

Weevils of the Genus *Pinacopus* (Coleoptera, Curculionidae) from Laos

Hiroaki KOJIMA

Laboratory of Entomology, Tokyo University of Agriculture,
1737 Funako, Atsugi, Kanagawa, 243-0034 Japan

Abstract Three new species of *Pinacopus*, *P. phousamsoumnus* sp. nov., *P. similis* sp. nov. and *P. brevis* sp. nov., are described from the mountain of central Laos. All of them are occurring sympatrically, similar to each other in the features of scales, rostrum and prothorax and easily distinguished from the previously known Laotian species from another mountain by the key given in this paper.

Many apterous beetles occur in the cloudy forests of Laotian mountains, where the peaks over 2,000 m in altitude. They belong to the families Tenebrionidae, Cerambycidae, Anthribidae and Curculionidae, and the last family is the most diversified in number of species. Member of the subfamily Molytinae is predominant among the family, and *Pinacopus* is one of them. The weevils are collected from shrubs, which are more or less covered with lichens, by beating method.

Eleven species of *Pinacopus* are known from mountainous areas of Malaysia (8 spp.), Thailand (1 sp.), Laos (1 sp.) and North India (1 sp.) (MARSHALL, 1932, 1942; KOJIMA & MORIMOTO, 2002; KOJIMA *et al.*, 2003). They are all localized due to the complete obliteration of the hind wings. Laotian species was described recently from the mountain (Phou Pan) of Houaphan Province, northeast Laos (KOJIMA *et al.*, 2003). Further species were found from another mountain (Phou Samsoum), only 125 km apart southward from previous locality, of Xiengkhouang Province, central Laos, and located at the northern end of the Annamese Cordillera. They consist of three species closely related to each other, and are clearly different from the previous Laotian species in the scaly structure.

The type materials are preserved in the Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Kanagawa, Japan.

Genus *Pinacopus* MARSHALL

Pinacopus MARSHALL, 1932, 348 (type species: *Pinacopus caudatus* MARSHALL, 1932; Hylobiinae: Anthonini: Cycloterina; Malaysia). — MARSHALL, 1942, 385 (key to the species; Malaysia, Thailand, India). — ASLAM, 1963, 63 (in a key to the genera of Hylobiinae; definition of the subfamily Hylobiinae), 65 (Cryptorhynchinae). — ALONSO-ZARAZAGA & LYAL, 1999, 195 (Molytinae: Molytini: Molytina). — KOJIMA & MORIMOTO, 2002, 425 (Malaysian spp.). — KOJIMA, *et al.*, 2003 (supplement to the Malaysian species and Laotian species).

Distribution. India (Assam), Laos, Thailand, Malaysia, Borneo (Sarawak; cf. MARSHALL, 1942).

Comments. The Laotian *Pinacopus* species are externally similar to *P. mishmensis* MARSHALL, 1942 known from Assam among congeners in having the conspicuous scaled derm. These species are distinguished from other congeners by combinations of the following features: antennae with 2nd funicular segment not longer than 1st; elytra with bicolorous scaly markings, without any trace of apical processes; femora each with a small obtuse tooth; and 1st abdominal ventrite without any tubercles in male.

Key to the Laotian Species

- 1(2): Recumbent scales not plumose, subrecumbent to erect scales not condensed to form tuft. Rostrum denticulate dorsally in male. Pronotum with median carina. Fore tibiae with fringe of long hairs along inner margin in male. Length: 5.4–8.0 mm. *P. satoi* KOJIMA et MORIMOTO
- 2(1): Recumbent scales plumose, suberect to erect scales more or less condensed to form tufts on pronotum and elytra. Rostrum not denticulate dorsally. Pronotum without median carina. Fore tibiae without fringe of long hairs along inner margin.
- 3(4): Elytra oblong-ovate, about 1.5 times as long as wide. Metasternum behind coxae as long as length of the latter. Length: 4.6–6.9 mm.
..... *P. phousamsoumnus* sp. nov.
- 4(3): Elytra ovate to broadly ovate, 1.4 times or less as long as wide. Metasternum behind coxae a little shorter than length of the latter.
- 5(6): Elytra ovate, 1.4 times as long as wide, subparallel-sided behind shoulders to middle, sometimes weakly rounded laterally in female. Hind tibiae with uncus arrowhead-shaped at tip in male. Abdominal ventrite with recumbent to subrecumbent scales directing posteriorly. Length: 4.1–5.8 mm.
..... *P. similis* sp. nov.
- 6(5): Elytra broadly ovate, 1.3 times as long as wide, weakly rounded laterally. Hind tibiae with uncus usual in shape. Abdominal ventrite with suberect scales directing inward on each side of median depression in male. Length: 3.7–4.6 mm. *P. brevis* sp. nov.

