Korean J Biol Sci 4: 245-250, 2000

New Records of Blastobasidae (Lepidoptera) from Korea, with Description of a New Species

Kyu-Tek Park and Su-Young Sim

Center for Insect Systematics, Kangwon National University, Chuncheon 200-701, Korea

Key Words:
New species
Lepidoptera
Blastobasidae
Korea

A new species of Blasobasinae, *Blastobasis spiniella* Park, sp. nov., is described, and four species: *Neoblastobasis spiniharpella* Kuznetzov et Sinev, *Hypatopa silvestrella* Kuznetzov, *Hypatopa tianshanica* Sinev, and *Holcoceroides scythrella* Sinev are reported for the first time in Korea. Description, diagnosis, illustrations of the male genitalia, and collection data of these species are provided.

Family Blastobasidae is small to medium-sized, and narrow-winged moths, and includes approximately 200 species worldwide: about 113 species in the North America (Adamski and Brown, 1989), 13 species in Australia (Nielsen et al., 1996), 19 species in Europe (Karsholt and Razowski, 1996), 19 species in the Russian Far East (Sinev, 1993), and 7 species in Japan (Moriuti, 1987). However, little comprehensive studies have been conducted in other regions of the world, expecting more than 200 species to be discovered in the Neotropical Region. The family is defined by having antennal pecten and the hindwing with Rs and M_1 separate; in the male genitalia, valva with well-developed digitate valval process and saccular process, and aedeagus with a band-like internal sclerite and setose anellus near apex or middle.

Since two species of Blastobasidae, *Blastobasis sprotundalis* Park and *Neoblastobasis biceratala* (Park) were described in Korea (Park, 1984), and Park (1989) reviewed two additional species of the family, *Psuedohypatopa longicornutella* Park and *Neoblastobasis decolor* (Meyrick). Recently, Park (1994) added *Blastobasis parki* Sinev to the Korean fauna. As a result, the Korean blastobasids are enumerated to five species. In this study, we describe a new species, *Blastobasis spiniella* sp. nov., and report four species, *Neoblastobasis spiniharpella* Kuznetzov et Sinev, *Hypatopa silvestrella* Kuznetzov, *Hypatopa tianshanica* Sinev, and *Holcoceroides scythrella* Sinev, for the first time in Korea, which were specimens from the collection of the Center for Insect Systematics (CIS), Kangwon National University, and Department of Biology, University of Incheon. Abbreviations used are as follows: TL-type locality; GG-Gyunggi Province; GW-Gangwon; and GN-Gyungnam Province.

*To whom correspondence should be addressed.
Tel: 82-33-250-7258, Fax: 82-33-256-2085
E-mail: cispa@kangwon.ac.kr

Description

Genus *Blastobasis* Zeller, 1855
Blastobasis spiniella Park, sp. nov.*
(Fig. 1A, Fig. 2A-D)

Description: Male. Wingspan 10-12 mm (Fig. 1A). Head pale brownish grey, front light ochrish. Antenna more or less monochromic, dark brown; antennal notch at base of flagellum with a subconical basal process (Fig. 2B). Second segment of labial pulpus long and upturned. Forewing narrow, apex obtuse; ground color dark brown, with blackish band on 1/3 of length, almost right angle, directed outwardly; two dark brown spots at 2/3 length below middle; vein (Fig. 2A) R_1 from middle, R_2 approximate to R_3 at end of discal cell, R_4 and R_5 stalked, M_1 free, M_2, and M_3 shortly stalked, and CuA_2 arising from near lower angle of cell. Hindwing narrower than forewing, rather brown; 7-veined by coincidence of M_3 and CuA_1 which stalked with M_2. Female unknown.

