

Ants from Mt. Moak (Hym., Formicidae)

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모악산의 개미

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ABSTRACT

According to the related references, up to now the systematic studies on the ants from Mt. Moak have not been professionally surveyed yet. In order to classify the the ants from Mt. Moak, authors had collected the ants in this area from October, 1993 to June, 1995. Examining all the collections, 44 species of 23 genera of 17 tribes under 3 subfamilies were identified.

Key words : Ants, Formicidae, Systematics, Mt.Moak, South Korea

INTRODUCTION

The area of Mt. Moak provincial park (area: 42.22km², altitude: 793.5m), Chōnbuk, Korea, is largely covered with oak, hornbeam, and pine forest (Kim & Yim, 1993) and frequently visited by mountaineers since it is favorite place to approach on holiday. Up to now the systematic studies on the ants from Mt. Moak have not been professionally surveyed yet according to references. Authors had collected ants in this area from October, 1993 to June, 1995. Approximately 300 or more ant nests had been excavated during

research period. All the collections examined using the stereozoom-microscope were compared with voucher specimens of several foreign countries. Upon that taxonomic keys were following the system of Collingwood(1979). The 44 confirmed species were listed in this paper including some informations of this area.

MATERIALS AND METHODS

The materials for this paper were from Mt. Moak in Chōnbuk. As soon as they were collected, they were fixed in Bouin's alcoholic solution (80% ethanol 150ml, formaldehyde 150ml

and picric acid 1g), and transferred 2-3 days later to 85% ethanol. Some of them were pinned and dried and they were examined microscopically, using the Wild M8 stereozoom-microscope, and identified on comparison with voucher specimens from Elmes, Collingwood in Great Britain, Onoyama in Japan, Rigato in Italy, and Wang in China. Taxonomic keys of genera were made by Collingwood, but species key were not because they would not be available in other localities.

SYSTEMATIC ACCOUNT

Subfamily Key of Family Formicidae

1. Pedicel with one nodal segment. ----- 2
- Pedicel with two nodal segments.-----
----- Myrmicinae
2. Gaster clearly constricted between first and second segments: final abdominal segment with strong sting. -----Ponerinae
- Gaster without constriction between first and second segments: sting ----- Formicinae

Subfamily 1. Ponerinae Lepeletier, 1835 침개미아과

Key to genera of Ponerinae

1. Dorsum of first and second segments of abdomen enlarged and seems to be curved like a hook. ----- *Proceratium*
- Dorsum of first and second segments of abdomen a little bit larger than ventral surface and not curved exceedingly. ----- 2
2. In profile pronotum and mesonotum convex. -----*Pachycondyla*
- In profile pronotum nearly flat. ----- 4
4. Exteranal surface of midleg tibiae with abundant hairs like spines. ----- *Cryptopone*
- External surface of midleg without hairs like spines. ----- 5
5. Protrusion of ventral surface of petiole with convexed area. ----- *Ponera*
- Protrusion of ventral surface of petiole without convexed area. ----- *Hypoponera*

Tribe 1. Ponerini Lepeletier, 1835: 185

침개미족

Type genus: *Ponera* Latereille, 1804.

Genus 1. *Pachycondyla* Smith, 1858:

105 왕침개미속

Type species: *Formica crassinoda* 1802: 198.

1. *Pachycondyla chinensis* (Emery, 1894)

왕침개미

Ponera chinensis chinensis Emery, 1894: 460.

Brachyponera chinensis : Emery, 1909: 367;

Kim, C. 1963: 471; Collingwood, 1976: 300;

Terayam *et al.*, 1992: 23; Kim *et al.*, 1993:

119; Kim *et al.*, 1994: 294; Yu *et al.*, 1994:

255; Kim *et al.*, 1995: 102.

Pachycondyla chinensis: Brown, 1958: 22;

Bolton, 1995: 304. Distribution: Korea, Japan.

2. *Pachycondyla javana* (Mayr, 1867)

일본침개미

Ectomomyrmex javanus Mayr, 1867: 84; Kim,

C. 1970: 472; Terayama *et al.*, 1992: 23; Kim

et al., 1993: 119; Kim *et al.*, 1994: 295; Yu *et*

al., 1994: 255; Kim *et al.*, 1995: 103; Kim *et*

al., 1996: 121.

Pachycondyla (Ectomomyrmex) japonica

Emery, 1902: 667.

Pachycondyla japonicus: Wheeler, 1928: 4.

Distribution: Korea, Japan,

3. *Pachycondyla pilosior* (Wheeler, 1928)

털보장님침개미

Euponera (Trachymesopus) sharpi pilosior

Wheeler, 1928:?

Euponera (Trachymesopus) chosenensis

Teranishi, 1940: 3; Kim, C. 1963: 342; Kim, C. 1970: 472.

