

## A Revision of the Japanese Species of the Genus *Atholus* (Coleoptera, Histeridae), Part 2<sup>1)</sup>

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**Abstract** In this part of the paper, *Atholus duodecimstriatus quatuordecimstriatus* and *A. pirihius* are redescribed. Male genitalia and some taxonomic features are illustrated.

### *Atholus duodecimstriatus quatuordecimstriatus* (GYLLENHAL, 1808)

[Japanese name: Ko-tsuya-emma-mushi]

(Figs. 9 D, I & 10–12)

- Hister quatuordecimstriatus* GYLLENHAL, 1808, 83 [Sweden]; MARSEUL, 1854, 248, t. 9, f. 56 [3<sup>e</sup> groupe]; 1873, 220 [Nangasaki (Kyushu)]; LEWIS, 1874, 174 [Japan, common in all the Isls.].  
*Hister duodecimstriatus* var. *quatuordecimstriatus*: SCHMIDT, 1885, 295 [VIII Gruppe].  
*Hister (Atholus) duodecimstriatus* var. *quatuordecimstriatus*: AUZAT, 1924, 95; BICKHARDT, 1917, 193 [catalogued].  
*Hister (Atholus) duodecimstriatus* var. *quatuordecimstriatus* [sic]: BICKHARDT, 1910, 193 [catalogued].  
*Hister (Atholus) duodecimstriatus*: KAMIYA & TAKAGI, 1938, 31 [listed].  
*Hister quinquestriatus* MOTSCHULSKY, 1860, 13, synonymized by LEWIS, 1895, 188.  
*Hister (Atholus) quinquestriatus*: NAKANE, 1951, 1040.  
*Atholus (Euatholus) duodecimstriatus quatuordecimstriatus*: KRZYZHANOVSKIJ & REICHARDT, 1976, 338; HISAMATSU & KUSUI, 1984, 17 [key; noted]; HISAMATSU, 1985, 228, pl. 41, f. 20 [key; noted; photo].  
*Atholus duodecimstriatus quatuordecimstriatus*: MAZUR, 1984, 213 [catalogued].  
*Atholus duodecimstriatus quinquestriatus*: THEROND, 1962, 65; NAKANE, 1981, 10 [listed].  
*Atholus duodecimstriatus* var. *beta*: PAYKULL, 1811, 37, synonymized by GYLLENHAL, 1827, 263.  
*Atholus quinquestriatus*: LEWIS, 1906, 402.  
*Atholus duodecimstriatus* var. *quatuordecimstriatus*: BAUDE À SELVE, 1864, 232.  
*Atholus quatuordecimstriatus*: THOMSON, 1862, 230.  
*Hister bimaculatus* var. *quatuordecimstriatus* [sic]: AUZAT, 1925, 75.

**Description.** Male and female. Body length, PPL: male, 3.81–4.86 mm, female, 4.28–5.00 mm, PEL: male, 3.33–3.90 mm, female, 3.62–4.14 mm. Width: male, 2.81–3.38 mm, female, 3.00–3.47 mm. Biometric data are given in Table 4. Body oblong-oval and black; tibiae, tarsi and antennae rufo-piceous.

Frontal stria of head (Fig. 10 A) deeply and broadly impressed, complete, feebly and inwardly arcuate at middle. Disk shallowly, evenly and finely punctate, the punctures separated from one another by twice their diameter.

Marginal pronotal stria abbreviated on basal half laterally, and broadly inter-

1) Part 1: Elytra, Tokyo, 20: 167–182 (1992).

rupted behind head. Lateral pronotal (Fig. 10 B) stria complete and densely crenate; disk evenly clothed with fine punctures which are separated by about twice their diameter, the punctures becoming sparser laterally; area within the anterior angles of lateral stria densely covered with coarse punctures which are separated by one to two times their diameter; ante-scutellar area with a short longitudinal puncture.

Epipleural fossette with alutaceous ground sculpture and sparsely with coarse punctures. Marginal epipleural stria absent. Marginal elytral stria complete and carinate, the basal portion deeply impressed. External subhumeral stria absent (Fig. 10 B). Internal subhumeral stria present medially, the basal end a little before the middle of elytron and the apical end at the apical fourth. Oblique humeral stria represented in basal half. Dorsal striae coarsely and sparsely crenate, 1st-5th and sutural striae complete, the basal ends of 5th and sutural usually united in an arc; sometimes sutural stria reduced to basal half. Disk of elytra with coriaceous ground sculpture.

Pygidia with alutaceous ground sculpture. Propygidium (Fig. 9 D) sparsely covered with coarse and round punctures on basal half, which are separated by one to four times their diameter, the punctures becoming sparser apically on apical half; interspace among the coarse ones sparsely clothed with fine punctures which are separated by four to five times their diameter. Punctuation of pygidium (Fig. 9 I) similar to that of propygidium, but the coarse one is much smaller and both the punctures are denser than on propygidium, the punctures becoming finer and denser toward apex.

Anterior margin of prosternal lobe (Fig. 10 C) round; marginal stria complete and deeply impressed; disk sparsely and coarsely punctate, the punctures separated by one to three times their diameter; interspace among the coarse ones with alutaceous ground sculpture. Prosternal keel narrow; carinal stria wanting; lateral stria deeply and broadly impressed and complete.

Anterior margin of mesosternum (Fig. 10 D) regularly and outwardly arcuate, its marginal stria complete and densely crenate; a short stria present behind antero-lateral angles; disk sparsely and finely punctate, the punctures separated by five to seven times their diameter. Meso-metasternal suture clearly impressed and angulate at middle. Punctuation of intercoxal disk of metasternum similar to that of mesosternum. Lateral metasternal stria extending obliquely and posteriorly, and usually not united with the oblique stria which extends inwardly from the middle of metasterno-metepisternal suture (sometimes united). Lateral disk of metasternum densely covered with large, shallow, deep and round punctures and without hair. Post-mesocoxal stria extending posteriorly and strongly curved along the posterior margin of mesocoxa, and attaining to the middle of metasterno-mesepimeral suture.

Punctuation of intercoxal disk of 1st abdominal sternum (Fig. 10 D) similar to that of metasternum; lateral stria nearly complete, the apical end shortly reduced.

