

# Newly Recorded Species of Tortricidae (Lepidoptera) from Korea (IV) —Seven Species of the Subfamily Tortricinae—

잎말이나방과의 한국 미기록종(IV)  
—잎말이나방亞과의 7미기록종—

Kyu Tek Park<sup>1</sup> and Bong Kyu Byun<sup>2</sup>

朴奎澤<sup>1</sup>·邊鳳奎<sup>2</sup>

**ABSTRACT** Seven species of Tortricinae [*Homonopsis rubens* Kuznetsov, *Syndemis musculana* (Hübner), *Tosirips perpulchranus* (Kennel), *Cnephasia cinereipalpana* Razowski, *Pandemis monticolana* Yasuda, *Gnorismoneura mesotoma* (Yasuda) and *Pseudargyrotoza conwagana* (Fabricius)] are reported for the first time from Korea.

**KEY WORDS** Systematics, Lepidoptera, Tortricidae, Tortricinae, *Homonopsis*, *Syndemis*, *Tosirips*, *Cnephasia*, *Pandemis*, *Gnorismoneura*, *Pseudargyrotoza*.

**초 록** 금번 조사에서 잎말이나방亞과의 작은모무늬잎말이, *Homonopsis rubens* Kuznetsov; 회색무늬잎말이, *Syndemis musculana* (Hübner); 뒷날개검정잎말이, *Tosirips perpulchranus* (Kennel); 얼룩회색잎말이, *Cnephasia cinereipalpana* Razowski; 갈색때무늬잎말이, *Pandemis monticolana* Yasuda; 낙엽꼬마잎말이, *Gnorismoneura mesotoma* (Yasuda); 금빛무늬꼬마잎말이, *Pseudargyrotoza conwagana* (Fabricius) 등 7種이 우리나라 미기록종으로 보고된다. 이들중 *Syndemis* Hübner, *Tosirips* Razowski, *Cnephasia* Curtis 등 3屬 우리나라에서는 처음으로 기록되는 屬들이었다.

검 색 어 分類, 나비目, 잎말이나방과, 잎말이나방亞과

## DESCRIPTION

### *Homonopsis* Kuznetsov, 1964

*Homonopsis* Kuznetsov, 1964, Entom. Obozr., 43: 873.

Typespecies: *Dichelia illotana* Kennel, 1900.

### *Homonopsis rubens* Kuznetsov

작은모무늬잎말이(新稱)

(Figs. 1, 8, 18)

*Homonopsis rubens* Kuznetsov, 1976, Trudy

Zool. Inst. Leningr., 64:6~8, figs. 5~6; Kuznetsov & Stekolnikov, 1984, Acad. Sci. USSR, Uni. Ent. Soc., 3, fig. 2.

Wings expanse 14 mm in male, 18 mm in female. Ground colour of forewing brownish orange; basal blotch with rounded outer margin reached to near 1/4 of dorsum where expanded with orange scales; median fascia from 1/3 of costa, then expanded from middle and toward to tornus; post median fascia yellowish brown, distinctly represented near 1/4 of costa; subapical fascia sickle-shaped toward tornus; cilia brownish orange, speckled with dark brown

1 Dept. of Agricultural Biology, Kangweon National University, Chuncheon 200-701, Korea (강원대학교 농과대학 농생물학과)

2 Graduate School (同 대학원)

near tornus. Hindwing dark greyish brown.

**Male genitalia**(Fig. 8). Uncus broad and round distally, deeply emarginate at middle; tegumen broad, weakly sclerotized; valva somewhat ovate, with rounded distal part bearing numerous hair-like setae; gnathos weakly developed; sacculus broader basally, elongate to ventral end, terminated in a hook. Aedeagus stout, narrower beyond 3/4.

**Female genitalia**(Fig. 18). Apophyses posteriores nearly equal to apophyses anteriores in length; sterigma with broad lateral portion, round distally; antrum weakly sclerotized; ductus bursae very long; corpus bursae ovate, with large signum.

**Material examined.** 1♂, 1♀ Mt. Gyebang, GW, 2. VIII. 1989(K. T. Park et B. K. Byun) — gen. slide no. 2452; 1♀, Gwangleung, GG, 27. VI. 1986(K. T. Park et U. Park); 1♀, Chuncheon, GW, 2. VIII. 1989(K. T. Park et B. K. Byun); 1♀, Mt. Samag, GW, 19.VII. 1989 (K. T. Park et B. K. Byun) — gen. slide no. 2466.

**Distribution.** Korea, USSR.

**Host plants.** *Abies holophylla*, *Alnus hirsuta*, *Menispermum dahuricum* have been known from USSR(Kuznetsov, 1976), but not known in Korea.