Male genitalia (Fig. 2C, D). Uncus relatively short, pointed at apex; gnathos slightly pointed medially; tegumen weakly curved on posterior margin inwardly; tegumen with 6-8 setae on lateral wall. Valva with a long, digitate process arising from dorsocaudal margin, parallel-sided, with rounded apex, exceeding apex of sacculus process; plate of proximal flange covered with tiny setae on inner surface and nine strong spines, of these middle one strongest and longest. Saccus well developed, relatively narrow and broadened distally; saccular process hook-shaped, strongly curved inwardly, pointed apically. Juxta ventrolaterally folded around aedeagus, distal margin flat. Aedeagus relatively long, as long as valva, with two annelar setae at apex and 16-18 at middle; aedeagal sclerite hemicoidal, as long as aedeagus.

*작은밑두리뿔나방 (신칭)

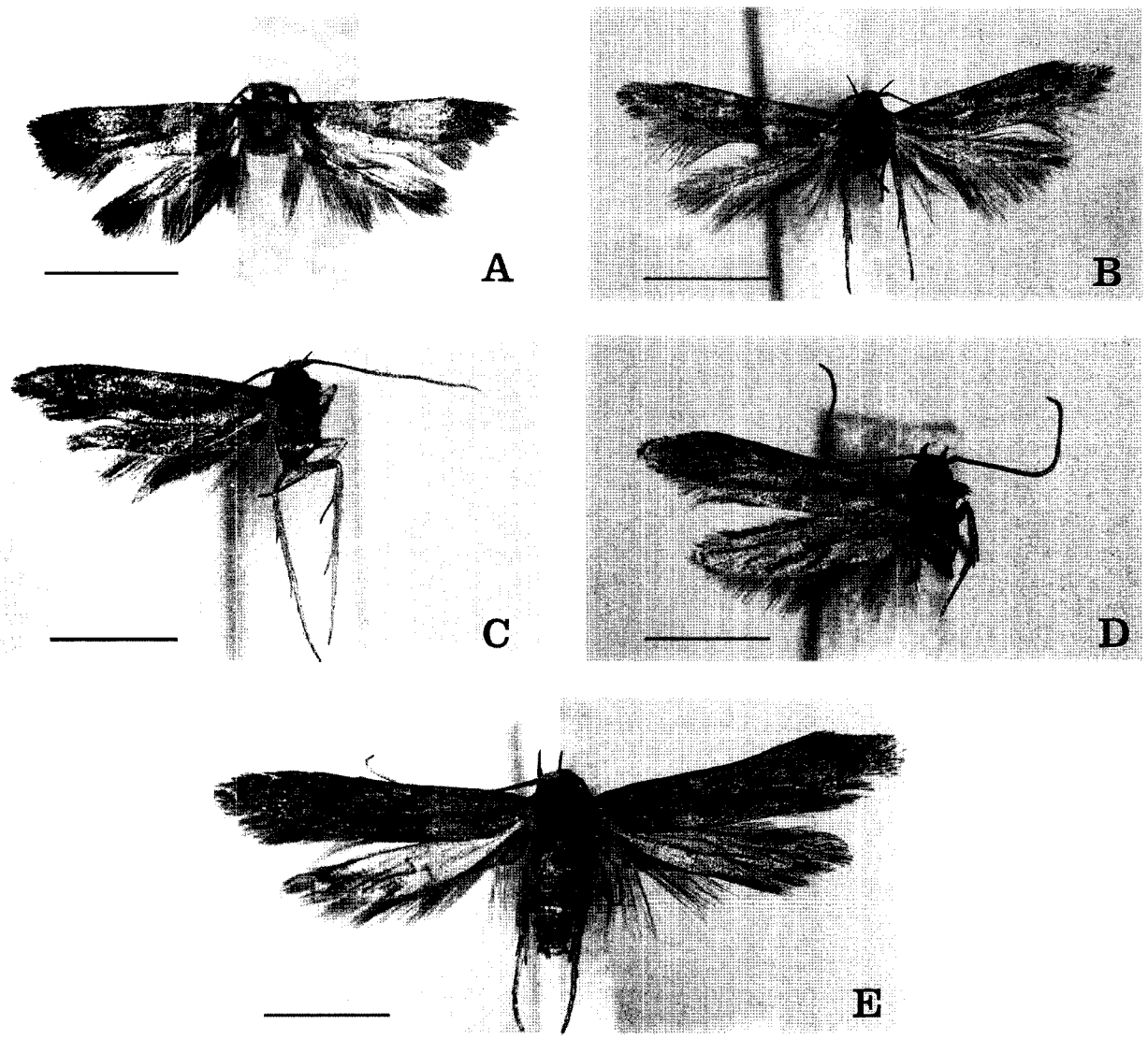

Fig. 1. A, *Blastobasis spiniella* Park, sp. nov.; B, *Neoblastobasis spiniharpella* Kuznetzov et Sinev; C, *Holcoceroides scythrella* Sinev; D, *Hypatopa tianshanica* Sinev; E, *Hypatopa silvestrella* Kuznetzov. Scale bars=3 mm.

