

A Revision of the Japanese Species of the Genus *Atholus* (Coleoptera, Histeridae), Part 1¹⁾

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Abstract The Japanese species of the genus *Atholus* THOMSON are revised, with figures of male genitalia and some taxonomic features. This paper is the first part of the revision. The genus and three species, *bimaculatus*, *coelestis* and *depistor* are redescribed and a key to the Japanese species is given.

Introduction

The genus *Atholus* THOMSON has been represented by 82 known species, known from the Holarctic, Ethiopian and Oriental Regions and the Mexican Subregion. In the present revision, I recognize 5 species of the genus from Japan, all known, but not yet studied in detail. In this study, they are redescribed, and their important taxonomic features are illustrated; especially their genitalia are figured for the first time.

Species of *Atholus* have no single distinctive features useful for discriminating them from those of the other genera, but are characterized by the combination of the following characters: anterior margin of mesosternum outwardly arcuate, but sometimes the median portion is narrowly emarginate inwards; antero-lateral angle of protibia bearing 2 or 3 denticles, the denticles closely appressed each other; profemoral stria incomplete, though nearly complete or at least represented by a half, not short; surface of pronotum usually with excavation within antero-lateral angles of lateral stria.

Depositories of material are indicated by the following abbreviations under each species: BSM (Bishop Museum, Honolulu); EIHU (Entomological Institute, Hokkaido University, Sapporo); NA (Dr. T. NAKANE's collection, Chiba); NSMT (National Science Museum (Nat. Hist.), Tokyo).

Genus *Atholus* THOMSON, 1859

Atholus THOMSON, 1859, 76 [type species: *Hister bimaculatus* LINNAEUS, 1758, 358, originally designated]; SCHMIDT, 1885, 288; GANGLBAUER, 1899, 369; LEWIS, 1906, 402; BICKHARDT, 1917, 159, 162; 1919, 13, 137, 139; AUZAT, 1916, 93; ARNETT, 1962, 378, 381; HALSTEAD, 1963, 7, 8; WITZGALL, 1971, 179, 183; KRYZHANOVSKIJ & REICHARDT, 1976, 382; MAZUR, 1984, 210.

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Peranus LEWIS, 1906, 401 [type species: *Hister scutellaris* ERICHSON, 1834, 151], synonymized by KRYZHANOVSKIJ & REICHARDT, 1976, 384.

Atholister REITTER, 1909, 286 [type species: *Hister scutellaris* ERICHSON], synonymized by HEYDEN, 1910, 317.

Euatholus KRYZHANOVSKIJ in KRYZHANOVSKIJ & REICHARDT, 1976, 387 [type species: *Hister duodecimstriatus* SCHRANK, 1781, 39], synonymized by MAZUR, 1984, 210.

Description. Body oval or oblong-oval, moderately convex or feebly depressed, and usually uniformly black or rarely with red macula on elytra; antennae, legs and mouth parts usually piceous. Head with normal frontal stria which runs along the margin for a short distance, the middle of stria usually curved inwards (sometimes angulate); surface of frons sometimes excavated. Pronotum usually with 1 lateral stria, the posterior portion of the stria often shortened, rarely with 2 or 3 striae; marginal stria crenate and complete or rarely shortened; more or less deep excavation present behind anterior angle, which is coarsely and densely punctate in most species. Elytra strongly striate; subhumeral striae absent or rudimentarily present medially; oblique humeral stria usually lightly impressed on basal third; 1st–4th dorsal striae usually complete, 5th and sutural striae complete or abbreviated basally; rarely apical ends of these striae extending inwardly. Propygidium and pygidium coarsely or finely punctate. Basal margin of prosternal keel usually truncate straight or slightly round; carinal striae usually absent. Anterior margin of mesosternum usually round and outwardly arcuate, or rarely truncate narrowly on median portion. Protibia broadly expanded and stout, the antero-lateral angle bearing 2 or 3 denticles. Profemur always with marginal stria along basal margin on ventral side, the stria nearly complete or at least half of the stria present.

Key to the Japanese Species of the Genus *Atholus*

- 1 (2) Elytra red maculate. *A. bimaculatus* (LINNAEUS, 1758)
- 2 (1) Elytra entirely black.
- 3 (4) Lateral pronotal stria present on apical half. Apical end of 3rd elytral dorsal stria strongly bent inwards. *A. coelestis* (MARSEUL, 1857)
- 4 (3) Lateral pronotal stria nearly entire. Third elytral dorsal stria normal.
- 5 (6) Fifth elytral dorsal stria present on apical half. . . *A. pirithous* (MARSEUL, 1873)
- 6 (5) Fifth elytral dorsal stria nearly complete.
- 7 (8) Lateral disk of metasternum with long hairs. Anterior margin of prosternal lobe narrowly truncate on medium. Punctuation of propygidium even.
. *A. depistor* (MARSEUL, 1873)
- 8 (7) Lateral disk of metasternum without hair. Anterior margin of prosternal lobe round. Punctuation of propygidium becoming coarser basally.
. *A. duodecimstriatus quatuordecimstriatus* (GYLLENHAL, 1808)

Atholus bimaculatus (LINNAEUS, 1758)

[Japanese name: Aka-mon-emma-mushi]

(Figs. 1, 2, 5 & 9 A, F)

- Hister bimaculatus* LINNAEUS, 1758, 358; PAYKULL, 1811, 34; MARSEUL, 1854, 582, t. 10, f. 142 [8° groupe]; SCHMIDT, 1885, 294 [*Hister* (VIII Gruppe)].
- Hister (Atholus) bimaculatus*: GANGLBAUER, 1899, 369; AUZAT, 1916, 93.
- Hister (Atholister) bimaculatus*: REITTER, 1909, 286.
- Hister (Peranus) bimaculatus*: BICKHARDT, 1910, 52 [catalogued]; BICKHARDT, 1917, 192.
- Atholus bimaculatus*: LEWIS, 1906, 402; MAZUR, 1984, 211.
- Atholus (Euatholus) bimaculatus*: KRYZHANOVSKIJ & REICHARDT, 1976, 385; HISAMATSU & KUSUI, 1984, 17 [noted; key]; HISAMATSU, 1985, 228, pl. 41, f. 61 [noted; key; photo].
- Peranus bimaculatus*: LEWIS, 1910, 56.
- Hister fimetarius* SCOPOLI, 1763, 13, synonymized by FABRICIUS, 1775, 53.
- Hister diluniator* VOET, 1793, 46.
- Hister apicatus* SCHRANK, 1798, 452, synonymized by HOFFMAN, 1803, 50.
- Hister erythropterus* FABRICIUS, 1798, 38, synonymized by SCHÖNHERR, 1806, 94.
- Hister obliquus* SAY, 1825, 37, synonymized by J. L. LÉCONTE, 1859, 264.
- Hister bimaculatus* ab. *morio* SCHMIDT, 1885, 296.
- Hister bimaculatus* var. *spissatus* REY, 1888, 4.