Protibia (Fig. 10 E & F) with 4 large denticles on outer margin, two of them being on the antero-lateral angle (tooth); 3 small denticles on apical margin. Ventral surface

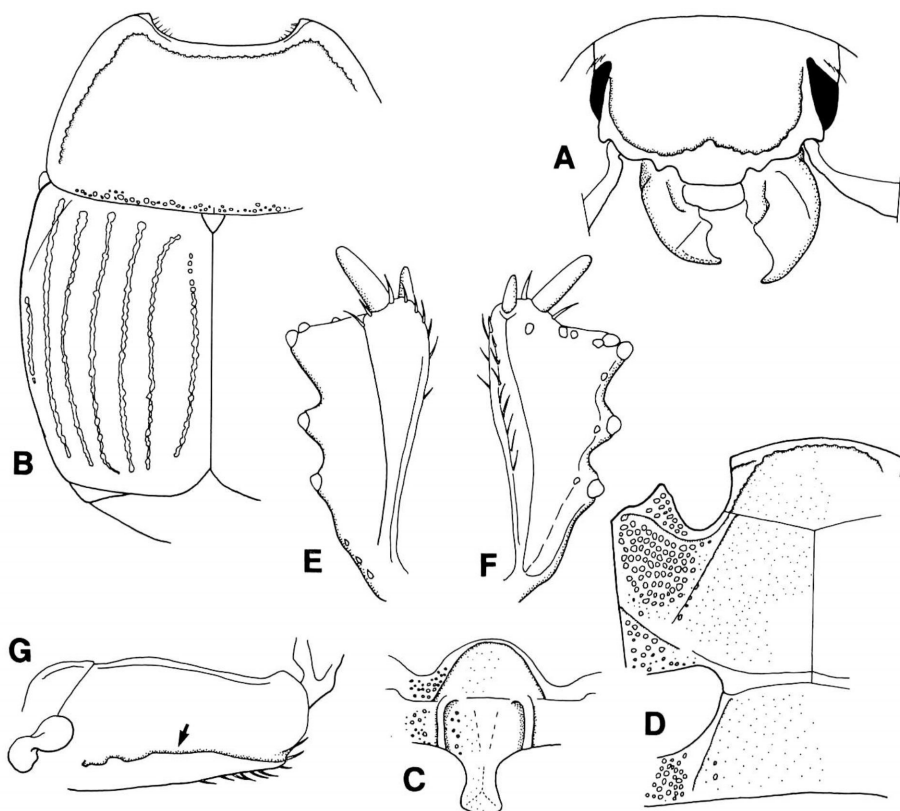


Fig. 10. *Atholus duodecimstriatus quatuordecimstriatus* (GYLLENHAL). A, Head, frontal view; B, pronotum and left elytron, dorsal view; C, prosternum; D, meso-, metasterna and 1st abdominal sternum; E, protibia, dorsal view; F, ditto, ventral view; G, profemur, ventral view.

Table 4. Biometric data for *Atholus duodecimstriatus quatuordecimstriatus* (GYLLENHAL).

Part measured	Male	Female
APW	1.14–1.36 (1.23±0.01) 20	1.19–1.40 (1.29±0.01) 20
PPW	2.52–2.95 (2.72±0.03) 20	2.62–3.09 (2.86±0.03) 20
PL	1.09–1.38 (1.25±0.02) 20	1.21–1.48 (1.35±0.02) 20
EL	1.86–2.28 (2.08±0.02) 20	2.05–2.33 (2.22±0.02) 20
EW	2.81–3.38 (3.04±0.04) 20	3.00–3.47 (3.23±0.03) 20
ProW	1.62–1.90 (1.78±0.02) 20	1.67–2.05 (1.88±0.02) 20
ProL	0.67–0.86 (0.76±0.02) 20	0.67–0.88 (0.77±0.01) 20
PyL	0.79–1.00 (0.89±0.01) 20	0.83–1.02 (0.94±0.01) 20
PTL	0.86–1.05 (0.95±0.01) 20	0.90–1.12 (0.99±0.01) 20
MSTL	0.76–1.00 (0.87±0.01) 20	0.81–1.05 (0.90±0.01) 20
MTTL	0.95–1.19 (1.09±0.02) 20	1.05–1.24 (1.15±0.01) 20

of protibia with 3 small denticles along outer margin. Profemoral stria (Fig. 10 G) deeply impressed and nearly complete, shortly reduced basally, the median portion broadly distant from posterior margin of profemur.

Male genitalia: subspecies *quatuordecimstriatus* (Fig. 11 A–F).

Female genitalia: Fig. 11 G.

*Specimens examined.* 20 ♂♂, 20 ♀♀ and 289 exs.

[Hokkaido] 1 ex., Okushibetsu, Kamikawa, Teshio, 13–VII–1948, T. HASEGAWA leg.; 1 ex., Teshio, 11, 14–VII–1931, K. IGARASHI leg. (EIHU); 3 exs., Maruseppu, 7–VIII–1987, M. ÔHARA leg.; 1 ex., Kamihoro, Kushiro, 31–V–1947, K. KOZIMA leg.; 3 exs., Ashoro, 7–VII–1990, M. ÔHARA leg.; 8 ♂♂, 6 ♀♀, 21 exs., Shimizu, Taisetsu, 28–VII–1985, M. ÔHARA leg.; 1 ex., Toyohara, Kamikawa, 22–V–1975, N. YASUDA leg.; 3 exs., Memuro, 24–VI–1986, M. ÔHARA leg.; 5 exs., Kamishihoro, 7–VII–1990, M. ÔHARA leg.; 4 exs., Obihiro, 23–VI–1991, M. ÔHARA leg.; 13 exs., Hakkenzan, Sapporo, 20–VI, 13–VII–1985, M. ÔHARA leg.; 29 exs., Toyotaki, 10–V, 3, 18, 28–VI–1987, M. ÔHARA leg.; 2 exs., ditto, 20–V–1990, S. SHIYAKE leg.; 5 ♂♂, 4 ♀♀, 25 exs., Jôzankei, 29–VI, 27–VIII, 14–IX–1985, 14–VII–1986, 16–VII–1988, 18–VI–1990, M. ÔHARA leg.; 2 ♂♂, 5 ♀♀, 16 exs., Sapporo, 7, 14–VI, 10–VII, 9–VIII–1985, M. ÔHARA leg.; 3 exs., Kitaku, Sapporo, 7–VI–1987, M. SUWA leg.; 1 ex., Shinkawa, Sapporo, 20–IV–1973, S. KUDÔ leg.; 1 ex., Hitsujigaoka, Sapporo, 20–VII–1985, M. ÔHARA leg.; 1 ex., Zenibako, Otaru, 19–VI–1979, N. NISHIKAWA leg.; 1 ex., ditto, 24–VI–1954, T. KUMATA leg. (EIHU); 2 exs., Asari, Otaru, 25–VI, 7–VIII–1978, T. FUJISAWA leg. (EIHU); 3 exs., Bibi, 28–VI–1987, M. ÔHARA leg.; 1 ♂, 1 ex., Iwanai, 9, 10–VII–1990, M. ÔHARA leg.; 13 exs., Kuromatsunai, 8–VIII–1988, M. ÔHARA leg.; 12 exs., Mt. Kariba, Shimamaki, 6, 8–VIII–1988, M. ÔHARA, T. TANABE & K. SAYAMA leg.; 3 exs., Kitahiyama, 28–V–1988, M. ÔHARA leg.; 7 exs., Akaigawa, Ônuma, 13–VII–1990, M. ÔHARA leg.; 3 exs., Hakodate, 1–VIII–1942, no collector's name (NSMT); 1 ex., ditto, 15–VII–1952, K. HOMMA leg. (EIHU). <Okushiri Is.> 1 ♀, Aonae, 28–VI–1986, Y. KUSUI leg.

