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Notes on the Lepturine Genus *Pidonia* (Coleoptera, Cerambycidae) from East Asia

I. Redescription of *Pidonia tsukamotoi* MIZUNO, 1978, and Some Notes on its Vertical Distribution and Habits

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Abstract *Pidonia tsukamotoi* MIZUNO, 1978, is redescribed on the basis of the specimens of the type series and newly collected ones from the vicinities of the type locality. Its vertical distribution is noted with reference to the vertical vegetational zonation.

The genus *Pidonia* MULSANT consists of about 80 known species distributed over the temperate zone of the Holarctic Region. Most of them are known to occur in East Asia. Up to the present, 42 species have been known to occur in Japan. However, some species have not always been satisfactorily known, and need careful revision. *Pidonia tsukamotoi* MIZUNO, which is a rare species in Japan, is one of the examples. The original description of this species is insufficient, because some important diagnostic features are not mentioned. I am going to give a redescription of this species on the type series and newly collected specimens.

Before going further, I wish to express my hearty thanks to Messrs. N. ABE, K. AOKI, H. EBIHARA, H. HIRAYAMA, T. KISHII, K. MINE, K. MIZUNO, S. TAKECHI and S. TSUYUKI who gave me opportunity to study on the interesting material.

Pidonia (*Pidonia*) *tsukamotoi* MIZUNO, 1978

Pidonia tsukamotoi MIZUNO, 1978, Ent. Rev. Japan, **32**: 39, pl. 1, figs. 1–9 (♂, Mt. Senjô, Nagano Pref., Japan, July 18, 1957; KISHII coll.).

Body relatively small, elongate, slightly tapering apically (male) or more robust (female) and furnished with pale fulvous pubescence.

Length: 8.5–6.0 mm (male), 9.1–7.1 mm (female); breadth: 2.2–1.4 mm (male), 2.4–2.1 mm (female).

Color. Body brown to black; vertex and tempora black, frons and antennal supports dark brown; mouthparts brown except for dark brown apex of each mandible; eyes grayish black; antennae brown, third and following segments infuscated at their apices, sometimes entirely black; prothorax and scutellum black, sometimes dark brown; coxae and trochanters brownish yellow; femora almost dark brown in

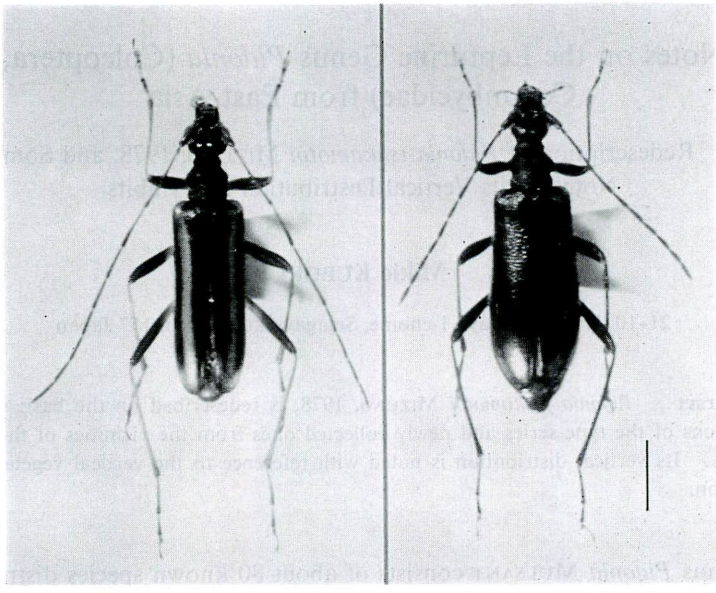


Fig. 1. *Pidonia tsukamotoi* MIZUNO, ♂ (left), ♀ (right), from Hatchôdaira in Nagano Prefecture. Scale: 2 mm.

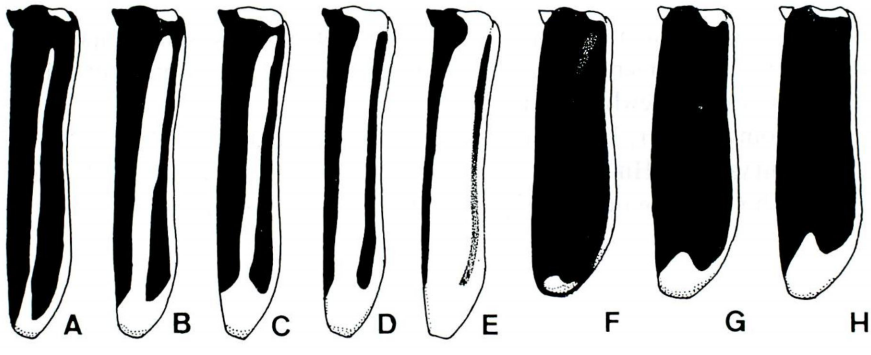


Fig. 2. Variation of elytral markings in *Pidonia tsukamotoi* MIZUNO. —— A–E, Male, F–H, female.

