

Korean Species of the Genus *Olethreutes* (Lepidoptera: Tortricidae)

韓國產 *Olethreutes*屬 (나비目 : 잎말이나방科)의 分類學的 정리

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ABSTRACT A series of taxonomic works was conducted to revise genus *Olethreutes* in Korea. All available synonyms, collected localities and dates, flight period and known distribution ranges for the total 16 identified species including 3 newly recorded species; *Olethreutes subtilana*(Falkovitsh), *Olethreutes aurofasciana*(Haworth), *Olethreutes moderata* Falkovitsh, were represented, and genitalia of males or females for all known species were illustrated. Some known host plants in home or abroad were also cited.

KEY WORDS Lepidoptera, Tortricidae, *Olethreutes*, Taxonomy, Korea

抄 錄 韓國產 *Olethreutes*屬을 亞屬 단위로 구분 정리하였으며, 작은왕무늬애기잎말이 [*Olethreutes subtilana*(Falkovitsh)], 노랑띠애기잎말이 [*O. aurofasciana*(Haworth)]과 작은광택애기잎말이 [*O. moderata* Falkovitsh] 등 3種의 우리나라 未記錄種을 포함한 16種에 대하여 同種異名(Synonym), 採集地, 分布, 成虫의 發生時期 및 국내에서 밝혀진 寄主植物 등을 조사정리하였다. 처음으로 조사된 기주식물로는 들깨가 노랑무늬애기잎말이의 기주로 밝혀졌다. 同定이 완료된 거의 모든 종의 雌·雄生殖器를 圖解하여 種의 分類同定에 이용 가능토록 하였다. 총 밝혀진 16種 중 13種은 極東 아세아지역에만 분포하고 있는 種이었으며 暎원애기잎말이와 우수리애기잎말이 등 2種을 제외한 전종이 우리나라와 日本의 公同種이었다.

檢 索 語 나비목, 잎말이나방과, *Olethreutes*속, 분류, 한국

Genus *Olethreutes* in tribe Olethreutini (Olethreutinae, Tortricidae) comprises more than 500 species throughout the world including about 100 species known in Palaearctic region.

The moths are characterized by the broad and truncate forewings without costal fold in male, and semioval hindwings. The larvae are mostly monophagous and almost invariably internal feeders, living in stems and seedheads, or boring into fruits and roots.

The first record on the genus *Olethreutes* in Korea was made by Walsingham(1900). He recorded *arcuella*(Clerk) which was collected at Wönsan in Northern part of Kor-

ean peninsula by Leech(1886). Park(1983) pointed out that his record was certainly a result of the misidentification of *O. captiosana*(Falkovitsh). Further records were followed by a few additional publications of Matsumura(1900, 1981), Issiki(1957), Im(1981) and Kawabe(1982), adding 6 species to the fauna; *morivora*(Matsumura), *mori*(Matsumura), *hemiplaca*(Meyrick), *transversana*(Christoph), *castanaena*(Walsingham), *captiosana*(Falkovitsh). Recently Park(1983, 1986) added 8 species to the fauna; *cacuminana*(Kennel), *dolosana* Kennel, *doubledayana*(Barrett), *obovata*(Walsingham), *orthocosma*(Meyrick), *siderana*(Treitschke), *pryerana*(Walsingham), and *nigricrista* Kuznetzov. Consequently, in the present paper, the 16 species of Korean *Olethreutes* including 3 newly recorded species were revised by their

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systematic arrangements. And this paper also includes synonyms, collected localities and dates, distribution range (Table 1), flight period (Table 2), and some available

biological informations. Some superficial characters as well as genitalic structures for the newly recorded species were briefly redescribed and genitalia of males or fema-

Table 1. Distribution range of the genus *Olethreutes* in Palaearctic region

Species name	Korea	Japan	Amur & Siberia	China	Europe
<i>O. cacuminana</i> (K.)	+	+	+	-	-
<i>O. pryerana</i> (W.)	+	+	+	-	-
<i>O. subtilana</i> (F.)*	+	+	+	+	+
<i>O. obovata</i> (W.)	+	+	+	-	-
<i>O. captiosana</i> (F)	+	+	+	-	-
<i>O. doubledayana</i> (B.)	+	+	+	+	+
<i>O. aurofasciana</i> (H.)*	+	+	-	-	-
<i>O. orthocosma</i> (M.)	+	+	+	-	-
<i>O. hemiplaca</i> (M.)	+	-	-	+	-
<i>O. mori</i> (M.)	+	+	+	-	-
<i>O. dolosana</i> K.	+	+	+	+	-
<i>O. siderana</i> (T.)	+	+	+	+	+
<i>O. morivora</i> (M.)	+	+	-	-	-
<i>O. transversana</i> (Ch.)	+	+	+	-	-
<i>O. moderata</i> F.*	+	+	+	-	-
<i>O. nigricrista</i> K.	+	-	+	-	-

* : Newly recorded species in Korea.

Table 2. Flight period of moths of the genus *Olethreutes* in Korea

Species name	Flight period														Abundance				
	Apr.		May			June			July			Aug.				Sep.		Oct.	
	1	2	3	1	2	3	1	2	3	1	2	3	1	2		3	1	2	
<i>O. cacuminana</i> (K.)				■	■	■												+	
<i>O. pryerana</i> (W.)												■	■					+	
<i>O. subtilana</i> (F.)*				■	■	■	■	■	■	■	■	■	■	■	■	■	■	+	
<i>O. obovata</i> (W.)																		+++	
<i>O. captiosana</i> (F.)				■	■	■	■	■	■	■	■	■	■	■	■	■	■	+	
<i>O. doubledayana</i> (B.)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	+++++	
<i>O. aurofasciana</i> (H.)*																		+	
<i>O. orthocosma</i> (M.)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	++	
<i>O. hemiplaca</i> (M.)																		+++	
<i>O. mori</i> (M.)																		+	
<i>O. dolosana</i> K.																		++	
<i>O. siderana</i> (T.)																		+	
<i>O. morivora</i> (M.)																		+	
<i>O. transversana</i> (Ch.)																		+	
<i>O. moderata</i> F.*																		+	
<i>O. nigricrista</i> K.																			