[Honshu] <Aomori-ken> 2 exs., Ôma, 12–V–1987, H. SAITÔ leg.; 1 ex., Towada, 3–VIII–1954, A. ABE leg. (NA); 1 ex., Kokidaira, Takedate, Minami-tsugaru, 17–VII–1948, K. SHIMOYAMA leg. (NA). <Yamagata-ken> 2 exs., Sakata, 1–VIII–1947, T. NAKANE leg. (NA); 1 ex., Dewa, Sakata, 19–VII–1949, K. SHIRAHATA leg. (NA); 1 ex., Yonezawa, 3–V–1944, A. SUZUKI leg. (NSMT). <Fukushima-ken> 1 ex., Aizu, no date, K. NAGAYAMA leg. (NA); 1 ex., Wakamatsu, 13–VI–1946, K. NAGAYAMA leg. (NA); 1 ex., ditto (NSMT); 2 exs., Tsuirunuma, Arai, Wakamatsu, 26–IV–1947, M. WATANABE leg. (NA); 1 ex., Yugawa, Wakamatsu, 28–III–1949, Y. KUROSAWA leg. (NA); 1 ex., Odayama, Monden, Kita-aizu, 29–IV–1948, K. NAGAYAMA leg. (NA); 1 ex., Oyama, Monden, Kita-aizu, 21–V–1949, Y. KUROSAWA leg. (NSMT). <Saitama-ken> 1 ex., Urawa, 10–V–1953, H. KAJIMURA leg. (NA). <Tokyo-to> 1 ex., Tokyo, V–1913, F. MUIR leg. (BSM); 1 ex., Aoyama, Tokyo, 25–V–1968, T. NAKANE leg. (NA); 1 ♂, 3, exs., Nôkô Univ., Fuchû, 11–VI–1968, M. ISHIDA leg.; 1 ex., Takaosan,

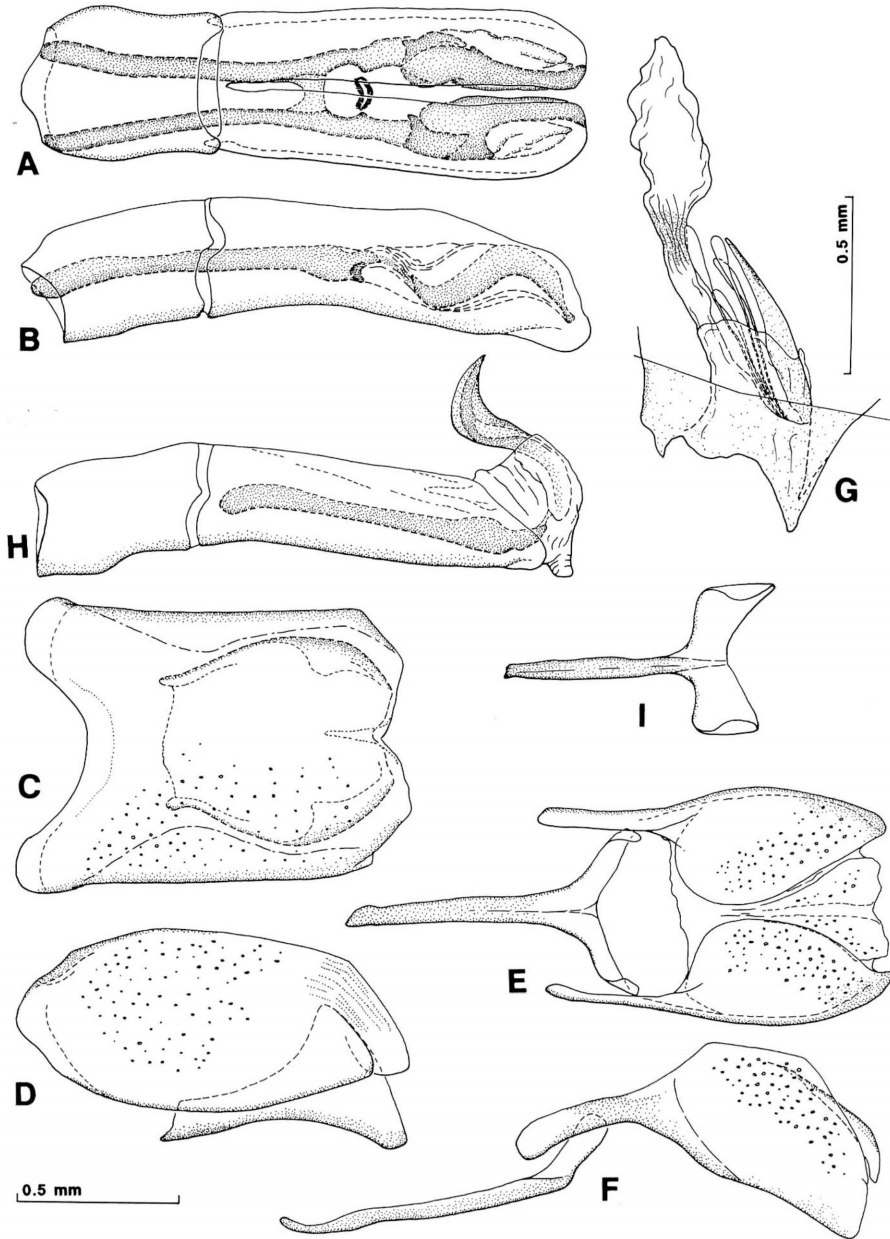


Fig. 11. A-G. *Atholus duodecimstriatus quatuordecimstriatus* (GYLLENHAL). A, Aedeagus, dorsal view; B, ditto, lateral view; C, 8th tergite and sternum, dorsal view; D, ditto, lateral view; E, 9th and 10th tergites and 9th sternum (spicules), dorsal view; F, ditto, lateral view; G, female genitalia, spermatheca and bursa copulatrix, lateral view (left side). — H-I. *A. d. duodecimstriatus* (SCHRANK) [Czechoslovakia]. H, Aedeagus, median lobe extruded, lateral view; I, spicules, dorsal view.