**Remarks.** This species is very similar to *H. foederatana* (K.) in male and female genitalia, but it can be distinguished from the latter by the shape of valva with rather drooping hairy terminal portion and stout aedeagus, and sterigma with broad lateral plate in female.

### *Syndemis* Hübner, 1825

*Syndemis* Hübner, 1825, Verz. beak. Schmett., 382

Typespecies: *Olethreutes musculana* Hübner, 1822.

### *Syndemis musculana* (Hübner)

회색무늬잎말이(新稱)

(Fig. 2, 9, 14)

*Tortrix musculana* (Hübner, [1799]), Samml. eur. Schmett., 7:Pl. 16, fig. 98. *Syndemis musculana*: Obratsov, 1955, Tijd. Ent., 98(3): 209; Hannemann, 1961, Tier. Deut., 48:15; Kawabe, 1982, Moths of Japan, I:69, II:160, pl. 16:5; Liu, 1983, Icon. Het. Sin., I:37; Liu et Bai, 1985, Econ. Ins. Fauna China, 11(1):20; Razowski, 1987, Acta Zool. Cracov., 30(11): 228, figs. 456~458, 730, 731; Hirashima, 1989, A Check List of Japanese Ins., II:896.

*Syndemis musculana nipponensis* Yasuda, 1975, Bull. Univ. Osaka Pref., (B)27:115, figs. 62, 404, 405, 584.

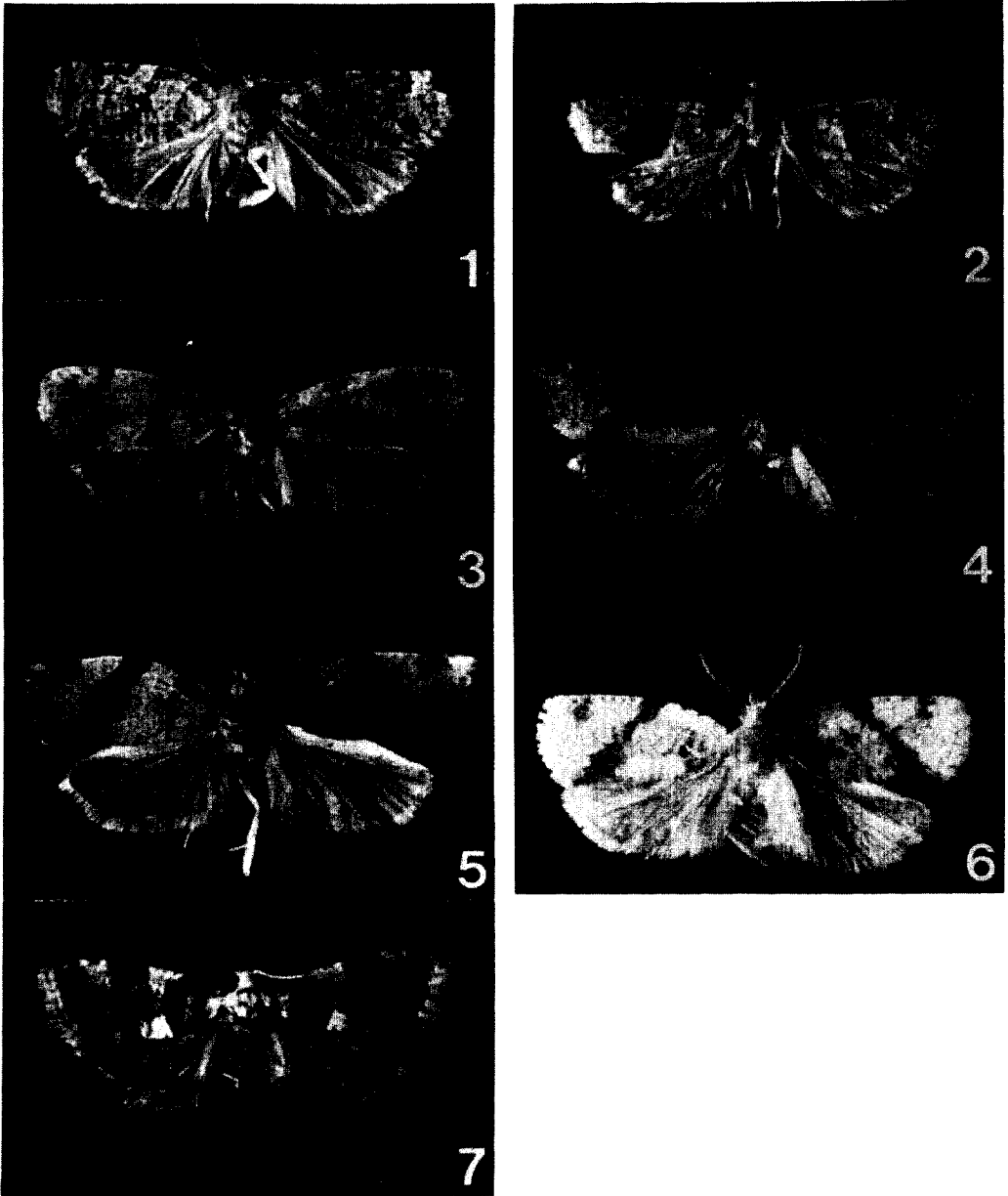
Wings expanse 18 mm in male, 20 mm in female. Ground colour of forewing pale brown, nish grey; basal blotch atrophied; median fascia dark brown, inner margin nearly straight in male, but slightly curved inwardly in female; subapical spot triangular, but generally indistinct.

