

## Occurrence of a New Apterous Species of *Ptomaphagus* (Coleoptera, Cholevidae) in Taiwan

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**Abstract** A new apterous species of the cholevid genus *Ptomaphagus* is described from Taiwan, under the name of *P.* (s. str.) *yasutoshii* sp. nov. It is a second species of the genus known from the Oriental Region, and is characterized mainly by the elytral sculpture and configuration of male genital organ. The new species seems to be an inhabitant of animal-burrows or an edaphophilic species.

Mr. Yasutoshi SHIBATA kindly offered me Taiwanese cholevid beetles collected by himself several years ago, in which were found a pair of specimens of a strange ptomaphagine cholevid beetle. Recently, a female specimen seemingly belonging to the same species was received from Mr. Yasuhiko HAYASHI for comparison. As the result of my study, it became apparent that the species was new to science.

Up to the present, no species belonging to the genus *Ptomaphagus* has been known from Taiwan. Only a single species, *P.* (s. str.) *kuntzeni* SOKOLOWSKI, has been known from Kambaiti in northeastern Burma at the periphery of the Oriental Region (SZYMCAKOWSKI, 1964). Thus, the present new species is not only the first representative of the genus known from Taiwan, but also the first one found in the Oriental Region. In the following lines, I am going to describe this interesting new species. The abbreviations used herein are already explained in my previous papers.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UENO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in critically reading the original manuscript of this paper. My cordial thanks are also due to Messrs. Yasutoshi SHIBATA of Tokyo, Yasuhiko HAYASHI and Noboru ITO of Kaw-nishi City who gave me the opportunity to study on the interesting materials or useful information.

*Ptomaphagus* (s. str.) *yasutoshii* M. NISHIKAWA, sp. nov.

(Figs. 1–8)

*Male.* Length 3.80 mm (in normal condition), width 1.88 mm. Body elongate-oval, rather flat, uniformly clothed with relatively long, golden, adpressed pubescence. Forehead to vertex dark reddish brown, occiput blackish brown, with margins darker though occipital carina bears golden luster; gena reddish brown with margins darker; maxillary palpus clear reddish brown; eyes and epipleura reddish brown; antennal

segments I to VIII dark reddish brown, IX to XI reddish brown; pronotum, scutellum and elytra dark reddish brown, with margins darker; ventral surface reddish brown, thoracic segments with margins darker; legs with femur reddish brown, tibia dark reddish brown with apical comb of short spines basally blackish, protarsus clear reddish brown, the remaining tarsi darker.

Head gently convex, with relatively regular, shallowly strigate punctuations, widest at the level of occipital carina (length: width=ca. 2 : 3); labrum trapezoidal, front margin almost straight, with gentle punctuations; maxillary palpus with last segment about 4/7 as long as the preceding segment; eyes reduced though completely faceted, slightly prominent, horizontal diameter about 1/2 as wide as the distance between antennal socket and occipital carina across eye; a ridge present from antennal socket to top of eye. Antenna slender, extending to behind pronotal base, segment I the longest, II as long as VII or X, then as wide as III or IV, III to IX loosely articulated, III  $2.3 \times$  longer than wide, IV to X cylindrical, slightly depressed, V and VI slightly wider than long, VII to XI equal in width, VIII strongly transverse,  $2.5 \times$  as wide as long, IX as wide as long, X longer than wide, XI subconical, slightly depressed,  $1.8 \times$  as long as wide. Segmental measurements (length followed by width) as follows: I, 0.3, 0.1; II, 0.15, 0.075; III, 0.175, 0.075; IV, 0.1, 0.075; V, 0.075, 0.0875; VI, 0.0875, 0.1; VII, 0.15, 0.125; VIII, 0.05, 0.125; IX, 0.125, 0.125; X, 0.15, 0.125; XI, 0.225, 0.125.