Pinacopus satoi KOJIMA et MORIMOTO, 2003

(Fig. 16)

Pinacopus satoi KOJIMA et MORIMOTO, 2003, 408 (habitus photographs of female holotype, fore and hind tibiae of male, male and female terminalia).

See KOJIMA *et al.* (2003) for description. Additional description based on further materials is given below.

Male and Female. Length: 5.4–7.7 mm; width: 2.1–3.0 mm (male) and length: 6.1–8.0 mm; width: 2.5–3.3 mm (female). Metasternum behind coxae a little shorter than length of the latter.

Additional specimens examined. 3 males and 9 females, Phou Pan (alt. ca. 1,500–2,000 m), 13–VI–2009, H. KOJIMA; 6 males and 3 females, 23–VIII–2009, H. KOJIMA.

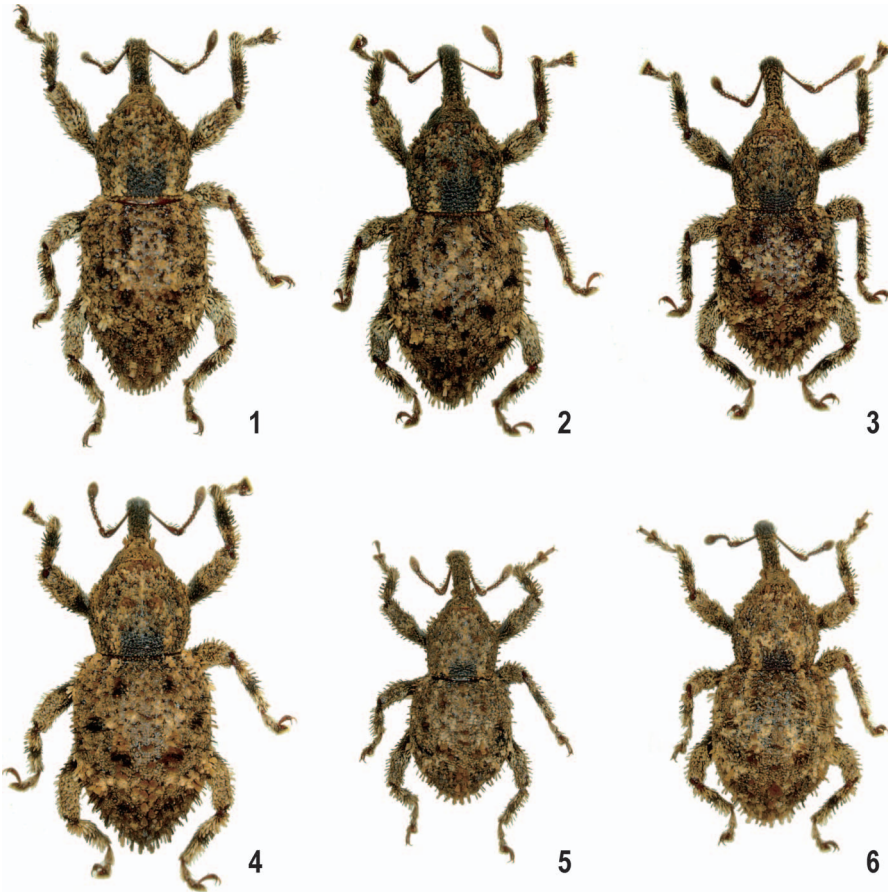
Distribution. Laos (Houaphan Prov.).

Pinacopus phousamsoumnus sp. nov.

