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석사학위 청구논문

A Taxonomic Study on the Diaperinae (Coleoptera: Tenebrionidae) in Korea

2005년

성신여자대학교 대학원

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이 논문을 석사학위논문으로 제출함

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생물학과

정부희

인 준 서

정부희의 석사학위 논문으로 인준함.

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論文槪要

한국산 르위스거저리아과(딱정벌레목, 거저리과)의 모든 기록 종을 분류학적으로 검토하였다. 한국산 르위스거저리아과는 Kolbe(1886)에 의해 처음으로 1종이 기록된 이후 현재까지 각종 문헌을 통해 모두 16속 29종 1아종이 보고되었다. 그러나 이 중에는 오동정, 동물이명, 근거가 의심스러운 학명 등이 포함되었으며, 한국산 르위스거저리아과를 분류하는 데 필요한 검색표와 문헌자료 또는 국내 분포상을 이해하기 위한 정보가 부족한 실정이었다.

따라서 본 논문에서는 직접 채집한 표본과 각 대학과 연구기관 등에 소장된 르위스거저리아과의 표본 약 527개체를 대상으로 외부 형태적 형질과 수컷외부생식기의 비교를 통해 각 종명의 타당성을 검토하였다.

그 결과, *Basanus amaminanus* 1종은 *Basanus tsushimensis* (금강산거저리)의 오동정으로 확인되었으며, *Martianus dermestoides*는 *Palembus dermestoides*로 잘못 인용되었고, *Ischnodactylus loripes*는 표본을 확인하지 못했을 뿐 아니라 국내 기록 근거를 인정하기 어려워 연구 대상에서 제외시켰다. 또한 *Basanus tsushimensis kompancevi*는 *Basanus tsushimensis*를 오동정한 아종(subspecies)으로 확인되었다. 따라서 인용착오종 및 오동정 처리되고 분포가 의심스러운 총 2속 3종 1아종을 한국산 르위스거저리아과의 목록에서 제외할 것을 제안하고자 한다. 따라서 국내 르위스거저리아과를 총 14속 26종으로 정리하였다.

연구 결과에 따라 각 분류 단계별로 검색표를 작성하였고, 각 종에 대한 형태적 특징, 문헌기록, 채집기록을 포함한 생물학적 정보와 기주버섯에 대한 조사결과를 수록하였다.

Contents

I. Introduction

1. State of Diaperinae

The subfamily Diaperinae characterized as antennae with stellate sensoria on apical segment, mandible with molar surface bearing fine transverse ridges, wings almost without subcubital flecks, and abdominal defensive gland present (Doyen and Tschinkel, 1982). Also the members are almost associated with fungi, feeding on mycelia under bark or in sporophores and occasionally on fungi growing on other organic material or often feeds on stored products (grains).

Nowadays, about 3,000 species of Diaperinae are recorded over the world (Gebien, 1944; Lawrence and Newton, 1995). Considering of historical review of this group, a number of authors had described species at present, included in tribe Diaperini since prior to 1800. The beginning history of this group regards as the point which Müller validated the generic name *Diaperis* of Geoffroy by including under its *boeti* Linnaeus. Triplehorn (1965) commented that Redtenbacher (1845: 128) was the first to assign a name to this assemblage of genera recognized by Laporte et Brulle of which his "Familie Diaperides" contained 5 genera. The next contribution was that of Lacordaire (1859). He divided the "Ténèbrionides" into 46 tribes of which number 29 is called "Diapérides", treating the group on a worldwide basis. His tribes are recognised as tribes today (Watt, 1967: 80). After Reitter (1911) divided the Palaearctic Tenebrionidae into 12 tribes, belonged to the Diaperini contained 6 genera, Gebien's catalogue's work (1937-1944) was greatly contributed to the systematics of this group. Recently Watt (1974) attempted to classify 12 subfamilies, which he was studied intensely, reviewing the phylogenetic relationship one another. His subfamilies are based on both larval and adult characteristics, and most have been recognized as tribes or subfamilies by the previous workers. Watt's taxa are

provisionally accepted here as following:

Zolodininae, Toxicinae, Diaperinae, Gnathidiinae, Phrenapatinae, Tenebrioninae, Alleculinae, Nilioninae, Lagriinae, Pimeliinae, Cossyphinae, Cossyphodinae.

2. Historical review of the Korean Diaperinae

The beginning study of Korean Diaperinae was carried out by foreign researchers. 5 tribes, 16 genera and 29 species 1 subspecies of Diaperinae have been recorded in Korea up to date. Since Kolbe (1886) had reported one Korean species, *Diaperis lewisi lewisi* Bates, 1873 for the first time, Heyden (1887) added two species next year. After Gebien (1939) and Chûjô (1963) had reported two species, Korean Diaperinae have been lively recorded since 1980's. Kim (1981) added two species which lived on the sand dune of sea coast. After that, several species of this group reported additionally by Kwon *et al.* (1986, 1996), Kim *et al.* (1991), Kim & Kim (2002), and Kim & Jung (2004, 2005a, 2005b: in press) etc. Most of all, the distinctive contribution was the records of Chûjô & Lee (1992, 1993, 1994). They additionally reported the eleven species of Korean Diaperinae.

As a result of arrangement of the records which have been additionally reported up to now in the year order, Korean Diaperinae before 2005 including 29species 1 subspecies is as following:

Table 1. Historical lists of Korean Diaperinae

Author (year)	added	valid	Newly recorded name	Current name	Re-mark
Kolbe (1886)	1	1	*Diaperis lewisi*	*Diaperis lewisi lewisi*	
Heyden (1887)	2	2	*Platydema nigroaeneum* *Ceropria induta*	*Platydema nigroaeneum* *Ceropria induta induta*	
Gebien (1939)	1	1	*Emypsara riederi*	*Emypsara riederi*	
Chûjô M.T.(1963)	1	1	*Basanus tsushimensis*	*Basanus tsushimensis*	
Kim (1981)	2	2	*Micropedinus pallidipennis* *Micropedinus algae*	*Micropedinus pallidipennis* *Micropedinus algae*	
Kwon et al.(1986)	1	1	*Martianus dermestoides*	*Martianus dermestoides*	misc.
.Kim & Oh (1990)	1	?	*Ischnodactylus loripus*	*Ischnodactylus loripus*	dub.
Kim et al. (1991)	1	0	*Basanus amamianus*	*Basanus tsushimensis*	misi.
Medvedev (1992)	1	1	*Crypticus rufipes*	*Crypticus rufipes*	
Chûjô & Lee (1992)	2	2	*Scaphidema kayokoae* *Platydema koreanum*	*Scaphidema kayokoae* *Platydema koreanum*	
Chûjô & Lee (1993)	8	8	*Scaphidema michihidei* *Platydema fumosum* *Platydema kurama* *Platydema lynceum* *Platydema recticorne* *Ceropria laticollis* *Ceropria striata* *Hypophloeus colydioides*	*Scaphidema michihidei* *Platydema fumosum* *Platydema kurama* *Platydema lynceum* *Platydema recticorne* *Ceropria laticollis* *Ceropria striata* *Corticeus colydioides*	com.
ESK & KSAE (1994)	1(1)	1	*Alphitophagus bifasciatus* *Basanus tsushimensis kompancevi*	*Alphitophagus bifasciatus* *Basanus tsushimensis*	mis.
Chûjô & Lee (1994)	1	1	*Platydema subfascia*	*Platydema subfascia subfascia*	
Kwon et al. (1996)	1	1	*Palembus dermestoides*	*Martianus dermestoides*	syn.
Kim & Kim (2002)	2	2	*Phaleromela subhumeralis* *Trachyscelis sabuleti*	*Phaleromela subhumeralis* *Trachyscelis sabuleti*	
Kim & Jung (2004)	1	1	*Ceropria sulcifrons*	*Ceropria sulcifrons*	
Kim & Jung (2005a)	1	1	*Platydema marseuli*	*Platydema marseuli*	
Kim & Jung (in press)	1	1	*Gnathocerus cornutus*	*Gnathocerus cornutus*	
Total: added [29 species 1 subspecies], valid [26 species]					

misi.: misidentification, misc.: miscited, dub.: dubious name, com.: combination changed, (): subspecies

II. Materials and Methods

1. Materials

For the materials examined in this study, some of them have been collected for three years, from 2003 to 2005. Most of materials examined are deposited in Sungshin Women's University, Korea University, Ewha Womans University, Jeju Folk Nature History Museum, National Institute of Agricultural Science and Technology, etc. They are total 527 specimens which were collected from 1930s to 2005. They were made dry specimen or kept in 80% ethyl alcohol.

2. Methods

1) Collecting of specimens

For this study, the main collecting activities has been used hand-picking method for the fungivorous adult group of subfamily Diaperinae, searching the rotten wood previously attacked by the polypore fungi, or mycelia under the bark of broadleaf trees (e.g. *Quercus*, *Alnus*, etc.) or polypore fungi or Agaricales. For the sand or soil-inhabiting group, sieving-method has been used in the sand dunes of seacoast, although none of them were not collected in this time. Also other groups that feed on dead vegetables or animal matter or stored grains were collected at the dried materials.

Most of adults used to occur from March to September, therefore, the collecting for specimens was mostly carried out in this season.

2) Equipment used

Stereomicroscope (Leica MZ APO) and Canon EOS-D30 were used for this study. After finishing the study of external characters, genitalia were extracted and prepared for study in the usual manner under the stereoscopic microscope.

Dried specimens were first relaxed in hot water. After extraction of the mass of tissue containing the genitalia, it was placed on a glass containing 10% KOH solution and boiled for 2-8 minutes. The cleared genitalia were placed in a drop of glycerine on a glass slide or watch glass and examined under the stereoscopic microscope.

3) Identification and classification

Korean Diaperinae including 5 tribes, 14 genera and 26 species was identified with the external character and male's genitalia. Especially, for some genera (e.g. *Platydema*, *Ceropria*), a key to the species is mostly based on the external character in male (e.g. a pair of horns on frons, tarsi, tibiae). Because the characters in male are more useful enough to distinguish one species from another one, while the characters in female are not distinct enough to compare one another. Except for above case, a key was made out using employing the commonest character of both sex.

Among 26 species, while 20 species examined the specimens were written by means of the 'description', 6 species unexamined specimens, and explanation about genera and tribes were substituted for the 'diagnosis'.

4) Morphological characters

Characters in this study are based on taxonomic keys to the subfamily, tribe, genus and species in Diaperinae, thus it will be provided the convenient information for understanding the important characters of Diaperinae (Fig. 1).

Body. Body shape is oval or oblong. Moderately or strongly convex to flattened, rather stout. Size small to moderate (2-15 mm). Frequently coarsely sculptured, bearing tubercles, often with a pair of horns on head and fascia spots on elytra. Reddish brown to black color, usually shining.

Head. Eyes large, emarginate anteriad, or occasionally small and entire.

Antennae 11-segmented (rarely 10-segmented), serrate to flabellate, inserted into canthi, which encroach on front margin of eyes, sometimes dividing them completely. Clypeal suture usually distinct. Labrum strongly transverse, basal membrane almost exposed. Mandible bidentate at apex, with molar striated finely and transversely and rarely flat or highly modified. Apical segments of maxillary palpi fusiform or cylindrical or weak securiform.

Thorax. Strongly transverse. Procoxal cavities closed externally, closed internally. Front coxae strongly transverse, scarcely projecting. Mesosternum strongly depressed anteriad. Prosternal process prominent. Mesocoxal cavities closed laterally partly, sometimes trochantins exposed. Metasternum strongly transverse, with distinct median suture. Meso and Metacoxae strongly transverse. Subcubital flecks of wing absent. All trochanters heteromeroid. Femora flattened on ventral surfaces. Each tibia with inner and outer ridges carinate, a longitudinal groove or median carina between them, or rarely smooth. Tarsal claws simple. Tarsal segment clothed with sparse, fine setae ventrally. Tarsal formula 5-5-4 (4-4-4 in *Ripidandrus*).

Abdomen. Usually with intersegmental membranes exposed between visible 3rd and 5th sternites.

Genitalia. Aedeagus normally oriented, with tegmen dorsal, median lobe free or highly modified. Ovipositor with gonostyles terminal, moderate in size. Also rather variable (Watt, 1974; Doyen, 1984). Male genitalia consists of a basal sclerite, a pair of parameres, which are often fused to form a single piece, and a penis, bearing more or less prominent struts at the proximal end.

The female genitalia are so similar to one another as to be practically useless as taxonomic characters. The ovipositor is almost entirely membranous and is always provided with an apico-lateral pair of 1-segmented styli, each bearing terminal sensory setae (Triplehorn, 1965: 349).

5) Abbreviations

▪ The following abbreviations are used to indicate the area or provinces

of Korea:

GW: Gangwon-do, GS: Gyeonggi-do & Seoul, CB: Chungcheongbuk-do, CN: Chungcheongnam-do, GB: Gyeongsangbuk-do, GN: Gyeongsangnam-do, JB: Jeollabuk-do, JN: Jeollanam-do, JJ: Jeju-do; Mt.: Mountain, Is.: Island.

▪ The following logogram and abbreviation are used to describe both sex of specimens:

Materials examined were mostly classified into male and female.

♀: female, ♂: male.

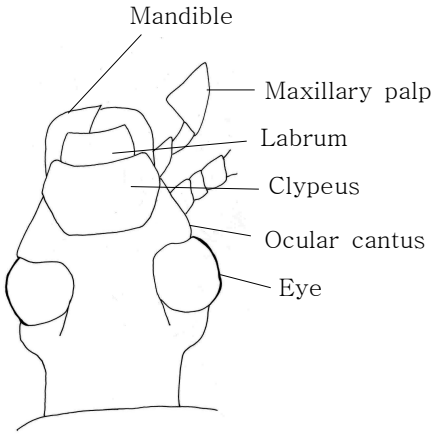
Material were so similar that external characters of both sex were indistinct.

ex.: one specimens, exs.: more than one specimen.

6) Identification of Fungi

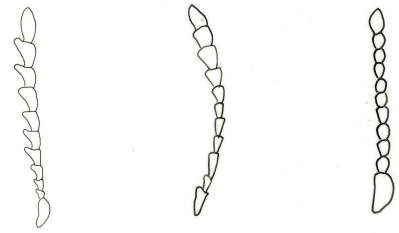
12 species among 26 ones were collected on the polypore fungi, including mycelia under the bark or in sporophores or fungi growing on other organic materials for this study. The identification of fungi which associated with diaperine beetles was based on a pictorial mushroom book (Lee, 1988). Especially I have learned the process of mushroom's classification under guidance of Dr. Ji-Yul Lee for two years in the Kil-dong Ecological Park, thus his help actually was contributed to this study.

