

# Four *Gyrophana* Species New to Korea (Coleoptera: Staphylinidae: Aleocharinae)

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## ABSTRACT

Four *Gyrophana* Mannerheim species—*Gyrophana harmandi* Fauvel, *G. lewisiana* Cameron, *G. puncticeps* Bernhauer and *G. rousi* Dvořák—are reported for the first time in Korea. Redescriptions, habitus illustrations, and line drawings of diagnostic characters are provided.

**Key words:** Coleoptera, Staphylinidae, Aleocharinae, *Gyrophana*, Korea

## INTRODUCTION

The genus *Gyrophana* Mannerheim contains more than 210 species from the Palearctic region (Smetana, 2004). Six species have been recorded to date in Korea (Bernhauer, 1936; Yuh et al., 1985; Pašnik, 2001). Biology and diagnostic characters of *Gyrophana* were presented by Ashe (1984).

While working on the taxonomy of the Korean *Gyrophana*, we found four *Gyrophana* species—*Gyrophana harmandi* Fauvel, *G. lewisiana* Cameron, *G. puncticeps* Bernhauer and *G. rousi* Dvořák—new to the Korean fauna. In this paper, we provide redescriptions, habitus photos, and line drawings of the diagnostic characters. The specimens used in this study are deposited in the Chungnam National University Insect Collection (CNUIC, Daejeon), Korea.

## RESULTS

### <sup>1</sup>\**Gyrophana harmandi* Fauvel, 1901 (Figs. 1A, 2)

*Gyrophana harmandi* Fauvel, 1901: 4; Smetana, 2004: 444.

*Material examined.* KOREA: Gangwon Prov., Pyeongchang-gun, Jinbu-myeon, Odaesan Mt., Sangwonsa, 21 IX 2006, SJ Park, SI Lee, YH Kim, *ex* mushroom (42♂♀, CNUIC).

*Redescription.* Length about 2.0-2.2 mm. Body (Fig. 1A) broad and elongate in dorsal aspect. Surface subglossy and slightly pubescent. Body light brown to brown. Head and abdominal tergites VI-VIII dark brown, leg yellow. Body widest at posterior margin of elytra. Head 1.2 times wider

than long, pronotum 1.4 times wider than long, elytra 1.5 times longer than wide. Head widest across eye, several punctures present. Antennomere 4 about 1.3 times wider than long, 5-6 about as long as wide, 7-10 about 1.1 times wider than long, 11 about 1.6 times longer than wide (Fig. 2A). Pronotum widest at middle, anterior margin straight, posterior margin broadly round (Fig. 2B). Postero-lateral angle of elytra slightly sinuate. Tergites III-VI transversely impressed. Male tergite VII with one distinct tubercle at postero-medial area (Fig. 2C). Male tergite VIII with two lateral pointed processes and posterior margin slightly pointed medially (Fig. 2D). Posterior margin of male sternite VIII truncate (Fig. 2E). Posterior margin of female sternite VIII slightly round (Fig. 2F). Median lobe cylindrical and asymmetrical, apical process of median lobe slightly curved (Fig. 2H). Flagellum long and coiled. Apical lobe of paramere as in Fig. 2G. Spermatheca as in Fig. 2I.

*Remarks.* *Gyrophana harmandi* can be easily distinguished from other Korean *Gyrophana* species by the following features: male tergite VII with one tubercle as in Fig. 2C, male tergite VIII with two processes as in Fig. 2D, and the structure of median lobe as in Fig. 2H.

*Distribution.* Korea and Japan.

### <sup>2</sup>\**Gyrophana lewisiana* Cameron, 1933 (Figs. 1B, 3)

*Gyrophana lewisiana* Cameron, 1933: 175; Smetana, 2004: 444.