(Figs. 1, 2, 7, 8, 13, 17, 18–23)

Male. Length: 4.6–6.0 mm; width: 2.0–2.6 mm.

Dull black, antennae and tarsi piceous, with dense round plumose recumbent and

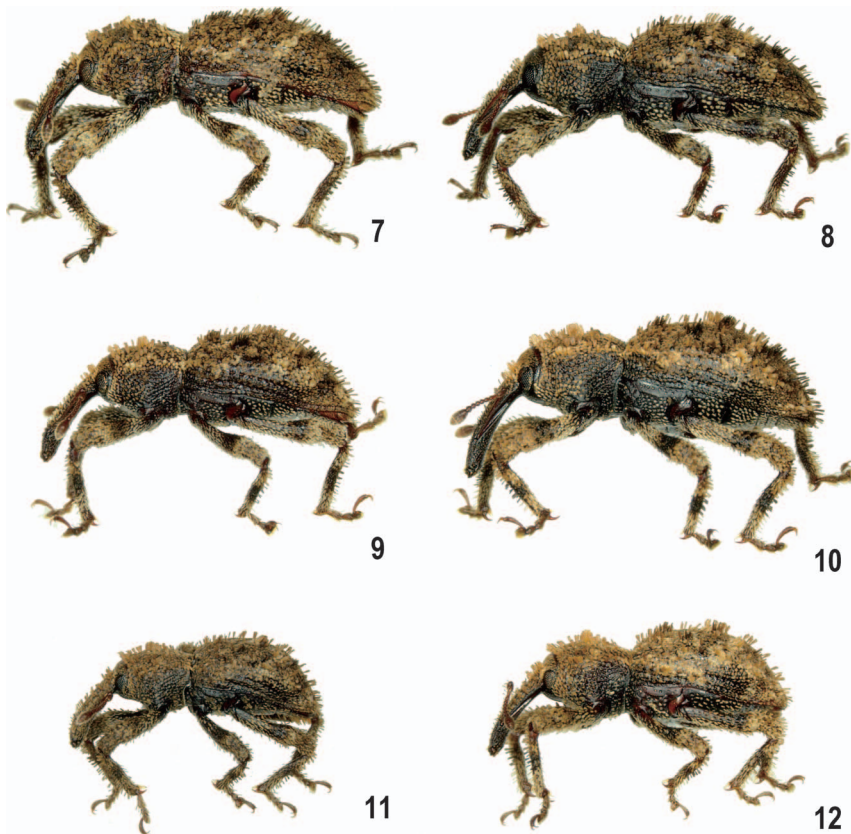


Figs. 1–6. Habitus photographs of the Laotian *Pinacopus* spp., dorsal. — 1, 2, *P. phousamsoumnus* sp. nov.; 3, 4, *P. similis* sp. nov.; 5, 6, *P. brevis* sp. nov. (1, 3, 5, male; 2, 4, 6, female).

suberect to erect spatulate to ovate scales yellowish and brownish gray to black in color above, and sparser and narrower recumbent to subrecumbent yellowish gray scales beneath, prothorax with ill-defined yellowish gray weakly round stripe on each side of median dark fleck, elytra with ill-defined yellowish gray oblique band behind middle.

Head with dense plumose scales, several spatulate erect scales adjoining eyes. Rostrum a little shorter than or nearly as long as pronotum, dorsum with very weak median and two lateral carinae not denticulate, interspaces with shallow subconfluent punctures, set with round plumose scales and oblong-ovate erect scales. Antennae with scape sparsely bearing elongate erect scales on apical half; funicle with 2nd segment a little shorter than 1st, 3rd to 5th slightly diminishing length distally, 5th to 7th subequal in length.