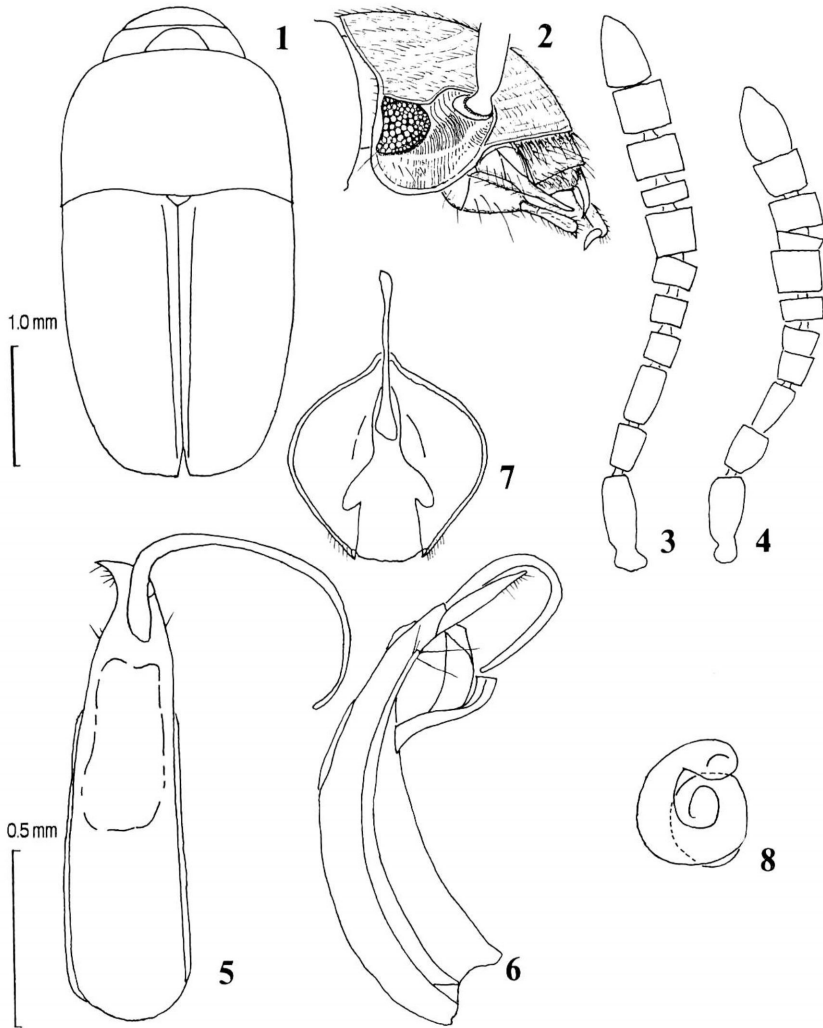
Pronotum transverse, trapezoidal, widest at base, which is nearly as wide as elytral base, PW/HW 1.60, PW/PL 1.50; front margin almost straight, front angles rounded, sides arcuate in apical halves, well sinuate near hind angles in oblique view, basal margin bisinuate with hind angles projected, pointed at the tips; surface with distinct strigations, forming irregular wavy lines. Scutellum triangular.

Apterous. Elytra incompletely fused with each other, oblong, slightly convex, widest at basal 1/3, EW/PW 1.04, EL/PL 2.08, EL/EW 1.33; sides subparallel in basal portions, though gently arcuate in posterior 2/3, apices separately subtruncate; epipleura ending at apical 1/7; disc with suture entire, sutural stria almost straight in basal half, surface strigulate, the striga transverse or partly oblique to sutural stria. Pygidium moderately punctured.

Ventral surface moderately punctured. Mesosternum with a carina along midline, the carina with the free edge slightly rounded, basal notch conspicuous.

Legs relatively slender, with protibia dilated at inner side, though almost straight at outer side, widest at the apex. Protarsus well dilated, though the segment I is narrower than the apex of protibia.

Aedeagus asymmetrical, long, becoming narrower apically, apical portion strongly arcuate to the right, apex pointed; apical orifice situated on the dorsal surface, deeply cut inwards on the left edge near apex. Parameres developed in basal portions, reaching apical 1/5 of aedeagus. Genital segment with spiculum gastrale moderately long, slightly swollen in apical portions, enclosed for about 1/2 by genital plates, which are gently bordered.



