

Notes on Harpalini (Coleoptera, Carabidae) from Korea (2)

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韓國產 먼지벌레 족(2)

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ABSTRACT

Herein, 29 species of the harpaline ground beetles are listed from the Korean Peninsula. Of these, distribution of the two species, *Harpalus (Harpalus) tardus* (Panzer 1797) and *H. (H.) tibeticus hsifanicus* Schaubberger, 1932, are very doubtful in the Korean Peninsula.

Key words : Coleoptera, Carabidae, Harpalini, Taxonomy, new records, Korea

Genus *Harpalus* Latreille, 1802 머리먼지벌레 속***Harpalus (Harpalus) corporosus* (Motschulsky, 1861)**

검은머리먼지벌레

Phaenogenus (Harpalus) corporosus Motschulsky, 1861, *Etud. Ent.*, 10: 3 (Japan).

Harpalus zabroides Dejean: Morawitz, 1863, *Mém. Acad. Imp. Sci. St.-Pétersb.*, (7), 6(3): 71; Lewis, 1874, *Ent. month. Mag.*, 10: 173.

Harpalus zabroides Dejean: Bates, 1873, *Trans. Ent. Soc. London*, p. 265.

Harpalus zabroides Dejean var. *corporosus* Motschulsky: Heyden, 1884, *Deutsch. Ent. Zeitschr.*, 28: 274, 287.

Phaenogenus corporosus Motschulsky: Motschulsky, 1864, *Bull. Soc. Nat. Mosc.*, 37(2): 214 (partim).

Haploharpalus coporosus Motschulsky: Schaubberger, 1931, *Col. Centralbl.*, 5: 171.

Harpalus (Haploharpalus) coporosus Motschulsky: Csiki, 1932, *Col. Cat.*, 121: 1129 (Korea); Schaubberger, 1935, *Ark. Zool.*, 27A(4): 3; Wu, 1937, *Cat. Ins. Sinensium*, 3: 156 (Korea); Lafer, 1996, *Ins. Koreana*, 13: 83 (Korea).

Harpalus corporosus Motschulsky: Bates, 1883, *Trans. Ent. Soc. London*, p. 238; Heyden, 1887, *Horae Soc. ent. Rossi-*

cae, 29: 246 (Korea); Tschitschérine, 1906, *Horae Soc. Ent. Ross.*, 37: 256-257; Kano, 1924, *Ins. world (Konchusekai)*, 28(326): 350 (Korea); Andrewes, 1933, *Trans. R. Ent. Soc. London*, 81: 15; Yano, 1941, *Nippon no Kôchû*, 4(1): 31 (Korea); Jedlička, 1960, *Annls hist.-nat. Mus. natn. hung.*, 52: 231 (Korea); Nakane, 1963, *Icon. Ins. Jap. Colore Nat.*, 2, Col., p. 44, pl. 22, fig. 15 (Korea); Habu, 1968, *Ent. Rev. Japan*, 21: 6; Kataev, 1989, *Insects of Mongolia*, 10: 214 (Korea); Kataev, 1997, *Steenstrupia*, 23: 138 (Korea).

Harpalus (Harpalus) corporosus Motschulsky: Habu, 1973, *Fauna Japonica, Harpalini*, p. 156-162 (Korea).

Diagnostic characters. Body rather larger, length 12-16 mm, black, polished, female elytra mat, legs black, fore tarsi reddish. Fore tibiae with 1 row of thick spine at ventro-apical prominence. Hind angles of pronotum nearly rectangular. Base of pronotum completely bordered (in *crates* border obliterate at middle).

Material examined. JJ: 1 ♀, 2 ♂, 31-VII-1993, Seonheul, Jocheon-eup (SCNAE); 1 ♀, 7-IX-2001, Temple Gwaneumsa, Jeju-si (SCNAE); 1 ♂, 21-VIII-1985, K.-S. Lee leg.; 3 ♂, 1 ♀, 4-IX-1985, Seogwipo (SCNAE); 1 ♀, 6-IX-1983; 1 ♂, 22-IV-1984; 1 ♂, 16-IX-1984; 1 ♀, 5-IX-1991, Jejudo (SCNAE); 1 ♀, 29-VIII-1997, Cheju Univ. Campus, Jeju-si (JFNHM); 1 ♀, 9-VIII-1996, Temple Gwaneumsa, Jeju-si (JFNHM); 1 ♀, 22-VIII-1995; 1 ♀, 28-VIII-1995, Ara, Jeju-si (JFNHM); 1 ♂,

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17-IV-1994; 1 ♂, 3-IV-1995, Saekdal, Seogwipo-si (JFNHM); 1 ♀, 27-III-1994, Daepo, Seogwipo-si (JFNHM); 5 ex., 4-IX-1985, Seogwipo-si (NIAST); 2 ex., 10-IX-1989, Andeok, Namjeju-gun (NIAST). **CB**: 1 ex., 8-IX-1998, Goesan, Goesan-gun (NIAST). **GB**: 3 ♂, 6 ♀, 6-VI-2000, Naribunji, Is. Ulleungdo (SCNAE); 1 ♂, 10-VII-1987, Andong, K.-S. Lee leg. (SCNAE); 1 ex., 10-VIII-1988, Janggal, Andong-si (NIAST). **GG**: 1 ♂, 22-IV-1989, Gwanggyo, Suweon (SNUAE); 1 ♀, 7-IV-1987; 1 ♂, 7-IV-1990; 1 ♀, 11-IV-1992, Suweon (SNUAE). **GW**: 1 ♀, 22-VIII-1974, Mt. Seolaksan, S.-M. Lee leg. (SCNAE); 1 ♂, 11-VIII-1994, Hongcheon (SCNAE); 1 ♂, 22-VII-1978, Mt. Chiaksan, S.-M. Lee leg. (SCNAE); 5 ex., 10-VIII-1989, Seoseok-myeon, Hongcheon-gun (NIAST); 1 ♀, 30-VII-1991, Pyeongchang, K.-T. Park leg. (KWNAE); 1 ex., 7-VII-1997, Byeonnae-ri, Doam-myeon, Pyeongchang-gun (NIAST); 1 ex., 11-VII-1993, Samcheok-si (NIAST); 2 ex., 24-VIII-1974, Mt. Seolaksan (NIAST).

Distribution. Korea (including Jeju-do), Japan (Hokkaido, Honshu), northern China, east Siberia, Tibet.

Notes. Belongs to *hirtipes*-species group (Kataev, 1989: 228). First record for Korea by Heyden (1887). Widely distributed including Jeju-do. Not common. Often attracted to light. For more detail of *hirtipes*-species group, see Reitter (1900: 103-111) or Kataev (1989: 223-248).

***Harpalus (Harpalus) froelichii* Sturm, 1818**

들판머리먼지벌레 (신칭)

Harpalus Frölichii Sturm, 1818, Deutchl. Fauna Ins., 5(4): 117 (Deutschland).

Harpalus segnis Dejean, 1829, Spec. gén. Col., 4: 365. Treated as a junior synonym of *froelichii* by Schaum, 1960: 602.

Harpalus regularis Motschulsky, 1844, Mém. Acad. Sci. St.-Pétersb., 5: 206 (Transbaicalia). Synonymy established by Kataev, 1989: 246.

Harpalus rivularia Motschulsky, 1860, Mém. Biol. Acad. Sci. St.-Pétersb., 3: 410 (?Siberia: Fort Perofskij). Synonymy established by Kataev, 1989: 246.

Harpalus tardus: Bedel, 1881, Faune Coleopt. Bass. Seine, 1: 76, 180 (France). Preoccupied (nec Panzer 1797: 24). Treated as a junior syn. by Ganglbauer, 1892: 358.

Harpalus tardoides Jedlička, 1965, Opuscu. zool., 89: 2 (Süd China). Preoccupied (nec Hansen, 1940). Synonymy established by Kataev, 1989: 246.

Harpalus (Harpalus) aimaki Jedlička, 1968, Reichenbachia, 11(12): 143 (Mongolia). Treated as a junior synonym of

froelichii by Kataev, 1989: 246.

Harpalus froehlichii Sturm: Schaum, 1860, Naturg. Ins. Deutchl. Col., 1(1): 602 (syn.).

Harpalus froelichi Sturm: Ganglbauer, 1892, Käfer Mitteleuropas, 1: 350, 358; Kataev, 1989, Ins. Mongoliga, 10: 246-248 (N. Korea: Nungi); Kataev, 1997, Steenstrupia, 23: 138 (Korea).

Harpalus (Harpalobius) froelichi Sturm: Reitter, 1900, Verhand. Naaturf. Ver. Brünn, 38: 105; Reitter, 1908, Fauna Germanica, Käfer, 1: 176.

Harpalus (Haploharpalus) froelichi Sturm: Csiki, 1932, Col. Cat., 121: 1129 (Korea); Lafer, 1989, Key Ins. Russian Far East, (3), 1: 186.

Harpalus (Harpalus) froelichii Sturm: Lorenz, 1998, Systematic list of ground beetles (1st ed.), p. 346; Kataev *et al.* in Löbl & Smetana, 2003; Lorenz, 2005, Nomina Carabidarum (2nd ed.), p. 451.

Diagnostic characters. Body length 8.5-10.5 mm. Piceous black, mouth-parts and antennae rufo-testaceous, also tarsi pale. Pronotum strongly transverse, nearly rectangular, narrow in comparison with elytra, without punctures. Last three abdominal sternites strongly punctate and with long hairs. Hind femora with more than 10 long setae along hind margin.

Materials examined. Russian Far East: 1 ex., Ussuri (Det. by G. Sh. Lafer). North Korea: Nungi, Hamnam (after Kataev 1989: 248). South Korea: No specimens were available for the present study.

Distribution. Korea (North), China (BEI, GAN, HEI, NIN, NMO, QIN, SHA, SHX, XIN), Mongolia, Russia (Siberia, Far East), central Asia, Europe.

Notes. Belongs to *hirtipes*-species group. First record for North Korea at Nungi, Hamnam by Kataev (1989), but has not yet been collected from southern part of the Korean Peninsula but could exist in high mountains in central Korea. Occur at dry, sandy areas on open ground, notably grassland and heaths, with scattered vegetation (Lindroth 1986: 365).

***Harpalus (Harpalus) tichonis* Jakobson, 1907**

산마루머리먼지벌레 (신칭)

Harpalus tichonis Jakobson, 1907, Zsuki Ross., 5: 382 (Ussuri). Rename for *H. ussuriensis* Tschitschérine, 1898: 182.

Harpalus ussuriensis Tschitschérine, 1898, Ann. Soc. Ent. France, 67: 182 (Ussuri). Preoccupied (nec Chaudoir, 1863: 219).

Haploharpalus pseudocorporosus Schaubberger, 1930, Koleopt. Rundschau, 15: 200 (Ussuri: Chabarowsk). Synonymy estab-

lished by Kataev, 1989: 241.

Harpalus (Harpalus) tichonis Jakobson: Csiki, 1932, Col. Cat., 121: 1174.

Harpalus (Harpalus) tichonis Jakobson: Kataev, 1989, Ins. Mongolia, 10: 241 (China).

Diagnostic characters. See Kataev (1989: 228-248).

Materials examined. No representatives of the species have been available to the present study.

Distribution. North Korea, China (XIN), Mongolia, Russia (Siberia, Far East), KI, KZ (Tien Shan).

Notes. Belongs to *hirtipes*-species group. Kataev *et al.* (2003, in Löbl & Smetana) enumerated it from North Korea, but has not yet been collected from southern part of the Korean Peninsula. This species is rather easily recognizable among this group by the Kataev's key.

***Harpalus (Harpalus) zabroides* Dejean, 1829**

국경머리먼지벌레

Harpalus zabroides Dejean, 1829, Spec. gén. Col., 4: 343 (Europe).

Harpalus lycaon Linder, 1860, Ann. Soc. Ent. France, (3), 8: 612. Treated as a junior synonym of *zabroides* by Ganglbauer, 1892: 358.

Harpalus (Haploharpalus) zabroides Dejean: Jedlička, 1958, Ann. hist.-nat. Mus. hung., 9: 188 (ssp. key).

Harpalus (Harpalobius) zabroides Dejean: Reitter, 1900, Verhand. Naturf. Ver. Brünn, 38: 109 (ssp. key).

Harpalus zabroides Dejean: Ganglbauer, 1892, Käfer Mitteleuropa, 1: 350, 358 (syn.); Kataev, 1989, Ins. Mongolia, 10: 240 (Iran).

Harpalus (Harpalus) zabroides Dejean: Csiki, 1929, Col. Cat., 121: 1130; Kirschenhofer, 1990, Koleopt. Rdschau, 60: 4, 10 (N. Korea: Hyesan).

Diagnostic characters. Row of spines on ventral side of front tibiae joining preapical spines on outer edges; pronotum not narrowed posteriorly; black or piceous brown species (*hirtipes*-species group). Length of body 13-16 mm. Black, antennae brownish red, but 2nd and 3rd segments blackened; last segment of palpi brownish; apical margin of front tibiae straight, outer corner not protruding (in *hirtipes* obliquely protruding) (after several literature).

Material examined. No representatives of the species have been available to the present study. North Korea: Hyesan, HN (after Kirschenhofer 1990).

Distribution. North Korea, Siberia, Central Asia, Europe.