**Male genitalia**(Fig. 9). Uncus long, round at apex; gnathos short, pointed terminally; socii small; transtilla broadened laterally; valva rather trapezoidal, broad basally, narrower toward apex; sacculus broad, strongly sclerotized. Aedeagus sharply pointed at apex.

**Female genitalia**(Fig. 14). Sterigma moderate, with fairly elongate terminal part; antrum cup-shaped, well sclerotized; ductus bursae long, three times of the length of corpus bursae; ductus seminalis originated from just after antrum; corpus bursae small, round; signum small, nail-shaped.

**Material examined.** 1♂, Mt. Odae, GW, 23. V. 1989(K. T. Byun et B. K. Byun) — gen. slide no. 2458; 1♀, Hongcheon, GW, 20. V. 1988(K. T. Park) — gen. slide no. 2459.

**Distribution.** Korea, Japan, China, USSR



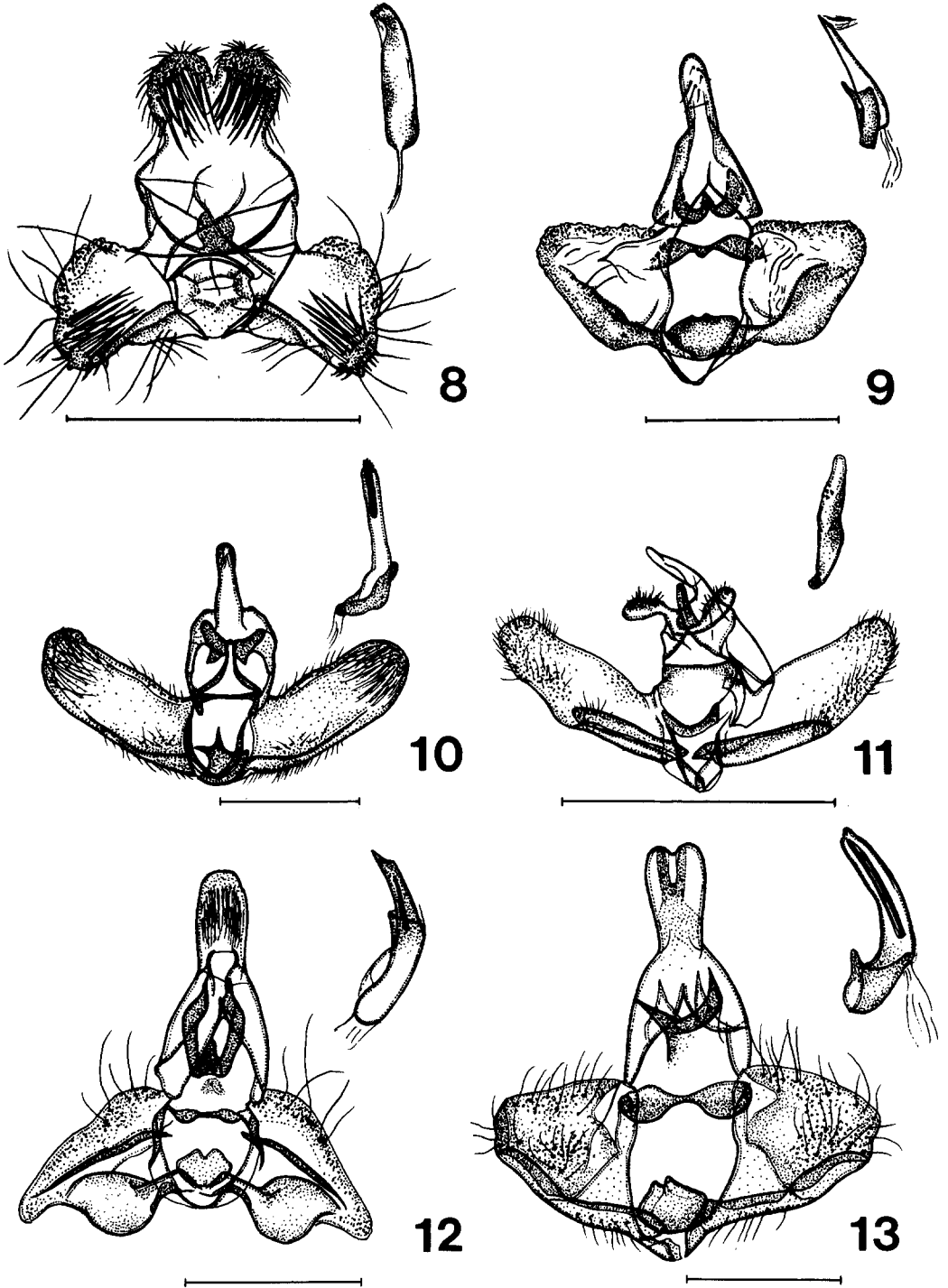
Figs. 1~7: 1. *Homonopsis rubens* Kuznetsov; 2. *Syndemis musculana* (Hübner) 3. *Tosirips perpulchranus* (Kenel); 4. *Cnephasia cineripalpna* Razowski; 5. *Pandemis monticolana* Yasuda; 6. *Gnorismoneura mesotoma* (Yasuda) 7. *Pseudargyrotoza conwagana* (Fabricius).