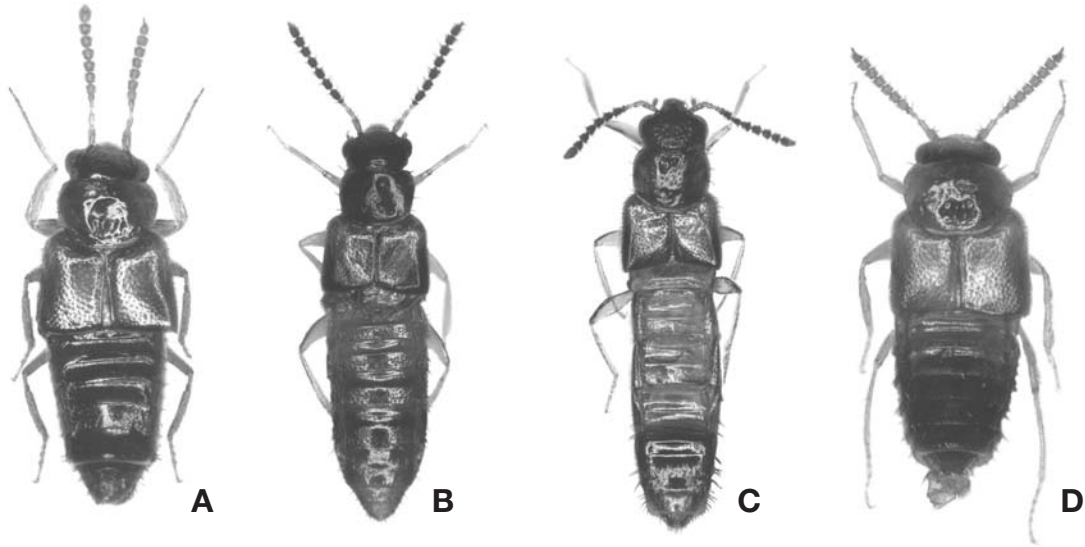
*Material examined.* Syntype, 1, labeled as follows: Japan, Settsu, Katsuoji, J.E.A. Lewis, M. Cameron. Bequest. B. M. 1955-147, *G. lewisiana* Cam., *Gyrophana lewisiana* Cam., P.M. Hammond det. 1973 syntype; KOREA: Chungnam Prov., Gongju-city, Banpo-myeon, Sangsin-ri, Mt. Gyeryong-san, 26 VIII 2001, MH Kim, *ex* mushroom (72♂♀, CNUIC);

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**Fig. 1.** A, *Gyrophaena harmandi*, 2.2 mm; B, *Gyrophaena lewisiana*, 2.3 mm; C, *Gyrophaena puncticeps*, 2.6 mm; D, *Gyrophaena rousi*, 1.7 mm.

*Chungnam Prov.*, Daejeon-city, Mt. Sikjangan, Seocheon park, 30 VII 2000, MH Kim, *ex* mushroom (24♂ ♀, CNUIC); *Chungbuk Prov.*, Boeun-gun, Mt. Sokrisan, 25 VII 1999, MH Kim *ex* mushroom (94♂ ♀, CNUIC).

**Redescription.** Length about 2.2-2.5 mm. Body (Fig. 1B) broad and elongate in dorsal aspect. Surface subglossy and slightly pubescent. Body light brown to brown. Head, abdominal tergites VI-VIII and antennomeres 4-11 dark brown, antennomeres 1-3 and leg yellow. Body widest at posterior margin of elytra. Head 1.2 times wider than long, pronotum 1.3 times wider than long, elytra 1.4 times longer than wide. Head widest across eye, several punctures present. Antennomere 4 about 1.4 times wider than long, 5 about 1.4 times longer than wide, 6-7 about 1.3 times longer than wide, 8 about 1.2 times longer than wide, 9 about 1.1 times longer than wide, 10 about as long as wide, 11 about 1.9 times longer than wide (Fig. 3A). Pronotum widest at middle, anterior margin and posterior margin broadly round (Fig. 3B). Postero-lateral angle of elytra not sinuate. Tergites III-VI transversely impressed. Male tergite VIII with two lateral pointed processes and posterior margin truncate (Fig. 3C). Posterior margin of male sternite VIII round (Fig. 3D). Posterior margin of female sternite VIII convex, more or less round (Fig. 3E). Median lobe cylindrical and asymmetrical, apical process of median lobe slightly curved (Fig. 3G). Flagellum long and coiled. Apical lobe of paramere as in Fig. 3F. Spermatheca as in Fig. 3H.

