Revision of the genus *Ptomaphagus* Hellwig (Coleoptera, Leiodidae, Cholevinae) from Japan

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Abstract

After examining Japanese material of *Ptomaphagus* Hellwig from various collections, a new species is described, *P.* (s. str.) *piccoloi* sp. n., and a new subjective synonym proposed, *P.* (s. str.) *kuntzeni* Sokolowski, 1957 = *P.* (s. str.) *amamianus* Nakane, 1963, syn. n., in this paper. Relevant morphological characters of examined species of *Ptomaphagus* are illustrated with colour plates, and known distributions are mapped.

Keywords

Leiodidae, Cholevinae, *Ptomaphagus*, taxonomy, new species, new synonyms, Japan

Introduction

*Ptomaphagus* Hellwig, 1795 is the most speciose genus (including 136 known species) in the tribe Ptomaphagini (Coleoptera, Leiodidae, Cholevinae). However, the nominotypical subgenus, which is limited to the Palaearctic and north Oriental regions has only 28 species (Perreau 2000, Nishikawa 2011).

In the fauna of Japan, only three species in the subgenus *Ptomaphagus* s. str. had been recorded before this study, namely *P.* (s. str.) *sibiricus* Jeannel, 1934, *P.* (s. str.) *kuntzeni* Sokolowski, 1957 and *P.* (s. str.) *amamianus* Nakane, 1963.
However, when we examined specimens previously identified as *Ptomaphagus* (s. str.) *kuntzeni* and *P. (s. str.) amamianus* from various collections, we found there are no differences at the specific level between them. After examining both holotypes, a new subjective synonym is proposed: *P. (s. str.) kuntzeni* Sokolowski, 1957 = *P. (s. str.) amamianus* Nakane, 1963, syn. n. Moreover, examined specimens previously identified as *P. (s. str.) sibiricus* from Japan are conspicuously different to the holotype of *P. (s. str.) sibiricus* which was described from Vladivostok, Russia (Jeannel 1934). Therefore, a new species from Japan is described and illustrated here: *P. (s. str.) piccolois* sp. n. The dubious occurrences of *P. (s. str.) kuntzeni* in Myanmar and *P. (s. str.) sibiricus* in Japan, as well as several new island records, and the bionomics of the two species are briefly discussed in this paper. Relevant morphological characters of examined species of *Ptomaphagus* are illustrated with colour plates, and known distributions are mapped.

**Material and methods**

Specimens were relaxed and softened in a hot saturated solution of potassium hydroxide for 4 minutes (for mounted dry specimens) or 8 minutes (for alcohol-preserved specimens), and then transferred to distilled water to rinse the residual potassium hydroxide off and stop any further bleaching. The softened specimens were moved into glycerin and dissected there to observe morphological details. After examination, the body parts were mounted on a glass slip with Euparal Mounting Medium for future studies. Habitual photographs were taken using a Canon macro photo lens MP-E 65mm on a Canon 550D. Observations, photographs and measurements of morphological details were performed using an Axio Zoom.V16 motorized stereo zoom microscope with an AxioCam MRc 5 in Beijing, or an Olympus BX53 microscope with an Olympus DP73 in Prague. The final deep focus images were created with Helicon Focus 5.3 stacking software in Beijing or Zerene Stacker 1.04 in Prague. The program Adobe Photoshop CS6 was used for post processing. Exact label data are cited for all specimens examined. Authors’ remarks and addenda are placed in square brackets, separate label lines are indicated by a slash (/) and separate labels by a double slash (//). Measurements are mean values based on 5 specimens.

The material examined for this study is deposited in the following collections and museums:

**BMNH**  Natural History Museum (formerly British Museum), London, United Kingdom (M. Barclay)

**CCBW**  Collection of Cheng-Bin Wang, Chengdu, China

**CHHF**  Collection of Hideto Hoshina, Fukui University, Fukui, Japan

**CJRZ**  Collection of Jan Růžička, Prague, Czech Republic

**CMNE**  Collection of Masaaki Nishikawa, Ebina, Japan

**CMPR**  Collection of Michel Perreau, Paris, France
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CPJA Collection of Paweł Jałoszyński, Wrocław, Poland
CYFO Collection of Yoshifumi Fujitani, Okayama, Japan
CYHK Collection of Yasuhiko Hayashi, Kawanishi, Japan
EUM Ehime University Museum, Matsuyama, Japan (H. Yoshitomi)
HUM Hokkaido University Museum, Sapporo, Japan (M. Ôhara)
MHNG Muséum d’Histoire Naturelle, Genève, Switzerland (G. Cuccodoro)
MNHA Museum of Nature and Human Activities, Hyôgo, Japan (T. Yamauchi)
NMPC Národní museum, Prague, Czech Republic (J. Hájek)
NSMT National Museum of Nature and Science, Tsukuba, Japan (S. Nomura)
SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (L. Behne)
ZMHB Museum für Naturkunde – Leibniz-Institut für Evolutions- und Biodiversitätsforschung an der Humboldt-Universität zu Berlin, Berlin, Germany (J. Frisch).

The following abbreviations are used for the measurements in millimetres (mm):

AL (antennal length): length from the antennal base to apex.
BTW (basitarsal width): maximum width of 1st protarsomere.
EBL (extended body length): summation of HL, PL, ELL, and length of exposed scutellum, preventing the error introduced by exposed or retracted head.
ELL (elytral length): length from the tail end of scutellum to the elytral apex.
ELW (elytral width): maximum width of two elytra combined together.
EW (eye width): width of a single compound eye in dorsal view.
HL (head length): axial length from the anterior apex of clypeus through the posterior margin of occipital carina.
HW (head width): maximum width of head (usually including eyes).
PL (pronotal length): axial length of the pronotum.
PW (pronotal width): maximum width of pronotum.
TW (tibial width): maximum width of protibia (excluding spines along outer margin etc.).

Taxonomy

Genus Ptomaphagus Hellwig, 1795

Distribution. Holarctic, north Oriental, north Neotropical.

Subgenus Ptomaphagus s. str.

Distribution. Palaearctic, north Oriental.
Ptomaphagus (s. str.) kuntzeni Sokolowski, 1957
Figs 1A–C; 2A–F; 3A–J; 4A–G

Ptomaphagus (s. str.) kuntzeni Sokolowski 1957: 140 (Ptomaphagus; type locality: [JAPAN] Hagi (? Landschaft Jamagutshi, Honshiu); ZMHB); Szymczakowski 1964: 63 (Ptomaphagus; female description; taxonomic remarks); Nishikawa 1983: 1 (Ptomaphagus (Ptomaphagus); in check-list); Harusawa and Yamamoto 2000: 242 (Ptomaphagus; distribution); Hayashi and Nishikawa 2010: 190 (Ptomaphagus; distribution); Perreau 2000: 363 (Ptomaphagus (s. str.); in catalogue); Perreau 2004: 178 (Ptomaphagus (Ptomaphagus); in catalogue); Nishikawa 2011: 100 (Ptomaphagus (Ptomaphagus); distribution; notes); Nishikawa et al. 2012: 274 (Ptomaphagus (Ptomaphagus); in catalogue).

