

Taxonomic Study of Tribe Copiphorini in Korea (Orthoptera: Tettigoniidae: Conocephalinae)

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ABSTRACT Five species of the tribe Copiphorini (Orthoptera, Tettigoniidae, Conocephalinae) including a newly recorded species *Xestophrys javanicus* Redtenbacher are recognized in Korean fauna. The key to species, characteristic figures, and diagnosis for the newly recorded species are presented.

Key words : Taxonomy, Copiphorini, Conocephalinae, Tettigoniidae, Orthoptera, Korea

INTRODUCTION

The tribe Copiphorini belongs to the subfamily Conocephalinae *s. lat.* (Orthoptera: Tettigoniidae), which members are composed of more than 410 species throughout the world (Naskrecki and Otte, 1999). It is easily distinguished from the other Tettigoniids by markedly slanting head shape and larger sized body. According to authorship, sometimes it is treated as the state of independent subfamily Copiphorinae separated from Conocephalinae in the Tettigoniidae (Karny, 1912).

Some reports dealt with Korean Copiphorini accomplished by Mori (1933), Cho (1959, 1969), and Lee (1990), but only as a part of Orthoptera list. Therefore, there was no comprehensive study for members of Copiphorini in Korea up to now.

In this study, five species of the Copiphorines are recognized in Korean fauna: *Euconocephalus nasutus* (Thunberg), *Ruspolia lineosa* (Walker), *Ruspolia jezoensis* (Matsumura et Shiraki), *Pseudorhynchus japonicus* Shiraki, and including a newly recorded species *Xestophrys javanicus* Redtenbacher. The key to known Korean Copiphorini species, diagnosis for the newly recorded species, and comparative figures of stridulatory apparatus are presented.

The depositories and the provinces of Korea are given in abbreviated form as follows: EU- Ehwa

Women's Univ.; GSU- Gyeongsang Univ.; KU- Korea Univ.; NIAST- National Institute of Agricultural Science and Technology; SSU- Sungshin Women's Univ.; SWU- Seoul Women's Univ.; YNU- Yeongnam Univ.; GW- Gangwon-do; GG- Gyeonggi-do; CB- Chungcheongbuk-do; CN- Chungcheongnam-do; GB- Gyeongsangbuk-do; GN- Gyeongsangnam-do; JB- Jeollabuk-do; JN- Jeollanam-do; JJ- Jeju-do.

SYSTEMATIC ACCOUNT

Tribe Copiphorini Karny

Key to known species of Korean Copiphorini

1. Body relatively longer and slender; Hind femora nearly three times longer than mid femora; Male cerci cylindrical with perpendicular bending inwardly 2
- Body relatively stouter and robust; Hind femora barely two times longer than mid femora; Male cerci broaden and flattened with developed basal processes 4
2. Fastigium of vertex with conical pointed apex; Notch clearly opened between fastigia of vertex and frons
..... *Euconocephalus nasutus* (Thunberg)
- Fastigium of vertex with obtusely blunted apex; Notch seldom opened between fastigia of vertex and frons 3
3. Dorsal width of fastigium of vertex 2.0 times as wide as antennal scape; Each sides of fore, mid tibiae dark black; Tegminal tip rather obliquely

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- truncated *Ruspolia lineosa* (Walker)
 - Dorsal width of fastigium of vertex 1.5 times as wide as antennal scape; Fore, mid tibiae concolorous with femora; Tegminal tip rather roundly acute
 *Ruspolia jezoensis* (Matsumura et Shiraki)
 4. Body relatively smaller; Notch closed between fastigia of vertex and frons; Fastigium of vertex without ventral tubercle
 *Xestophrys javanicus* Redtenbacher
 - Body relatively larger; Notch markedly opened between fastigia of vertex and frons; Fastigium of vertex with ventral tubercle basally
 *Pseudorhynchus japonicus* Shiraki

Genus *Euconocephalus* Karny

Type species: *Locusta acuminata* Fabricius.

1. *Euconocephalus nasutus* (Thunberg)

좀매부리 (Fig. 1)

Conocephalus nasutus Thunberg, 1815. Mem. Acad. St. Petersburg. 5: 273, China.

= *Locusta acuminata* Fabricius, 1793. Ent. Syst. 2: 39. [synonymy by Kevan and Knipper, 1955]

? = *Conocephalus varius* Walker, 1869. Cat. Derm. Salt. Brit. Mus. 2: 320, China, Hong Kong, Silhet.

Euconocephalus acuminatus: Mori, 1933: 55; Cho, 1959: 161, fig. 31; Cho, 1969: 756, pl. 51; Ju, 1969: 17.