**Remarks.** *Gyrophaena lewisiana* is similar to *G. puncticeps*, but can be distinguished by the following features: posterior

margin of pronotum broadly round as in Fig. 3B and male tergite VIII with two processes as in Fig. 3C.

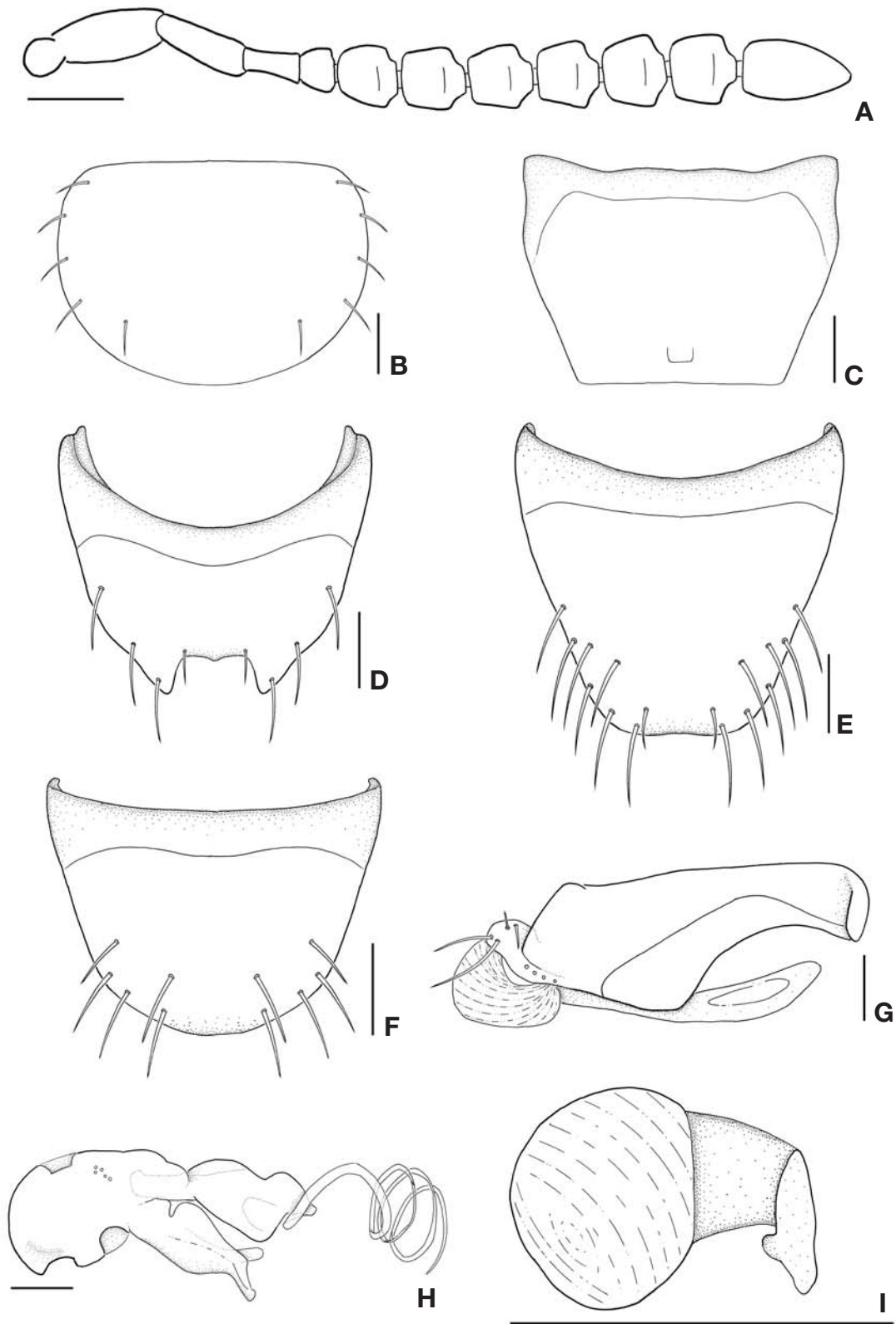
**Distribution.** Korea and Japan.