23-IV-1969, H. TAKIZAWA leg.; 1 ex., Ueno, Tokyo, 2-II-1959, K. SUGA leg. (NSMT); 1 ex., Maruko-tamagawa, Tokyo, 11, 12-V-1952, Y. KUROSAWA leg. (NSMT); 1 ex., Ogikubo, Tokyo, 6-IV-1935, S. YAMAMOTO leg. (NSMT); 1 ex., Nakano, Tokyo, 9-V-1921, no collector's name. (NSMT). <Kanagawa-ken> 1 ex., Sagamihara, 22-III-1990, H. TAKIZAWA leg.; 1 ex., Hatano, 22-V-1989, H. TAKIZAWA leg. <Yamanashi-ken> 3 exs., Masutomi, 3-V-1980, M. ÔHARA leg. <Niigata-ken> 1 ♂, Kurokawa, Echigo, 21-XI-1960, K. BABA leg. <Nagano-ken> 1 ex., Kamikôchi, 21, 28-VII-1947, S. ÔSAWA leg. (NA); 1 ex., Nojiri, 7-VII-1941, T. NAKANE leg. (NA); 9 exs., Sanjirô, Utsukushigahara, 20, 21-VI-1990, S. SHIYAKE leg. <Gifu-ken> 6 exs., Ôgaki, Mino, 21-IV-1946, 13-IV-1947, Y. MORIYA leg. <Shizuoka-ken> 1 ex., Ryûsô-zan, 1-X-2599(=1939), Y. SAITÔ leg. (BSM); 1 ex., Shizuoka-ken, 24-VIII-1912, N. TAKABAYASHI leg. (EIHU). <Aichi-ken> 16 exs., Shikatsu-mura, Owari, 14-VIII-1945, 4, 12, 27-IV-1946, 14-IV-1947, S. ÔSAWA leg. (NA); 1 ♀, Nagoya, 11-VIII-1947, S. TABUCHI leg. (NA); 1 ex., ditto, 27-IV-1935, H. HATTORI leg. (NA); 1 ♀, 14 exs., Higashiyama, Nagoya, VI-1948, S. ÔSAWA leg. (NA); 1 ex., ditto, VI-1947, T. NAKANE leg. (NA); 1 ex., Mizuho, Nagoya, 3-VIII-1947, S. TABUCHI leg. (NA); 1 ex., Obata, Owari, 15-VI-1941, S. ÔSAWA leg. (NA); 1 ex., Ryûzen, X-1943, S. ÔSAWA leg. (NA); 1 ex., Mikawa-hôrai-ji, 21 & 23-V-1947, T. NAKANE leg. (NA). <Fukui-ken> 3 exs., Inumi, Ôi-gun, 2-VI-1987, T. ITÔ leg. <Kyoto-fu> 2 exs., Kitashirakawa, 5-V-1942, K. SAKAGUCHI leg. (NA); 1 ex., ditto, 1-VI-1954, T. NAKANE leg. (NA). <Osaka-fu> 1 ♀, 1 ex., Nishinari-ku, Osaka, 12-VI-1945, K. SAWADA leg. (NA). <Hyôgo-ken> 1 ex., Uchida-hama, 8-III-1942, K. SAKAGUCHI leg. (NA); 1 ex., Higashiyuyama-mura, 11-II-1936, K. SAKAGUCHI leg. (NA); 1 ex., Mt. Rokkô, 1-VI-1947, N. YATÔ leg. (NA); 1 ex., Taizan-ji, Nishi-ku, Kôbe, 5-V-1987, T. ITÔ leg. <Okayama-ken> 1 ex., Komizue, Kurashiki, 21-VII-1975, T. AONO leg. (NA).

[Kyushu] <Fukuoka-ken> 1 ♂, Mt. Tachibana, 1-VII-1984, S. NOMURA leg.; 1 ex., ditto, 29-IV-1978, H. MAKIHARA leg.; 1 ex., Mt. Adachi, 19-IX-1962, S. NAKAO leg. (NA). <Kumamoto-ken> 1 ex., Uemura, Kuma-gun, 20-IV-1986, E. MATSUI leg. <Kagoshima-ken> 1 ♂, Iriki, 20-V-1984, M. ÔHARA leg.

[Izu Isls.] <Hachijô Is.> 1 ex., Hachijô-jima, 7-VIII-1948, K. UMEYA leg. (EIHU).

[Nansei Isls.] <Miyako Is.> 1 ♀, Nobarukoshi, 30-III-1983, K. WADA leg.

[Kuril Isls.] <Shikotan Is.> 1 ex., Shakotan, 23 & 27-VI-1935, Y. SUGIHARA leg. (EIHU).

[Continental China] 1 ex., Dashiqiao, Yingkou, Liaoning, 26-VI-1988, J. LI leg.; 1 ex., Kaigen, Manchoukuo, 5-V-1938, I. OKADA leg. (EIHU).

[Europe] <Bulgaria> 2 exs., Stara plania, Dolao, Sachrane, 4-V-1985, WARSE leg. <Sweden> 1 ex., Göteborg, 23-V-1987, J. LINDQUEST leg.

*Distribution* (Fig. 12). Japan (Hokkaido; Honshu; Shikoku; Kyushu; Izu Isls.; Nansei Isls.); North Europe and high elevations in Central Europe; Siberia; Mongolia; China; Taiwan. New to the Nansei Isls.

*Remarks.* This species is very common in Japan, and has been found under pig and cow dung and decaying vegetable matter. This species is similar to *Atholus*

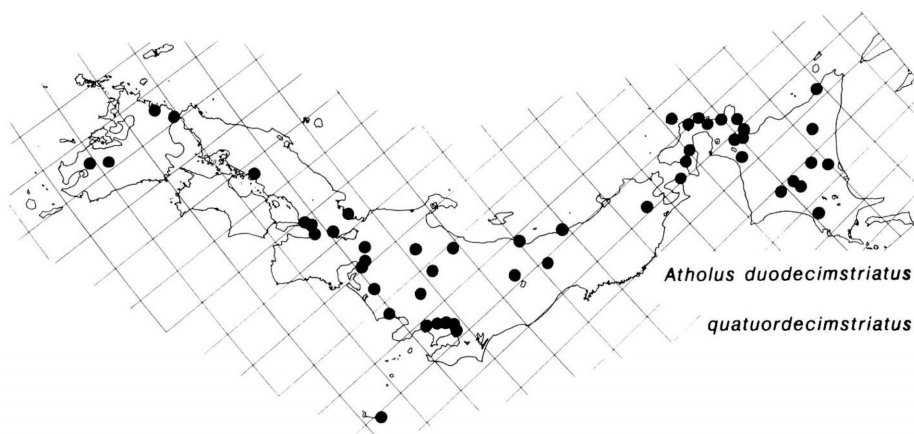


Fig. 12. Collection sites of *Atholus duodecimstriatus quatuordecimstriatus* (GYLLENHAL).

*depistor* (see under *A. depistor*).

The subspecies *duodecimstriatus* is distributed in Europe (lowland), North Africa, Crimea, and Afghanistan, and is distinguished from the subspecies *quatuordecimstriatus* by the absence of subhumeral stria on elytra. No differences have been found in the male genitalia of these subspecies, except for the shape of apical part of spicules (Fig. 11 E & I). Male genitalia as shown in Fig. 11 H & I.