Type: Holotype, ♂, Seomyun, Yangyang, GW, 25. VII. 1987 (K.T. Park), gen. prep. no. CIS-4588. Paratype, 1♂, Sogumgang, GW, 8. VIII. 1988 (K.T. Park), gen. prep. no. CIS-4587; 2♂, same locality, 9. VIII. 1988 (K.T. Park). Types are housed in CIS.

Distribution: Korea (South).

Remarks: This species is closely similar to *Blastobasis inouei* Moriuti, which occurs in Japan and Russia, but is easily separable from the latter by the spines with an extremely long one medially on the proximal flange of the valva in the male genitalia. In Korea, two species of the genus, *B. sprotundalis* Park and *B. parki* Sinev were previously known.

Etymology: The specific name is derived from Latin, "spinus" (= spine), corresponding to the large spine inner proximal flange of the valva.

Genus *Neoblastobasis* Kuznetzov et Sinev, 1985

Neoblastobasis spiniharpella Kuznetzov et Sinev, 1985*
(Fig. 1B, Fig. 3A-C)

Neoblastobasis spiniharpella Kuznetzov et Sinev, 1985. Acad. Sci., Zoological Journal. 64(4): 535, figs. sg, 3a; Sinev, 1986, Acad. Sci., Proc. Zool. Inst., Leningrad, 145: 61; Moriuti, 1987, Tinea, 12 (Suppl.): 174, figs. 3, 13, 21.

Diagnosis: Wingspan 10-15 mm (Fig. 1B). This species is similar to *N. biceratala* (Park) in color and markings

*네점밑두리뿔나방 (신칭)