Ptomaphagus (s. str.) amamianus Nakane 1963: 42 (Ptomaphagus; type locality: [JAPAN] Naze, Amami-Oshima); Hayashi 1969: 2 (Ptomaphagus; characteristic figures; distribution); Nishikawa 1983: 1 (Ptomaphagus (Ptomaphagus); in check-list); Perreau 1996: 284 (Ptomaphagus; distribution); Perreau 2000: 362 (Ptomaphagus (s. str.); in catalogue); Perreau 2004: 178 (Ptomaphagus (Ptomaphagus); in catalogue); Hayashi and Nishikawa 2010: 190 (Ptomaphagus; distribution); Perreau 2015: 249 (Ptomaphagus (Ptomaphagus); in catalogue).

Material examined. Type material. Holotype of P. kuntzeni: ♂, [JAPAN] Hagi [ca. 34°24’N, 131°23’E] / Hiller [R. leg., probably collected during 1872–1875 (Esa-ki 1935)] // Type // 59051 // Promaphagus / kuntzeni Type / det. K. Sokolowski (ZMHB). Holotype of P. amamianus: ♂, HOLOTYPE // [JAPAN] NAZE [ca. 28°22’N, 129°29’E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus / amamianus Nak. / Det. T. Nakane // NAKANE Coll. // SEHU JAPAN / 1999 // HOLOTYPE / Appendged label by / N. Kobayashi / 2008 // 0000005731 // Sys. Ent / Hokkaido Univ. / Japan [SEHU] (HUM). Allotype of P. amamianus: 1♀, ALLOTYPE // [JAPAN] NAZE [ca. 28°22’N, 129°29’E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus / amamianus Nak. / Det. T. Nakane // NAKANE Coll. // SEHU JAPAN / 1999 // PARATYPE / Appendged label by / N. Kobayashi / 2008 // 0000005732 // Sys. Ent / Hokkaido Univ. / Japan [SEHU] (HUM). Paratypes of P. amamianus: 1♂, PARATYPE // [JAPAN] NAZE [ca. 28°22’N, 129°29’E], / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus amamianus Nak. / Det. T. Nakane // MHNG / ENTO / 00003333 (MHNG); 1♀, same data as previous except: 00003334 (MHNG); 1♂, PARATYPE // [JAPAN] NAZE [ca. 28°22’N, 129°29’E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus amamianus Nak. / Det. T. Nakane // NAKANE Coll. / SEHU JAPAN / 1999 // PARATYPE / Appendged label by / N. Kobayashi / 2008 // 0000005733 // Sys. Ent / Hokkaido Univ. / Japan [SEHU] (HUM); 1♂, [JAPAN] PARATYPE // // NAZE [ca. 28°22’N, 129°29’E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus / amamianus Nak. / Det. T. Nakane // MHNG / ENTO / 00003333 (MHNG); 1♀, same data as previous except: 00003334 (MHNG); 1♂, PARATYPE // [JAPAN] NAZE [ca. 28°22’N, 129°29’E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus amamianus Nak. / Det. T. Nakane // NAKANE Coll. / SEHU JAPAN / 1999 // PARATYPE / Appendged label by / N. Kobayashi / 2008 // 0000005733 // Sys. Ent / Hokkaido Univ. / Japan [SEHU] (HUM); 1♀, [JAPAN] PARATYPE // // NAZE [ca. 28°22’N, 129°29’E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus / amamianus Nak. / Det. T. Na-
kane // NAKANE Coll. / SEHU JAPAN / 1999 // PARATYPE / Appended label by / N. Kobayashi / 2008 // 0000005734 / Sys. Ent. / Hokkaido Univ. / Japan [SEHU] (HUM); 1♂, PARATYPE // [JAPAN] NAZE [ca. 28°22’N, 129°29’E], AMAMI-ŌISHIMA IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus amamianus Nak. / Det. T. Nakane // 37–1 [Pl. 37, fig. 1 in Nakane 1963] // NAKANE Coll. / SEMU JAPAN / 1999 // PARATYPE / Appended label by / N. Kobayashi / 2008 // 0000005747 / Sys. Ent Hokkaido Univ. / Japan [SEHU] (HUM).