□ : Known flight period in Japan, ■ : Flight period observed in Korea,

* : Newly recorded species in Korea

les of the most known species were illustrated. Concerning the world distribution, most of the known species except *doubledayana* (B.), *subtilana* F., and *siderana*(T.) are restricted to the Far-East Asian region, and only 2 species; *hemiplaca*(M.) and *nigricrista* (K.) are not distributed in Japan. The newly recorded species were marked with asterisk (*) on the number of each species.

We wish to express our sincere appreciation to Mr. A. Kawabe in Tokyo for his helpful advice and determination of some species.

SYSTEMATICS

Genus *Olethreutes* was proposed by Hübner(1822), on the basis of type species *Phalaena arcuella* Clerk.

The genus is very similar to the genus *Celypha* Hübner(1825) in external characters, but it is slightly differentiated from the latter by male's genitalic characters; sacculus of the genus *Celypha* is rather extended at basal part and cucullus is more slender than that of the genus *Olethreutes*. Owing to the similarity in superficial characters between them, their systematic has been confused. The genus *Olethreutes* has been dealt as a different genus from the genera; *Argyroploce* Hübner, *Selenodes* Guenée, *Exartema* Clemens and some other allied genera, or cited as a different separated subgenus. Pierce et Metcalfe(1922) dealt the genus *Olethreutes* as a distinct genus from the related genera; *Polychrosis* Ragnot, *Bactra* Stephens, *Apotomis* Hübner, *Olethreutes*, *Eudemis* Hübner, *Argyroploce*, *Phiaris* Hübner, *Celypha* by the shape of the valva of male genitalia. Obraztsov(1960) separated *Paracelypha* from the *Olethreutes* by the shape of valva. Diakonoff(1973) divided the genus into 4 distinct subgenera; *Olethreutes*, *Phiaris*, *Syricoris* Treitschke and *Biscopa*

Diakonoff by the structure of the sacculus of male genitalia. Kuznetsov and Stekolnikov(1973, 1977, 1984) demonstrated the musculature of male genitalia for the representatives of several tortricid genera. According to their fine comparative studies, the genus *Olethreutes* was treated as a distinct genus from the related genera; *Argyroploce*, *Selenodes*, *Syricoris* and *Phiaris*. Recently Kawabe(1982) has established genus as a senior synonym of *Argyroploce*, *Phiaris*, *Syricoris*, *Roxana* Stephens, *Mixodia* Guenée, *Melodes* Guenée, *Exartema*, *Loxotermia* Busk, *Paracelypha* and *Biscopa* in his excellent revision of Japanese tortricids.

In the present paper, authors followed Diakonoff's proposal(1973) which divided the genus *Olethreutes* into 4 subgenera based on especially the shape of the sacculus. The key to the subgenera of *Olethreutes* based on the male genitalia were herewith cited.

KEY TO SUBGENERA OF OLETHREUTES BASED ON MALE GENITALIA

(after Diakonoff, 1973)

1. Sacculus more or less excavated internally and externally with a sinuate oblique ridge 2
 Sacculus with basal half more or less flattened, without ridge..... 4
2. Sacculus deeply split longitudinally in two parts, dorsally spiny, ventrally naked, with acute spiny process *Biscopa*
 Sacculus not so deeply split, ventral part diversely shaped, but not so strongly isolated; cucullus not distinctly clavate 3
3. Transverse ridge of sacculus evenly covered with small dense bristles *Syricoris*
 Transverse ridge bristled either at

base or at top, bristles large, unequal
..... *Olethreutes*

- 4. Cucullus more or less dilated at basal half, often with a process, usually crowned with a group of spines; sacculus without process; hindwing usually with veins 3 and 4 connate
..... *Phiaris*

Cucullus dilated only at extreme base, without process; sacculus with a rounded apical process, crowned with a pencil-like spines; hindwing with veins 3 and 4 separated*Olethreutes*

Genus *Olethreutes* Hübner, 1822

Ver. bekannter. Schmett. : 58—67, 69.

Type-species: *Phalaena arcuella* Clerk, 1759.

Subgenus *Phiaris* Hübner(1825)

*1. *Olethreutes (Phiaris) subtilana* (Falkovitsh) 작은왕애기잎말이(신칭)

Argyropoce subtilana Falkovitsh, 1959, Ent. Obozr., 38 : 460, Fig. 1.

Olethreutes subtilana: Kawabe, 1982, 1 : 105, 2 : 170, pl. 284 : 7, 291 : 11.

Wings expanse, 12.5—15.5mm. This species is closely similar to *captiosana* (Falkovitsh), but generally smaller than the latter in size and different colour patterns of forewing.

Male genitalia (Fig. 2). Valva haired with a row of transverse setae. Sacculus not angulated. Aedeagus nearly straight without cornutus.

Female genitalia (Fig. 15). Tubular part of sterigma narrow. Ductus bursae very long with swollen part at 1/2. Corpus bursae spherical, with a signum of characteristic shape.

Material examined. <Gyŕnggi> : Gwangrung, 1♂, 8. VI. 1977 (J.S. Lee); Mt. Myungji, 1♂, 25. VI. 1983 (U. Park); Gapyung, 1♀, 21. V. 1983 (U. Park); Anyang, 1♀, 21. VI. 1984 (I.S. Kim).

<Kangwŕn> : Mt. Chiak, 2♂♂, 23. VI. 1977 (K.T. Park); Whachŕn, 1♂, 2. VII. 1985 (U. Park); Chunsung, 1♂, 4. VI. 1987 (U. Park).

<Jeju> : Mt. Halla, 2♂♂, 27. V. 1987 (U. Park).

Distribution. Korea, Japan, China, U.S.S.R. (Leningrad & Siberia).

Remarks. It has been known that the larvae feed on dead leaf in Japan (Kawabe, 1982)

2. *Olethreutes (Phiaris) cacuminana* (Kennel) 광릉애기잎말이

Penthina cacuminana Kennel, 1901, Dt. ent. Z. Iris 13 : 253.