Euconocephalus nasutus: Bey-Bienko, 1955: 1263, Korea.

Euconocephalus thunbergi: Kim and Oh, 1990: 120; Kim and Oh, 1991: 149; Paik et al. 1995: 294. [synonymy of *Euconocephalus varius* by Hebard, 1922].

Material examined. GN- 1 ♂, Deokho-ri Hai-myeon Goseong, 30-31 X 1996, Kang (GSU); 1 ♂, Mt. Sanseongsan Yongtae-ri Hail-myeon Goseong, 29-30 VI 1998 (GSU); 1 ♂, Sincheon Sicheon Sancheong, 12-13 X 1996, Kim (GSU); 1 ♀, Light trap, Hansan Tongyeong, 6-7 VII 1994, Goh (GSU). JJ- 1 ♀, Seongeup Namjeju, 3 IX 1994, Lee (S.M. Lee's collection); 1 ♀, Jeju, 2 V 1992, LHJ; 1 ♀, Seonhle, 28 IX 2000, Kim (NIAST); 1 ♂, Yongsu-ri Hangyeong-myeon Hanrim, 26 IX 2000, An (NIAST); 3 ♂ 1 ♀, Jeongbang waterfall Dongheung-dong Seoguipo, 9 VII 2002, Kim (SSU); 1 ♀, Cheonwangsa Temple Jeju, 10 VII 2002, Kim (SSU).

Distribution. Korea (Southern part), Japan, China, Philippine.

Remarks. According to Bey-Bienko (1955), still using the name, *Euconocephalus varius* (Walker) is needed a reconsideration for the synonymy of *E. nasutus* (Thunberg).

Even though the criterion is questionable (Hebard, 1922), the little difference is marginal coloration of tegmina between the two, and all Korean samples have the color is accordance with *E. nasutus*. This species overwinters in southern part of Korea as the adult stage likely as in Japan (Ito et al., 1996).

Genus *Ruspolia* Schulthess-Schindler

Type species: *Ruspolia pygmaea* Schulthess.

2. *Ruspolia lineosa* (Walker) 매부리 (Fig. 2)

Conocephalus lineosus Walker, 1869. Cat. Derm. Salt. Brit. Mus. 2: 318, China.

Homocoryphus [sic] *lineosus*: Doi, 1932: 37; Cho, 1963: 163.

Homocoryphus lineosus: Mori, 1933: 55; Cho, 1959: 160, fig. 29; Cho, 1969: 755, pl. 50; Ju, 1969: 18.

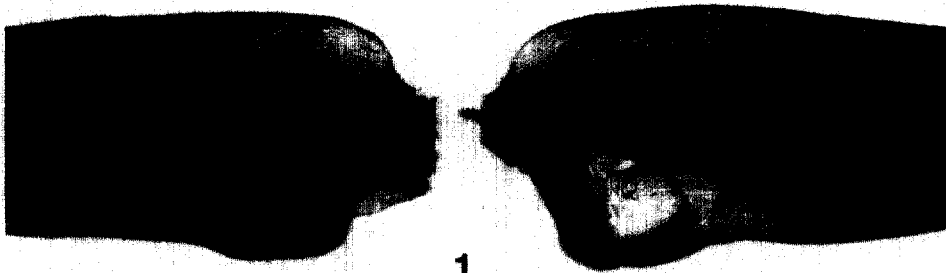
Homocoryphus nitidulus: Lee, 1990: 109; Paik et al. 1995: 294. [misidentification]

Ruspolia lineosa: Moon and Yoon, 1993: 57; Kwon and Huh, 1994: 49; Kwon et al. 1996: 104.