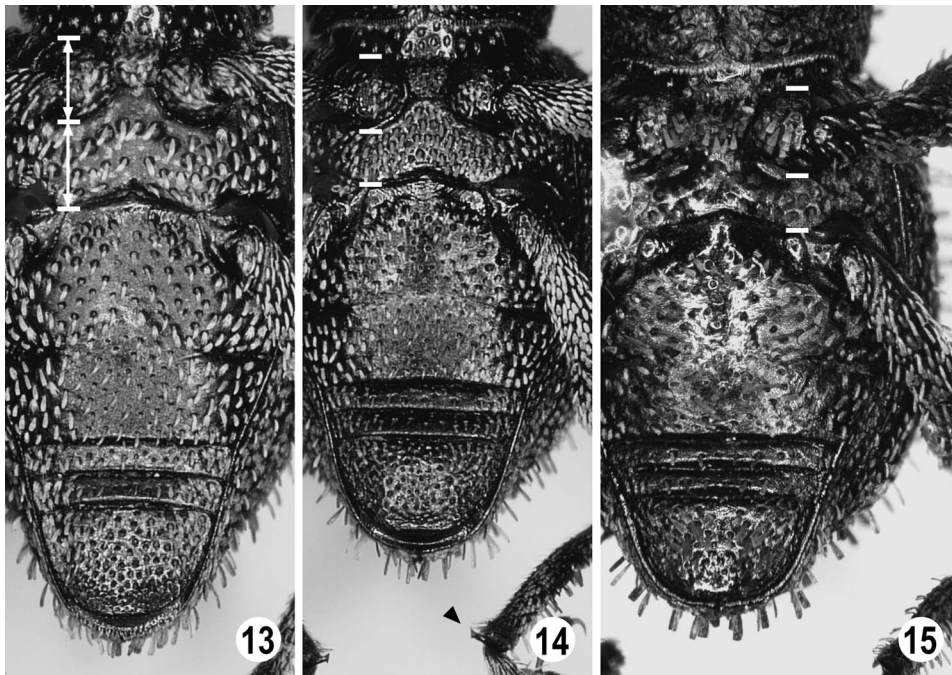
Prothorax nearly as long as wide, widest a little before middle, dorsum without any trace of median carina, reticulately punctate, each puncture filled with round plumose



Figs. 7–12. Habitus photographs of the Laotian *Pinacopus* spp., lateral. — 7, 8, *P. phousamsoumnus* sp. nov.; 9, 10, *P. similis* sp. nov.; 11, 12, *P. brevis* sp. nov. (7, 9, 11, male; 8, 10, 12, female).

scale, some of them irregularly replaced by ovate erect scales, which are more or less condensed to form pair of brownish gray scaly tufts behind apical margin and a little before middle, respectively. Elytra oblong-ovate, 1.5, rarely 1.6 times as long as wide, subparallel-sided behind shoulders to middle, conjointly rounded at apex, without any process; weakly striate, with row of separated punctures, each containing narrow plumose scale; intervals more or less rugulose, bearing ovate to spatulate erect scales generally concolorous with area in which it stands, scales condensed to form tufts as follows: 3rd interval with three tufts of blackish, often partly brownish scales and 5th interval with two scaly tufts, one is blackish and the other is yellowish gray. Legs densely with yellowish to brownish gray recumbent plumose and spatulate suberect to erect scales, which are dark brown to blackish in median part of femora and basal half of tibiae except extreme base; femora dentate, but usually concealed with scales especially on middle and hind pairs; tibiae with premucro indistinct in hind pair.

Metasternum behind middle coxae as long as length of the latter. Basal two abdominal ventrites weakly depressed in middle, sparsely punctate, each puncture with recumbent to subrecumbent scale directing posteriorly, 5th ventrite faintly depressed in



Figs. 13–15. Male ventrites of the Laotian *Pinacopus* spp. (white transverse bars indicate the anterior and posterior margins of mesocoxa and metasternum). — 13, *P. phousamsoumnus* sp. nov.; 14, *P. similis* sp. nov. (black triangular mark indicates the peculiar shape of uncus); 15, *P. brevis* sp. nov.

middle, densely punctate, set with subrecumbent scales, which are narrower or shorter on median depression than others.

Terminalia as illustrated (Figs. 18, 19, 21, 22), aedeagus with median lobe subparallel-sided on basal 2/3 and widened at orifice, inner sac without any trace of distinct sclerite and patch; spiculum gastrale robust.