1. Head



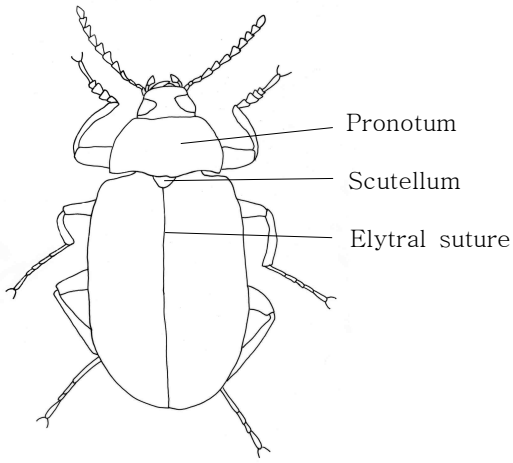
Dorsal

2. Antennae

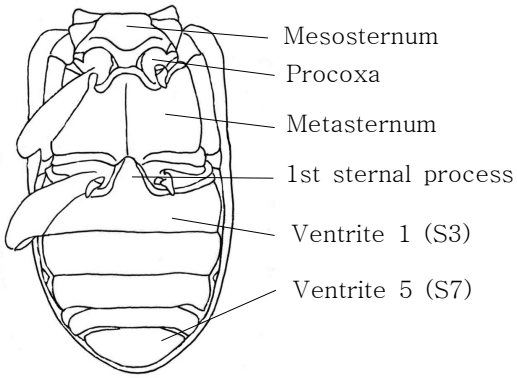


Serrate Capitate Moniliform

3. Body, Abdomen

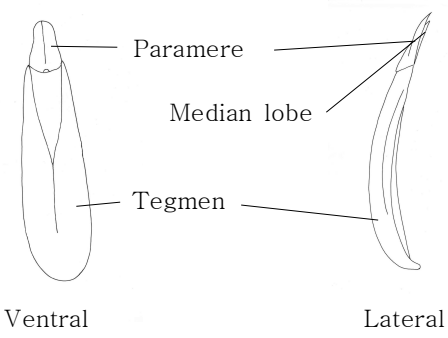


Body



Abdomen (by S. Smith)

4. Genitalia



Ventral Lateral

Male aedeagus

5. Leg

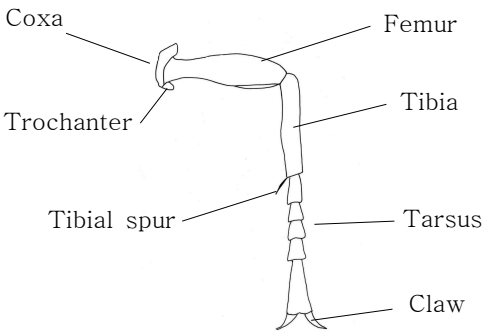


Fig. 1. Terminology in the Diaperinae

III. Results

1. Check list of Korean Diaperinae

As a result of examining the Korean Diaperinae of which 5 tribes 16 genera and 29 species 1 subspecies have been literally recorded until 2005, 5 tribes, 14 gerera, 26 species are recognized valid name as following (Table 2):

Table 2. Check list of Korean Diaperinae

Family Tenebrionidae Latreille, 1802	거저리과
Subfamily Diaperinae Watt, 1974	르위스거저리아과
Tribe Hypophloeini Doyen and Lawrence, 1979	막대거저리족
Genus 1. *Corticeus* Piller and Mitterpacher, 1783	막대거저리속 (신칭)
1) *Corticeus colydioides* (Lewis, 1894)	막대거저리
Tribe Phaleriini Mulsant et Rey, 1854	붉은어깨꼬마거저리족 (신칭)
Genus 2. *Phaleromela* Reitter, 1916	붉은어깨꼬마거저리속 (신칭)
2) *Phaleromela subhumeralis* (Marseul, 1876)	붉은어깨꼬마거저리 (신칭)
Genus 3. *Micropedinus* Lewis, 1894	해변꼬마거저리속 (신칭)
3) *Micropedinus algae* Lewis, 1894	해변해초꼬마거저리
4) *Micropedinus pallidipennis* Lewis, 1894	해변꼬마거저리
Genus 4. *Emypsara* Pascoe, 1866	남생이거저리속 (신칭)
5) *Emypsara riederi* (Faldermann,1833)	남생이거저리 (신칭)
Tribe Trachyscelini Mulsant et Rey, 1854	해변거저리족 (신칭)
Genus 5. *Trachyscelis* Latreille, 1809	해변거저리속 (신칭)
6) *Trachyscelis sabuleti* Lewis, 1894	비단해변거저리 (신칭)
Tribe Crypticini Mulsant et Rey, 1854	알거저리족
Genus 6. *Crypticus* Latreille, 1817	알거저리속(신칭)
7) *Crypticus rufipes* Gebler, 1830	알거저리(신칭)
Tribe Diaperini Doyen, 1984	르위스거저리족

Genus 7. *Gnathocerus* Thunberg, 1814	귀뿔거저리속 (신칭)
8) *Gnathocerus cornutus* Fabricius,1798	귀뿔거저리
Genus 8. *Alphitophagus* Steph., 1832	두줄쌀거저리속 (신칭)
9) *Alphitophagus bifasciatus* (Say, 1823)	두줄쌀거저리
Genus 8. *Martianus* Fairmaire, 1893	구룡거저리속 (신칭)
10) *Martianus dermestoides* (Chevrolat, 1878)	구룡거저리
Genus 10. *Basanus* Lacordaire, 1859	금강산거저리속 (신칭)
11) *Basanus tsushimensis* Chûjô, 1963	금강산거저리
Genus 11. *Ceropria* Laporte et Brulle, 1831	무당거저리속
12) *Ceropria laticollis* Fairmaire, 1903	산무당거저리
13) *Ceropria induta induta* (Wiedemann, 1819)	구슬무당거저리
14) *Ceropria sulcifrons* Harold 1877	무지개무당거저리
15) *Ceropria striata* Lewis, 1894	줄무당거저리
Genus 12. *Scaphidema* Redtenbacher, 1849	뾰족날개거저리속 (신칭)
16) *Scaphidema kayokoae* Chûjô 1992	영실거저리
17) *Scaphidema michihidei* Chûjô and Lee, 1993	지리영실거저리
Genus 13. *Diaperis* Geoffroy, 1764	르위스거저리속
18) *Diaperis lewisi lewisi* Bates, 1873	르위스거저리
Genus 14. *Platydema* Laporte et Brulle, 1831	진주거저리속
19) *Platydema recticorne* Lewis, 1894	나도진주거저리
20) *Platydema subfascia subfascia* Walker, 1858	진주거저리
21) *Platydema fumosum* Lewis, 1894	멋진주거저리
22) *Platydema lynceum* Lewis,1894	극동진주거저리
23) *Platydema kurama* Nakane,1963	산진주거저리
24) *Platydema nigroaeneum* Motschulsky, 1860	흑진주거저리
25) *Platydema koreanum* Chûjô, 1992	우리진주거저리
26) *Platydema marseuli* Lewis, 1894	서울진주거저리

2. Systematic Account

Subfamily Diaperinae Watt, 1974 르위스거저리아과

New Zeal. Jour. Zool. 1(4): 381-452.

Diaperialae Laterille, 1802. Hist. Nat. Crust. Ins. 3: 161.

Bolitophagiens Mulsant, 1854. Hist. Nat. Col. Fr. 5. Latig.: 218.

Rhipidandrinae Sharp, 1905. Biol. C. Amer. Col. 2(1): 690.

Dysantinae Gebien, 1922. Trans. Linn. Soc. Lond. Zool. 18: 289.

Diagnosis. Body oval or oblong. Moderately or strongly convex to flattened. Size small to moderate. Usually coarsely sculptured, bearing tubercles, often with a pair of horns on head. Eyes large, emarginate anteriad. Antennae 11-segmented, moniliform or bluntly serrate to flabellate. Clypeal suture usually distinct. Labrum rather small, strongly transverse, basal membrane exposed and visible only from the front. Apical segment of maxillary palpi fusiform or cylindrical. Pronotum strongly transverse. Procoxal cavities closed externally, closed internally by a transverse bar. Elytra often punctate, with nine striae and light markings. Wings with subcubital flecks absent. All trochanters heteromeroid. Femora flattened on ventral surfaces. Each tibia with outer anterior and posterior edges carinate, and with a longitudinal groove. Tarsal claws simple with sparse and fine setae. Tarsal formula 5-5-4. Abdomen usually with intersegmental membranous exposed between visible 3rd and 5th sternites. Aedeagus normally orientated.

Distribution. Cosmopolitan (except New Zealand and oceanic islands, the most numerous in genera and species in the Oriental region).

Key to the Korean Tribes of Diaperinae

1. Mesotrochantin lost. Metacoxa not place obliquely 2

- Mesotrochantin distinct. Metacoxa place obliquely .....

..... **Crypticini Mulsant et Rey**

2. Body long-cylindrical and weakly convex. Elytra with truncated apex with exposed pygidium, 9th tergite segment completely sclerotized. Abdomen of apical sternite with lateral groove ····· **Hypophloeini Doyen and Lawrence**

- Body short-oval and strongly convex. Elytra without truncated apex with exposed pygidium, 9th tergite segment not sclerotized. Abdomen of apical sternite without lateral grooves ····· 3

3. Fore tibiae not distinctly enlarged to the apex, being developed enough not to dig the sand. Eyes expand strongly laterally and prominent distinctly, mostly round, and a little granulate anteriorly or not ····· **Diaperini Doyen**

- Fore tibia distinctly enlarged to the apex, being developed enough to dig the sand. Eyes not expand strongly laterally and not distinctly prominent, a little transverse, and always granulate anteriorly ····· 4

4. Body oval and strongly convex. Antennae short and thick, clavate form, abruptly enlarged from 7th segment to the apex. Fore tibia with thick and short spiny hairs on outer margin ····· **Trachyscelini Mulsant et Rey**

- Body short or long oval, weakly convex. Antennae moderate and slender, moniliform to clavate form, gradually enlarged from to the apex. Fore tibia with distinct spines on outer margin ····· **Phaleriini Mulsant et Rey**

Tribe Hypophloeini Doyen and Lawrence, 1979 막대거저리족

Systematic Entomology 4: 333-337.

Hypophlaeides Billberg, 1820.

Genus *Corticeus* Piller and Mitterpacher, 1783 막대거저리속 (신칭)

Corticeus Piller and Mitterpacher, 1783. Iter per Poseg., Sclav. Prov. mensibus Junio et Julio, susceptum: 87.

Hypophloeus Fabricius, 1790: 222.

Corticeus Crotch, 1870. Trans. entomol. Soc. London. I: 46.

Hypophloeus Fabricius (nom. conserv.) Gebien, 1940. Katalog der Tenebrioniden, Teil III, 30: 595 (1062).

Type species: *Corticeus unicolor castaneus* Fabricius, 1790.

Remarks. The genus *Hypophloeus* Fabricius, 1790 was noticed as the synonym of *Corticeus* Piller and Mitterpacher, 1783 by Crotch (1870). The senior name was still not used until American authors adopted it a paper by Blaisdell (1934). Gebien used *Hypophloeus* in his catalogue (1940) and considered it to be a *nomen conservandum*. According to the International Code of Zoological Nomenclature, *Corticues* should be a *nomem oblitum*, which should then be dropped in favour of *Hypophloeus*. However, since *Corticeus* has been in constant use in the United States from 1934 and has recently been adopted in the Kloet & Hincks British checklist (1977) (Doyen and Lawrence, 1979).

Corticeus colydioides (Lewis, 1894) 막대거저리

Hypophloeus colydioides Lewis, 1894. Ann. Mag. Nat. Hist., (6), 13(77) : 468.

Korean records. Chûjô & Lee, 1993: 109; Kim, 1996: 8; Kwon *et al.*, 1996: 162.

Diagnosis. Body length 4.5-7.0 mm. Body cylindrical, elongate, black and shining. Head clearly and densely punctate. The throax rather less closely punctate, much longer than its width. The elytra striate-punctate, with a few very fine punctures on the interstices. The pygidium exposed, with punctures. The tibiae angulate near the tarsi.

Distributions. Korea, Japan.

Remarks. This species is combination changed with *Corticeus colydioides* instead of *Hypophloeus colydioides.* It is based on the original description from Lewis (1894: 468). This specimens in Korea reported by Chûjô M.T. and C.E. Lee (1993) are preserved at Kyushu University in Japan (2exs., Kwangneung, Pochon-gun, Gyeonggi-do, Korea. 14-19. V. 1992, M.T. Chûjô leg.). It was asked to loan the specimens for this study but failed to borrow them, thus, could not be examined.

Tribe Phaleriini Mulsant et Rey, 1854 붉은어깨꼬마거저리족 (신칭)

Col. Fr. Latig. 184, 190.

Diagnosis. Body shape short or long oval. Surface of antennae without hairs or with sometimes fine pubescence. Fore tibiae greatly expanded to the apex and have distinct spines. Mesotrochantin is very distinct.

Keys to the Korean genera of tribe Phaleriini

1. Body shape oval, strongly convex. Elytra with regularly striate punctures which parallel with lateral margin ····· 2
- Body shape long oval or oblong, weakly convex. Elytra without striate punctures but with punctures which are scattered irregular ····· *Micropedinus* Lewis
2. Antennae is long, reaching out the base of the pronotum, apical segment much longer than its width ····· *Phaleromela* Reitter
- Antennae is short, not reaching out the base of the pronotum, apical segment much wider than its length ····· *Emypsara* Pascoe

Genus *Phaleromela* Reitter, 1916 붉은어깨꼬마거저리속 (신칭)

Ent. Bl. 12: 4.

Type species: *Phaleria subhumeralis* (Marseul, 1876)

Phaleromela subhumeralis (Marseul, 1876) 붉은어깨꼬마거저리(신칭)

(Pl. I-1)

Phaleria subhumeralis Marseul, 1876. Ann. Soc. Ent. Fr. (5)6: 102-103.

Phaleromela subhumeralis: Gebien, 1939: 743(502); Kim & Kim, 2002. 32(4): 243.

Description

Body length, shape. 2.7-4.0 mm. Oval, black with red fascia, and shining.

Head. Black, densely and rugosely punctate. Clypeus semicircular, front

margin nearly linear shape. Clypeal membrane a little visible from dorsally. Eyes small, produced laterally. Frons three times as wide as the diameter of eyes, without longitudinal sulcus. Apical segment of maxillary palpi fusiform. Antennae clavate, with pubescence, enlarged from 6th to 11th segment. Apical segment of antennae fusiform, much longer than its width.

Pronotum. Nearly quadrangle and densely rugose-punctate. All of the margins clearly marginate. Latero subbasal part of pronotum with short, shallow and longitudinal sulcus. Scutellum smooth and wide triangular shape.

Elytra convex strongly, with distinctly striate puncture which is long shape. Interstices strongly convex with fine and coarse punctures. Subhumeral part with red wavy patterns, reaching from 1st row to lateral margin. The apex not narrowed but roundly blunt, with clear marginal groove.

Legs. Fore tibiae strongly and straightly widened to the apex with spines at outer margin in a row. The apex of fore tibiae concaved 'V'-shape at the middle part, with one spur. Mid and hind tibiae slightly widened apically, with much stronger spur than that of fore tibiae. 1st segment of tarsi with one setae which is reddish brown.

Abdomen. Lateral parts of all sternites rugosely punctate. Middle part of stenite finely and coarsely punctate.

Male. Fore and mid tarsi weakly widened from 1st to 3rd segment, with densely golden setae ventrally.

Materials examined. <GW>: 2♀, Jumunjin Gangleung-si, 5. VI. 1980; 1♀, Hwajinpo Goseong-gun, 1. V. 1999; 1♀, Bongpo-ri Goseong-gun, 17. V. 2002.

Biological notes. This species is abundant on the sand-hills surrounding the harbour (Lewis, 1894).

Distributions. Korea, Japan, Russia (Sachalin).

Genus *Micropedinus* Lewis, 1894 해변꼬마거저리속 (신칭)

Ann. Mag. Nat. Hist., (6), 13(77): 379-380.

Type species :*Micropedinus algae* Lewis, 1894.