Description. Male and female. Body length, PPL (=length between anterior angles of pronotum and apex of pygidium): male, 3.71–4.28 mm, female, 4.05–4.66 mm, PEL (=length between anterior angles of pronotum and apices of elytra): male, 3.05–3.76 mm, female, 3.71–3.38 mm. Width: male, 2.48–3.05 mm, female, 2.76–3.05 mm. Biometric data are given in Table 1. Body oblong-oval and shining. Elytra with red spots, rest of body black; antennae, tibiae and tarsi dark brown.

Frontal stria of head (Fig. 1 A) complete, carinate and inwardly angulate at middle on anterior portion; disk densely covered with coarse punctures which are separated by about their diameter. Labrum short, transversely oblong.

Pronotal sides (Fig. 1 B) regularly arcuate and convergent apically. Apical angle acute. Marginal pronotal stria present on apical half along lateral margin, and broadly interrupted anteriorly behind head. Lateral pronotal stria deeply impressed, the lateral portion sparsely crenate, far distant from lateral margin and abbreviated on basal fifth, the anterior portion nearly straight and densely crenate. Area within the antero-lateral angle of lateral stria feebly excavated and densely and coarsely punctate, the punctures irregularly strewn, being separated from one another by a half to twice their diameter; interspace among the coarse punctures sparsely with fine punctures; narrow band along posterior margin covered with large, round and deep punctures. Ante-scutellar area with a short longitudinal puncture.

Marginal epipleural stria clearly impressed on apical half and area outside the stria deeply depressed. Marginal elytral stria deeply and completely impressed, area outside the stria deeply depressed and coarsely punctate. Lateral margin of elytron strongly carinate. Subhumeral stria absent (Fig. 1 B). Oblique humeral stria lightly impressed on basal third. First–5th dorsal striae deeply impressed, complete and

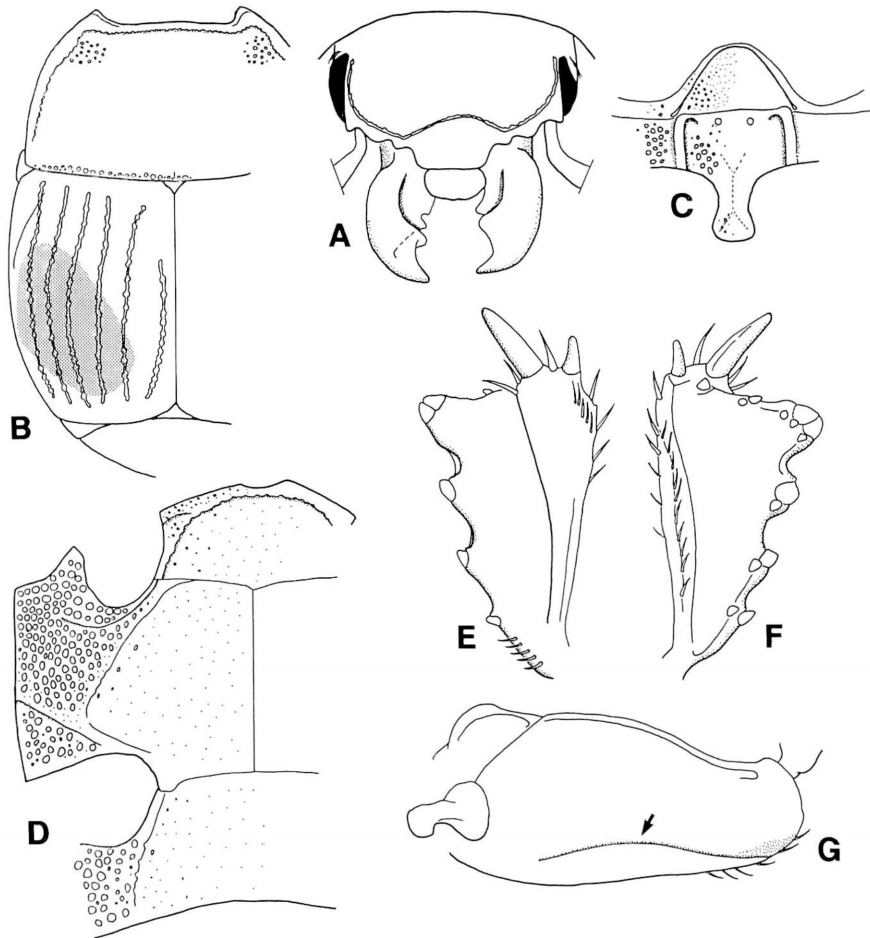


Fig. 1. *Atholus bimaculatus* (LINNAEUS). A, Head, frontal view; B, pronotum and left elytron, dorsal view; C, prosternum; D, meso-, metasterna and 1st abdominal sternum; E, protibia, dorsal view; F, ditto, ventral view; G, profemur, ventral view.

sparsely and coarsely crenate, the basal end of 5th inwardly bent. Sutural stria deeply impressed on apical two-thirds. Disk of elytra sparsely clothed with fine punctures which are separated by three to five times their diameter.

Propygidium (Fig. 9 A) sparsely covered with coarse, ocelloid and deep punctures which are separated by a half to twice their diameter, the punctures becoming finer and denser towards margin; interspace among the coarse punctures evenly covered with moderate-sized punctures which are separated by about twice their diameter. Pygidium (Fig. 9 F) irregularly scattered with coarse punctures which are separated by one to four times their diameter, becoming coarser basally; interspace among the coarse punctures evenly and moderately punctate.

Table 1. Biometric data for *Atholus bimaculatus* (LINNAEUS).

Part measured	Male	Female
APW	1.09–1.24 (1.13±0.02) 9	1.14–1.24 (1.21±0.01) 6
PPW	2.28–2.76 (2.45±0.05) 9	2.52–2.76 (2.66±0.04) 6
PL	1.09–1.38 (1.21±0.03) 9	1.29–1.67 (1.43±0.03) 6
EL	1.67–2.09 (1.85±0.04) 9	1.90–2.14 (2.03±0.03) 6
EW	2.48–3.05 (2.66±0.06) 9	2.76–3.05 (2.91±0.04) 6
ProW	1.52–1.81 (1.62±0.03) 9	1.71–1.86 (1.79±0.02) 6
ProL	0.67–0.90 (0.78±0.02) 8	0.81–0.90 (0.86±0.01) 6
PyL	0.86–1.09 (0.95±0.02) 9	0.86–1.05 (0.98±0.03) 6
PTL	0.86–1.00 (0.90±0.02) 9	0.95–1.00 (0.97±0.01) 6
MSTL	0.71–0.90 (0.78±0.02) 9	0.76–0.90 (0.83±0.02) 6
MTTL	0.86–1.05 (0.93±0.02) 9	1.03–1.09 (1.03±0.02) 6

Measurements in mm. APW – width between anterior angles of pronotum; PPW – width between posterior angles of pronotum; PL – length of pronotum in middle; EL – length of elytron along sutural line; EW – maximal width between outer margins of elytra; ProW – maximal width of propygidium in mesial; ProL – length of propygidium in mesial; PyL – length of pygidium; PTL – length of protibia; MSTL – length of mesotibia; MTTL – length of metatibia. The table reads: range (mean±standard error) number of specimens measured.