apical halves and fulvous in basal halves, sometimes almost brown; tibiae brown; tarsi dark brown; claws reddish brown; elytra yellowish brown with black markings, which are distinctly enlarged in female. Ventral surfaces: head, thorax and abdomen black to dark brown, the middle of second to fifth sternites reddish brown, the black portion enlarged in female.

Elytral markings: in male, sutural marking broadened basally, terminating in apical one-ninth of elytra, the base of sutural marking distinctly constricted, but usually narrowly continuing to base, basal marking lacking, latero-basal, latero-median and

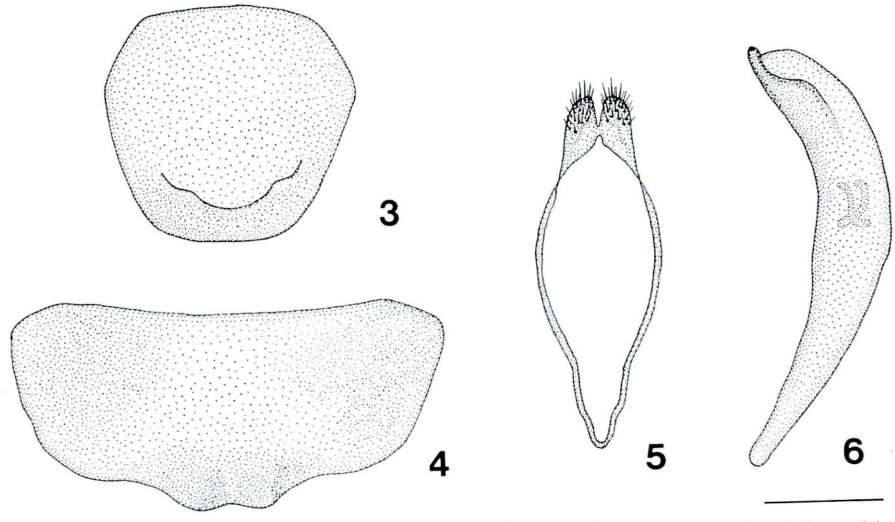
latero-posterior markings distinctly present, usually fused with one another, forming a submarginal vitta, apical band lacking, sometimes apex of elytron darkened; in female, elytral markings more developed than in male, elytra almost black, excepting a pair of humeral brown markings, apical fulvous markings and narrow fulvous marginal lines, apical band lacking, sometimes apex of elytron darkened.

Structure. Head broader across eyes than basal width of prothorax (male, 1.24: 1; female, 1.10: 1); terminal segment of maxillary palpus broadened apically with straight outer margin; tempora dully angulately prominent, narrowed posteriorly in anterior half and abruptly constricted in posterior half, almost impunctate and shining, with several setae; frons subvertical and transverse, covered with coarse punctures, bearing a fine but distinct median longitudinal furrow extending backwards to vertex; vertex convex above, coarsely punctured; two to five supraorbital setae present; gula shining, very sparsely clothed with long pubescence. Eyes relatively large and prominent, roughly faceted, weakly emarginate at middle of internal margins. Antennae relatively long and slender, inserted just behind the level across frontal margins of eyes; apical two segments surpassing elytral apices in male; antennae barely attaining middle of elytra in female; first segment distinctly dilated towards apex, weakly shining, sparsely clothed with fine pubescence, second to eleventh segments densely clothed with fine appressed pubescence and sparsely with fine erect pubescence; comparative length of each antennal segment as follows:— $5>1+2=3>6\geqq4$ (male) or $1+2>5>3>6\geqq4$ (female).

Prothorax longer than basal width (male, 1.20: 1; female, 1.07: 1), deeply constricted both behind apex and before base, and angularly prominent laterally just before the middle; breadth across prominent portions distinctly broader than base (male, 1.10: 1; female, 1.08: 1); basal margin bisinuate, obviously broader than apical margin (male, 1.32: 1; female, 1.30: 1); disk of pronotum relatively flat, sparsely clothed with fine pubescence, coarsely punctured, with an incomplete longitudinal glabrous line at middle; posterior lateral setae long; prosternum shining, extremely thinly clothed with short pubescence; meso- and metasterna finely punctate, densely clothed with fine appressed pubescence. Scutellum small and triangular, slightly longer than broad, bearing thin pubescence on the surface.