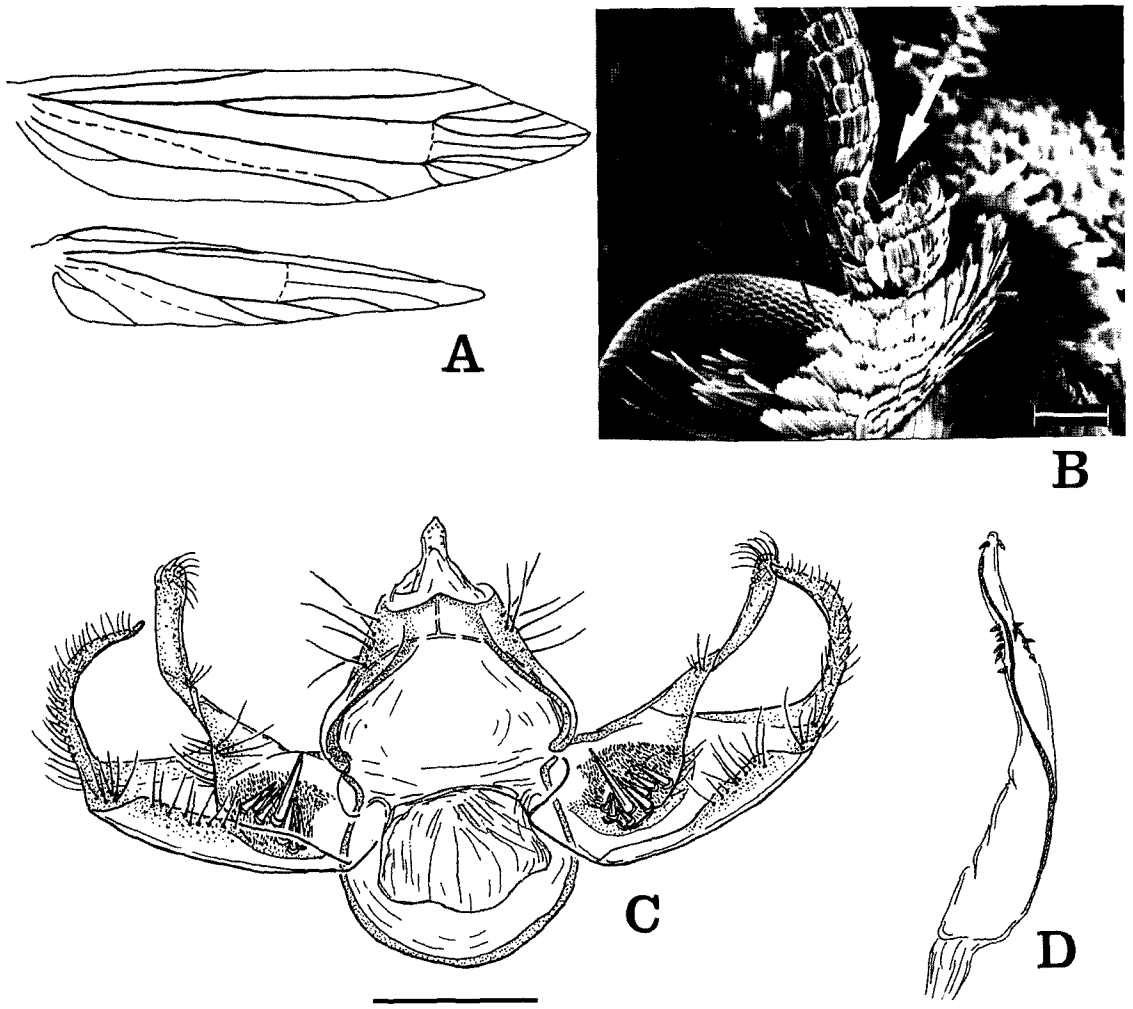

Fig. 2. *Blastobasis spiniella* Park, sp. nov.. A, Wing venation; B, Antennal notch; C, Male genitalia; D. Aedeagus. Scale bar=0.2 mm.

of the forewing, but is relatively smaller in size. Forewing with variable color, from pale brownish gray to dark gray; basal 1/3 of wing paler; crossband consisting of four dark spots in apical 1/3 of wing. Hindwing brownish gray or gray, weakly paler basally; cilia gray.

Male genitalia (Fig. 3A, B). See also Kuznetzov and Sinev (1985: 534, fig. 3a); Moriuti (1987; 175, fig. 13). Uncus rather elongated, narrowed to apex. Gnathos indented medially, with lateral dentates. Valva similar to that of *N. decolor*, but different from the latter by a extremely long spine-like, sclerotized projection near base of sacculus; slightly curved, basal half broad and tapered to apex, sharpened apically; with a plate of aggregated spicules upper projection medially; digitated process relatively stout and elongated, similar to that of *N. decolor*. Sacculus broadened basally and gradually tapering a lobe. Juxta membranous. Aedeagus slightly shorter than valva; aedeagal sclerite as long as aedeagus, with numerous annelar setae medially.