<sup>1</sup>\****Gyrophaena puncticeps* Bernhauer, 1907 (Figs. 1C, 4)**  
*Gyrophaena puncticeps* Bernhauer, 1907: 389; Smetana, 2004: 445.

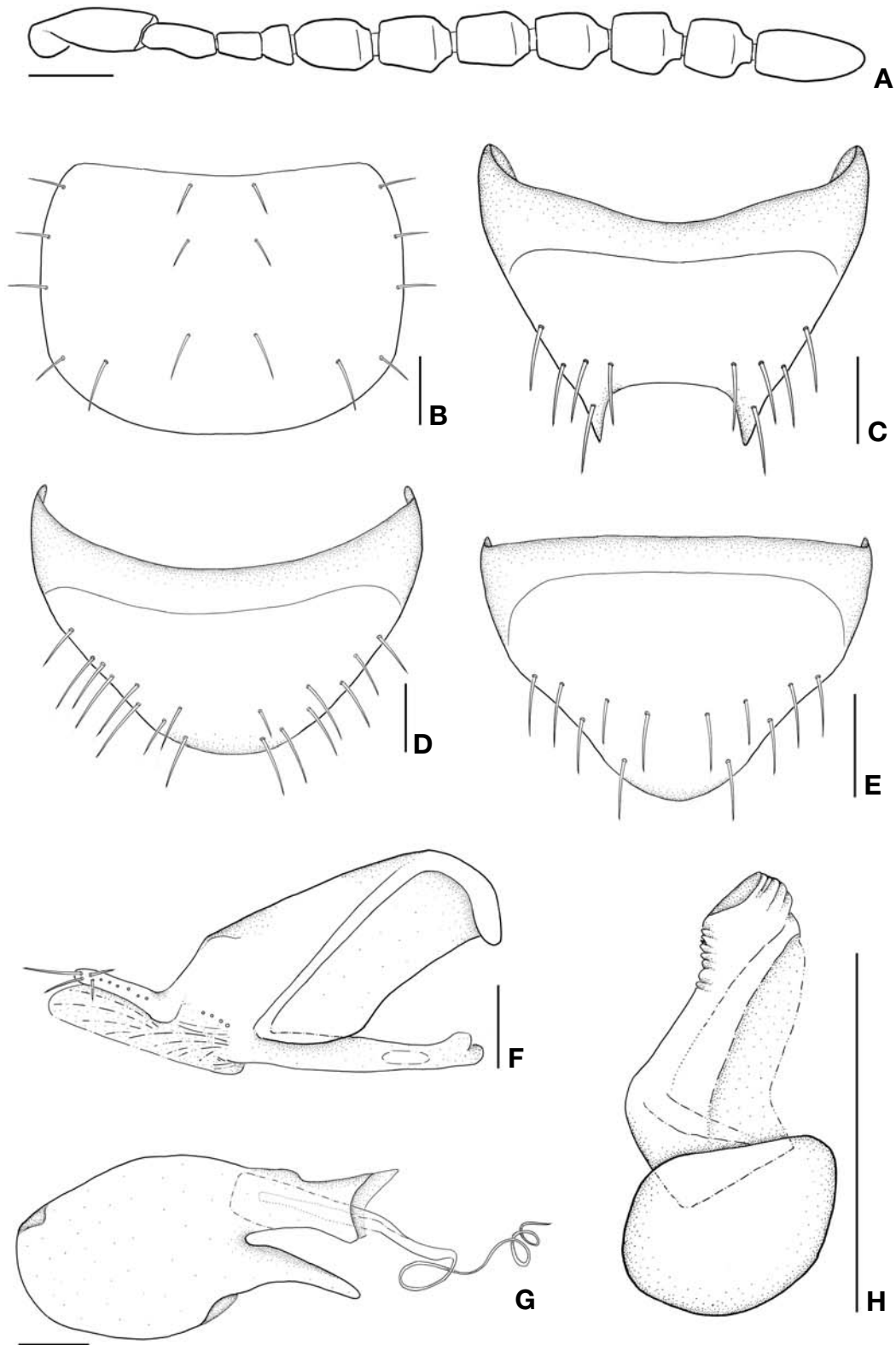
**Material examined.** KOREA: *Chungnam Prov.*, Gongju-city, Gyeryong-myeon, Yanghwa-ri, Shinwonsa, 6 VIII 2001, MH Kim, *ex* mushroom (68♂ ♀, CNUIC); *Chungnam Prov.*, Gongju-city, Gyeryong-myeon, Jungjang-ri, Mt. Gyeryongsan, Gapsa, 12 VIII 2000, MH Kim, *ex* mushroom (18♂ ♀, CNUIC); *Chungbuk Prov.*, Boeun-gun, Mt. Sokrisan, 15 VIII 1999, MH Kim, *ex* mushroom (21♂ ♀, CNUIC); *Gyeongbuk Prov.*, Sangju-city, Hwanam-myeon, Imgok-ri, Mt. Cheontaeksan, 27 VII 2001, MH Kim, *ex* mushroom (28♂ ♀, CNUIC).

