

Eight Newly Recorded Species of *Depressariidae* (Lepidoptera) from Korea, with Five New Synonyms

한국産 큰원뿔나방科(나비目)의 8未記錄種 및 5種의 同物異名처리

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ABSTRACT Eight species of *Depressariidae*, (*Agonopterix multiplicella* (Erschoff), *A. bipunctifera* (Matsumura), *A. ocellana* (Fabricius), *A. yamatoensis* (Fujisawa), *Depressaria tactiturna* Meyrick, *D. irregularis* Matsumura, *Eutorna leonidi* Lovovsky, *Exaeretia mongolicella* (Christoph)), are reported for the first time from Korea. *Depressaria niphospyrphos* Meyrick and *D. basicosta* Matsumura are newly synonymized with *D. tactiturna* Meyrick. *Agonopterix sapporensis* (Matsumura) and *A. ochrocephala* Saito are also synonymized with *A. angelicella* (Hübner) respectively, and *A. iharai* Fujisawa with *A. ocellana* (Fabricius).

KEY WORDS Systematics, Lepidoptera, *Depressariidae*, Korea

초 록 큰원뿔나방科 (*Depressariidae*)의 8種, (*Agonopterix multiplicella* (Erschoff), *A. bipunctifera* (Matsumura), *A. ocellana* (Fabricius), *A. yamatoensis* (Fujisawa), *Depressaria tactiturna* Meyrick, *D. irregularis* Matsumura, *Eutorna leonidi* Lvovsky, *Exaeretia mongolicella* (Christoph))을 우리나라 未記錄種으로 보고한다. *Depressaria niphosyrohas* Meyrick과 *D. basicostata* Matsumura는 *D. tactiturna* Meyrick의 동물이명으로, *Agonopterix sapporensis* (Matsumura)와 *A. ochrocephala* Saito는 *A. angelicella* (Hübner), 그리고 *A. iharai* Fujisawa는 *A. ocellana* (Fabricius)의 동물이명으로 정리하였다.

검색어 분류, 나비目, 큰원뿔나방科, 한국

Common (1990) referred that the subfamily *Depressariinae* of the family *Oecophoridae* as a family *Depressariidae* due to the difference of the male genitalia, especially in lacking of a well defined uncus, in his "Moth of Australia", and Hannemann (1995) acknowledged it. In Korea, since Park (1981) reported following eight species as members of the subfamily *Depressariinae*: *Agonopterix l-nigrum* (Matsumura), *Agonopterix costamaculla* (Christoph), *A. mutuurai* Saito, *A. pallidor* (Stringer), *Depressaria petronoma* Meyrick, *Psoro-*

sticha melanocrepida Clarke, *Acria ceremitis* (Meyrick), and *A. ochrocephala* Saito, no additional report has been appeared.

The materials studied are based on the collection of the Center for Insect Systematics, Kangwon National University, and National Institute of Agricultural Sciences and Technology, Suweon. Abbreviation for the provinces in Korea: GG- Gyeonggido, GW- Gangwondo, JB- Jeolabukdo, JN- Jeolanando, JJ- Jejudo.

LIST OF SPECIES

***Agonopterix multiplicella* (Erschoff, 1877)**

작은흰점원뿔나방 (新稱) (Fig. 21)

Erschoff, 1877, Hore. Soc. Ent. Ross. 12: 344 (*Depressaria*); Fujisawa, 1989: 34-47.= *Agonopterix klimeschi* Hannemann, 1953

Diagnosis. Wingspan 18 mm. This species is characterized by the light brown subbasal area and a small, creamy white spot at the end of the cell on the forewing.

Male and female genitalia (Figs 1-2, 17). Lobes of socii far from each other at base. Gnathos semiovalate. Valva slender, narrowed towards apex; clasper short, extending to 2/3 of valva width, clubbed apically. Aedeagus relatively small, slender, with weak cornuti. Ductus bursae long, narrow, and heavily wrinkled at conjunction; signum of corpus bursae diamond-shaped, elongated longitudinally, with numerous denticles on ventral surface.