Trachymesopus pilosior: Brown, 1963: 3; Collingwood, 1976: 300; Terayama *et al.*, 1992: 23; Kim *et al.*, 1993: 120; Kim *et al.*, 1994: 296; Yu *et al.*, 1994: 256.

Distribution: Korea, Japan.

Genus 2. *Cryptopone* Emery, 1893:

cclxxv 장님침개미속

Type species: *Cryptone testace* Motschoulsky, 1863: cclxxv

4. *Cryptopone sauteri* (Wheeler, 1906)

장님침개미

Pachycondyla sauteri Wheeler, 1906: 304; Terayama *et al.*, 1992: 23.

Euponera sauteri: Emery, 1909: 365; Kim, C. 1963: 342; Kim, C. 1970: 471.

Cryptopone sauteri: Brown, 1963: 6; Terayama *et al.*, 1992: 23; Kim *et al.*, 1993: 119; Kim *et al.*, 1994: 295; Yu *et al.*, 1995: 255; Kim *et al.*, 1996: 121.

Distribution: Korea, Japan, China.

Genus 3. *Hypoponera* Santschi, 1938:

79 황침개미속

Type species: *Ponera abeillei* André 1881: 61.

5. *Hypoponera sauteri* (Forel, 1912) 황침개미

Hypoponera gleadowi var. *sauteri* Forel, 1912.

Hypoponera nippona: Ogata, 1987.

Hypoponera sauteri: Onoyama, 1989: 7; Terayama *et al.*, 1992: 24; Kim *et al.*, 1993: 119; Kim *et al.*, 1994: 295; Kim *et al.*, 1996: 121.

Distribution: Korea, Japan, Formosa.

Genus 4. *Ponera* Latreille, 1804: 179

침개미속

Type species: *Formica coarctata* Latreille, 1802: 65.

6. *Ponera japonica* Wheeler, 1906 침개미

Ponera japonica Wheeler, 1902: 306; Kim, C. 1963: 343; Kim, C. 1970: 472; Collingwood, 1976: 300; Terayama *et al.*, 1992: 23; Kim *et al.*, 1993: 119; Kim *et al.*, 1994: 295; Yu *et al.*, 1994: 256; Kim *et al.*, 1996: 121.

Ponera japonica var. *crocea* Santschi, 1941.

Distribution: Korea, Japan.

7. *Ponera nippona* Santschi, 1937: 364

나도일본침개미

Hypoponera nippona: Ogata, 1987: 123; Terayama *et al.*, 1992: 24; Yu *et al.*, 1994: 255; Kim *et al.*, 1996: 121.

Distribution: Korea, Japan.

8. *Ponera scabra* Wheeler, 1928 거치른침개미

Ponera scabra Wheeler, 1928; Collingwood, 1976: 300; Terayama *et al.*, 1992: 24; Kim *et al.*, 1993: 120; Yu *et al.*, 1994: 256.

Distribution: Korea, Japan.

Tribe 2. Proceratiini Emery, 1895: 765

배굽은침개미족

Type genus: *Proceratium* Roger, 1863: 171.

Genus 5. *Proceratium* Roger, 1863: 171

배굽은침개미속

Type species: *Proceratium silaceum* Roger, 1863: 172.

9. *Proceratium itoi* (Forel, 1917) 배굽은침개미

Syosphincta itoi Forel, 1918: 717; Ogata, 1987: 107.

Proceratium itoi: Brown, 1958: 247; Terayama *et al.*, 1992: 22; Kim *et al.*,

1993:120; Yu *et al.*, 1994: 256.

Distribution: Korea, Japan

Subfamily 2. Myrmicinae Lepeletier,
1836 두마디개미아과

Key to Genera of Myrmicinae

1. Postpetiole attached to dorsum of first abdominal segment. ----- *Crematogaster*
- Postpetiole attached to anterior face of first segment. ----- 2
2. Midleg and hindleg with comb like spines. ----- *Myrmica*
- Midleg and hindleg with needle like spines. ----- 3
3. Clypeus protruded like a tomb from anterior area of antennal base. ----- 4
- Clypeus not protruded like a tomb. ----- 5
4. Petiole with a short handle like area. ----- *Pristomyrmex*
- Petiole without handle like area. - *Myrmecina*
5. Clypeus with two vertical protruded lines. Head and thorax with concaved areas but without rugosities. ----- 6
- Clypeus with one vertical protruded line or rugosities. ----- 8
6. Antennae ten segmented and club two segmented. ----- *Solenopsis*
- Antennae twelve segmented and club three segmented. ----- 7
7. Propodeum with spines or projections. ----- *Vollenhovia*
- Propodeum flat without spines or projections. ----- *Monomorium*
8. Area connected between midthorax and metathorax not grooved to dorsum. ----- 9
- Area connected between midthorax and metathorax grooved to dorsum. ----- 10
9. Both sides of anterior face of pronotum angled in back view. ----- *Tetramorium*
- Anterior face of pronotum round in back view. Body hairs thick to tip and look club. ----- *Leptothorax*
10. Antennal club three segmented and as long as sum of other segments or longer. ----- *Pheidole*
- Antennal club five segmented and shorter than sum of other segments. ----- 11
11. Head oval and propodeum with a pair of spines. ----- *Aphaenogaster*
- Head more or less angled and propodeum without spines. ----- *Messor*

Tribe 3. Crematogastrini Forel, 1893:
164 밀드리개미족

Type genus: *Crematogaster* Lund, 1831: 132.