Additional material. JAPAN: Honshu: 3♂♂1♀, Botanic Garden [ca. 38°15’N, 140°51’E] / Sendai, Miyagi [Pref.] / 1.X.1966 / A. NARITA // Ptomaphagus kunzieni / Sokolowski / Det. T. Nakane (HUM); 2♂♂1♀, Yoshi-ga-hira [ca. 37°26’N, 139°7’E] / Niigata Pref. / 14.VIII.1987 / leg. M. NISHIKAWA // Trap // alt. 600 m (CMNE); 1♂, ASAMIGAWAKEI / KOKU [ca. 37°13’N, 140°57’E] // HIRONOMACHI / FUKUSHIMA [Pref.] 1990.VIII.2 / A. IZUMI leg. (CMNE); 1♂, Mt. TORINOKO-YAMA [ca. 36°41’N, 140°14’E] // 馬頭町 [Batô-machi], 栃木県 [Tochigi Pref.] / 30.APL.1996 / H. OHKAWA leg. // 14 (CMNE); 1♂, NAGAEDANI [ca. 36°34’N, 136°41’E] // KANAZAWA [Ishikawa Pref.] / 13.V.1948 / S. TAKABA leg. (CYHK); 1♂, Mt. TAKAO-YAMA: ca. 36°27’N 136°45’E // KAGA [=Ishikawa Pref.] / 2.VII.1961 / Y. Hayashi [leg.] // Ptomaphagus / kunzieni / Sokolowski? / Det. K. Harusawa, 1993 (CJRZ); 1♂1♀, 石川県 [Ishi-kawa Pref.] 白山市 [Hakusan-shi] // 白山系 [Mt. Hakusan] / 猿壁堰堤 [Sarukabei: ca. 36°06’N, 136°42’E] // Dohshigawa [Riv.: ca. 35°32’N, 139°06’E] // Yamanashi Pref., C. // Japan, 19.VIII.1993 / M. Nishikawa leg. (CMNE); 1♂, Dohshigawa [Riv.: ca. 35°32’N, 139°06’E] // Aone, Tsukui Co. / Kanagawa [Pref.], JAPAN / 18th, May, 1986 / T. Abe & A. Sasai [leg.] (CMNE);
♀♀, (Dôdaira [ca. 35°28'N, 139°10'E]) / E. Tanzawa / Kanagawa Pref. // 11.VII.1993 / leg. M. NISHIKAWA // carrion trap / alt. ca. 1000 m (CMNE); 1♂1♀, same data as previous except: 21.VIII.1993 (CMNE); 1♂, [JAPAN] Honshu, / Kanagawa Pref., Atsugi City, / Shimofurusawa [ca. 35°27'N, 139°19'E], / 23.III.2007. Bait trap. / Takuya FUKUZAWA leg. (CMNE); 1♀, same data as previous except: 21.VIII.1993 (CMNE); 1♂, [JAPAN] Honshu, / Kanagawa Pref., Atsugi City, / Shimofurusawa [ca. 35°27'N, 139°19'E], / 23.III.2007. Bait trap. / Takuya FUKUZAWA leg. (CMNE); 1♀, same data as previous except: 21.VIII.1993 (CMNE); 1♂, [JAPAN] Honshu, / Kanagawa Pref., Atsugi City, / Shimofurusawa [ca. 35°27'N, 139°19'E], / 23.III.2007. Bait trap. / Takuya FUKUZAWA leg. (CMNE); 1♀, same data as previous except: 21.VIII.1993 (CMNE);
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1♂1♀, same data as previous except: 26.V.1984 (CCBW); 1♂3♀, same data as previous except: Shizushi: 35°13'N, 135°20'E // [bar code omitted] (CYHK; MNHA); 1♂, [Mt.] Takiyama [ca. 35°09’N, 134°09’E] / Nagi, Katsuta-gun / Okayama Pref. // W. Honshu, Japan / 9.V.2002 / Y. Fujitani leg. (CMNE); 8♂3♀, same data as previous except: 7.VII.2002 (CMNE); 3♂4♀, same data as previous except: 27.X.2002 (CYFO); 1♀, same data as previous except: 10.XI.2002 (CYFO); 1♀, same data as previous except: 23.XI.2002 (CYFO); 1♀, same data as previous except: 29.XII.2002 (CYFO); 1♂1♀, same data as previous except: 27.VIII.2003 (CYFO); 1♀, same data as previous except: 6.VIII.1980 / Cl. Besuchet [leg.] (MHNG); 1♀, SASAYAMA T. / 雨石山 [Mt. Amaishiyama: ca. 35°07’N, 135°20’E] / HYOGO [Pref.]; 28.IV.1984 / Y. HAYASHI [leg.] (CYHK); 2♂3♀, nr. Rashomon-daiichi-/ do Cave [ca. 34°56’N, 133°33’E], Niimi-shi. / 370 m in alt. / Okayama Pref. // W Japan (carrion trap) / 18.VIII.2001 / Y. Fujitani leg. (CMNE); 1♀1♀, Shiramizu [ca. 34°58’N, 134°15’E] / Mimasaka-shi / [carrion baited-trap] / Okayama Pref. // W Honshu, Japan / 7.V.2005 / Y. Fujitani leg. (CMNE); 4♂1♀, Mumyôdani [ca. 34°56’N, 133°27’E], ca. 350 m / Tetta-chô, Aretsu- / gun, Okayama Pref. // W Honshu, W. Japan / 25.IV.2004; b. trap / Y. Fujitani leg. (CMNE); 1♀, 糸面下止々呂美 [Minô-shi, Shimotodoromi: ca. 34°52’N, 135°27’E] / (OSAKA Pref.) / 4.VIII.1992 / leg. 齋藤琢己 [Saito Takumi] // Ptomaphagus / kuntzeni / SOKOLOWSKI / Det. Y. HAYASHI, 1993 (CYHK); 1♂4♀, Kanahira National / Forest, [ca. 34°47’N, 133°37’E] Takahashi- / [carrion baited-trap] / shi, Okayama Pref. // W Honshu, Japan / 16.IV.2006 / Y. Fujitani leg. (CMNE); 1♂, Anatóyama-jinja [ca. 34°39’N, 133°29’E] / 450 m alt., Kawakami / Okayama Pref. // Honshu, W Japan / 22.IV.2001; trap / Y. Fujitani leg. (CMNE); 1♀, same data as previous except: 8.IV.2001 (CMNE); 1♀, same data as previous except: 16.IV.2001 (CMNE); 1♂, same data as previous except: 28.IV.2001 (CMNE); 1♀, Ōmukai-rindô [ca. 34°29’N, 132°07’E] / Chôjbara, Yoshiwa / 880 m in alt. / Hatsukaichi-shi // Hiroshima Pref., W / Honshu, Jpn. 28.IV. / 2007, M. Tagami leg. // 広島県廿日市市 [Hiroshima Pref., Hatsukaichi-shi] / 吉和長者原大向林道 [Yoshiwa, Chôjbara, Ōmukai-rindô] / FIT 880 m / 28.IV.2007 / 田上雅生 [Tagami Masao] 採集 [leg.] (CMNE); 1♂1♀, OSAKA Pr. Tondabayashi c. / Kannobi Kongô Colony [ca. 34°29’N, 135°35’E] / 12–26. IV.1994 / leg. K. Harusawa // pit fall trap: / rotten squid // Ptomaphagus kuntzeni Sokolowski (CMPR); 6♂3♀, Kasayama, ca. 50 m / Hagi-shi, / ca. 34°26’N, 131°24’E / Yamaguchi Pref. // W Honshu, W Japan / 29.VI.2002; trap / Y. Fujitani leg. (CMNE); 2♀♂, same data as previous except: 5.VII.2002 (CMNE); 2♂2♀, Mt. Makio-[-san: ca. 34°23’N, 135°30’E] / OSAKA [Pref.] / 4.VIII.1983 / F. KIMURA [leg.] (CYHK); 1♂, [OSAKA Pr.] / Kawachinagano / 天見 [Amami], alt. 260 m / 6–14.X.1981 / K. Harusawa / Y. Nishikawa leg. // 出合 [Deai] - 流谷 [Nagaredani] / 流谷八幡境内 [Nagaredani-hachiman shrine’s area: ca. 34°23’N, 135°35’E] / 腐肉 [carrion] Trap (牛 [beef]) // Ptomaphagus / kuntzeni / SOKOLOWSKI / Det. Y. HAYASHI, 1990 (CYHK); 1♂, Kamisuga [ca. 34°23’N, 136°22’E] / Ōdaï-machi, Taki- / gun, Mie Pref. // Honshu, Japan / 22–9.V.2005 / Katsumi Akita leg. (CMNE); 3♂2♀, Kanoashikôchi [ca. 34°22’N, 131°57’E] / Muikaichi-machi / 450 m in alt. // Shimane