Material examined. 1 ♂, Sogumgang, GW, 6. VII. 1988 (K.T. Park); 2 ♂, 1 ♀, same locality, 24. V. 1988 (K.T. Park); 1 ♀, Chuncheon, GW, 7. V. 1989 (K.T. Park); 2 ♂, same locality, 21. III, 1990 (K.T. Park); 1 ♂, same locality, 1. V. 1989 (K.T. Park); 1 ♀, same locality, 23. IV. 1992 (K.T. Park et B.K. Byun); 1 ♂, same locality, 6. X. 1992 (K.T. Park et B.K. Byun); 1 ♀, same locality, 2. IX. 1988 (K.T. Park); 1 ♂, Hongcheon, GW, 5. IX. 1986 (K.T. Park); 1 ♀, Mt. Odae-san, GW, 22. V. 1992 (K.T. Park); 1 ♂, 2 ♀, Dunnae, GW, 12. V. 1992 (K.T. Park); 2 ♀, Mt. Daewoo-san, GW, 14. VI. 1987 (K.T. Park, U. Park); 1 ♂, Mt. Daeam-san, GW, 6. VIII. 1987 (K.T. Park et U. Park); 1 ♂, Gwangleung, GG, 7. IV. 1985 (K.J. Won); 1 ♂, same locality, 17. IV. 1985 (K.J. Won); 1 ♂, same locality, 17. V. 1988 (K.T. Park); 1 ♂, same locality, 5. IV. 1981 (K.J. Won); 1 ♂, 1 ♀, same locality, 10. VIII. 1982 (K.J. won); 1 ♂, same locality, 21. VII. 1984 (K.J. Won); 2 ♀, same locality, 22. VII. 1986 (K.T. Park et U. Park); 5 ♂, same locality, 29. III. 1990 (K.T. Park); 2 ♂, 1 ♀, same locality, 7. IX. 1983 (K.J. Won); 1 ♂, Mt. Cheongyae-san, GG, 19. VIII. 1976 (K.T. Park); 1 ♀, Mt. Jiri-san, JN, 15. V. 1992 (K.T. Park); 1 ♀, Mt. Daedun-san, JB, 23. V.

1992 (K.T. Park); 3 ♂, 1 ♀, Youngsil, JJ, 30. IV. 1994 (B.K. Byun); 1 ♂, 1 ♀, 1 ♀, Jeju Natn. Univ., JJ, 17 ~ 18. V. 1991 (B.K. Byun & Y.D. Kwon); 1 ♂, same locality, 28. V. 1992 (K.T. Park); 1 ♂, Temple Kwanum-sa, JJ, 13. VIII. 1993 (K.T. Park et B.K. Byun).

Host plant. *Artemisia vulgaris* Linné has been known from Europe.

Distribution. Korea (South), Japan, Ussuri.

***Agonopterix bipunctifera* (Matsumura, 1931)**

그물무늬원뿔나방 (新稱) (Fig. 22)

Matsumura, 1931, 6000 Ill. Ins. Japan: 1089 (*Depressaria*); Ridout, 1981: 31; Moriuti, 1982, Part I, 246; Part II, 204, pl. 12, 227.

Diagnosis. Wingspan 24 mm. The species is characterized by the transverse, reticulated white lines on the forewing, with two discal black spots prior to the middle of the cell.

Male genitalia (Figs 3-4). Socii broadly expanded to lateral sides. Gnathos slender, cigar-shaped, elongated with numerous spines at apical half. Clasper slender, reaching to 4/5; apex more or less sharpened. Aedeagus extremely stout, with numerous small, spinous cornuti.

Material examined. 1 ♂, Jiamri, 12 km N Chuncheon, GW, 6. V. 1994 (B.K. Byun); 1 ♀, Mt. Jeombong-san, GW, 20. VI. 1992 (K.T. Park); 1 ♀, Yongin, GG, 21. V. 1987 (S.B. Ahn).

Distribution. Korea (South), Japan.

***Agonopterix ocellana* (Fabricius, 1775)**

회색점원뿔나방 (新稱) (Fig. 23)

Fabricius, 1775, Syst. Ent.: 652 (*Pyralis*); Busk & Dyar, 1902: 522; Busk, 1904: 764 (*Depressaria*); 1908: 199 (*Agonopterix*); Laar, 1961: 15-40.

= *Tinea characterella* Denis & Schiffermüller, 1775.

= *Tinea signella* Hübner, 1796.

= *Depressaria signosa* Haworth, 1811.

= *Haemylis characterella* Treitschke, 1832.

= *Agonopterix iharai* Fujisawa, 1985, **syn. nov.**

Diagnosis. Wingspan 22 mm. No characteristic colour pattern on the forewing separable from allies is found.