Genus 6. *Crematogaster* Lund, 1831:
132 밀드리개미속

Type species: *Formica scutellaris* Oliver, 1792: 479.

10. *Crematogaster matsumurai* Forel, 1901

마쓰무라밀드리개미

Crematogaster laboriosa var. *matsumurai* Forel, 1901: 372.

Crematogaster brunnea matsumurai; Wheeler, W. M., 1929: 5

Crematogaster matsumurai: Wheeler, W. M., 1930: 65; Collingwood, 1976: 303; Collingwood, 1981: 26; Terayama *et al.*, 1992: 31; Kim *et al.*, 1993: 122; Kim *et al.*, 1994: 256; Kim *et al.*, 1996: 124.

Distribution: Korea, Japan.

11. *Crematogaster matsumurai vagula* Wheeler, 1928 등굽은밀드리개미

Crematogaster matsumurai vagula Wheeler, 1928: 110; Terayama *et al.*, 1992; Kim *et al.*, 1993: 122; Kim *et al.*, 1996: 124.

Crematogaster distans vanda Borgmeier, 1929:

209.

Crematogaster brunnea ruginota var. *vagula*:
Santschi, 1930.

Distribution: Korea, Japan.

12. *Crematogaster (Orthocrema) osakensis*

Forel, 1900 노랑밑드리개미

Crematogaster sordidula osakensis Forel, 1900:
269; Teranish, 1940: 5; Kim, C. 1970: 478;
Kim & Kim, 1982: 98; Kim & Kim, 1983:
53; Kim et al., 1993: 122; Kim et al., 1994:
297.

Crematogaster (Orthocrema) sordidula var.
osakensis: Emery, 1922: 131.

Crematogaster osakensis: Collingwood, 1976:
303; Terayama et al., 1992: 31; Kim et al.
1993: 122; Yu et al., 1994: 256; Kim et al.,
1995: 104.

Distribution: Korea, Japan.

13. *Crematogaster laboriosa* Smith, 1874. 밑드 리개미

Crematogaster laboriosa Smith, 1874: 407; Kim
& Kim, 1982: 98; Kim & Kim, 1983: 53.

Distribution: Korea, Japan.

Tribe 4. Pheidolini Emery, 1877: 72 흑 개미족

Type genus: *Pheidole* Westwood, 1839: 219.

Genus 7. *Aphaenogaster* Mayr, 1853:

107 장다리개미속

Type species: *Aphaenogaster sardoa* Mayr, 1853:
107.

14. *Aphaenogaster (Aphaenogaster) smythiesii*

Forel, 1911 일본장다리개미

Aphenogaster schmitzi japonica Forel, 1911:
267.

Aphaenogaster (Attomyrma) syrica
japonica: Emery, 1921.

Aphaenogaster (Attomyrma) smythiesi japonica:
Wheeler, W. M. 1928: 101; Terayam et al.,
1992: 26; Kim et al., 1993: 122; Yu et al.,
1994: 256; Kim et al., 1996: 122.

Aphaenogaster japonica: Choi, 1985: 445.
Distribution: Korea, Japan, China.

Genus 8. *Messor* Forel, 1890: lxviii 쟁구 개미속

Type species: *Formica barbara* Linnaeus, 1767:
962.

15. *Messor aciculatus* (Smith, 1874) 쟁구개미

Aphaenogaster aciculata Smith, 1874: 405;
Teranishi, 1940: 4; Imai, 1966: 119; Onoyama,
1982: 325.

Stenamma (Messor) aciculata: Forel, 1901: 60.
Aphaenogaster (Attomyrma) aciculata:
Emery, 1921: 57.

Messor aciculatus: Forel, 1922: 93; Kim,
C. 1963: 343; Kim, C. 1970: 475; Collingwood,
1976: 303; Kim & Kim, 1982: 101; Kim &
Kim, 1983: 73; Kim et al., 1993: 123; Kim et
al., 1994: 298; Yu et al., 1994: 256.

Distribution: Korea, Japan.

Genus 9. *Pheidole* Westwood, 1839: 219.

흑개미속

Type species: *Atta providens* Sykes, 1835: 103.

16. *Pheidole fervida* Smith, 1874 극동흑개미

Pheidole fervida Smith, 1874: 406; Forel, 1900:
285; Teranishi, 1940: 4; Ogata, 1982: 195;
Imai, 1966: 119.

Pheidole fervida var. *kwazana* Teranishi, 1940:
4; Kyprianskaya, 1990: 124.