Female genitalia (Fig. 3C). See also Kuznetzov and Sinev (1985: 534, fig. 2b); Moriuti (1987; 179, figs. 21, 21a). Very similar to *Neobalstobasis biceratala* (Park), but signum projected far above wall of corpus bursa, its lower processes directed horizontally. Apophyses posterores very long, longer than three times of apophyses anteriores. Ostium bursae in the intersegmental membrane near segment-7, weakly developed, corpus bursae semiovate, with a strongly developed, thorn-like *signum*.

Material examined: 1♂, Mt. Yeogi-san, Suweon, GG, 19. VIII. 1983 (D.J. Im); 6♀, 2♂, Mt. Soyo-san, GG, 3. XI 1992 (K.T. Park); 1♀, Mt. Yumyeong-san, GG, 17. VI. 1990 (S.H. Oh and H.Y. Choi); 1♀, Mt. Cheonggae-san, Gwacheon, GG, 23. VII. 1996 (Paek, Jeon, Lee); 2♀, Mt. Cheonggae-san, Yangso-myon, GG, 25. VII. 1996 (Bae, Paek, Lee and An), gen. prep. no. CIS-4600; 1♂, Chuncheon, GW, 13. VII. 1995 (I.S. Lee and C.G. Lee), 1♀, 2♂, same locality, 20. VII. 1987 (K.T. Park and U. Park); 8♀, Mt. Samak-san, Chuncheon, GW, 19. VII. 1990 (K.T. Park); 3♂,

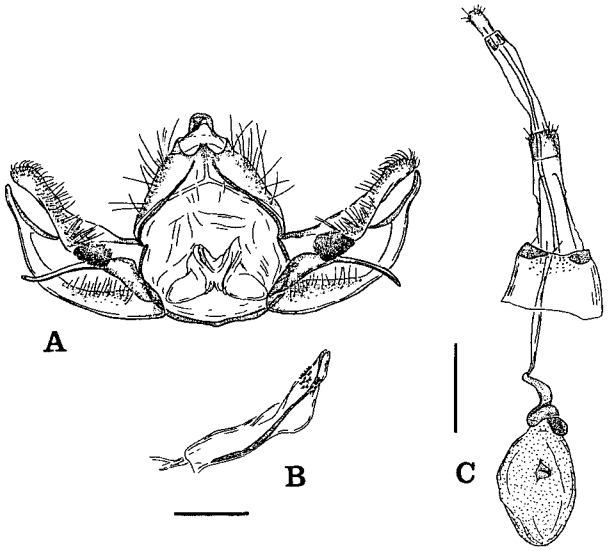

Fig. 3. *Blastobasis spiniharpella* Kuznetzov et Sinev. A, Male genitalia; B, Aedeagus; C, Female genetalia. Scale bars=0.2 mm (A, B) and 1 mm (C).

Soyang-dam, Chuncheon, GW, 3. VII. 1990 (K.T. Park), gen. prep. no. CIS-4574; 2♂, Mt. Jeombong-san, GW, 13. VII. 1997 (Paek, Lee, Jang, Choi and Kim), 1♀, same locality, 5. VIII. 1997 (Y.S. Bae and N.H. An), gen. prep. no. CIS-4599; 1♀, 1♂, Mt. Odae-san, GW, 26. VI. 1989 (K.T. Park), gen. prep. no. CIS-4518; 3♀, 2♂, Mt. Palbong-san, GW, 5. VI. 1990 (B.K. Byun); 1♀, 1♂, Mt. Seolak-san, GW, 9. VIII. 1989 (K.T. Park), 1♀, same locality, 9. VIII. 1989 (B.K. Byun); 1♀, Moon-sanri, Yongweol, GW, 25. VII. 1996 (K.T. Park); 2♀, Pyoungchang, GW, 31. VII. 1991 (K.T. Park); 1♂, Sogumgang, GW, 7. VII. 1988 (K.T. Park); 1♀, 1♂, Mt. Kwangduk-san, GW, 20. VII. 1996 (Bae, Paek, Lee, An and Jeon), gen. prep. no. CIS-4601; 4♀, Namhae, GN, 25. VII. 1985 (K.T. Park).