(Amur), Europe, North America.

**Remarks.** This genus is very closed to *Archips*, but it has no costal fold in male. The genus has been known as monotypic to date.

Yasuda(1975) described a subspecies from

Japan and separated it from the nominate subspecies by having distinct dentation in aedeagus, but Korean species is probably belonging to the nominate subspecies.



Figs. 8~13: Male genitalia: 8. *Homonopsis rubens* Kuznetsov; 9. *Syndemis musculana* (Hübner); 10. *Gnorismoneura mesotoma* (Yasuda); 11. *Pseudargyrotoza conwagana* (Fabricius); 12. *Tosirips perpulchranus* (Kennel); 13. *Pandemis monticolana* Yasuda. (Scales: 1 mm).

***Tosirips Razowski, 1987***

*Tosirips Razowski* 1987, *Nota Lepid.*, 10(1):88.

Type species: *Tortrix perpulchrana* Kennel, 1901.

***Tosirips perpulchrana* (Kennel)**

뿔날개검정잎말이(新稱)

(Figs. 3, 12, 17)

*Tortrix perpulchrana* Kennel, 1901, *Dt. ent. Z. Iris*, 13:223.

*Tosirips perpulchrana* : Razowski, 1987, *Nota lepid.*, 10(1):88, figs. 1~4; Hirashima, 1989, *A Check List of Japanese Ins.*, II:896.

Wings expanse 17~22 mm in male, 22~24 mm in female. Ground colour of forewing brownish yellow; basal, median, subterminal fascia clearly defined dark brown, and well contrasted to ground colour. Hindwing dark brown, rather darker in female.

**Male genitalia** (Fig. 12). Uncus elongate, broadened medially, apex round; gnathos with weakly sclerotized terminal plate; valva rather triangular, with long longitudinal plicate fold on disc; sacculus with broadly expanded portion near middle. Aedeagus bent before middle, with several cornuti in vesica.

**Female genitalia** (Fig. 17). Papillae anales broad; apophyses anteriores very long; antrum well sclerotized; ductus bursae long; corpus bursae ovate; signum absent.

**Material examinee.** 11 ♂, Mt. Odae, GW, 26. VI. 1989(K. T. Park et B. K. Byun); 1 ♂, Chuncheon, GW, 5. VI. 1989(K. T. Park et B. K. Byun) — gen. slide no. 2507; 1 ♀, Chuncheon, GW, 11. VI. 1989(K. T. Park et B. K. Byun); 1 ♀, Chuncheon, GW, 29. V. 1989(K. T. Park et B. K. Byun) — gen. slide no. 2505; 3 ♂, Hongcheon, GW, 10. VI. 1988(K. T. Park); 1 ♂, 1 ♀, Yangyang, GW, 4. VI. 1987(K. T. Park); 2 ♂, 1 ♀, Gwangleung, GG, 14. VI. 1986(K. T. Park).

**Distribution.** Korea, Japan, China, USSR (Amur), Central Europe.

**Remarks.** This genus was separated from *Ptycholmoides* Obraztsov by Razowski (1987) and two species were described by him. There is nearly no difference in external appearance and venation between the two genera, but it can be separated from the latter by genitalic characters. He also subdivided this species into two subspecies; the nominate subspecies covers from Europe to Far East including Korean peninsula, whereas the subspecies *ceramus* Razowski is restricted in Japan.

***Cenphasia Curtis, 1826***

*Cenphasia Curtis* 1826, *Brit. Ent.*, 3:100.

Type species: *Olethreutes pascuana* Hübner, 1822.