Olethreutes cacuminana: Falkovitsh, 1966 : 39—41. Fig. 1, 2; Kawabe, 1982, 1 : 108, 2 : 170, pl. 24 : 19; Park, 1983, 3 : 44.

Wings expanse, 16—20mm.

Male and female genitalia. As shown in Figs. 1, 16 and Park(1983) : Fig. 384.

Material examined. <Gyŕnggi> : Gwangrung, 1♀, 8. VI. 1977 (K.T. Park); 1♂, 8. VI. 1977 (J.S. Paik); 1♂, 15. VI. 1982 (K.T. Park); 1♀, 30. V. 1986 (U. Park).

<Jeju> : Mt. Halla, 2♂♂, 27. V. 1987 (K.T. Park).

Distribution. Korea, Japan, Amur, Ussuri.

Remarks. The moths appear from the late of May to the middle of June. It seems to be univoltine. The host plant has not been known from any other countries.

3. *Olethreutes (Phiaris) pryerana* (Walsingham) 돌기무늬애기잎말이

Exartema pryerana Walsingham, 1900, Ann. Mag. nat. Hist. (7) : 126.

Olethreutes pryerana: Kawabe, 1982, 1 : 108, 2 : 170, pl. 24 : 21, 285 : 3, 292 : 3; Park, 1986, 25(4) : 193—200.

Wings expanse, 17—19mm.

Male and female genitalia. As shown in Figs. 4, 14.

Material examined. <Jŕnbuk> : Mt. Jiri, 1♀, 22. VII. 1985 (K.T. Park).

〈Kangwŏn〉: Mt. Dosol, 1♂, 6. VIII. 1987 (U. Park).

Distribution. Korea, Japan.

Remarks. The host plant has not been known. The moths appear from July to August.

4. *Olethreutes (Phiaris) obovata* (Walsingham) 꼬리애기잎말이

Argyroploce obovata Walsingham, 1900, Ann. Mag. nat. Hist., (7)6 : 242.

Olethreutes obovata: Inoue, 1954, 1 : 105; Oku, 1973, 41(2) : 254—255; Kawabe, 1982, 1 : 107, 2 : 170, pl. 24 : 14; Park, 1983, 3 : 44.

Wings expanse, 12—15mm.

Male and female genitalia. As shown in Figs. 5, 18 and Park(1983) : Fig. 386.

Material examined. 〈Gyŏnggi〉: Suwŏn, 4♂♂, 5♀♀, 30. VIII. 1975 (K.T. Park); 2♂♂, 11. VI. 1976 (K.B. Uhm); 1♂, 2♀♀, 11. VI. 1976 (K.T. Park); 1♂, 20. VI. 1976 (M.H. Lee); Gwangrung, 1♀, 10. VII. 1982 (K.T. Park); 2♂♂, 1♀, 7. VII. 1986; 1♀, 22. VII. 1986 (U. Park). 〈Jŏnbuk〉: Mt. Jiri, 1♂, 23. VII. 1985 (K.T. Park).

〈Kangwŏn〉: Chunchŏn, 1♀, 26. VI. 1984 (K.T. Park); 1♂, 25. VI. 1986 (U. Park); Yanggu, 1♂, 15. VIII. 1985 (K.T. Park); Hongchŏn, 1♀, 5. IX. 1986; Chunsung, 3♂♂, 7. VII. 1987; Yangyang, 8♂♂, 1♀, 4. VI. 1987; 1♂, 6. VI. 1987; 1♀, 30. VI. 1987; 1♂, 10. VII. 1987; 7♂♂, 2♀♀, 25. VII. 1987 (U. Park).

Distribution. Korea, Japan, China, Amur.

Remarks. The species is one of the most common species in Korea. The moths appear from June to September.

5. *Olethreutes (Phiaris) captiosana* (Falkovitsh) 왕푸늬애기잎말이

Phiaris captiosana Falkovitsh, 1960, Ent. Obozor., 39 : 691.

Olethreutes arcuella sensu Issiki, (nec Clarke)

1957, 1 : 74.

Olethreutes captiosana: Kawabe, 1982, 1 : 105, 2 : 170, Pl. 24 : 4; Park, 1983, 3 : 43. Wings expanse, 16.5—20mm.

Male and female genitalia. As shown in Figs. 3, 17.

Material examined. 〈Gyŏnggi〉: Gwangrung, 1♂, 2. VII. 1982; 2♂♂ 15. V. 1983 (K. T. Park); 2♀♀, 29. V. 1983 (S.B. An). 〈Kangwŏn〉: Mt. Dosol, 1♂, 2♀♀, 14. VI. 1987 (U. Park).

〈Jŏnbuk〉: Mt. Dogyu, 1♂, 5. VI. 1983 (S.B. An).

Distribution. Korea, Japan, Siberia.

Remarks. This species was reported first by Walsingham(1900) from North Korea under the name of *O. arcuella*, but it was confirmed as a result of the misidentification of *O. captiosana* (F.) (Park, 1983).

Subgenus *Syricoris* Treitschke(1829)

*6. *Olethreutes (Syricoris) aurofasiana* (Haworth) 노랑띠애기잎말이(신칭)

Tortrix aurofasciana Haworth, 1811, Lepid. Br. 468.

Olethreutes aurofasciana: Diakonoff, 1973, 12 : 1—3; Kawabe, 1982, 1 : 110, 2 : 171, pl. 24 : 38, 39, 40.

Wings expanse, 11—14.5mm. Forewings with longitudinal orange band in middle and dark orange colour toward margin. Hindwings blackish-grey. This species is distinctly smaller than any other known species belonging to this genus. Only females were collected.

Female genitalia (Fig. 20). Ductus bursae long and slender. Corpus bursae ovate without signum.

Material examined. 〈Kangwŏn〉: Mt. Chiak, 1♀, 23. VI. 1977 (K.T. Park); Chunsung, 1♀, 7. VII. 1987; 1♀, 20. VIII. 1987 (U. Park); Chunchŏn, 2♀♀, 14. VII. 1987 (U. Park).