Material examined. GW- 1 ♀, Jukhyeon-dong Gangneung, 29 VII 1997, Kim (SSU); 1 ♂ 1 ♀, Changwon-ri Yeongwol, 7 IX 1998, Kim (NIAST); 1 ♀, Misan Inje, 17 VIII 1960, Son (EU); 1 ♀, Deokgeori Jangpyeong, 10 X 1988, Jeon (SSU); 2 ♂ 1 ♀, Balsa-ri Chuncheon, 28 VIII 1998, Park (NIAST); 1 ♀, Noil-myeon Hongcheon, 18 IX 1993, Kim (SSU); 1 ♀, Mt. Odaesan, 3 X 1996, Kim (SSU). GG- 1 ♀, Gapyeong, 19 IX 1970, Cho (EU); 1 ♀, Mt. Godongsan Gapyeong, 9 IX 1980, Jang (SSU); 1 ♂ 1 ♀, Byeokje Goyang, 16 IX 1997, Chae (SSU); 1 ♂, Wondang Goyang, 11 VIII 1996, Park (SSU); 1 ♂, Ilyeong Goyang, 23 VIII 1970, Kim (EU); 1 ♂ 1 ♀, Jangheung Goyang, 18-28 IX 1991, Paik et al. (SSU); 1 ♂ 2 ♀, Gwacheon, 30 VIII 1992, Choi (SSU); 1 ♂, Gwangneung, 22 IX 1990, Kim (SSU); 1 ♂, Haan-dong Gwangmyeong, 21 VIII 1994, Kim (SSU); 1 ♀, Ungogae Gwangju, 15 IX 1984, Kim (SSU); 1 ♂, Bogwangsa Gwangtan, 4 IX 1977, Kim (EU); 1 ♀, Yongmi-ri Gwangtan, 9 VIII 1996, Park (SSU); 3 ♀, Dongguneung Guri, 15 IX 1968, Lee (EU); 1 ♂ 1 ♀, Maseok Namyangju, 9-16 IX 1972, Lee et al. (EU); 2 ♀, Mt. Bulamsan, 18 IX 1982,

Kim (SSU); 1 ♂ 2 ♀, Mt. Suraksan, 9 IX 1991, Kim (SSU); 2 ♀, Bukhansanseong, 19 VIII-26 IX 1991, Eom et al. (SSU); 1 ♂, Namhansanseong, 20 IX 1981, Kim (SSU); 6 ♀, Mt. Gwanggyosan Suwon, 1-20 IX 1992, Kim et al. (SSU); 1 ♂ 2 ♀, *ibid*, 4 IX 1996, Lee (S.M. Lee's collection); 1 ♀, Anyang, 20 VIII 1970, Lee (EU); 1 ♀, Yangpyeong, 9 IX 1989, Moon (SSU); 2 ♂, Mt. Yongmunsan Yangpyeong, 1 IX 1980, Park (SSU); 1 ♂ 1 ♀, *ibid*, 27 IX 1986, Park et al. (SSU); 1 ♀, Yeokgok Bucheon, 21 IX 1974, Huh (EU); 1 ♀, Osan, 11 IX 1992, Park (SSU); 1 ♀, Giheung Yongin, 13 IX 1985, Han (SSU); 1 ♂, Mt. Ungilsan Namyangju, 31 VII 1996 (SSU); 1 ♂, Ganghwado Incheon, 16 VIII 1996, An (SSU); 2 ♀, Paju, 3 X 1999, Yoon (EU); 1 ♀, Paldang, 23 IX 1970, Lee (EU); 1 ♂, Mt. Cheonmasan Pyeongnae, 10 IX 1983, Park (SSU); 3 ♀, Pyeongtaek, 11 IX 1992, Kwak (SSU); 1 ♂, Misari Hanam, 14 VII 1991, Cho (SSU); 2 ♂, Mt. Gwanaksan, 20 VIII-15 X 1992, Lee et al. (SSU); 1 ♂, Mt. Namsan, 23 VIII 1992, Choi (SSU); 5 ♀, Namhansanseong, 31 VIII-3 X 1996, Kim et al. (SSU); 2 ♀, Mt. Daemosan, 27 VII-20 VIII 1998, Kang et al. (SSU); 1 ♂ 1 ♀, Mt. Dobongsan, 4-5 IX 1992, Choi et al. (SSU); 1 ♀, Mangu-dong Seoul, 14 VIII 1987, Kim (SSU); 1 ♀, Sangil-dong, 3 IX 1995, Oh (SSU); 1 ♂, Mt. Suraksan, 20 IX 1997, Park (SSU); 2 ♂, Mt. Achasan, 23 VIII 1981, Yoon (EU); 1 ♂, Mt. Yongmasan, 29 VIII 1993, Park (SSU). CB- 1 ♂, Wonpung-ri Yeonpung-myeon Goesan, 13 IX 1996, Park (S.M. Lee's collection); 1 ♀, Hwayang-ri Cheongcheon-myeon Goesan, 15 IX 1984, Kim (SSU); 1 ♀, Mt. Minjujisan, 14 IX 1998, Lee (S.M. Lee's collection); 1 ♂ 1 ♀, Onyang, 27 IX 1988, Jeon (SSU); 1 ♂ 1 ♀, Deokgok Jecheon, 15 IX 1996, Jeon (SSU); 1 ♂, Mt. Wolaksan Jecheon, 28-30 VIII 1994, Sohn (SSU); 3 ♂, Cheongju, 5-16 VIII 1960, Jeong (EU); 1 ♀, *ibid*, 18 IX 1966, Kwon (EU); 1 ♀, Mipyong Cheongju, 18 X 1992, Park (SSU); 2 ♀, Mt. Gyemyeongsan Chungju, 24 VIII 2000, Kim (NIAST); 2 ♂ 1 ♀, Mt. Namsan Chungju, 25 VIII 2000, Kim (NIAST); 1 ♀, Danwol-dong Chungju, 14 IX 1996, Jeon (SSU). CN- 1 ♂, Mt. Gyeryongsan Gongju, 15 VIII 1993, Min (SSU); 1 ♀, Daejeon, 1 XI 1992, Nam (SSU); 1 ♂, Gadeok Oksan Buyeo, 19 VIII 1993, Park (S.M. Lee's collection); 1 ♀, Seosan, 30 IX 1992, Oh et al. (SSU); 1 ♀, Seochang, 17 IX 1997, Yeom (SSU); 2 ♀, Hyudae-ri Asan, 20 IX 1992, Kim (SSU); 1 ♂, Jiksan, 14 VIII 1971, Park (EU). GB- 1 ♀, Yeongnam Univ. Campus Gyeongsan, 14 IX 1993, Yeu (YNU); 1 ♀, Hyoseong Gyeongsan, 7 VII 1992,