Diagnosis. Body long oval or oblong, weakly convex. Elytra without striate punctures but with irregularly scattered punctures. Male fore and mid tibiae strongly and transversely widened apically. 2nd and 3rd segments of fore and mid tarsi much wider than any other segments.

Key to the Korean species of Genus *Micropedinus*

1. Antennae a little longer, articulations between segments less compressed. The thorax is transverse. Female fore tibiae enlarged near the tarsi ····· ····· *algae*
- Antennae short, articulations between segments more compressed. The thorax is less transverse. Female fore tibiae not enlarged near the tarsi ····· ····· *pallidipennis*

Micropedinus algae Lewis, 1894 해변해초꼬마거저리

(Pl. I-2, Pl. II-20)

Ann. Mag. Nat. Hist., (6), 13 (77): 377-485.

Korean records. Kim, 1981: 61; Kim & Chang, 1982: 161; Kim, 1983a: 77; Kim, 1983b: 159; Mastumoto & Shigeake, 1984; Kwon & Choi, 1986: 105; Kim & Yoo, 1987: 213; ESK & KSAE, 1994: 176; Kwon *et al.*, 1996: 162.

Description

Body length, shape. 4.0-5.0 mm. Oblong, less oval, reddish back to dark brown and a little shining.

Head. Coarsely and roughly punctate with hairs but densely and rugosely punctate at the basal part. Clypeus roundly arched, without transverse groove between clypeus and frons. Eyes expand laterally, granulated coarsely and roughly. Frons 2.5 times as wide as the diameter of eyes. Labrum quadrangle with coarsely stiff setae, strongly produced anteriad. Apical segment of maxillary palpi large securiform. Antennae moniliform, 1st segment stout and thick, twice as long as 2nd segment, gradually enlarged from 7th segment to the

apex and apical segment oval.

Pronotum. Quadrangle, with rough horse's hoof-shaped punctures with short hairs, more dense punctures at the sides. Latero-subbasal part of pronotum impressed shallowly. Scutellum transverse and rounded off posteriad.

Elytra without strial puncture, basal part densely, roughly and strongly punctate, but the punctures gradually weak and less distinct from the middle part of the dorsum to the apex. The surface is microscopically granulated. Elytral punctures gradually become weak and less distinct to the apex.

Legs. In female, the width of lobes in all tarsi nearly equal to empodium.

Materials examined. <GS>: 1♀, Is. Baikryeong-do Ongjin-gun Incheon, 5. VIII. 1982; <JN>: 1♀1♂, Heochonmyoen Bosong-gun, 19. VII. 1982; 3♀3♂, Is. Cheongsando Wando-gun, 20. VIII. 1982; 1♀1♂, Is. Bogildo Wando-gun, 21. VIII. 1982; 1♂, Is. Gwanmaido Jindo-gun, 29. VIII. 1982; 1♂, Jindo-gun, 27. VII. 1983.

Biological notes. This species is abundant under seaweeds on the sandy sea coast (Lewis, 1894).

Distributions. Korea, Japan, China.

Micropedinus pallidipennis Lewis, 1894 해변꼬마거저리

(Pl. I-3, Pl. II-21)

Ann. Mag. Nat. Hist., (6), 13(77): 377-485.

Korean records. Kim, 1981: 61; Kim & Chang, 1982, 161; Kim, 1983a: 77; Kim, 1983b: 159; Mastumoto & Shigeake, 1984; Kwon & Choi, 1986: 105; ESK & KSAE, 1994: 176; Kim, 1995: 129; Kwon *et al.*, 1996: 162.

Remarks. 3.0-4.0 mm. This species is very similar to former one. but it is smaller and its elytra is mostly pale brown color, though there is a variation with colors.

Materials examined. <GW>: 1♀, Mangsang-dong Donghai-si, 6. I. 1980; <GS>: 1♂, Is. Baikryeongdo Ongjin-gun Incheon, 27. VII. 1987; <JB>: 1♀, Baikryeon-ri Buan-gun, 9. X. 1981; <JN>: 2♀, Is. Cheongsando Wando-gun, 28. V. 1982; 2♂, Is. Bogildo Wando-gun, 20. VIII. 1982; 1♂2♀, Is. Bogildo Wando-gun, 21. VIII.

1982; 9♂3♀, Is. Gwanmaido Jindo-gun, 29. VIII. 1982.

Biological notes. This species is abundant under seaweeds on the sandy sea coast (Lewis, 1894).

Distributions. Korea, Japan, China.

Genus *Emypsara* Pascoe, 1866 남생이거저리속 (신칭)

Journ. Ent. 2: 460.

Callicomus Motschulsky, 1860. Schrenck's Reise 2, 2, 138 (nom praeocc).

Type species: *Emypsara adamsi* Pascoe, 1866

Emypsara riederi (Faldermann, 1833) 남생이거저리(신칭)

(Pl. I-4)

Diaperis riederi Faldermann, 1833. Bull. Mosc. p. 57.

Phaleria riederi: Lewis, 1894. Ann. Mag. Nat. Hist., (6)13: 382.

Emypsara riederi: Gebien, 1939: 743(502).

Korean records. Gebien, 1939: 743(502); Kim & Kim, 2002: 243.

Description

Body length, shape. 5.0-6.0 mm. Long-oval circular form, brown mixed with yellow color, a little shining, and strongly convex.

Head. Quadrangular form with light brown color. Densely, finely and rugosely punctate. Clypeus is linear shape with bundle of setae at the lateral margin, transverse groove like lunate between clypeus and frons. Clypeal membrane a little visible from dorsally. Eyes small, produced laterally. Frons wide, flat, not rough and rather smaller than the diameter of eyes. The apical segment of maxillary palpi cylindrical. Labrum produced anteriad with regular punctures and stiff setae on front and lateral margin. Antennae complex form of clavate and moniliform, enlarged from the 4th segment apically with long setae. Apical segment of antennae thick and stout lunate shape with pubescence.

Pronotum. Nearly blunt triangle, densely, minutely and rugosely punctate with long white hairs at the middle part. Basal margin weakly sinuous, rimmed

clearly. Latero-subhumeral part of pronotum with longitudinally short and shallow sulcus. Lateral margin gradually narrower to the apex. Scutellum wide triangle and rugosely punctate.

Elytra convex and with shallow strial punctures which are long shape. Interstice more flattened with weakly and finely rugose punctures. Suture and 1st interstice always brown. Surface with transverse, brown and wavy patterns from the suture to the lateral margin on upper 2/5 part of the base. The apex roundly blunt, not narrowed. Lateral and apical margin surrounded with long and white setae.

Legs. Surface with long setose and row of spines at margin. Fore tibiae strongly and roundly widened to the apex of outer angle, with row of spines at outer side. Mid and hind tibiae strongly and straightly widened with two spurs at the apex.

Male. Fore and mid tarsi widened from 2nd to 3rd segment.

Abdomen. All of sternites rugosely punctate, covered with long white setae.

Biological notes. This species is found on sea-side place.

Materials examined. <GW>: 1♂, Hwajin-po Goseong-gun, 28. VI. 1981 collected by J.I. Kim.

Distributions. Korea, China, Japan, Russia (Kamtschatka).

Tribe Trachyscelini Mulsant et Rey, 1854 해변거저리족 (신칭)

Col. Fr. Lat. 184: 85.

Diagnosis. Body is oval shape and convex strongly. Antennae short and thick clavate form, enlarged abruptly from 7th segment. Fore tibiae expand distinctly to the apex, with thick and short spiny hairs on outer margin ventrally.

Genus *Trachyscelis* Latreille, 1809 해변거저리속 (신칭)

Gen. Crust. Ins. 4: 336.

Type species: *Trachyscelis aphodioides* Latreille, 1809

Trachyscelis sabuleti Lewis, 1894 비단해변거저리(신칭)

(Pl. I-5)

Ann. Mag. Nat. Hist. (6)13: 383.

Korean record. Kim & Kim, 2002: 243.

Description

Body length, shape. 3.0 mm. Oval and strongly convex, shining, piceous or black with reddish tinge.

Head. Not punctate, nearly quadrangular shape. Frons roundly convex. Clypeus roundly produced upward. Deep and transverse groove between clypeus and frons. Genae distinctly expanded outer side. Eyes coarsely and roughly granulate. Frons much wider than the diameter of eyes. Labrum with short stiff setae.

Pronotum. Nearly quadrangular shape, without punctures. About 2.3 times as wide as its length. Anterior and basal margin arched, rimmed clearly and lateral margin narrowed anteriad, rimmed sharply. Scutellum rather larger, triangle-shape like tongue and silky without punctures.

Elytra sericeous on surface, with clearly and weakly striate puncture. Interstices flat without punctures.

Biological notes. This species occurs under seaweed on sandy shores (Lewis, 1894).

Materials for examined. <JJ>: lex. Jeju-do, 24. VII. 1989. loaned by Dr. Otto Merkle, 1994.

Distribution. Korea, Japan.

Tribe Crypticini Mulsant et Rey, 1854 알거저리족 (신칭)

Col. Fr. Latig. 125.

Hist. Natur. Coleopt. France. Latigenes. 125.

Diagnosis. Antennae moderately long, 3rd segment much longer than the rest of segment. Metacoxa placed obliquely. Tibiae spurs distinct. All tarsi with fine, minute and spiny hairs ventrally. The 1st segment of tarsi longer than the rest

of them.

Genus *Crypticus* Latreille, 1817 알거저리속 (신칭)

Les crustace., les arachnides et les insectes, 1817.

Type species: *Crypticus quisquilius* Payk, 1798

Diagnosis. Apcial segment of maxillary palpi triangle. Basal part of pronotum as wide as the base of elytra. Elytra with irregularly mixed punctures. The epipleura of elytra gradually narrowed apically. Fore tibia with stiff setae on outer margin (Medvedev, G.S., 1992).

Crypticus rufipes Gebler, 1830 알거저리

Ledeb. Reise 2, 125.

Korean records. Medvedev, G. S., 1992: 643; ESK & KSAE, 1994: 176; Kwon *et al.*, 1996: 162.

Remarks. Medvedev, G.S. (1992) reported this species for the first time from Korea, only recorded by literature without any information of local distribution in Korea. We could not find and examine this specimen.

Tribe Diaperini Doyen, 1984 르위스거저리족

Proc. Entomol. Soc. WASH. 86(4): 777-789.

Diaperales Latreille, 1802: 161.

Laporte et Brulle, 1831. Ann. Sc. Nat. 23, 325-410 (1-86).

Diaperides Redtenbacher, 1845: 128.

Diagnosis. Small to moderate (2-15mm), oblong-elongate to oval, flatten to convex. Eyes large, emarginate anteriad or rarely small. Antennae gradually enlarged, frequently forming a distinct club. Labrum transverse, basal membrane almost exposed. Apical segment of maxillary palpi subcylindrical or almost securiform. Distinct membranous band present between clypeus and labrum. Pronotum with longitudinal sulcus on latero-

subbasal part. Elytra mostly convex, usually with striate punctures, and rarely pubescent. Epipleural margin folded narrowly. Mesotrochantin distinct. Fore coxa transverse. Hind coxa strongly and obliquely transverse. Tibiae usually slender. Meso and meta tibia with fine and denticulate ridge on outer surface or rarely smooth. Apical spurs of tibiae small. Tarsi finely pubescent beneath.

Key to the Korean genera of Tribe Diaperini

1. Antennae with apical 5th-8th segments enlarged clubbed distinctly. Body elongate and less convex ····· 2
- Antennae moniliform, gradually enlarged to apex, or subfiliform. Body broadly oval and strongly convex ····· 6
2. Antennae clubbed from 5th segment. Male frons without a pair of horns on inner ocular ····· *Martianus* Fairmaire
- Antennae not clubbed from 5th segment. Male frons with a pair of horns on inner ocular ····· 3
3. Each segment of antennae not transverse. Gena larger than eyes. Apical segment of maxillary palpi securiform. Elytra with coarsely striate punctures and interstices gently convex ····· *Gnathocerus* Thunberg
- Each segment of antennae transverse. Gena smaller than eyes. Apical segment of maxillary palpi mostly cylindrical. Elytra with shallowly striate punctures and interstices flattened ····· 4
4. Head part produced downward. Each segment of antennae transverse ····· ····· *Diaperis* Geoffry
- Head part produced anteriorly. Each segment of antennae not transverse, clubbed from 8th segment ····· *Alphitophagus* Steph
6. Frons with a pair of horns in male and blunt tubercles in female, or flattened without tubercles on inner ocular areas in both sex. Lateral margin of elytra reached to the apices. 1st segment of hind tarsi a little longer than both 2nd and 3rd combined ····· *Platydema* Laporte et Brulle

- Frons without a pair of horns in both sex. Lateral margin of elytra reach near the apices. 1st segment of hind tarsi much longer than both 2nd and 3rd combined ····· 7

7. Each clubbed segment of antennae strongly and evenly impressed, same length, and strongly serrated one side (inward) except for circular apical segment. Prosternal process narrowed roundly and the apex raised up longitudinally. Male fore and mid tibiae curved and gouged on inner margins medially, male fore tarsi strongly enlarged except for apical segment ····· ····· *Ceropria* Laporte et Brulle

- Each clubbed segment of antennae weakly and roundly impressed, strongly rectangular form, serrated both sides except for oblong apical segment. Prosternal process comparatively wide and the apex of that projected backward. Tibiae and tarsi simple at both sex ····· 8

8. Frons three times as wide as the diameter of eyes. Lateral margin of pronotum slightly oblique and feebly truncate at 1/4 point of the apex. Posterior margin of pronotum arched gently and simply ····· ····· *Scaphidema* Redtenbacher

- Frons 2.5 times as wide as the diameter of eyes. Lateral margin of pronotum simply narrower to the apex. Posterior margin of pronotum bisinuous at middle part ····· *Basanas* Lacordaire

Genus *Gnathocerus* Thunberg, 1814 귀뿔거저리속 (신칭)

Gnathocerus Thunberg, 1814: 47; Seidlitz, 1894: 571, 586; Melville, 1975: 136.

Sicinus Champion, 1886. Biol. Cen. Ame. Col., IV(I): 146.

Uloma Gebien, 1940. Mitt. Munc. Entom. Gesell: 759 (566).

Type species: *Gnathocerus cornutus ruber* Thunberg, 1814.

Gnathocerus cornutus (Fabricius, 1798) 귀뿔거저리

(Pl. I-6)

Trogosita cornutus Fabricius, 1798. Entom. syst. p.51.

Korean record. Ju, 1969: 124 (North Korea).

Description

Body length, shape. 3.5-4.0 mm. Oblong, slightly convex and reddish brown.

Head. Roughly, densely and rugosely punctate. Clypeus truncated on anterior part and moderately angulate. Genae expand lateral-upward and thinly like ear shape (thinnest panel) therefore, it is separated from clypeus by truncating deeply. Eyes small and coarsely granulate. Antennae moniliform, 8th-10th segments at least as wide as its length, and apical segment fusiform. Apical segment of maxillary palpi more or less long securiform.

Pronotum. Quadrangle, all of the margins rimmed distinctly and with shallow and longitudinal sulcus on latero-subbasal part. Scutellum triangle. Elytra weakly convex, with striate punctures. Strial punctures large and dense. Interstices flattened, almost roughly and coarsely rugose-punctate with yellow hairs.

Elytra nearly flat, not produced to the apex, exposed pygidium.

Legs. All tibiae with rugose punctures, tarsi slender with golden hairs dorsally and ventrally.