Male genitalia (Figs 5–6). Socii large, rounded; gnathos elongate. Clasper slender, reaching near 2/3, apex obtuse; Aedeagus small, short; lacking cornuti.

Material examined. 1 ♂, Chuncheon, GW, 21. IV. 1990 (K.T. Park); 1 ♂, Gwangleung, GG, 31. III. 1988 (K.J. Won).

Host plant. *Salix* spp. has been known from Europe (Emmet, 1988).

Distribution. Korea (South), Japan, Siberia, Europe.

***Agonopterix yamatoensis* Fujisawa, 1985**

앞붉은원뿔나방 (新稱) (Fig. 24)

Fujisawa, 1985, *Tinea* 12 : 35, fig. 4, 12, 19; 1989: 34–47.

Diagnosis. Wingspan 22 mm. Forewing grayish orange; subbasal line dark brown, developed up to 2/3 across wing; dark brown scales scattered reticulately.

Male and female genitalia (Figs 7–8, 18). Socii large. Clasper slender, reaching near 3/4. Transtilla lobes broad, heart-shaped. Aedeagus broad and short. Corpus bursae membranous, ovate; signum rectangular with numerous denticles.

Material examined. 1 ♂, 1 ♀, Mt. Daeam-san, GW, 27. VII. 1988 (K.T. Park); 2 ♀, Chuncheon, GW, 7. V. 1989 (K.T. Park); 1 ♂, same locality, 15. V. 1985 (K.T. Park); 1 ♀, same locality, 21. V. 1989 (K.T. Park et B.K. Byun); 1 ♀, same locality, 1. V. 1989 (K.T. Park et B.K. Byun); 1 ♀, Pyongchang, GW, 31. VII. 1991 (K.T. Park); 1 ♀, Mt. Gyeongbang-san, GW, 2. VII. 1989 (K.T. Park); 1 ♀, Mt. Jiri-san, JB, 23. VII. 1985 (K.T. Park).

Host plant. *Lespedeza bicolor* Turczaninow (Fujisawa, 1985b).

Distribution. Korea (South), Japan.

***Depressaria taciturna* Meyrick, 1910**

흰띠큰원뿔나방 (新稱) (Fig. 25)

Meyrick, 1910, *Journ. Bombay nat. Hist. Soc.* 20:166; Fujisawa, 1985: 65–67.

= *Depressaria niphosyrohas* Meyrick, **syn. nov.**

= *Depressaria basicostata* Matsumura, **syn. nov.**

Diagnosis. Wingspan 22 mm. This species is closely

similar to *D. irregularis* Matsumura, but it is smaller than the latter, with dark brown subbasal area. Forewing brownish–orange, speckled with dark brown scales; with an arched band composed of short black horizontal streaks along subterminal line.

Male and female genitalia (Figs 9–10, 19). Valva broadened towards base; clasper extremely long, curved beyond basal 3/4, apical 1/4 heavily serrated above. Aedeagus relatively small, comparing with whole genitalia; apex sharply pointed; basal process heavily sclerotized. Lamella postvaginalis heavily sclerotized. Ductus bursae slender, longer than 3 times of corpus bursae; Signum of corpus bursae elongated vertically, with numerous small denticles.

Material examined. 1 ♀, Mt. Samak-san, GW, 22. VI. 1989 (K.T. Park et B.K. Byun); 1 ♂, Soyang-dam 6 km N Chuncheon, GW, 3. VII. 1990 (K.T. Park); 1 ♀, Jiamri 12 km N Chuncheon, GW, 24. X. 1993 (B.K. Byun); 1 ♂, 1 ♀, Bongmyoung-ri, Chuncheon, GW, 12. IX. 1996 (J.S. Lee et H.K. Lee); 1 ♂, Gwangleung, GG, 22. IX. 1994 (B.K. Byun); 1 ♀, same locality, 27. VI. 1986 (K.T. Park et U. Park).

Host plant. *Quercus* spp. (Fujisawa, 1985a).

Distribution. Korea (South), Japan, Himalaya.

***Depressaria irregularis* Matsumura, 1931**

큰원뿔나방 (新稱) (Fig. 26)

Matsumura, 1931, 6000 Ill. Ins. Japan, 1000; Ridout, 1981: 31; Fujisawa, 1985: 65–67.