**Redescription.** Length about 2.6-2.9 mm. Body (Fig. 1C) moderate and elongate in dorsal aspect. Surface subglossy and slightly pubescent. Body light brown to brown. Head, abdominal tergites VI-VIII and antennomeres 4-11 dark brown, antennomeres 1-3 and leg yellow. Body widest at posterior margin of elytra. Head 1.1 times wider than long, pronotum 1.2 times wider than long, elytra 1.6 times longer than wide. Head widest across eye, many distinct punctures present. Antennomere 4 about 1.2 times wider than long, 5 about 1.2 times longer than wide, 6 about 1.3 times longer than wide, 7-9 about 1.1 times longer than wide, 10 as long

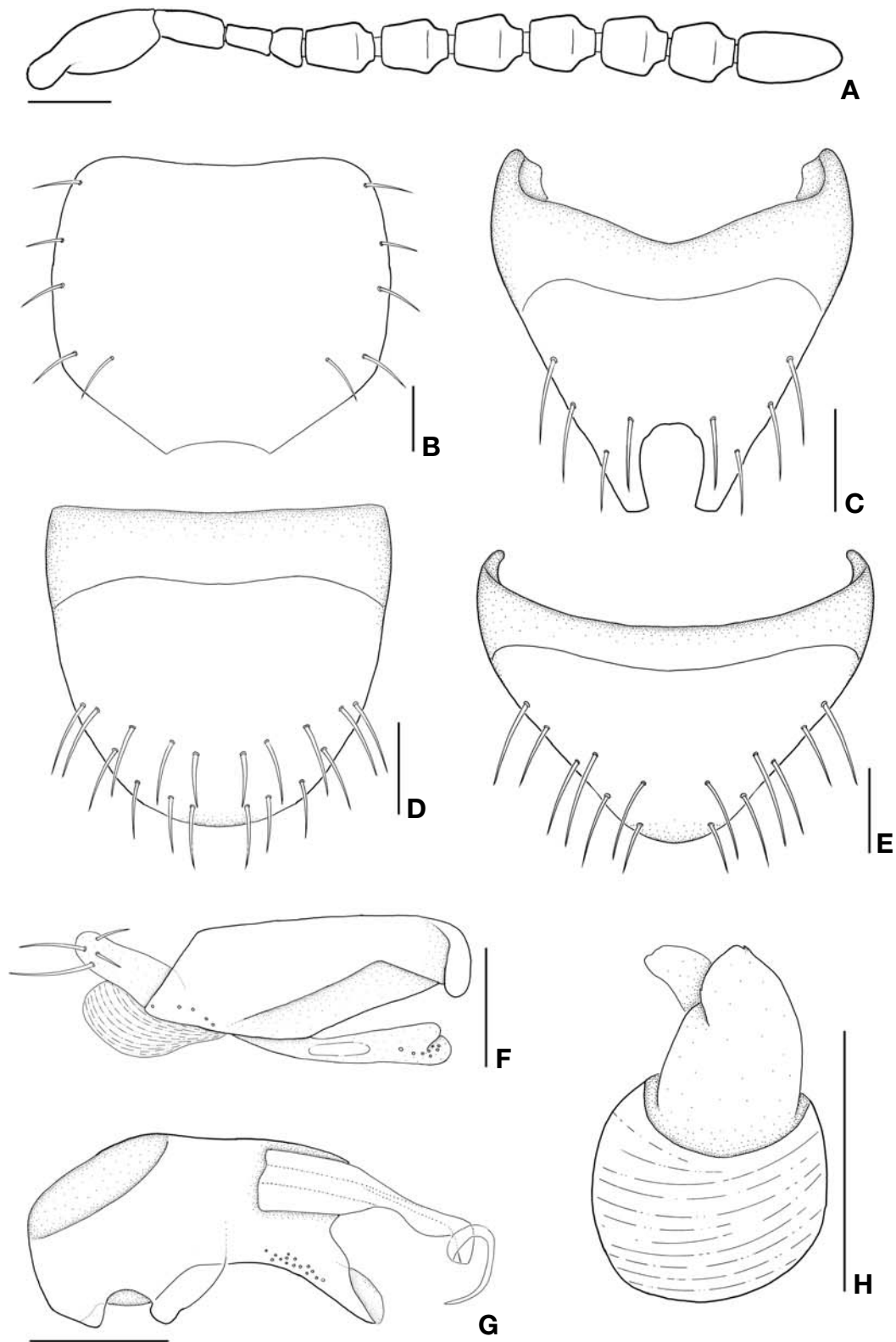
<sup>1</sup>\*긴납작버섯반날개 (신칭)