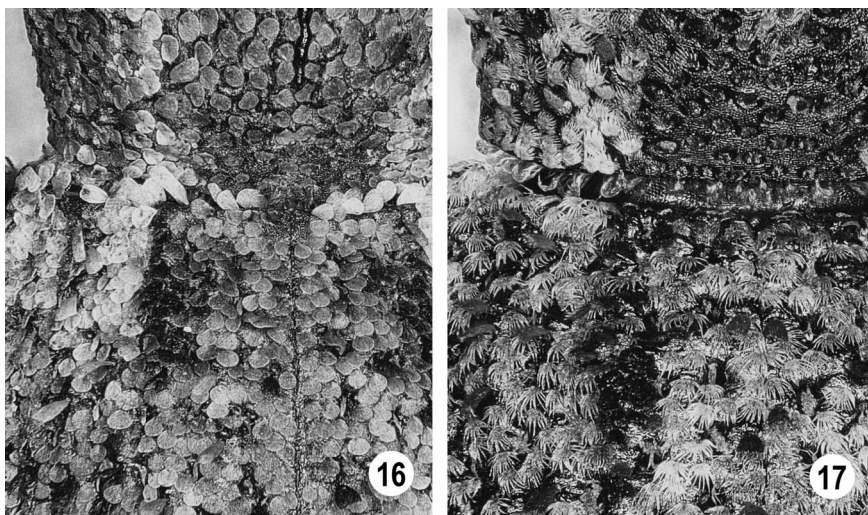
Female. Length: 5.0–6.9 mm; width: 2.2–3.0 mm. Resembles male, except rostrum as long as pronotum, dorsum with carinae indefinite; elytra 1.5, rarely 1.4 times as long as wide, hind tibiae with premucro small but distinct and basal two abdominal ventrites not depressed in middle.

Terminalia as illustrated (Figs. 20, 23), spermatheca with collum elongate and sinuate.

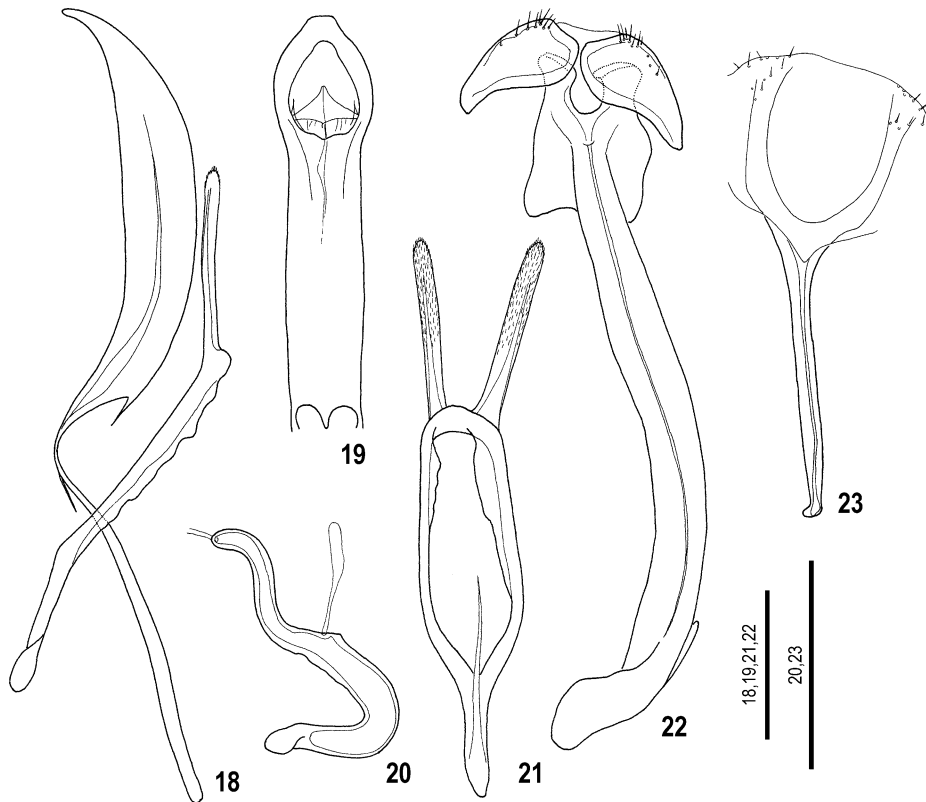
Type series. Holotype: male, Phou Samsoum (alt. 2,200–2,300 m), Xiengkhouang Prov., Laos, 2–V–2008, H. KOJIMA. Paratypes: 4 males and 2 females, Phou Samsoum (alt. 2,000 m), 23–VI–2007, H. WAKAHARA; 2 males and 6 females, same data as the holotype; 3 males and 4 females, 13.5 km east from Ban Muang (alt. 2,100 m), 2–V–2008, H. KOJIMA; 3 males and 1 female, Phou Samsoum (alt. 1,600–1,700 m), 14–V–2008, T. MIZUSAWA; 2 females, Phou Samsoum (alt. 2,100 m), 3–V–2008, T. NIISATO; 1 male, same locality, 15–V–2008, T. MIZUSAWA; 2 males and 3 females, same locality, 16–V–2008, J. YAMASAKO; 1 male and 1 female, Phou Samsoum (alt. 2,174 m), 8–V–2010, H. KOJIMA; 3 females, Phou Samsoum (alt. 2,331–2,356 m), 9–V–2010, H. KOJIMA. All in Xiengkhouang Prov., Laos.