Pheidole fervida: Kim, 1963: 344; Kim, C.
1970: 477; Collingwood, 1976: 302;
Collingwood, 1976: 302; Kim & Kim, 1983:
71; Terayama et al., 1992: 27; Kim et al.,

1993: 124; Kim *et al.*, 1994: 299; Yu *et al.*, 1994: 257; Park, 1995: 49; Kim *et al.*, 1995: 105; Kim *et al.*, 1996: 122.
Distribution: Korea, Japan.

17. *Pheidole noda* Smith, 1874 흑개미

Pheidole nodus Smith, 1874: 407; Forel, 1900: 268; Ogata, 1982: 196.
Pheidole nodus; Kim, 1963: 344; Kim, C. 1970: 476; Kim & Kim, 1983: 69; Terayama *et al.*, 1992: 27; Kim *et al.*, 1993: 125; Yu *et al.*, 1994: 257; Kim *et al.*, 1996: 123.
Distribution: Korea, Japan, China.

Tribe 5. *Formicoxenii* Forel, 1893: 164

이방개미족

Type genus: *Formicoxenus* Mayr, 1855: 413.

Genus 10. *Leptothorax* Mayr, 1855

호리가슴개미속

Type species: *Formica acervorum* Fäbricius, 1793: 358.

18. *Leptothorax congruus* Smith, 1874 호리가슴개미

Leptothorax congruus Smith, 1874: 406; 1987: 406; Wheeler, W. M. 1906: 317; Wheeler, B. C. & Wheeler, J. 1955: 24; Kim, C. 1963: 345; Kim, C. 1970: 480; Imai & Kubota, 1972: 197; Collingwood, 1976: 303; Kim & Kim, 1983: 68; Terayama *et al.*, 1992: 27; Kim *et al.*, 1993: 123; Kim *et al.*, 1994: 297; Yu *et al.*, 1994: 297.
Distribution: Korea, Japan.

Tribe 6. *Solenopsidini* Forel, 1893: 164

마디개미족

Type genus: *Solenopsis* Westwood, 1840: 86.

Genus 11. *Monomorium* Mayr, 1855

꼬마개미속

Type species: *Monomorium minutum* Mayr, 1855: 453.

19. *Monomorium chinense* Santschi, 1925

검정꼬마개미

Monomorium minutum var. *chinense* Santschi, 1925: 86; Wheeler, W. M. 1929: 6.
Monomorium minutum: Teranishi, 1940.
Monomorium chinense: Bolton, 1987: 288 ; Terayama *et al.*, 1992: 29; Kim *et al.*, 1993: 123; Kim *et al.*, 1994: 298; Yu *et al.*, 1994: 256; Kim *et al.*, 1995: 104; Kim *et al.*, 1996: 123.

Distribution: Korea, China.

Genus 12. *Solenopsis* Westwood, 1840:

86 열마디개미속

Type species: *Solenopsis mandibularis* Westwood, 1840: 87.

20. *Solenopsis japonica* Wheeler, 1928

일본열마디개미

Solenopsis fugax var. *japonica* Wheeler, 1928: 113; Santschi, 1934: 585.
Solenopsis japonica: Collingwood, 1976: 303; Kupyanskaya, 1990: 133; Ogata, 1991: 110; Terayama *et al.*, 1992: 30; Kim *et al.*, 1993: 125; Kim *et al.*, 1994: 300; Yu *et al.*, 1994: 257; Kim *et al.*, 1995: 105; Kim *et al.*, 1996: 123.

Distribution: Korea, Japan.

Tribe 7. *Myrmecini* Ashmead, 1905:

383 방패개미족

Type genus: *Myrmecina* Curtis, 1829: 265.

Genus 13. *Myrmecina* Curtis, 1829: 265

방패개미속

Type species: *Myrmecina latreillii* Curtis, 1829: 265. (junior synonym of *graminicola*)

21. *Myrmecina graminicola nipponica* Wheeler, 1906 가시방패개미

Myrmecina graminicola nipponica Wheeler, 1906: 307; Teranishi, 1940: 4; Kim, C. 1963: 343; Kim, C. 1970: 479; Kim & Kim, 1983: 53; Terayama *et al.*, 1992: 30; Kim *et al.*, 1993: 124; Kim *et al.*, 1994: 299; Yu *et al.*, 1994: 256.

Myrmecina graminicola: Collingwood, 1976: 303.

Distribution: Korea, Japan.

Remark: This species is regarded as a *graminicola*, European species by Collingwood, 1976.

Genus 14. *Pristomyrmex* Mayr, 1866:

903 그물등개미속

Type species: *Pristomyrmex pungens* Mayr, 1866: 904.

22. *Pristomyrmex pungens* Mayr, 1866 그물등개미

Pristomyrmex pungens Mayr, 1866: 904.