Notes. Belongs to *hirtipes*-species group. First record for North Korea by Kirschenhofer (1990), but has not yet been collected from southern part of the Korean Peninsula.

***Harpalus (Harpalus) crates* Bates, 1873**

한국머리먼지벌레

Harpalus crates Bates, 1873, Trans. R. ent. Soc. London, p. 239. (Korea, China); Bates, 1888, Proc. Zool. Soc. Lond., 1888: 370 (Korea); Tschitschérine, 1897, L'Abeille, 29: 50-51 (Korea); Kano, 1923, Ins. world (Konchusekai), 27 (315): 381 (Korea); Kano, 1924, Ins. world (Konchusekai), 28(326): 350 (Korea); Yano, 1941, Nippon no Kôchû, 4(1): 30 (Korea); Jedlička, 1960, Annls hist.-nat. Mus. natn. hung., 52: 231 (Korea); Habu, 1968, Ent. Rev. Japan, 21: 6; Paik, 1988, Korean J. Ent., 18(4): 245 (Jejudo); Paik, 1993, J. Sci. & Education, Sunchon Natl. Univ., 1: 84 (Korea); Kataev, 1997, Steenstrupia, 23: 142 (Korea); Paik, 1997, Korean J. Soil Zool., 2(1): 33 (Korea).

Harpalus chlorizans Bates, 1883, Trans. R. ent. Soc. London, p. 238-239 (Japan: Yokohama) (Preoccupied, nec Dalla Torre, 1877: 48 (*Harpalus*); nec Solsky, 1874: 78 (*Harpalus*); Tschitschérine, 1906, Horae Soc. Ent. Ross., 37: 259-260; Yano, 1941, Nippon no Kôchû, 4(1): 30 (Korea); Kano, 1923, Ins. world (Konchusekai), 27(315): 381 (Korea); Kano, 1924, Ins. world (Konchusekai), 28(326): 350 (*chlovizans*) (Korea); Cho, 1957, Hum. & Sci., Nat. Sci., Korea Univ., 2: 189 (Korea). Treated as a variation of *crates* by Tschitschérine, 1897: 51.

Harpalus (Lasioharpalus) crates Bates: Reitter, 1900, Verhand. Naturf. Ver. Brünn, 38: 87 (foot note); Reitter, 1906, Misc. Ent., 14: 56 (foot note).

Harpalus (Haploharpalus) crates Bates: Lafer, 1996, Ins. Koreana, 13: 83 (N. Korea).

Harpalus (Harpalus) crates Bates: Csiki, 1932, Col. Cat., 121: 1136 (Korea); Schaubberger, 1935, Ark. Zool., 27A(4): 4 (China); Wu, 1937, Cat. Ins. Sinensium, 3: 158 (Korea); Habu, 1973, Fauna Japonica, Harpalini, p. 153-156 (Korea); Kataev, 1997, Steenstrupia, 23: 142 (Korea: Kongosan).

Diagnostic characters. Body length 12.0-16.0 mm. Black, shiny, elytra rather opaque in female, sometimes with metallic tinge in both sexes. It is similar to *H. coporosus*, it is distinguishable by the shape of pronotum. See also above species key and figures of Habu (1973).

Material examined. JJ: 2 ♂, 23-IV-2004, Hyeobjae Beach, Hallim-eup (SCNAE); 1 ♂, 18-V-1984, Gangjeong-cheon, Seogwipo-si (SCNAE); 1 ♀, 22-IV-1984; 1 ♂, 10-VI-1984,

Harpalini from Korea

Ara, Jeju-si (SCNAE); 1 ♂, 10-X-1991, Seongsan (SCNAE); 2 ♂, 5-V-1963; 1 ♀, 18-VI-1989, Jejudo (SCNAE); 5 ♂, 1 ♀, 11-VIII-1993, Seonheul (JFNHM); 1 ♀, 15-VIII-1993, Seohong, Seogwipo-si (JFNHM); 1 ♂, 21-V-1994, Seongsan (JFNHM); 1 ♂, 26-V-1994, Is. Mara-do (JFNHM); 1 ♂, 7-VIII-1994, Beophochon, Seogwipo-si (JFNHM); 1 ♂, 23-IV-1994, Myeongdo-am, Jeju-si (JFNHM); 1 ♂, 28-VIII-1995, Ara, Jeju-si (JFNHM); 1 ♂, 14-V-1983, Cheju Univ. Campus, Jeju-si (JFNHM); 1 ♂, 10-VI-1996, Hado, Gujwa-eup (JFNHM); 1 ♀, 9-VI-1994, Mt. Sanbongsan (JFNHM). **CN**: 1 ♂, 19-XI-2004, Sinon-ri, Nam-myeon, Taean-gun (SCNAE). **GB**: 2 ♂, 10-V-1985, Mt. Sobaeksan, Y.-J. Kwon leg. (SCNAE); 16 ♂, 12 ♀, 6-VI-2000, Naribunji, Is. Ulleungdo (SCNAE); 2 ex., 10-V-1985, Mt. Sobaeksan, GW (NIAST); 1 ♀, 24-V-1996, Mt. Geumosan (SJNAE). **GG**: 1 ♂, 30-V-1988, Mt. Myeongjisan, Gapyeong-gun (KWNAE). **GW**: 1 ♂, 30-V-1992, Geumdae-ri, Weonseong-gun (KWNAE); 1 ♀, 6-VI-1988, Chuncheon (KWNAE). **JB**: 1 ♀, 16-IV-1994, Mt. Moaksan, Jeonju-si (SCNAE). **JN**: 1 ♀, 23-VIII-1999, Sosari, Yae-ri, Heuksan-myeon, Sianan-gun (SCNAE).

Distribution. Korea (North, Central, South), Japan (Honshu), China (BEI, GAN, HEI, HKG, JIA, JIX, LIA, NIN, NMO, QIN, SCH, SHA, SHN, SHX), Russian Far East.

Notes. Belongs to *crates*-species group (Kataev, 1995 in Kryzhanvskij *et al.*). A single species is known. First record for the Korean Peninsula by Bates (1873). This species is very similar to *H. coporosus*, but distinguishable by the base of pronotum obliterate at middle (in *coporosus* completely bordered). Widely distributed including Jejudo. Not common.

Harpalus (Harpalus) bungei Chaudoir, 1844

애기민머리뎨지벌레

Harpalus bungei Chaudoir, 1844, Bull. Soc. Nat. Mosc., 17 (3): 451 (Altai & Mongolia).

Harpalus variipes Bates, 1883, Trans. R. ent. Soc. Lond. p. 239-240 (Japan: Yokohama); Yano, 1941, Nippon no Kochu, 4: 31 (Korea); Nakane, 1948, Trans. Kinki Col. Soc., 3(1): 7, pl. 1. fig. 11; Nakane, 1963, Icon. Ins. Jap., Colore natur. edit., 2 (Col.): 44, pl. 22, fig. 21; Habu, 1968, Ent. Rev. Japan, 21: 6, pl. 2; Habu, 1968, Ent. Rev. Japan, 21: 19-21. Synonymized by Habu, 1970, Ent. Rev. Japan, 22(2): 90.

Harpalus misellus Tschitschérine, 1897, L'Abeille, 29: 53-54 (N. China; environs nord de Pékin; province Schensi). Syn. by Schaubberger, 1932, Wien. Ent. Zeit., 49(2): 87-89.

Harpalus modestus bungi [sic] Chaudoir: Schaubberger, 1932, Wien. Ent. Zeit., 49: 87-89 (Korea: Seoul).

Harpalus modestus nipponicus Bates [= *bungii*: sensu Habu, 1973: 173]; Schaubberger, 1932, Wien. Ent. Zeit., 49(2): 87-89; Jedlička, 1960, Annls hist.-nat. Mus. natn. hung., 52: 231 (Korea); Habu & Sadanaga, 1963, Bull. Nat. Inst. Agr. Sci., (C) 16: 151-154 (larva); Habu & Sadanaga, 1965, *ibid.*, (C), 19: 179, 184, 189, 204, 214 (larva).

Harpalus modestus Dejean var. *bungei* Chaudoir: Csiki, 1932, Col. Cat., pars 121: 1171.

Harpalus bungii Chaudoir: Kataev, 1997, Steenstrupia, 23: 138 (Korea); Paik, 1997, Korean, J. Soil Zool. 2(2): 107 (Jejudo).

Harpalus (Harpalus) bungii Chaudoir: Habu, 1970, Ent. Rev. Japan, 22: 89-90 (Korea); Habu, 1973, Harpalini, Fauna Japonica, p. 173-176 (Korea).

Harpalus (Harpalus) bungei Chaudoir: Młynář, 1974, Acta zool. cracoviensia, 19(6): 108 (N. Korea); Lafer, 1989, Key. Ins. Russian Far East, (3), 1: 194 (Korea); Lafer, 1996, Ins. Koreana, 13: 84 (N. Korea).

Diagnostic characters. Very similar to *H. modestus* but distinguishable by the chaetotaxy of hind coxa. Small species, length of body 6.5-8.5 mm. Black, shiny, elytra mat in female, head appendages, antennae, tibiae, and tarsi light brown to yellowish brown; ventral side black. Pronotum convex, surface with some punctures only in basal foveae; basal foveae rather linear, somewhat deep. Hind coxa without setiferous pore at inner margin. For more details, see Młynář (1974: 120-122).

Material examined. **JJ**: 1 ♀, 1 ♂, 17-VII-1994, Seogwipo (SCNAE). **CB**: 1 ex., 24-V-1985, Mt. Weolaksan, Jecheon-si, CB (NIAST). **GB**: 1 ♂, 10-VII-1987, Andong, K.-S. Lee leg. (SCNAE); 1 ♂, 3 ♀, 6-VI-2000, Naribunji, Is. Ulleungdo (SCNAE); 1 ex., 17-VI-1974, Mt. Palgongsan, GB (NIAST). **GG**: 1 ♀, 3-V-1984, Suweon (SCNAE); 1 ♀, 27-IV-1976, Gwangkyo, Suweon-si (SCNAE); 1 ex., 12-VI-1996, Namyangju (NIAST); 1 ex., 05-V-1974, Mt. Wangbongsan, Pocheon-eup (NIAST); 1 ex., 10-V-1986, Mt. Gwanggyosan, Suweon-si (NIAST); 1 ex., 17-III-1990; 1 ex., 4-III-1989, Seodun-dong, Suweon (NIAST). **GW**: 1 ex., 17-VI-1974, Mt. Taebaeksan, GW (NIAST); 1 ex., 10-VIII-1969, Mt. Seolaksan (NIAST).

Distribution. Korea (North, Central, South), Japan (Hokkaido, Honshu, Shikoku, Kyushu), northern China (BEI, HEI, LIA, NMO, SCH, SHA, SHX), Mongolia, Russia (E Siberia, Far East).

Notes. Belongs to *tardus*-species group (Kataev 1995 in Kryzhanovskij *et al.* p. 144). Five species (*bungei*, *modestus*,

chasanensis, *tarsalis*, and *tardus*) of this group are listed from the Korean Peninsula of which *H. tardus* (Panzer) has been reported from the Korean Peninsula by Bates (1888). The distribution of this European species (extended to west Siberia) is probably a mistake or may be due to incorrect identification of the relatives.

First record for Korea by Schauberger (1932) as *H. modestus bungi* [sic] Chaudoir. *H. bungei* is very similar to *H. modestus* and probably confused with these species. Mýnář (1974: 120-122) clarified these two species. It may be distinguishable from *H. modestus* by the absence of setigerous pores in medial part of hind coxae.

Widely distributed including Jeju, but seldom. Occurs on meadows and fields. For more information of this species, see Habu (1973: 173-176) and Mýnář (1974: 120-122).

Harpalus (Harpalus) chasanensis Lafer, 1989

자산머리먼지벌레

Harpalus (Harpalus) chasanensis Lafer, 1989, Key Ins. Russian Far East, (3), 1: 191 (S Primorskij Krai: Khasan & Korea); Lafer, 1996, Ins. Koreana, 13: 84 (S. Korea: Mt. Buchu, CB-JB); Kataev, 1997, Steenstrupia, 23: 139 (China).

Diagnostic characters. Body length 8.0-10.0 mm. Black, antennae, tibiae (often apex blackened), tarsi pale brown. Hind-angles of pronotum obtuse, widely rounded, lateral margins before them arcuate convex. Pronotal apex arcuate emarginate, apical angles wider rounded at tip.

Materials examined. Russian Far East: 2 paratypes (Det. G. Sh. Lafer). South Korea: Mt. Buchu, CB-JB (after Lafer, 1996: 84).

Distribution. Korea (North, South), China (GAN, JIA, QIN, SHA), Russian Far East.

Notes. Belongs to *tardus*-species group. See notes on above *H. bungei*. First record for the Korean Peninsula by Lafer (1989). Later he (1996) reported it from Mt. Buchu, CB-JB, from South Korea. However, this species has not yet been collected from South Korea. For the habitus and genitalia of *H. chasanensis*, see Lafer (1989, figs. 133.2 & 137.1-3).

Harpalus (Harpalus) modestus Dejean, 1829

민머리먼지벌레

Harpalus modestus Dejean, 1829, Spec. gén. Coleopt., 4: 367.
Harpalus (Harpalus) modestus Dejean: Paik & Moon, 2005, Korean J. Soil Zoology, 10(1/2): 46 (S. Korea).