Anterior margin of prosternal lobe (Fig. 1 C) triangularly produced, the top rounded; marginal stria deeply impressed and complete, the lateral portion rather distant from the margin; disk evenly and moderately punctate, the punctures becoming coarser and denser laterally. Prosternal keel narrow, the posterior half broad and forming a triangular plane; carinal striae absent; disk sparsely and moderately punctate, the punctures becoming coarser laterally on apical half. Descending lateral stria deeply and completely impressed and strongly carinate.

Anterior margin of mesosternum (Fig. 1 D) outwardly arcuate, the median portion slightly emarginate; marginal stria complete, deeply impressed and densely crenate, a short stria present behind the antero-lateral angle on each side; disk sparsely scattered with coarse punctures and intermingled with fine punctures among coarse ones. Meso-metasternal suture straight, clearly impressed and complete. Post-mesocoxal stria extending obliquely along posterior margin of mesocoxa, the outer end attaining to middle of the lateral disk of metasternum. Lateral metasternal stria deeply impressed, carinate and obliquely extending posteriorly, the apical end attaining to basal two-thirds of the disk, and not united with oblique stria which inwardly extends from the apical two-thirds of metasterno-metepisternal suture. Intercostal disk of metasternum sparsely scattered with moderate punctures which are separated by four to five times their diameter. Lateral disk densely covered with large, round and shallow punctures; surface with short hairs.

Punctuation of intercoxal disk of 1st abdominal sternum similar to that of intercoxal disk of metasternum; lateral stria deeply impressed and complete.

Protibia well expanded apically, with 5 denticles on outer lateral margin, the basal one very small and the apical two appressed together on apical angle; 2 small

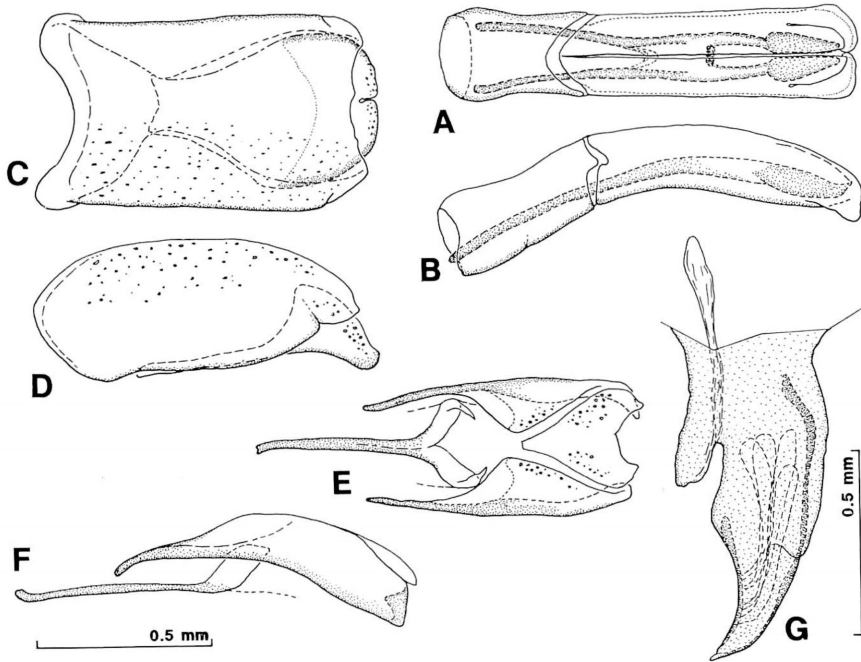


Fig. 2. *Atholus bimaculatus* (LINNAEUS). Male genitalia (A–F). A, Aedeagus, dorsal view; B, ditto, lateral view; C, 8th tergite and sternum, dorsal view; D, ditto, lateral view; E, 9th and 10th tergites and 9th sternum (spicules), dorsal view; F, ditto, lateral view. G, Female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

denticles present on apical margin. Profemoral stria abbreviated on basal fourth, and most distant from the posterior margin at middle. Mesotibia with 2 rows of strong spines on outer margin, the dorsal one consisting of 7 spines, of which apical three are very long, the ventral one consisting of 8 spines which are shorter than those of the dorsal one. Metatibia with 2 rows of strong spines on outer margin, the dorsal one consisting of 8 spines, the 3 spines on apical angles very long, and the ventral one consisting of 7 short spines.

Male genitalia as shown in Fig. 2 A–F.

Female genitalia as shown in Fig. 2 G.

Specimens examined. 9 ♂♂ and 7 ♀♀. <Oki Is.> 1 ♂, 1 ♀, Urago, Dôzen, 7–VII–1955, N. TAMU & K. TSUKAMOTO leg. (NA); 7 ♂♂, 3 ♀♀, Urago, Dôzen, Oki, 5–VIII–1955, N. TAMU & K. TSUKAMOTO leg. (NA). <Tsushima Is.> 1 ♂, 3 ♀♀, Hitakatsu, 7–IX–1964, T. NAKANE leg. (NA).

Distribution (Fig. 5). Japan (Kyushu; Oki Is.; Iki Is.; Tsushima Is.); Europe; Holarctic; Argentina (introduced); Chad (introduced); India; Tenasserim.

Remarks. So far as the Japanese species are concerned, *A. bimaculatus* is easily recognized on the presence of a reddish spot on each elytron.

Atholus coelestis (MARSEUL, 1857)

[Japanese name: Sujimagari-emma-mushi]

(Figs. 3–5 & 9 B, C)

Hister coelestis MARSEUL, 1857, 416, t, 10, f. 59 [China].*Hister (Atholus) coelestis*: BICKHARDT, 1910, 53 [catalogued]; 1917, 193 [catalogued]; DESBORDES, 1919, 399 [Tonkin, Annam, Cochinchine]; 1921, 10 [Inde]; KAMIYA & TAKAGI, 1938, 31 [listed].*Atholus coelestis*: LEWIS, 1906, 402; 1915, 55 [Formosa].*Atholus (Euatholus) coelestis*: HISAMATSU & KUSUI, 1984, 17 [noted, key].*Atholus (Euatholus) coelestes* [sic]: HISAMATSU, 1985, 228, pl. 41, f. 61 [noted, key, photo].*Hister femoralis* MOTSCHULSKY, 1863, 449, synonymized by LEWIS, 1885, 465.

Description. Male and female. Body length, PPL: male, 2.57–3.81 mm, female, 3.09–3.57 mm, PEL: male, 2.14–2.67 mm, female, 2.52–2.90 mm. Width: male, 1.86–2.28 mm, female, 2.17–2.57 mm. Biometric data are given in Table 2. Body oval, feebly depressed, black and shining; tibiae, tarsi and antennae reddish brown.

Frontal stria of head (Fig. 3 A) complete and carinate, feebly angulate inwards at middle on anterior portion; disk densely covered with coarse punctures which are separated from one another by their diameter.