Elytra 2.66 times (male) or 2.57 times (female) as long as basal width, gradually narrowed posteriorly (male) or expanded behind middle (female), and separately subtruncate at apices; surface closely and deeply punctate and densely clothed with subappressed pubescence; interspace between punctures broader than diameter of each puncture.

Legs relatively slender, finely punctate, clothed with short pubescence; femora clavate, with subappressed pubescence; hind femora reaching elytral apex in both sexes; tibiae linear, with suberect pubescence; tarsi densely clothed with short pubescence on under surface; first segment of metatarsus longer than the following two taken together; third segment strongly dilated apically and deeply emarginate at middle of apex.



Figs. 3–6. *Pidonia tsukamotoi* MIZUNO, ♂. —— 3, Last tergite; 4, last sternite; 5, lateral lobes of male genitalia, ventral view; 6, median lobe of the same, lateral view. Scale: 0.3 mm.

Abdomen elongate and gradually convergent towards apex; pygidium prominently exposed in female; surface of each sternite densely covered with extremely fine pubescence; in male, apex of last sternite shallowly emarginate at middle (Fig. 4), apex of last tergite subtruncate (Fig. 3); in female, apex of last sternite round, apex of last tergite subtruncate.

Male genital organ moderately sclerotized; median lobe relatively thick, weakly curved ventrally (Fig. 6) and obtusely pointed at apex; lateral lobes slightly shorter than median lobe, each apex produced and sparsely furnished with relatively long terminal hairs (Fig. 5); endophallus with a short diverticulum at base, long and furnished with a pair of falcate sclerites.

Specimens examined. ♂ (Holotype), Mt. Senjô, Nagano Pref., 18. VII. 1957, K. TSUKAMOTO leg.; 1 ♂, same data as for the holotype; 1 ♂, Hatchôdaira (2,025 m alt.), Nagano Pref., 22. VII. 1979, K. SUZUKI leg.; 1 ♂, Hatchôdaira (2,020 m alt.), Yamanashi Pref., 22. VII. 1979, K. SUZUKI leg.; 6 ♂♂, Hatchôdaira, Nagano Pref., 21. VII. 1984, N. ABE & S. TAKECHI leg.; 5 ♂♂, Hatchôdaira, 19. VII. 1984, K. SUZUKI leg.; 5 ♂♂, Hatchôdaira, 19. VII. 1985, S. TSUYUKI leg.; 6 ♂♂, Hatchôdaira, 21. VII. 1985, K. SUZUKI leg.; 6 ♂♂, 1 ♀, Hatchôdaira, 20. VII. 1986, H. EBIHARA leg.; 2 ♀♀, Hatchôdaira, em. 20. VI. 1988, bred by M. KUBOKI; 1 ♀, Dainichi-goya (2,000 m alt.), Yamanashi Pref., em. 8. VII. 1988, bred by M. KUBOKI; 1 ♂, Honzawa Spa (2,080 m alt.), Nagano Pref., 21. VII. 1985, K. AOKI leg.; 2 ♂♂, Shirakomaike (2,050 m alt.), Nagano Pref., 28. VII. 1985, K. SUZUKI leg.; 5 ♂♂, Shirakomaike, 6. VIII. 1986, H. EBIHARA leg.; 4 ♂♂, Houou-goya (2,300 m alt.), Yamanashi Pref., 22. VII. 1984, K. MINE leg.; 2 ♂♂, Houou-goya, 23. VII. 1984, K. MINE leg.; 1 ♀, Houou-goya, 1. VIII. 1985, K. HOSODA leg.; 8 ♂♂, Houou-goya, 4. VIII. 1985, K.