Distribution. Laos (Xiengkhouang Prov.).

Etymology. The specific name is derived from the locality.



Figs. 16, 17. Scaly structures of basal parts of pronotum and elytra of the Laotian *Pinacopus* spp.
— 16, *P. satoi* KOJIMA et MORIMOTO; 17, *P. phousamsoumnus* sp. nov.



Figs. 18–23. Male and female terminalia of *Pinacopus phousamsoumnus* sp. nov. — 18, Aedeagus and tegmen, lateral; 19, aedeagus, dorsal; 20, spermatheca; 21, tegmen; 22, sternite 8 and spiculum gastrale; 23, sternite 8, female. Scale = 0.5 mm.

Remarks. This and the two species to be described below are different from the previously known Laotian species and probably from the Assamese species, *P. mishmensis* MARSHALL, in having the plumose scales (Fig. 17; cf. Fig. 16). Three Laotian species herein described are also distinguished from *P. mishmensis* in having the suberect to erect scales more or less condensed to form the tufts on pronotum and elytra.

Pinacopus similis sp. nov.

(Figs. 3, 4, 9, 10, 14, 24–29)

Male and Female. Very similar to the preceding species except length: 4.1–4.9 mm and width: 1.9–2.3 mm (male) or length: 4.8–5.8 mm and width: 2.2–2.7 mm (female); pronotum 1.1 times as wide as long; elytra ovate, 1.4 times as long as wide, subparallel-sided behind shoulders to middle or weakly rounded laterally and widest at

middle; median parts of femora and tibiae blackish, femora dentate obsoletely, especially on middle and hind pairs, hind tibiae with uncus arrowhead-shaped at tip in male, metasternum behind middle coxae a little shorter than length of the latter, basal two and 5th abdominal ventrites weakly depressed in middle in male.

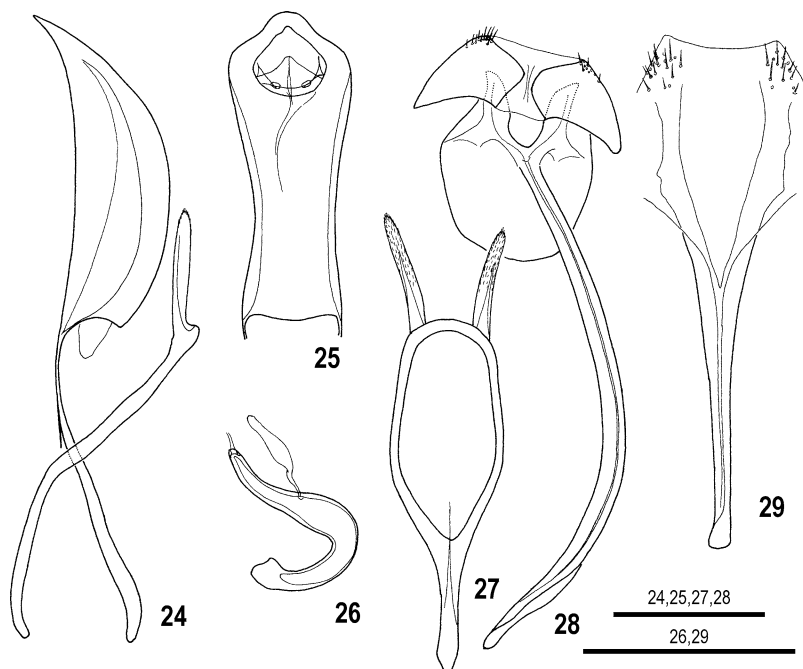
Terminalia as illustrated (Figs. 24–29), aedeagus with median lobe weakly narrowed in middle and widened at orifice; spiculum gastrale slender; spermatheca with collum elongate and weakly curved upward.