Yoon (SSU); 1 ♂, Ubo Gunui, 18 IX 1994, Park (SSU); 2 ♀, Daegu, 20 IX 1971, Lee (EU); 1 ♂ 1 ♀, Ehwaryeong Mungyeong, 31 VIII 2000, Lee (NIAST); 1 ♀, Waryong Andong, 22 IX 1991, An (SSU); 1 ♀, Samgang Yecheon, 23 IX 1972, Jeong (EU); 1 ♂ 2 ♀, Samgye Unmun Cheongdo, 25-26 VIII 1990, Cho et al. (SSU); 1 ♀, Mt. Juwangsan Cheongsong, 6 IX 2000, Kim et al. (NIAST); 2 ♀, Hwajinpo Songna-myeon Pohang, 7 IX 2000, Kim et al. (NIAST). GN- 1 ♂, Jeogu Nambu Geoje, 2 IX 1989 (SSU); 1 ♀, Geojedo, 4 VIII 1964, Bae (EU); 1 ♂, Mt. Bukbyeongsan Dongbu-myeon Geoje, 29 VIII 2000, Lee (NIAST); 3 ♂, Jangsuam Yulpo-ri Dongbu-myeon Geoje, 25-26 VIII 1990, Yoon et al. (GSU); 1 ♂, Ungcheon Jangmok Geoje, 5 VIII 1987, (GSU); 8 ♂ 2 ♀, Okgye Chilcheondo Geoje, 15-18 VIII 1985, Oh et al. (GSU); 1 ♂ 2 ♀, Hacheong Geoje, 15-18 VIII 1985, Ku (GSU); 1 ♂, Light trap [RGO], Geochang, 1-5 VII 1992, (NIAST); 1 ♂, Namsang Geochang, 8 IX 1989, Jeong (GSU); 1 ♀, Geompo, 17 IX 1997, Ham (SSU); 1 ♂, Mt. Geum-san Sanjeon Idong Namhae, 28-29 VIII 1990, Kim (GSU); 1 ♂, Deokgye, 18 VIII 1996, Park (SSU); 1 ♀, Oncheon-dong Busan, 19 IX 1994, Kim (SSU); 1 ♀, Bujeon-dong Busan, 19 VIII 1987, (SSU); 1 ♀, Deokhyeon-ri Sangbuk-myeon Ulsan, 8 X 1999, Park (S.M. Lee's collection); 1 ♀, Gampo Ulju, 12 VIII 1990, Shin (SSU); 1 ♀, Duseo Ulju, 12 IX 1992, Choi (SSU); 2 ♀, Mt. Jeogolsan Gapgol-ri Gaya-myeon Uiryeong, 25-26 VII 1990, Park (GSU); 1 ♂ 2 ♀, Burim Uiryeong, 3-11 VIII 1982, Yim (GSU); 1 ♂ 1 ♀, Mt. Bibongsan Sangbongseo-dong Jinju, 17-18 VIII 1984, Oh et al. (GSU); 2 ♀, Mt. Yeongchuksan Changnyeong, 7 X 1987, Yoon (GSU); 1 ♀, Uponeup Changnyeong, 8 VIII 1992 (SSU); 2 ♂ 5 ♀, Donam-dong Chungmu, 11 IX 1992, Shin (SSU); 1 ♀, Mukgye-ri Jeongam-myeon Hadong, 15 IX 1987 (GSU); 1 ♀, Ssanggyesa Hwagae Hadong, 19 IX 1987, (SSU). JB- 2 ♀, Mt. Naejangsan, 18 X 1980, Wu (SSU); 1 ♂, Muju, 26 VII 1973, Yoo (EU); 3 ♀, Bongeun-ri Buan, 10 X 1981, Jang (SSU); 1 ♀, Mt. Maisan Jeonju, 18 VIII 1992, Kwak (SSU); 2 ♀, Yongdong Jeongeup, 5-6 X 1998, Jeong (SSU); 1 ♀, Jeongju Jeongeup, 17 VIII 1989, Bae (SSU). JN- 2 ♂, Mt. Baekunsan Gwangyang, 25 VIII 1999, Kim (NIAST); 2 ♂, Anmado Yeonggwang, 19 VIII 1989, Lee et al. (SSU); 3 ♀, Wolgok Yeongam, 17-19 VIII 1986, Park (SSU); 1 ♀, Mt. Paekyangsan [Hakuyosan] Jangseong, 9 X 1921, Hasegawa; 5 ♂ 2 ♀, *ibid*, 23 VIII 1999, Kim (NIAST); 1 ♂, Hwangryong Jangseong, 9 VIII 1996, Kim (SSU); 1 ♀, Jindo, 24