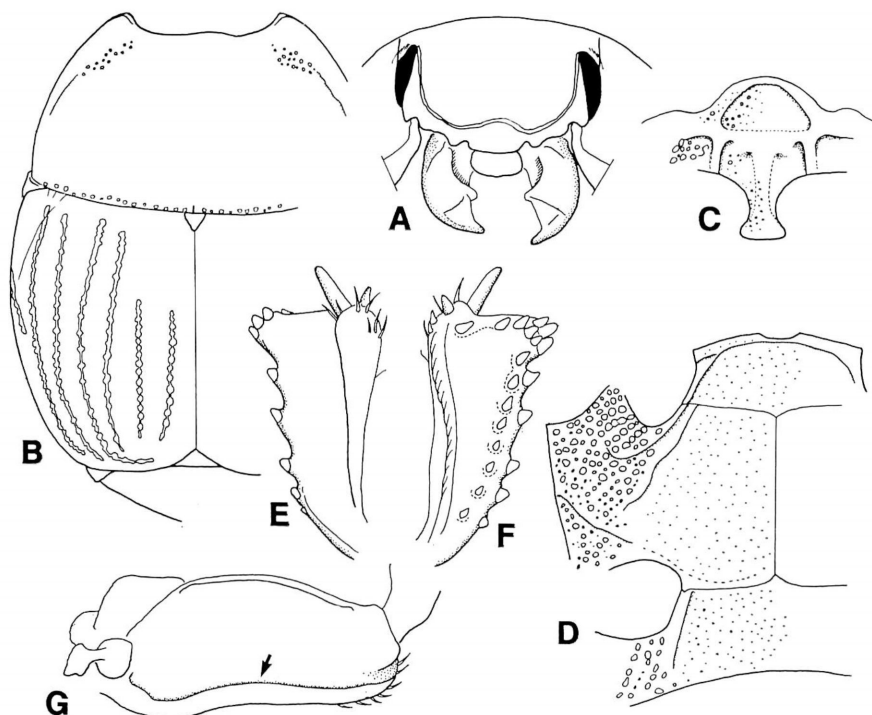


Fig. 3. *Atholus coelestis* (MARSEUL). A, Head, frontal view; B, pronotum and left elytron, dorsal view; C, prosternum; D, meso-, metasterna and 1st abdominal sternum; E, protibia, dorsal view; F, ditto, ventral view; G, profemur, ventral view.

Table 2. Biometric data for *Atholus coelestis* (MARSEUL).

Part measured	Male	Female
APW	0.76–0.95 (0.89±0.01) 20	0.86–1.05 (0.97±0.01) 20
PPW	1.67–2.05 (1.93±0.02) 20	2.00–2.33 (2.17±0.02) 20
PL	0.86–1.07 (0.95±0.01) 20	0.90–1.19 (1.06±0.02) 20
EL	1.24–1.48 (1.38±0.01) 20	1.43–1.59 (1.54±0.01) 20
EW	1.86–2.28 (2.14±0.02) 20	2.17–2.57 (2.41±0.02) 20
ProW	1.00–1.33 (1.20±0.01) 20	1.24–1.48 (1.35±0.01) 20
ProL	0.45–0.55 (0.49±0.01) 20	0.48–0.67 (0.55±0.01) 20
PyL	0.57–0.76 (0.61±0.01) 20	0.62–0.81 (0.71±0.01) 20
PTL	0.55–0.71 (0.66±0.01) 20	0.67–0.81 (0.74±0.01) 20
MSTL	0.45–0.62 (0.57±0.01) 19	0.57–0.74 (0.67±0.01) 20
MTTL	0.62–0.76 (0.72±0.01) 20	0.71–0.90 (0.83±0.01) 19

Marginal pronotal stria present on apical third laterally, but absent anteriorly except behind apical angle. Lateral pronotal stria (Fig. 3 B) short, present on middle of each lateral side, and one-third as long as pronotum. Disk densely covered with moderate punctures which are shallow and separated by about their diameter; area behind the apical angle of lateral stria feebly excavated, and sparsely covered with coarse punctures which are separated by two or three times their diameter; posterior margin with a row of coarse, longitudinal and deep punctures. Ante-scutellar area with a short longitudinal puncture.

Epipleural fossette of elytra sparsely clothed with fine punctures. Marginal epipleural stria absent. Marginal elytral stria complete and deeply impressed. External subhumeral stria absent. Internal subhumeral stria (Fig. 3 B) rudimentary, briefly present on middle. Oblique humeral stria lightly impressed on basal third. First–4th dorsal striae complete, apical ends of 1st to 3rd extending inwardly, the 3rd reaching near apical end of 5th stria. Fifth dorsal stria present on apical two-thirds. Sutural stria present on apical half, the basal end a little before the middle. Disk of elytron evenly covered with moderate punctures which are separated by about twice their diameter.

Pygidia with alutaceous ground sculpture. Propygidium (Fig. 9 B) sparsely and irregularly scattered with coarse punctures which are separated by one to six times their diameter, the punctures becoming sparser apically; interspace among the coarse punctures densely covered with fine punctures. Punctuation of pygidium (Fig. 9 G) similar to that of propygidium, though the coarse punctures become finer toward apex.

Anterior margin of prosternal lobe (Fig. 3 C) round, its marginal stria complete and deeply impressed and carinate; disk densely and coarsely punctate laterally. Prosternal keel narrow and without carinal stria; descending lateral stria deeply impressed and complete.

Anterior margin of mesosternum (Fig. 3 D) slightly and outwardly arcuate, but the median portion is slightly emarginate inwards; marginal stria complete, sparsely

crenate and carinate. A short stria present behind antero-lateral angle. Disk of mesosternum sparsely clothed with fine punctures which are separated by two to four times their diameter. Meso-metasternal suture clearly impressed, complete and angulate at middle. Lateral metasternal stria well impressed, extending obliquely and posteriorly, near to but not united with the oblique stria which inwardly extends from the middle of metasterno-metepisternal suture. Punctuation of intercoxal disk of metasternum similar to that of mesosternum. Post-mesocoxal stria extending posteriorly and obliquely, attaining to the middle of lateral disk. Lateral disk densely covered with large, round and shallow punctures and without hair; interspace among the large ones sparsely and finely punctate.

Punctuation of intercoxal disk of 1st abdominal sternum similar to that of metasternum, but somewhat denser; lateral stria deeply impressed and a little shortened apically.

Protibia (Fig. 3 E & F) with 7 or 8 denticles on lateral outer margin and 5 small denticles on anterior margin, three of these denticles occurring on apical angle. Ventral surface of protibia with a row of 8 small denticles along outer lateral margin.