Pristomyrmex pungens: Kim, C. 1963: 103; Kim, C. 1970: 481; Collingwood, 1976: 303; Collingwood, 1981: 27; Kim & Kim, 1982: 101; Kim & Kim, 1983: 58; Terayama *et al.*, 1992; Kim *et al.*, 1993: 125; Kim *et al.*, 1994: 299; Yu *et al.*, 1994: 257; Kim *et al.*, 1995: 105; Kim *et al.*, 1996: 124.

Distribution: Korea, Japan, China.

Tribe 8. Myrmecini Emery 1877: 71

빨개미족

Type genus: *Myrmecina* Curtis, 1829: 265.

Genus 15. *Myrmica* Latreille, 1804: 179

빨개미속

Type species: *Formica rubra* Latreille, 1758: 580.

23. *Myrmica* sp. 1995

Distribution: Korea.

Tribe 9. Tetramorinii Emery, 1895: 770

주름개미족

Type genus: *Tetramorium* Mayr, 1855: 423.

Genus 16. *Tetramorium* Mayr, 1855:

423 주름개미속

Type species. *Formica caespitum* Linnaeus, 1758: 581.

24. *Tetramorium caespitum* (Linnaeus, 1758)

주름개미

Formica caespitum Linnaeus, 1758: 581.

Tetramorium caespitum: Mayr, 1855: 426.

Tetramorium caespitum semileve var. *jacoti* Wheeler, 1923: 7 (syn. by Yasumatsu, 1962).

Tetramorium caespitum: Teranish, 1940: 18; Kim, C. 1963: 345; Kim, C. 1970: 482; Collingwood, 1976: 304; Collingwood, 1981: 27; Kim & Kim, 1982: 102; Kim & Kim, 1983: 67; Terayama *et al.*, 1992: 28; Kim *et al.*, 1993: 126; Kim *et al.*, 1994: 300; Yu *et al.*, 1994: 257; Kim *et al.*, 1995: 106; Kim *et al.*, 1996: 123.

Distribution: Cosmopolitan.

Tribe 10. Metaponini Forel, 1911: 447

메타폰개미족

Type genus: *Metapone* Forel, 1911: 447.

Genus 17. *Vollenhovia* Mayr, 1865

에메리개미속

Type species: *Vollenhovia punctatastriata* Mayr, 1865.

25. *Vollenhovia emeri chosenuca* Wheeler, 1928

에메리개미

Vollenhovia emeri chosenuca Wheeler, 1928: 113; Terayama *et al.*, 1992: 29; Kim *et al.*, 1993: 126.

Vollenhovia emery Wheeler, 1906: 312; Kim, C. 1963: 348; Kim, C. 1970: 491; Kim & Kim, 1983: 62; Yu *et al.*, 1994: 257; Kim *et al.*, 1996: 123.

Distribution: Korea.

Subfamily 3. Formicinae Latreille,

1809 불개미아과

Type genus: *Formica* Linnaeus 1758: 579.

Key to Genera of Formicinae

1. Pronotum, mesonotum and propodeum with a pair of curved spine like projections.
Petiole branched into two long hooks.
----- *Polyrachis*
- Thorax and petiole without any spine like projection. ----- 2
2. Antennal insertions set at a distance behind posterior clypeal margin. ----- *Camponotus*
- Antennal insertions more or less contiguous with posterior clypeal margin. ----- 3
3. Antennae eleven segmented. ----- *Plagiolepis*
- Antennae twelve segmented. ----- 4
4. Eyes at or in front of midlength of side head; petiole inclined forward, petiole nodal or scale form and overhung by first gaster tergite. ----- *Paratrechina*
- Eyes behind midlength of side head; petiole nodal or as a vertical scale not overhung by first gaster. ----- 5

5. Propodeal spiracle ellipsoid or slit-like set, at a distance from posterior propodeal declivity. Funiculus segments from two to five long or longer than segments from six to eleven.

----- *Formica*
- Propodeal spiracle broadly oval or circular, set close to or at the posterior propodeal margin. ----- *Lasius*

Tribe 11. Camponotini Forel, 1878: 374

왕개미족

Type genus: *Camponotus* Mayr, 1861: 35.

Genus 18. *Camponotus* Mayr, 1861: 35

왕개미속

Type species: *Formica ligniperda* Latreille, 1802: 88.

26. *Camponotus itoi* Forel, 1912 이토왕개미

Camponotus (Myrmamblys) itoi Forel, 1912: 340; Emery, 1925: 138; Collingwood, 1981: 29; Terayama *et al.*, 1992: 39; Kim *et al.*, 1993: 127; Yu *et al.*, 1994: 257; Kim *et al.*, 1996: 127.

Distribution: Korea, Japan, China.

27. *Camponotus japonicus* Mayr, 1866

일본왕개미

Camponotus japonicus Mayr, 1866: 885.

Camponotus pennsylvanicus var. *japonicus* Forel, 1879: 56.