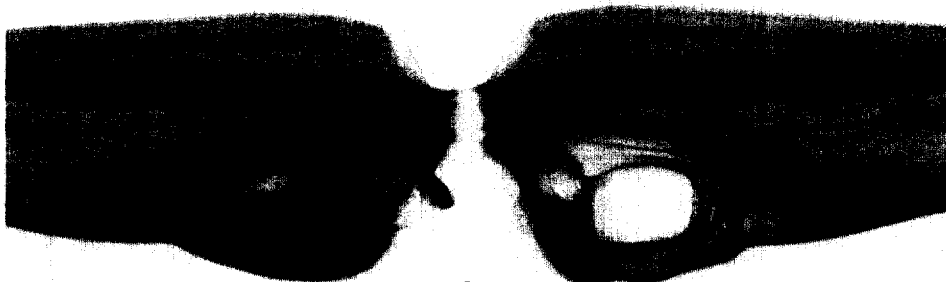
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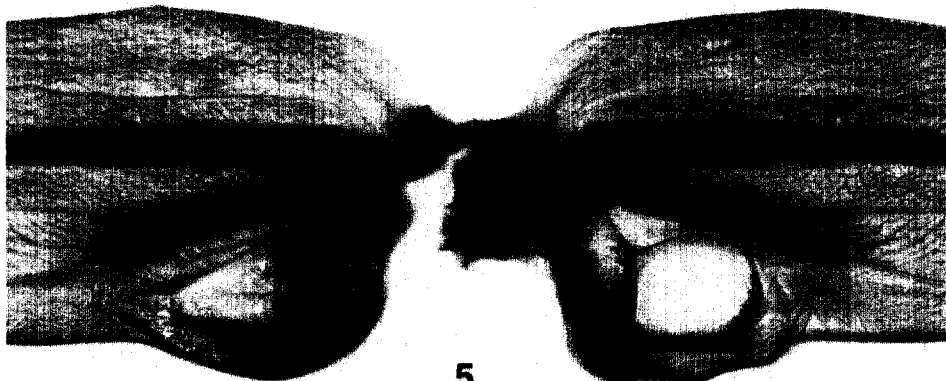
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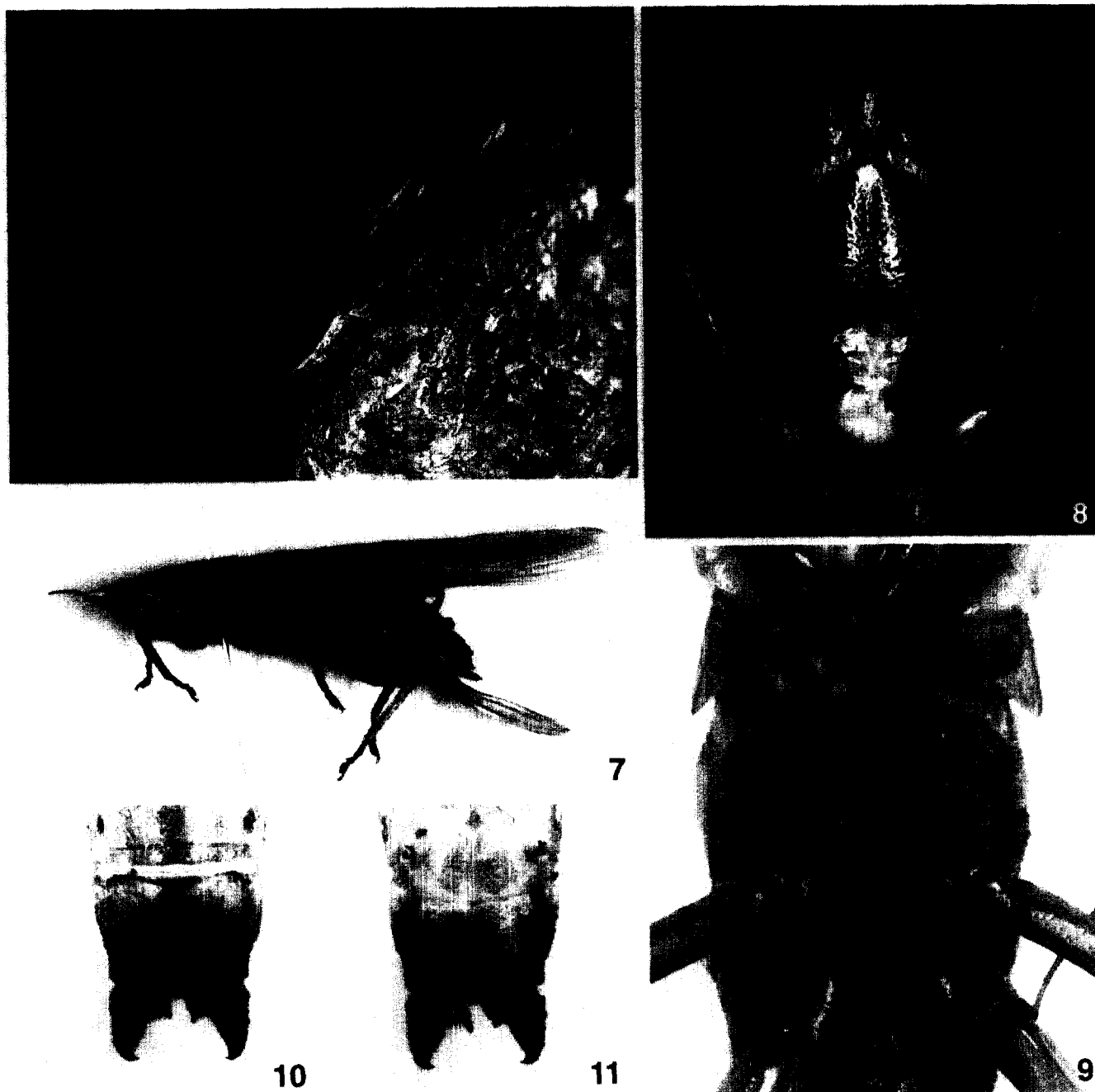
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Figs. 1-11. 1-5. Male stridulatory areas of Korean Copiphorini, 1. *Euconocephalus nasutus* (Thunberg); 2. *Ruspolia lineosa* (Walker); 3. *Ruspolia jezoensis* (Matsumura et Shiraki); 4. *Xestophrys javanicus* Redtenbacher; 5. *Pseudorhynchus japonicus* Shiraki. 6-11. *Xestophrys javanicus* Redtenbacher, 6. Male stridulating posture at night (May 2000, Mt. Wolchulsan JN); 7. Female habitus; 8. Head face; 9. Thoracic sternum; 10. Terminalia of male (dorsal view); 11. ditto (ventral view).