Diagnostic characters. Small species, length of body 5.5-

7.5 mm. Body black, appendages rusty red, femora black, bases of tibiae brownish red, lateral margins of pronotum reddish brown. Pronotum transverse, almost 1.5 times broader than long, with lateral margins slightly convex obtuse, rounded. Hind coxa with 1 setiferous pore at inner margin. For more details, see Mýnář (1974: 120-122).

Distribution. Korea (North, Central South), Japan (Hokkaido, Honshu, Kyushu), China (HEI, LIA, QIN, SCH, SHX: Shanxi), Russia (Siberia, Far East), central Europe.

Notes. For more information, see Paik & Moon (2005).

Harpalus (Harpalus) tardus (Panzer, 1797)

[좁머리먼지벌레 (명집, 1994)]

Carabus tardus Panzer, 1797, Fauna. Germ., Heft, 37: 24 (Germany).

Harpalus tardus (Panzer): Bates, 1888, Proc. Zool. Soc. London, p. 370 (Korea: without locality).

Harpalus (Harpalus) tardus (Panzer): Csiki, 1932, Col. Cat., 121: 1173 (see other synonymy & references).

Material examined. Not available.

Distribution. ?Korea, Iran, Turkey, Uzbekistan, West Siberia, Europe.

Notes. Belongs to *tardus*-species group. See notes on above *H. bungei*. First record for the Korean Peninsula by Bates (1888). The record of this European species (extended to west Siberia) is probably a mistake or may be due to incorrect identification (of the relatives).

Harpalus (Harpalus) tarsalis Mannerheim, 1825

에머리먼지벌레

Harpalus tarsalis Mannerheim, 1825, in Hummel, Essais entomol., 4: 28 (Russia: Barnaul); Kataev, 1989, Ins. Mongolia, 10: 203 (Mongolia) (syn.); Kryzhanovskij *et al.*, 1995, Checklist Ground-beetles, p. 144.

Harpalus ?tardus s. lokayi Jedlička, 1929, Čas. Českosl. Spol. Ent. (Acta Soc. ent. Cech.), 5-6: 104-105 (Ussuri: Sutschan). Subjective junior synonym of *H. tarsalis* established by Kataev, 1989: 203.

Harpalus hokkaidensis Habu & Baba, 1963, Akitu, 11: 23-25 (Japan). Subjective junior synonym of *H. lokayi* Jedlička established by Mýnář, 1979: 95.

Harpalus tardus s. lokayi Jedlička: Jedlička, 1960, Ann. hist.-nat. Mus. natn. hung., 52: 231 (Korea).

Harpalus (Harpalus) lokayi Jedlička: Mýnář, 1979, Koleopt. Rundschau, 54: 95 (Japan) (syn.); Kwon & Lee, 1986, Ins. Koreana, 6: 38 (Korea); Lafer, 1989, Key Ins. Russian Far

East, (3), 1: 191 (Korea).

Harpalus tarsalis Mannerheim: Kataev, 1997, Steenstrupia, 23: 138 (China).

Harpalus (Harpalus) tarsalis Mannerheim: Lafer, 1996, Ins. Koreana, 13: 86 (Korea).

Diagnostic characters. Body length 10.0-11.0 mm. Black, antennae and tarsi pale brown. Hind-angles of pronotum nearly rectangular, rounded, lateral margins before them rectilinear or faintly sinuate; pronotal apex emarginate, almost trapezium-shaped, apical angles narrowly rounded.

Material examined. JN: 1 ♀, 15-V-1988, Suncheon (SCNAE).

Distribution. Korea (North, South), Japan (Hokkaido, Honshu), China (SHX), Mongolia, Russia (European territories, East Siberia, Far East), Kazakhstan, Kyrgistan, United Kingdom.

Notes. Belongs to *tardus*-species group. See notes on above *H. bungei*. First record for North Korea by Jedlička (1960) as *H. tardus* s. *lokayi* Jedlička. Previously this species was known only from North Korea. The distribution of this species from South Korea is confirmed. For main characters of this species, see above key to species.

Externally this species resembles *H. chasanensis* Lafer, 1989, as well as *H. tardus*, *modestus* and *bungei*, with its rather coarse elytral surface and uniform dark coloration. Unfortunately, the former species has not yet been collected from southern part of the Korean Peninsula, reported by Lafer (1989: 191). For more details, see Mlynář (1979) and Lafer (1989).

Thanks to Dr. G. Sh. Lafer, Vladivostok, for comparison with Ussurian specimens and confirmed to our identification of this species.

***Harpalus (Harpalus) major* (Motschulsky, 1850)**

하늘머리먼지벌레 (큰머리먼지벌레)

Erpeinus major Motschulsky, 1850, Käf. Russl., p. 25 (Mongolia).

Harpalus obesus Morawitz, 1862, Mémoires Biol. Acad. Sci. St.-Petersb., 4: 222 (Siberia). Preoccupied by Audinet-Serville (1821: 32). Treated as a junior synonym of *H. major* (Motschulsky) by Kataev, 1989: 195.

Harpalus crassus Tschitschérine, 1895, Horae Soc. Ent. Ross., 29: 158-161 (Korea: Olchonsa=Weoljeongsa, Mt. Odaedan). Treated as a junior synonym of *H. obesus* by Kataev, 1989: 195.

Harpalus (Harpalus) major (Motschulsky): Paik, 1997,

Korean J. Soil Zool., 2(2): 107 (S. Korea).

Diagnostic characters. Body length 11.5-13.8 mm. Black, legs black with brown tarsi (often brownish red). Elytra with strong lustre in male, mat in female, elytral microsculpture obviously reticulated in male; hind-angle of pronotum broadly rounded, its surface between basal fovea and lateral margin convex, with sparse fine punctuation.

Material examined. JJ: 2 ex. 13-VIII-1983, Seogwipo (SCNAE). GW: 1 ex., 9-VIII-1969, Mt. Seolaksan (NIAS).

Distribution. Korea (North, Central, South), China (SHX), Mongolia, Russia (Siberia, Far East).

Notes. Belongs to *obesus*-species group (Kataev 1995 in Kryzhanovskij *et al.* p. 143). Described from Korea by Tschitschérine (1895) as *H. crassus*. Later this species was treated as a subjective junior synonym of *H. obesus* Morawitz by Kataev (1989). Record of this species exists in North and South Korea. Widely distributed including Jejudo, but very seldom. Occurs in forest.

***Harpalus (Harpalus) longipalmatus* Mordkovitsh, 1969**

섬머리먼지벌레

Harpalus (Actephilus) longipalmatus Mordkovitsh, 1969, Ent. Obozr., 48(3): 628, 629 (Russia); Lafer, 1989, Key Ident. Ins. Russian Far East, (3), 1: 184 (Mongolia); Kataev, 1990, Insects of Mongolia, 11: 115 (N. Korea: Nungi, HN); Lafer, 1992, Key Ident. Ins. Russian Far East, (3), 2: 701 (N. Korea); Lafer, 1996, Ins. Koreana, 13: 83 (N. Korea: Nungi, HN).

Harpalus (Harpalus) longipalmatus Mordkovitsh: Kryzhanovskij *et al.*, 1995, Checklist of ground beetles of Russia, p. 143.

Diagnostic characters. Outer lobe of fore tibia very porrect and reaching the apex of the 1st tarsal segment; penis long, sharply curved. Body length 8 mm. Fore more detail of this group, see Mordkovitsh (1969: 628).

Materials examined. Russian Far East: 2 ex., Ussuri (G. Sh. Lafer, det.). North Korea: Nungi, HN (after Kataev 1990: 115 & Lafer 1996: 83). South Korea: No specimens were available for the present study.

Distribution. Korea (North), NE China (HEI, LIA), Mongolia, Russia (Siberia, Far East).

Notes. Belongs to *pumilus*-species group (sg. *Actephilus* Stephens 1833). This species-group is absent of the elytral basal setiferous pore. Kataev (1990) treated this species-group as subgenus *Actephilus*. However, later he (1995 in Kryzhanovskij *et al.* p. 143) downgraded to species-group of the

genus *Harpalus*. We follow Kataev's. For more details of this group, see Kataev (1990).

First record for North Korea by Kataev (1990), but has not yet been collected from southern part of the Korean Peninsula. The following simple key is easily distinguishable from Far East Asian species.

- 1 (2) Outer angle of protibia protruding as lobe-shaped.
 *Harpalus (H.) longipalmatus* (섬머리먼지벌레)
 2 (1) Outer angle of protibia not protruding, truncate. Mon-
 golia, Russia (E & W Siberia, Far East), Kazakhstan.
 *Harpalus (H.) pusillus* (Motschulsky, 1850)

***Harpalus (Harpalus) latus* (Linnaeus, 1758)**

산머리먼지벌레 (신칭)

- Carabus latus* Linnaeus, 1758, Syst. Nat., 10 ed., p. 415 (Sweden).
Carabus surinamensis Fabricius, 1792, Ent. Syst., 1: 156 (Sweden). Synonymized by Ganglbauer, 1892: 354.
Carabus fulvipes Fabricius, 1801, Syst. Eleuth., 1: 180 (Germany). Synonymized by Ganglbauer, 1892: 354.
Carabus limbatus Duftschmidt, 1813, Faun. Austr., 2: 84 (Austria). Syn. by Ganglbauer, 1892: 354.
Harpalus flaviventris Sturm, 1818, Deutsch. Ins., 4: 47, pl. 84, fig. b. B. (Germany). Syn. by Ganglbauer, 1892: 354.
Harpalus ruficeps Curtis, 1833, Brit. Ent., 10: pl. 458 (England). Treated as a junior synonym of *latus* by Csiki, 1932: 1156.
Harpalus acuminatus Stephens, 1835, Illustr. Brit. Ent. Mandib., 5: 380 (England). Treated as a junior synonym of *latus* by Csiki, 1932: 1156.
Harpalus lateralis Stephens, 1835, Illustr. Brit. Ent. Mandib., 5: 380 (England). Treated as a junior synonym of *latus* by Csiki, 1932: 1155.
Harpalus rugulosus Heer, 1837, Kaef. Sweitz, 2(1): 46 (Switzerland). Syn. by Ganglbauer, 1892: 354.
Harpalus foveicollis Motschoulski, 1846, Mém. Acad. Sci. St.-Péters., 5: 214 (Siberia). Treated as a junior synonym of *latus* by Csiki, 1932: 1156.
Harpalus metallescens Rye, 1874, Ent. Monthly Mag., 11: 84. Treated as a junior synonym of *latus* by Csiki, 1932: 1156.
Harpalus latibia Rey, 1886, Echange, 2: 2 (France). Treated as a junior synonym of *latus* by Habu, 1973: 166.
Harpalus perversus Roubal, 1917, Soc. Ent., 32: 24 (Schlesien). Treated as a junior synonym of *latus* by Csiki, 1932: 1156.
Harpalus limbatus Gyllenhal: Dejean, 1829, Spec. Gén. Col. 4: 327-329; Schaum, 1847, Stett. Ent. Zeit., 8: 47.
Harpalus latus Linnaeus: Schaum, 1860, Naturg. Ins. Deut-

schl., Col., 1(1): 594-595; Morawitz, 1862, Mém. Biol., 4: 185; Magistretti, 1965, Faun. Ital., Col., Cidind., Carab., p. 299; Lindroth, 1986, Acta Ent. Scand., 15(2): 355; Kataev, 1989, Ins. Mongolia, 10: 202.

Harpalus (Amblystus) latus Linnaeus: Reitter, 1900, Verh. Naturf. Ver. Brünn, 38: 99; Reitter, 1906, Misc. Ent., 14: 67; Reitter, 1908, Faun. Germ., 1: 174, pl. 23, fig. 8.

Harapulus (Harpalus) latus (Linné): Ganglbauer, 1892, Käfer Mitteleuropa, 1: 349, 354 (syn.); Csiki, 1932, Col. Cat., 121: 1155; Jeannel, 1942, Faun. France, 40: 663, 678, fig. 238e, f; Habu, 1973, Harpalini, Fauna Japonica, p. 166-168 (redescr.); Lindroth, 1986, Fauna Ent. Scand., 15(2): 355.

Harpalus (Harpalus) latus latus (Linnaeus): Lafer, 1989, Key Ins. Russian Far East, (3), 1: 190.

Diagnostic characters. Length of body 9.2-11.2 mm. Black, shiny in male, dull in female, margin of pronotum pale, legs reddish brown, all appendages yellowish red, elytral epipleura rarely black. Head remarkably large, mentum with a tooth. Sides of pronotum almost parallel-sided in basal half, hind-angles about rectangular but with broadly rounded apex; the base usually reaching outside humeral tooth, which is denticulate. Microsculpture of elytra lacking in male, at least anteriorly, generally distributed in dull female.

Material examined. Russian Far East: 1 ex., Ussuri (Det. G. Sh. Lafer). North Korea: Locality unknown (after Löbl & Smetana 2003: 378). South Korea: No specimens were available for the present study.

Distribution. Korea (North), Japan (Hokkaido), Mongolia, Russia (Siberia, Far East), Kazakhstan, Turkey.