Abdomen. All of the abdominal sternites with coarsely and regularly punctate accompanied short golden hairs.

Male. Frons with a pair of horns, produced obliquely and upward on inner ocular area, but female without a pair of horns. Male eyes divided into completely upper part and beneath part (dorsal and ventral part), whereas, female eyes not divided into completely.

Biological notes. This species is found on the stored grains, grain products, and poultry houses.

Distributions. Cosmopolitan including Korea.

Materials examined. 1♀, Han River-side Park, Pungnap-dong, Songpa-gu Seoul, 21. IX. 2003, collected by J.B. Seung (night).

Genus *Alphitophagus* Stephens, 1832 두줄쌀거저리속 (신칭)

Illust. British Entomol. Mandibulata. 5: 1-447.

Type Species: *Alphitophagus quadripustulafus* Stephens, 1832

Alphitophagus bifasciatus (Say, 1823) 두줄쌀거저리

Diaperis bifasciata Say, T., 1823. Acad. Nat. Sci. Philad. 3: 268.

Platydema lilliputanum Carter, 1937. Trans. R. Soc. S. Australia, lxi. p. 130.

Korean records. ESK & KSAE, 1994: 176; Kwon *et al.*, 1996: 162.

Remarks. This species is not known for any data of local distribution in Korea but only recorded literally in papers. Although We could not find materials any more, they feed on stored grain and grain products and distributed in Europe, America, and Australia. It may be introduced species throughout the import, thus it will be expect to be examined much more.

Genus *Martianus* Fairmaire, 1893 구룡거저리속 (신칭)

Ann. Soc. ent. Belg. 37: 540.

Tenebriomimus Kolbe, 1901. Allgem. Z. Entom. 6: 342.

Type species: *Martianus castaneus*, Fairmaire, 1893.

Diagnosis. Body oblong to ovate, flattened to convex. Eyes twice as transverse as diameter of an eye. Antennae short, not extending to posterior angles of pronotum. Fore tibiae not flattened, the apex broadly rounded without distinct angle or tooth. Outer margin of all tibiae smooth or distinctly crenate.

Martianus dermestoides (Chevrolat, 1878) 구룡거저리

(Pl. I-7)

Pet. Nouv. Ent., 2: 242.

Korean records. Kwon & Choi, 1986: 105; ESK & KSAE, 1994: 176 (*Palembus dermestoides*: miscited); Kwon *et al.*, 1996: 162 (*Palembus dermestoides*: miscited).

Description

Body length, shape. 5.0-6.0 mm. Oblong to ovate, less convex, brownish black and shining.

Head. Roughly and densely punctate, with large eyes. Clypeus trapezoid, front margin sinuous. Eyes partly separated into dorsal and ventral part. Apical segment of maxillary palpi sub-cylindrical to nearly securiform. Antennae short, enlarged from 8th segment to the apex. Clypeal membrane visible dorsally. Anterior margin of clypeus truncated and feebly emarginate.

Pronotum. Densely and largely punctate, anterior margin strongly arched, posterior margin sinuous and lateral sides distinctly marginated.

Elytra with striate punctures, roughly and coarsely punctate, but rugosely punctate near the apex. Interstices less convex, with coarse punctures.

Legs. All tibiae flattened, the apex broad and enlarged with 2 spurs, and outer margin distinctly crenate.

Materials examined. <GS>: 1ex., Mt. Baekun-san Pocheon-gun Gyeonggi-do, 23. VI. 1991; <CB>: 1ex., Yongam-ri Hwanggan-myeon Yeongdong-gun, 5. VIII. 2001.

Biological notes. This species feeds on stored grain and dried animals and plants.

Distributions. Korea, Japan, China, Indomalaysia, Papuan, Gebiet, Asia.

Remarks. *Martianus dermestoides* (Chervolat, 1878) was the miscited species of *Palembus dermestoides* (Chervolat, 1878), which had been listed in many papers in Korea.

Genus *Basanus* Lacordaire, 1859 금강산거저리속 (신칭)

Gen. Col. 306 nota.

Type Species: *Basanus javanus* Chevrolt, 1878

Diagnosis. Frons 2.5 times as wide as diameter of eyes. Lateral margin of pronotum simply narrower. Posterior margin of pronotum bisinuous at the middle

part. Surface of prosternal process flattened, widened gradually to the apex which is horizontal roof shape.

Basanus tsushimensis Chûjô, 1963 금강산거저리

(Pl. I-8, Pl. II-22)

Acta Coleop. Niponius, 2(4): 17-19, 2 figs.

=*Basanus tsushimensis kompancevi* Kaszab and G. Medvedev, 1984 (by Kompantseva, 1985)

Korean records. Kwon & Choi, 1986: 105; Chûjô & Lee, 1992: 31; Chûjô & Lee, 1993: 109; ESK & KSAE, 1994: 176 (*Basanus tsushimensis kompancevi*); Paik, *et al*, 1995: 405; Kwon *et al.*, 1996: 162; Kim *et al.*, 2004: 111.

Description

Body length, shape. 7.0-9.0 mm. Oblong-oval, convex, black and shining. Meso and metasternum, abdomen, apical part of tibiae and tarsi reddish brown.

Head. Nearly triangle, coarsely and roughly punctate with hairs except for front part of eyes which are smooth. Frons 2.5 times as wide as the diameter of eyes. Clypeus not visible from above, with bundle of long hairs at front-lateral part. Clypeal membrane produced forward. Labrum with rough punctures and dense setae, strongly produced anteriad. Eyes strongly expanded laterally. Antennae moniliform, from 1st to 3rd slender, 2nd segment about twice as long as 3rd segment and 4th to 10th segments thickened, of which same size and shape one another.

Pronotum. Trapezoid and weakly convex, finely and sparsely punctate than the head. Anterior margin feebly rimmed, forming round arch. Posterior margin sinuous, not marginate and truncated at middle part. Lateral sides strongly margin. Scutellum entire semicircular with coarse and weak punctures.

Elytra convex, shallowly and feebly striate punctures, without strial punctures at the basal one-third. Interstices flattened and punctate densely and irregularly. Subhumeral with transverse fascia band, reaching out 1st interstice to lateral margin, subapical part with oval shaped spot. Basal margin not rimmed, but

lateral sides strongly and distinctly margin to the apex. Prosternal process projected backward and a little rugose-punctate with soft hairs.

Legs. All tibiae relatively flattened with short setae, rowed densely inner side with two short tibiae spurs. All tarsi with long soft setae densely ventrally, apical segment of fore tarsi almost as long as 1st to 4th combined together, basal segment of metatarsus almost equal to the rest of segments combined together.

Materials examined. <GW>: 5exs., Cheolwon-gun, 19. VI. 1992; 7exs., Gojindong-valley Mt. Geonbong-san Goseong-gun, 5. VII. 1995; 2exs., Gangwon-Univ. Chuncheon-si, 15. VII. 1999; 1ex., Gangwon-Univ. Chuncheon-si, 29. VII. 1999; 2exs., Munmak-eub Wonju-si, 8. IV. 2002; 2exs., Heundeulbawi Mt. Seorak-san Sokcho-si, 18. V. 2002; 3exs.. Ulsanbawi Mt. Seorak-san Sokcho-si, 18. V. 2002; <GS>: 1ex., Gwangleung Peocheon-gun, 11. V. 1993; 1ex., Gwangleung-Aboretum Pocheon-gun, 18. VII. 1993; 1ex., Mt. Cheonma-san Namyangju-si, 29. VIII. 1993; 2exs., Mt. Gwanak-san Seoul, 15. V. 1994; 1ex., Namhansanseoung Gwangju-gun, 15. V. 1997; 2exs., Mt. Bukhan-san Seoul, 11. IV. 1998; 1ex., Mt. Gwanak-san Seoul, 5. V. 1998; 1ex., Mt. Gwanak-san Seoul, 20. V. 1998; 1ex., Bogwang-temple Paju-si, V. 1998; 2exs., Mt. Yongmun-san Yangpeong-gun, 25. VIII. 1998; 1ex., Seoul-Grand-Park Gwacheon-si, 22. V. 1999; 1ex., Gangsibong-valley Pocheon-gun, 18. VII. 1999; 1ex., Korea-Univ. Seongbuk-gu Seoul, 16. V. 2003; 2exs., Mt. Jungmi-san Yangpyeong-gun, 16. V. 2004; 2exs., Mt. Mani-san Gwanghwa-gun, 26. V. 2004; 1ex., Gwangleung-Aboretum Pocheon-gun, 29. V. 2004; <CB>: 1ex., Mt. Sokri-san, 21. VI. 1989; 1ex., Chusan-ri Buljeong-myeon Goeisan-gun, 23. VI. 1995; <CN>: 1ex., Mt. Oseo-san Cheongyang-gun, 10. VI. 1999; 2ex., Mt. Mansu-san Buyeo-gun, 19. VII. 1999; 1ex., Mt. Baekhwa-san Taean-gun, 3. VI. 2001; <JB>: 1ex., Jeoksang-myeon Muju-gun, 29. V. 2000; <JN>: 1ex., Dapgok Mt. Baekun-san Gwanyang-si, 25. VI. 1994; 2exs., Piagol Mt. Jiri-san, 29. V. 1997; 77exs., Mt. Duryun-san Hainam-gun, 18. VI. 1998; 5exs., Piagol Mt. Jiri-san, 22. V. 1999; 9exs., Mt. Duryun-san Hainam-gun, 16. VII. 1999; 1ex., Mt. Duryun-san Hainam-gun, 11. VIII. 1999; <GN>: 1ex., Masan-si, 3. VIII. 1994; <JJ>: 4exs., Seosa-myun, 10. VI. 1979; 1ex., Eorimok Jeju-si, 26. VIII.

1998; 3exs., Eorimok Jeju-si, 27. VIII. 1998; 3exs., Gyorae-ri Jocheon-eub Bukjeju-gun, 27. IV. 2003; 2exs., Youngsil Jeju-si, 26. V. 2005; 7exs., Sungpanak Jeju-si, 27. V. 2005.

Distributions. Korea (whole country), Japan.

Remarks. Larvae were collected in 1979 in southern Primorye Terr., in the Lazov State Reserve and reared. They were determined by Dr. Kaszab as identical with *B. tsushimensis* Chûjô, 1963, described from Korea and represented in S. Primorye by *B. tsushimensis kompancevi* Kaszab and G. Medvedev, 1984. (Kompantseva, 1985) Therefore, *Basanus tschushimensis* Chûjô, 1963 is used in this study instead of *Basanus tsushimensis kompancevi* Kaszab and G. Medvedev, 1984 which was mistakenly cited in many papers. Besides, *Basanus amaminanus* Chûjô which was reported at the paper (Kim *et al.*, 1991) was misidentified for *Basanus tschushimensis*.

Genus *Ceropria* Laporte et Brulle, 1831 무당거저리속

Ann. Sc. Nat. 23: 396(72),

Type Species: *Ceropria induta* (Wiedemann, 1819)

Diagnosis. Body ovate to oblong-oval, strongly convex dorsally. Head semicircular. Antennae mostly serrate inward. Elytra with metallic or iridescent bands or patched, rarely or not. Except for some species rarely, male fore and/or middle tibiae mostly incurved or bent with inner margins gouged in the middle part and denticulate apically. Male foretarsi from 2nd segment to 3rd segment always enlarged.

Remarks. This genus distributes in Oriental, Palaearctic, Australian (excluding New Zealand subregion) and Ethiopian region.

Key to the Korean species of Genus *Ceropria*

1. Male fore and/or mid tibiae not incurved or often slighty incurved with inner margins, neither gouged in the middle part nor denticulate apically ····· 2

- Male fore and mid tibiae incurved with inner margins, mostly gouged in the middle part and denticulate apically ····· 3

2. Male fore and mid tibiae not incurved in the middle part. The apex of elytra not covered with pygidium distinctly. Lateral margin steeply narrow anteriad. Strial punctures of elytra coarse and shallow. Interstices punctate coarsely ····· *laticollis*

- Male mid tibiae slightly incurved in the middle part. The apex of elytra covered with pygidium entirely. Lateral margin gently narrow anteriad. Strial punctures of elytra fine and rather deep. Interstices punctate densely ····· *induta induta*

3. Frons mostly with deep longitudinal sulcus medially. Elytra strongly and coarsely striate-punctate. Interstices moderately convex. Male fore tari strongly widened from 2nd to 3rd segment. Male fore and mid tibiae strongly incurved with one (rarely) or two (mostly) tibiae-spurs ····· *sulcifrons*

- Frons mostly without deep, longitudinal sulcus medially. Elytra strongly and densely striate-punctate. Interstices strongly convex. Male fore tarsi slightly widened from 2nd to 3rd segment. Male fore and mid tibiae moderately incurved with always two tibiae spurs ····· *striata*

Ceropria laticollis Fairmaire 1903 산무당거저리

(Pl. I-9, Pl. II-23)

Ann. Soc. Ent. Belgique, 47: 13.

Korean records. Chûjô & Lee, 1993: 109; Kwon *et al.*, 1996: 162; Kim & Jung, 2004: 163.

Description

Body length, shape. 13.0-15.0 mm. Oblong-oval, strongly convex, and metallically shining.

Head. Clypeal membrane distinctly thick. Eyes large, strongly produced laterally. Antennae strongly serrate inward, 1st to 3rd segment of antennae nearly thick cylindrical, 4th to 10th segment strongly serrate like triangle

and apical segment fusiform.

Pronotum. Lightly convex. Finely and coarsely punctate, twice as wide as its length and widest at the base. Latero-subhumeral parts with longitudinal impression. Scutellum triangle and punctate.

Elytra strongly convex, 3rd row of elytra with 8 punctures in a central 1.0 mm. Interstices evenly flat, and irregularly punctate.

Male. Fore and mid tibiae neither distinctly incurved nor gouged on inner margins medially. basal 2nd and 3rd segment of fore tarsi slightly enlarged. Female fore tarsi with less densely golden setae than male, 2nd and 3rd segments slender, not enlarged.

Materials examined. <GS>: 1♀, Palya-ri Jinjeup-eub Namyangju-si, 20. IX. 1968; 1♀, Mt. Baekun-san, 23. VI. 1991; 1♂, Chang-dong Nowon-gu Seoul, 25. IX. 1994; 1♂, Gwanggyo-dong Suwon-si, 29. VI. 1997; 1♀, Namhan-sanseoung Gwangju-gun, 17. V. 1998; 1♀, Jihaeng-dong Dongducheon-si, 8. VI. 1999; 1♂3♀, Songchu-valley Mt. Bukhan-san Yangju-gun, 9. VI. 2001; 2♀, Ogang-dong Siheung-si, 16. V. 2001; 1♀, Deokyang-gu Goyang-si, 5. V. 2004.

Biological notes. Mycelia under the old barks of *Quercus*, *Alnus* and *Roinia pseudoacacia* Linneus or fungi growing on other organic materials or rarely Polyporacea included *Daedaleopsis confragosa*, *D. tricolor*, *D. stryracina* and *Coriolus.* This species over-wintered as adults or larvae.

Distributions. Korea, Japan, India.

Ceropria induta induta (Wiedemann, 1819) 구슬무당거저리

(Pl. I-10, Pl. II-24)

Helops indutus Wiedemann, 1819. Zool. Mag., 1(3): 164.

Ceropria induta: Laporte et Brulle, 1831, Ann. Soc. Nat. France, [23], 396 (72).