Figs. 1–8. *Ptomaphagus* (s. str.) *yasutoshii* M. NISHIKAWA, sp. nov., from near Tsuifeng in central Taiwan. — 1, Outline of body, ♂; 2, head in lateral view, showing reduction of eyes, ♂; 3, antenna, ♂; 4, same, ♀; 5, male genitalia in dorsal view; 6, same in lateral view; 7, genital plate, ♂; 8, spermatheca. (Scales: 1 mm for Fig. 1 and 0.5 mm for Figs. 3–8. Fig. 2 is a freehand drawing.)

*Female.* Length 3.85 mm (from apex of labrum to apices of elytra), width 1.90 mm. Similar in general appearance to male, but differing from it in the following points: body reddish brown; antennal segments I and II clear reddish brown, III to XI reddish brown, apical half of the last segment paler, segments VII, IX and X slightly wider than long. Segmental measurements of antenna (length followed by width) as follows: I, 0.225, 0.1; II, 0.15, 0.075; III, 0.15, 0.075; IV, 0.075, 0.075; V, 0.075, 0.1;

VI, 0.075, 0.125; VII, 0.125; 0.1375; VIII, 0.0375, 0.125; IX, 0.1125, 0.15; X, 0.1, 0.125; XI, 0.2, 0.125.

Pronotum slightly shorter than in male, PW/HW 1.59, PW/PL 1.67, EW/PW 1.09; pronotal sides slightly sinuate before hind angles; elytra with apices separately rounded; EL/PL 2.33, EL/EW 1.29. Legs with protibia and protarsi normal.

Spermatheca spiral-shaped, broadly flattened, with central shaft thick, strongly curved, tapering posteriorly, posterior end forming a knob, weakly notched at the inner side just before the knob, orifice situated laterad, anterior end discoidal, thick.

*Type series.* Holotype: ♂, near Tsuifeng, 2,200 m in alt., Nantou Hsien, Taiwan, 25–VIII–1974, Y. SHIBATA leg. Allotype: ♀, same locality and altitude as the holotype, 27–VII–1974, Y. SHIBATA leg.

*Other specimen examined.* 1 ♀, Mt. Yüshan, Taiwan, 20–V–1981, N. ITO leg.

The left antennal segments II–XI and the left protarsal segments IV–V are missing in the holotype. It will be deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo, the allotype is preserved in the collection of mine. The other specimen examined is returned to Mr. HAYASHI.

*Notes.* The Yüshan specimen is somewhat different from the allotype in the body size (length 4.30 mm, width 1.98 mm) and in the ratios of antennal segments. In the former, the antennal segment III is distinctly longer than II, and each of IV and V is slightly longer than wide; in the latter, the segments II and III are equal in length, and 1/2 as wide as long, IV as wide as long, and V slightly wider than long. Segmental measurements (length followed by width) in the Yüshan specimen are as follows: I, 0.275, 0.1; II, 0.0875, 0.075; III, 0.2, 0.075; IV, 0.1, 0.075; V, 0.0875, 0.1; VI, 0.0875, 0.1125; VII, 0.125, 0.1375; VIII, 0.05, 0.125; IX, 0.1, 0.125; X, 0.1125, 0.1375; XI, 0.2, 0.15. Measurements of body parts are nearer than those of the holotype, except for EL/PL and EL/EW, i.e., PW/HW 1.60, PW/PL 1.48, EW/PW 1.03, EL/PL 1.92, EL/EW 1.27. However, the spermathecal configuration of this specimen is identical with that of *yasutoshii*. It can be regarded as a geographical variant of the same species.