***Cnephasia cinereipalpana* Razowski**

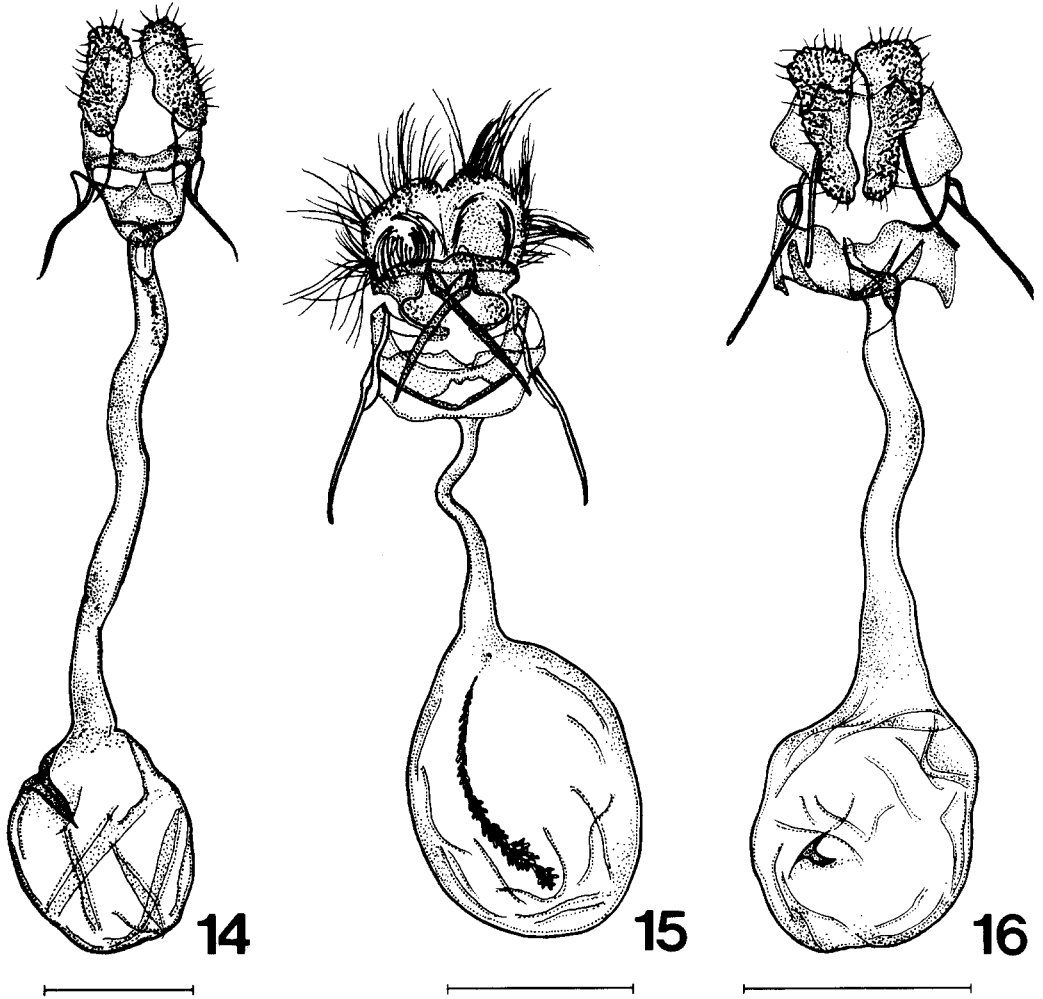
얼룩희색잎말이(新稱)

(Figs. 4, 15)

*Cnephasia cinereipalpana* Razowski, 1958, *Acta Zool. Cracov.*, 2(25): 581, pl. 56: 27, 28, pl. 62:57; Razowski, 1965, *Ibid.*, 10(3):255, figs. 53–55; Yasuda, 1975, *Bull. Univ. Osaka Pref.*, (B)27:151, figs. 129, 130, 456, 617; Kawabe, 1982, *Moths of Japan*, I:77, II:162, pl. 18:3; Hirashima, 1989, *A Check List of Japanese Ins.*, II:893.

Wings expanse 21 mm in female. Ground colour more or less pale grey; post basal blotch dark brown, prominent in middle posteriorly; median fascia from middle of costa. Hindwing pale brownish grey; cilia light brown.

**Female genitalia**(Fig. 15). Papillae anales broad, rounded caudally, bearing long hairs densely; sterigma large; antrum well sclerotized; ductus bursae as long as the length



Figs. 14~16: Female genitalia: 14. *Syndemis musculana* (Hübner); 15. *Cnephasia cinereipalpana* Razowski; 16. *Gnorismoneura mesotoma* (Yasuda), (Scales:1 mm).

of corpus bursae; corpus bursae large, ovate; signum elongate, bearing numerous denticles.