Specimens examined of subsp. *duodecimstriatus*: 10 exs.

[Europe] <France> 4 exs., Dorodogne, Savignac-ledrier, 3-IX-1985, M. SECQ leg. <Germany> 1 ex., NSG, Schildow, Berlin-Pankow, 19-IV-1981, M. SCHÜLKE leg. <Czechoslovakia> 2 exs., Bohemia, Chervený, Chervený ujezd, 15-VIII-1986, S. BEČVÁŘ leg. <Ukraina> 3 exs., Crimea, 15 km E., Bakhchisaray, 29-VII-1987, S. SALUK leg.

### *Atholus pirithous* (MARSEUL, 1873)

[Japanese name: Tsuya-maru-emma-mushi]

(Figs. 9 E, J & 13-15)

*Hister pirithous* MARSEUL, 1873, 224 [Japan: Hiogo (Honshu) et Nangasaki (Kyushu)].

*Hister (Atholus) pirithous*: BICKHARDT, 1910, 54 [catalogued]; 1913, 173; 1917, 194 [catalogued]; DESBORDES, 1919, 400 [Tonkin]; 1921, 10; KAMIYA & TAKAGI, 1938, 31 [listed]; ÔSAWA & NAKANE, 1951, 7.

*Atholus pirithous*: LEWIS, 1906, 402; LEWIS, 1915, 55 [Formosa]; NAKANE, 1981, 10; MAZUR, 1984, 215 [catalogued].

*Atholus (Euatholus) pirithous*: KRZYZHANOVSKIJ & REICHARDT, 1976, 390; HISAMATSU & KUSUI, 1984, 23; HISAMATSU, 1985, 223, pl. 41, fig. 19 [key; noted; photo].

*Hister reitteri* BICKHARDT, 1918, 231 [Japan] by REICHARDT, 1930, 48; KAMIYA & TAKAGI, 1938, 31 [listed].

*Hister pirithous* ab. *reitteri*: REICHARDT, 1930, 48.

*Description.* Male and female. Body length, PPL: male, 3.47-4.33 mm, female,

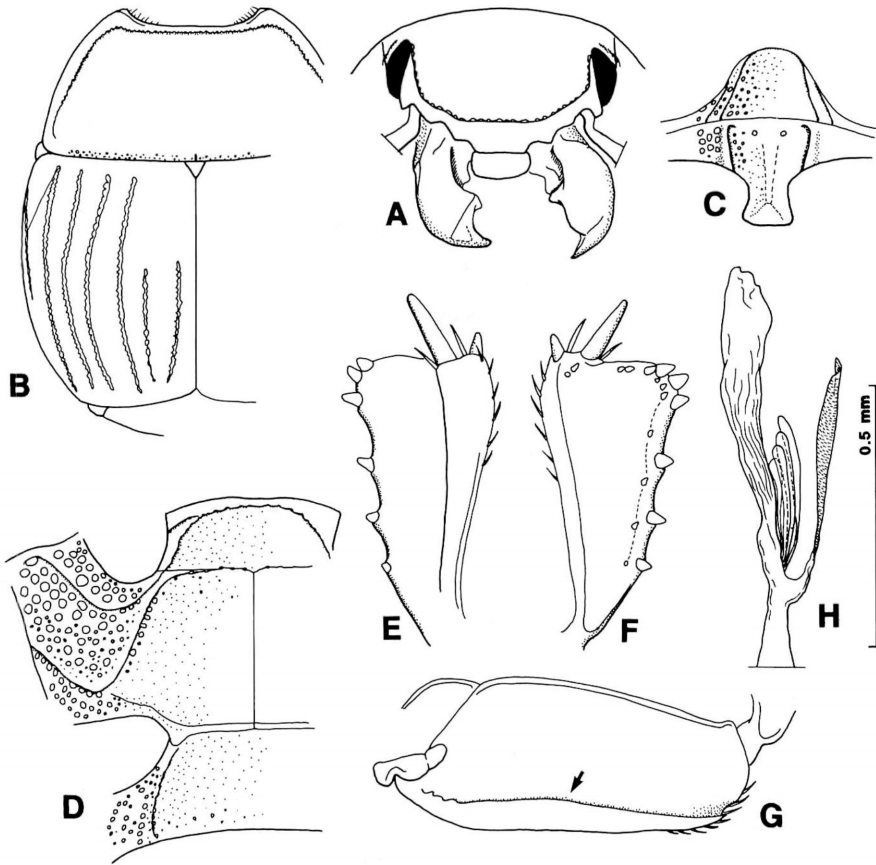


Fig. 13. *Atholus pirithous* (MARSEUL). A, Head, frontal view; B, pronotum and left elytron, dorsal view; C, prosternum; D, meso-, metasterna and 1st abdominal sternum; E, protibia, dorsal view; F, ditto, ventral view; G, profemur, ventral view; H, female genitalia, spermatheca and bursa copulatrix, lateral view (left side).

3.57–4.76 mm, PEL: male, 2.86–3.47 mm, female, 2.83–3.95 mm. Width: male, 2.52–3.24 mm, female, 2.52–3.45 mm. Biometric data are shown in Table 5. Body oval, feebly depressed, black and shining; apical narrow band of elytra, tibiae, tarsi, antennae and mouth parts dark brown.

Frontal stria of head (Fig. 13 A) complete, coarsely crenate and deeply impressed. Disk sparsely clothed with fine punctures which are separated from one another by two to three times their diameter, and wholly with coriaceous ground sculpture. Labrum transversely oblong.

Pronotal sides (Fig. 13 B) arcuate and strongly convergent anteriorly. Apical angles acute. Marginal pronotal stria laterally complete and broadly interrupted behind head. Lateral pronotal stria deeply impressed, crenate, and complete, the lateral portion rather distant from the margin and its basal end not reaching the pos-



Table 5. Biometric data for *Atholus pirthous* (MARSEUL).

Part measured	Male	Female
APW	1.00–1.24 (1.13±0.01) 20	1.05–1.33 (1.20±0.02) 20
PPW	2.28–2.86 (2.54±0.03) 20	2.19–3.02 (2.27±0.04) 20
PL	0.93–1.29 (1.14±0.02) 20	1.00–1.38 (1.21±0.02) 20
EL	1.76–2.14 (1.91±0.02) 20	1.67–2.28 (2.09±0.03) 20
EW	2.52–3.24 (2.88±0.03) 20	2.52–3.45 (3.12±0.05) 20
ProW	1.48–1.90 (1.63±0.02) 20	1.57–2.09 (1.79±0.03) 20
ProL	0.52–0.86 (0.64±0.02) 20	0.55–0.79 (0.70±0.01) 20
PyL	0.69–0.90 (0.81±0.01) 20	0.69–1.00 (0.87±0.02) 20
PTL	0.81–0.95 (0.89±0.01) 20	0.76–1.05 (0.92±0.01) 20
MSTL	0.74–0.95 (0.89±0.01) 20	0.76–1.05 (0.88±0.02) 20
MTTL	1.00–1.24 (1.09±0.02) 20	0.95–1.38 (1.17±0.03) 20

terior margin. Disk of pronotum evenly covered with fine punctures which are separated by two to five times their diameter, and wholly clothed with coriaceous ground sculpture; the narrow posterior band represented by large and round punctures. Area within the antero-lateral angles of pronotal stria slightly excavated. Ante-scutellar area with a short longitudinal puncture.