Pref. // W Honshu, Japan / 10.VI.2005 / Y. Fujitani leg. // 六日市町 [Muikaichi-machi] / 鹿足河内 [Kanoashikōchi] (CMNE); 1♂, HASE [ca. 34°17′N, 131°38′E] // YAMATO [=Nara Pref.]; 5.VI.1966 / Y. HAYASHI [leg.] // Ptomaphagus / kuntzeni (CYHK); 1♀♀. Nodani [ca. 34°17′N, 131°38′E], Tokuiji-chō / Saba-gun / Yamaguchi Pref. // W Honshu, W Japan / 21.IV.2004; b. trap / Y. Fujitani leg. (CMNE); 2♀♀, mouth of Nakao-dō / Cave [ca. 34°16′N, 131°17′E]. Aokage / Shuhō, Yamaguchi // Pref., W Japan / 28.VII.–4.VIII.2002. KUNTSCH, 1♀♀, Nodani [ca. 34°17′N, 131°38′E], Tokuji-chō / Saba-gun / Yamaguchi Pref. // W Honshu, W Japan / 12.IV.2002; trap / Y. Fujitani leg. (CMNE); 3♂♂4♀♀. HASE [ca. 34°16′N, 131°52′E] / 1,010 m in alt. / b. trap / Kano-machi // Yamaguchi Pref. / Japan, 4.VI.2005 / Y. Fujitani leg. (CMNE). / G. Lewis. / B. M. 1926–369. // Chiuzenji [ca. 36°46′N, 139°28′E]. // Ptomaphagus / sibiricus Jean. / Jeannel det. // Ptomaphagus / kuntzeni / det. WANG C.-B., 2016 (BMNH).Kyushu: 1♂, Hata [ca. 33°48′N, 130°46′E] / Yahata-City [Fukuoka Pref.]; 3.V.1965 / coll. M. Ueda (HUM); 1♀♀, 福岡県 [Fukuoka Pref.] 添田町 [Soeda-cho] / 英彦山 [Mt. Hiko-san; ca. 33°29′N, 130°54′E] / 5月2日1983年 [2.V.1983] / 野村 S. [Nomura S.] 採集 [leg.] (CHHF); 1♀♀, (Kinsenji [ca. 32°58′N, 130°05′E], Mt. Tara-dake) / Nagasaki Pref. / Kyushu, JAPAN / 10.V.1983 / S. Imasaka leg. // Ptomaphagus (s. str.) / kuntzeni Sokolowski, 1957 / Det. M. Nishikawa, 2010 / ♂ (CMNE); 1♂, Mt. Gokabaru-dake [ca. 32°57′N, 130°04′E] / (1,058 m in alt.) / Nagasaki Pref. // NW Kyushu, Japan / 11–12.V.1991 / M. Nishikawa leg. // carriion trap / alt. ca. m (CMNE); 2♂♂, Unzen-bessho [ca. 32°44′N, 130°15′E] / Nagasaki Pref. / 1.VI.1983 / leg. S. Imasaka (CMNE); 1♂♀, Hagi [ca. 32°32′N, 130°56′E], Gokanoshō / Kumamoto Pref. / 18.VI.1984 / leg. S. Imasaka (CMNE); 1♀, Takao [ca. 32°28′N, 131°08′E], Shimofukura / Shibia, Miyazaki Pref. / Kyushu, SW Japan / 26.VII.2015 / Takashi Watanabe leg. // Ptomaphagus (Ptomaphagus) / kuntzeni Sokolowski, 1957 / Det. M. Nishikawa, 2016 / MNIC124950Ch1♀♀ (CMNE); 1♂♀, Inao dake [ca. 31°07′N, 130°53′E] / Tashiro cho / Kagoshima Pref. / 14.VII.1985 / T. TANABE leg. // alt. 300 m // Trap // Ptomaphagus / kuntzeni / Sokolowski / Det. T. Nakane (HUM); 1♀♀, same data as previous except: 575 m (HUM); 1♀, same data as previous except: 610 m (HUM). Ryukyu: Amami-Ôshima Is.: 1♀♀, 鹿児島県 [Kagoshima Pref.] / 奄美市 [Amami-shi] / 龍郷町 [Tatsugô-chô] / 芦徳 [Ashitoku: ca. 28°25′N, 129°36′E] / 05.V.2011 / 稲垣政志 [Inagaki Masashi] Leg. (CYHK); 1♂♀, (JAPAN) Kagoshima pref., / Amami-Ohshima Is., / Honcha pass. [ca. 28°23′N, 129°33′E] / 11–14.IV.2007 / T. FUKUZAWA et al. [leg.] (CMNE); 1♂♀, NAZE [ca. 28°22′N, 129°29′E] / AMAMI[-ÔSHIMA] IS. / 4.V.1960 / T. Shibata [leg.] // Ptomaphagus / ohshimensis / NAKANE / Det. Y. HAYASHI, 1969 (CYHK); 2♀♀, same data as previous but no det. label (CYHK); 1♀, same data as previous except: // Ptomaphagus / amamianus / NAKANE / Det. Y. HAYASHI, 2009 // Collection of / Y. HAYASHI // [bar code omitted] (MNHA); 2♂♀4♀♀, Ôganeku / 28.3598N 129.3403E [ca. 28°21′N, 129°20′E]; 260 m alt. / Yamato-son / Amami-Ôshima Is., Ryukyus / Kagoshima Pref., SW Japan / 27.II.–2.III.2016; trap / M. Nishikawa leg. (CMNE); 4♀♀, nr. Hôkoku-jinja, ca. 350 m / 28.362331N 129.482009E [ca. 28°21′N, 129°28′E] / Amami-shi / Amami-Ôshima Is. / Kagoshima Pref., Ryukyus / SW Japan /
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27.II.–2.III.2016; trap / M. Nishikawa leg. (CMNE); 3♂♀4♀, around Ōkawa Dam, ca. 28°20’N, 129°29’E, 130 m alt., Amami-shi, Amami-Ōshima Is. / Kagoshima Pref., Ryukyu / SW Japan / 27.II.–2.III.2016; trap / M. Nishikawa leg. (CMNE); 1♂, Toen, nr. Amami ForestPolis / 28.3176°N 129.3297°E [ca. 28°19’N, 129°19’E]; 180 m alt. / Yamato-son, Amami-Ōshima Is. / Ōshima-gun, Kagoshima Pref. / Ryukyu, SW Japan / 3–10.III.2015; bait trap / M. Nishikawa leg. (CMNE); 11♂♀18♀, (JAPAN) Kagoshima Pref., / Amami-Ōshima Is., / Yamato vil., Ōdana. 310 m alt. / N28°18’40.2 E128°55’32.2 / 5.III.2008. Carrion Baited trap / Takuya FUKUZAWA leg. (CMNE); 8♂♀5♀♀, Naon-kengyōzōrin Forest [ca. 28°18’N, 129°20’E] / 名音県行造林 [Naon-kengyōzōrin Forest]; alt. 349 m / 28.3058°N, 129.3371°E / Yamato-son, Amami-Ōshima Is. // Ôshima-gun, Kagoshima Pr. / Ryukyu, SW Japan / 2–10.III.2015; bait trap / M. Nishikawa leg. // *Ptomaphagus* (Ptomaphagus) / amamianus Nakane, 1963 / Det. M. Nishikawa, 2015 (CMNE); 1♂, Mt. Yuwan[-dake: ca. 28°17’N, 129°19’E] / Amami-Ohshima Is / 29.III.1999 // *Ptomaphagus* amamianus NAKANE / Det. Y. HAYASHI, 2014 (CCBW); 1♀, same data as previous except: 28.IV.2000 / 江本健一 [Emoto, Ken’ichi] 採集 [leg.] // ♀ (CMNE): 1♀, same data as previous except: 7–12.V.2006 / T. Watanabe leg. (CMNE); 1♂3♀♀, same data as previous except: // 650–680 m, / 18–26.III.2010, baited / pitfall traps, forest, / Tomáš Lackner leg. (CJRZ); 9♂♀9♀♀, (JAPAN) Kagoshima Pref., / Amami-Ōshima Is., sumiyou Vil., santarou Touge Pass, 318 m alt. / N28°17’03.9 E129°25’16.2 / Carrion Baited Trap. 6.III.2008. / Takuya FUKUZAWA et al. [leg.] (CMNE); 2♂♀1♀, same data as previous except: 12–14.IV.2007 (CMNE); 1♂♀, same data as previous except: 13–16.IV.2007. FIT / T. FUKUZAWA et al. [leg.] (CMNE); 4♂♀2♀♀, 鹿児島県大島郡 [Kagoshima Pref., Ōshima-gun] / 宇検村 [Uken-son] ヤクガチョボシ山麓 [foot of Mt. Yakugachoboshi-yama: ca. 28°15’N, 129°21’E] // Japan; Ryukyu / foot of Yakugachoboshi-yama, / Uken Son, Oshima Gun, / Kagoshima Ken // (Is. Amami-o-shima) / 27.II.2004 / KAMEZAWA, Hiromu leg. (CMNE): 1♂, HATSUNO [ca. 28°15’N, 129°22’E] / Amami-Ōshima Is. / 31.III.1969 / H. NOMURA [leg.] // *Ptomaphagus* amamianus NAKANE / Det. Y. HAYASHI, 2014 (CCBW); 1♂, same data as previous except: 1.IV.1967 (CYHK); 1♀, same data as previous except: 3.IV.1967 (CYHK); 1♂, same data as previous except: 4.IV.1967 (CYHK); 2♂♀1♀, same data as previous except: 3.IV.1969 // K. TANIZAWA [leg.] (CCBW); 2♂♀1♀, same data as previous except: // *Ptomaphagus* / amamianus NAKANE / Det. Y. HAYASHI, 1993 (CMNE); 1♂♀, same data as previous except: 31.III.1969 / H. NOMURA [leg.] (CYHK); 4♂♀, same data as previous except: 1.IV.1969 (CYHK); 4♂♀2♀♀, same data as previous except: 2.IV.1969 (CYHK); 1♂♀, same data as previous except: 3.IV.1969 (CYHK); 7♂♀3♀♀, same data as previous except: K. Tanizawa [leg.] (CYHK); 1♀, same data as previous except: 5.V.1969 / Y. MAEDA [leg.] (CMNE); 1♀, Nishinakama [ca. 28°15’N, 129°24’E] / AMAMI[-ŌSHIMA] Isl. / 5.IV.1969 / K. TANIZAWA [leg.] (CYHK); 3♂♀3♀♀, nr. Yakugachi Tunnel / 28.2295N 129.3599E [ca. 28°13’N, 129°21’E]; 30 m alt. / Kamiyakugachi, Amami-shi / Amami-Ōshima Is., Ryukyu / Kagoshima Pref., SW Japan / 27.II.–2.III.2016; trap / M. Nishikawa leg. (CMNE); 1♀, (由井岳 [Mt. Yui-dake: ca. 28°11’N, 129°18’E]) / 瀬戸内 [Setouchi-chō] 奄美大島 [Amami-Ōshima Is.]. / 25.IV.2000 / 江
本健一
[Emoto Ken’ichi]
採集 [leg.] // ♂ (CMNE); 6♂♂, Aminokotoge Pass / 28.1893°N 129.3659°E [ca. 28°11’N, 129°21’E]; 350 m alt. / Setuko, Setouchi-chō / Amami-Ōshima Is. / Ōshima-gun, Kagoshima Pref. / Ryukyu, SW Japan / 6–10. III.2015; bait trap / M. Nishikawa leg. (CMNE); 1♂♀♀, 鹿児島県 [Kagoshima Pref.] / 大島郡 [Ōshima-gun] / 瀬戸内町 [Setouchi-chō: ca. 28°08’N, 129°19’E] / 05.V.2011 / 稲垣政志 [Inagaki, Masashi] Leg. (CYHK); 1♂♀♀♂, AMAMI-ŌSHIMA Is. / 18. V.1960 / T. Shibata [leg.] (CYHK).