Korean records. Heyden, 1887: 259; Kwon & Choi, 1986: 105; ESK & KSAE, 1994: 176 (*Ceropia inducta*: misspelling); Kim *et al.*, 1994; Masumoto, 1994: 763; Masumoto, 1995: 1; Kwon et al., 1996: 163 (*Ceropia inducta*:

misspelling) Kim *et al.*, 2001: 121; Kim *et al.*, 2004: 111; Kim & Jung, 2004: 163.

Description

Body length, shape. 10.0-10.5 mm. Oblong-ovate, convex and metallically shining.

Head. Eyes large, strongly produced laterally. Frons almost equal to the diameter of eyes, without longitudinal sulcus medially. The apical segment of maxillary palpi large securiform. Antennae serrate, from 1st to 3rd segment nearly cylindrical, 3rd segment about 2.5 times as long as 2nd segment, from 4th to 10th segment widely serrate inward.

Pronotum. Convex and densely and finely punctate with hairs. Lateral margin distinctly round. Latero-subbasal parts with long, parallel and longitudinal grooves. Scutellum triangle, with very tiny and coarse punctures.

Elytra convex, with metallic iridescence. Interstices a little convex. Lateral margin almost paralleled from base to basal 2/5 part and then reduced roundly to the apex rimmed sharply.

Legs. Mid tibiae in female not curved and fore tarsi in female not enlarged any more.

Materials examined. <GW>: 2♂, Sammachi-ri Hongcheon-eub Hongcheon-gun, 30. VI. 2004; 1♀, Misiryeong Mt. Seorak-san, Sokcho-si, 14. VII. 2002; 2♀, Sinnam-ri Nam-myeon Inje-gun, 18. X. 2000; 1♀, Mt. Palbong-san Hongcheon-gun, 28. V. 1994; <GS>: 1♂, Songchu-valley Mt. Bukhan-san Yangju-gun, 9. VI. 2001; 1♂, Gil-dong Gangdong-gu Seoul, 14. VII. 2003; 2♂, Cheongpyeong-ri Oeseo-myeon Gapyeong-gun, 23. VI. 1987; 1♀, Sinsasan Eunpyeong-gu, 3. X. 1987; 3♀, Songchu-valley Mt. Bukhan-san Yangju-gun, 9. VI. 2001; 2♀, Guwun-dong Gwonseoun-gu Suwon-si, 23. VI. 1997; 1♀, Mt. Gwanak-san Seoul, 21. V. 1998; <CB>: 1♀, Mt. Gyemyeong-san Chungju-si, 24. VIII. 2000; 2♀, Daemun-ri Baekgok-myeon Jincheon-gun, 7. VIII. 1998; <CN>: 3♂, Mt. Mansu-san Buyeo-gun, 10. VI. 1999; <JN>: 2♀, Piagol Mt. Jiri-san, 16. IX. 1968; 1♀, Mt. Baekhwa-san Taean-gun, 26. V. 2001; 2♀, Jongseok-dae, 14. VII. 1969; 1♀, Baekyang-

temple Jangseoung-gun, 23. VIII. 1999; <GN>: 1♀, Mt. Ganwol-san Ulju-gun Ulsan, 21. VI. 2003.

Biological notes. This species occurs under the bark of *Quercus, Alnus, Roinia pseudoacacia* and *Pinus massomana* where lives fungi, or rarely Polyporacea.

Distributions. Korea, Japan, India, China, Phillippines, Is. Sunda.

Ceropria sulcifrons Harold 1877 무지개무당거저리

Kenn. Gatt. *Ceropria* S.e.z. 39: 353.

Korean record. Kim & Jung, 2004: 163.

(Pl. I-11, Pl. II-25)

Description

Body length, shape. 11.5-12.0 mm. Oblong-ovate, narrower and more convex and shining metallically.

Head. Finely and densely punctate at frons, and coarsely punctate at clypeus. Eyes moderate size, strongly produced laterally. The apical segment of maxillary palpi long securiform. Antennae serrate, produced inward, from 1st to 3rd segment cylindrical, from 4th to 10th segment serrate.

Pronotum. Strongly convex, finely and densely punctate. Lateral margins very roundly, gradually narrower to the apex. Latero-subbasal parts with deep and longitudinal grooves, which are concaved obliquely. Scutellum triangle with coarse punctures.

Elytra strongly convex, iridescent, shining metallically. Strial punctures deep and coarse. 3rd row with 6 punctures in a central 1.0 mm. Interstices convex with coarse and fine punctures.

Male. Fore tibiae strongly incurved at base 2/3, and gouged on inner margins medially with denticle. Mid tibiae strongly incurved at base 1/2 and gouged on inner margins medially with denticulate tubercles and golden hairs in a row outward. Fore tarsi with much dense golden setae ventrally and less dorsally. But female fore and mid tibiae neither incurved nor gouged on inner margins medially. Also fore tarsi not enlarged any more.

Materials examined. <GW>: 2♀, Gangwon-Univ. Chuncheon-si, 10. V. 2001; 1♀, Misiryeong Mt. Seorak-san Sokcho-si, 14. VII. 2002; 1♀, Sambat Chuncheon-si, 20. VIII. 1999; 2♀, Mt. Samak-san Chuncheon-si, 26. V. 2004; 1♀, Biseondai Mt. Seorak-san Sokcho-si, 23. VI. 2002; <GS>: 2♀, Mt. Gwanggyo-san Suwon-si, 18. V. 2001; 2♀, Songchu-valley Mt. Bukhan-san Yangju-gun, 9. VI. 2001; 4♀, Namhansanseoung Gwangju-gun, 29. V. 1993; 1♀, Eungbong-dong Seongdong-gu Seoul, 10. X. 1997; 1♀, Mt. Bukhan-san Dobong-gu Seoul, 9. V. 1998; 1♀, Gwanggyo-dong Suwon-si, 20. VI. 1991; 1♀, Mt. Dobong-san Dobong-gu Seoul, 22. IX. 1984; 1♀, Daian-ri Hyeondeok-myeon Pyeongtaik-si, 16. V. 1999; 1♀, Gwanghwa-gun, 30. V. 1980; 1♀, Mt. Baekun-san Pocheon-gun, 24. VI. 1991; 1♀, Gwansan-dong Deokyang-gu Goyang-si, 2. V. 2004; 3♀, Hwajeop-ri Byeolnai-myeon Namyangju-si, 4. VII. 1993; <CB>: 1♀, Mulhan-ri Sanchon-myeon Yeoungdong-gun, 30. V. 2002.

Biological notes. This species feeds on fungi under the barks of *Quercus, Alnus* and *Roinia pseudoacacia* or rarely Polyporacea, especially *Coriolus* and *Daedaleopsi.*

Distributions. Korea, Japan.

Remarks. This species is different from *C. striata* by followings: *C. striata* less enlarged at 2nd-3rd tarsomeres than *C. sulcifrons*; frons without distinctly longitudinal sulcus in *C. stiata*; elytra of latter species more strongly striated, interstices distinctly convex than *C. sulcifrons*; dorsal surface of *C. sulcifrons* strongly, metallically shining with iridescence than any other allied group of Korean *Ceropria.*

Ceropria striata Lewis, 1894 줄무당거저리

(Pl. I-12, Pl. II-26)

Ann. Mag. Nat. Hist., (6), 13: 399.

Korean records. Chûjô & Lee, 1993: 109; Kwon et al., 1996: 162; Kim et al., 2004: 111; Kim & Jung, 2004: 163.

Description

Body length, shape. 10.5-11.5 mm. Oblong-ovate, black, strongly convex and shining metallically.

Head. Eyes moderate size. Apical segment of maxillary palpi narrow securiform. Antennae serrate, produced inward, 4th to 10th segment strongly serrate inward. Apical segment of antennae fusiform.

Pronotum. Convex, densely and finely punctate. Lateral margin gradually and roundly widened from base to middle part, steeply elevated to the apex. Latero-subbasal parts with short and shallow longitudinal grooves. The scutellum triangle, with fine and coarse puncture.

Elytra with more strongly striate punctures, which have 3rd with 8 puncture in a row 1.0 mm. Interstices more distinctly convex, and finely and densely punctate. Dorsal surface not strongly metallic and iridescent shining.

Materials examined. <GW>: 1♀, Mt. Palbong-san Hongcheon-gun, 28. V. 1994; <GS>: 1♂, Cheongpyeong-ri Oeseo-myeon Gapyeong-gun, 10. VI. 1987; 1♂, Cheongpyeong-ri Oeseo-myeon Gapyeong-gun, 23. VI. 1987; 1♂, Hagye-dong Nowon-gu Seoul, 3. V. 1998; 1♂, Yulgok-ri Yeoju-gun, 7. V. 2000; 2♀, Hantan-river Yeoncheon-gun, 27. V. 2001; 3♂3♀, Songchu-valley Mt. Bukhan-san Yangju-gun, 9. VI. 2001; 1♂1♀, Suri-dong Gunpo-si, 13. V. 2002; <CB>: 1♂1♀, Mulhan-ri Sanchon-myeon Yeoungdong-gun, 30. V. 2002; <CN>: 1♂, Mt. Gwangdeok-san Cheonan-si, 16. VI. 1994; 2♂, Mt. Mansu-san Buyeo-gun, 10. VI. 1999; <GN>: 1♂, Ssanggye-temple Hadong-gun, 9. VII. 1969; 1♂, Jongseukdae 14. VII. 1969.

Biological notes. This species feeds on fungi under barks of *Quercus, Alnus* and *Roinia pseudoacacia* or rarely Polyporacea, especially *Coriolus* and *Daedaleopsis.*

Distributions. Korea, Japan.

Remarks. This species closely resembles *C. induta*, but it is different from latter species as following: *C. striata* much longer; lateral margins of pronotum steeply elevated to the apex; elytral interstices more convex and more finely and less punctate; male fore and mid tibiae incurved and gouged inner margin medially with denticle.

Genus *Scaphidema* Redtenbacher, 1849 뾰족날개거저리속 (신칭)

Fauna Austriaca: Die Käfer, nach der analy. Meth. bear.: 883.

Nelities Lake, L., 1850. super., 132.

Type species: *Scaphidema metallicum* Fabricius, 1792.

Scaphidema kayokoae Chûjô, 1992 영실거저리

in Chûjô, M.T. and C.E. Lee, 1992. Esakia, (32): 31-46.

Korean records. Chûjô & Lee, 1992: 31; Kim, 1996: 8; Kwon *et al.*, 1996: 162; Kim and Jung, 2005 (in press).

Description

Body length, shape. 3.7-4.7 mm. Oval shape. 1st to 3rd segment of antennae, lateral margin of pronotum and legs are bright brown. Elytra with yellowish fascia pattern.

Head. A little convex, sparsely and roughly punctate. Clypeus roughly carved with semicircular at its front margin. Eyes relatively small, rounded and finely granulate. Frons about twice as wide as the diameter of eyes. Antennae reaching middle coxal cavities, 1st segment thick, 4th to apical segments loosely clavate, 4th to penultimate segment nearly equal to each other in shape and size, apical segment oblong oval. Apical segment of maxillary palpi cylindrical, obliquely truncate at apex.

Pronotum. Slightly convex, with sparse and find punctures. Nealy trapezoid, lateral margins nearly straight anteriad. Anterior and posterior margins thinly rimmed, and lateral margins thick and distinct. Prosternal process tongue-shaped, deeply grooved at median part. Scutellum tongue-shaped, with fine punctures.

Elytra strongly convex, with strongly striate punctures. Interstices strongly convex, with coarse punctures. With fascia patterns at subhumeral part and 2/3 at basal part. Elytra narrowed steeply to the apex, exposed the pygidium.

Legs. All of the femora depressed, with shallow femoral groove at apical 2/3. All tibia slender, slightly thickened apically.

Material examined. 1ex., Yeongsil Mt. Hallasan Jeju-do, 26. V. 2005 collected by B.H. Jung

Distribution. Korea (Jeju-do, endemic species).

Scaphidema michihidei Chûjô and Lee, 1993 지리영실거저리

M.T., Chûjô and C.E. Lee, 1993. Esakia. 33: 109.

Korean records. Chûjô & Lee, 1993: 109; Kim, 1996: 8; Kwon *et al.*, 1996: 162; Kim and Jung, 2005 (in press).

Description

Body length, shape. 4.6-4.9 mm. Oval, convex and dark brown to black. 1st to 3rd segments of antennae, mouth part, marginal area of pronotum, elytra and all legs yellowish brown.

Head. Transverse, with sparse and strong punctures. Clypeal suture depressed but invisible, clypeus trapezoid, produced forward. Eyes prominently produced outward, minutely granulated. Antennae thick and apical segment ovoid.

Pronotum. Nearly trapezoid, gently convex and width of base 5/3 times as broad as that of apex.

Elytra gently convex, with deeply striate punctures. Interstices convex, with sparse and shallow punctures. Lateral margins narrowly rimmed, not reaching to the apex.

Legs. All femora depressed with sparse punctures. Front tibiae weakly enlarged apically. Apical segment of fore tarsi nearly as long as the rest of them combined together.

Distribution. Korea (endemic species).

Remarks. This description is based on the original description from M.T., Chûjô and C.E. Lee(1993: 109). This specimen in Korea reported by Chûjô, M.T. and C.E. Lee (1993) is preserved in the collection of prof. C.E., Lee, Kyungbook Nat. Univ. in Korea (Holotype, 1♂, Jeonglyeon-chi, Samnae-myeon, Jeollabuk-do, Korea, 16. VII. 1991, M.T. Chûjô leg. Paratypes, ♂♀, same collecting data

with holotype ♀, Samjeon-ri, Macheon-myeon, Jeollabuk-do, Korea, 14 VII. 1991, M.T. Chûjô leg.). They were asked to loan the specimens for this study but failed to borrow them, thus could not be examined.

Genus *Diaperis* Geoffroy, 1764 르위스거저리속

Hist. Nat. Insect. envir. Paris. I.

Type species: *Chrysomela boleti* Linnaeus, 1758

Diagnosis. Body hemispherical rather short, strongly convex. Head part produced downward. Antennae transversely widened about twice as wide as length. Terminal segment of maxillary palpi slender-cylindrical, which dilated roundly at the side and become slender at the apex. Basal segment of hind tarsi a little longer than 2nd segment.

Diaperis lewisi lewisi Bates, 1873 르위스거저리

(Pl. I-13, Pl. II-27)

Ent. Monthl. Mag., 10: 14.

Korean records. Kolbe, 1886: 202; Kim *et al.*, 1972: 103; Kwon & Choi, 1986: 108; Chûjô & Lee, 1993: 109; ESK & KSAE, 1994: 176; Kim *et al.*, 1994; Kwon *et al.*, 1996: 163; Kim & Jung, 2005 (in press).

Description

Body length, shape. 6.0–7.0 mm. Hemispherical, short, strongly convex, black with red fascia band and shining.

Head. Semicircular, with rough and dense punctures, and with a deep groove behind clypeus. Clypeal membrane not visible dorsally. Labrum punctate coarsely with bundles of long setae. Eyes relatively large, strongly expand laterally, granulated coarsely. Antennae rather stout, 1st to 3rd segment cylindrical, 4th segment apically constricted at the base and transversely widened twice as wide as its length, and apical segment fusiform. Apical segment of maxillary palpi cylindrical.

Pronotum. Strongly convex, coarsely and finely punctate. Scutellum triangle,

with fine and coarse punctures.