Diagnosis. Wingspan 27 mm. Forewing brown with several short, dark streaks medially. Hindwing pale gray; termen strongly sinuate beyond middle.

Male and female genitalia (Figs 11–12, 20). Socii bifurcate. Valva elongate, slightly emarginated beyond middle on costal margin; clasper strongly bent beyond 3/4; apical portion more or less club-shaped. Aedeagus more slender than that of preceding species, more sharply pointed at apex. Signum of corpus bursae relatively large, diamond-shaped.

Material examined. 1 ♀, Chuncheon, GW, 27. VII. 1995 (H.K. Lee & M.S. Go); 1 ♂, same locality, 2. VII. 1989 (K.T. Park et B.K. Byun); 1 ♂, Bongmyoung-ri,

Chuncheon, GW, 30. VI. 1992 (K.T. Park & B.K. Byun); 1 ♂, 1 ♀, Gwangleung, GG, 27. VI. 1986 (K.T. Park, M.K. Ko); 1 ♂, same locality, 4. VI. 1988 (K.J. Won); 1 ♂, same locality, 6. VII. 1989 (K.T. Park et B.K. Byun); 1 ♂, same locality, 17. VI. 1994 (B.K. Byun & H.P. Jeong).

Host plants. *Quercus serrata* Thunberg and *Q. mongolica* Fischer (Fujisawa, 1985a).

Distribution. Korea (South), Japan.

Eutorna leonidi Lvovsky, 1979

얼룩원뿔나방 (新稱) (Fig. 27)

Lvovsky, 1979, Trudy Zool. Inst. 81: 103–105.

Diagnosis. Wingspan 14 mm. Forewing elongate, narrow; apex obtuse, termen rounded; a longitudinal dark-brown streak extended to 2/5 across wing; costal fascia dark brown, margined by a oblique yellowish-white line outwardly; a small dark dot at end of cell. Hindwing gray.

Male genitalia (Figs 13–14). Gnathos bilobed. Valva elongated, with a pair of basal lobes, lower one clavate. Aedaeus with two conuti.

Material examined. 1 ♂, Hongcheon, GW, 15. VI. 1989 (K. S. Lee)

Distribution. Korea (South), Russia.

Remark. The species superficially resembles *E. insidiosa* Meyrick known from Khasis Hill, but can be separated by the male genitalia. The record of *E. indiosa* Meyrick in Japan is doubtful.

Exaeretia mongolicella (Christoph, 1882)

신갈원뿔나방 (新稱) (Fig. 28)

Meyrick, 1882, Bull. Soc. Nat. Mosc. p. 15, (*Depressaria*); Caradja, 1920: 128.

= *Depressaria septicella* Snellen, 1884.

= *Depressaria grscella* Caradja, 1920.

= *Depressaria rubrella* Caradja, 1920.

Diagnosis. Wingspan 19 mm. Forewing with costa slightly incurved near middle. Hindwing pale yellowish white.

Male genitalia (Figs 15–16). Gnathos ovate with short

arms basally. Valva subtriangular with extremely broad base; clasper with two digitate lobes beyond middle of ventral margin. Lobes of transtilla short, rounded. Aedaeus stout, with numerous strong, spinous cornuti.

Material examined. 1 ♂, Hongcheon, GW, 5. X. 1986 (K.T. Park); 1 ♂, Mt. Gyeong-bang-san, GW, 24. VIII. 1989 (K.T. Park).

Host plant. *Artemisia vulgaris* Linn has been known from Europe.

Distribution. Korea (South), Russian Far East.

Agonopterix angelicella (Hübner, 1816)

어수리원뿔나방

Hübner, 1816, Eur. Schmett. Tineen, t. 49, f. 337 (*Depressaria*); Laar, 1961: 15–40; Moriuti, S., 1982, Part I, 247; Part II, 204, pl. 227.

= *Depressaria rubidella* Duponchel, 1838.

= *Depressaria sapporensis* Matsumura, 1931, **syn. nov.**

= *Agonopterix ochrocephala* Saito, 1980, **syn. nov.**

Material examined. 1 ♂, Mt. Gyeong-bang-san, GW, 2. VIII. 1989 (K.T. Park); 1 ♂, 1 ♀, Mt. Daeam-san, GW, 27. VII. 1988 (K.T. Park); 1 ♂, same locality, 28. VII. 1989 (K.T. Park); 1 ♀, Mt. Yaksu-san, GW, 9. VIII. 1989 (K.T. Park).