Ryukyu: Kumejima Is.: 3♀♂, Shirase-gawa [Riv.: ca. 26°20’N, 126°46’E] / Gushikawa-son / Kumejima Is. // Ryukyu, SW Japan / 15–17. III.1998 / M. Maruyama leg. (CMNE).

Ryukyu: Okinawa-hontō Is.: 1♂♀, [Okinawa: JAPAN] / Uka-rindō [ca. 26°43’N, 128°14’E], alt. 250–300 m, Kunigami vill. / 8.II.2009 / Takashi Kurihara leg. (CMNE); 1♂♀♀♂, same data as previous except 7.II.2009 (CYHK); 2♂♀♀♂, bank of Haneji-ō-kawa / Riv. [ca. 26°36’N, 128°01’E], 20–40 m in alt. / Nago-shi, Okinawa // (c. trap) 18. IV.1993 / R. Yakita leg. (CMNE); 13♂♂♀♀, same data as previous except: 8–18.IV.1993 (CMNE); 14♂♀♀♂♀♀♀♀, (JAPAN, Ryukyus) / Okinawa Pref. / Okinawa Is. / Nago City, Genka. / 26°36’N, 128°04’E // 10–13. III.2009. / by flight Intercept Trap / T. Fukuzawa, T. Ishikawa & M. Kishi leg. (CMNE).

Ryukyu: Tokuno-shima Is.: 1♂♀, (JAPAN) Kagoshima Pref. / Tokuno-shima Is., / Amagi Town, / Mt. Yamatogusuku-san [ca. 27°48’N, 128°55’E] / 29. II.–4. III.2008. (FIT) Takuya FUKUZAWA leg. (CMNE); 85♂♂♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀♀女足

Sadoga-shima Is.: 1♂♀, Mt. Donden-yama [ca. 38°07’N, 138°22’E] / Sado Is., Niigata / Pref., Honshu, Japan // 30. IV.–26. V. 1990 / leg. M. NISHIKAWA // carrion trap / alt. ca. 200 m (CMNE).

Shikoku: 1♀, [SHIKOKU] / Komenono [ca. 33°58’N, 132°51’E] / Matsuyama [Ehime Pref.] / 25. IV.1993 / Lizhen Li leg. (EUM); 1♂, (Ehime: Japan) / Aonamimachi [ca. 33°53’N, 132°51’E] / Matsuyama-shi / 24. V.2006 / Shōma Sejima leg. (EUM); 3♀♀, same data as previous except: 2.VI.2006 (EUM); 2♀♀, Minokoshi on Mt. / [ca. 33°51’N, 134°05’E] / Tsurugi-san / ca. 1400 m in alt. / Tokushima Pref. // Shikoku, Japan / 25.VII.2004; trap / Y. Fujitani leg. // 徳島県東祖谷山村 [Tokushima Pref., Higashiayama-son] / 見の越 [Minokoshi] / bait-
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Redescription. Male. EBL: 3.5–4.4 mm (3.5 mm in holotype of *P. kuntzeni*).