Distribution: Korea (Centeral, South), Japan (Honshu, Shikoku), Russian Far East.

Remarks: In Korea, two species of the genus, *N. biceratala* (Park) and *N. decolor* (Meyrick), were previously known.

Genus *Holcoceroides* Sinev, 1986
Holcoceroides scythrella Sinev, 1986*
(Fig. 1C, Fig. 4A, B)

Holcoceroides scythrella Sinev, 1986 Acad. Sci. Pro. Zool., 145: 66 [TL: Russia].

Diagnosis: Wingspan 10-15 mm (Fig. 1C). Labial palpus very long and pale brown. Antenna lacking notch at base of flagellum length about 2/3 of forewing. Female

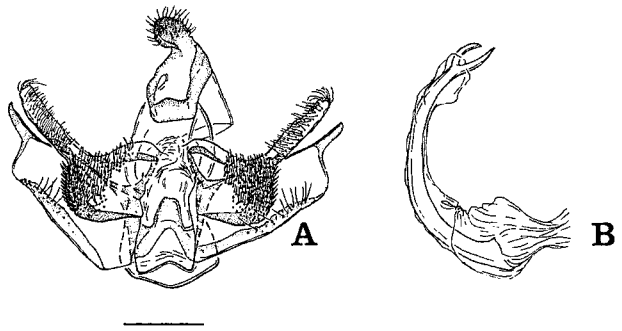

Fig. 4. *Holcoceroides scythrella* Sinev. A, Male genitalia; B, Aedeagus. Scale bar=0.2 mm.

is not found in Korea.

Male genitalia (Fig. 4A, B). See also Sinev (1986, 68: 14). Uncus semiovate, with rounded apex. Gnathos with broadened lateral arms, weakly fused with tegumen; Valva wider basally, plate of proximal flange densely setose; digitated process relatively stout, exceeding to apex of saccular process. Sacculus relatively narrow, parallel-sided; saccular process relatively short with pointed apex. Juxta with a protrusion medially, deeply emarginated on anterior margin. Aedeagus curved, longer than valva; aedeagal sclerite thick, bifurcated at apex.

Material examined: 1♂, Mt. Soyo-san, GG, 7. VII. 1996 (Bae, Paek, Lee and An), gen. prep. no. CIS-4582.

Distribution: Korea (Central), Russia.

Remark: This is the first known species of the genus *Holcoceroides* Sinev in Korea.

Genus *Hypatopa* Walsingham, 1907
Hypatopa tianshanica Sinev, 1993*
(Fig. 1D, Fig. 5A, B)

Hypatopa tianshanica Sinev, 1993. Entomol. Rev. 72(2): 372 [TL: Uzbekistan].

Diagnosis: Wingspan 12 mm (Fig. 1D). Antenna without notch. Forewing brownish dark; black band extended to 1/2 across wing; a small spot visible at 2/3 on costal margin. Hindwing brownish grey. Female is not found in Korea.

Male genitalia (Fig. 5A, B). See also Sinev (1993: 370, fig. 2). Uncus small, more or less triangular, with elongated round apex, covered with hairs. Arms of gnathos narrow, strongly sclerotized, without medial appendage. Tegmen wide, trapezoidal; vinculum narrow, ribbon-like. Maximum width of valva at basal 1/3; digitated process very stout, exceeding to apex of saccular process, covered with long hairs; plate of

*민무늬밑두리뿔나방 (신칭)

*갈색밑두리뿔나방 (신칭)