Epileural fossette of elytra with alutaceous ground sculpture, and densely covered with coarse punctures on apical half. Marginal epipleural stria present on apical half, but the apical portion is often shortened. Elytral marginal stria complete and carinate. External subhumeral stria (Fig. 13 B) present on middle, a half as long as elytron. Internal subhumeral stria sinuate and impressed on apical half. Oblique humeral stria lightly impressed on basal third. First to 4th dorsal striae complete, and densely and coarsely crenate. Fifth dorsal stria present on apical third to a half. Sutural stria abbreviated on basal third to a half. Disk evenly clothed with fine punctures which are separated by about three times their diameter, the punctures finer and sparser medio-basally.

Pygidia with alutaceous ground sculpture. Propygidium (Fig. 9 E) irregularly covered with large, round and shallow punctures, which are separated by a half to one their diameter; interspace among the large punctures densely covered with moderate punctures which are separated by their diameter. Pygidium (Fig. 9 J) coarsely punctate, the punctures similar to the large punctures of propygidium and present on basal third; other fine punctures occurring over and dense, which are separated by about one to two times their diameter.

Anterior margin of prosternal lobe (Fig. 13 C) round, its marginal stria complete, deeply impressed and crenate, the anterior portion running along anterior margin of lobe; disk evenly covered with fine punctures which are separated by about twice their diameter. Prosternal keel narrow and without carinal striae; disk of keel irregularly clothed with fine punctures which are separated by two to five times their diameter, the punctures becoming sparser and coarser laterally; the basal half of disk even on top in a triangle. Descending lateral stria deeply impressed and complete.

Anterior margin of mesosternum (Fig. 13 D) smoothly, slightly and outwardly arcuate; marginal stria clearly impressed, crenate and complete; a short stria present behind antero-lateral angle on each side. Disk of mesosternum sparsely and finely punctulate, the punctures separated by three to six times their diameter. Meso-metasternal suture clearly and lightly impressed, and obtusely angulate at middle. Lateral metasternal stria deeply impressed and carinate, extending obliquely and posteriorly, the basal portion running along meso-metasternal suture and coarsely crenate, the apical end united with the oblique stria which inwardly extends from the middle of metasterno-metepisternal suture. Intercostal disk of metasternum sparsely and finely punctate, the punctures separated by about five times their diameter and becoming coarser laterally. Inside of lateral stria with deep and coarse punctures forming a row. Post-mesocoxal stria running along the posterior margin of coxa, and becoming further from the margin laterally, the outer lateral end attaining to the middle of metasterno-mesepimeral suture. Lateral disk of metasternum densely covered with large, round, shallow and setiferous punctures; half of the punctures becoming finer apically, but the rest still keep their size; area along the lateral metasternal stria sparsely and finely punctate.

Intercostal disk of 1st abdominal sternum (Fig. 13 D) sparsely and finely punctate, the punctures coarser along 1st abdominal stria; the stria completely present on each side of the disk.

Protibia (Fig. 13 E & F) with 6 large denticles on outer margin, three of them being on anterolateral angle, and 3 small denticles on apical margin. Ventral surface of protibia with a row of 5 or 6 small denticles along outer margin. Femoral stria of profemur (Fig. 13 H) nearly complete, shortly abbreviated on basal sixth.

Male genitalia as shown in Fig. 14.

Female genitalia as shown in Fig. 13 G.

*Specimens examined.* 20 ♂♂, 20 ♀♀ and 201 exs.

[Hokkaido] 1 ex., Wakkanai, 1-VIII-1974, Y. KUSUI leg.; 1 ex., Sakanoshita, Wakkanai, 10-VIII-1974, Y. KUSUI leg.; 1 ex., Nakatonbetsu, Kamitonbetsu, 27-VII-1987, K. HAGA leg.; 1 ex., Kenebetsu, Nemuro, 2-VIII-1973, T. KUMATA leg. (EIHU); 1 ex., Shari, Teppanbetsu, 2-VIII-1989, K. HAGA leg.; 2 exs., Shotoshibetsu, Kumanosawa, Rikubetsu, 9-VII-1989, K. HAGA leg.; 1 ex., Teshio, 11, 14-VII-1931, K. IGARASHI leg. (EIHU); 1 ex., Sôunkyô, 27-VII-1952, H. ISHIDA leg.; 3 exs., Shimizu, Taïsetsu, 28-VII-1985, M. ÔHARA leg.; 1 ♂, Kami-shihoro, 7-VII-1990, M. ÔHARA leg.; 6 exs., Obihiro, 25-VI-1985, M. ÔHARA leg.; 3 exs., Ashoro, 7-VII-1990, M. ÔHARA leg.; 1 ex., Taiki-chô, 26-VI-1988, Y. ISHIHAMA leg.; 1 ex., Kimontou-mura, Taiki, 19-VIII-1990, K. HAGA leg.; 1 ex., Sapporo, 9-VII-1985, M. ÔHARA leg.; 2 exs., Kitaku, Sapporo, 7-VI-1987, M. SUWA leg.; 1 ♂, Sapporo, 7-VI-1952, K. HOMMA leg. (EIHU); 5 exs., ditto, 13-V, 30-V, 20-VI-1975, M. KIUCHI leg.; 1 ex., Mt. Teine, Sapporo, 6-VI-1954, K. HOMMA leg. (EIHU); 1 ex., Maruyama, Sapporo, 23-V-1954, K. HOMMA leg. (EIHU); 2 ♂♂, 1 ex., Toyotaki, Sapporo, 23-VI-1985, M.