Length of different body parts: HL : AL : PL : ELL = 0.6 : 1.2 : 1.0 : 2.2 mm; width: HW : EW : PW : ELW = 1.0 : 0.1 : 1.6 : 1.6 mm. Proportion of antennomeres from base to tip in μm (length × width): 167 × 84, 118 × 68, 114 × 74, 67 × 80, 76 × 99, 53 × 114, 96 × 126, 42 × 128, 92 × 142, 97 × 138, 197 × 115.

Habitus (Fig. 1A, B) elongated oval, regularly convex and sublustrous. Well pigmented: mostly brown to dark brown, head darker; mouthparts, basal three or four antennomeres and apical half of ultimate antennomere, protarsi, and apical parts of meso- and metatarsi more or less paler. Dorsum continuously clothed with fine, recumbent, yellowish pubescence. Insertions of pubescence on dorsal surfaces of pronotum, elytra and femora aligned along transverse striolations; interspace between two striolations glabrous.

Head quite transverse, HW/HL = 1.6. Clypeofrontal suture absent. Clypeus with anterior margin slightly rounded. Compound eyes well developed, EW/HW = 0.1. Antennae (Fig. 3A) slender, AL/HW = 1.2; antennomere III as long as II; VI with length/width = 0.5; XI longest, elongated pear-shaped.
Figure 1. Habitus of *Ptomaphagus* (s. str.) spp. (dorsal view). A *P.* (s. str.) *kuntzeni* Sokolowski, 1957 ♂ (holotype) B *P.* (s. str.) *amamianus* Nakane, 1963, syn. n. ♂ (paratype) C *P.* (s. str.) *amamianus* Nakane, 1963, syn. n. ♀ (paratype) D *P.* (s. str.) *piccolo*i sp. n. ♂ (holotype) E *P.* (s. str.) *piccolo*i sp. n. ♀ (paratype) F *P.* (s. str.) *sibiricus* Jeannel, 1934 ♀ (holotype). Scale bar 1 mm.

Pronotum (Fig. 3B) transverse, widest just before hind angles, PW/PL = 1.5. Sides gently arched, gradually narrowing from posterior to anterior; hind angles drawn out, acute and sharp. Posterior margin widely protruding in the middle part, distinctly emarginate near hind angles.

Elytra oval, widest near basal 2/7, ELL/EW = 1.4. Sides weakly arched, gradually narrowing from widest part to apices, which widely rounded (Fig. 3G). Sutural striae present. Metathoracic wings fully developed.
Prolegs robust, with basal three protarsomeres (Fig. 3C) moderately expanded: TW/BTW = 1.4. Protibiae (Fig. 3E) distinctly expanded towards apex. Profemora (Fig. 3E) broad. Mesotibiae arcuate, mesotarsi simply linear. Metatibiae slender and straight.

Abdominal ventrite VIII (Fig. 3I) round at posterior edge and with an inconspicuous median notch. Spiculum gastrale of genital segment (Figs 2C, F; 3J) with approx. 1/3 of length protruding beyond anterior edge of epipleurite IX.

Aedeagus stout and wide, with median lobe gradually narrowing towards an oblong apex and terminated by an obtusely rounded knob in dorsal view (Figs 2A, D; 4A);
opening of genital orifice situated on dorsal surface, deeply cut inwards on left edge of median lobe at subapex. Ventral surface of the apex of the median lobe (Fig. 4B, D) inserted with 5 ventrally oriented setae on the left side and 4 ventrally oriented setae on the right side; parameres narrow, reaching almost to apical 1/5 of median lobe, each apex (Fig. 4E) with 2 lateral setae and 1 apical seta relatively shorter. In lateral view (Fig. 2B, E), median lobe distinctly thick, regularly bent ventrad and gradually tapering towards a subround apex. Endophallus with stylus quite slender, a cheliform complex below the base of stylus, and a circular complex at the basal region.
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**Figure 4.** *Ptomaphagus* (s. str.) *kuntzeni* Sokolowski, 1957 (Amami Island). A aedeagus (dorsal view) B aedeagus (ventral view) C aedeagus (lateral view) D aedeagal apex (ventral view) E paramere apex (lateral view) F ventrite VIII ♀ (ventral view) G spermatheca and genital segment (ventral view). Scale bars 0.1 mm.
Female. Similar to male in general appearance (Fig. 1C), including elytral apices (Fig. 3H), but distinguished by the following characteristics: protarsi (Fig. 3D) simply linear; protibiae (Fig. 3F) narrower at apex; ventrite VIII (Fig. 4F) almost narrowly rounded at posterior edge; genital segment as shown in Fig. 4G; spermatheca (Fig. 4G) C-shaped in distal part, not coiled in proximal part.

Distribution. China (Taiwan), Japan (Fig. 8), ?Myanmar.

Remarks. Varying body size is not an unexpected intraspecific variation in *Ptomaphagus* species, and occurs in common European species such as *P. (s. str.) seriatus* (Chaudoir, 1845) and *P. (s. str.) varicornis* (Rosenhauer, 1847). Although the holotype and paratypes of *P. (s. str.) amamianus* (Fig. 1B, C) are larger than the holotype of *P. (s. str.) kuntzeni* (Fig. 1A), this does not prevent us from synonymising the two species because of their identically shaped aedeagus (Fig. 2A, B, D, E).

*Ptomaphagus* (s. str.) *kuntzeni* somewhat resembles *P. (s. str.) sibiricus* in general appearance, but the former has antennomere III as long as II (Fig. 3A), antennomere VI with length/width = 0.5 and elytral apices (Fig. 3G, H) widely rounded; while the latter has antennomere III a little shorter than II (Fig. 7A), antennomere VI with length/width = 0.4 and elytral apices (Fig. 7B) narrowly rounded.

It should be noticed that Szymczakowski (1964) described a single female specimen from Kambaiti, Myanmar (coll. Naturhistoriska Riksmuseet, Stockholm) as *Ptomaphagus* (s. str.) *kuntzeni*. We concur with the opinion of Nishikawa (2011) that the occurrence of *P. (s. str.) kuntzeni* in Myanmar is dubious because of the wide geographical gap and the discrepancies of the morphological description of Szymczakowski (1964) with specimens from Japan.

According to the present data, this species is one of the most widespread cholevines in Japan, known from Honshu, Shikoku, Kyushu and Ryukyus. However, we have not yet examined any specimens from the northernmost area of Honshu (above the 38th parallel) or from the southern Kume-jima Island in Ryukyus (Fig. 8). The species is recorded herein from Sadoga-shima Island, Shimokoshiki-jima Island and Kume-jima Island for the first time. Incidentally, no *Ptomaphagus* species have been recorded from Hokkaido to date. Moreover, Perreau (1996) reported the species from Taiwan Island under the name *P. (s. str.) amamianus*. We will deal with this area in a next paper devoted to *Ptomaphagus* from Taiwan.