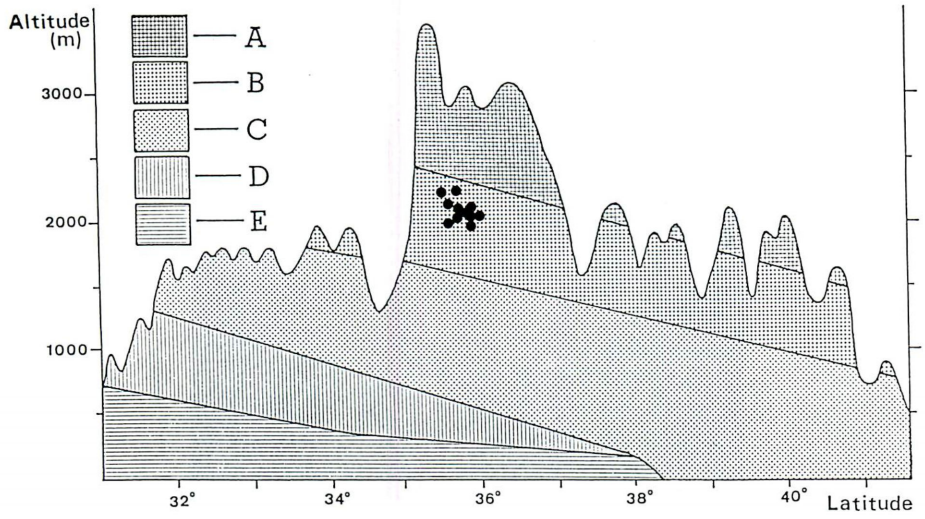


Fig. 7. Vertical distribution of *Pidonia tsukamotoi* MIZUNO in connection with vertical vegetational zones of Honshu, Shikoku and Kyushu. —— A, Climax of alpine desert, grassland and scrub (including *Pinus pumila* formation); B, climax of conifer forest (*Abies–Picea* formation); C, climax of deciduous broadleaved forest (*Fagus crenata* formation); D, climax of intermediate conifer forest (*Tsuga sieboldi* formation); E, climax of evergreen broadleaved forest (*Castanopsis cuspidata* formation).

MINE leg.; 1 ♀, Houou-goya, 5. VIII. 1985, K. MINE leg.

Distribution. Japan (central Honshu).

The vertical distribution of this species is shown in Fig. 7 in connection with the vertical vegetational zones of Japan excepting Hokkaido. Its distributional range is limited horizontally in the southern part of central Honshu and vertically mainly to the evergreen conifer zone.

Flight period. July to August.

Flower record. Rodgersia podophylla (a single case is known).

Host plant. Betula ermani.

Remarks. This species may be recognized by having the black coloration of body and elytral markings. The proportions of the antennal segments and the form of the expanded elytra in the female are distinctive features of this species.

Biological notes. The larvae of *P. tsukamotoi* feed on wet barks of dead trees. The larvae, which pupate directly in the bark, form circular cells. When the bark is thin or when it has been removed prior to pupation, the pupal cells are formed in the soil around the roots (Fig. 8).

Most specimens known have been beaten out from needles of young trees of *Tsuga diversifolia*, captured when flying around birch trees, or taken when walking on the ground. Only a single male has been taken on the flower of *Rodgersia podo-*

Fig. 8. Pupa of *Pidonia tsukamotoi* in pupal cell formed in the soil.

phylla (HIRAYAMA, 1985).

The hind guts of seven adult beetles of this species were examined under a microscope, but no pollen was found in their hind guts. Of the 7 specimens (4 ♂♂, 3 ♀♀) available for this study, two males and one female have only a very few broken tissues of plants in their hind guts. This suggests that the species may require little or no food in the adult stage.

摘　　要

窪木幹夫: 東アジア産ヒメハナカミキリ属の知見. I. タカネヒメハナカミキリの再記載とその垂直分布と生態に関する知見. —— タカネヒメハナカミキリは, 仙丈ケ岳産の2頭の雄個体に基づいて, MIZUNO (1978) により新種として報告された. これ以後, 長野, 山梨, 静岡各県の亜高山帯針葉樹林から新産地が報告されたが, いずれも採集されたのは雄個体であった. 1985 年 8 月 1 日と 5 日に, 山梨県韮崎市鳳凰小屋付近で 2 頭の雌が採集された. 本論文では, 記載に使用された標本に加え, それ以後に採集された雌雄個体を調べ, タカネヒメハナカミキリの再記載を行い, 雄交尾器, 末端節腹板, 背板, そして雌雄の上翅斑紋の変異を図示した.

本種の幼虫は, ダケカンバの立ち枯れの樹皮中で生活し, 樹皮中や根元付近の土中に円形の蛹室をつくり, その中で蛹化する. 成虫は, 他のヒメハナカミキリ類と違ってほとんど訪花せず, コメツガの幼木に静止している個体, ダケカンバの周辺を飛翔している個体, 地上を歩行している個体などが採集される. 成虫を解剖し, 後腸内容物を調べたところ, 雌雄とも花粉は発見されず, 時に少量の植物組織片が見つかった個体があった. このことから, タカネヒメハナカミキリは, 成虫期にはほとんど, もしくはまったく摂食しないと推定された.

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