Distribution. Korea, Japan.

Remarks. It has been known that the larvae feed on moss from Japan (Kawabe, 1982).

7. *Olethreutes (Syricoris) doubledayana* (Barrett) 크로바에기잎말이

Syricoris doubledayana Barrett, 1872, Ent. Month. Mag., 8 : 246.

Argyroploce doubledayana: Meyrick, 1927, : 576.

Olethreutes doubledayana: Staudinger et Rebel, 1901, 2 : 208; Kawabe, 1982, 1 : 110, 2 : 170, 24 : 37; Park, 1983, 3 : 44.

Wings expanse, 11—15mm.

Male and female genitalia. As shown in Figs. 6, 19.

Material examined. <Gyŕnggi> : Suwŕn, 23 ♂♂, 20 ♀♀, 4. VI. 1974 (K.T. Park); 10 ♂♂, 12 ♀♀, 13. VIII. 1974 (J.C. Paik); 17 ♂♂, 16 ♀♀, 10. IX. 1974 (Y.I. Lee); 1 ♂, 28. VII. 1975 (K.T. Park); 8 ♂♂, 5 ♀♀, 1. IX. 1975 (C.Y. Whang); 12 ♂♂, 10 ♀♀, 23. VI. 1977 (K.T. Park); 3 ♂♂, 2 ♀♀, 22. VII. 1977 (H.Y. Soung); 10 ♂♂, 15 ♀♀, 11. VIII. 1980 (K.T. Choe); 3 ♂♂, 12 ♀♀, 23. V. 1982 (D.J. Im); Gwangrung, 1 ♂, 1 ♀, 27. VI. 1986; 1 ♂, 3 ♀♀, 22. VII. 1986; 3 ♂♂, 6 ♀♀, 7. VIII. 1986 (U. Park).

<Kangwŕn> : Whachŕn, 6 ♂♂, 2 ♀♀, 2. VII. 1985; Yanggu, 3 ♂♂, 15. VIII. 1985; Mt., Dosol, 1 ♀, 13. VIII. 1985 (K. T. Park); Chunchŕn, 1 ♀, 25. VI. 1986; Hongchŕn, 3 ♂, 13 ♀♀, 5. IX. 1986; Ch-unsung, 15 ♂♂, 1 ♀, 7. VII. 1987; Yangyang, 1 ♂, 30. VI. 1987 (U. Park).

Distribution. Korea, Japan, China, Europe.

Host plant. *Trifolium repens* L. (Park, 1982)

Remarks. Ryozo and Oku (1969) reported that the larva was found commonly on the white clover, rarely on the red clover, but not on the alfalfa and the sweet clover.

Subgenus *Olethreutes* Hübner(1822)

***8. *Olethreutes (Olethreutes) moderata* Falkovitsh** 작은빛애기잎말이(신칭)

Olethreutes moderata Falkovitsh, 1962, Trudy zool. Inst., Lenin. 30 : 365, Figs. 12, 13; Kawabe, 1982, 1 : 108, 2 : 170, pl. 24 : 25, 285 : 4, 292 : 4.

Wings expanse, 15.5—18mm. Forewings shining grey. This species closely resembles *O. examinata* Falkovitsh superficially, except slender band at outer margin of forewings, but genital characters show distinct difference each other. Only a female was collected.

Female genitalia (Fig. 23). Sterigma somewhat larger, a broad plate. Ostium a pair of new moon-shaped. Ductus bursae short with numerous folds on surface. Corpus bursae without signum.

Material examined. <Kangwŕn> : Yangyang, 1 ♀, 10. VII. 1987 (U. Park).

Distribution. Korea Japan, Amur.

Remarks. *Vaccinium oldhami* M., *Prunus serrulata* var. *spontanea* W. have been known from Japan (Kawabe, 1982).

9. *Olethreutes (Olethreutes) orthocosma* (Meyrick) 노랑무늬애기잎말이

Argyroploce orthocosma Meyrick, 1931, Exot. Microl., 4 : 141.

Olethreutes orthocosma: Inoue, 1954, 1 : 109.

Exartema orthocosma: Issiki, 1957, 1 : 17.

Olethreutes orthocosma: Kawabe, 1982, 1 : 109, 2 : 170, pl. 24 : 29, 285 : 6, 292 : 6; Park, 1983, 3 : 45.

Wings expanse, 13—15mm.

Male and female genitalia. As shown in Figs. 10, 21 and Park(1983) : Fig. 387.

Material examined. <Gyŕnggi> : Suwŕn, 2 ♂♂, 22. VIII. 1974 (K.T. Park).

<Chungnam> : Mt. Gyeryong, 3 ♂♂, 3 ♀♀, 20. VI. 1980 (K.T. Park).

<Jŕnbuk> : Mt. Jiri, 1 ♂, 19. VII. 1985 (K.T. Park).

<Kangwŕn> : Yanggu, 1 ♂, 15. VIII. 1985; Chunchŕn, 1 ♂, 25. VI. 1985; 1 ♂, 23.

VI. 1987 (K.T. Park); 1♂, 1♀, 7. VI. 1987; 1♂, 14. VIII. 1987; Yangyang, 1♀, 6. VI. 1987; Hongchŏn, 1♂, 14. VIII. 1987 (U. Park).

Distribution. Korea, Japan, Siberia.

Host plant. *Perilla frutescens* var. *japonica* H. (new record)

10. *Olethreutes (Olethreutes) hemiplaca* (Meyrick) 뽕흰애기잎말이

Argyroploce hemiplaca Meyrick, 1922, Exot. Microl., 2 : 525.

Argyroploce albipalpis Meyrick, 1931, Exot. Microl., 4 : 140.

Olethreutes hemiplaca: Clarke, 1968, 3 : 516; Im and Paik, 1981, 23 : 87—92; Park, 1983, 3 : 43.

Wings expanse, 15—18mm.

Male and female genitalia. As shown in Figs. 9, 22 and Park(1983) : Fig. 383.