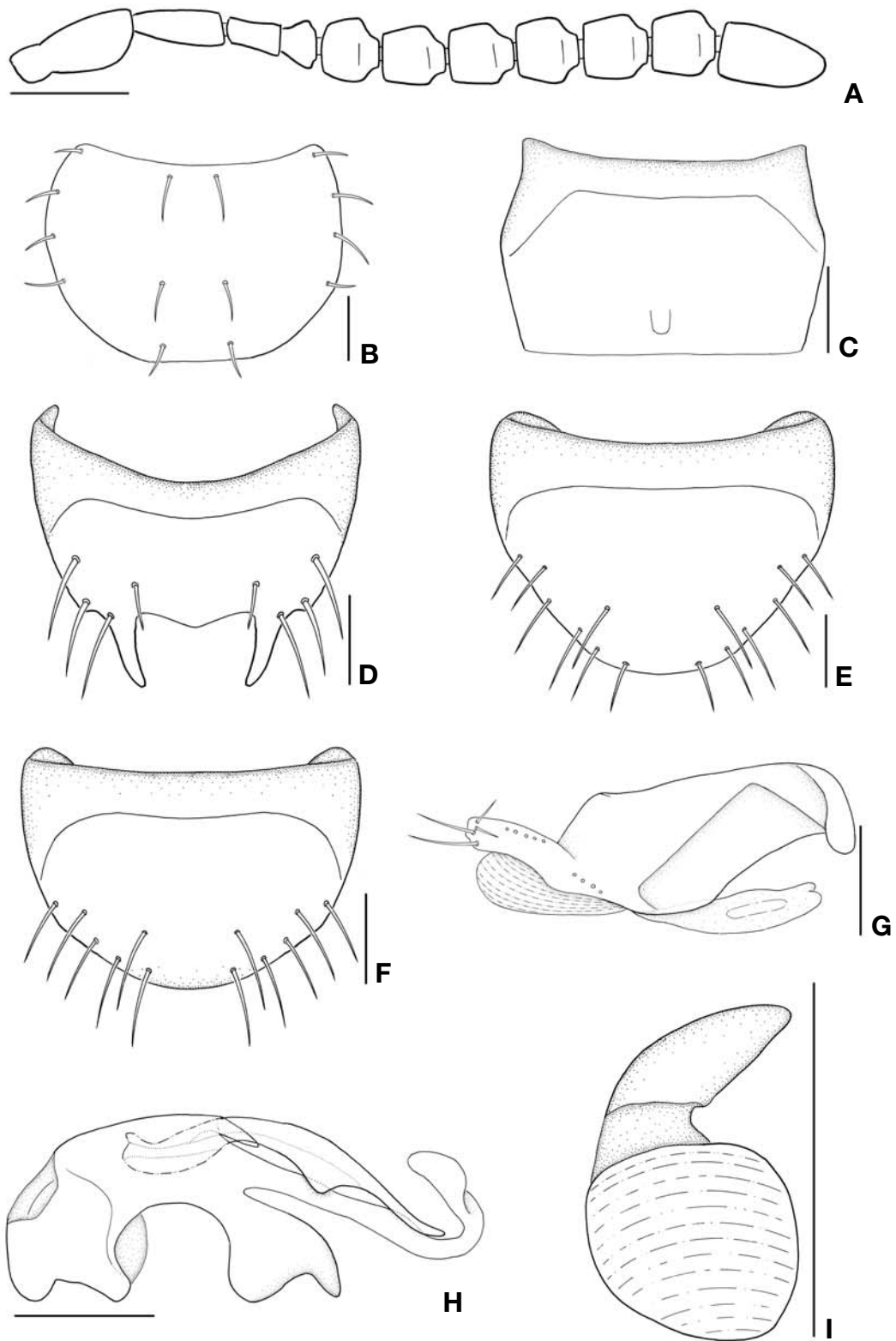
**Fig. 2.** *Gyrophaena harmandi*. A, antenna, dorsal aspect; B, pronotum, dorsal aspect; C, male tergite VII, dorsal aspect; D, male tergite VIII, dorsal aspect; E, male sternite VIII, ventral aspect; F, female sternite VIII, ventral aspect; G, paramere, lateral aspect; H, median lobe, lateral aspect; I, spermatheca, lateral aspect. Scale bars=0.1 mm.



**Fig. 3.** *Gyrophaena lewisiana*. A, antenna, dorsal aspect; B, pronotum, dorsal aspect; C, male tergite VIII, dorsal aspect; D, male sternite VIII, ventral aspect; E, female sternite VIII, ventral aspect; F, paramere, lateral aspect; G, median lobe, lateral aspect; H, spermatheca, lateral aspect. Scale bars=0.1 mm.



**Fig. 4.** *Gyrophaena puncticeps*. A, antenna, dorsal aspect; B, pronotum, dorsal aspect; C, male tergite VIII, dorsal aspect; D, male sternite VIII, ventral aspect; E, female sternite VIII, ventral aspect; F, paramere, lateral aspect; G, median lobe, lateral aspect; H, spermatheca, lateral aspect. Scale bars=0.1 mm.



