

New Record of the Genus *Notopygus* Holmgren, 1857 (Hymenoptera: Ichneumonidae: Ctenopelmatinae) from South Korea

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한국산 미기록속 밀들이자루맵시벌속(신칭) (벌목: 맵시벌과: 짧은자루맵시벌아과)의 1미기록종 보고

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ABSTRACT: We report the unrecorded genus and species, *Notopygus emarginatus* Holmgren, 1857, for the first time from South Korea. The genus *Notopygus* is a parasitoid wasp of Pamphiliidae (sawfly) that can be distinguished by the posterior margin of metasomal tergite eight, which frequently project strongly upwards. In the study, we provide a description and photographs of newly recorded species.

Key words: New record, Parasitoids, Sawfly, Taxonomy

초록: 본 연구에서는 한국산 미기록속인 밀들이자루맵시벌속(신칭)과 미기록종인 밀들이자루맵시벌속(신칭)을 처음으로 보고한다. 밀들이자루맵시벌속은 잎벌류에 기생하는 것으로 알려져 있으며, 배마디 끝부분이 위쪽으로 굽어져있는 것이 특징이다. 본 논문에는 미기록속, 미기록종의 기재문과 사진을 제공한다.

검색어: 미기록, 기생벌, 잎벌류, 분류

The genus *Notopygus* Holmgren, 1857 comprises 17 species worldwide, belonging to the subfamily Ctenopelmatinae (Hymenoptera: Ichneumonidae). Among them, nine species from the Western Palaearctic, seven from the Eastern palaearctic, four from the Nearctic, and one from the Oriental regions have been described. The subfamily Ctenopelmatinae Förster, 1869 comprises 107 genera with more than 1,510 species (Yu et al., 2016). *Notopygus* have the following characteristics: posterior margin of last metasomal tergite, which frequently project strongly upwards; hypopygium of female specimen strongly

enlarged and convex at the posterior margin; ovipositor and ovipositor sheath upcurved. Kasparyan (2002) revised the Palaearctic species and Kasparyan and Khalaim (2007) provided the key to the Eastern Palaearctic *Notopygus*. In this study, we report genus and an unrecorded species of *Notopygus* for the first time from Korea. Description and photographs of *Notopygus emarginatus* Holmgren, 1857 are provided.

Materials and Method

The materials used in this study were collected by sweeping and deposited in the Insect Inquiry · Education Institute, Daegu National University of Education (DNUE-IIIEI, Daegu, South

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Korea) and National Institute of Biological Resources (NIBR, Incheon, Korea). The morphological terminology follows Gauld (1991) and Broad et al. (2018), and the distributional data follows Yu et al. (2016). The specimen was examined using a Leica MC190 HD Camera attached to a Leica M125 Microscope (Leica Microsystems, Germany) with images processed using LEICA LAS X software (Leica). The abbreviations are follows: **NM**, Naturwissenschaftliche Sammlungen der Stadt Krefeld, Brempter Hof, Krefeld-Uerdingen, Germany; **NR**, Naturhistoriska Riksmuseet, Sektionen för Entomologi, Stockholm, Sweden.

Results

Family Ichneumonidae Latreille, 1802 맵시벌과

Subfamily Ctenopelmatinae Förster, 1869 짧은자루맵시벌아과

Genus *Notopygus* Holmgren, 1857 밑들이자루맵시벌속(신칭)

Notopygus Holmgren, 1857: 115. Type species: *Notopygus emarginatus*

Antipygus Tschek, 1869: 437-448. Type species: *Antipygus megerlei*

Notopygus emarginatus Holmgren, 1857 (Figs 1 and 2) 밑들이짧은자루맵시벌(신칭)

Notopygus emarginatus Holmgren, 1857: 115. Lectotype: female; type locality: Sweden; type depository: NR.

Notopygus sinifer Ulbricht, 1922: 181-184. Type: female; type locality: Germany; type depository: NM.

Description. Female. Fore wing 9.0 mm, body 13.0 mm.