VIII 1975, Paek (EU). JJ- 1 ♂, Gwaneumsa, 27 IX 2000, Kim (NIAST); 1 ♂ 1 ♀, Jungmun Seoguipo, 11-12 VIII 1984, Lee (S.M. Lee's collection); 1 ♀, Seoguipo, 10 VIII 1984, Lee (SSU); 1 ♀, Seonheul, 28 IX 2000, An et al. (NIAST); 1 ♂, Jeju, 8 VIII

1964, Bae (EU); 1 ♂, Ara-ri, 25. IX. 1993, Lee (S.M. Lee's collection); 1 ♀, Hanrim, 24 IX 1993, Park (S.M. Lee's collection).

Distribution. Korea, Japan, Taiwan, China, Oriental region.

3. *Ruspolia jezoensis* (Matsumura et Shiraki)

에메부리 (Fig. 3)

Conocephalus fuscipes var. *jezoensis* Matsumura et Shiraki, 1908. J. Agric. Tohoku Imp. Univ. 3(1): 47, Japan.

Homorocoryphus nitidulus: Mori, 1933: 55; Doi, 1936: 106. [misidentification]

Homorocoryphus jezoensis: Furukawa and Shiraki, 1950: 36, fig. 89, Korea; Cho, 1959: 160, fig. 30; Cho, 1969: 756, pl. 80; Ju, 1969: 18; Fukuhara, 1983: 36, figs. 13, 14, 16A, 17A, Korea.

Ruspolia jezoensis: Moon and Yoon, 1993: 57; Kwon and Huh, 1994: 49; Kwon et al. 1996: 104.

Material examined. GW- 1♀, Mt. Hambaeksan Taebaek, 14 VIII 1999, Kim (NIAS); 1♂, Mt. Geonbongsan Goseong, 28 VIII 1990, Lee (SSU); 1♀, Sinpyeong Goseong, 26 VIII 1998, Nam (SSU); 1♀, Naeseorak, 9 X 1970, Kim (EU); 1♀, Mt. Seoraksan, 15 VIII 1985, Lee (S.M. Lee's collection) GG- 1♂1♀, Gwangneung, 7 IX 1985, Park (SSU); 1♀, Jingeon-myeon Namyangju, 15 VIII 1981, Park (SSU); 1♀, Suwon, 9 VIII 1996, Kim (NIAS); 1♂, Anyang, 20 IX 1968, Cho (EU); 1♂, Mt. Unaksan Gapyeong 29 IX-1 X 1971, (EU); 1♀, Gwangneung, 29 IX 1990, Lee (SSU); 1♀, Bogwangsa Gwangtan, 4 IX 1977, Park (EU); 1♂, Uri Maseok Namyangju, 29 VIII 1986, Jang (SSU); 1♂, Songnae Dongducheon, 11 VIII 1991, Yoon (SSU); 1♂, Bukhansanseong, 26 IX 1991, Eom (SSU); 1♂, Namhansanseong, 26 VIII 1990, Kim (SSU); 1♀, Jeongok Yeoncheon, 22 VIII 1984, Jang (SSU); 1♀, Mt. Cheonmasan, 27 IX 1980, Lee (SSU); 1♀, *ibid.