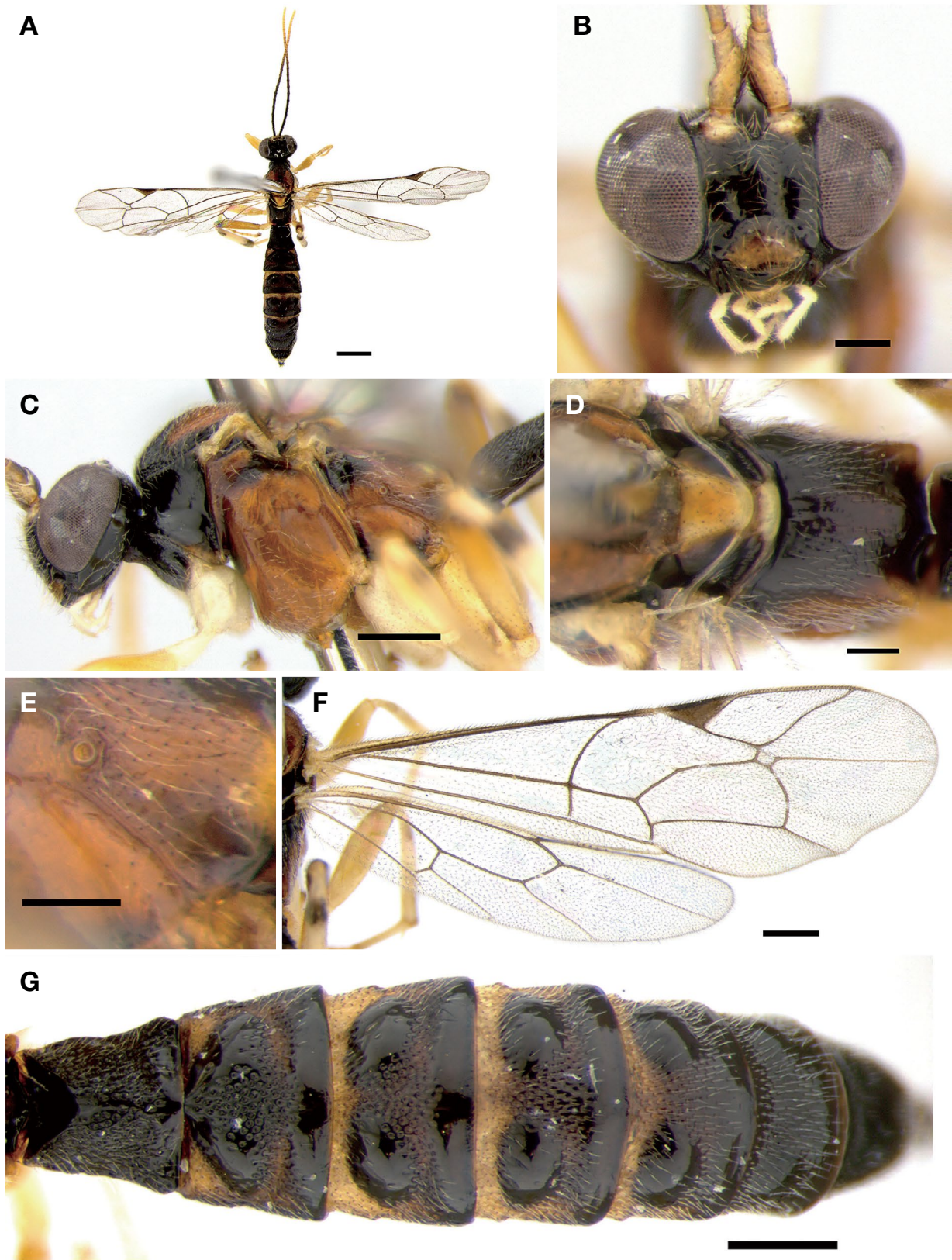
**Material examined.** South Korea: 1♀, GG: Anyang-si, Manan-gu, Kwanga Arb., alt. 133 m, 26 Jul–7 Aug 2008, Lim JO (YNU); 1♂, Seoul: Cheongyangri-dong, Dongdaemun-gu, 12–20 Sep 2005, Choi WI (YNU); 1♀, JN: Suncheon-gun, Songgwang-myeon, Sinpyeong-ri, Songgwangsa, Jogyecheon, 1 Aug 1990, Lee JW (YNU).