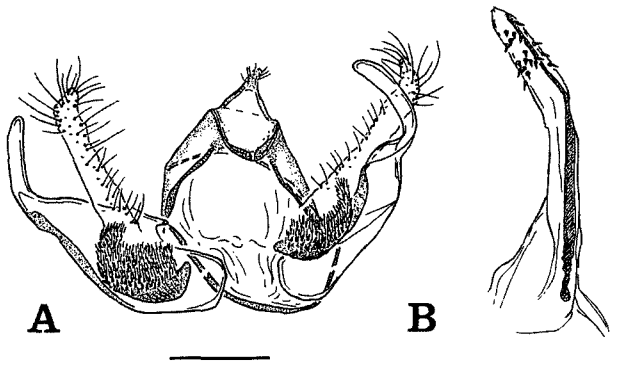

Fig. 5. *Hypatopa tianshanica* Sinev. A, Male genitalia; B, Aedeagus. Scale bar=0.2 mm.

proximal flange large, covered with tiny setae on inner surface and more strong setae along ventral margin, with a long hook-like process; sacculus heavily sclerotized, broadened basally; saccular process stout, more or less capitate; Aedeagus longer than valva, bulbous at base, with numerous annelar setae near apex; aedegal sclerite ribbon-like, heavily sclerotized, with a slightly bifid apex.

Material examined: 1♂, Mt. Gwangdeok, Hwacheon, GG, 19. VIII, 1997 (M.K. Paek and U.Y. Jang), gen. prep. no. CIS-4577.

Distribution: Korea (Central), Russia.

Remark: This and the following species are the first known species of the genus in Korea.

Hypatopa silvestrella Kuznetzov, 1984*
(Fig. 1E, Fig. 6A-C)

Hypatopa silvestrella Kuznetzov, 1984. Acad. Sci. Pro. Zool., 122: 9-10. [TL: Primorye Territory, Ussuriysk].

Diagnosis: Wingspan 11-20 mm (Fig. 1E). Head yellow and thorax greyish-ochreous. Forewing ground color brownish gray; basal 1/2 of wing paler; a dark brown small patch at the end of cell. The male genitalia is very similar to that of *H. montivaga* Moriuti, which was known from Japan, but it can be separated by the position of proximal flange, width of gnathos-arms, and length of aedeagus.

Male genitalia (Fig. 6A, B). See also Kuznetzov (1984, 9: figs. 6). Uncus relatively long, narrow with rounded apex. Arms of gnathos wide, strongly sclerotized, emarginate at middle. Valva fairly massive; digitate process relatively slender, with a rounded apex; proximal flange closed to ventral margin of sacculus, with rather strong setae along outer margin; saccular process stout, curved inwardly, dilated toward apex. Aedeagus

*큰밑두리뿔나방 (신칭)

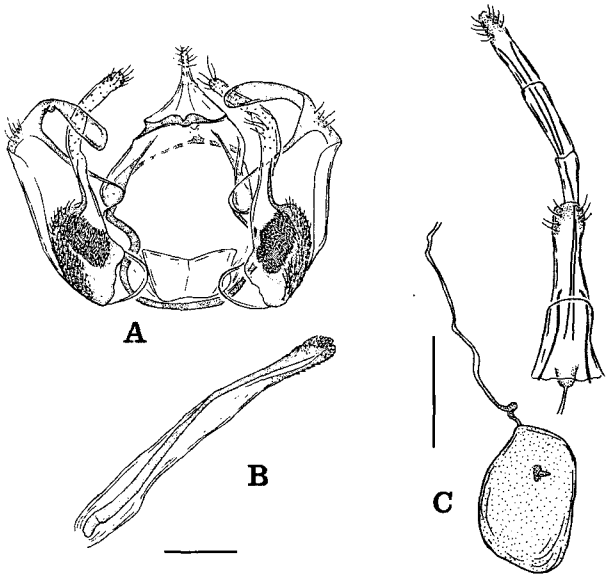

Fig. 6. *Hypatopa silvestrella* Kuznetzov. A, Male genitalia; B, Aedeagus; C, Female genitalia. Scale bars=0.2 mm (A, B) and 2 mm (C).

longer than valva, relatively stout, almost straight; aedeagal scleite slightly shorter than aedeagus.