*, 1 X 1984, Cho (SSU); 1♂, Mt. Gamaksan Paju, 8 IX 1984, Kim (SSU); 1♂, Songuri Pocheon, 24 VII 1998, Park (SSU); 1♀, Mt. Baekryeonsan, 22 VIII 1991, Nam (SSU); 1♀, Mt. Bukhansan, 17 X 1976, Lee (S.M. Lee's collection); 2♀, *ibid.*, 29 VIII 1982, Kim (SSU); 1♂, *ibid.*, 6 VIII 1998, Kim (NIAS); 1♀, Seongbuk-dong Seoul, 7 VIII 1960, Lee (EU); 1♀, Segeomjeong Seoul, 7 IX 1966, Cho (EU); 1♀, Mt. Sinsasan, 7 X 1987, Yoon (SSU); 1♀, Ssangmun-dong Seoul, 18 IX 1982, Gye; 1♀, Ui-dong Seoul, 23 IX 1967, Lee (EU); 1♂, Weonji-dong, 14 IX 1985, Kim (SSU). CB- 2♀, Upnae-ri Cheongan-myeon Goesan, 27 VII 1986, Kim (SWU); 1♀, Geumseong, 8 VIII 1997, Jung (SWU); 1♀, Chupungnyeong, 12 VIII 1972, Lee (S.M. Lee's collection); 1♂, Mt. Gyemyeongsan Chungju, 24 VIII 2000, Kim (NIAS); 1♀, Mt. Namsan Chungju, 27 IX 2000, Kim (SSU); 1♂2♀, Mt. Wolaksan Sanmo

-myeon Chungju, 13 X 2000, Kim (NIAS). GB- 1♂, Light trap, Bonghwa, 11-15 VIII 1991 (NIAS); 1♀, Light trap, Sangju, 13 VII 1997, Choi (NIAS); 1♂, Yeongdeok, 9 VIII 1996, An (SSU); 1♀, Mt. Juwangsan Cheongsong, 7 VIII 1975, Kim (EU); 1♀, Jikjisa Gimcheon, 22 X 1972, Cho (EU); 1♂, Mt. Baekamsan, 11 VIII 1999, Ku (NIAS); 1♂, Hui-banggyegok Mt. Sobaeksan Punggi, 5 IX 2000, Kim (NIAS). GN- 1♀, Yeonsan-dong, Busan, 21 VIII 1985, Kim (SSU); 1♂, Sacheon, 1 VII 1984, Lee (NIAS); 2♂, Jinju, 4 VIII 1984, Oh (GSU); 1♀, Gajwa-dong Jinju, 2 VIII 1987, (GSU); 1♂1♀, Mt. Geumosan Goryong-ri Jingyo-myeon Hadong, 27-28 VII 1998, Park et al. (GSU); 1♀, Mt. Hwangmaesan Dunnae-ri Gahoe-myeon Hapcheon, 2-3 VIII 1998, Jeon (GSU); 1♂, Sincheon-ri Socheon-myeon Sancheong, 2-3 VII 1997, Park (GSU); 1♂, Gampo Ulju, 12 VIII 1990, Shin (SSU); 1♂, Mt. Baegunsan Baekjeon Hamyang, 22-23 VIII 1990, Ku (GSU). JB- 1♂, Mt. Unjangsan Jeongcheon Jinan, 5 IX 1998, Park (GSU); JN- 1♂, Dosa-ri Daap-myeon Gwangyang, 27-28 VII 1998, Park (GSU); 1♂, Jin-ri Daeheuksando, 12 VIII 1981, Lee (S.M. Lee's collection); 1♀, Chundong-ri Miam-myeon Yeongam 30 VIII 1995, (SWU).