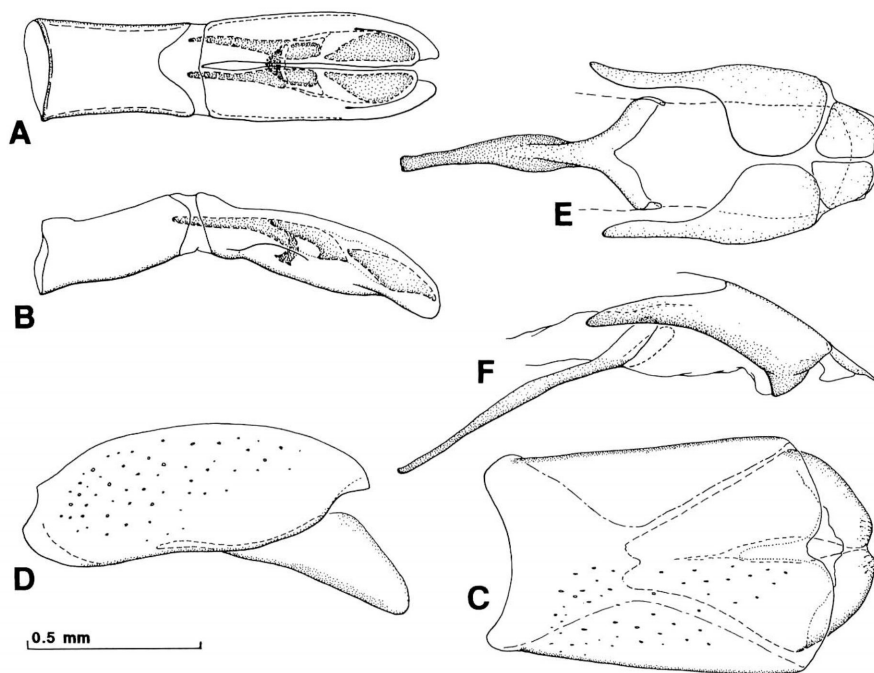


Fig. 14. *Atholus pirithous* (MARSEUL). Male genitalia. A, Aedeagus, dorsal view; B, ditto, lateral view; C, 8th tergite and sternum, dorsal view; D, ditto, lateral view; E, 9th and 10th tergites and 9th sternum (spicules), dorsal view; F, ditto, lateral view.

ÔHARA leg.; 1 ex., Jôzankei, 14-VII-1986, M. ÔHARA leg.; 2 ♂♂, 1 ♀, 9 exs., Bibi, 8-VI-1986, M. MORI leg.; 1 ex., ditto, 28-VI-1987, M. ÔHARA leg.; 1 ex., Hama-atsuma, 3-IX-1987, T. KOMATSU leg.; 1 ex., Tomakomai, 8-VI-1986, M. MORI leg.; 2 ♀♀, 3 exs., Otobe, 15-IX-1985, M. MORI leg.; 1 ♀, 8 exs., Iwanai, 9, 10-VII-1990, M. ÔHARA leg.; 1 ex., Suttsu, 27-V-1988, M. ÔHARA & S. KUDÔ leg.; 5 exs., Kuromatsunai, 8-VIII-1988, M. ÔHARA leg.; 2 exs., ditto, 25-VI-1986, M. MORI leg.; 1 ♂, 2 exs., Mt. Kariba, Shimamaki, 28-V, 6, 8-VII-1988, M. ÔHARA, T. TANABE & K. SAYAMA leg.; 1 ♀, 5 exs., Toyohama, Shimamaki, 8-VIII-1988, M. ÔHARA, M. SATÔ & N. ISHIHAMA leg.; 1 ex., Kaminokuni, Oshima Pen., 25-VI-1974, M. KIUCHI leg.; 1 ex., Hakodate, 18-VII-1954, K. SAWADA leg. (NA). <Rishiri Is.> 2 exs., Oshidomari, 2-VI-1974, Y. KUSUI leg. <Okushiri Is.> 1 ♀, 2 exs., Inaho, 12-VIII-1985, Y. KUSUI leg.

[Honshu] <Aomori-ken> 3 exs., Higashidôri, Shiriyazaki, 6-VI-1987, H. SAITÔ leg.; 1 ex., Towada, 13, 14-VII-1954, S. TAKAGI leg. (EIHU). <Fukushima-ken> 1 ex., Wakamatsu, 28-VI-1949, T. YONEYAMA leg. (NSMT); 1 ex., ditto, 9-IX-1948, Y. KUROSAWA leg. (NSMT); 1 ex., Futamatazawa, Yumoto, Iwase, 16-VII-1949, K. NAGAYAMA leg. (NA); 1 ex., Nagurazawa, Asahida, Minami-aizu, 1-VIII-1944, K. NAGAYAMA leg. (NA); 1 ex., Tsurunuma, Arai, Aizu, 26-IV-1947, Y. KUROSAWA leg.

(NA). <Ibaraki-ken> 1 ex., Mikunibashi, Watarasegawa, 13-IX-1987, K. HAGA leg. <Tochigi-ken> 1 ex., Nishinasuno, 30-IX-1975, T. KUMATA leg. (EIHU). <Gumma-ken> 1 ex., Gumma, no date, T. TAKEI leg., MATSUMURA coll. (EIHU); 1 ex., Gumma, 22-VII-1913, S. MATSUMURA leg. (EIHU). <Chiba-ken> 1 ex., Futtsu, 11-VI-1961, H. YAMAZAKI leg. (NA). <Tokyo-to> 3 exs., Futatsuyama-bokujô, Okuchichibu, 2-IX-1939, K. KOJIMA leg. (NA); 1 ex., Tokyo, V-1913, F. MUIR leg. (BSM); 1 ex., Koremasa, 16-VII-1967, H. TAKIZAWA leg.; 1 ♂, Ogikubo, 26-V-1963, M. ISHIDA leg.; 1 ex., Shakujii, 11-III-1943, A. KIRA leg. (NA); 1 ex., Komaba, Tokyo, 24-VI-1914, S. HIRAYAMA leg. (EIHU). <Kanagawa-ken> 1 ex., Hatano, 6-V-1972, H. TAKIZAWA leg. <Nagano-ken> 1 ex., Fujimi, 20-VI-1956, S. NOMURA leg. (NA); 2 exs., Kita-karuizawa, 21-VII-1938, K. SAKAGUCHI leg. (NA); 1 ex., Nojiri, 27-VII-1930, T. IIDA leg. (NA); 1 ex., Komagatake, Kiso, 4, 5-VIII-1946, S. ÔSAWA leg. (NA). <Niigata-ken> 1 ex., Ozeguchi, Ginzan-ko, 27, 29-VII-1972, Y. KUROSAWA leg. (NA); 2 exs., Itoigawa, southern Echigo, 9-X-1956, K. BABA leg.; 1 ♂, 1 ♀, 2 exs., Kurokawa, 22-VIII-1934, 29-IV-1957, 2-VII-1961, K. BABA leg.; 1 ex., Sasaguchi-hama, 8-V-1957, K. BABA leg. <Aichi-ken> 1 ♂, 2 ♀♀, Shikatsu-mura, 19-VIII-1945, VI-1948, S. ÔSAWA leg. (NA); 2 ♀♀, Mizuho, Nagoya, 3-VIII-1947, S. TABUCHI leg. (NA); 1 ex., Higashiyama, Nagoya, VI-1948, S. ÔSAWA leg. (NA); 1 ♂, Nagoya, 11-VIII-1947, S. TABUCHI leg. (NA). <Mie-ken> 1 ex., Ôsugi Valley, 12-VI-1952, T. HORIO leg. (NA). <Shiga-ken> 1 ex., Hieizan, Ôtsu, 10-X-1989, T. Itô leg. <Kyoto-fu> 1 ex., Mt. Daihi, 15-VI-1941, K. SAKAGUCHI leg. (NA). <Osaka-fu> 1 ex., Senriyama, 9-X-1949, K. SAWADA leg. (NA). <Hyôgo-ken> 1 ex., Motoyamamura, Kôbe, 17-XI-1949, K. SAKAGUCHI leg. (NA); 1 ex., Harada, Kôbe, 27-XII-1913, no collector's name. (BSM); 5 exs., Mitani-bokujô, Taka, 16-IX-1984, T. Itô leg. <Wakayama-ken> 1 ex., Kii-oshima, 21, 24-V-1964, T. KUMATA leg. (EIHU). <Sado Is.> 1 ex., Ogura-tôge, 26-V-1983, K. BABA leg.