Notes. Belongs to *latus*-species group (Kataev, 1995 in Kryzhanovskij *et al.*, p. 144) including some North Palaearctic species. Noted that this species is distributed in North Korea by Kataev *et al.* (2003 in Löbl & Smetana), but the earlier references could not be traced. This species has not yet been collected from southern part of the Korean Peninsula. However, it may be found in high mountains of central part of the Korean Peninsula. Occurs on moderately dry to moist habitats, open fields (grassland, meadow) in deciduous forest. North Palaearctic species, ranging from Spain to Far East, Korea and Japan.

The *H. latus* group is readily distinguished from the *H. tinctulus* group by the penis having a well developed apical capitulum and the 1st segment of mid tarsi in the male with adhesive vestiture ventrally. In addition, the dorsal surface of members of the *H. latus* group is without a metallic tinge and with microsculpture consisting of only isodiametric meshes

(cited from Kataev 1997: 143). The following simple key is rather easily separable of this group.

- 1(2) Outer intervals and near apex of elytra pubescent and punctate; antennae and legs brownish black. Japan (Hokkaido), Russian Far East.
 *Harpalus (H.) torridoides* Reitter, 1900
- 2(1) Elytra neither punctate nor ciliate; antennae and legs yellowish red to red.
- 3(4) Femorae usually black. Elytra striae fine, not deepened.
 *Harpalus (H.) solitaris* (천지머리먼지벌레: 신칭)
- 4(3) Legs entirely reddish-yellow. Elytral striae more deepened.
- 5(6) Sides of pronotum more or less rectilinear in basal half; sides of elytra less rounded.
 *Harpalus (H.) latus* (산머리먼지벌레)
- 6(5) Sides of pronotum slightly sinuate in hind half; sides of elytra more rounded.
 *Harpalus (H.) ussuricus* (북해머리먼지벌레)

***Harpalus (Harpalus) solitaris* Dejean, 1829**

천지머리먼지벌레 (신칭)

Harpalus solitaris Dejean, 1829, Spec. Gén. Col., 4: 337-8 (Kamchatka).

Carabus fuliginosus Duftschmidt, 1812, Fauna Austriae, 2: 83 (Austria). Preoccupied (nec Panzer, 1809: nr. 5).

Harpalus chevrierii Herr, 1837, Käf. Schweiz, 2(1): (Switzerland). Treated as a junior synonym of *fuliginosus* by Csiki, 1932: 1155.

Harpalus lapponicus Zetterstedt, 1838, Ins. Lapponica, p. 37 (Finland: Lapponia). Treated as a junior synonym of *fuliginosus* by Csiki, 1932: 1155.

Harpalus escheri Gemminger & Harold, 1868, Cat. Col., 1: 277. Treated as a junior synonym of *fuliginosus* by Csiki, 1932: 1155.

Harpalus fuliginosus var. *germanicus* Reitter, 1900, Verhand. Naturf. Ver. Brünn, 38: 99 (Mark Brandenburg). Treated as a junior synonym of *fuliginosus* by Csiki, 1932: 1155, & of *solitaris* by Kataev, 1989: 201.

Harpalus opicus Casey, 1914, Mém. Col., 5: 106 (N. America). Treated as a junior synonym of *fuliginosus* by Lindroth, 1968: 798.

Harpalus fuliginosus Sturm: Morawiz, 1863, Mém. Acad. Imp. Sci. St.-Pétersb. (7), 6(3): 71 (Japan).

Amblystus fuliginosus Duftschmidt: Motschulsky, 1864, Bull. Soc. Nat. Mosc., 37(2): 213.

Harpalus fuliginosus Dejean: Schaum, 1860, Naturg. Ins. Deutschl. Col., 1: 596-7; Bates, 1873, Trans. Ent. Soc.

Lond., p. 265 (Japan); Lewis, 1874, Ent. Monthly Mag., 10: 173 (Japan); Jeannel, 1942, Faun. France, 40: 677-8, fig. 237 m, n; Jeannel, 1949, Faun. France, 51: 35; Lindroth, 1954, Col. Bull., 8: 43; Nakane, 1963, Icon. Ins. Jap., colore natur. edit., 2 (Col.), p. 44, pl. 22, fig. 18; Magistretti, 1965, Fauna Ital., col. Cicind. Carab., p. 299.

Harpalus (Amblystus) fuliginosus Duftschmidt: Reitter, 1900, Verhand. Naturf. Ver. Brünn, 38: 99; Jakobson, 1907, Zhukii Rossii, 5: 380; Reitter, 1908, Fauna Germanica, 1: 174, pl. 23, fig. 11; Lindroth, 1968, Opusc. Ent. Suppl., 33: 798 (N America).

Harpalus (Harpalus) fuliginosus Dejean: Ganglbauer, 1892, Käfer Mitteleuropa, 1: 349, 355; Csiki, 1932, Col. Cat., 121: 1154 (see for more synonymies); Habu, 1973, Fauna Japonica, Harpalini, p. 168-171 (redescr.); Lafer, 1989, Key Ins. Russian Far East, (3), 1: 191.

Harpalus solitaris Dejean: Silfverberg, 1977, Notulae Entomol., 37: 43 (homonym); Kataev, 1989, Ins. Mongolia, 10: 201-212; Kataev, 1997, Steenstrupia, 23: 140 (Japan).

Harpalus (Harpalus) solitaris Dejean: Lindroth, 1986, Fauna Ent. Scand., 15(2): 355; Park & Szel, 2004, Entomological Research, 34(3): 219 (N Korea: Paekdusan).

Diagnostic characters. Body length 8.2-11.5 mm. Black, shiny, without any metallic hue, or somewhat opaque, elytra of female opaque; antennae and palpi reddish yellow, femora piceous, tibiae and tarsi reddish brown; outermost margin of pronotum usually transparent. Pronotum very broad with strongly rounded sides; hind-angles very obtuse and rounded; basal foveae shallow, with surrounding punctulation very dense and confluent. Elytra short with rounded sides; one dorsal puncture. Microsculpture of elytra well developed in both sexes, though stronger in dull female. Penis strongly serrate along ventral side. Internal sac with a clutch of strong spines at about middle.

Material examined. Russian Far East: 1 ex., Ussuri (Det. G. Sh. Lafer). North Korea: Mt. Baekdusan (after Park & Szel, 2004: 219). South Korea: No specimens were available for the present study.

Distribution. Korea (North), Japan (Honshu), Russia (Siberia, Far East), Kazakhstan, Europe, North America.

Notes. Belongs to *latus*-species group. See also notes on above species *H. latus*. Kataev *et al.* (2003 in Löbl & Smetana) noted that this species occurs in North Korea, but has not yet been collected from the southern part of the Korean Peninsula. This species occurs on sandy or gravelly soil, notably on open heaths with sparse vegetation and grasses;

also on dry grassland and forest in mountains (Lindroth 1986, etc.).

Carabus fuliginosus Duftschmid, 1812 has been preoccupied by Panzer, 1809. The oldest available name selected is *Harpalus solitarius* Dejean, 1829 by Silfverberg (1977).

***Harpalus (Harpalus) ussuricus* Mlynář, 1979**

북해머리먼지벌레

Harpalus (Harpalus) latus ussuricus Mlynář, 1979, Koleopt. Rundschau, 54: 97 (Ussuri: Wladiwostok).

Harpalus (Harpalus) latus ussuricus Mlynář: Kwon & Lee, 1986, Ins. Koreana, 6: 38 (Korea); Lafer, 1989, Key Ins. Russian Far East, (3), 1: 190.

Harpalus ussuricus Mlynář: Kataev, 1989, Ins. Mongolia, 10: 202 (Korea) (upgraded).

Harpalus (Harpalus) ussuricus Mlynář: Lorenz, 1998, Systematic list of ground beetles (1st ed.), p. 350; Kataev *et al.*, 2003 in CPC, 1: 383 (Korea); Lorenz, 2005, Nomina Carabidarum (2nd ed.), p. 946.

Diagnostic characters. See above species key. For more details, see original description.

Material examined. Not available.

Distribution. Korea (North), Mongolia, Russian Far East.

Notes. Belongs to *latus*-species group. Listed from Korea by Kwon & Lee (1986), but earlier references could not be traced. This record is probably error. Later, Kataev (1989) noted that this species occurs in the Korean Peninsula, but has not yet been collected from southern part of the Korean Peninsula.

This species is very similar to *H. latus*, but easily distinguishable by the shape of pronotum and elytra. See notes on above species, *H. latus* and Mlynář (1979, figs. 103 & 104).

***Harpalus (Harpalus) nigrans* Morawitz, 1862**

흑머리먼지벌레

Harpalus (Harpalus) nigrans Morawitz, 1862, Bull. Acad. Sci. St. Petersburg., 5: 260 (Ussuri: Sutschan); Morawitz, 1862, Mém. Biol. Acad. Sci. St. Petersburg., 4: 221-2.

Harpalus punctibasis Poppius, 1906, Öfv. Finsk. Vet.-Soc. Förh., 48(3): 60 (E Siberia). Synonym established by Mlynář, 1979, Kol. Rundschau, 54: 100.

Harpalus pohnerti Jedlička, 1929, Cas. Ces. Spol. Ent. (Acta Soc. ent. Cech., Prague), 25: 105 (Ussuri). Synonym established by Mlynář, 1979, Kol. Rundschau, 54: 100.

Harpalus (Harpalus) nigrans Morawitz: Csiki, 1932, Col.

Cat., 121: 1158 (cat.); Mlynář, 1979, Koleopt. Rundschau, 54: 92 (syn.); Lafer, 1989, Keys Id. Ins. Russian Far East, 3, Coleopt., 1: 189 (Korea); Lafer, 1996, Insecta Koreana, 13: 86 (N. Korea); Kataev, 1997, Steenstrupia, 23: 140 (China).

Diagnostic characters. Length of body 8.6-11.2 mm. Black, shiny in male, antennae, palpi and tarsi brownish-red, hind-angles of pronotum very narrow, reddish transparent. Head shiny; pronotum 1.5 times broader than long, hind-angles rectangular, not rounded, with dense and deep punctures throughout at basal area. Elytra as wide as pronotum, with rounded sides; humeral-tooth small, but evident; elytral striae deep, impunctate; elytral intervals flattened. Underside of abdomen smooth.

Material examined. Russian Far East: 1 ex., Ussuri (Det. G. Sh. Lafer). China: 1 ♂, 15-VII-1995, Yanji, Jilin-Shen, Liaoning, Manchuria (SCNAE). North Korea: Locality unknown (after Lafer 1989, 189, 1996: 86). South Korea: No specimens were available for the present study.

Distribution. Korea (North), China (HEI, SHX), Russia (Siberia, Far East).

Notes. Belongs to *nigrans*-species group (Kataev, 1995 in Kryzhanovskij *et al.* p. 145) including Siberian species *H. sinuatus* Tschitchérine, 1893. Record for North Korea by Lafer (1989), but has not yet been collected from the southern part of the Korean Peninsula. This species is rather easily distinguishable from other relatives (*hirtipes*- or *vittatus*-species group) by the shape of pronotum. Thanks to Dr. G. Sh. Lafer, Vladivostok, who offered the Ussurian specimens of this group. The following simple key is rather easily recognized from *vittatus*-species group.

- 1(2) Pronotal base with dense and deep punctures throughout; elytral apex faintly sinuated. Larger, 8.6-11.2 mm.
..... *H. (H.) nigrans* Morawitz (흑머리먼지벌레)
- 2(1) Pronotal base between basal foveae and lateral margins with fine punctures, sometimes with wrinkles. Smaller, less than 8.0 mm (*vittatus*-group).
- 3(4) Elytra with deep apical sinuation, mat in both male and female. Habitus (cf. Lafer, 1989, fig. 133.1). Aedeagus (cf. Lafer 1989, fig. 134.1-6). Length 6.6-7.2 mm. Russian Far East. *H. (H.) udege* Lafer, 1989
- 4(3) Elytra faintly sinuated at apical area; shiny in male and mat in female; Punctures on hind-angles of pronotum sometimes replaced wrinkles. Black, elytra dark brown, often with light brown V-shaped form. Length 7.6-8.1 mm. Siberia to Altai. *H. (H.) vittatus* Gebler, 1833

***Harpalus (Harpalus) pallidipennis* Morawitz, 1862**

알락머리먼지벌레

Harpalus pallidipennis Morawitz, 1862, Mém. Biol., 4: 221 (Siberia: Selenga); Heyden, 1887, Deut. ent. Zeit., 31: 293 (syn.); Heyden, 1887, Horae Soc. ent. Rossicae, 29: 247 (Korea); Tschitschérine, 1897, L'Abeille, 29: 52-53 (China, Korea); Tschitschérine, 1901, Horae Soc. Ent. Ross., 35: 143; Kano, 1924, Ins. world (Konchusekai), 28(326): 350 (Korea); Schaubberger, 1935, Ark. Zool., 27A(4): 5 (China); Yano, 1941, Nippon no Kôchû, 4(1): 31 (Korea); Habu, 1957, Ent. Rev. Japan, 8: 49-50, pl. 7; Jedlička, 1960, Annls hist.-nat. Mus. natn. hung., 52: 231 (Korea); Jedlička, 1966, Reichenbachia, 7: 211; Jedlička, 1967, Reichenbachia, 9: 28; Habu, 1968, Ent. Rev. Japan, 21: 6, pl. 2; Kataev, 1997, Steenstrupia, 23: 141 (Korea).