Material examined. <Gyŕnggi> : Suwŏn, 1♂, 2♀♀, 4. VI. 1974 (J.C. Paik); 15♂♂, 2♀♀, 4. VI. 1974; 1♀, 7. IX. 1981 (K. T. Park); 22♂♂, 6♀♀, 20. VII. 1982 (D.J. Im).

Distribution. Korea, China.

Host plant. *Morus alba* L. (Im, 1981)

Remarks. The species is the most serious reaf-roller of *Morus alba* in Korea, whereas *O. mori* is the most serious in Japan.

11. *Olethreutes (Olethreutes) mori* (Matsumura) 뽕큰애기잎말이

Exartema mori Matsumura, 1900, Ent. Nachr., 26(13) : 196.

Exartema japonicum Walsingham, 1900, Ann. Mag. nat. Hist., (7)6 : 126.

Cymolomia (Exartema) mori: Matsumura, 1931, 1068; Kawabe, 1982, 1 : 109, 2 : 170, pl. 24 : 33; Park, 1983, 3 : 43.

Wings expanse, 18—22mm.

Male genitalia. As shown in Figs. 12 and Park(1983) : Fig. 382.

Material examined. <Gyŕnggi> : Suwŏn, 1♂, ?, ?, 1976 (K.T. Park).

<Kangwŏn> : Yangyang, 2♂♂, 25. VII. 1987 (K.T. Park).

Distribution. Korea, Japan, China, Amur.

Host plant. *Morus alba* L. (Park, 1983).

12. *Olethreutes (Olethreutes) dolosana* Kennel 매화애기잎말이

Olethreutes dolosana Kennel, 1901, Dt. ent. Z. Iris 13 : 234.

Exartema dolosana: Inoue, 1954, 1 : 107; Issiki, 1957, 1 : 70; Kawabe, 1982, 1 : 108, 2 : 170, pl. 24 : 27, 285 : 5, 292 : 5; Park, 1983, 3 : 44.

Wings expanse, 15—16mm.

Male and female genitalia. As shown in Figs. 8, 24 and Park(1983) : Fig. 385.

Material examined. <Jŏnbuk> : Mt. Jiri, 3♂♂, 3♀♀, 19. VII. 1981 (K.T. Park).

<Kangwŏn> : Chunsung, 1♀, 7. VII. 1987; 1♂, 20. VII. 1987; Yangyang, 4♂♂, 1♀, 25. VII. 1987 (U. Park).

Distribution. Korea, Japan, China, Amur.

Remarks. *Prunus mume* S. et Z. has been known from Japan (Kawabe, 1982).

13. *Olethreutes (Olethreutes) siderana* (Treitschke) 달구지애기잎말이

Sericoris siderana Treitschke, 1835, Schmett. Eur. 10(3) : 81.

Olethreutes siderana: Kawabe, 1982, 1 : 106, 2 : 170, pl. 24 : 8; Park, 1986, 25(4) : 193—200.

Wings expanse, 17—20mm.

Male and female genitalia. As shown in Figs. 13, 26 and Park(1986) : Fig. 9, 9-1.

Material examined. <Gyŕnggi> : Gwangrung, 1♂, 2. VI. 1982 (K.T. Park).

<Kangwŏn> : Chunchŏn, 1♂, 5. VI. 1985; 3♂♂, 1♀, 10, VI, 1985 (K.T. Park).

Distribution. Korea, Japan, China, U.S.S.R., Europe.

Remarks. *Trifolium lupinaster* L. has been known from Japan (Kawabe, 1982).

14. *Olethreutes (Olethreutes) morivora* (Matsumura) 뽕애기잎말이

Cymolomia morivora Matsumura, 1900. Ent. Nachr. 26(13) : 195.

Cymolomia (Exartema) morivora: Matsumura, 1931, : 1068.

Exartema morivora: Issiki, 1957, Kawabe, 1982, 1 : 109, 2 : 170, pl. 24 : 31, 285 : 7, 292 : 7; Park, 1983, 3 : 43.

Wings expanse, 12.5—15.5mm.

Male genitalia. As shown in Figs. 7 and Park(1983) : Fig. 381.

Material examined. <Kangwŏn> : Mt. Chiak, 1♂, 23. VI. 1977 (K.T. Park).

Distribution. Korea, Japan.

Host plants. *Morus alba* L., *Morus* sp. (Park, 1983).

15. *Olethreutes (Olethreutes) transversana* (Christoph) 줄회색애기잎말이

Penthina transversana Christoph, 1881, Bull. Soc. Imp. nat. Moscou, 46(1) : 75.

Olethreutes transversana: Kawabe, 1982, 1 : 109, 2 : 170, pl. 24 : 32; Park, 1983, 3 : 44.

Wings expanse, 16—21mm.

Male and female genitalia. As shown in Figs. 11, 25.

Material examined. <Kangwŏn> : Yangyang, 1♀, 10. VII. 1987; 1♂, 1♀, 25. VII. 1987 (K.T. Park); Chunchŏn, 2♂♂, 14. VIII. 1987 (U. Park); Chunsung, 1♀, 20. VII. 1987; Hongchŏn, 4♂♂, 14. VIII. 1987 (K.T. Park)

Distribution. Korea, Japan, Amur.

Remarks. *Mentha arvensis* var. *piperascens* M. and *Glycine max* M. have been known from Japan (Kawabe, 1982).

Subgenus *Biscopa* Diakonoff(1973)

16. *Olethreutes (Biscopa) nigricrista* Kuznetsov 우수리아애기잎말이

Olethreutes nigricrista Kuznetsov, 1976, Trudy Zool. Inst. Leningr. 64 : 9—10, Fig. 10; Park, 1986, 25(4) : 193—199, Fig. 1.

Wings expanse, 11mm—12mm.

Male genitalia. Park(1986) : Fig. 1.

Material examined. <Kangwŏn> : Chunchŏn, 1♂, 29. VII. 1983; 1♂, 3. VIII. 1983 (K.T. Park).

<Gyŏngnam> : Namhae, 1♂, 25. VII. 1985 (K.T. Park).

Distribution. Korea, Ussuri.