Type series. Holotype: male. Phou Samsoum (alt. 2,331–2,356 m), Xiengkhouang Prov., Laos, 9–V–2010, H. KOJIMA. Paratypes: 2 males and 2 females, same data as the holotype; 3 females, Phou Samsoum (alt. 2,300–2,400 m), 3–V–2008, H. KOJIMA; 2 males and 1 female, Phou Samsoum (alt. 2,331 m), 8–V–2010, H. KOJIMA; 1 female, Phou Samsoum (alt. 2,100 m), 16–V–2008, J. YAMASAKO. All in Xiengkhouang Prov., Laos.

Distribution. Laos (Xiengkhouang Prov.).

Etymology. The specific name is derived from the external similarity with the previous species.

Remarks. This is the intermediate species between the preceding and the next species in the body size and shape. The arrowhead-shaped uncus of the male hind tibiae



Figs. 24–29. Male and female terminalia of *Pinacopus similis* sp. nov. — 24, Aedeagus and tegmen, lateral; 25, aedeagus, dorsal; 26, spermatheca; 27, tegmen; 28, sternite 8 and spiculum gastrale; 29, sternite 8, female. Scale=0.5 mm.

is characteristic of this species (Fig. 14).

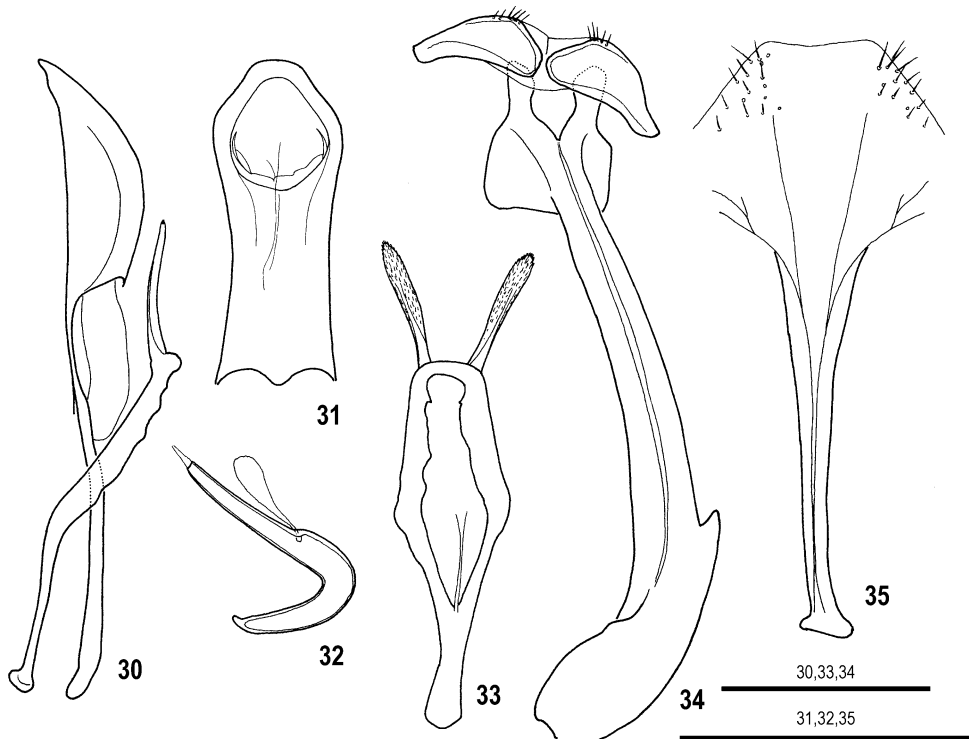
***Pinacopus brevis* sp. nov.**

(Figs. 5, 6, 11, 12, 15, 30–35)