Harpalus thoracicus Motschulsky, 1844, Mém. Acad. Imp. Sci. St.-Pétersb., 5: 221-222 (Siberia: Nertchinsk). Preoccupied (nec Stephens, 1828: 145). Synonymy suggested by Csiki, 1932: 1144.

Selenophorus temperatus Kolbe, 1886, Arkiv f. Naturg., 52 (1): 176 (Korea). Synonymy established by Heyden, 1887: 293.

Harpalus (Nephoharpalus) jianyangensis Huang, Lei, Yan & Hu, 1996, Entomotaxonomia, 18(2): 120, 123 (China). Synonymy established by Kataev, 1997: 141.

Harpalus (Harpalus) pallidipennis Morawitz: Csiki, 1932, Col. Cat., 121: 1144 (cat.); Habu, 1957, Ent. Rev. Japan, 8 (2): 49-50 (Japan); Nakane, 1963, Icon. Ins. Jap., Colore natur. edit., 2 (Col.), p. 44, pl. 22, fig. 19 (Korea); Habu, 1973, Fauna Japonica, Harpalini, p. 192-195 (Korea); Młynář, 1974, Acta Zool. Cracoviensia, 19(6): 108 (N. Korea); Kwon & Lee, 1986, Ins. Koreana, 6: 39 (Korea); Lafer, 1996, Ins. Koreana, 13: 86 (N. Korea); Kataev, 1997, Steenstrupia, 23: 141 (syn.); Paik, 1998, Korea J. Soil Zool., 3(1): 4 (Korea).

Diagnostic characters. Very easily distinguishable by the small yellow patches on elytra. For more details of this species, see Habu (1973).

Material examined. **JJ:** 1 ♀, 19-VII-1998, Geumpung, Jeju-do (JFNHM). **GB:** 1 ♀, 8-VII-1991, Daegu City, Y.-J. Kwon leg. (SCNAE); 1 ♀, 26-VII-1984, Mt. Juwangsan, Cheongsong-gun, Y.-J. Kwon leg. (SCNAE); 1 ♂, 2 ♀, 10-VIII-1998, Mt. Gapjongsan, Sangju-si (SCNAE); 4 ♂, 3 ♀, 10-VII-1987, Andong, GB, Lee K.S. leg. (SCNAE); 7 ex., 10-VIII-1988, Jangal, Andong-si (NIAST); 1 ex., 2-VII-1988, Andong-si, GB (NIAST); 1 ex., 10-V-1985, Mt. Sobaeksan,

GB (NIAST). **GG:** 1 ♀, 17-VII-1974, Mt. Wangbangsan, Pocheon-eup, S.-M. Lee leg. (SCNAE); 1 ♀, 20-IX-1984, Anyang-si (SNUAE); 1 ex., 27-VII-1996; 1 ex., 8-IX-1996, Suweon, GG (NIAST). **GW:** 1 ♀, 15-IX-1973, Mt. Seolaksan, Sokcho-si, Y.-J. Kwon leg. (SCNAE); 1 ♂, 25-VI-1970, Mt. Seolaksan, Sokcho-si, S.-M. Lee leg. (SCNAE). **JN:** 1 ♂, 17-VIII-1991, Nae-Byeonsan, Buan-gun (SCNAE).

Distribution. Korea (North, Central, South), Japan (Honshu, Kyushu), China (BEI, FUJ, GAN, HEB, JIL, LIA, NIN, NMO, QIN, SCH, SHA, SHX, YUN, ZHE), Mongolia, Russia (Siberia, Far East).

Notes. Belongs to *smaragdinus*-species group (Młynář, 1979: 93; Kataev, 1995 in Kryzhanovskij *et al.* p. 145) including several North Palaearctic species.

First record for Korea by Kolbe (1886) as *Selenophorus temperatus*. This species is easily distinguished by the elytral patches from related ones.

According to Habu (1973), this species is variable in the colour of the elytra, sometimes wholly brownish or yellowish brown, slightly dark in part, sometimes mottled by dark parts, or wholly black, often with some brownish or brownish yellow small patches in part. However, the above Korean specimens are with brownish yellow small patches only, but Jeju-do specimen is without the patch. The aedeagus slender, almost straight at apical two-thirds is very characteristic form from other species of this subgenus. Widely distributed including Jeju-do, not common. For more details, see Habu (1973).

***Harpalus (Harpalus) davidianus* Tschitschérine, 1903**

북경머리먼지벌레 (신칭)

Harpalus davidianus Tschitschérine, 1903, Ann. Mus. Zool. Acad. Imp. Sci. St.-Petersb., 8: 12 (China: Pékin); Csiki, 1932, Col. Cat., 121: 1158; Kataev, 1989, Ins. Mongolia, 10: 216 (Korea: locality unknown); Kataev, 1997, Steenstrupia, 23: 141 (Korea). New name for *H. davidi* Tschitschérine, 1897, L'Abeille, 29: 51.

Harpalus davidi Tschitschérine, 1897, L'Abeille, 29: 51 (China: Nord Pekin). Preoccupied (nec Tschitschérine, 1897: 45).

Harpalus pseudoodes A. Fleischer, 1909, Wien. Ent. Zeit., 28: 240. Treated as a junior synonym of *davidianus* by Csiki, 1932: 1153.

Harpalus (Harpalus) davidianus Tschitschérine: Lorenz, 1998, Systematic list of ground beetles (1st ed.), p. 345; Kataev *et al.*, 2003 in Löble & Smetana, Cat. Pal. Coleopt., 1: 375 (N. Korea).

Diagnostic characters. See below species key.

Material examined. Korea: Locality unknown (after Kataev, 1989). No specimens were available for the present study.

Distribution. Korea (North), China (BEI, HEB, JIL, LIA, NMO, QIN, SHA, SHX), southern Mongolia.

Notes. Belongs to *optabilis*-species group (Kataev, 1989) including several North Palaearctic species. First record for the Korean Peninsula by Kataev (1989), but has not yet been collected from southern part of the Korean Peninsula. Korean name is after where it was collected, Beijing, China.

Divided into two forms by Kataev (1989) of which nominotypical subspecies occurs in the Korean Peninsula. Another subspecies, ssp. *basharicus* Schauburger (1933, Wien. Ent. Zeit., 50: 70), occurs in Himachal Pradesh. The distinguishing characters of this group are as follows (after Kataev 1989: 212). Later *H. ellipticus* combined with *optabilis* by Kataev *et al.* (2003 in Löbl & Smetana). For more details of this group, see Kataev (1989).

- 1(2) Apical (sutural) angles of elytra rather widely rounded in both sexes; elytral intervals 3, 5 and 7 with long rows of pores, beginning at elytral apex and reaching usually to the middle of elytra or to elytral base; penis (cf. Kataev, 1989, figs. 29, 30). L. 8.4-10.8 mm.
 *H. (H.) davidianus* (북경머리먼지벌레)
- 2(1) Apical angles of elytra in male rather sharp, only at tip weakly obtuse or slightly rounded; in female apical angle more or less elongated as spine-like; elytral intervals 3, 5 and 7 (sometimes only intervals 5 and 7 or only 7) with short rows of pores near elytral apex.
- 3(4) Pronotal base densely and roughly punctate in basal foveae and on broad depressions along lateral sides; punctures often confluent, forming sinuate wrinkles; penis (cf. Kataev, 1989, figs. 25, 26). L. 9.3-13.5 mm.
 *H. (H.) ellipticus* Ballion, 1878
- 4(3) Pronotal base with sparse and fine punctures and with gentle wrinkles in basal foveae and along lateral sides; penis (figs. 27, 28). L. 8.6-11.8 mm. China (XIN), E & W Siberia, Kyrgyzstan, Kazakhstan, Mongolia.
 *H. (H.) optabilis* Dejean, 1829

***Harpalus (Harpalus) distinguendus kidanicus* Kataev, 1989** 초록머리먼지벌레 (신칭)

Harpalus distinguendus kidanicus Kataev, 1989, Ins. Mongoliga, 10: 192 (Primorskij Krai); Lafer, 1996, Insecta Koreana, 13: 84 (N Korea: Phjongjang, Kesong-si).

Diagnostic characters. Length of body 8.0-11 mm. Very

similar to green and brass forms of *H. affinis*, but without punctuation and pubescence of the outer elytral intervals. Antennal segment piceous-brown to red-brown, but 1st red, 2nd and 3rd blackened. Femora black, Upper side metallic green, under sides copery, blue, violet, black, often with colour combinations. Pronotum with sides more sinuate posteriorly than in *affinis*, resulting in more parallel-sided, base of pronotum glabrous, and hind-angles sharper. Elytra with one dorsal puncture, humeral tooth more evident, sides with faint subapical sinuation in female. Abdominal sternites punctate and pubescent.

Materials examined. Russian Far East. 1 ex., Ussuri (Det. G. Sh. Lafer). North Korea: Phjongjang, PN: Kesong-si, GG (after Lafer 1996). South Korea: No specimens were available for the present study.

Distribution. Korea (North), China (HEI, QIN), Mongolia, Russian Far East.

Notes. Belongs to *distinguendus*-species group (Kataev 1995 in Kryzhanovskij *et al.* p. 149) including several North Palaearctic species.

First record for Pyong-Yang, North Korea by Lafer (1996) as ssp. *kidanicus* Kataev, but has not yet been collected from southern part of the Korean Peninsula. Likely to be found at high mountains either in Gyonggi or Gangweon Provinces. Easy to distinguish from other species by its green metallic color from which Korean name originates. Transpalaearctic species, ranging from NW Africa to Far East. Divided into two forms of which subspecies, ssp. *kidanicus* Kataev is distributed in east Monogolia, NE China, southern part of Russian Far East, and North Korea. The nominotypical subspecies is widely distributed in Europe to East Siberia.

Occurs on dry, sun-exposed ground with scattered vegetation or weeds. It as a diurnal species, often seen running about and flying in warm sunshine (Lindroth 1985, etc).

***Harpalus (Harpalus) chalcatus* Bates, 1873**

가는청둥머리먼지벌레

Harpalus chalcatus Bates, 1873, Trans. Emt. Soc. London, p. 263 (Japan, Korea, China); Heyden, 1887, Horae Soc. ent. Rossicae, 29: 246 (Korea); Bates, 1888, Proc. Zool. Soc. Lond., 1888: 370 (Korea); Bates, 1890, Entomologist, 23: 212; Tschitschérine, 1895, Horae Soc. Ent. Rossicae, 29: 156 (Korea); Tschitschérine, 1906, Horae Soc. Ent. Ross., 37: 260-261; Kano, 1923, Ins. world (Konchusekai), 27 (315): 381 (Korea); Kano, 1924, Ins. world (Konchusekai), 28(326): 350 (Korea); Jedlička, 1940, Neue Carab. aus Ostasien, 13: 18; Yano, 1941, Nippon no Kôchû, 4(1): 31

Harpalini from Korea

(Korea); Kurosa, 1949, Bull. Takarazuka Ins., 60: 10 (Korea); Nakane, 1963, Icon. Ins. Jap. Colore Nat., 2, Col., p. 44, pl. 2, fig. 17 (Korea); Paik, 1993, J. Sci. & Education, Suncheon Natl. Univ., 1: 84 (Korea); Kataev, 1997, Steen-strupia, 23: 142 (Korea); Paik, 1997b, Korean J. Soil Zool., 2(1): 33 (Korea).

Harpalus (Harpalus) chancetus [sic] Bates: Wu, 1937, Cat. Ins. Sinensium, 3: 158 (Korea).

Harpalus (Harpalus) chalcetus Bates: Nakane, 1963, Icon. Ins. Jap. Colore Nat., 2, Col., p. 44, pl. 2, fig. 17 (Korea); Habu, 1973, Fauna Japonica, Harpalini, p. 146-153 (Korea); Mlýnář, 1974, Acta Zool. Cracoviensia, 19(6): 107 (N. Korea); Kirschenhofer, 1990, Koleopt. Rundschau, 60: 10 (N. Korea); Lafer, 1996, Ins. Koreana, 13: 84 (N. Korea).

Diagnostic characters. Very easily distinguished by the dorsal side metallic green or coppery. See above key to species.