UNCONFIRMED SPECIES

1. *Olethreutes castaneana* (Walsingham)

Exartema castanaenum Walsingham, 1900, Ann. Mag. nat. Hist., (7)6 : 124.

Olethreutes castaneana: Kawabe, 1982, 1 : 109, 2 : 170, pl. 24 : 28.

Olethreutes castaneana: Park, 1983, 3 : 44.

Remarks. The above species has not been found in S. Korea, since it was reported from Wŏnsan, N. Korea by Walsingham (1900).

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EXPLANATION OF FIGURES

Plate I.

- Figs. 1—6 : Male genitalia. (Scale : 1mm), 1. *Olethreutes cacuminana* (K.), 2. *Olethreutes subtilana* (F.), 3. *Olethreutes captiosana* (F.), 4. *Olethreutes pryerana* (W.), 5. *Olethreutes obovata* (W.), 6. *Olethreutes doubledayana* (B.)

Plate II.

- Figs. 7—13 : Male genitalia. (Scale : 1mm), 7. *Olethreutes morivora* (M.), 8. *Olethreutes dolosana* (K.), 9. *Olethreutes hemiplaca* (M.), 10. *Olethreutes orthocosma* (M.), 11. *Olethreutes transversana* (Ch.), 12. *Olethreutes mori* (M.), 13. *Olethreutes siderana* (T.)

Plate III.

- Figs. 14—20 : Female genitalia. (Scale : 1mm), 14. *Olethreutes pryerana* (W.), 15. *Olethreutes subtilana* (F.), 16. *Olethreutes cacuminana* (K.), 17. *Olethreutes captiosana* (F.), 18. *Olethreutes obovata* (W.), 19. *Olethreutes doubledayana* (B.), 20. *Olethreutes aurofasciana* (H.)

Plate IV.

- Figs. 21—26 : Female genitalia. (Scale : 1mm), 21. *Olethreutes orthocosma* (M.), 22. *Olethreutes hemiplaca* (M.), 23. *Olethreutes moderata* (F.), 24. *Olethreutes dolosana* (K.), 25. *Olethreutes transversana* (Ch.), 26. *Olethreutes siderana* (T.)