**Material examined.** 2♀, Gwangleung, GG, 14. V. 1986(K. T. Park) — gen. slide no. 2461; 1♀, Gwangleung, GG, 27. VI. 1986(K. T. Park et U. Park).

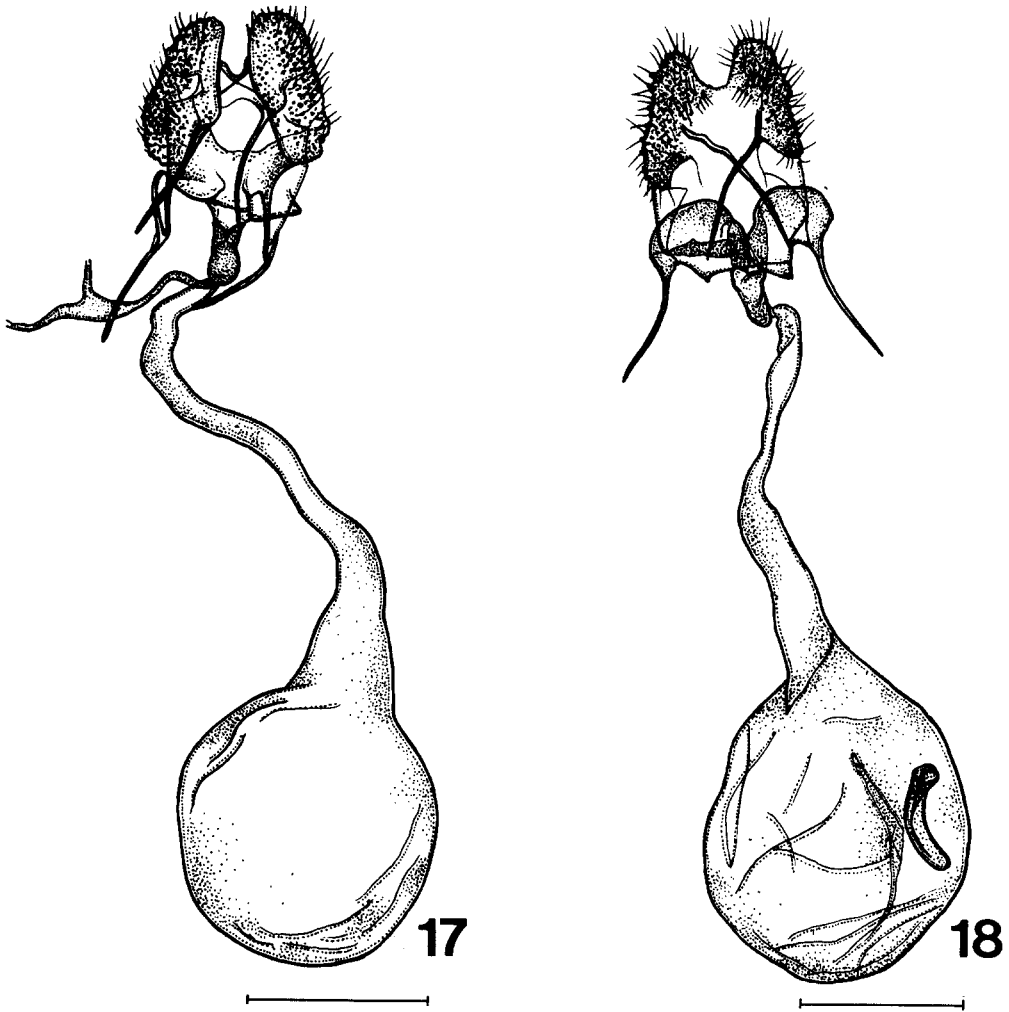
**Distribution.** Korea, Japan, USSR (Maritime Territory), China (Manchuria), East Asia.

**Host Plants.** *Malus pumila*, *Rubus* sp., *Fragaria ananassa* (Rosaceae); *Vaccinium vitisidaea*, *Artemisia montana*, *A. princeps*, *Erigeron annuus*, *Cirsium* spp., *Solidago virga-aurea* (Com-

positae); *Phaseolus* sp., *Trifolium repens*, *Medicago sativa* (Leguminosae); *Mentha arvensis* (Labiatae); *Nicotiana tabacum* (Solanaceae); *Populus sieboldi* (Salicaceae); *Chenopodium album* (Chenopodiaceae); *Rumex obtusifolius* (Polygonaceae); *Heracleum moellendorffii* (Umbelliferae) and *Diospyros kaki* have been known from Japan (Yasuda 1975).

*Pandemis* Hübner, 1825

*Pandemis* Hübner, 1825, Verz. bek. Schmett.,:



Figs. 17~18: Female genitalia: 17. *Tosirips perpulchranus* (Kennel); 18. *Homonopsis rubens* Kuznetsov. (Scales:1 mm).

388.

*Typespecies: Pyralis corylana* Fabricius, 1794.