Color. Body generally black. Antenna black, 19-28 flagellomeres yellow to reddish brown. Median portion of mandible yellowish brown, basal black. Tegular reddish brown; all coxae black; legs brown to reddish brown, femora darker than other parts; hind femur almost black. Second to third metasomal tergites reddish brown.

Head: Face punctate with setae, weakly convex; lower face (length of between antennal socket and apical clypeal margin) 0.76 times as long as wide; median portion of face slightly convex, upper margin of the face with a small median tubercle. Occipital carina complete. Inner antennal sockets with longi-

tudinal carina; between the antenna socket and eye with obvious longitudinal concavity. Mandible distinctly elongate and bidentate, the upper tooth slightly shorter than lower tooth; basal portion of mandible with dense longitudinal wrinkles on black spot. Malar space 0.3 times as long as basal width of mandible. Vertex indistinct punctures, postero-median portion distinctly concave. Irregular wrinkles between the ocellus and eye flat; lower half of frons irregular wrinkles. Antenna with 39 flagellomeres; ratios of lengths from first to fifth flagellomeres 16: 14: 11: 11: 10. **Mesosoma:** Epomia distinct. Mesoscutum shiny, with notauli. Scutellum and postscutellum with lateral carinae. The upper half of the mesopleuron flat and shiny inpunctate; lower half of mesopleuron with dense punctures. Juxtacoxal carina indistinct, submetapleural carina distinct. Propodeal spiracle round, not reaching pleural carina. Propodeum with distinct median longitudinal carinae, subparallel; area petiolaris shiny and inpunctate; costula absent. M&Rs (basal vein) distal to 1Cu-a (nervulus); 2m-cu (second recurrent vein) with two bullae; areolet with a stalk. Hind wing with nine distal hamuli; nervellus inclivous, intercepted at lower 0.5. **Metasoma:** First metasomal tergite approximately 2.0 times as long as apical width, median dorsal carinae reaching apical 0.2; interspace between median dorsal carinae slightly concave, smooth, and polished; latero-median carina of first metasomal tergite distinct. Basal 0.4 with a pair of median longitudinal carinae on second metasomal tergite, from the spiracle to base with a strong carina. Posterior margin of metasomal tergite eight deeply emarginate, sharply upcurved and projecting upwards. Ovipositor short and strongly upcurved.

Material examined. [South Korea] 1 ♀, Gwangwon-do, Hoengseong-gun, Mt. Maehwasan, N37°23'37" E128°05'30", Alt. 610 m, 27.vi-1.viii.2015, D.S. Choi (DNUE_IIIEI); 1 ♀, Sobaeksan National Park, 5.vii.2010 (NIBR_ULFUIN0000010942); 1 ♀, Sobaeksan National Park, Birosa. 26.v-23.vi.2016, J.W. Lee (DNUE_IIIEI); 1 ♀, Chungcheongbuk-do, Danyang-gun, Yongchun-myeon, Namcheon-ri, San 60-10, 4-25.v.2016, S.W. Suck (DNUE_IIIEI).

Distribution. South Korea (new record), Austria, Belgium, China, Czech republic, Slovakia, Finland, France, Germany, Poland, Russia, Sweden, Switzerland, Ukraine, United Kingdom.

Region. Eastern Palaearctic and Western Palaearctic.

Remarks. Sun and Sheng (2014) examined specimens

deposited in the NHM (the Natural History Museum, London) and ZSM (the Zoologische Staatssammlung München), they reported that female specimens have a slight variation in the

color of the antennal basal portion and hind femur.