Host plants. *Heracleum moellendorffi* Hance, *H. dulce* Fischer, *H. sphondylium*, and *Angelica sylvestris* (Saito, 1980; Emmet, 1988).

Distribution. Korea (South), Japan.

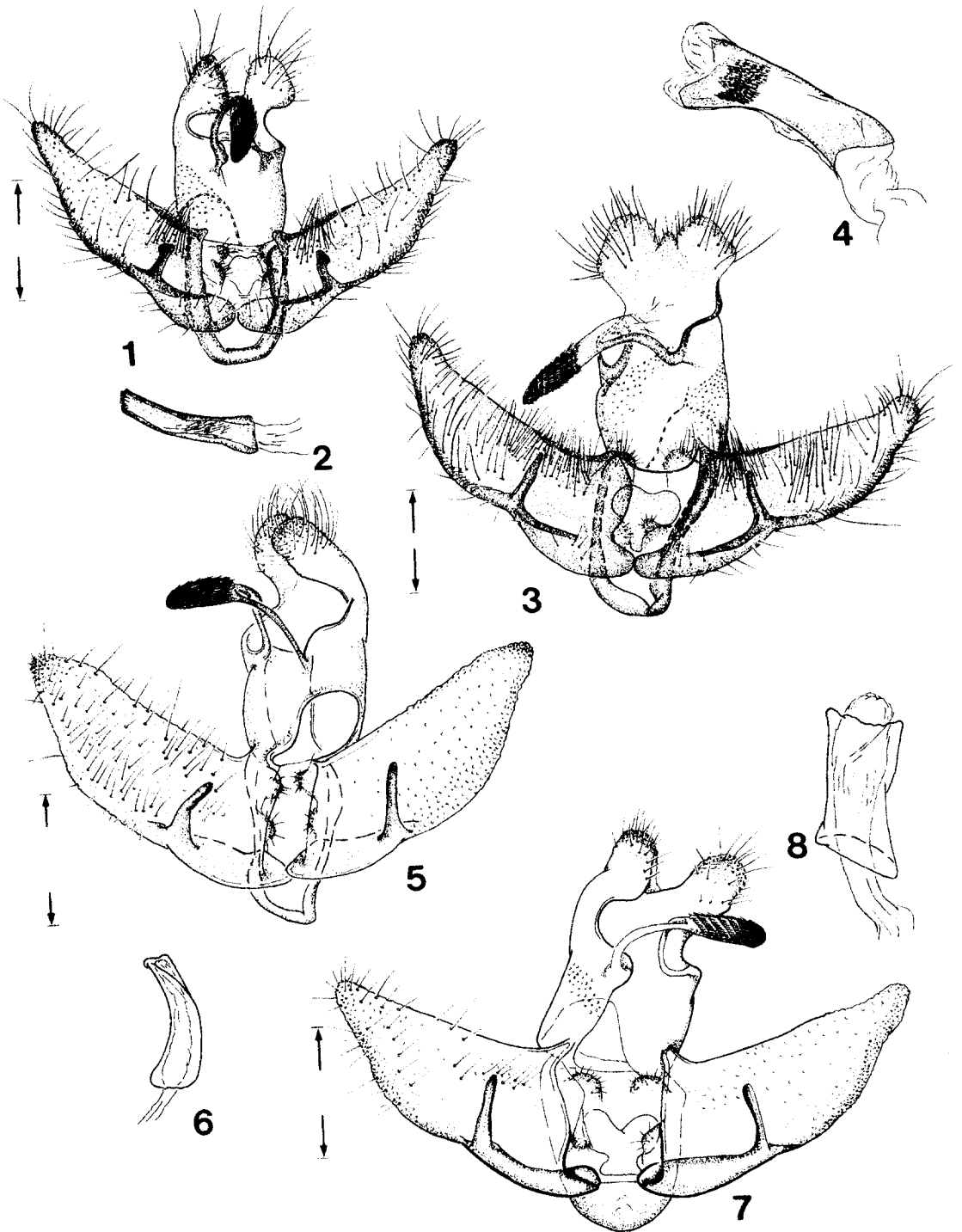
Remarks. This species has been known under the name *A. ochrocephala* Saito in Korea, but *A. ochrocephala* is considered to be a junior synonym of *A. angelicella* (Hübner).