***Pandemis monticolana* Yasuda**

갈색며무늬잎말이(新稱)

(Figs. 5, 13)

*Pandemis monticolana* Yasuda, 1975, Bull. Univ. Osaka Pref., (B)27:88, figs. 15, 16, 351, 357, 562; Kawabe, 1982, Moths of Japan, I:64, II:159, Pl. 14: 18, 19; Hirashima, 1989, A

Check List of Japanese Ins., II:895.

Wings expanse 23 mm in male. Costa of forewing strongly curved just before middle, costal fold very weak. Basal blotch brown, covering 1/4 of forewing; median fascia from 1/2 of costa to 2/3 of dorsum, wider toward dorsum; subapical blotch somewhat triangular. Hindwing greyish brown, cilia paler.

**Male genitalia**(Fig. 13). Uncus broadened apically, slightly concave at middle of apex;

gnathos simple, hook-shaped; valva semioval broader at base; sacculus strongly sclerotized, bent at 2/3 of costa, elongate to end of valva. Aedeagus simple, three long cornuti in vesica.

**Material examined.** 2♂, Mt. Odae, GW, 26. VI. 1989(K. T. Park et B. K. Byun)—gen. slide no. 2454.

**Distribution.** Korea, Japan.

**Remarks.** The species has been known as an endemic species in Japan to date. It is known that the moths appear during July~August in Japan, but the moths collected at the late of June in Korea.

#### *Gnorismoneura* Issiki & Stringer, 1932

*Gnorismoneura* Issiki & Stringer, 1932, *Stylops*, 1:134.

Typespecies: *Gnorismoneura exulis* Issiki & Stringer, 1932.

#### *Genorismoneura mesotoma* (Yasuda)

낙엽꼬마잎말이(新稱)

(Figs. 6, 10, 16)

*Epagoge mesotoma* Yasuda, 1975, *Bull. Univ. Osaka Pref.*, (B)27:143, figs. 117, 443, 607.

*Gnorismoneura mesotoma*: Kawabe, 1982, *Moths of Japan*, I:76, II:162, Pl. 17.:27; Razowski, 1987, *Acta Zool. Cracov.*, 30(11):208, figs. 366~374, 690, 691; Hirashima, 1989, *A Check List of Japanese Ins.*, II:894.

Wings expanse 13 mm in male, 17 mm in female. Basal blotch brown, covering 1/5 of forewing, median fascia narrow at costa, then broadened dorsally; subapical spot very small, more or less triangular. Hindwing pale greyish brown.

**Male genitalia**(Fig. 10). Uncus fairly long, spatulate; gnathos broadened with terminal hook; valva rather rectangular, rounded cau-

dally; sacculus narrow, broader toward base. Aedeagus slender, somewhat long with a bundle of cornuti.

**Female genitalia**(Fig. 16). Sterigma delicate; antrum narrow followed by strongly curved portion; ductus bursae very long; corpus bursae small, ovate; signum small, short horn-shaped.

**Material examined.** 1♀, Namhae, GN, 25. VII. 1985(K. T. Park); 1♂, Chuncheon, GW, 25. VI. 1986(K. T. Park et U. Park)—gen. slide no. 2495; 2♀, Chunsung, GW, 20. VII. 1987(K. T. Park et U. Park)—gen. slide no. 2516; 2♀, Yangyang, GW, 10. VII. 1987(K. T. Park).

**Distribution.** Korea, Japan.

**Remarks.** This species is very similar to *G. hoshinoi*, but easily distinguished from the latter by the male genitalic characters.

#### *Pseudargyrotoza* Obraztsov, 1954

*Pseudargyrotoza* Obraztsov, 1954, *Tijd. Ent.*, 97:228.

Typespecies: *Pyalis conwagana* Fabricius, 1775.

#### *Pseudargyrotoza conwagana* (Fabricius)

금빛무늬꼬마잎말이(新稱)

(Figs. 7, 11)

*Pyalis conwagana* Fabricius, 1775, *Syst. Ent.*, :653.

*Pseudargyrotoza conwagana*: Obraztsov, 1955, *Tijd. Ent.*, 98(3):227; Hannemann, 1961, *Tier. Deut.*, 48:32; Yasuda, 1975, *Bull. Univ. Osaka Pref.*, (B)27:147, figs. 121, 122, 447, 608; Diakonoff, 1976, *Zool. Ver.*, 144:30, figs. 104~105; Kawabe, 1982, *Moths of Japan*, I:76, II:162, Pl. 17:33; Liu et Bai, 1985, *Econ. Ins. Fauna China*, 11(1):26; Razowski, 1987, *Acta Zool. Cracov.*, 30(11):206, figs. 356~359, 685, 687; Hirashima, 1989, *A Check List of Japanese Ins.*, II:895.