Material examined. **JJ:** 5 ex., 5-V-1963; 1 ♂, 27-VI-1989, Jeju-do (SCNAE); 4 ♂, 1 ♀, 22-IV-1999, Bizarim, Pyeongdaeri (JFNHM); 2 ♂, 4 ♀, 20-IX-1995, Is. Udo (JFNHM); 1 ♂, 2 ♀, 29-III-1994; 1 ♂, 3-IV-1994, Donggwang, Andeok-myeon (JFNHM); 1 ♂, 1 ♀, 27-VII-1989, Yongmeori, Sagye-ri, Andeok-myeon (JFNHM); 1 ♂, 19-III-1994, Sinryang, Hangeong-myeon (JFNHM); 1 ♀, 3-VII-1993, Seongsan, Seongsan-eup (JFNHM); 4 ♂, 22-VII-1991, Is. Marado (JFNHM); 1 ♀, 26-IV-1994, Mureung, Daejeong-eup (JFNHM); 7 ♂, 1 ♀, 28-IV-1994, Mt. Songaksan, Daejeong-eup (JFNHM); 1 ♂, 3 ♀, 30-IV-1994, Donnaeko, Seogwipo-si (JFNHM); 2 ♂, 3-IV-1994, Saekdal, Seogwipo-si (JFNHM); ex., 17-IV-1976, Seogwipo-si (NIAST); 5 ex., 22-VI-1984, Ara, Jeju-si (NIAST); 1 ex., 10-VI-1998, Namjeju-gun (NIAST). **CB:** 2 ex., 24-V-1985, Mt. Weolaksan, Jecheon-si (NIAST). **CN:** 1 ♂, 19-XI-2004, sea shore, Sinon-ri, Nam-myeon, Taean-gun (SCNAE); 1 ex., 11-IV-1998, Mt. Heukseongsan, Cheonan-si (NIAST); 2 ex., 12-IV-1990, Seosan-si (NIAST). **GB:** 1 ex., 22-VI-1993, Bonghwa, Bonghwa-gun (NIAST); 2 ex., 10-V-1981, Mt. Sobaeksan (NIAST); 6 ex., 03-X-1981, Is. Ulleungdo (NIAST). **GG:** 1 ex., 24-X-1978, Anyang (NIAST); 1 ♂, 30-V-1988, Mt. Myeongjisan, Gapyeong-gun (KWNAE); 1 ex., 9-IV-1987, Seongnam-si (NIAST); 2 ex., 13-III-1989, Ilweol, Suweon-si (NIAST); 1 ex., 15-VIII-1994; 1 ex., 22-III-1990, Suweon; 2 ex., 28-IV-1976; 1 ex., 28-V-1975, Suweon (NIAST); 1 ex., 5-X-1990, Mt. Yeogisan, Suweon-si (NIAST). **GN:** 1 ex., 10-II-1984, Jinju (NIAST). **GW:** 1 ♀, 13-VIII-2001, Unduryeong (1,000 m), Hongcheon-gun (SCNAE); 1 ♂, 21-VIII-1994, Hongcheon (SCNAE); 1 ♂, 27-V-1984; 1 ♀, 1-XI-1984; 1 ♂,

31-V-1987; 1 ♂, 5-V-1989, Chuncheon (KWNAE); 1 ex., 12-V-1985, Mt. Samaksan, Chuncheon-si, GW (NIAST); 1 ex., 31-VI-1987; 5 ex., 18-V-1986, Hoeseong, Hoeseong-gun, GW (NIAST). **JB:** 1 ♂, 12-V-2005, Tookdong, Mt. Deokyusan, Jangsu-gun (SCNAE); 1 ♀, 12-V-2005, Masan, Sasan-ri, Jeoksang-myeon, Muju-gun (SCNAE); 1 ♀, 19-IX-1998, Mt. Jeoksangsan, Muju-gun (SCNAE); 1 ♂, 21-VI-1991, Nae-Byeonsan, Byeonsan-gun (JBNAE); 1 ♀, 7-VI-1991, Oseong-ri, Ongdong-myeon, Jeongeup-si (JBNAE); 1 ♀, 12-V-1984, Samgi, Iksan-si (JBNAE); 1 ♀, 26-VI-1990, Sinri, Sangkwang-myeon, Wanju-gun (JBNAE); 1 ♀, 15-V-1989; 1 ♂, 6-VI-1989, Mt. Geonjisan, Jeonju-si (JBNAE); 1 ♂, 12-X-1984, Mt. Moaksan, Jeonju-si (JBNAE); 1 ♂, 10-VIII-1988, Yongan, Iksan-si (JBNAE); 1 ♂, 25-VI-1991, Mt. Hoemunsan, Sunchang-gun (JBNAE); 1 ♀, 17-V-1998, Gushipo, Sanghamyeon, Gochang-gun (JBNAE). **JN:** 1 ♂, 29-X-1989, Mt. Weolchulsan, Yeongam-gun (SCNAE); 1 ♂, 7-V-1995, Boseong, Boseong-gun (SCNAE); 1 ♂, 2-V-1993, Is. Nae-Narodo, Goheung-gun (SCNAE); 1 ♂, 5-VI-1996, Is. Oe-Narodo, Goheung-gun (SCNAE); 1 ♂, 9-IX-1986; 1 ♂, 29-IV-1995, Gwangyang-si (SCNAE); 1 ♀, 11-VI-1994, Gurye-eup, Gurye-gun (SCNAE); 1 ♂, 1-IV-1989, Mt. Jirisan, Gurye-gun (SCNAE); 2 ♀, 11-IV-1988; 1 ♀, 28-V-1998; 1 ♂, 1 ♀, 21-VI-2000; Suncheon-si (SCNAE); 1 ♀, 10-V-2000; 1 ♀, 4 ♂, 1-VI-2000; 2 ♂, 1 ♀, 6-X-2000, Is. Dolsan, Yeosu-si (SCNAE); 1 ex., 25-V-1989, Naju-si (NIAST); 6 ex., 15-VIII-1986, Suncheon (NIAST).

Distribution. Korea (incl. Jeju-do), Japan (Honshu, Shikoku, Kyushu), China.

Notes. First record for Korea by Bates (1873). Widely distributed including in Jeju-do. Very common species. Very easily distinguished by the dorsal side fairly metallic green or coppery and relatively narrower body shape than that of other Korean species. For more details, see Habu (1973).

Harpalus (Harpalus) rubripes (Duftschmid, 1812)

백두머리먼지벌레

Carabus rubripes Duftschmid, 1812, Fauna Austriae, 2: 77 (Austria).

Harpalus (Harpalus) rubripes (Duftschmid): Paik & Moon, 2005, Korean J. Soil Zool., 10(1/2): 47 (N. Korea).

Diagnostic characters. Body length 8.0-12.0 mm. Rather easily separable by the punctures of the seventh elytral interval. Black, female dull, margin of pronotum not so clearly translucent, upper surface, notably in male with blue to violet or green reflection. Appendages reddish-brown; femora (rare-

ly also tibiae), sometimes darkened. Base of pronotum confluent punctate between foveae and hind-angles; hind-angle right and hardly rounded; sides straight or faintly sinuate posteriorly. Elytral interval 7 (often also 5th interval) with a row of 2-5 punctures near apex; apical sinuation faint. Pro-tibiae with at least 4 preapical spines. Last abdominal sternite a few small setiferous punctures, except 2 normal large ones. Apex of penis slender.

Distribution. Korea (North), China (GAN, NE, NIN, QIN, SCH, SHA, SHX, XIN), Middle Asia, Russia (Caucasus, Siberia, Far East), Europe, North America (introduced).

Notes. For more information, see Paik & Moon (2005).

***Harpalus (Harpalus) laevipes* Zetterstedt, 1828**

온달머리먼지벌레

Harpalus laevipes Zetterstedt, 1828, Ins. Lapponica, p. 38 (Finland).

Harpalus quadripunctatus Dejean, 1829, Spec. gén. Col., 4: 326 (Syria). Treated as a senior synonym of *laevipes* by Csiki, 1932: 1158.

Harpalus impressipennis Motschulsky, 1844, Mém. Acad. Sci. St.-Petersb., 5: 213. Preoccupied (nec Dejean, 1829: 301). Treated as a junior synonym of *quadripunctatus* by Csiki, 1932: 1158.

Harpalus rufimanus Leconte, 1848, Ann. Lyc. Nat. Hist. New York, 4: 302 (Lake Superior). Preoccupied (nec Marsham, 1802: 441). Synonymized by Kataev, 1989: 196.

Harpalus alienus Leconte, 1879, Bull. U.S. Geol. Surv., 5: 508 (Colorado). Preoccupied (nec H. Bates, 1878: 591). Synonymized by Kataev, 1989: 196.

Harpalus impressipennis ab. *montivagus* Reitter, 1900, Verh. Naturf. Ver. Brünn, 38: 99 (Alpes maritimes; Monte Baldo). Treated as a junior synonym of *quadripunctatus* by Csiki, 1932: 1158 and confirmed by Kataev, 1989: 196.

Harpalus sachalinensis Matsumura, 1911, Jour. Coll. Agric. Sapporo, 4: 110 (Sakhalin). Synonymized by Kryzhanovskij, 1995: 142.

Harpalus pimalicus Casey, 1914, Mem. Col., 11: 87 (Arizona). Synonymized by Noonan, 1991: 58.

Harpalus egregius Casey, 1914, Mem. Col., 11: 88. New name for *H. alienus* Leconte, 1879. Synonymized by Kataev, 1989: 196.

Harpalus instructus Casey, 1924, Mem. Col., 5: 107 (Alberta). Synonymized by Kataev, 1989: 196.

Harpalus quadripunctatus motschulskyanus Schaubberger, 1928, Col. Centralbl., 3: 80, New name for *H. impressipennis* Motschulsky, 1844. Treated as a junior synonym of

quadripunctatus by Csiki, 1932: 1158 and confirmed by Kataev, 1989: 196.

Harpalus baergi Csiki, 1932, Col. Cat., 121: 1180. New name for *H. rufimanus* Leconte, 1848: 302. Synonymized by Kataev, 1989: 196.

Harpalus cascadiensis Hatch, 1949, Bull. Brooklyn Entomol. Soc., 44: 85 (Washington). Synonymized by Kataev, 1989: 196.

Harpalus quadripunctatus ainus Habu et Bata, 1963, Akitu, 11: 25 (Japan); Habu, 1973, Fauna Japonica, Harpalini, p. 162-165. Synonymized by Kataev, 1989: 196.

Harpalus quadripunctatus Dejean: Schaum, 1860, Naturg. Ins. Deutschl. Col., 1: 595; Ganglbauer, 1892, Käfer Mitteleuropa, 1: 349, 354; Kataev, 1989, Ins. Mongolia, 10: 196 (syn. n.); Kataev, 1997, Steenstrupia, 23: 136 (China).

Harpalus (Amblystus) quadripunctatus Dejean: Reitter, 1900, Verhand. Naturf. Ver. Brünn, 38: 99; Reitter, 1908, Fauna Germanica, 1: 175, t. 23, f. 9.

Harpalus (Harpalus) quadripunctatus Dejean: Csiki, 1932, Col. Cat., 121: 1158-9 (cat.); Jeannel, 1942, Faun. France, 40: 675; Lindroth, 1986, Fauna Ent. Scand., 15(2): 358; Lafer, 1989, Key. Ins. Russian Far East., 3, Col., 1: 187; Noonan, 1991, Thomas Say Foundation, 13: 58 (syn.); Lafer, 1996, Ins. Koreana, 13: 86 (Korea); Paik, 1997, Korean J. Soil Zool., 2(1): 21 (S. Korea).

Harpalus (Harpalus) laevipes Zetterstedt: Lorenz, 1998, Systematic list of ground beetles (1st ed.), p. 347; Kataev *et al.* in Löbl & Smetana, 2003, Cat. Pal. Coleopt., 1: 378 (Korea); Lorenz, 2005, Nomina Carabidarum (2nd ed.), p. 571.

Diagnostic characters. Body length 9.2-12 mm. Black, upper surface of elytra with blue luster in male; palpi testaceous, reddish-yellow to reddish-brown; basal antennal segments pale, from 3rd segment darkened; legs black. Pronotum broader, with more rounded sides, protruding front-angles, somewhat obtuse hind-angles, posterior bead complete, and more pronounced basal foveae, microsculpture obsolete medially, elsewhere with isodiametric to somewhat transverse mesh. Elytra with a weak humeral tooth, 3rd interval with 2-4 large dorsal punctures, usually asymmetrically placed. Abdominal sternites lacking additional setae along posterior margins.

Material examined. GW: 1 ♀, 11-VI-1987, Hyangnobong (SCNAE).

Distribution. Korea (North, Central), Japan (Hokkaido), China (SHX, XIN), Mongolia, Kazakhstan, Russia (Sibeira,

Far East), Turkey, Europe, North America (introduced).

Notes. Belongs to *quadripunctatus*-species group including several Holarctic species. Adults are easily separated from other related species-group by the presence of two or more setigerous punctures in approximately the posterior third of the 3rd elytral interval.

First record for Korea by Lafer (1996). Very rare and occurs from high mountain from central part of the Korean Peninsula. The Korean species is treated as a subspecies ssp. *motschoulskyanus* Schauburger, 1928 (Coleop. Centralbl., 3: 80). In Japan, another subspecies, ssp. *ainu* Habu et Baba (1963, Akitu, 11: 25-27) occurs from Hokkaido. These 2 subspecies are rather easily distinguishable by the color of pronotum and metepisterna. In *motschoulskyanus*, the pronotum wholly black (in *ainu*, the lateral margin somewhat translucent), etc. However, these subspecies are united into one by Kataev (1989) & etc. See also notes on following species, *H. farkaci*.

Holarctic species, ranging from Pyrenees to Kuril Islands, Korea and Japan. Occurs in forests, mountains to lowlands.

***Harpalus (Harpalus) farkaci* Kataev & Wrase, 1995**

몽푁머리먼지벌레 (신칭)

Harpalus farkaci Kataev & Wrase, 1995, Linzer biol. Beitr., 27(1): 320 (Russia: Primorye); Kataev, 2001, Russian Entomol. J., 10(4): 379 (N. Korea).

Harpalus tibeticus hsifanicus Schauburger: Kirschenhofer, 1990, Koleopt. Rundschau, 60: 10 (N. Korea); Kirschenhofer, 1992, Koleopt. Rundschau, 62: 23 (N. Korea). Misidentification (see Kataev, 2001: 379).