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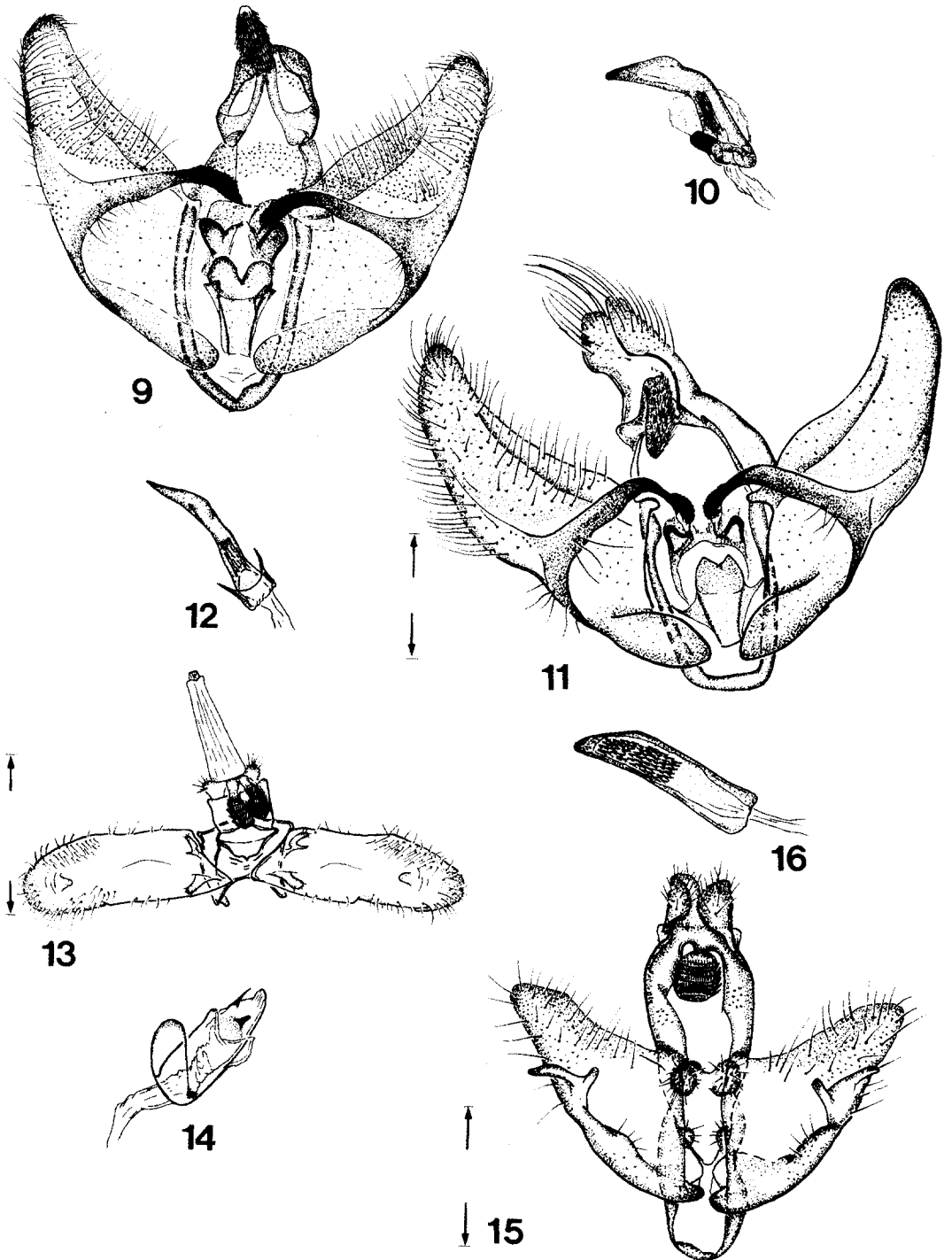
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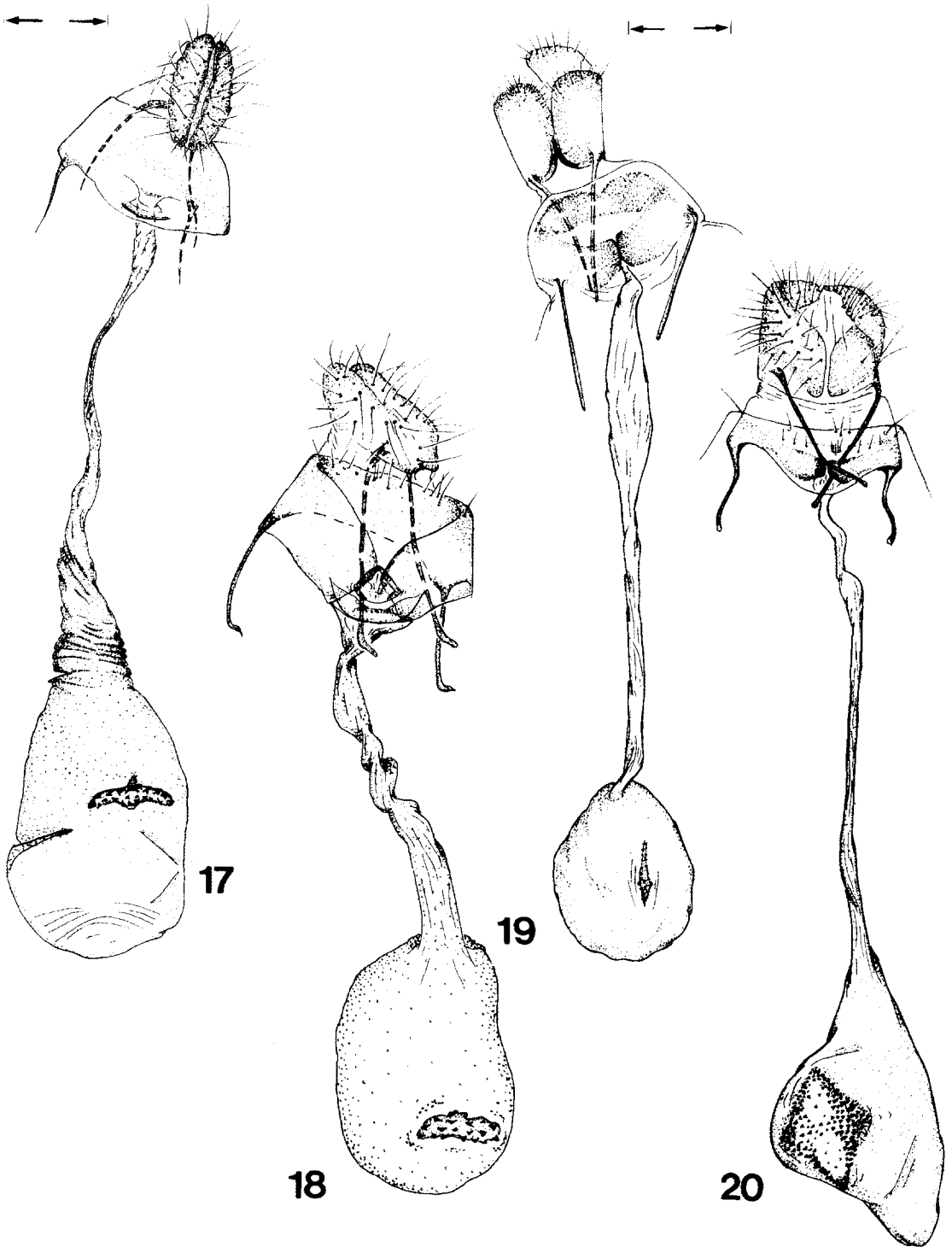
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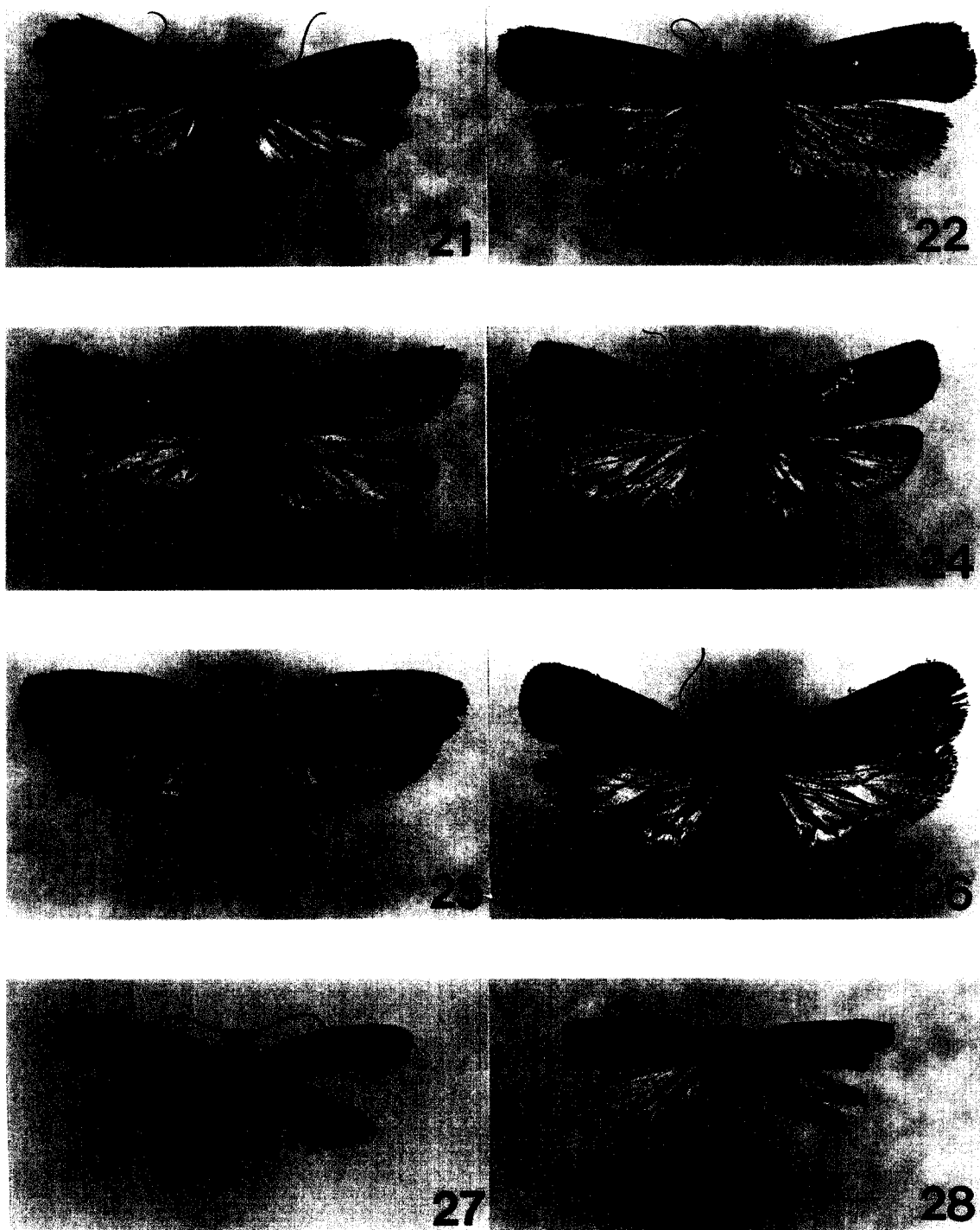
Figs. 1–8. Male genitalia: 1, *Agonopterix multiplicella* (Erschoff); 2, ditto, aedeagus; 3, *A. bipunctifera* (Matsumura); 4, ditto, aedeagus; 5, *A. ocellana* (Fabricius); 6, ditto, aedeagus; 7, *A. yamatoensis* (Fujisawa); 8, ditto, aedeagus (Scales: 0.5 mm).



Figs. 9-16. Male genitalia: 9. *Depressaria taciturna* Meyrick; 10, ditto, aedeagus; 11, *D. irregularis* Matsumura; 12, ditto, aedeagus; 13, *Eutorna leonidi* Lvovsky; 14, ditto, aedeagus; 15, *Exaeretia mongolicella* (Christoph); 16, ditto, aedeagus (Scales: 0.5 mm).



Figs. 17–20. Female genitalia: 17, *Agonopterix multiplicella* (Erschoff); 18, *A. yamatoensis* (Fujisawa); 19, *Depressaria taciturna* Meyrick; 20, *D. irregularis* Matsumura (Scales: 0.5 mm).



Figs. 21–28. Adults: 21, *Agonopterix multiplicella* (Erschoff); 22, *A. bipunctifera* (Matsumura); 23, *A. ocellana* (Fabricius); 24, *A. yamatoensis* (Fujisawa); 25, *Depressaria tactiturna* Meyrick; 26, *D. irregularis* Matsumura; 27, *Eutorna leonidi* Lovovsky; 28, *Exaeretia mongolicella* (Christoph).