Elytra strongly convex, with shallowly and weakly striate punctures. Interstices flattened, very coarsely and shallowly punctate. Basal part of elytra with red transverse fascia band extending between 1st interstice and lateral margin. Middle part with red transverse fascia extending between 2nd and 9th interstices and nearly reaching to the lateral margin. Apical part with longitudinal red fascia. The prosternal process rather narrow, truncated behind.

Legs. Fore tarsi short, slender and pilose ventrally, the sum of 1st-4th tarsi almost equal to apical segment, apical segment of hind tarsi a little longer than the rest of segments. The claw long and simple.

Abdomen. With fine and dense punctures with hairs.

Materials examined. <GW>: 30exs., Guryong-temple Mt. Chiak-san Wonju-si, 30. VIII. 1975; 1ex., Onjeong-ri Mt. Guemgang-san, 2. VI. 1988; 1ex,, Songhyun-ri Yangyang-gun, 4. VIII. 1998; 1ex,, Misiryeong Mt. Seorak-san Sokcho-si, 14. VII. 2002; <GS>: 1ex., Gwangleung Peocheon-gun, 3. VIII. 1957; 2exs., Mt. Dobong-san Dobong-gu Seoul, 16. VIII. 1957; 20exs., Mt. Cheonma-san Namyangju-si, 25. VII. 1961; 1ex., Anyang-si 8. IX. 1961; 1ex., Seoul, 13. VI. 1967; 1ex., Ui-dong Dobong-gu Seoul, 3. V. 1968; 1ex., Bogwang-temple Paju-si, 6. VI. 1973; 1ex., Gwangleung Peocheon-gun, 10. VI. 1973; 2exs., Mt. Yongmun-san Yanpeong-gun, 28. V. 1978; 1ex., Mt. Yongmun-san Yanpeong-gun 29. V. 1982; 2exs., Mt. Dobong-san Dobong-gu Seoul, 5. VI. 1982; 1ex., Mt. Samseoung-san Anyang-si, 5. VI. 1983; 4exs., Mt. Dobong-san Dobong-gu Seoul, 6. VI. 1983; 2exs., Mt. Chukryong-san Namyangju-si, 18. VI. 1983; 1ex., Heoninleung Naegok-dong Seocho-gu Seoul, 18. VI. 1983; 2exs., Saeteo Namyangju-si 19. VI. 1983; 1ex., Mt. Cheonma-san Namyangju-si, 2. VI. 1984; 2exs., Hyeonri Gapeyong-gun, 17. VIII. 1984; 1ex., Suwon-si 1. VI. 1987; 1ex., Namhansanseoung Gwangju-gun, 12. V. 1990; 3exs., Mt. Myeongji-san Gapyeong-gun, 5. V. 1991; 6exs., Mt. Myeongji-san Gapyeong-gun, 25. V. 1991; 2ex., Mt. Baekun-san Pocheon-gun, 23. VI. 1991; 1ex., Wolgok-dong Seongbuk-gu Seoul, 5. VI. 1992; 2exs., Mt. Cheonma-san Namyangju-si, 6. VI. 1992; 1ex., Mt. Bukhan-san Seoul, 21. VI. 1992; 2exs., Seoul National Uni.-Aboretum Anyang-si, 23. VI. 1992; 2exs.,

Hwasung, Suwon-si, 24. VI. 1992; 1ex., Gwangleung-Aboretum Pocheon-gun, 25. VI. 1992; 4exs., Mt. Soyo-san Dongducheon-si, 2. VIII. 1994; 1ex., Seoul Grand Park Gwachen-si, 30. V. 1999; 1ex., Mt. Cheonggyeo-san Seocho-gu Seoul, 26. V. 2003; <CN>: 1ex., Mt. Gyeryong-san, 5. VIII. 1973; <CB>: 2exs., Mt. Worak-san, 1. V. 1992; 1ex., Yongam-ri Hwanggan-myeon Yeoungdong-gun, 4. VIII. 2001; <GB>: 1ex., Mt. Juwang-san, 4. VI. 1989; <JN>: 3exs., Dapgok Mt. Baekun-san Gwanyang-si, 19. VII. 1989; 2exs., Mt. Baekun-san Gwanyang-si, 20. V. 1991; 3exs., Mt. Duryun-san Hainam-gun, 18. VI. 1998; <JJ>: 1ex., Gwaneum-temple Jeju-si, 30. VII. 1998.

Biological notes. This species is founded on the fungi under the bark.

Distributions. Korea (whole), Japan, China (Manchuria), Russia (Southern Primorye, Siberia).

Genus *Platydema* Laporte et Brulle, 1831 진주거저리속

Ann. Sc. Nat. Paris, 23: 350(26).

Type species: *Platydema dejeani* Laporte et Brulle, 1831

Diagnosis. Body oval, shining. Eyes large, genae inserted into the anterior margin of ocular area. Antennae moniliform, 11-segmented. Eyes large. Fore coxae closed strongly. Pronotum with thin, longitudinal sulcus on each latero-subbasal part. The basal margin of pronotum arched, produced posteriad on median part. Elytra with striate punctures.

Key to the Korean species of genus *Platydema*

1. Elytra with brownish yellow patterns at subbasal part. Frons with a pair of tubercle on inner ocular area in both sex ····· *subfascia*
- Elytra without brownish yellow patterns at subbasal part. Frons with or without a pair of tubercles on inner ocular area in both sex ····· 2
2. Frons without a pair of tubercles on inner ocular area on both sex. Dorsal punctures of body with one hair each ····· 3

- Frons with a pair of tubercles on inner ocular area in both sex. Dorsal punctures of body with one (rarely) or two hairs each ····· 4

3. Body shining. Pronotum nearly wide-triangle. Elytra with strong strial punctures, and interstices convex ····· *lynceum*

- Body not shining. Pronotum moderate triangle. Elytra with fine strial punctures, and interstices flattened ····· *fumosum*

4. Frons with a pair of long horns which are slender and thin, reaching out the head in male. Basal part of horns concave shallowly on both sex ····· ····· *recticorne*

- Frons with a pair of short horns which are stout and thick, not reaching out the head in male. Basal part of horns concave deeply on both sex ····· 5

5. Latero-subbasal part of pronotum with distinct longitudinal grooves. Elytra with distinct strial punctures, and interstices strongly convex, with regular punctures ····· *marseuli*

- Latero-subbasal part of pronotum with weakly impressed grooves. Elytra with shallowly impressed strial punctures, and interstices less convex, with scattered punctures ····· 6

6. Frons with a pair of slender horns in male. Pronotum big and transverse, and abruptly narrowed near the apex ····· *kurama*

- Frons with a pair of short and thick horns in male. Pronotum not transverse and gradually narrow near the apex ····· 7

7. Elytra with fine and distinct strial punctures, and interstices more strongly convex, with minute and strongly coarse punctures ····· *koreanum*

- Elytra with strongly fine strial punctures, and interstices less convex, with moderately coarse punctures ····· *nigroaeneum*

Platydema recticorne Lewis, 1894 나도진주거저리

(Pl. I-14, Pl. II-28)

Ann. Mag. Nat. Hist., [6], 13(77): 394.

Korean records. Chûjô & Lee, 1993: 109; Chûjô & Lee, 1994: 189; Kwon *et al.*, 1996: 162; Kim & Jung, 2005: 9.

Description

Body length, shape. 4.5–5.0 mm. Oblong-ovate, shining, strongly convex and reddish black. Antennae, mouth part, apex of horns, clypeus, leg, elytral suture, epipleurae and sternites reddish brown.

Head. Frons deeply, longitudinally grooved with rough and dense punctures. Eyes larger, frons between eyes narrower than diameter of eyes. Antennae of 1st to 3rd segment slender mostly, from 6th to 10th segment enlarged gradually, apical segment longer than its width. Apical segment of maxillary palpi long triangle.

Pronotum. Punctured like the head. Anterior margin of pronotum lightly curved, narrowly marginated, and posterior margin moderately sinuate, narrowly marginated, with dense and fine punctures splitted. Scutellum round-triangle, nearly smooth with very obscure punctures.

Elytra strongly convex. Strial punctures very strong and coarse, invading the interstices. Interstices distinctly convex, with fine and clear punctures, which have two white hairs per each puncture or sometimes one hair.

Legs. All tibiae and tarsi slender, with dense pubescence.

Abdomen. Middle part of 1st visible segment with golden long hairs.

Male. A pair of frontal horns slender and long, reaching out beyond the head. In well-developed male, the frontal horns much longer, with dense punctures with two hairs each. The basal part of horn with big and sparse punctures, deeply concave 'V'-shape with sparse punctures, the apex of horns without punctures. Female with a pair of short and round tubercles.

Materials examined. <GS>: 1♀, Gunpo-si, 13. V. 2000; 2♂1♀, Mt. Bong-san Eunpyeong-gu Seoul, 12. V. 2002; 2♂5♀, Gwansan-dong Deokyang-gu Goyang-si, 2. V. 2004; 1♂, Gil-dong Gangdong-gu Seoul, 10. V. 2004; 1♂1♀, Mt. Mani-san Gwanghwa-gun, 26. V. 2004; 1♂, Gil-dong Gangdong-gu Seoul, 29. VI. 2004; <CB>: 1♀, Cheongwon-gun, 9. VII. 1975.

Biological notes. This species is found on *Daedaleopsis confragosa, D. tricolor*, *D. stryracina,* and *Coriolus* associated with old dead trees (*Quercus* and

Alnus). It is rarely found on *Lenzites betulinus* and *Trametes gibbosa.* This species is over-wintered as adults or larvae, and pupa.

Distributions. Korea, Japan.

Platydema subfascia subfascia (Walker, 1858) 진주거저리

(Pl. I-15)

Alphitophagus subfascia Walker, 1858. Ann. Mag. Nat. Hist., [3], 2(10): 284.

Korean records. Nakane, 1973: 105; Chûjô & Lee, 1994: 189; Kwon *et al.*, 1996: 162; Kim & Jung, 2005: 9.

Description

Body length, shape. 4.0-5.0 mm. Oblong-ovate, shining and strongly convex.

Head. Roughly and a little densely punctate. Eyes large expanded laterally. 1st to 3rd segment of antennae comparatively slender, 4th to 10th segment gradually enlarged, apical segment oblong. Clypeus almost round semicircular, weakly and coarsely punctate, with a small and thin tubercles at anterior part in the middle of clypeal margin in male. Apical segment of maxillary palpi securiform.

Pronotum. Weakly convex, with fine and coarse punctures. Front margin weakly marginated and basal margin strongly sinuate, not rimmed clearly. Latero-subbasal part with short, shallow, parallel and longitudinal sulcus. Scutellum triangle like heart with fine punctures.

Elytra convex, with weakly striate punctures. Strial punctures large oval. Interstices flattened and densely punctate. Subhumeral with transverse fascia extending between the 1st interstice and lateral margin. Subapical spot obscure red. Prosternal process projected backward.

Legs. Fore tibia comparatively flattened, with short and thick spurs. Fore tarsi with long picieous setae, expecially dense beneath, apical segment almost as long as 1st to 4th segment combined together. 1st segment of hind tarsi as long as the following three segments combined together. Claws simple.

Male. Frons with a pair of unbalanced horn, right big horn-shape with brown

hairs. Female with a pair of blunt tubercles, scattered distinct and rough puncture on basal part of tubercles.

Materials examined. <JJ>: 4♀, Donneko Seogwipo-si, 29. VIII. 1998 by H.C. Park.

Distributions. Korea (Jeju-do), Japan, China, Indochina, Burma, India, SriLanka, Borneo, Sumatra, Malacca, Java, Madagascar.

Biological notes. This species is found on fungi under the bark of rotten wood including *Quercus, Alnus* and *Robinia pseudoacacia* or rarely Pinaceae.

Platydema fumosum Lewis, 1894 멋진주거저리

Ann. Mag. Nat. Hist., [6], 13(77): 395.

Korean records. Chûjô & Lee, 1993: 109; Kwon *et al.*, 1996: 162; Kim & Jung, 2005: 9.

Diagnosis. Body length. 6.0-7.0 mm. Body oval, black, not shining. Head semicircular, finely and sparsely punctured, without a pair of frontal horns. Two basal segment of Antennae red, the rest of them black. Pronotum puntured like head, lateral side arched, basal margin bisinuous posteriad. Scutellum triangular. Elytra with fine striate punctures and interstices flat. Legs dusky brown, tarsi reddish, basal segment of fore tarsi in male slightly enlarged.

Distributions. Korea, Japan (Honshu, Tsushima Island)

Remarks. This diagnosis is based on the original description from Lewis (1894: 395). Korean specimens reported by Chûjô and Lee (1993) are deposited at Kyushu University in Japan (7exs., Kwangnung, Pochon-gun, Gyeonggi-do, 16-19. VII. 1992. M.T. Chûjô leg.). They were asked to loan the specimens for this study but failed to borrow them, thus could not be examined.

Platydema lynceum Lewis, 1894 극동진주거저리

Ann, Mag. Nat. Hist., [6], 13(77): 395.

Korean records. Chûjô & Lee, 1993: 109; Kwon *et al.*, 1996: 163; Kim & Jung,

2005: 9.

Diagnosis. Body oblong oval, nearly black with a faint purple. Head without a pair of horns in both sexes. Eyes large, approaching each other on the inner edge anteriad in male. Pronotum transverse, punctate finely and sparsely, narrowest in front, widest behind. Elytr with long, strongly stiate punctures. Interstices convex, very minutely and sparsely punctate. Antennae and legs dull brown. The sex can be distinguished by their tarsi.

Remarks. This diagnosis is based on the original description from Lewis (1894: 395). Korean specimens reported by Chûjô and Lee (1993) are deposited at Kyushu University in Japan [1 ex., (at light) Dooryu Don, Joochun Myeon, Samchung-gun, Gyeongsangnam-do, 25. IX. 1991, K. Morimoto leg.; 1ex., Gamjong-ri, Chunchon-gun, Kangweon-do, Korea, 23. VII. 1992, M.T. Chûjô leg.]. They were asked to loan the specimens for this study but failed to borrow them, thus could not be examined.

Platydema kurama Nakane, 1963 산진주거저리

(Pl. I-16, Pl. II-29)

Fragm. Col., Tokyo, (6): 26-(7): 27.

Korean records. Chûjô & Lee, 1993: 109; Kwon *et al.*, 1996: 162; Kim & Jung, 2005: 9.

Description

Body length, shape. 6.7-7.2 mm. Black, shining, oval and moderately convex.

Head. Finely and moderately punctate, with a pair of tiny tubercles on inner ocular areas in both sex. Clypeus nearly semicircular, very feebly angulate at middle point, with little rugose punctures and a shallow semicircular groove on the middle part. Clypeal suture extremely finely and weakly depressed. Frons concaved longitudinally. Eyes large, oblique, expanded outward. Antennae not reach out the base of pronotum, gradually enlarged from 9th segment to the apex and apical segment oblong. Apical segment of maxillary palpi long triangle.

Pronotum. Slightly convex, finely and moderately punctate. Latero-subbasal

parts weakly depressed. Especially distinctly big and widened. Lateral sides abruptly narrowed near the apex. Anterior margin roundly curved, very narrowly marginate, posterior margin roundly sinuate. Lateral margins lightly wrapped outward, thinly marginate. Prosternal process oblong like tongue. Mesosternum depressed in V-shape with golden hairs. Metasternum sparsely and rugosely punctate. Scutellum smooth, nearly triangular.

Legs. All tibiae and tarsi slender, with dense pubescence.