Remark. This species seems to show rather variable characters, particularly in the discussion for larger sized populations, i.e. the names, *Ruspolia dubia* or *R. sp.* were suggested by Inoue (1989). However, it were looked upon as conspecies with *R. jezoensis* by Fukuhara (1983), and the synonymy for those would be considered (pers. comm. from A. Ichikawa).

Distribution. Korea, Japan.

Genus *Xestophrys* Redtenbacher

Type species: *Xestophrys javanicus* Redtenbacher.

4. *Xestophrys javanicus* Redtenbacher

코마여치베짱이 (신칭) (Figs. 4, 6-11)

Xestophrys javanicus Redtenbacher, 1891. Verh. Zool. -bot. Ges. Wien, 41: 362, fig. 16, Java.

Diagnosis. Length of body with tegmen 43-50 mm. Brown, macropterous. Fastigium of vertex with somewhat blunted apex. Notch closed between fastigia of vertex and frons. Hind femur as long as rarely two times of fore femur. Around of mouthpart, mandibles, meso-, metasternal lobes, and pleura dark black (Figs. 8, 9). Male cercus thick and conical with apex inwardly curved; basal process well developed and upwardly curved with

smooth apex (Fig. 10). Subgenital plate rather concave with short styli, not projected than cerci (Fig. 11). Female ovipositor slightly shorter than hind femora, rather widened apically (Fig. 7).

Material examined. JB- 1 ♂, Byeonsanbando Buan, 23 V 2001, Kim et al. (NIAST). JN- 1 ♀, Mt. Duryunsan Yeongam, 22 VI 1993, KBH (KU); 7 ♂ 2 ♀, Mt. Wolchulsan Yeongam, 14 V 2000, Kim (NIAST). JJ- 1 ♀, Jeju, 27 III 1983, Lee (S.M. Lee's collection); 1 ♂, Yongsu-ri Hangyeong-myeon Hanrim, 1 VI 2000, Kim (NIAST).

Remarks. This species overwinters in southern part of Korea as in the adult stage likely as in Japan (Ito et al., 1996). Sharp calling stridulation from adults at tree-top or near grass fields was observed during spring to early summer (Fig. 6).

Distribution. Korea (new record), Japan, Indonesia, Philippines.

Genus *Pseudorhynchus* Audinet-Serville

Type species: *Pseudorhynchus sicarius* Audinet-Serville.

5. *Pseudorhynchus japonicus* Shiraki

여치배짱이 (Fig. 5)

Pseudorhynchus japonicus Shiraki, 1930. Trans. Nat. Hist. Soc. Formosa, 20: 341, Japan.

Pseudorhynchus japonicus: Doi, 1934: 124; Doi, 1935: 58; Cho, 1959: 160, fig. 28; Cho, 1969: 755, pl. 50; Ju, 1969: 19; Moon and Yoon, 1993: 57; Kwon and Huh, 1994: 49; Kwon et al. 1996: 104.

Pseudorhynchus concisus: Lee, 1990: 109; Paik et al. 1995: 294. [misidentification]

Material examined. GN- 2 ♀, Okgye Chilcheondo Geoje, 15-18 VIII 1985, Jeon et al. (GSU); 1 ♀, juvenile, 5 VIII 1999, Park (GSU); 1 ♂, Geompo Goseong, 9 VIII 1996, Kim (GSU); 1 ♀, Busan, 1 VIII 2001, Paik (NIAST). JN- 1 ♀, Yulpo-ri Gemdang-myeon Wando, 5 VIII 2000, Lee (NIAST).

Distribution. Korea, Japan.

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