Collecting methods for the material examined mostly indicate a necrophagous association, such as traps baited with decaying animal matter.

*Ptomaphagus* (s. str.) *piccoloi* sp. n.
http://zoobank.org/AE951C06-DAB3-4FBF-8CE8-35BF2B77882D
Figs 1D, E; 5A–J; 6A–G

Type material. Holotype: ♂, [JAPAN] Mt. Yamanori-yama [ca. 35°14’N, 133°49’E] / Chûka-son, Maniwa- / ca. 900 m in alt. / gun, Okayama Pref. // W Honshu, W Japan / 26.VI.2004; FIT / Y. Fujitani leg. // 5 (NSMT). Paratypes: 1♀, same data
as holotype except: 2.VII.2004 (NSMT); 1♀, JAPAN, Ibaraki Pref. / Tsukuba City env. (ca. 36°04′N, 140°04′E) / 12.XI.2005 / P. Jaloszyński leg. // PTOMAPHAGUS (PTOMAPHAGUS) sibiricus JEANNEL, 1934 / det. H. HOSHINA, 2006 (CPJA); 4♂6♀, Kurokura [ca. 35°25′N, 139°04′E] / ca. 400 m, Yamakita-machi / Ashigarakami-gun / Kanagawa Pref., C Japan // [trap: under stones at base of / debris slope] 29.IV.–14.V.2011 / M. Nishikawa leg. (2♂2♀ in CCBW, 1♂3♀ in CJRZ and 1♂1♀ in CMPR); 1♂, same data as previous except: 13.II.–18.III.2016 (CMNE); 1♂, [JAPAN] YAWATA [ca. 34°52′N, 135°42′E] / KYOTO [Pref.] // Ptomaphagus sibiricus JEANNEL / Det. Y. HAYASHI, 1985 (NMPC); 2♂1♀, [JAPAN] 岡山県美作市 [Okayama Pref., Mimasaka-shi] / 白水 [Shirimizu: ca. 34°58′N, 134°15′E] / bait-trap / 23.V.–8.VII.2015 / KAMEZAWA Hiromu leg. (CMNE); 1♂, same data as previous except: WFIT: 1100 m in alt. // 35.858796, 139.034128 (CMNE); 1♀, [JAPAN] 京都府八王子市東京 / 日原 [Mt. Isseki-zan–Mt. Ningyô- / yama (approx. 500 m in alt.), Hachioji Shi, Tokyo To / 10.III.2007 / KAMEZAWA Hiromu leg. // KAMEZAWA Collection (CMNE); 1♂, same data as previous except: 14.II.2004 (CMNE); 1♂, [JAPAN] Mt. MASUGATAYAMA [ca. 35°36′N, 139°33′E] / KAWASAKI KAN / GAWA [Pref.] / H. HARADA leg. (CMNE); 1♂, same data as previous except: 2-c (CMNE); 1♂1♀, JAPAN Kanagawa-ken / Ashigarakami-gun / Yamakita-machi Kurokura [ca. 35°25′N, 139°04′E] / 29.IV.2011 alt. ca. 400 m / Ichiro Oshio leg. (CYFO); 1♂, [JAPAN] Mikuni-toge [ca. 35°24′N, 138°54′E] / Kanagawa [Pref.] / 7.VI.1970 / H. Takizawa leg. (CMNE); 1♀, [JAPAN] (Near BODAI [ca. 35°24′N, 139°11′E]) / Tanzawa [Mts., Kanagawa Pref.] / May 3rd 1973 / Coll. Y. Shibata (CMNE); 1♀, [JAPAN] 鳥取県 [Tottori Pref.] 西伯郡 [Saihaku-gun] / 大山町 [Daisen-chō] 三ノ沢 [Sannosawa: ca. 35°21′N, 133°32′E] / FIT alt 960 m / 6月7–23日2008年 [7–23.VI.2008] / 渡辺昭彦 [Watanabe, Akihiko] 採集 [leg.] (CYFO); 1♂, [JAPAN] 岡山県 [Okayama Pref.] 真庭市 [Maniwa-shi] / 根山 [Hiruzen] 蒜山 / 大山 S.L. [Hiruzen-Daisen Skyline road: ca. 35°19′N, 133°35′E] / 6月9–17日2007年 [9–17.VI.2007] / 渡辺昭彦 [Watanabe, Akihiko] 採集 [leg.] (CYFO); 1♂, [JAPAN] Jigokuana Cave [ca. 35°19′N, 135°27′E] / Mt. Chorosan / Wachi, KYOTO / 16.XI.1986 // Y. NISHIKAWA [leg.] // 仏主の地獄穴 [Hodosu-no-jigokuana Cave] / 16.XI.1986 (西川 [Nishikawa]) / Y. NISHIKAWA [leg.] (CYHK); 1♂, [JAPAN] OH-DOH [ca. 35°19′N, 139°19′E] 大堂 [Ôdô] (Tul.) / Mt. Koma-yama Ohiso town
Description. Male. EBL: 2.7–3.0 mm (2.7 mm in holotype). Length of different body parts: HL : AL : PL : ELL = 0.5 : 0.8 : 0.8 : 1.7 mm; width: HW : EW : PW : ELW = 0.7 : 0.1 : 1.2: 1.3 mm. Proportion of antennomeres from base to tip in μm (length × width): 116 × 61, 91 × 56, 70 × 61, 40 × 66, 43 × 76, 40 × 95, 32 × 107, 59 × 112, 68 × 113, 121 × 104.

Habitus (Fig. 1D) elongated oval, regularly convex and sublustrous. Well pigmented: mostly brown; mouthparts, apical half of ultimate antennomere, protarsi, and...
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**Figure 5.** *Ptomaphagus* (s. str.) *piccoloi* sp. n. (paratype). **A** antenna ♂ (dorsal view) **B** pronotum ♂ (dorsal view) **C** protarsus ♂ (dorsal view) **D** protarsus ♀ (dorsal view) **E** protibia and profemur ♂ (dorsal view) **F** protibia and profemur ♀ (dorsal view) **G** elytral apex ♂ (dorsoapical view) **H** elytral apex ♀ (dorsoapical view) **I** ventrite VIII ♂ (ventral view) **J** genital segment ♂ (ventral view). Scale bars 0.1 mm.

Apical parts of meso- and metatarsi more or less paler. Dorsum continuously clothed with fine, recumbent, yellowish pubescence. Insertions of pubescence on dorsal surfaces of pronotum, elytra and femora aligned along transverse striolations; interspace between two striolations glabrous.

Head transverse, HW/HL = 1.5. Clypeofrontal suture absent. Clypeus with anterior margin slightly rounded. Compound eyes small, EW/HW = 0.1. Antennae (Fig. 5A) slender, AL/HW = 1.1; antennomere III a little shorter than II; VI with length/width = 0.5; XI pear-shaped.
Pronotum (Fig. 5B) transverse, widest just before hind angles, PW/PL = 1.6. Sides gently arched, gradually narrowing from posterior to anterior; hind angles slightly drawn out and bluntly rounded. Posterior margin widely protruding in the middle part, distinctly emarginate near hind angles.