Material examined. <JN>: 1♂, Mt. Baekun-san Kwangyang-si, Jeollanam-do, . 11. VII. 1993 collected by S.Y. Kim.

Distributions. Korea, Japan.

Biological notes. This species is found on decaying fungi under the bark of rotten wood of *Quercus.*

Remarks. This species differs from the other species of genus *Platydema* by having relatively much transverser and broader pronotum and shallowly impressed elytral striae with coarse punctures.

Platydema nigroaeneum Motschulsky, 1860 흑진주거저리

(Pl. I-17, Pl. II-30)

Etudes, Ent., 9: 18.

Korean records. Heyden, 1887: 243; Kim *et al.*, 1971: 157; Kim & Nam, 1981: 126; Kwon & Choi, 1986: 105; ESK & KSAE, 1994: 176; Kim *et al.*, 1994: 127; Kwon *et al.*, 1996: 162; Kim *et al.*, 1998: 163; Kim *et al.*, 2002: 115; Kim & Jung, 2005: 9.

Description

Body length, shape. 6.0-8.0mm. Black to reddish black, oblong-ovate, shining, strongly convex and all of the tarsi dark reddish brown.

Head. Finely and densely punctate. Frons with a pair of tubercles on inner ocular areas in both sex. Eyes large, obliquely and strongly enlarged outward. Antennae not reach out the base of pronotum, 1st to 3rd segment comparatively slender, 4th to 10th segments enlarged roundly and apical segment oblong.

Apical segment of maxillary palpi long triangle, or almost securiform.

Pronotum. Convex and punctate like head. Latero-subbasal part with obliquely impressed grooves. Prosternal process oblong-oval, posterior end obtusely angulate, median part with narrowly and shallowly longitudinal groove. Metasternum gradually convex to the side, with sparse and small punctures. Scutellum smooth, and long triangle.

Elytra strongly convex, and strial punctures very fine. Interstices a little convex with coarse punctures.

Legs. All of the tibia and tarsi slender and densely pubescent.

Male. Frons with a pair of stout, thick, and straight horns. The top of horns reddish brown without punctures, base of them blackish brown with dense punctures. Female with a pair of short and thickened tubercles, with densely scattered punctures.

Materials examined. <GS>: 1♀, Mt. Baekun-san, Pocheon-gun 24. VI. 1991; 1♂, Suri-dong Gunpo-si, 13. V. 2000; 1♀, Yeoju-gun, 11. X. 2000; 2♂, Gwansan-dong Goyang-si, 2. V. 2004; 3♂2♀, Gwansan-dong Goyang-si, 6. V. 2004; 11♂5♀, Gil-dong Gangdong-gu Seoul, 10. V. 2004; 2♂, Mt. Mani-san Gwanghwa-gun, 26. V. 2004; <JJ>: 1♀, Donneko Seogwipo-si, 29. VIII. 1998.

Biological notes. This species is mostly found on fungi, *Daedaleopsis confragos, D. tricolor, D. stryracina,* and *Coriolus* associated with old dead trees of *Quercus* and *Alnus.* This species is over-wintered as adults or larvae, and pupa. This members can mostly be found same fungi which *P. recticorne* feeds on.

Distributions. Korea, Japan.

Platydema koreanum Chûjô, 1992 우리진주거저리

(Pl. I-18, Pl. II-31)

Chûjô M.T. and C.E. Lee, 1992. ESAKIA, (32): 31.

Korean records. Chûjô & Lee, 1992: 31; Chûjô & Lee, 1993: 109; Paik, *et al*, 1995: 115; Kwon *et al.*, 1996: 162; Kim, 1996: 8; Kim, 2000: 127; Kim & Jung, 2005: 9.

Description

Body length, shape. 5.5-7.0 mm. Black to dark brown color, oblong-oval, shining, and strongly convex.

Head. Finely and densely punctate, with a pair of tubercles on inner ocular in both sex. Frons concaved longitudinally and deeply, with dense punctures. Eyes large and oblique, expanded laterally. Antennae not reach out the base of pronotum, 1st to 3rd segment of antennae slender, enlarged roundly from 4th to 10th segment. Apical segment of maxillary palpi securiform.

Pronotum. Trapezoid, convex, and finely and densely punctate. Latero-subbasal parts obliquely and weakly depressed. Anterior margin accurate strongly, marginated distinctly. Lateral margin rather steeply narrowed and anteriad. Posterior part sinuous, narrowly marginate. Prosternal process oblong, posterior tip gently angulate, with narrow and linear groove medially. Metasternum gently convex, sparsely and weakly punctate. Scutellum wide triangle with coarse and fine punctures, basal margin slightly sinuous.

Elytra strongly convex, strial punctures fine and distinct. Interstices strongly convex, with sparse and minute punctures. Lateral sides very narrowly marginate.

Male. Frons with a pair of horns, which especially are much shorter and thicker.

Materials examined. <GW>: 1♀, Mt. Gyebang-san, 21. VII. 1981; <GS>: 1♂, Mt. Dobong-san Dobong-gu Seoul, 29. V. 1999; 1♀, Mt. Bukhan-san Seoul, 15. IV. 2004; 1♂, Gwansan-dong Goyang-si, 6. V. 2004; 1♂, Gil-dong Gangdong-gu Seoul, 10. V. 2004; 2♂, Mt. Mani-san Gwanghwa-gun, 26. V. 2004; <JN>: 1♀, Piagol Mt. Jiri-san, 1. VIII. 1997.

Biological notes. This species is found on *Daedaleopsis tricolor* which lives on *Quercus* and *Robinia pseudoacacia*.

Distribution. Korea (endemic species).

Remarks. This species is similar to *Platydema nigroaeneum* Motschulsky. It is distinguished from *P. nigroaeneum* Motschulsky by followings: Male horns on

inner ocular area much shorter and thicker; punctures on body minute and rather coarse; and also interstices of elytra more strongly convex.

Platydema marseuli Lewis, 1894 서울진주거저리

(Pl. I-19, Pl. II-32)

Ann. Mag. Nat. Hist., [6], 13(77): 395.

Korean records. Kim & Jung, 2005: 9.

Description

Body length, shape. 4.5-5.0 mm. Oval, reddish or brassy black, shining and convex. Punctures of body with one (rarely) or two hairs each. Apex of horn, antennae, clypeus, and epipleurae reddish brown.

Head. Finely and densely punctate, with a pair of tubercles on inner ocular areas in both sex Clypeus with a small tubercle point at the middle part. Eyes large, expanded laterally. 1st to 3rd segment of antennae rather cylindrical- 1st segment much stouter and longer than 2nd segment, from 4th to 10th segment enlarged slightly each, apical segment oblong-oval. Apical segment of maxillary palpi round securiform.

Pronotum. Nearly trapezoid, finely and densely punctate. Anterior margin gently accurate, rimmed narrowly, lateral sides marginated gently, narrowed apically, and posterior margin sinuate, rimmed weakly. Scutellum triangle with coarse and obscure punctures.

Elytra convex, with strongly striate punctures. Strial punctures very distinct and coarse. Interstices strongly convex, regularly and minutely punctate with white short hairs. Prosternum strongly rugose and pubescent. Prosternal process projected backward with longitudinal line. Mesosternum weakly rugose, concaved V-shape. Metasternum nearly smooth or very weakly punctate with coarse pubescence.

Legs. All tibiae and tarsi slender and simple with setae in a row on outer margin.

Male. With a pair of thick, short and stout horns, not reaching beyond the

head. The horns with dense and rather obscure punctures, whereas the basal part finely, shallowly punctate with white hairs, and concave deeply and widely. Female with a pair of unsharpened tubercles, and flattened at basal part of them.

Biological notes. This species is mostly found on fungi, *Daedaleopsis tricolor* and rarely *Coriolus* associated with old dead trees of *Quercus* and *Alnus.* This species is over-wintered as adults, larvae or pupa.

Materials examined. <GS>: 4♂6♀, Gil-dong, Gangdong-gu, Seoul, 10. V. 2004 collected by B.H. Jung.

Distributions. Korea, Japan, Is. Sunda.

Remarks. External feature of this species is similar to *P. recticorne* and in size. But it differs from *P. recticorne* as followings: Male horn much shorter, stouter and thicker; basal part of horns concave deeply and widely; body with coarse and dense puncture dorsally; dorsal side of elytra is less convex and interstices less convex; 1st abdominal sternite with dense golden long hairs, whereas latter species with coarse golden long hairs.

3. Study on the fungivorous Diaperinae

Subfamily Diaperinae largely feeds on polypore fungi, including mycelia under the bark or in sporophores or fungi growing on other organic materials. A number of species in the genera *Platydema*, *Neomida*, and *Diaperis* are recorded on fungi in the genera *Polyporus* and *Fomes* (Triplehorn, 1965: 349). Genbien (1925) has suggested that since both of these fungus genera are distributed throughout the world. The subcortical area of relatively old dead trees is mostly natural habitat, but *Alphitophagus* and *Cynaeus* now occur in stored grain, where they apparently feed on fungi (Doyen, 1984: 777).

Chûjô (1992) studied about Tenebrionidae which feed on many kinds of fungi before about twenty years. Being based on his literature, collecting activities for this study were tried to find the diaperine beetles which fed on fungi. In most case, the results of this study have some similarities to his records. So the result of collecting activities was examined according to the circumstance in Korea.

Most of diaperine beetles are hardly found on fungi of Agaricales because of short life cycle of fungi. On decaying Polyporaceae of Aphyllophoreles, it is easy to find the several species of Diaperinae members corresponded with fungi of having long life cycle. Especially, they can be found in the tall tree standing erectly better than in the rotten trees which are only lain down, for example, under the bark of *Quercus, Alnus* and *Robinia pseudoacacia* Linneus, or rarely Pinaceae. Many kinds of species in Diaperinae depend on the decaying fungi of which color are suitable enough to live. Most of them attract to the broad-leaf trees better than the coniferous ones. Most of them are to be found in the adult stage, often all year around, hibernating under bark. And also larvae and pupae of this group over-wintered under the bark or in Polyporaceae.

As a checking how frequently a diaperine beetles are found, some species were collected at a degree about 10% on *Coriolus, Microporus* and Aphyllophorales mycelia of coniferous tree. Other species were collected at a

degree about 90% on *Daedaleopsis*, *Lenzites* and Aphyllophorales mycelia under the bark of broadleaf trees.

Consequently, 12 species among 26 species in Diaperinae wasI collected on the fungi for this study, therefore, the data of their habitat including host fungi associated with trees which members of Diaperinae fed on was particularly summerized. Fungi which Diaperinae group can be found are listed as following (Table. 3):

Table 3. The list of fungi associated with Korean Diperinae group

Fungi	Taxa	Frequency
Genus *Coriolus* (구름버섯속)	*Diaperis lewisi lewisi* *Platydema nigroaeneum* *Platydema koreanum* *Basanus tsushimensis* *Ceropria induta induta* *Ceropria striata* *Ceropria sulcifrons* *Ceropria laticollis*	rare
Genus *Microporus* (메꽃버섯속)	*Platydema recticorne* *Platydema nigroaeneum*	rare
Aphyllophorales mycelia under the bark of rotten broadleaf tree of *Quercus, Alnus* and *Robinia pseudoacacia* Linneus, or rarely Pinaceae (참나무속, 오리나무속, 아까시나무)	*Platydema nigroaeneum* *Platydema koreanum* *Platydema subfascia subfascia* *Platydema kurama* *Basanus tsushimensis* *Diaperis lewisi lewisi* *Ceropria induta induta* *Ceropria striata* *Ceropria sulcifrons* *Ceropria laticollis*	abundant
Daedaleopsis tricolor (삼색도장버섯), *Daedaleopsis stryracina* (때죽나무도장버섯), *Lenzites betulinus* (조개껍질버섯), *Trametes gibbosa* (대합송편버섯)	*Platydema recticrone,* *Platydema nigroaeneum,* *Platydema koreanum,* *Platydema marseuli*	abundant
Aphyllophorales mycelia under the bark of rotten coniferous tree of *Pinus*	*Ceropria induta induta* *Ceropria striata* *Ceropria sulcifrons* *Ceropria laticollis*	rare

rare: degree about 10%, abundant: degree about 90%.

IV. Discussion

In this study, Korean Diaperinae recorded by literature is reviewed, based on the original description of each species and the careful examination of each specimens.

Since Kolbe (1886) had reported one Korean species, 5 tribes, 16 genera and 29 species 1 subspecies of Korean Diaperinae have been recorded in Korea up to date. Among them, *Basanus amaminanus* Chûjô, 1966, is the misidentified species, and *Basanus tsushimensis kompancevi* Kaszab and G. Medvedev, 1984 is the misidentified subspecies. *Ischnodactylus loripes* Lewis, 1894 are dubious species whether they are present or absent in Korea because of the lacks of distributional information and non-existing material at the reported Jeju Institute in Jeju-do. In addition, *Palembus dermestoides* (Chervolat, 1878) is the miscited species of *Martianus dermestoides* (Chervolat, 1878). Thus they are excluded Korean Diaperinae list in this study, and 26 speices are regarded as the valid species for Korean Diaperinae.

1) Valid names

They are proper scientific name for Korean Diaperinae, which involves the changed Genus or misspelling. It contains total 26 species.

2) Miscited species

It is the citation in errors.

1 species

Palembus dermestoides

3) Misidentification

It is wrongly misidentified with other species, based on the historical review, comparison with the original description, and catalogues and materials examined.

Total 1 species and 1 subspecies

Basanus amamianus for Basanus tsushimensis, Basanus tsushimensis kompancevi for Basanus tsushimensis

4) Dubious species in distribution

The dubious names are only recorded by literature and not confirmed the existing of specimens. It is also nearly impossible to find materials additionally and perhaps it was misidentified as *Platydema* apractically, therefore, further works will be needed and it will be reexamined and studied still more.

1 species

Ischnodactylus loripes

In addition, total 12 species of Korean Diaperinae were found on the fungi. Material for this study have been collected on the many kinds of fungi. They are abundantly found on *Daedaleopsis*, *Lenzites* or rarely *Trametes, Coriolus* which are belonged to the Polyporaceae of Aphyllophoreles. While Agaricales has a short life cycle, Aphyllophoreles have a long life cycle which is corresponded with beetle's life cycle, and its brackets are suitable for diaperine beetles to live all year around. Sometimes many kinds of species can be found under the bark of broad-leaf tree and rarely that of coniferous tree. Most of adults are watched all year around, and both larvae and pupae over-wintered under the bark or in Polyporaceae.

Consequently, Korean Diaperinae is arranged a total 26 species including 5 tribes 14 genera up to now. Checklist of Korean Diaperinae is provided, a key to the tribes, genera and species, the diagnoses of tribes and genera, the descriptions of species, literature, locality data, and biological information. And also the fungi list associated with trees is presented additionally.

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Abstract

A Taxonomic Study on Diaperinae (Coleoptera: Tenebrionidae) in Korea

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Korean Diaperinae is reviewed taxonomically based on the examination of external character. Twenty-nine species one subspecies of Diaperinae have been recorded in Korea up to date, since Kolbe (1886) had reported one Korean species, *Diaperis lewisi lewisi* Bates, 1873 for the first time. But the records, which has been continuously added in many reports, are included problems such as misidentification, miscited species, and dubious names because of unstable citing.

As a result of this study, two species (*Basanus amamianus* Chûjô, 1966, *Basanus tsushimensis kompancevi* Kaszab and Medvedev, 1984) are known to misidentified name, one species (*Ischnodactylus loripes* Lewis, 1894) is considered dubious species and one species [*Palembus dermestoides* (Chervolat, 1878)] is miscited species.