Male and Female. Very similar to the preceding species except length: 3.7–4.2 mm and width: 1.9–2.1 mm (male) or length: 4.6 mm; width: 2.3 mm (female); pronotum 1.0–1.1 times as wide as long; elytra broadly ovate, about 1.3 times as long as wide, weakly rounded laterally and widest at middle, hind tibiae with uncus ordinary in shape, basal two and 5th abdominal ventrites with narrowly elongate suberect scales directing inward on each side of median depression in male.

Terminalia as illustrated (Figs. 30–35), aedeagus with median lobe narrowed in middle and widened at orifice; spiculum gastrale robust; spermatheca with collum elongate and nearly straight.

Type series. Holotype: male. 13.5 km east from Ban Muang (alt. 2,100 m), Xiengkhouang Prov., Laos, 2–V–2008, H. KOJIMA. Paratypes: 1 male and 1 female, same



Figs. 30–35. Male and female terminalia of *Pinacopus brevis* sp. nov. — 30, Aedeagus and tegmen, lateral; 31, aedeagus, dorsal; 32, spermatheca; 33, tegmen; 34, sternite 8 and spiculum gastrale; 35, sternite 8, female. Scale=0.5 mm.

data as the holotype.

Distribution. Laos (Xiengkhouang Prov.).

Etymology. The specific name is derived from the broadly ovate body form.

Remarks. This is the smallest and broadly ovate species in Laos, and very rare in the collection. The suberect elongate scales of the male abdominal ventrite directing inward are a unique feature of this species (Fig. 15).

Acknowledgments

The author thanks Mr. H. WAKAHARA and his family for their arrangement of the field trips in Laos and Drs. T. YORO and S. OKAJIMA for their help in many ways. I am also indebted to Drs. K. MORIMOTO and S.-I. UENO for their critical review of manuscript, and Dr. T. NIISATO, Mr. J. YAMASAKO and Mr. T. MIZUSAWA for their kind offer of materials. This study is supported in part by KAKENHI (21405019; head investigator: S. OKAJIMA).

要 約

小島弘昭: ラオス産 *Pinacopus* 属について (コウチュウ目ゾウムシ科)。—— 中部ラオスの山地よりアナアキゾウムシ亜科に含まれる *Pinacopus* 属の3新種が見つかったので命名記載し、既知種1種を含むラオス産種の検索表を作成した。3新種は同所的に分布し、形態的特徴からたがいに近縁な種と考えられ、鱗片の構造などから既知種と容易に識別できる。今回の発見地と既知種の産地はわずか125 kmしか離れていないが、鱗片をはじめとする形態的特徴に顕著な違いが見られることは大変興味深い。

References

- ALONSO-ZARAZAGA, M. A., & C. H. C. LYAL, 1999. A World Catalogue of Families and Genera of Curculionidea (Insecta: Coleoptera). 315 pp. Entomoplaxis S. C. P., Barcelona.
- ASLAM, N. A., 1963. On the genera of Indo-Pakistan Cleoninae and Hylobiinae (Coleoptera: Curculionidae). *Bull. Brit. Mus. (nat. Hist.)*, (Ent.), **13**(3): 47–66.
- KOJIMA, H., & K. MORIMOTO, 2002. Study on the Malaysian *Pinacopus* (Coleoptera, Curculionidae, Molytinae). *Spec. Bull. Jpn. Soc. Coleopterol.*, (5): 425–445.
- , & I. A. GHANI, 2003. Notes on the apterous weevil genus *Pinacopus* MARSHALL (Coleoptera, Curculionidae, Molytinae). *Ibid.*, (6): 405–413.
- MARSHALL, G. A. K., 1932. Notes on the Hylobiinae (Col., Curc.). *Ann. Mag. nat. Hist.*, (10), **9**: 341–355.
- 1942. New Malaysian Hylobiinae (Col., Curcul.). *Ibid.*, (11), **9**: 370–390.