Elytra oval, widest at approx. basal 1/4, ELL/EW = 1.35. Sides weakly arched, gradually narrowing from widest part to apices, which narrowly rounded (Fig. 5G). Sutural striae present. Metathoracic wings fully developed.

Prolegs robust, with basal three protarsomeres (Fig. 5C) moderately expanded: TW/BTW = 1.5. Protibiae (Fig. 5E) distinctly expanded towards apex. Profemora broad. Mesotibiae slightly arcuate, mesotarsi simply linear. Metatibiae much thick and straight.

Abdominal ventrite VIII (Fig. 5I) almost round at posterior edge and with a distinct median notch. Spiculum gastrale of genital segment (Fig. 5J) with nearly 1/2 of length protruding beyond anterior edge of epipleurite IX.

Aedeagus small, slender and narrow, with median lobe gradually narrowing towards a leaf-shaped apex and terminated by an obtusely rounded knob in dorsal view (Fig. 6A); opening of genital orifice situated on dorsal surface, deeply cut inwards on left edge of median lobe at subapex. Ventral surface of the apex of the median lobe (Figs 6B, D) inserted with 4 ventrally oriented setae on the left side and 5 ventrally oriented setae on the right side; parameres narrow, reaching almost apical 1/8 of median lobe, each apex (Fig. 6E) with 2 lateral setae and 1 apical seta relatively shorter. In lateral view (Fig. 6C), median lobe thin, bent in basal half and almost straight in apical half, gradually tapering apically. Endophallus with stylus quite slender, a cheliform complex just below the base of stylus, and a circular complex at the basal region.

Female. Similar to male in general appearance (Fig. 1E), but distinguished by the following characteristics: protarsi (Fig. 5D) simply linear; protibiae (Fig. 5F) narrower; elytral apices (Fig. 5H) acuminate; ventrite VIII (Fig. 6F) slightly protruded in median of posterior margin; genital segment as shown in Fig. 6G; spermatheca (Fig. 6G) sinuous or coiled in distal part, not coiled in proximal part.

Distribution. Japan (Fig. 9).

Etymology. The specific epithet is from the name of “Piccolo”, a fictional character in the Dragon Ball manga series created by Akira Toriyama, which also has an Italian origin meaning of “small” that refers to the small body size of this new species.

Remarks. Several examined specimens of this tiny species had been previously identified as *Ptomaphagus* (s. str.) *sibiricus* (maybe more specimens are deposited in different Japanese researchers’ collections); however, it is conspicuously different to the holotype of *P*. (s. str.) *sibiricus*. The new species is smaller, with metatibiae much thicker (Fig. 1D, E) and female elytral apices acuminate (Fig. 5H); while *P*. (s. str.) *sibiricus* is larger, with metatibiae slender (Fig. 1F) and female elytral apices narrowly rounded (Fig. 7B).

Interestingly, the new species has the thickest metatibiae and most apparent sexual dimorphism on the elytral apices that we have encountered in any *Ptomaphagus* from East Asia and adjacent areas.

The new species has hitherto been known from Honshu and Kyushu (Hisamatsu and Hayashi 1985, for example), Japan, under the name *P*. (s. str.) *sibiricus*. Despite
Figure 6. *Ptomaphagus* (s. str.) *piccolo* sp. n. (paratype). A aedeagus (dorsal view) B aedeagus (ventral view) C aedeagus (lateral view) D aedeagal apex (ventral view) E paramere apex (lateral view) F ventrite VIII ♀ (ventral view) G spermatheca and genital segment (ventral view). Scale bars 0.1 mm.
a long history of studies, it has not yet been recorded from Shikoku; also we have not examined any specimens of this new species from northern Honshu, above the 37\textsuperscript{th} parallel (Fig. 9). In these two areas, the new species can be regarded as at least rare or more probably completely absent. Specimens from Yashiro-jima Island in the Setonai-kai Inland Sea were previously reported (as \textit{P. sibiricus}) in Tanaka and Ban (2006).

As indicated in the material examined, \textit{P. (s. str.) piccoli} sp. n. has been collected from various habitats such as caves, under stones at the base of debris slopes and in litter layers. Collecting methods for the material mostly indicate a necrophagous association, such as traps baited with decaying animal matter.

\textit{Ptomaphagus (s. str.) sibiricus} Jeannel, 1934

Figs 1F; 7A–D

\textit{Ptomaphagus (s. str.) sibiricus} Jeannel 1934: 165 (\textit{Ptomaphagus (s. str.); }type locality: [RUSSIA, Far East] Wladiwostok; SDEI); Jeannel 1936: 72, 84 (\textit{Ptomaphagus (s. str.); }in key; distribution); Nishikawa 1983: 1 (\textit{Ptomaphagus (Ptomaphagus);}

\textbf{Figure 7.} \textit{Ptomaphagus (s. str.) sibiricus} Jeannel, 1934 ♀ (holotype). \textbf{A} antenna (dorsal view) \textbf{B} elytral apex (dorsoapical view) \textbf{C} protibia and profemur (ventral view) \textbf{D} ventrite VIII (ventral view). Scale bars 0.1 mm.
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Figure 8. Distribution map of *Ptomaphagus* (s. str.) *kuntzeni* Sokolowski, 1957 in Japan.

Material examined. Type material. Holotype: ♀, [RUSSIA, Far East] Wladiwostok [ca. 43°10’N, 132°00’E] // Reitter // Coll. Koltze // Pt. variicornis / Rosenh. // *Ptomaphagus* sibiricus Jeann. // type / R. Jeannel det. // DEI Müncheberg / Col – 07069 (SDEI).

Distribution. Russia (Far East).

Remarks. Jeannel (1936) thought that *Ptomaphagus* (s. str.) *sibiricus* is also distributed in Japan based on a single female specimen from Chiuzenji (deposited in...
Figure 9. Distribution map of *Ptomaphagus* (s. str.) *piccoloi* sp. n. in Japan.

BMNH). So far, we have not seen any specimens from Japan identical with the holotype of *P.* (s. str.) *sibiricus*, and examined specimens previously identified as *P.* (s. str.) *sibiricus* actually belong to *P.* (s. str.) *piccoloi* sp. n. After examining this Japanese female specimen, labeled “Japan. / G. Lewis. / B. M. 1926–369. // Chuzenji [ca. 36°46’N, 139°28’E]. // Ptomaphagus / sibiricus Jean. / Jeannel det.”, we found it actually belongs to *P.* (s. str.) *kuntzeni*, so *P.* (s. str.) *sibiricus* is absent in Japan.

Unfortunately, the spermatheca and genital segment of the holotype of *P.* (s. str.) *sibiricus* are missing. This species will be described in another paper after examining more specimens from the Russian Far East and the Korean Peninsula.
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