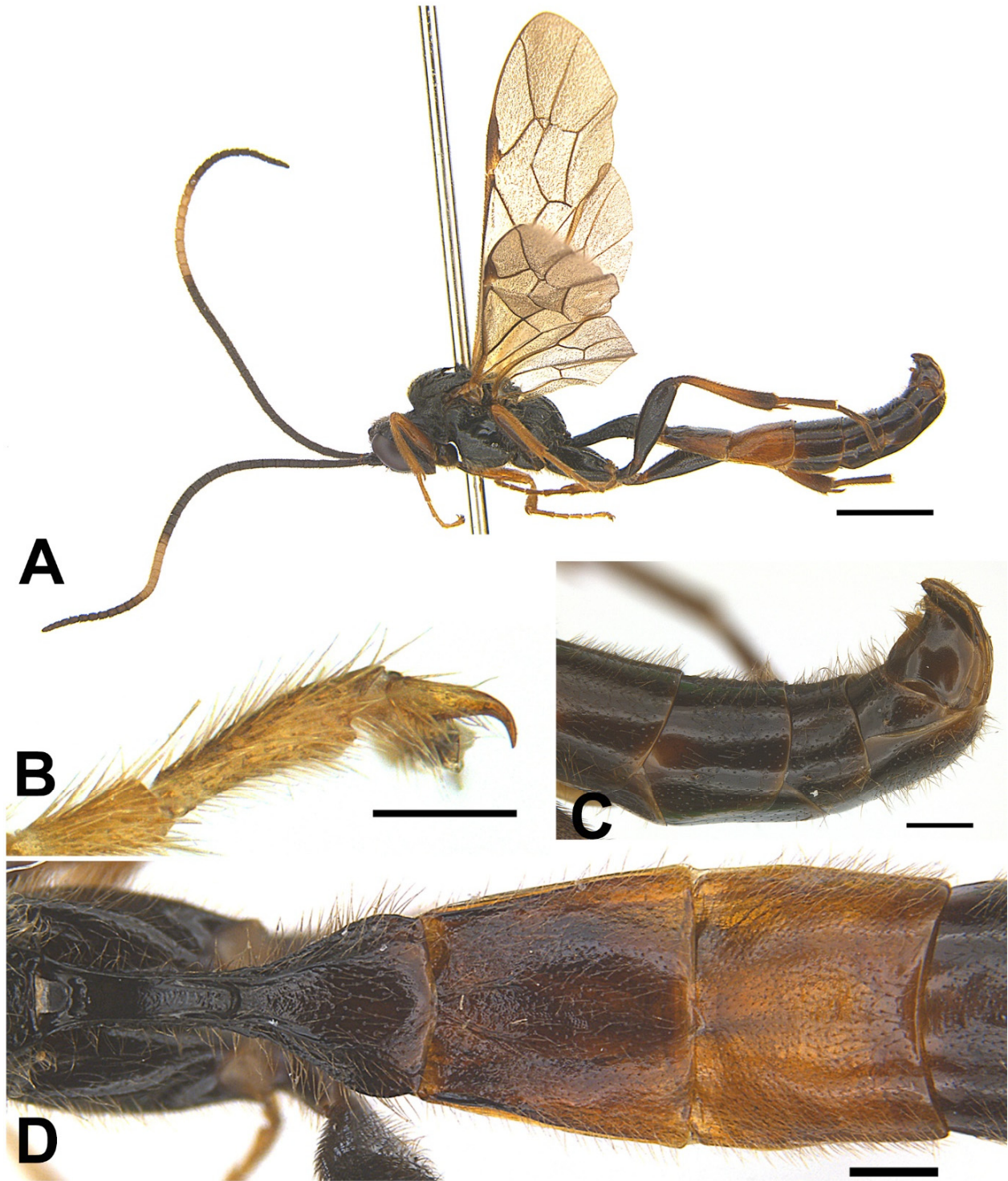


Fig. 1. *Notopygus emarginatus*. A. Habitus in lateral view; B. Hind tarsal claw; C. Apical metasomal tergites; D. First to third metasomal tergites. Scale bars: A: 2.0 mm; B: 0.2 mm; C, D: 0.5 mm.