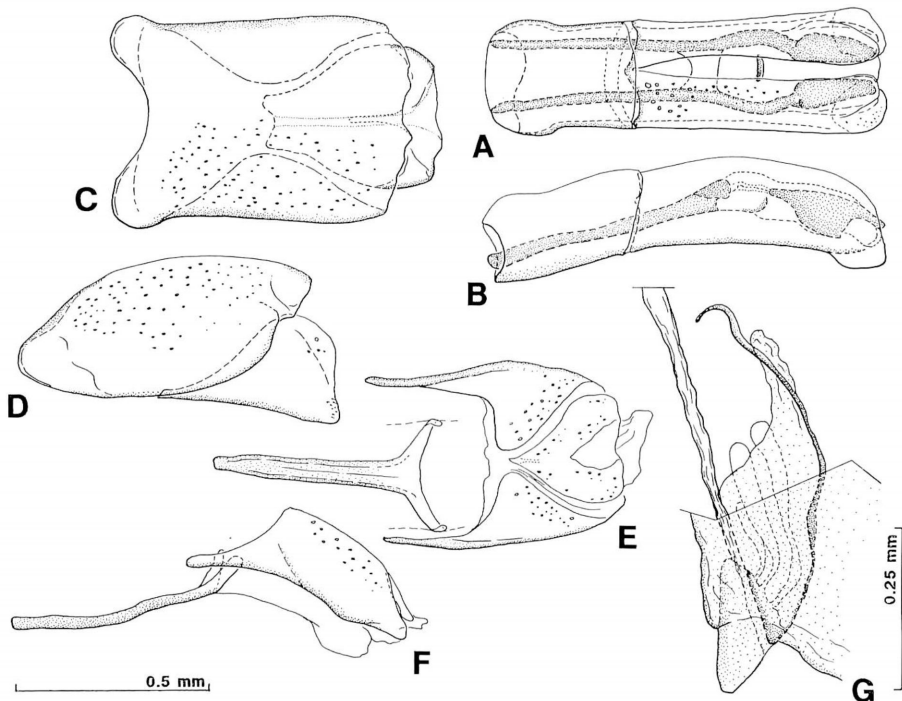


Fig. 4. *Atholus coelestis* (MARSEUL). Male genitalia (A-F). A, Aedeagus, dorsal view; B, ditto, lateral view; C, 8th tergite and sternum, dorsal view; D, ditto, lateral view; E, 9th and 10th tergites and 9th sternum (spicules), dorsal view; F, ditto, lateral view. G, Female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

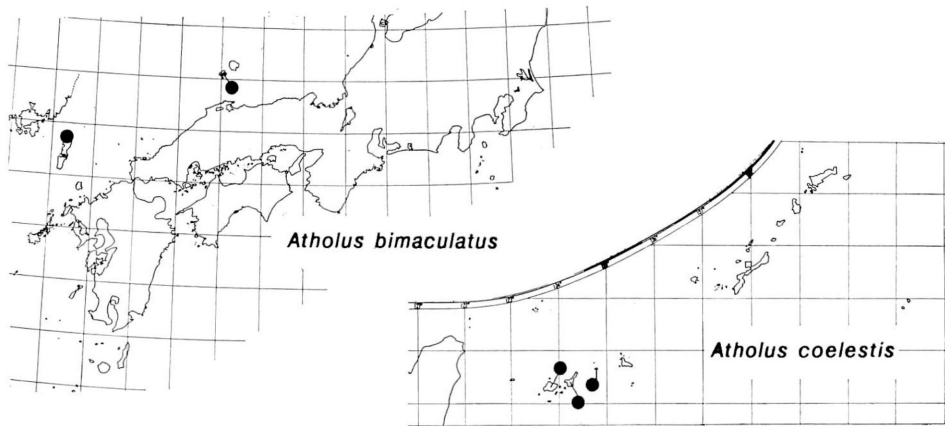


Fig. 5. Collection sites of *Atholus bimaculatus* (LINNAEUS) and *A. coelestis* (MARSEUL).

Profemur (Fig. 3 G) almost completely with femoral stria. Meso- and metatibiae each bearing 7 or 8 long spinules.

Male genitalia as shown in Fig. 4 A–F.

Female genitalia as shown in Fig. 4 G.

Specimens examined. 21 ♂♂, 23 ♀♀ and 63 exs.

[Nansei Isls.] <Tarama Is.> 1 ♂, 1 ♀, 3 exs., Tarama Is., 2–X–1984, Y. KUSUI leg. <Zamami Is.> 2 ♂♂, 1 ♀, 2 exs., 27–VII–1987, Y. KUSUI leg. <Iriomote Is.> 1 ♀, 1 ex., Uehara, 22–III–1975, N. NISHIKAWA leg.; 2 exs., ditto, 17–III–1985, K. NAKAMINE leg.; 8 ♂♂, 3 ♀♀, Ôtomi, 17–III–1985, S. MASUDA leg.; 8 ♂♂, 11 ♀♀, 26 exs., ditto, K. NAKAMINE leg.; 2 ♂♂, 5 ♀♀, 24 exs., Iriomote Is., 19 & 20–X–1988, M. ÔHARA leg.; 1 ex., ditto, 22–III–1982, M. KIUCHI leg. <Ishigaki Is.> 1 ♀, Isobe, 29–III–1984, YOSHIDA leg.; 4 exs., Hirakubozaki, 24–VIII–1987, H. TANAKA leg.

Distribution (Fig. 5). Japan (Nansei Isls.); Continental China; Taiwan; India; Sri Lanka; Indonesia; Java; Celebes.

Remarks. This species is easily distinguished from all the other Japanese species of the tribe Histerini by the pronotal lateral stria incomplete and by the apical end of the 3rd dorsal stria of elytra extending inwardly, attaining to near the apical end of the 5th dorsal stria.

Atholus depistor (MARSEUL, 1873)

[Japanese name: Munakubo-emma-mushi]

(Figs. 6–8 & 9 C, H)

Hister depistor MARSEUL, 1873, 224 [Japan: Nagasaki, Kiu-siu (=Kyushu)].

Hister (Peranus) depistor: BICKHARDT, 1910, 53 [catalogued]; 1917, 192 [catalogued]; MÜLLER, 1937, 130 [Japan; Mongol]; KAMIYA & TAKAGI, 1938, 31 [listed]; ÔSAWA & NAKANE, 1951, 6 [noted; figured].

Peranus depistor: LEWIS, 1906, 402; 1915, 55 [Formosa]; NAKANE, 1963, 70.

Atholus (Atholus) depistor: KRYZHANOVSKIJ & REICHARDT, 1976, 386; NAKANE, 1981, 10 [listed]; HISAMATSU & KUSUI, 1984, 17 [key; noted]; HISAMATSU, 1985, 228, pl. 41, f. 17 [noted; key; photo].

Description. Male and female. Body length, PPL: male, 4.43–5.47 mm, female, 4.66–6.19 mm, PEL: male, 3.83–4.43 mm, female, 3.95–4.90 mm. Width: male, 2.86–3.81 mm, female, 3.33–4.24 mm. Biometric data are given in Table 3. Body oblong-oval, convex, black and shining; antennae, tibiae, and tarsi dark brown.