So far as I know, twenty-three species of the subgenus *Ptomaphagus* have hitherto been known in the world. The present new species, *yasutoshii*, is similar to *P.* (s. str.) *circassicus* (REITTER) from western Caucasus and Crimea (SZYMCAKOWSKI, 1970) in the straight elytral strigations, though they are distinct from each other. In this point, it is also similar to *P.* (*Adelops*) *schwarzi* HATCH and *P.* (*A.*) *nevadicus* HORN from California in North America, but subgeneric characters indicate that it belongs to the subgenus *Ptomaphagus* s. str. It can be distinguished from all the other members of the subgenus by the shape of antennal segments (Figs. 3–4), reduced but faceted eyes (Fig. 2), absence of hind wings, and particularly, by the strongly right-curved apex of the aedeagus of male genitalia (Figs. 5–6). Such characteristic configuration of the aedeagal apical part is unique among the congeneric species. In female, it may also be characterized by the shape of the spermatheca. PECK (1973) studied on North American *Ptomaphagus* (*Adelops*), and distinguished three phylogenetic groups among

them based on the characters of spermatheca. In the Old World species belonging to the subgenus *Ptomaphagus*, however, only six species have been described or figured on their spermatheca by KEVAN (1963), SZYMCAKOWSKI (1976) and PERREAU (1988). As is shown in Fig. 8, *P. yasutoshii* has a flat spiral-shaped spermatheca. It somewhat resembles those of several species of the subgenus *Adelops*, but a similar conformation is unknown in the Old World species for the present.

Elytral strigations are similar in the four species as mentioned before. No ecological information is available about one of them, *P.* (s. str.) *circassicus*. It is available about *P.* (*A.*) *schwarzi* and *P.* (*A.*) *nevadicus*, which are said to inhabit frequently in nests and burrows of small mammals (HATCH, 1957; PECK, 1973). According to personal communication from Mr. SHIBATA, the first collector of the new species from Tsuifeng, his specimens were probably sorted out from leaf litter near a small stream in a forest. Mr. ITO informed me that his specimen had probably been taken from under stone or moss or leaf litter at 2,800 to 3,997 m in altitude on Mt. Yüshan. Thus, nothing is certainly known on the microhabitat of *P. yasutoshii* with the exception of the collecting data. Judging from the appearance of *P. yasutoshii*, however, it seems to be an inhabitant of animal-burrows as in the case of Californian congeners or an edaphophilic species, at least not an epigeal form.

## 要 約

西川正明：台湾に産するニセチビンデムシ属の1新種。——東洋区に属する地域からこれまでに記録されたニセチビンデムシ属 *Ptomaphagus* の種としては、ハギニセチビンデムシ *P.* (s. str.) *kuntzeni* SOKOLOWSKI の雌個体ただ1頭が、北東ビルマから知られているにすぎなかった。しかし、台湾の山地帯に本属の新種の分布することが判明したので、これを *Ptomaphagus* (s. str.) *yasutoshii* M. NISHIKAWA, sp. nov. と命名して記載した。この新種は、触角の形状、雄交尾器の形態などで、同属の他種と区別できるが、とくに先端が強く右曲する陰茎の形状は、他に類をみない。残念ながら、旧世界に産するほとんどの種について、雌の受精嚢の形状が明らかになっていないので、詳しい比較検討はできないが、本種のそれはらせん形を呈し、北米産の別亜属 *Adelops* のいくつかの種のものに類似している。

いっぽう、複眼の縮小、いくぶん細長い触角、そして後翅を欠くという特徴は、本種が地表性の種ではないことを示唆している。また興味深いことに、本属の大部分の種では、上翅の会合条線に対し、斜の横細条をもつが、本種は、ほぼ直線的な細条をそなえている。こうした横細条をもつものは、コーカサスから記載され、クリミア半島からも近年になって記録された *P.* (s. str.) *circassicus* REITTER と、別亜属でカリフォルニア産の *P.* (*Adelops*) *shwarzi* HATCH, *P.* (*A.*) *nevadicus* HORN の3種があるが、前者についての生態的知見は見つからなかった。しかし、あとの2種については、小型哺乳動物の巣穴の住人であることが報告されている。これら4種の上翅横細条の形態的同一性は、どのように考えたらよいのだろうか。

本種の採集者である柴田泰利氏ならびに伊藤 昇氏は、筆者の照会に対して、採集地の環境やその時の採集法を連絡してくださったが、問題の個体を具体的にどう採集したかは記憶にないようであった。しかし、先に記した特徴に基づいて想像をたくましくすれば、北米産の種と同様に小型哺乳類の

巢穴に生息する種か、あるいは土壤中に生息する種で、少なくとも地表性のものではないように思われる。

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