Wings expanse 11~13 mm in male. Ground colour of forewing yellow, spotted with small silver blotch; Basal blotch dark brown, outer margin round, followed by a small yellow blotch on 1/3 of termen; median fascia presented with distinct black spot at 3/5 of costa. Hindwing greyish brown, cilia pale greyish brown.

**Male genitalia** (Fig. 11). Uncus well developed, broadened medially; gnathos short, with sharp apex; transtilla with broadened central part, minutely dentate above; valva elongate, rounded caudally; sacculus slender with free termination. Aedeagus slender, pointed with several spines postmedially.

**Material examined.** 13 ♂, Mt. Odae, GW, 26. VI. 1989(K. T. Park et B. K. Byun) - gen. slide no. 2455.

**Distribution.** Korea, Japan, China, USSR, Europe, Asia Minor.

**Host plants.** *Berberis* sp., *Ligustrum* sp. and *Fraxinus* sp. are known from Europe(Razowski, 1987), but not known in Korea.

#### ACKNOWLEDGEMENT

The authors wish to express their sincere thanks to Mr. A. Kawabe in Tokyo, Japan and Mr. K. R. Tuck in Brit. Mus. (Nat. Hist.) London, U. K., for their help in determination of the species.

#### REFERENCES CITED

- Diakonoff, A. 1976. Tortricoidea from Nepal, 2, Zoologische verhandelingen, 144 : 130, figs. 104, 105.
- Freeman, T. N. 1958. The Archipinae of North America(Lepidoptera: Tortricidae), Ibid., 90, suppl. 7. 87pp.
- Hirashima, Y. 1989. Tortricidae, in A check list of Japanese insects, II : 891~896.
- Kawabe, A. 1982. Tortricidae, in Inoue *et al.* The moths of Japan, Part 1 : 62~89, Part 2 : 158~165, Pls. : 14~21.
- Kuznetsov, V. I. 1964. New genera and species of Leafrollers(Lepidoptera, Tortricidae) from Far-East. Entom. Obozr. 43 : 873~889.
- Kuznetsov, V. I. 1976. New species and subspecies of the Leafrollers(Lepidoptera, Tortricidae)of the fauna of the palaeartic. Trudy Zool. Inst. Leningr. 64 : 3~33.
- Kuznetsov, V. I. 1984. The evolution and system of higher taxa of Tortricid Moths(Lepidoptera, Tortricidae)of the world fauna with references to the Comparative morphology of Genitalia. Acad. Sci. USSR. Uni. Soc. Papers at the 36th Annual N. A. Holodkovskovo memorial lecture : I~33.
- Liu, Y. Q. 1983. Tortricidae in Liu *et al.* Iconographia Heterocerorum Sinicorum I : 28~37, pls. : 5~8.
- Liu, Y. Q & J. W. Bai. 1985. Totricinae, in Liu *et al.* Economic insect fauna of China 11 : 10~35.
- Obraztsov, N. S. 1955, 1957. Die gattungen der palaeaktischen Tortricidae, Tijd. Ent. 98(3) : 209, 227; 100(3) : 319.
- Park, K. T. & K. J. Weon. 1986. Five species of Tortricinae(Lep., Tortricidae) new to Korea. Korean J. Syst. Zool. 2(2) : 27~34.
- Park, K. T. & B. K. Byun. 1989. Newly recorded species of Tortricidae(Lepidoptera)from Korea (III). Korean J. Ent. 19 : 325~334
- Razowski, J. 1958. New and little known palaeartic species of the genus Cnephasiini(Lepidoptera, Tortricidae). Acta Zool. Cracov. 2(25) : 563~584, figs. 1~59.
- Razowski, J. 1965. The palaeartic Cnephasiini (Lepidoptera, Tortricidae). Acta Zool. Cracov. 10 (3) : 255~257.
- Razowski, J. 1987. A new Palaeartic Archipini genus(Lepidoptera, Tortricidae), Nota lepid. 10 (1) : 87~92.
- Razowski, J. 1987. The genera of tortricidae(Lep.), Part 1. Palaeartic Chlidanotinae and Tortricinae. Acta. Zool. Cracov. 30(11):141~353.
- Shin, Y. H., K. T. Park & S. H. Nam, 1983. Illustration flora & fauna of Korea, 27(Insecta IX), : 592~659, 946~963, Pls. : 39~42.
- Walsingham, L. 1900. Asiatic Tortricidae. Ann. Mag. Nat. Hist. (7)5 : 358~419, 481~490; (7) 6 : 121~137, 234~243.

Yasuda, T. 1975. The Tortricinae and Spargnothinae of Japan(Lep., Tortricidae), Part 1 and 2. Bull. Univ. Osaka Pref., Ser. B. 24 : 53~

134, 2 : 18~664.

(Received March 29, 1990)