Camponotus herculeanus japonicus: Emery, 1908: 186; Teranishi, 1940: 6; Kim, 1963: 346. *Camponotus japonicus*: Bingham, 1903: 390; Kim, 1970: 484; Collingwood, 1976: 307; Collingwood, 1981: 29; Kim, 1987: 13; Terayama *et al.*, 1992: 38; Kim *et al.*, 1993: 127; Kim *et al.*, 1994: 301; Yu *et al.*, 1994: 257; Kim *et al.*, 1995: 106; Kim *et al.*, 1996: 127.

Distribution: Korea, Japan, China, Siberia, Philipine, Burma.

28. *Camponotus jejuensis* Kim & Kim, 1986
한라왕개미(개칭)

Camponotus jejuensis Kim & Kim, 1986: 140.
Camponotus jejuensis; Kim, 1987: 17;
Terayama *et al.*, 1992: 39; Kim *et al.*, 1993:
127; Kim *et al.*, 1994: 301; Kim *et al.*, 1995:
107; Kim *et al.*, 1996: 127; Yu *et al.*, 1994:
257.

Distribution: Korea.

29. *Camponotus kiusuensis* Santsch, 1937
갈색발왕개미

Camponotus kiusuensis Santsch, 1937: 379;
Imai, 1966: 119; Kim, 1987: 19; Terayama *et al.*,
1992: 39; Yu *et al.*, 1994: 257; Kim *et al.*,
1996: 127.

Distribution: Korea, Japan.

30. *Camponotus (Myrmamblys) nipponensis*
Santsch, 1937 털왕개미

Camponotus (Myrmamblys) nipponensis
Santsch, 1937: 381; Kim, B. 1987: 28;
Terayama *et al.*, 1992: 40; Yu *et al.*, 1994:
257.

Distribution: Korea, Japan.

31. *Camponotus quadrinotatus* Forel, 1886
네눈개미

Camponotus marginatus var. *quadrinotatus*
Forel, 1886: 142.

Camponotus (Myrmentoma) caryae var.
quadrinotatus : Emery, 1925: 118; Kim, C.
1963: 346; Kim, C. 1970: 482.

Camponotus (Myrmentoma) fallax *quadri-*
notatus : Forel, 1907: 19.

Camponotus quadrinotatus : Teranishi, 1940:
6; Collingwood, 1976: 307; Collingwood, 1981:
29; Wang, Xio & Wu, 1989: 327; Terayama
et al., 1992: 38; Kim *et al.*, 1993: 127; Yu *et al.*,
1994: 257; Kim *et al.*, 1996: 127.

Distribution: Korea, Japan, China.

Genus 19. *Polyrachis* Smith, 1857: 58

가시개미속

Type species: *Formica bihamata* Drury, 1773:
73.

32. *Polyrachis (s. str) lamellidens* Smith, 1874
가시개미

Polyrachis lamellidens Smith, 1874: 403;
Donisthorpe, 1937: 628; Teranishi, 1940: 6;
Kohriba, 1963: 200; Kim, C. 1963: 356; Kim,
C. 1970: 485; Wheeler, J. 1970: 649; Hung,
1970: 29; Collingwood, 1976: 307; Kim, B.
1987: 77; Terayama *et al.*, 1992: 40; Kim *et al.*,
1993: 130; Yu *et al.*, 1994: 258.

Distribution: Korea, Japan.

Tribe 12. Formicini Latreille, 1809: 124

불개미족

Type genus: *Formica* Linnaeus, 1758: 579.

Genus 20. *Formica* Linnaeus 1758: 579

불개미속

Type species: *Formica rufa* Linnaeus, 1761: 426.

33. *Formica fusca* Linnaeus, 1758 흑개미

Formica fusca Linnaeus, 1758: 580.

Formica fusca; Kim, 1963: 347; Kim, B. 1987:
31; Terayama *et al.*, 1992: 37; Kim *et al.*,
1993: 128; Kim, B. & Park, 1994: 133; Kim
et al., 1995: 107; Kim *et al.*, 1996: 126.

Distribution: Korea, Japan.

34. *Formica japonica* Motschulsky, 1866 곰개미

Formica japonica Motschulsky, 1866: 183.

Formica fusca var. *japonica* : Emery, 1909:
197; Teranishi, 1940: 6.

Formica fusca japonica : Emery, 1925: 247;

Kim, C. 1963: 347; Kim, C. 1970: 489.
Formica japonica Dlussky, 1967: 58;
 Collingwood, 1976: 305; Collingwood, 1981: 27;
 Kim, B. 1987: 35; Terayama *et al.*, 1992: 37;
 Kim *et al.*, 1993: 128; Kim, B. & Park, 1994:
 133; Kim *et al.*, 1994: 303; Yu *et al.*, 1994:
 257; Kim *et al.*, 1995: 106; Kim *et al.*, 1996:
 126.
 Distribution: Korea, Japan.