Harpalus (Harpalus) farkaci Kataev & Wrase: Lafer, 1996, Key Ins. Russian Far East, (3), 3: 406 (key).

Diagnostic characters. *H. farkaci* is closely related to the Holarctic *H. laevipes* Zetterstedt and to the East Asian *H. tibeticus* Andrewes. For more details, see original description and comments on this species by Kataev & Wrase (1995).

Materials examined. North Korea: Samziyon, HN (after Kirschenhofer, 1990). South Korea: No specimens were available for the present study.

Distribution. Korea (North), Russian Far East.

Notes. First record for North Korea by Kataev (2001), but has not yet been collected from southern part of the Korean Peninsula. Korean name is after the shape of elytra and pronotum.

According to Kataev & Wrase (2001), this species is closely related to the Holarctic species *H. quadripunctatus* Dejean

(=*H. laevipes*) and to the East Asian *H. tibeticus* Andrewes. The following simple key rather easily separates each other.

- 1 (2) Elytra comparatively longer (EL/EW 1.46-1.49), behind humeral tooth not sinuated.
..... *H. (H.) laevipes* (온달머리먼지벌레)
- 2 (1) Elytra comparatively shorter (EL/EW 1.41-1.45), behind humeral tooth slightly sinuated.
- 3 (4) Scutellar stria with basal pore.
..... *H. (H.) farkaci* (몽푁머리먼지벌레: 신칭)
- 4 (3) Scutellar stria without basal pore.
..... *H. (H.) tibeticus* [서장머리먼지벌레]

***Harpalus (Harpalus) tibeticus hsifanicus* Schauburger,**

1932 [서장머리먼지벌레 (한국곤충명집, 1994)]

Harpalus tibeticus hsifanicus Schauburger, 1932, Wiener Entomol. Zeit., 49(1): 32-34 (China); Jedlička, 1960, Annl. hist.-nat. Mus. natn. hung., 52: 231 (N. Korea).

Harpalus chinadensis Jedlička, 1932, Ent. Nachrichtenblatt, 6 (3): 69 (Szetschuan: Tatsienlu). Suggest as a junior synonym of *tibeticus* by Kataev, 2001: 376, and confirmed by in Kataev *et al.*, in Löbl & Smetana, 2003: 383.

Harpalus tibeticus Andrewes: Lafer, 1996, Key Ins. Russian Far East, (3), 3: 406 (Primorskij kraj); Kataev, 2001, Russian Entomol. Jour., 10(4): 376-9.

Harpalus (Harpalus) tibeticus hsifanicus Schauburger: Lorenz, 1998, Systematic list of ground beetles (1st ed.), p. 350; Kataev *et al.* in Löbl & Smetana, 2003, Cat. Pal. Coleopt., 1: 383; Lorenz, 2005, Nomina Carabidarum (2nd ed.), p. 503.

Diagnostic characters. Basal edge of elytra glabrous; subapical sinuation of elytra with distinct denticle at base; scutellar stria lacking basal pore; third elytral interval often with 2-3 discal pores; sometimes with 1 pore; or pores absent (after, Kataev, 2001: 373).

Materials examined. North Korea: Tshondtsin (=Cheongjin) (after Jedlička 1960: 231). No specimens were available for the present study.

Distribution. Korea (?North), China (GAN, QIN, SCH), Russian Far East.

Notes. Belongs to *quadripunctatus*-species group including *H. laevipes* and *farkaci* (Kataev 2001: 378). First record for North Korea by Jedlička (1960). Later Kirschenhofer (1990) reported it from North Korea, but has not yet been collected from southern part of the Korean Peninsula. According to Kataev (2001: 379), Kirschenhofer's material is *H. farkaci* Kataev & Wrase, 1995 in fact. However, he did not mention

Jedlicka's North Korean material from Cheongjin. The distribution of this species from Korea is very doubtful. I have not examined the Jedlicka's material and thus can not clarify whether his species is *H. farcaki* or *H. tibeticus*. For more details, see Kataev (2001). See also notes on above species, *H. farcaki*.

Subgenus *Loboharpalus* Schaubberger, 1931

납작머리먼지벌레 아속

Loboharpalus Schaubberger, 1932, Coleopt. Centralbl., 5: 174-176.

Type-species: *Harpalus platynotus* Bates, 1873, by original designation.

Acardystus Reitter: Habu, 1973, Fauna Japonica, Harpalini, p. 133.

rubefactus species group: Kataev, 1995 in Kryzhanovskij *et al.*, p. 141.

Diagnostic characters. Easily separable from the other subgenera by the apical angle of fore tibia dilating outwards lobe-like. See also above subgeneric key.

Notes. Two species are listed from the Korean Peninsula. More details for species, see Schaubberger (1932) and Habu (1973).

Harpalus (Loboharpalus) platynotus Bates, 1873

납작머리먼지벌레

Harpalus platynotus Bates, 1873, Trans. Ent. Soc. London, p. 262-263 (Japan: Hiogo); Heyden, 1879, Deutsch. Ent. Zeitschr., 23: 332; Matsumura, 1905, Thousand Ins. Japan, 2: 143-144, pl. 33, fig. 4; Matsumura, 1931, 6000 Illustr. Ins. Japan-Empire, p. 112, fig. 68; Matsumura, 1931, Illustr. Common Ins. Japan, Col., p. 9 (in Japanese), 14 (in English), pl. 3, fig. 5; Kataev, 1997, Stentropia, 23: 136 (Sakhalin).

Harpalus (Acardystus) platynotus Bates: Habu, 1973, Faun. Japonica, Harpalini, p. 134-138; Kwon & Lee, 1986, Ins. Koreana, 6: 38 (Korea).

Harpalus (Loboharpalus) platynotus Bates: Schaubberger, 1931, Col. Centralbl., 5: 176; Nakane, 1963, Icon. Ins. Jap. Colore Nat., 2, Col., p. 44, pl. 22, fig. 5.

Diagnostic characters. See above key for species of *Harpalus*.

Material examined. Japan: 1 ex, from Japan (S. Morita det.). South Korea: No specimens were available for the present study.

Distribution. Korea (?South), Japan (Hokkaido, Honshu, Shikoku, Kyushu), Russian Far East (Sakhalin).

Notes. Listed from Korea by Kwon & Lee (1986), but the earlier reference could not be traced. This record must be an error, because I did not find any specimens in his large collection. It lives in sandy soil on seashore or banks of rivers or mountain valley (Lafer 1989). I am very grateful to Dr. S. Morita, Japan, for supplying a Japanese female specimen for comparison.

Harpalus (Loboharpalus) rubefactus Bates, 1873

붉은머리먼지벌레 (날개머리먼지벌레)

Harpalus rubefactus Bates, 1873, Trans. Ent. Soc. London, p. 264-265 (Japan: Hiogo).

Harpalus (Loboharpalus) rubefactus Bates: Paikn & Moon, 2005, Korean J. Soil Zool., 10(1/2): 50 (S. Korea).

Diagnostic characters. See above key to species.

Material examined. Namhaedo & Sinjido (after, Paik & Moon 2005).

Distribution. Korea (North, South), Japan (Honshu), China (LIA, SHN, SHX), Russian Far East.

Note. For more information, see Paik & Moon (2005).

Subgenus *Zangoharpalus* Huang, 1998

대마머리먼지벌레 아속

Zangoharpalus Huang, 1998, Entomotaxonomia, 20(3): 201, 203.

Type-species: *Harpalus yadongensis* Huang, 1998 (= *Harpalus praticola* Bates, 1891) from China, by monotypy. *tinctulus* species group: Kataev, 1997, Steenstrupia, 23: 143.

Diagnostic characters. Rather easily separable from the other subgenera by the frontal impressions shortly extending towards eyes.

Notes. Recently Kataev (1997) discussed this subgenus (*tinctulus* species group). According to Kataev (1997), the *H. tinctulus* group is very primitive group within the *Harpalus* species by the clearly plesiomorphic features of the penis: two large teeth in internal sac and terminal lamella without apical capitulum (also see Kataev 1995).

For more details, see Huang (1998) and Kataev (1997).

Harpalus (Zangoharpalus) tinctulus luteicornoides Breit,

1913 대마머리먼지벌레 [붉은다리먼지벌레, 꼬마머리먼지벌레] *Harpalus luteicornoides* Breit, 1913, Ent. Bl., 9(11/12): 292-

Harpalini from Korea

293 (Korea: Seoul; China).

Harpalus ihai Habu, 1968, Kontyû, 36(1): 18-20 (Japan: Okinawa). Synonymized by Kataev, 1997: 146.

Harpalus tsushmanus Habu et Baba, 1968, Kontyu, 36: 352-354 (Japan: Tsushima), Paik & Kwon, 1993, Korean J. Entomol., 23(1): 11 (Korea); Paik, 1993, J. Sci. & Education, Sunchon Natl. Univ., 1: 85 (Korea); Paik, 1997, Korean J. Soil Zool., 2(1): 33 (Korea). Synonymized by Kataev, 1997: 146.

Harpalus tinctulus Bates, 1873, Trans. Ent. Soc. London, p. 263-264 (Japan: Nagasaki; China; Korea); Kolbe, 1886, Archiv f. Naturgesch., 52(1): 175 (Korea); Heyden, 1887, Horae Soc. ent. Rossicae, 29: 246 (Korea); Kano, 1924, Ins. world (Konchusekai), 28(326): 350 (Korea); Schauberger, 1932, Wiener ent. Zeit., 49: 36-37 (Korea); Yano, 1941, Nippon no Kôchû, 4(1): 31 (Korea); Habu, 1942, Kontyu, 16: 77 (Korea); Nakane, 1948, Trans. Kinki Col. Soc., 3(1): 6-7; Kurosa, 1949, Bull. Takarazuka Ins., 60: 10 (Korea); Habu, 1950, Icon. Ins. Jap. (rev. ed.): 955, fig. 2715 (Korea); Cho, 1957, Hum. sci., Nat. Sci. Korea Univ., 2: 190 (Korea); Jedlička, 1960, Annls hist.-nat. Mus. natn. hung., 52: 231 (Korea); Nakane, 1963, Icon. Ins. Jap., Colore natur. edit., 2 (Col.): 44, pl. 22, fig. 20; Paik, 1988, Korean J. Entomol., 18(4): 246 (Korea: Jeju-do).

Harpalus (Harpalus) tinctulus Bates: Csiki, 1932, Col. Cat., 121: 1161 (Korea); Wu, 1937, Cat. Ins. Sinensium, 3: 161 (Korea); Habu, 1973, Fauna Japonica, Harpalini, p. 182-187 (Korea); Mlýnář, 1974, Acta Zool. Cracov., 19(6): 108 (N. Korea); Kataev, 1997, Steenstrupia, 23: 144 (Korea).

Harpalus tinctulus Bates ab. *luteicornoides* Breit: Csiki, 1932, Col. Cat., 121: 1161 (Korea).

Harpalus (Harpalus) luteicornoides Breit: Wu, 1937, Cat. Ins. Sinensium, 3: 160 (Korea).

Harpalus (Harpalus) tinctulus luteicornoides Breit: Kataev, 1997, Steenstrupia, 23: 146 (Korea).

Diagnostic characters. See above key to species and Kataev (1997: 142).

Material examined. **JJ:** 1 ♀, 19-IV-1998, Sinrye, Namweon-eup (JFNHM); 1 ♀, 27-IV-1994, Hoesu, Seogwipo-si (JFHNM). **CB:** 4 ex., 26-V-1985, Mt. Weolaksan, Jecheon-si, CB (NIAST). **CN:** 3 ♀, 5-VI-2005, Neunsan-ri, Buyeo-eup, Buyeo-gun (SCNAE); 1 ex., 11-IV-1998, Mt. Heukseongsan, Cheonan-si (NIAST). **GB:** 1 ♀, 21-V-2005, Bulyeong Vally, Uljin-eup, Yeongyang-gun (SCNAE); 2 ♂, 3 ♀, 6-VI-2000, Naribunji, Is. Ulleungdo (SCNAE); 1 ♀, 9-X-1999, Sangju-si (SJNAE); 1 ex., 28-V-1983, Mt. Palgongsan (NIAST). **GG:** 1

ex., 28-IV-1986; 1 ex., 11-VI-1986, Suweon (NIAST). **GW:** 5 ♂, 3 ♀, 25-V-2002, Sogeumgang, Mt. Odaesan (SCNAE); 1 ex., 8-VI-1994, Temple Weoljeongsan, Mt. Odaesan (NIAST). **JN:** 1 ex., 2-VI-2002, Seonja, Jungsan-ri, Genjeon-myeon, Gurye-gun (SCNAE); 1 ex., 5-VIII-1995, Eochi, Jinsang-myeon, Gwangyang-si (SCNAE).

Distribution. Korea (North, Central, South), Japan (Tsushima, Ryukyus), China (BEI, FUJ, HUN, JIA, SCH, SHA, SHG, ZHE), Oriental Region.

Notes. First record for Korea by Bates (1873) as *H. tinctulus*. Later Breit (1913) described *H. luteicornoides* from Korea. Paik & Kwon (1993) also reported *H. tsushmanus* from South Korea, but treated as a junior synonym of subspecies of *H. tinctulus luteicornoides* Breit (1913) by Kataev (1997: 146).