Frontal stria of head (Fig. 6 A) complete, carinate, densely crenate and inwardly angulate at middle. Disk wholly covered with reticulous ground sculpture, and sparsely covered with fine punctures which are separated from one another by about three times their diameter. Labrum transversely oblong. Dorsal surface of mandible

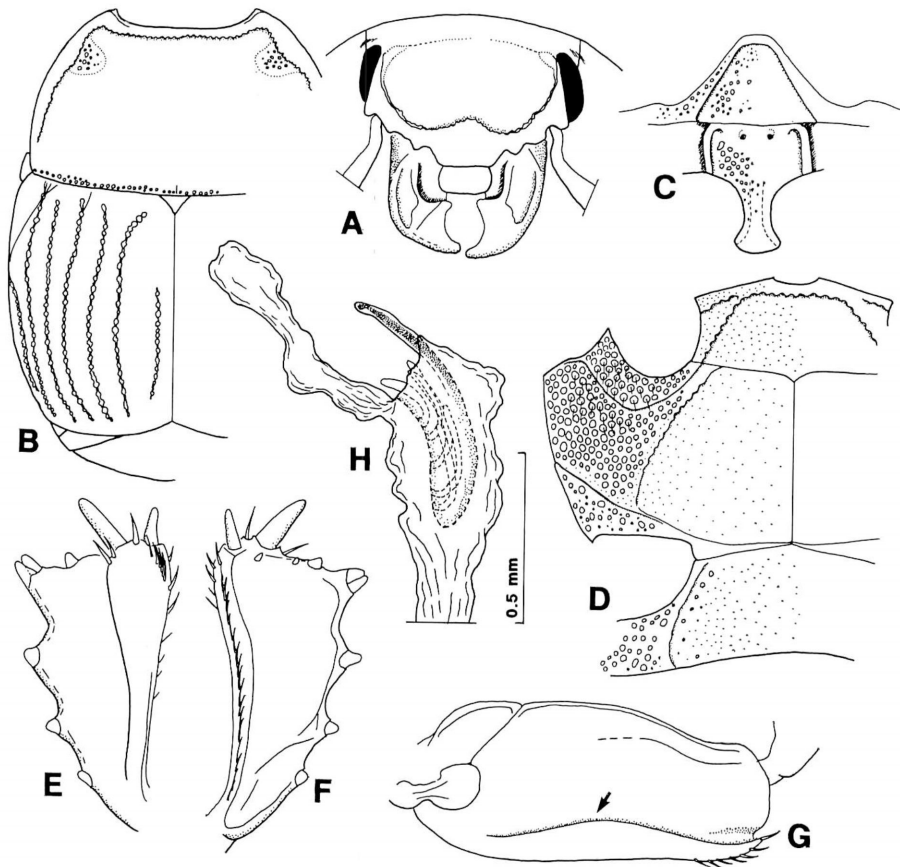


Fig. 6. *Atholus depistor* (MARSEUL). A, Head, frontal view; B, pronotum and left elytron, dorsal view; C, prosternum; D, meso-, metasterna and 1st abdominal sternum; E, protibia, dorsal view; F, ditto, ventral view; G, profemur, ventral view; H, female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

with a strong carina along outer margin.

Pronotal sides (Fig. 6 B) regularly arcuate, but in the apical half strongly convergent anteriorly. Apical angles acute. Marginal pronotal stria present on apical half laterally and broadly interrupted anteriorly behind head. Lateral pronotal stria strongly impressed and densely crenate, the lateral portion shortened on basal fourth and rather widely distant from the pronotal lateral margin. Area within the antero-lateral angle of lateral stria deeply excavated and densely and largely punctate. Disk wholly covered with reticulous ground sculpture, and sparsely scattered with fine punctures. Ante-scutellar area with a short longitudinal puncture.

Epipleura of elytra deeply and longitudinally excavated, and densely and coarsely punctate. Marginal epipleural stria clearly impressed on apical two-thirds along epipleural margin. Marginal elytral stria deeply impressed and complete. Lateral margin of elytron strongly carinate. External subhumeral stria (Fig. 6 B) present briefly on median portion, as an arc. Internal subhumeral stria variable, shortly present medially. These subhumeral striae often fused with each other, the apical end of the external stria and the basal end of the internal one united into a continuous stria, which is half to two-thirds as long as elytra. Oblique humeral stria lightly impressed on basal third. First to 5th dorsal striae complete and sparsely and coarsely crenate, the 5th outwardly arcuate. Sutural stria present on apical two-thirds or less. Disk of elytra wholly and coarsely covered with reticulous sculpture.

Propygidium (Fig. 9 C) evenly and coarsely covered with round and deep punctures which are separated from one another by half to one their diameter, and sparsely intermingled with fine punctures; interspace among punctures wholly covered with microscopic alutaceous ground sculpture. Punctuation of pygidium (Fig. 9 H) similar to that of propygidium, but the punctures are much denser and become finer apically.

Anterior margin of prosternal lobe (Fig. 6 C) narrowly truncate medially; marginal stria deeply impressed, carinate and complete, the lateral portion rather distant from lateral margin; disk sparsely and finely punctate medially and densely covered with coarse punctures laterally. Prosternal keel narrow, the anterior half descending;

Table 3. Biometric data for *Atholus depistor* (MARSEUL).

Part measured	Male	Female
APW	1.09–1.55 (1.38±0.02) 20	1.33–1.67 (1.49±0.02) 20
PPW	2.62–3.38 (3.11±0.04) 20	2.88–3.76 (3.37±0.06) 20
PL	1.29–1.67 (1.51±0.02) 20	1.43–1.86 (1.64±0.03) 20
EL	1.95–2.38 (2.24±0.03) 20	2.24–2.81 (2.46±0.04) 20
EW	2.86–3.81 (3.43±0.05) 20	3.33–4.24 (3.75±0.06) 20
ProW	1.90–2.28 (2.07±0.02) 20	2.00–2.52 (2.29±0.04) 20
ProL	0.86–1.00 (0.92±0.01) 19	0.86–1.14 (0.99±0.01) 20
PyL	0.81–1.09 (0.94±0.02) 20	0.86–1.29 (1.07±0.03) 20
PTL	0.95–1.24 (1.12±0.02) 19	0.95–1.38 (1.18±0.02) 20
MSTL	0.86–1.24 (1.04±0.02) 19	0.95–1.29 (1.09±0.02) 20
MTTL	1.05–1.43 (1.28±0.02) 19	1.19–1.57 (1.37±0.02) 20

carinal stria absent; disk sparsely clothed with fine punctures which are separated by about three times their diameter, the punctures becoming coarser on sides of apical half. Descending lateral stria deeply impressed, carinate and complete.