35. *Formica lugubris* Zetterstedt, 1838
 얼룩개미
Formica lugubris Zetterstedt, 1838: 449;
 Collingwood, 1976: 304; Terayama *et al.*, 1992:
 37; Kim, B. & Park, 1994: 134; Yu *et al.*,
 1994: 258; Kim *et al.*, 1996: 126.
 Distribution: Korea,

36. *Formica sanguinea* Latreille, 1798 분개미
Formica sanguinea Latreille, 1798: 37.
Formica sanguinea; Mayr, 1861; Forel, 1913;
 Kim, C. 1963: 348; Kim, C. 1970: 490;
 Collingwood, 1976: 305; Collingwood, 1981: 27;
 Kim & Kim, 1983: 58; Kim, 1987: 37;
 Terayama *et al.*, 1992: 37; Kim *et al.*, 1993:
 128; Kim, B. & Park, 1994: 135; Yu *et al.*,
 1994: 257; Kim *et al.*, 1996: 126.
 Distribution: Korea, Japan, Sahalin, Mongolia,
 beyond middle area of Eurasia.

Tribe 13. Lasiini Ashmead, 1905: 384

풀잎개미족

Type genus: *Lasius* Fåbricius, 1804: 415.

Genus 21. *Lasius* Fåbricius, 1804: 415

풀잎개미속

Type species: *Formica nigra* Linnaeus 1758:
 580.

37. *Lasius* (*s. str.*) *alienus* (Förster, 1850)
 누운털개미

Formica aliena Förster, 1850: 36.
Lasius alienus : Mayr, 1861: 49; Collingwood,
 1976: 305; Collingwood, 1981: 27; Kim, B.
 1987: 46; Terayama *et al.*, 1992: 35; Kim *et*
al., 1993: 129; Kim, B. & Lim, 1994: 119;
 Kim *et al.*, 1994: 302; Kim *et al.*, 1995: 107;
 Yu *et al.*, 1994: 258; Kim *et al.*, 1996: 126.
Lasius niger var. *alieno-niger* Forel, 1874: 46.
 Distribution: Korea, Japan, China, Europe.

38. *Lasius hayashi* Yamauchi & Hayashida,
 1970 하야시털개미
Lasius hayashi Yamauchi & Hayashida 1970:
 510; Collingwood, 1976: 305; Collingwood,
 1981: 27; Kupyanskaya, 1990: 220; Seifert,
 1992: 45; Terayama *et al.*, 1992: 35; Yu *et*
al., 1994: 258; Kim *et al.*, 1996: 126.
 Distribution: Korea, Japan.

39. *Lasius japonicus* Santschi, 1937 고동털개미
Lasius emarginatus var. *japonicus* Santschi,
 1941: 277.
Lasius japonicus Santschi, 1937; Seifert, B.
 1992: 30; Kim *et al.*, 1996: 125.
 Distribution: Korea, Japan.

40. *Lasius* (*Dendrolasius*) *spathepus* Wheeler,
 1910 민넵새개미
Lasius spathepus Wheeler, 1910: 130; Kim, C.
 1963: 347; Kim, C. 1970: 487; Collingwood,
 1976: 306; Kim, B. 1987: 62; Terayama *et al.*,
 1992: 36; Kim, B. & Lim, 1994: 121; Yu *et*
al., 1994: 258; Kim *et al.*, 1996: 126.
Lasius (*Dendrolasius*) *spathepus* Emery, 1925:
 236.
Lasius fuliginosus var. *spathepus* : Teranishi,
 1940: 5.
Lasius spathepus : Wheeler, W. M. 1928: 122.
 Distribution: Korea, Japan.

41. *Lasius* (*Cautholasius*) *talpa* Wilson, 1955
 두더지털개미
Lasius (*Cautholasius*) *talpa* Wilson, 1955: 136;

Imai, 1966: 119; Collingwood, 1976: 136; Kim, B. 1987: 65; Terayama *et al.*, 1992: 35; Kim *et al.*, 1994: 302; Yu *et al.*, 1994: 258; Kim *et al.*, 1996: 126.

Distribution: Korea, Japan.

**Genus 22. *Paratrechina* Motschulsky,
1863: 13 사구라개미속**

Type species: *Paratrechina currens*, Wheeler, 1863: 14.

**42. *Paratrechina (Nylanderia) flavipes* (Smith,
1874) 스미드개미**

Tapinoma flavipes Smith, F. 1874: 404.

Paratrechina flavipes Mayr, 1886: 362.

Paratrechina (Nylanderia) flavipes : Emery, 1925: 220; Teranishi, 1940: 5 ; Kim, C. 1963: 346; Kim, 1970: 486; Collingwood, 1976: 306; Collingwood, 1981: 27; Kim, B. 1987: 68; Terayama *et al.*, 1992: 36; Kim *et al.*, 1993: 129; Kim *et al.*, 1994: 303; Yu *et al.*, 1994: 258; Kim *et al.*, 1996: 125.