PLATE I

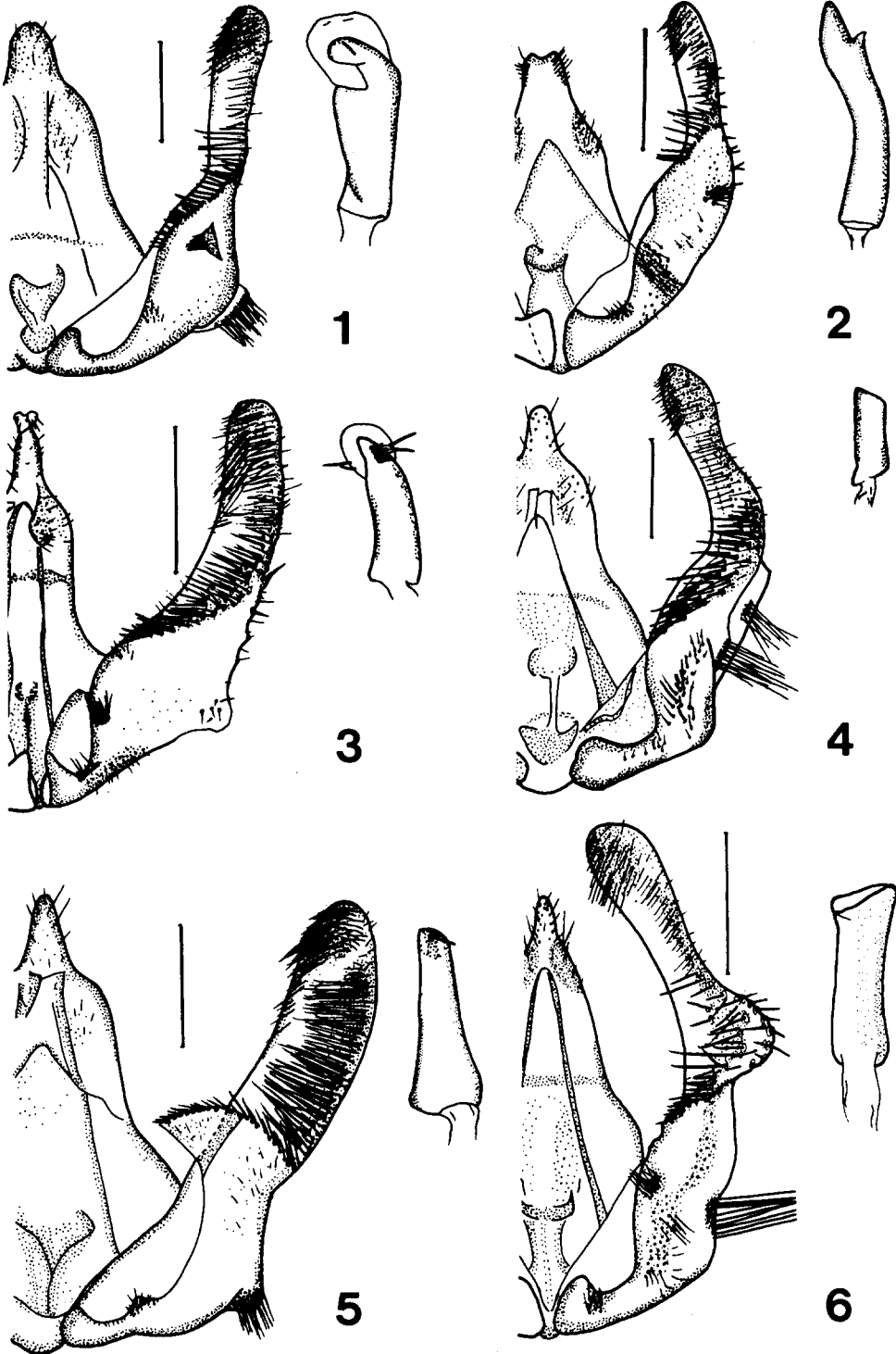


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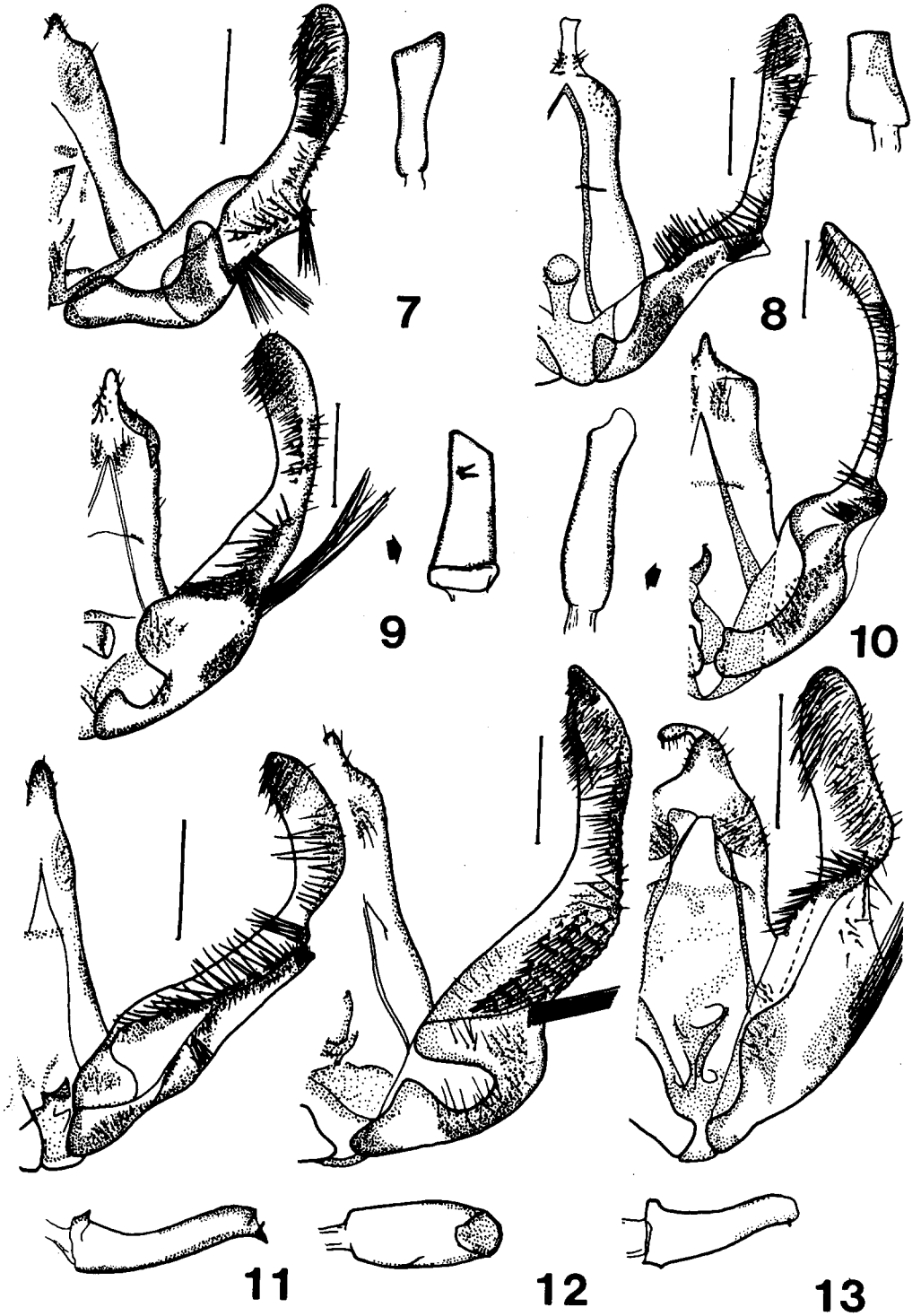