**Diagnosis.** Female: Body length 6.0–6.5 mm.

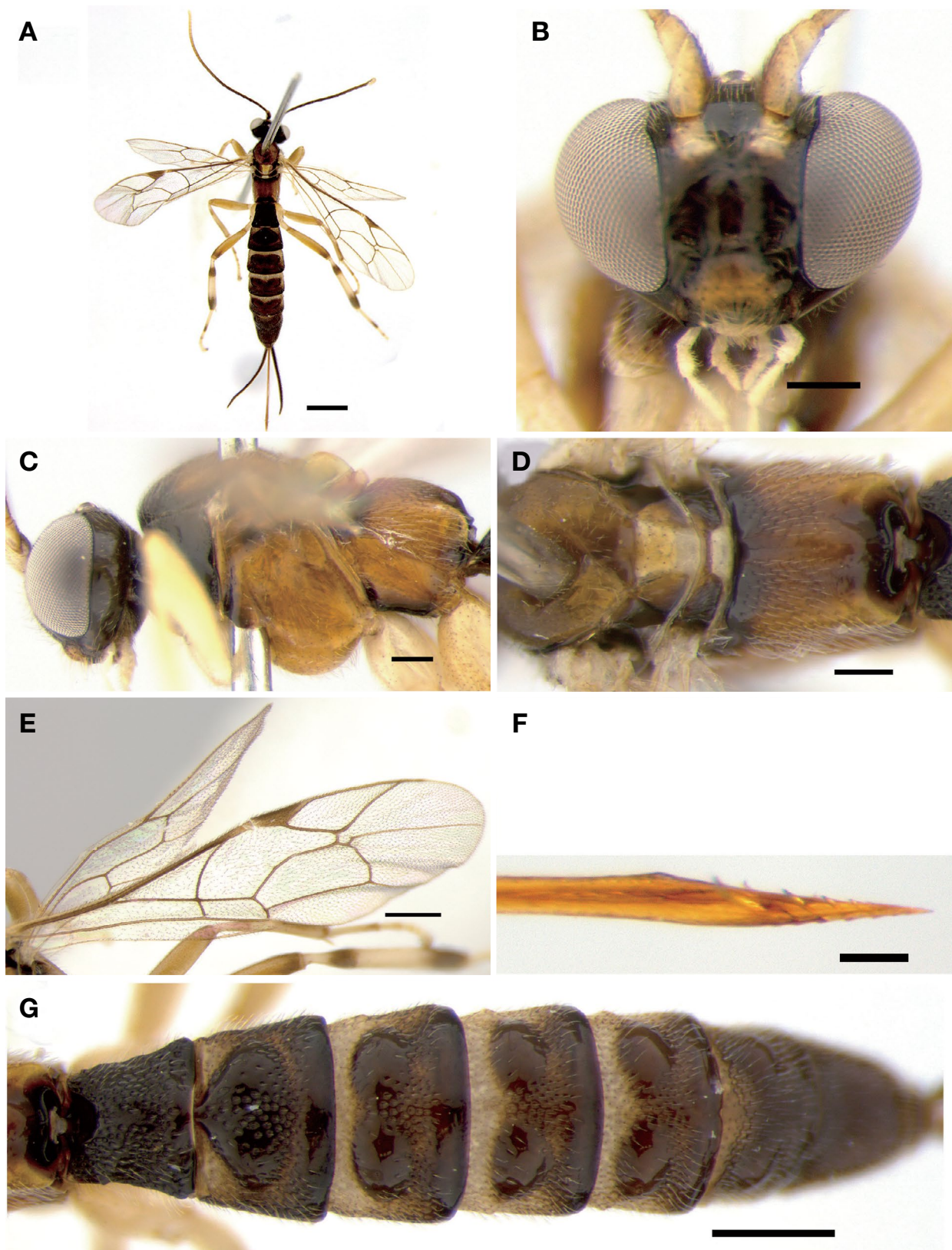
Color: Head black; below of the antennal scape yellow; clypeus reddish yellow; palpi pale yellow; ventral part of antenna yellow, dorsal part of antenna dark brown; scape yellow. Mesoscutum reddish brown to dark brown; mesopleuron and metapleuron reddish yellow; pronotum black; propodeum reddish yellow except basal and apical margins black; scutellum and postscutellum yellow. All legs yellow except mid and hind femora yellowish brown; mid and hind tibiae with basal and apical brown bands; hind basitarsus and second tarsus darken apically. Metasoma dark reddish brown; basal parts of metasomal tergites 2–5 brown. Ovipositor reddish brown and ovipositor sheath black.

Face polished, with hairs; apical margin of clypeus emarginated (Fig. 2B); antenna with 24 flagellomeres; malar space densely granulate. Pronotum shiny (Fig. 2C), with short and distinct epomia; mesoscutum moderately punctate; with strong notauli; propodeum rugosely punctate and posterior part weakly wrinkled, without carina except pleural carina (Fig. 2D); propodeal spiracle round, touching pleural carina; hind wing with five distal hamuli; hind tarsal claw strongly