**Fig. 5.** *Gyrophaena rousi*. A, antenna, dorsal aspect; B, pronotum, dorsal aspect; C, male tergite VII, dorsal aspect; D, male tergite VIII, dorsal aspect; E, male sternite VIII, ventral aspect; F, female sternite VIII, ventral aspect; G, paramere, lateral aspect; H, median lobe, lateral aspect; I, spermatheca, lateral aspect. Scale bars=0.1 mm.

as wide, 11 about 1.7 times longer than wide (Fig. 4A). Pronotum widest at middle, anterior margin broadly round, posterior margin as in Fig. 4B. Postero-lateral angle of elytra not sinuate. Tergites III-VI transversely impressed. Male tergite VIII with two lateral truncated processes (Fig. 4C). Posterior margin of male sternite VIII more or less round (Fig. 4D). Posterior margin of female sternite VIII convex, more or less round (Fig. 4E). Median lobe cylindrical and asymmetrical, apical process of median lobe slightly curved (Fig. 4G). Flagellum short and not coiled. Apical lobe of paramere as in Fig. 4F. Spermatheca as in Fig. 4, H.

**Remarks.** *Gyrophaena puncticeps* is similar to *G. lewisiana*, but can be distinguished by the following features: distinct structure of pronotum as in Fig. 4B and male tergite VIII with two broad processes as in Fig. 4C.

**Distribution.** Korea and Japan.

<sup>1</sup>\**Gyrophaena rousi* Dvořák, 1966 (Figs. 1D, 5)

*Gyrophaena rousi* Dvořák, 1966: 1; Lohse, 1974: 29; Smetana, 2004: 445.

**Material examined.** KOREA: *Chungnam Prov.*, Gongju-city, Mt. Gyeryongsan, Gapsa, 2 VII 2000, MH Kim, *ex* mushroom (10♂♀, CNUIC); *Gangwon Prov.*, Pyeongchang-gun, Jinbunmyeon, Mt. Odaesan, Chongmyeolbogung, 8 VII 1998, MH Kim *ex* mushroom (3♂♀, CNUIC).

**Redescription.** Length about 1.6-1.9 mm. Body (Fig. 1D) broad and elongate in dorsal aspect. Surface subglossy and slightly pubescent. Body light brown to brown. Head and abdominal tergites V-VIII dark brown, leg yellow. Body widest at posterior margin of elytra. Head 1.1 times wider than long, pronotum 1.4 times wider than long, elytra 1.5 times longer than wide. Head widest across eye, several punctures present. Antennomere 4 about 1.1 times wider than long, 5-8 about as long as wide, 9-10 about 1.1 times wider than long, 11 about 1.5 times longer than wide (Fig. 5A). Pronotum widest at middle, anterior margin straight, posterior margin broadly round (Fig. 5B). Postero-lateral angle of elytra slightly sinuate. Tergites III-VI transversely impressed. Male tergite VII with one distinct tubercle at postero-medial area (Fig. 5C). Male tergite VIII with two lateral processes and posterior margin slightly protruded medially (Fig. 5D). Posterior margin of male sternite VIII slightly round (Fig. 5E). Posterior margin of female sternite VIII slightly round (Fig. 5F). Median lobe cylindrical and asymmetrical, apical process of median lobe bifid and curved (Fig. 5H). Flagellum short and not coiled. Apical lobe of paramere as in Fig. 5G. Spermatheca as in Fig. 5I.

**Remarks.** *Gyrophaena rousi* is similar to *G. triquetra*, but

can be distinguished by the following features: antennomeres 8-10 transverse as in Fig. 5A, male tergite VII with one tubercle as in Fig. 5C, and male tergite VIII with two processes as in Fig. 5D.

**Distribution.** Korea, Central Europe, England, Germany, Slovakia and Sweden.

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