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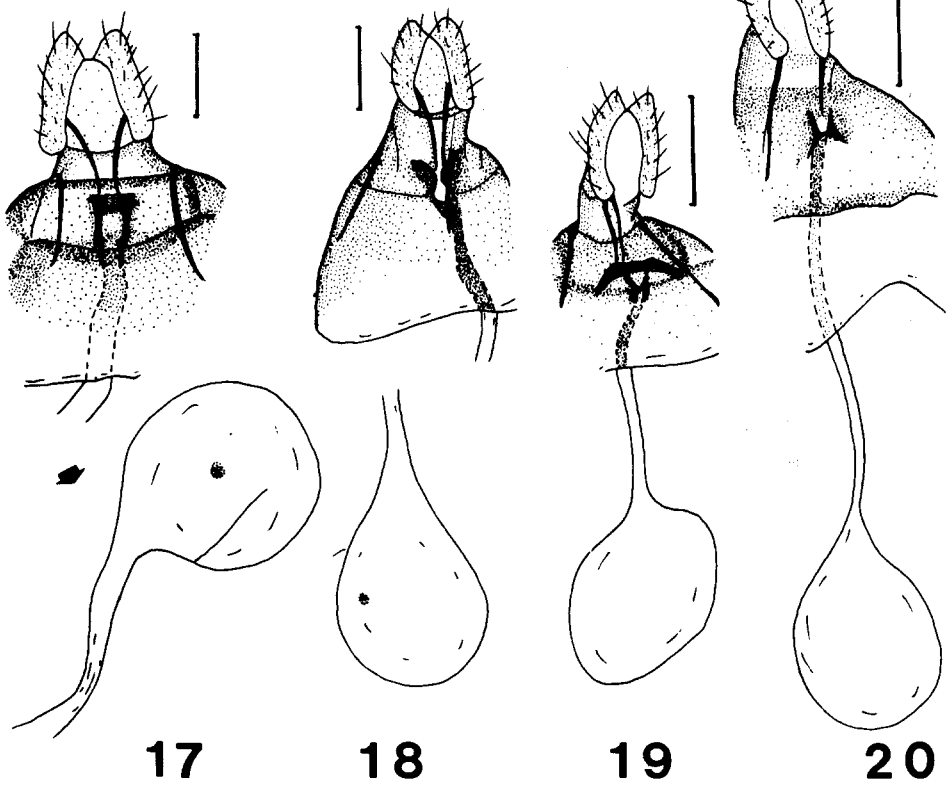
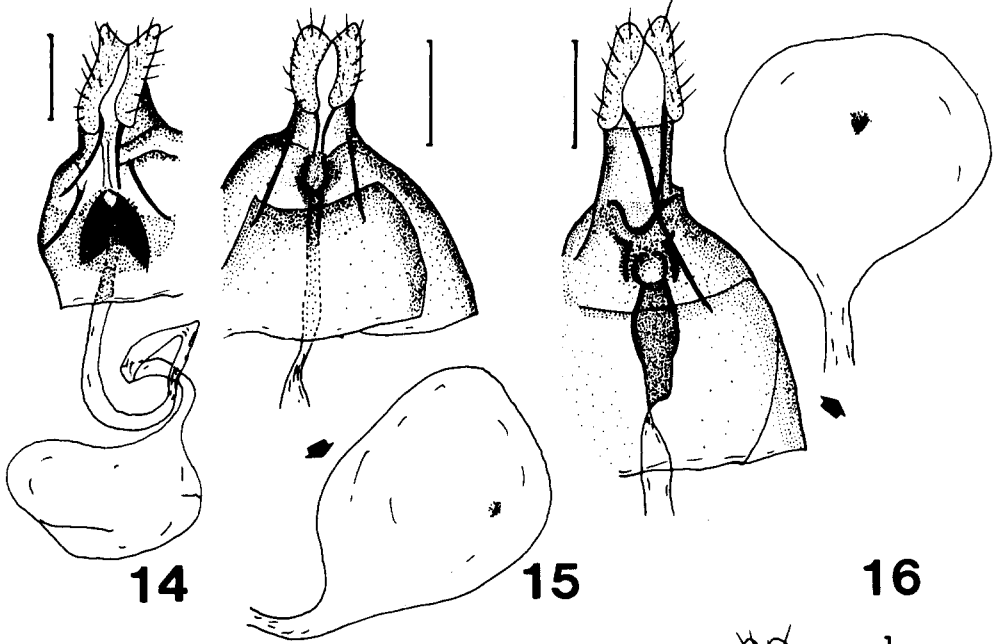
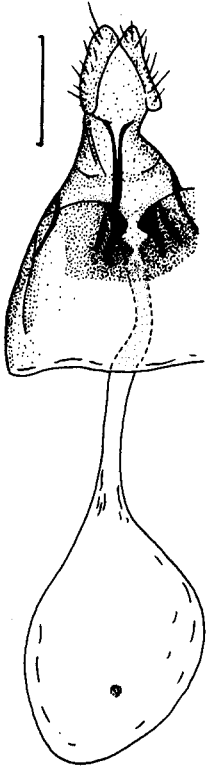
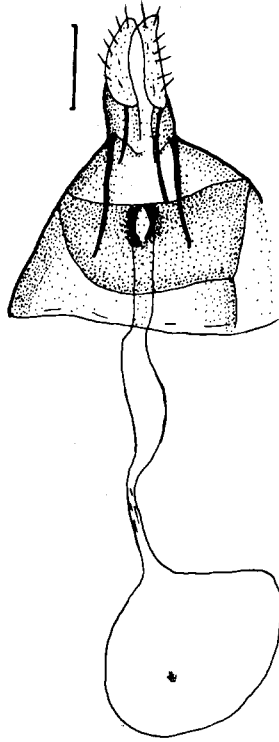


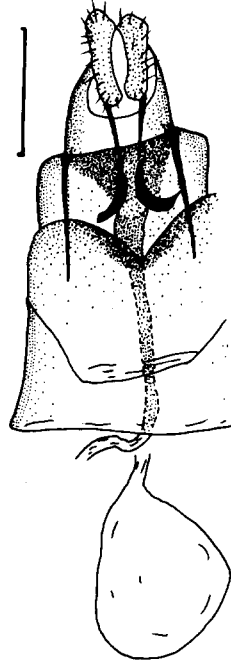
PLATE IV



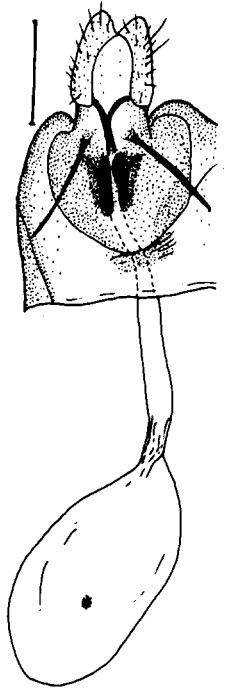
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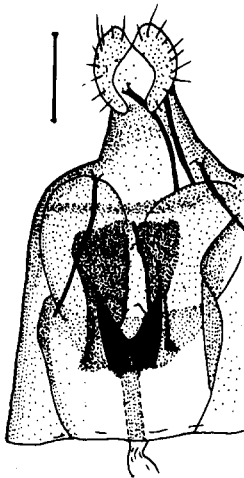
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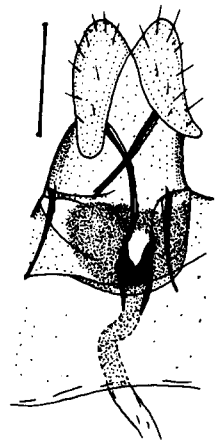
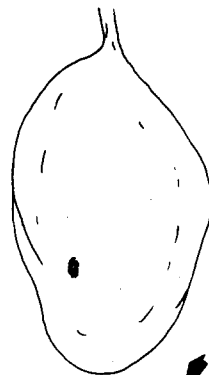
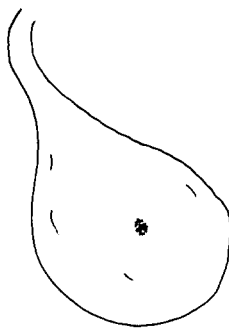
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