Distribution: Korea, Japan, China.

**43. *Paratrechina sakurae* (Ito, 1914) 사구라개미
Prenolepis sakurae Ito, 1914: 43.**

Paratrechina (Nylanderia) sakurae : Emery, 1925: 220; Teranishi, 1940: 5; Kim, B. 1963: 346; Kim, 1970: 486 ; Collingwood, 1976: 306; Collingwood, 1981: 29; Kim, B. 1987: 71; Terayama *et al.*, 1992: 36; Kim *et al.*, 1993: 129; Kim *et al.*, 1994: 303; Yu *et al.*, 1994: 258; Kim *et al.*, 1995: 109.

Distribution: Korea, Japan.

**Tribe 14. Plagiolepidini Forel, 1886:
212 루리개미족(신칭)**

Type genus: *Plagiolepis* Mayr, 1861: 42.

**Genus 23. *Plagiolepis* Mayr, 1861: 42
루리개미속**

Type species: *Formica pygmaea* Latreille, 1798: 45

**44. *Plagiolepis mandzshurica* Ruzsky, 1905
만주잘록개미**

Plagiolepis pygmae var. *mandzshurica* Ruzsky, 1905: 467; Wheeler, 1928: 8.

Plagiolepis mandzshurica: Santschi, 1925: 95; Collingwood, 1976: 307; Collingwood, 1981: 29.

Distribution: Korea, China.

Table 1. A list of ants from Mt. Moak

Table 1. A list of ants from Mt. Moak

No.	Science name	A	B	C	D	Remarks
1	<i>Pachycondyla chinensis</i>		●	●		
2	<i>Pachycondyla javana</i>	●	●	●		
3	<i>Pachycondyla pilosior</i>		●			
4	<i>Cryptopone sauteri</i>	●		●		
5	<i>Hypoponera sauteri</i>		●			
6	<i>Ponera japonica</i>	●	●			
7	<i>Ponera nippona</i>	●				
8	<i>Ponera scabra</i>		●			
9	<i>Proceratium itoi</i>		●			
10	<i>Crematogaster matasumurai</i>	●	●			
11	<i>Crematogaster matasumurai vagula</i>	●	●			
12	<i>Crematogaster osakensis</i>	●	●			
13	<i>Crematogaster laboriosa</i>			●	●	
14	<i>Aphaenogaster japonica</i>	●	●			
15	<i>Messor aciculatus</i>	●	●	●		
16	<i>Pheidole fervida</i>	●	●	●		
17	<i>Pheidole nodua</i>				●	
18	<i>Leptothorax congruus</i>		●	●		
19	<i>Monomorium chinense</i>		●			
20	<i>Solenopsis japonica</i>	●	●			
21	<i>Mymecina graminicola nipponica</i>			●		
22	<i>Pristomyrmex pungens</i>	●	●	●		
23	<i>Myrmica n.sp</i>		●			
24	<i>Tetramorium caespitum</i>	●	●	●	●	
25	<i>Vollenhovia emeryi chosenica</i>		●	●		
26	<i>Camponotus itoi</i>	●	●			
27	<i>Camponotus japonicus</i>	●	●	●	●	
28	<i>Camponotus jejuensis</i>		●			
29	<i>Camponotus kiusiuensis</i>		●			
30	<i>Camponotus nipponensis</i>	●				
31	<i>Camponotus quadrinotatus</i>			●		
32	<i>Polyrachis lamellidens</i>		●			
33	<i>Formica fusca</i>				●	
34	<i>Formica japonica</i>	●	●	●		
35	<i>Formica lugubris</i>		●		●	
36	<i>Formica sanguinae</i>				●	
37	<i>Lasius alienus</i>	●			●	
38	<i>Lasius hayachii</i>		●	●		
39	<i>Lasius japonicus</i>	●	●	●	●	
40	<i>Lasius spathepus</i>		●	●		
41	<i>Lasius talpa</i>	●	●	●		
42	<i>Paratrechina flavipes</i>	●	●	●		
43	<i>Paratrechina sakurae</i>	●		●		
44	<i>Paratrechina manzurica</i>	●	●			
		23	33	20	9	

A, B, C, and D represent the collected sites at Mt. Moak from the bottom to the top.

A: Keumsan temple (Kimje) → the top (July, 20, 1995), B: Kooi → the top (May, 24, 95),

C: Joonginri → the top (June, 6, 95), D: Reference Record (Kim, et. al, 1992; Lim, 1993; Park, 1993)

요 약

지금까지 이 지역 개미류에 대한 전문적인 연구는 없었던 것으로 생각되어, 저자들은 1993년 9월부터 1995년 6월까지 모악산에 서식하고 있는 개미류에 대한 조사 연구를 수행하였다. 채집된 모든 표본을 조사해 본 결과 3아과 17족 23속 44종이 서식하는 것으로 나타났다.

검색어: 모악산, 개미

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