According to Kataev (1997), this species is very variable in localities and he divided into two subspecies, *H. tinctulus tinctulus* s. str. and *luteicornoides* Breit. All records of *H. tinctulus* from Korea are probably misidentification of this subspecies. For more detail of these two subspecies, see Kataev (1997). Widely distributed and rather common species. Occurs on dry, sun-exposed ground with vegetation or weeds. As a diurnal species, often seen running about and flying in warm sunshine.

Subgenus *Cephalomorphus* Tschitschérine

머리먼지벌레 아속

Ophonus sg. *Cephalomorphus* Tschitschérine, 1879, L'Abeille, 29: 45.

Type-species: *Harpalus capito* Morawitz, 1861, by monotypy.

capito species group: Kataev, 1995 in Kryzhanovskij *et al.*, p. 140.

Diagnostic characters. See notes below.

Notes. This subgenus is rather easily distinguishable by the a series of extra long hairs on elytral intervals. However, Kataev (1989, 1995, 2003) and several authors treated as a junior synonym of *Pseudoophonus* Motschulsky, 1844. We treated it as a distinct subgenus, because the peculiar elytral chaetotaxy is a good character for distinguishing them. Only one species occurs from the Korean Peninsula.

Harpalus (Cephalomorphus) capito Morawitz, 1862

머리먼지벌레

Harpalus capito Morawitz, 1862, Mém. Biol., 4: 220-221, 226-

227 (Ussuri); Bates, 1873, Trans. Ent. Soc. Lond., p. 260; Matsumura, 1931, 6000 Illustr. Ins. Japan-Empire, p. 112 (Korea); Matsumura, 1931, Illust. Common Ins. Jpn., 3: 10 (Jpn.), 14 (Eng.) (Korea); Yokoyama, 1932, Icon. Ins. Jap. (1st ed.) p. 811 (Korea); Kurosa, 1949, Bull. Takarazuka Ins., 60: 9 (Korea); Habu, 1950, Icon. Ins. Jap. (rev. ed.), p. 955 (Korea); Cho, 1957, Hum. & Nat. Sci. Korea Univ., 2: 189 (Korea); Paik, 1988, J. Agric. Sci. of Sunchon Natl. Univ., 2: 13 (Korea).

Pseudophonus cephalotes Motschulsky, 1861, Etud. Ent., 10: 3 (Japan). Preoccupied, nec Fairmaire et Laboulbene, 1854: 126 (*Harpalus*). Synonymized by Andrewes, 1933: 15.

Harpalus cephalotes Motschulsky: Kolbe, 1886, Archiv f. Naturgesch., 52(1): 175 (Korea); Kano, 1924, Ins. world (Konchusekai), 28(326): 350 (Korea).

Ophonus (Cephalomorphus) capito Morawitz: Tschitschérine, 1897, Abeille, 29: 45 (Korea); Nakane, 1963, Icon. Ins. Jap. Colore Nat., 2, Col., p. 43 (Korea).

Ophonus capito Morawitz: Andrewes, 1933, Trans. R. ent. Soc. London, 81: 15 (syn.).

Pseudophonus capito (Morawitz): Matsumura, 1905, Thousand Ins. Japan, 2: 142; Okamoto, 1924, Bull. Agr. Sta. Gov.-Gen. Chosen, 1(2): 163 (Quelpart Is.); Yano, 1941, Nippon no Kochu, 4(1): 30 (Korea).

Cephalomorphus capito Morawitz: Jedlička, 1960, Annl. hist.-nat. Mus. natn. hung., 52: 231 (Korea).

Harpalus (Pseudophonus) capito Morawitz: Kataev *et al.*, 2003 in Löbl & Smetana, 1: 384 (Korea); Lorenz, 2005, Nomina Carabidarum (2nd ed.), p. 309.

Harpalus (Cephalomorphus) capito Morawitz: Tschitscherine, 1901, Horae Soc. Ent. Ross., 35: 130; Csiki, 1932, Coleopt. Cat., 121: 1115 (Korea); Wu, 1937, Cat. Ins. Sinensium, 3: 152 (Korea); Habu, 1968, Bull. Natl. Inst. Agric. Sci., (C), 22: 285-287 (Korea); Habu, 1973, Fauna Japonica, Harpalini, p. 70-75 (Korea); Kirschenhofer, 1997, Annl. hist.-nat. Mus. natn. hung., 89: 109 (N. Korea).

Diagnostic characters. See above key to species.

Material examined. **JJ:** 1 ♂, 1 ♀, 4-IX-1995, Seogwipo-si, K.-S. Lee leg. (SCNAE); 1 ♂, 14-VI-1997, Yonggang, Jeju-si (JFNHM); 1 ♀, 16-V-1994, Sinrye, Namweon-eup (JFNHM); 1 ♂, 1 ♀, 28-IX-2002, Dansan (JFNHM); 2 ♀, 20-VIII-2001, Temple Gwaneumsa, Jeju-si (JFNHM); 7 ♀, 1-IX-2001, Susan, Seongsan-eup (JFNHM); 1 ♀, 7-IX-2001, Seongeup (JFNHM); 1 ♀, 20-IX-1993 & 53 exs., Gyrae (JFNHM); 1 ♂, 25-X-2002, Mt. Songak, Daejeong-eup (JFNHM). **CB:** 1 ex., 28-VIII-1993, Yeongdong, Yeongdong-gun (NIAS).

CN: 1 ex., 25-VII-1996, Is. Anmyeondo, Tae-an-gun (NIAS). **GB:** 6 ex., 22-VIII-1992, Bonghwa, Bonghwa-gun (NIAS); 1 ex., 16-VIII-1991, Geumrung (=Gimcheon) (NIAS); 1 ex., 16-VII-1999, Sangju-si (NIAS). **GG:** 1 ex., 1-VII-1992, Anseong, Anseong-gun (NIAS); 2 ex., 2-IX-1993, 1 ex., 9-VIII-1972, Suweon (NIAS); 1 ♂, 11-VII-1974, Seondundong, Suweon-si (SNUAE). **GN:** 1 ex., 21-VII-1992, Hadong, Hadong-gun (NIAS); 1 ex., 21-VII-1992, Haman, Haman-gun (NIAS); 2 ex., 31-VIII-1995, Hapcheon, Hapcheon-gun (NIAS). **JB:** 1 ♀, 15-X-1988, Gunsan (SCNAE); 1 ♀, 1-IX-1988, Samrye, Wanju-gun (JBNAE); 1 ♀, 14-IX-1988, Chonbuk Univ. Campus (JBNAE); 1 ♂, 29-IX-1988, Mt. Geonjisan, Jeonju-si (JBNAE). **JN:** 1 ♀, 25-VI-1994, Mt. Baekunsan, Gwangyang-si, JN (SNUAE); 1 ex., 21-VIII-1992, Muju, Muju-gun (NIAS); 1 ex., 1-IX-1975, Is. Heuksando, Sinan-gun (NIAS).

Distribution. Korea (North, Central, South, JJ), Japan (Hokkaido, Honshu, Sikoku, Kyushu), Russia (Siberia, Far East), northern China (HEI, JIA, JIL, LIA), Taiwan.

Notes. First record for the Korean Peninsula by Kolbe (1866) as *Harpalus cephalotes* Motschulsky. Widely distributed including in Jeju. Rather common species. This species feeds on seeds of barley or wheat, often on small insects, earthworms or snails, too (Habu 1973).

Subgenus *Platus* Motschulsky, 1844

큰가시머리먼지벌레 아속

Platus Motschulsky, 1844, Mém. Acad. Imp. Sci. St.-Pétersb., 5: 197.

Type-species: *Harpalus calcitrapus* Motschulsky, 1844 (= *Carabus calceatus* Duftschmid, 1812), by subsequent designation of Noonan, 1976: 33.

Pardileus Des Gozid, 1882, Mitth. Schwiz. Ent. Ges., 6: 289.

Type-species: *Carabus calceatus* Duftschmid, 1812, by original designation and monotypy. Synonymized by Noonan, 1976: 33.

Neopardileus Habu, 1954, Bull. Nat. Inst. Agr. Sci. (C), 4: 283.

Type-species: *Ophonus itoshimanus* Habu, 1954 (= *Carabus calceatus* Duftschmid, 1812), by original designation and monotypy. Synonym established by Habu, 1957: 72.

calceatus species group: Kataev, 1995 in Kryzhanovskij *et al.*, p. 140.

Diagnostic characters. This monotypic subgenus is easily distinguishable from other subgenera by the apical tarsomere of hind tarsi with 2 rows of spines and setae ventrally; elytra

Harpalini from Korea

finely punctate and pubescent only laterally and apically; black. See also Habu's (1973) redescription of *Pardileus*.

Notes. This subgenus is easily distinguishable from other subgenera by the fifth hind tarsal segment with some spines on the ventral side. The subgenus *Platus* regarded as a distinct subgenus by some authors (Habu 1973, Lafer 1989, & etc), though this treatment was not accepted by Kataev *et al.* in Löble & Smetana (2003) who united it with subgenus *Pseudoophonus*. We treated it as a distinct subgenus, because the presence or absent of the fifth hind tarsal segment with some spines is a good character for distinguishing them. A single species is represented in the Palearctic Region.

Harpalus (Platus) calceatus (Duftschmid, 1812)

큰가시머리먼지벌레

Carabus calceatus Duftschmid, 1812, Faun. Austr., 2: 81 (Austria).

Anisodactylus nonsignatus Krynicki, 1832, Bull. Soc. Nat. Mosc., 5: 72 (Russia). Treated as a junior synonym of *calceatus* by Ganglbauer, 1892: 347.

Harpalus calcitrapus Motschulsky, 1844, Mém. Acad. Imp. Sci. St.-Pétersb., 5: 216 (Siberia: mont. d'Oulou-Tau, Kirguises; Nertchinsk). Treated as a junior synonym of *calceatus* by Csiki, 1932: 1119.

Ophonus (Neopardileus) itoshimanus Habu, 1954, Bull. Nat. Inst. Agr. Sci., (C), 4: 281-283 (Japan: Raizanmura, Fukuoka Pref.). Synonymized by Habu, 1957: 72.

Ophonus (Pardileus) calceatus (Duftschmid): Ganglbauer, 1892, Käf. Mitteleur., 1: 341, 347; Jeannel, 1942, Faun. France, 40: 638, 654-655, fig. 234 f, g; Habu, 1957, Kontyû, 25: 71-72 (syn. n.); Nakane, 1963, Icon. Ins. Jap. Colore Nat., 2, Col., p. 43 (Korea).

Pardileus calceatus Duftschmid: Reitter, 1900, Verh. Naturf. Ver. Brünn, 38: 73; Reitter, 1908, Faun. Germ., 1: 171; Schaubberger, 1930, Col. Centralbl., 4: 181-182, 187; Jedlička, 1955, Acta Ent. Mus. Nat. Pragae, 30: 191; Jedlička, 1960, Annl. hist.-nat. Mus. natn. hung., 52: 231 (N Korea: Sarivon, Tshon-bon-san).

Pseudoophonus (Pardileus) calceatus (Duftschmid): Lafer, 1989, Keys Id. Ins. Russian Far East, 3, Coleopt., 1: 181

(Korea); Lafer, 1996, Insecta Koreana, 13: 79 (N. Korea: Nungi, HN).

Harpalus calceatus Duftschmid: Schaum, 1860, Nat. Ins. Deutschl., Col., 1: 584-585; Magistretti, 1965, Faun. Ital., Col., Cicind., Carab., p. 288.

Harpalus calceatus H.W. Bates [sic]: Tschitschérine, 1897, L'Abeille, 29: 50 (Korea).

Harpalus (Pardileus) calceatus (Duftschmid): Csiki, 1932, Col. Cat., 121: 1118; Jedlička, 1928, Wien. Ent. Zeit., 45: 94; Schaubberger, 1932, Wien. Ent. Zeit., 49: 30; Schaubberger, 1933, Deutsch. Ent. Zeit., p. 152; Jedlička, 1967, Reichenbachia, 9: 27; Lindroth, 1986, Fauna Ent. Scand., 15(2): 349.

Harpalus (Pseudoophonus) calceatus (Duftschmid): Habu, 1968, Bull. Nat. Inst. Agr. Sci., (C), 22: 288, 319-322 (syn.); Habu, 1973, Faun. Japonica, Harpalini, p. 130-133 (Korea); Mlynar, 1974, Acta Zool. Cracoviensia, 19(6): 107 (N Korea: Hyesan).

Harpalus (Platus) calceatus (Duftschmid): Kirschenhofer, 1990, Koleopt. Rdschau, 60: 10 (N. Korea: Hyesan).

Diagnostic characters. The 5th tarsal segment with two rows of setae and spines under side. For more detail, see Habu (1973: 130-133).

Material examined. Russian Far East: 1 ex., Ussuri (Det. G. Sh. Lafer). North Korea: Sarivon, Tshon-bon-san (after Jedlička 1960); Hyesan, HN (after Mlynar 1974, Kirschenhofer 1990). South Korea: No specimens were available for the present study.

Distribution. Korea (North), Japan (Hokkaido, Honshu, Shikoku, Kyushu), China (HEB, LIA, SCH, SHA, SHX, XIN, YUN), Mongolia, Russia (Siberia, Far East), central Asia, Europe.

Notes. First record for the Korean Peninsula by Tschitschérine (1897), but has not yet been collected from southern part of the Korean Peninsula.

<Please find references at the end of the 4th article of the Harpalini series >