In conclusion, total 26 species belong to 14 genera under 5 tribes were presented in this study. The descriptions, diagnoses, photos, localities, host fungi and biological information of each species are provided here.

Explanations of Plates

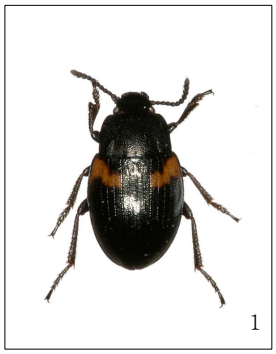
19 species among 26 species of adults are provided for photos except for specimens which were not possessed as the following Plates I. Also male aedeagus of 13 species are presented because of the lacks of some male specimen as the following Plates II:

Plates I. Adults (Dorsal view): Figs. 1-19

1. *Phaleromela subhumeralis* (Marseul, 1876) 붉은어깨꼬마거저리
2. *Micropedinus algae* Lewis, 1894 해변해초꼬마거저리
3. *Micropedinus pallidipennis* Lewis, 1894 해변꼬마거저리
4. *Emypsara riederi* (Faldermann,1833) 남생이거저리
5. *Trachyscelis sabuleti* Lewis, 1894 비단해변거저리
6. *Gnothocerus cornutus* Fabricius, 1798 귀뿔거저리
7. *Martianus dermestoides* (Chevrolat, 1898) 구룡거저리
8. *Basanus tsushimensis* M.T. Chûjô, 1963 금강산거저리
9. *Ceropria laticollis* Fairmaire, 1903 산무당거저리
10. *Ceropria induta induta* (Wiedemann, 1819) 구슬무당거저리
11. *Ceropria sulcifrons* Harold 1877 무지개무당거저리
12. *Ceropria striata* Lewis, 1894 줄무당거저리
13. *Diaperis lewisi lewisi* Bates, 1873 르위스거저리
14. *Platydema recticorne* Lewis, 1894 나도진주거저리
15. *Platydema subfascia subfascia* Walker, 1858 진주거저리
16. *Platydema kurama* Nakane, 1963 산진주거저리
17. *Platydema nigroaeneum* Motschulsky, 1860 흑진주거저리
18. *Platydema koreanum* M.T. Chûjô, 1992 우리진주거저리
19. *Platydema marseuli* Lewis, 1894 서울진주거저리

Plates II. Male aedeagus [Left: Dorsal view, Middle: Lateral view (figs. 20, 21, 27), Right: Ventral view]: Figs. 20-32 (Figs.23, 24, 25, 26 by Canon EOS-D30; rest of them by SEM, Scales=200μm)

20. *Micropedinus algae* Lewis, 1894	해변해초꼬마거저리
21. *Micropedinus pallidipennis* Lewis, 1894	해변꼬마거저리
22. *Basanus tsushimensis* M.T. Chûjô, 1963	금강산거저리
23.*Ceropria laticollis* Fairmaire, 1903	산무당거저리
24. *Ceropria induta induta* (Wiedemann, 1819)	구슬무당거저리
25. *Ceropria sulcifrons* Harold 1877	무지개무당거저리
26. *Ceropria striata* Lewis, 1894	줄무당거저리
27. *Diaperis lewisi lewisi* Bates, 1873	르위스거저리
28. *Platydema recticorne* Lewis, 1894	나도진주거저리
29. *Platydema kurama* Nakane, 1963	진주거저리
30. *Platydema nigroaeneum* Motschulsky, 1860	흑진주거저리
31. *Platydema koreanum* M.T. Chûjô, 1992	우리진주거저리
32. *Platydema marseuli* Lewis, 1894	서울진주거저리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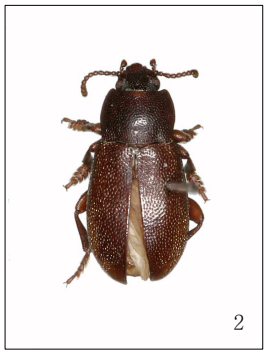
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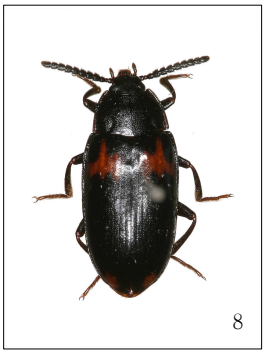
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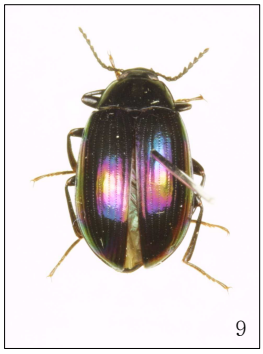
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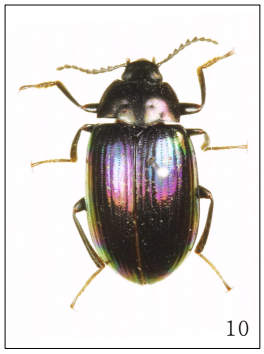
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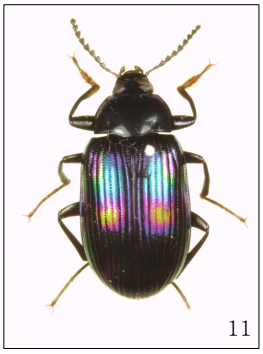
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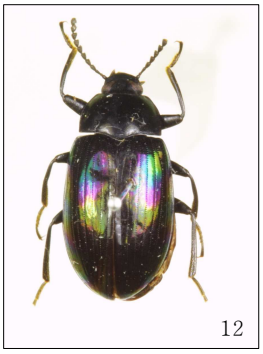
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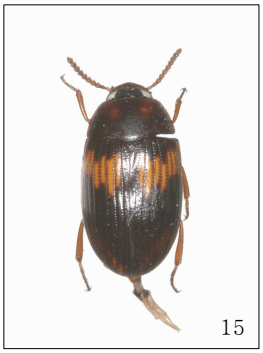
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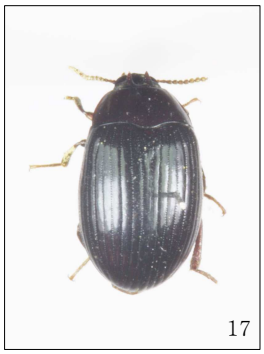
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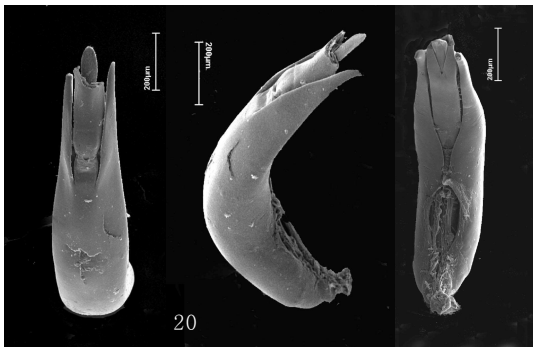

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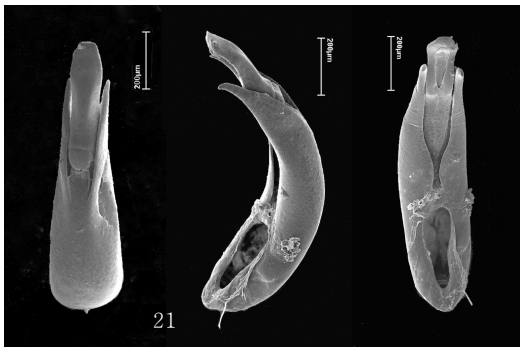

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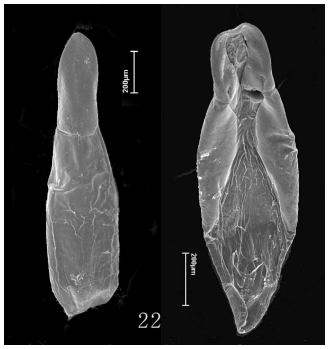

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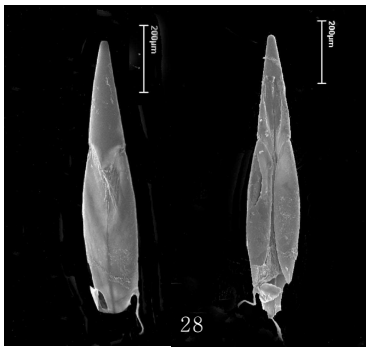

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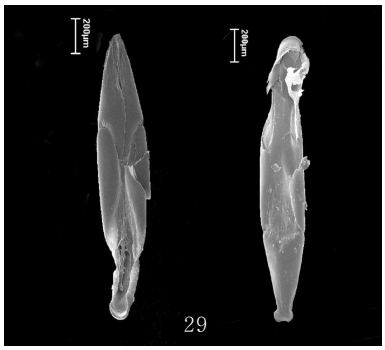

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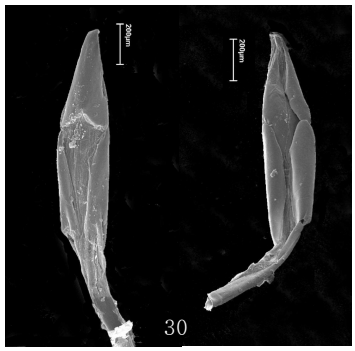

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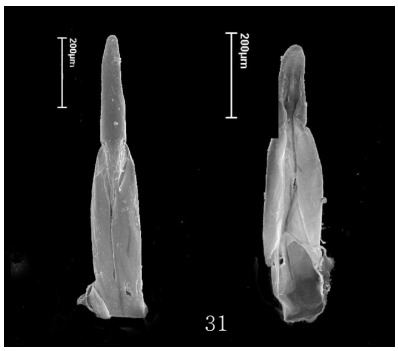

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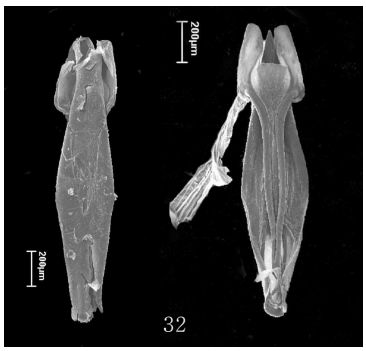

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감사의 글

나이 사십 넘겨 반란을 일으켰습니다. 그 간 하던 일, 꽁꽁 싸매고 살던 내 아이들과 가정을 박차고 나왔습니다. 그리고 영어 선생님을 꿈꾸었던 20여년전 학부시절의 전공을 접고 새로운 분야, 생물학과에 첫 발을 디뎠습니다. '가지 않은 길'에 대한 동경을 현실로 실현시키는 과감한 도박을 한 셈입니다. 도박하면서 현실과 부딪치는 많은 어려움이 있었지만 용케도 잘 이겨내고 한 편의 논문을 엮어냈습니다. 눈물과 땀과 꺾을 수 없이 솟구쳐 오르는 energy가 배어 있는 논문이라 감회가 남다릅니다.

먼저 논문을 심사해 주신 분들게 감사드립니다.
새로운 길을 잘 헤쳐 나갈 수 있게 끊임없이 이끌어 주시는 지도교수님이신 김진일 교수님께 감사드립니다. 논문을 성심껏 심사해주시고 뵐 때마다 조언을 아끼시지 않고 격려주시는 농업과학기술원 박해철 박사님께 감사드립니다. 또한 부족한 논문을 꼼꼼히 심사해주신 김미량 박사님께도 감사의 마음 전합니다.

논문이 나오기까지 특별히 감사드릴 분이 많이 계십니다.
뵐 때마다 아낌없는 조언과 용기를 심어주신 한국곤충연구소 한경덕 박사님, 귀한 제주도 표본자료 제공해 주신 제주민속자연사박물관 정세호 박사님, 소장된 표본을 기꺼이 보여주시고 따뜻한 조언 주신 국립과학관 안승락 박사님과 이화여자대학교 자연사박물관 윤여준 선생님, 귀한 문헌자료 제공해 주신 순천대학교 박종철 교수님께 깊이 감사드립니다. 특히, 버섯 분류의 기본을 가르쳐 주셔 생태계에 대한 넓은 안목을 갖게 도와주신 이지열 박사님께도 깊이 감사드립니다. 가끔 인사드릴 때마다 힘을 주신 성신여대 생물학과의 오용자 교수님, 박경숙 교수님, 강혜순 교수님, 윤진호 교수님, 전용필 교수님께도 감사드립니다.

낯선 연구실 생활에 잘 적응할 수 있게 도와주신 나이 어린 선배인 태우씨, 너무 깜찍하고 늘 든든한 힘이 되어 주는 아영이, 신혼의 꿈에 젖어 있을 태화 그리고 후배인 듬직한 인성이, '이쁜' 준구에게도 고맙단 말 전합니다. 논문에 필요한 자료를 전적으로 공개하고 많은 조언을 해준 선배이신 국립 보건원 김수연 박사님께도 감사의 글 전합니다. 또한 갈등할 때마다 힘 북돋아주는 유전연구실의 남정현 박사님께도 감사드립니다. 엄마 같은 나와 함께 수업하며 잘 지냈던 '생태방', '유전방' 친구들 그리고 이것저것 잘 챙겨준 순임이에게도 고마운 마음 전합니다.

새 삶을 살고 있는 막내딸에게 힘을 실어 주실 하늘에 계신 부모님이 자꾸 보고 싶습니다. 생각만 하면 늘 눈시울이 뜨거워지는 부모님께 깊이 감사드립니다.
그리고 가까이에서 날 지켜봐 주신 분들이 계십니다. 앞서 가신 어머니의 빈자리를 깊은 사랑으로 채워 주시고, 고된 눈물 닦아주시며 주저앉을 때마다 용기 주시고, 만나 뵐 때마다 내 뒷모습이 사라질 때까지 그 자리에 서서 보내 주시는 신순애 선생님

께 머리 숙여 감사드립니다. 위대한 한국의 '아줌마'를 대표해 열심히 공부하라고 반찬 날라다 주시고 힘찬 격려 주시는 길동자연생태공원 자원활동가 선생님들께도 심심한 감사드립니다. 멈칫거리며 오던 길 뒤돌아보지 말고 꿋꿋이 앞만 보며 가라며 채찍질 해주는 친구 필옥이, 윤선이, 혜영이에게도 고맙단 말 전합니다. 그리고 논문 작업 도와주시고, 지칠 때마다 일으켜 세워주시고, 버벅대는 컴퓨터 작업 도와주신 보이지 않는 후원자 임채영 선생님께도 감사드립니다.

그리고,
내 가족..... 울컥 눈물이 쏟아집니다.
고 3인 큰 아들 은배, 생각만 해도 마음이 무겁습니다. 끔찍한 부모님의 보살핌 받으며 왕처럼 사는 친구들이 부러울 텐데도 내색하지 않고 엄마 인생 당당히 찾으라고 힘을 주는 내 사랑하는 아들입니다. 그저 미안하기만하고 고마울 따름입니다. 엄마 대신 형을 잘 챙겨 주고, 곤충채집도 잘 도와주고, 잠 푹 자라며 밤마다 이불 덮어주고 불 꺼주는 내 사랑하는 둘째 아들 진배에게도 고맙다는 말 이외에는 아무 말도 할 수 없습니다. 그리고 갑작스런 아내의 반란으로 걱정이 앞서면서도 묵묵히 지켜보며 응원을 아끼지 않는 남편 승제천님께도 감사의 마음 전합니다.