Anterior margin of mesosternum (Fig. 6 D) outwardly arcuate, but the median portion is slightly and narrowly emarginate; marginal stria strongly carinate, sparsely and coarsely crenate, and complete; a short oblique stria present between the marginal stria and the antero-lateral angle on each side; disk evenly covered with fine punctures

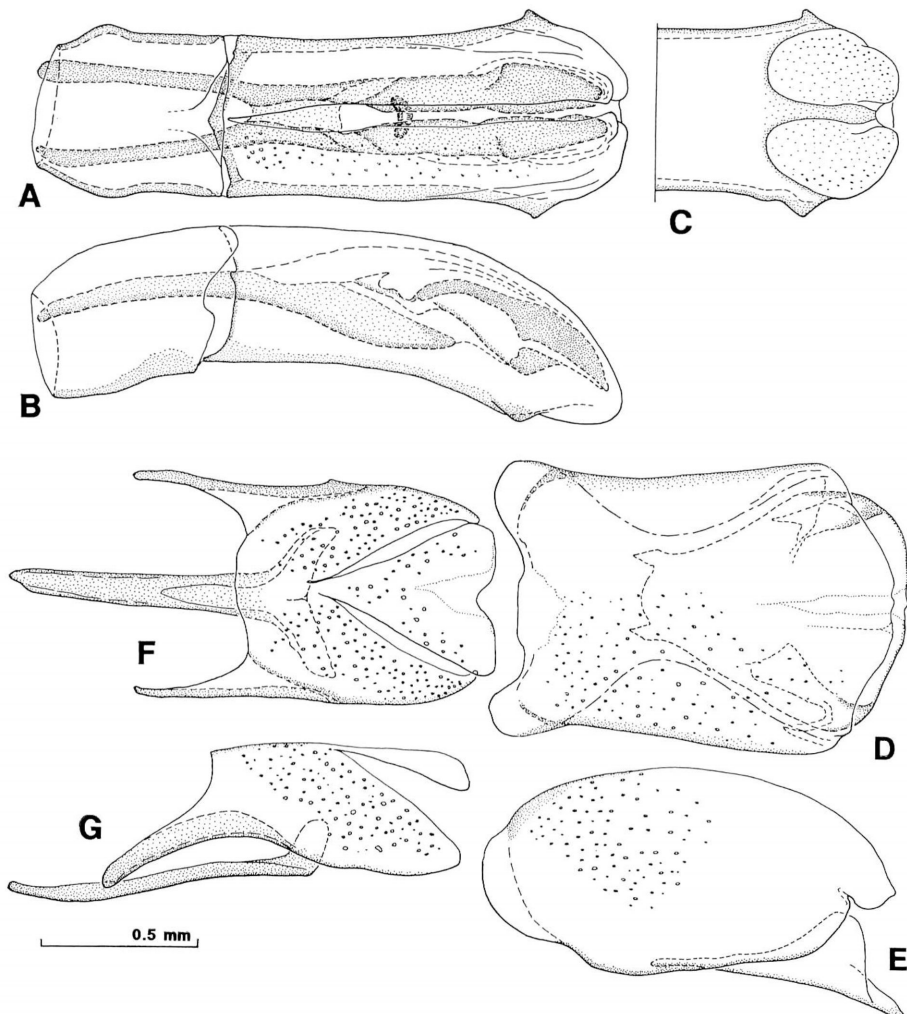


Fig. 7. *Atholus depistor* (MARSEUL). Male genitalia. A, Aedeagus, dorsal view; B, ditto, lateral view; C, caudal apex of aedeagus, ventral view; D, 8th tergite and sternum, dorsal view; E, ditto, lateral view; F, 9th and 10th tergites and 9th sternum (spicules), dorsal view; G, ditto, lateral view.

which are separated by about four times their diameter. Meso-metasternal suture complete, obtusely angulate at middle. Lateral stria of metasternum deeply impressed, carinate, obliquely and posteriorly extending, and beginning from lateral fourth of meso-metasternal suture. Post-mesocoxal stria carinate and complete, somewhat broadly distant from posterior margin of mesocoxa, the basal end united with apical end of marginal stria of mesosternum. Punctuation of intercoxal disk of metasternum similar to that of mesosternum. Lateral metasternal disk densely covered with large, shallow, round and setiferous punctures, the punctures finer along the lateral stria.

Intercoxal disk of 1st abdominal sternum (Fig. 6 D) sparsely and finely punctate, the punctures separated by two to three times their diameter; 1st abdominal sternum deeply striate on each side, the stria carinate and complete.

Protibia (Fig. 6 E & F) with 5 denticles on outer lateral margin, the basal one very small and the apical two appressed together on apical angle, and with one denticle on apical margin. Profemur (Fig. 6 G) with femoral stria nearly complete and most distant from the posterior margin at middle. Mesotibia and metatibia each with 8 long and 9 to 10 short spines on outer margin.

Male genitalia as shown in Fig. 7.

Female genitalia as shown in Fig. 6 H.

Specimens examined. 19 ♂♂, 20 ♀♀ and 32 exs.

[Hokkaido] 1 ♂, Sôunkyô, Daisetsu, 28-VII-1985, M. ÔHARA leg.; 8 ♂♂, 5 ♀♀, 4 exs., Jôzankei, 20-VI, 27-VIII, 14-IX, 13-X-1985, M. ÔHARA leg.; 2 exs., Toyotaki, Sapporo, 13-X-1985, 23-VIII-1987, M. ÔHARA leg.; 2 ♀♀, Hitsujigaoka, Sapporo, 20-VIII-1985, M. ÔHARA leg.; 1 ♂, Iwanai, 9 & 10-VII-1990, M. ÔHARA leg.; 1 ex., Ômori-hama, Hakodate, 15-VIII-1952, K. HOMMA leg. (EIHU). <Okushiri Is.>

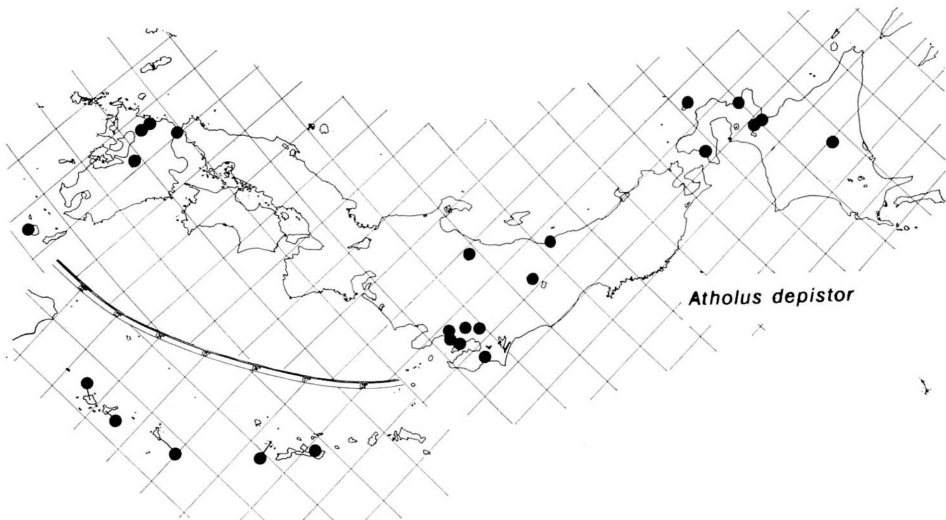


Fig. 8. Collection sites of *Atholus depistor* (MARSEUL).

1 ♀, 28-VI-1956, K. UMEYA leg. (EIHU).