[Shikoku] <Tokushima-ken> 2 exs., Nishiyama, 28-VII-1966, N. HIRAI leg. (NA); 1 ex., Awa, Besshi à Takeda (Nakamura), 20-VII-1913, E. GALLOIS leg. (EIHU); 5 exs., Awa, Koyadaira, 31-VII, 3-VIII-1913, E. GALLOIS leg. (EIHU).

[Kyushu] <Fukuoka-ken> 1 ex., Nakahara-bokujô, 8-X-1950, Y. MIYAKE leg. (NA); 2 exs., Nakahara, 12-III, 12-V-1952, Y. MIYAKE leg. (NA); 1 ex., Mt. Adachi, 21-VI-1969, S. NAKAO leg. (NA). <Kumamoto-ken> 4 exs., Komezuka, Aso, 7-VI-1981, M. ÔHARA leg.; 8 exs., Kumamoto, 18-IV, 14-V, 2-X-1907, H. KAWAMURA leg. (EIHU); 12 exs., Ue-mura, Kuma-gun, 20-IV-1986, E. MATSUI leg. <Ôita-ken> 1 ex., Kujû, 6-VI-1981, K. SAKAI leg. <Kagoshima-ken> 6 exs., Kurino, Kirishima, 8-V-1983, 3-IX-1990, M. ÔHARA leg.; 1 ♀, ditto, 11-V-1984, S. MASUDA leg.; 1 ♀, 5 exs., Toso, Kagoshima City, 20-IV-1984, M. ÔHARA leg.; 9 ♂♂, 7 ♀♀, 20 exs., Iriki, 20-V-1984, M. ÔHARA leg.; 1 ex, Meinô-bokujô, Takakuma, 23-XI-1981, T. KINODA leg.; 1 ex., Nishi-shibushi, Soo, 11-III-1951, H. FUKUDA leg. (NSMT).

[Nansei Is.] <Yakushima Is.> 1 ex., Nagata, 30-IV-1982, K. TOMIYAMA leg.; 1 ex., Yakushima, 2-IV-1985, M. KIUCHI leg.

[Taiwan] 2 exs., Nanshan-shi, 10-VI-1973, K. MASUMOTO leg.; 1 ex., Kenting,

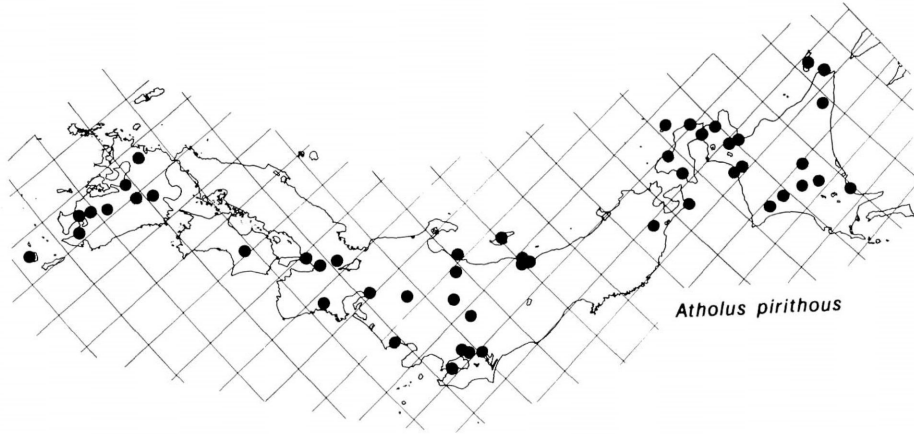


Fig. 15. Collection sites of *Atholus pirithous* (MARSEUL).

10-V-1973, K. MASUMOTO leg.

*Distribution* (Fig. 15). Japan (Hokkaido; Honshu; Shikoku; Kyushu; Nansei Isl.); Taiwan; Primorskiy Kray; China; Korea; Viet-Nam.

*Remarks.* This species closely resembles *Margarinotus (Grammostethus) niponicus* in striation, but can be separated from the latter by the body more depressed, the absence of the rudiment of the 5th dorsal stria on basal third of elytron and the external subhumeral stria not complete.

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I would like to express my deep gratitude to Dr. Takehiko NAKANE, Chiba, for his continuous encouragement to my study and allowing me to examine his valuable collection. I am also much indebted to the following entomologists for their gift or loan of specimens: Dr. K. BABA, Mr. K. HAGA, Mr. T. ITÔ, Mr. M. ISHIDA, Mr. J. LINDQUEST, Dr. P. KANAAR, Dr. O. KAPLER, Mr. T. KINODA, Dr. M. KIUCHI, Mr. S. KUDÔ, Dr. Y. KUSUI, Mr. H. MAKIHARA, Mr. E. MATSUI, Mr. S. MASUDA, Dr. K. MASUMOTO, Mr. M. MORI, Mr. K. NAKAMINE, Mr. N. NISHIKAWA, Dr. S. NOMURA, Mr. H. TAKIZAWA, Mr. H. TANAKA, Dr. A. TISHECHKIN, Dr. K. TOMIYAMA, Mr. H. SAITÔ, Dr. G. A. SAMUELSON, Dr. M. SECQ, Mr. S. SHIYAKE, Dr. M. SUWA, Mr. K. WADA. Last but not least, I wish to convey my hearty thanks to Professor Sadao TAKAGI, Entomological Institute, Hokkaido University, Sapporo, and Dr. Shun-ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for their critical reading of the manuscript.

#### Addition to Part I

To the references to *Atholus bimaculatus* (p. 169), "NAKANE, 1963, 70 [new to Japan]"

should be added after *Peranus bimaculatus*.

I thank Dr. T. NAKANE of Chiba for kindly informing of the missing record.

## 要 約

大原昌宏：日本産ムナクボエンマムシ属の再検討，2。——日本産ムナクボエンマムシ属にふくまれる2種，コツヤエンマムシ *Atholus duodecimstriatus quatuordecimstriatus*，ツヤマルエンマムシ *A. piriuous* 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。

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