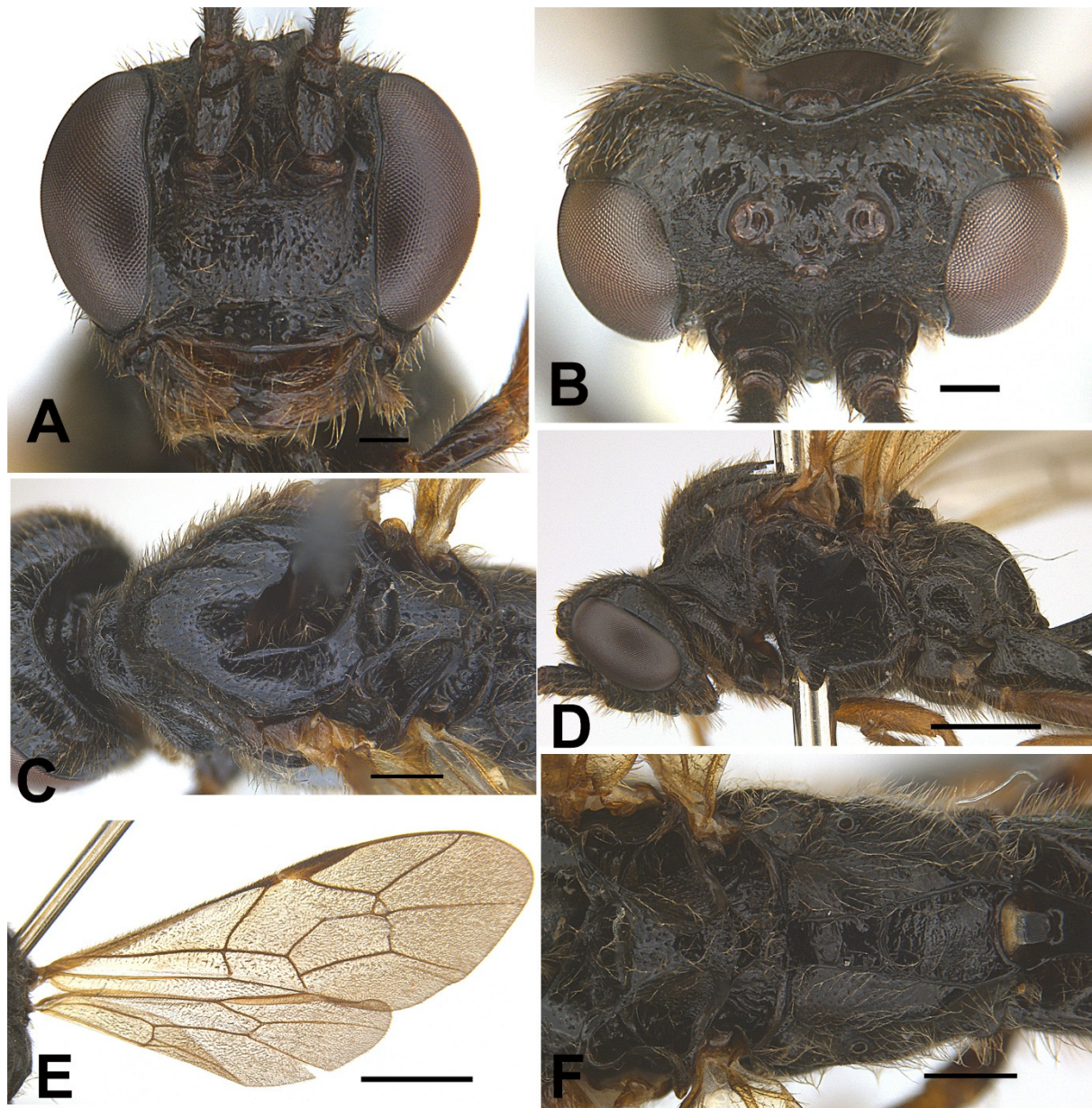


Fig. 2. *Notopygus emarginatus*: A. Head in frontal view; B. Head in dorsal view; C. Mesoscutum in dorsal view; D. Head and mesosoma in lateral view; E. Wings; F. Propodeum. Scale bars: A, B: 0.2 mm; C, F: 0.5 mm; D: 1.0 mm; E: 2.0 mm.

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Statements for Authorship Position & Contribution

Choi, J.-K.: Daegu National University of Education, Department of Science Education, Professor, Ph. D.; Designed the research and wrote the manuscript

Lee, J.-W.: Georim Entomological Institute, Professor, Ph. D.; Provided specimens and revised the manuscript

All authors read and approved the manuscript.

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