[Honshu] <Fukushima-ken> 1 ex., Wakamatsu, 16-VIII-1948, K. NAGAYAMA leg. (NSMT). <Chiba-ken> 1 ex., Ōami, 22-VI-1984, M. ŌHARA leg. <Saitama-ken> 1 ex., Adachi, Arakawa, 31-V-1970, M. ISHIDA leg. <Tokyo-to> 1 ex., Fuchû, 11-VI-1968, M. ISHIDA leg. <Kanagawa-ken> 2 ♂♂, 2 ♀♀, 4 exs., Akuwa-chô,

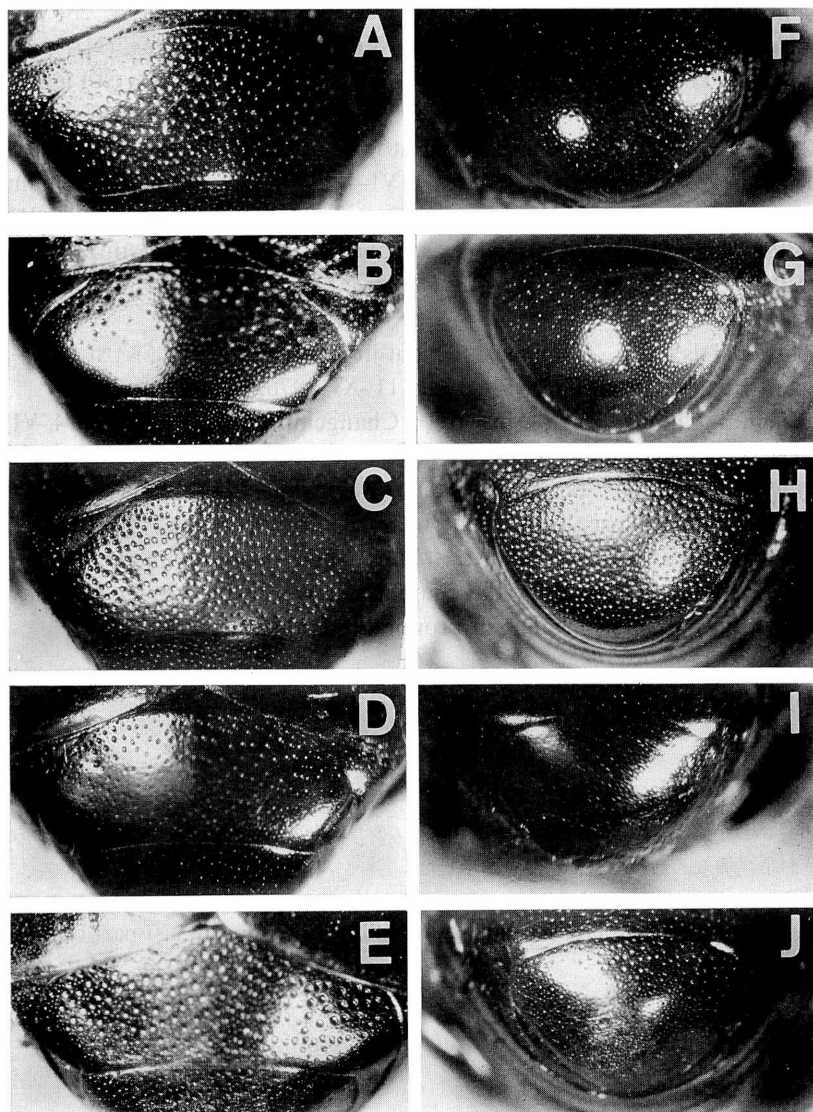


Fig. 9. Propygidia (A-E) and pygidia (F-J). A, F, *Atholus bimaculatus* (LINNAEUS). B, G, *A. coelestis* (MARSEUL). C, H, *A. depistor* (MARSEUL). D, I, *A. duodecimstriatus quatuordecimstriatus* (GYLLENHAL). E, J, *A. pirithous* (MARSEUL).

Yokohama, 3-VI-1983, K. WADA leg.; 1 ♂, Matsudayama, Tanzawa, 14-IX-1975, M. ISHIDA leg.; 1 ♂, 2 ♀♀, 2 exs., Fujisawa, 14-VI-1984, I. MAEHARA leg. <Niigata-ken> 1 ex., Senami, northern Echigo, 21-VI-1985, K. BABA leg. <Nagano-ken> 1 ♀, Nojiri, 24-VII-1930, T. ISHIDA leg. (NA); 1 ♀, ditto, 21-VIII-1943, T. NAKANE leg. (NA). <Mie-ken> 1 ♀, 1 ex., Yunoyama, 6-VIII-1973, M. TANAKA leg.

[Kyushu] <Fukuoka-ken> 1 ex., Fukuoka, 16-VI-1948, Y. ABITSU leg. (NA); 1 ex., Tashiro, 23-VI-1948, Y. MIYAKE leg. (NA); 1 ex., Mt. Asaka, 23-VIII-1946 F. TAKAHASHI leg. (NA); 1 ex., Mt. Adachi, 9-VI-1969, S. NAKAO leg. (NA). <Kumamoto-ken> 1 ♂, Haruyama, Takamori, Aso-gun, 6-VI-1986, E. MATSUI leg.

[Nansei Isls.] <Yakushima Is.> 1 ex., 2-IV-1985, M. KIUCHI leg.; 1 ♀, Kurio, 5-X-1982, M. ÔHARA leg. <Okinawa-hontô Is.> 1 ex., ÔGIMI, 18-V-1984, M. SHIMABUKURO leg. <Miyako Is.> 1 ex., 1-VI-1969, Y. KUSUI leg. <Zamami Is.> 1 ♂, 3 ♀♀, 27-VII-1987, Y. KUSUI leg. <Iriomote Is.> 2 exs., Ôtomi, 16-III-1985, K. NAKAMINE leg. <Ishigaki Is.> 1 ex., Isobe, 29-III-1984, YOSHIDA leg.; 1 ex., Kabira, 5-VI-1969, Y. KUSUI leg.; 3 ♂♂, 1 ♀, Hirakubozaki, 24-VIII-1987, H. TANAKA leg.

[Ogasawara Isls.] 1 ex., Komagari, Chichi-jima, 8-IV-1973, Y. KUSUI leg.

[Taiwan] 1 ex., Kenting Park, Pingtung, 11-XI-1976, M. KIUCHI leg.

[Continental China] 1 ex., Sinkyo (=Changchun), Manchukuo, 14-VII-2599 (=1939), H. TOKUHIRO leg. (NSMT).

Distribution (Fig. 8). Japan (Hokkaido; Honshu; Shikoku; Kyushu; Nansei Isls.; Ogasawara Isls.); Korea; southeastern China; Primorskij Kray; Siberia; Taiwan.

Remarks. This species is similar to *Atholus duodecimstriatus quatuordecimstriatus*, but is separated from the latter by the characters given in the key and by having an excavation within the anterior angle of pronotal lateral stria.

要 約

大原昌宏: 日本産ムナクボエンマムシ属の再検討, 1. — ムナクボエンマムシ属にふくまれる日本産5種の検索表を作成し, 属の記載をおこなった. また, アカモンエンマムシ *Atholus bimaculatus*, スジマガリエンマムシ *A. coelestis*, ムナクボエンマムシ *A. depistor* の3種の再記載をおこない, 雌雄交尾器, および種の区別に役立つ特徴を図示した.

[Note. The references cited in this paper will be given in the last part of the series.]