Female genitalia (Fig. 6C). Apophyses posterores very long, longer than four times of apophyses anteriores. Ductus bursae very thin, longer than twice of corpus bursae. Corpus burase semiovate; signum weakly developed, with a short hook.

Material examined: 1♀, Mt. Soyo-san, GG, 7. VII, 1996 (Bae, Paek, Lee and An), gen. prep. no. CIS-4609; 1♀, Hwacheon, GW, 2. VII. 1985 (K.T. Park), gen. prep. no. CIS-1397; 1♂, Mt. Chiac-san, Wonju, GW, 11. VI. 1999 (Bae, Lee and Ahn); 2♂, Maha-ri, Pyungchang, GW, 6. VI. 1996 (K.T. Park), gen. prep. no. CIS-4578, 4580; 1♂, Yangyang, GW, 15. VI. 1987 (S.J. Lee), gen. prep. no. CIS-4579.

Distribution: Korea (North, Central), Russia.

Remarks: The male genitalia of the Korean specimen shows some differences from that of the types of *silvestrella* Kuznetzov by the following: digitated process dilated toward apex, strongly bent, sacculus prosess less slender than that of the type. However, authors treat it tentatively as conspecific, and a further study is needed for this complex.

Acknowledgements

We express our sincere thanks to Dr. Sinev, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia, for his help in identifying the Korean species during his visit in 1996.

References

Adamski D and Brown RL (1989) Morphology and Systematics

of North American Blastobasidae (Lepidoptera: Gelechioidea). Mississippi Entomological Museum, Mississippi, p 70.
Karsholt O and Razowski J (1996) The Lepidoptera of Europe, A Distributional Checklist. Apollo Books, Stenstrup, p 96.
Kuznetzov VI and Stekol'nikov AA (1984) The systematics and phylogenetic relationships of the families and superfamilies of the Gelechioid Lepidopterans of the infraorder papilionmorpha (Lepidoptera; Copromorphoidea, Elachistoidea, Coleophoridea, Gelechioidea) taking into account the functional morphology of the male genitalia. *Proc Zool Inst Acad Sci* 122: 3-67.
Kuznetzov VI and Sinev SY (1985) *Neoblastobasis* gen. n. (Lepidoptera, Blastobasinae) in the fauna of Blastobasid moths of the USSR. *Zool Inst USSR Acad Sci* 74: 529-537.
Moriuti S (1987) Records and descriptions of Blastobasidae (Lepidoptera) from Japan. *Tinea* 12 (Suppl): 168-181.
Nielsen ES, Edwards ED and Rangsi TV (1996) Family Blastobasidae. Checklist of the Lepidoptera of Australia. CSIRO Division of Entomology, Canberra, p 100.
Park KT (1984) Description of two new species of Blastobasidae (Lepidoptera) from Korea. *Korean J Plant Prot* 23: 56-60.
Park KT (1989) A Review of Blastobasidae (Lepidoptera) in Korea. *Korean J Appl Entomol* 28: 76-82.
Park KT (1994) Lepidoptera, Blastobasidae. In Entomology Society of Korea and Korean Society of Applied Entomology (eds), Check List of Insects from Korea, Kon-Kuk University Press, Seoul, p 330.
Sinev SY (1986) A review of blastobasid-moths (Lepidoptera, Blastobasidae) in the fauna of the USSR. *Acad Sci Proc Zool Inst* 145: 53-71.
Sinev SY (1993) New and little known species of Blastobasid moths (Lepidoptera, Blastobasidae) of Palaearctic. *Entomol Rev* 72: 368-377.

[Received May 8, 2000; accepted June 28, 2000]