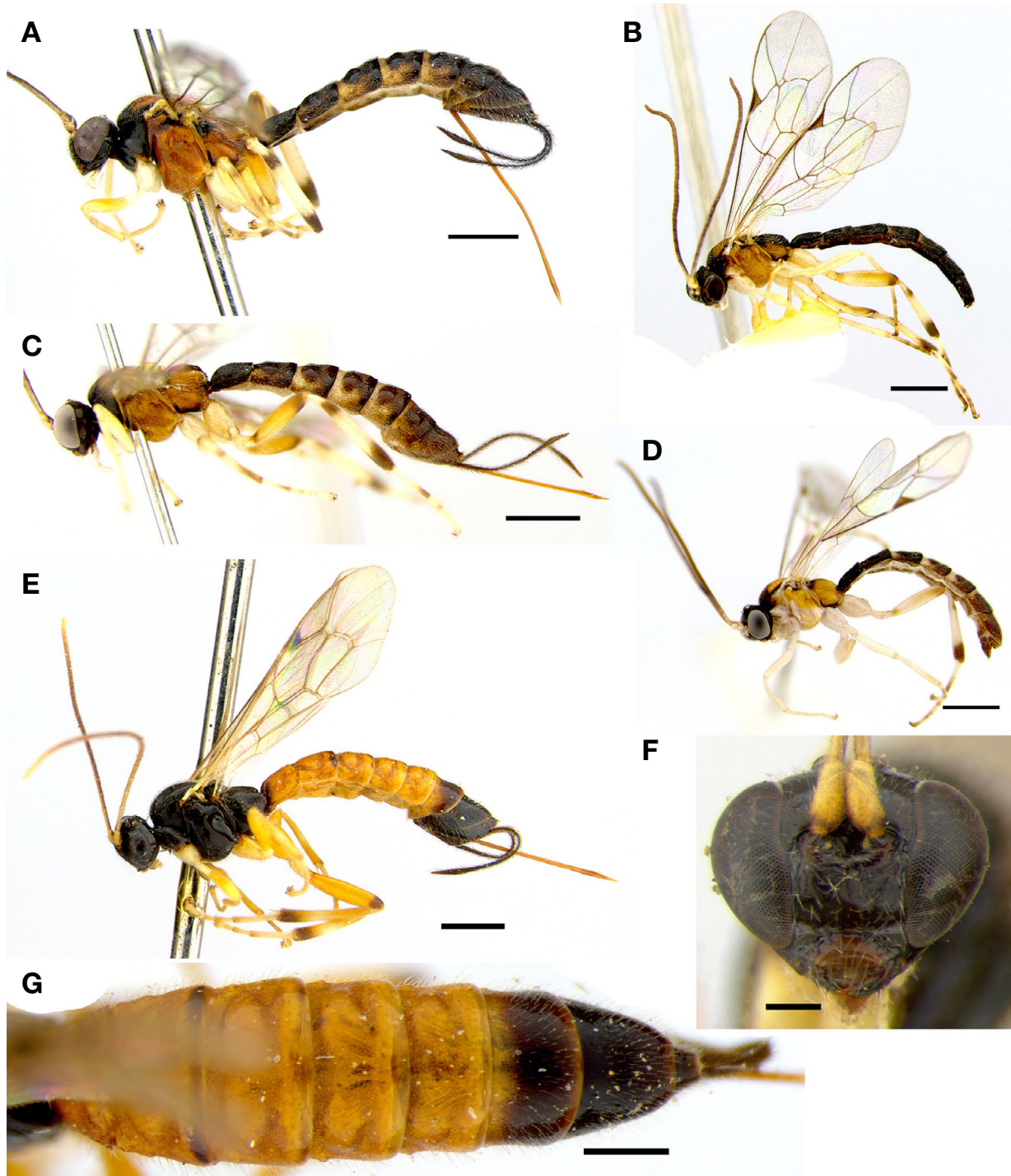
Korean name: <sup>1\*</sup>다색납작맷시벌 (신칭), <sup>2\*</sup>붉은꼬마납작맷시벌 (신칭)



**Fig. 1.** *Zaglyptus multicolor*. A, Habitus in dorsal view; B, Head in frontal view; C, Head and mesosoma in lateral view; D, Propodeum; E, Propodeal spiracle; F, Wings; G, Metasoma in dorsal view. Scale bars: A=1 mm, B, D, E=0.2 mm, C, F, G=0.5 mm.



**Fig. 2.** *Zaglyptus semirufus*. A, Habitus in dorsal view; B, Head in frontal view; C, Head and mesosoma in lateral view; D, Propodeum; E, Wings; F, Ovipositor; G, Metasoma in dorsal view. Scale bars: A=1 mm, B-D=0.2 mm, E, G=0.5 mm, F=0.1 mm.



**Fig. 3.** *Zaglyptus* spp. A–E, Habitus in lateral view; A, *Z. multicolor* (female); B, *Z. multicolor* (male); C, *Z. semirufus* (female); D, *Z. semirufus* (male); E, *Z. iwatai* (female); F, Head of *Z. iwatai* in frontal view; G, Metasoma of *Z. iwatai* in dorsal view. Scale bars: A–E=1 mm, F=0.2 mm, G=0.5 mm.

curved with tooth. Metasoma depressed, tergites 3–5 each with a pair of lateral impunctate swellings (Fig. 2G); tip of ovipositor with sharp strong teeth in upper valve (Fig. 2F).

Male: Body length 4.8 mm. Similar to female except antenna with 25 flagellomeres; pronotum yellow; hind wing with six distal hamuli; metasoma slender and compressed

(Fig. 3D).

**Distribution.** South Korea (new record), Japan, Russia.

**Host.** Unknown.

## ACKNOWLEDGMENTS

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