

Species of the Genus *Lasconotus* in Japan, with Description of a New Species from the Ryukyu Islands

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Abstract

A new species of the 1845 *Lasconotus* Erichson genus from Ishigaki Island in southwestern Japan was described. *Las-Conotus akitai* sp. November Compare it to three previously known species of *Lasconotus*. The new species is characterized by small size, large eyes, the same size of the antennae III and IV, four ridges on the front chest and back, and bubble sculptures on the ventral side of the body. The key to four Japanese *Lasconotus* species is also given.

Keywords

Ishigaki-jima island; new species; Zopheridae; Colydiinae; *Lasconotus*.

Introduction

The genus *Lasconotus* Erichson, 1845 is one of the largest groups of the subfamily Colydiinae, including more than fifty species in the world, nine species in Asia and three species in Japan. This genus can be distinguished from other confamilical genera in having parallel-sided elongate body, antennae 11-segmented, forming a club with three terminal segments and four carinae on pronotum (Kingsolver et al., 2006; Pal, 2009; Schuh, 2012).

Recently, an unknown species was collected in Ishigaki-jima island, the Ryukyu Islands located in the

southwestern part of Japan. It is here described as a new and compared with the other three *Lasconotus* species known from Japan, which are also endemic to the archipelago. A key to the Japanese species of *Lasconotus* is provided (Lee et al., 2017; Lindgren and Miller, 2002).

Materials and Methods

Most specimens of the new species were collected by Mr. K. Akita from a standing dead tree. The tree species was undetermined, but it must be one of deciduous trees. Colydiine beetles were ejected from holes of bark beetles by fogging with insecticide

(pyrethroid). The beetles dropped on white sheet spread around the dead tree and were picked up with sucking tube and removed to vial containing ethyl acetate. One single specimen was collected by S. Sugimoto using a light trap (Lee, 2017; Miller and Borden, 2003).

One specimen of each Japanese species of *Lasconotus* was dissected and mounted with Hoyer's solution on slide glasses for morphological comparison to observe important parts using a microscope of four hundred magnifying power (Mana et al., 2017). The main morphological parts investigated in the four species are (1) a form of antennae, especially terminal three segments forming a club, (2) relative size of the third and fourth segments of antennae, (3) size of eyes, (4) shape of pronotum, and (5) surface sculpture of abdomen in ventral side (all illustrated in Figures 1–4).

The type series of the new species is distributed among the collections of the National Museum of Nature and Science, Tsukuba (NSMT), Osaka Museum of Natural History, Osaka (OMNH) and Mie Prefectural Museum, Tsu (MNM). The other *Lasconotus* specimens used for comparison including those mounted on slides were also deposited in NSMT, receiving temporary registry numbers from JAC-1 to JAC-11.

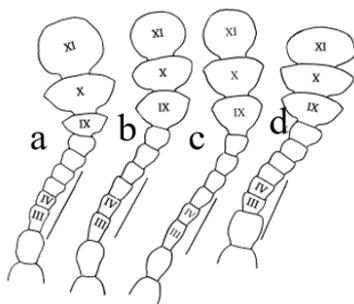


Figure 1: Antennae (right side) of the four Japanese species of *Lasconotus*.

To express calculated ratios of measurements the following abbreviations are used: PW/PL (width/length of pronotum), EW/PW (elytra/pronotum width ratio), EL/EW (ratio length/width of elytra), and EL/PL (pronotum/elytra length ratio).

***Lasconotus niponius* (Figures 1a and 2a)**

Diagnosis. Body reddish or yellowish brawn, 1.90–2.40 mm in length; pronotum length 0.54–0.57 mm; pronotum width 0.55–0.60 mm; elytral length 1.40–1.53 mm; elytral width 0.60–0.63 mm; PW/PL

1.02–1.07; EW/PW 1.03–1.05; EL/EW 2.30–2.43; EL/PL 2.30–2.68. Terminal club of antenna consists of three larger segments, but ninth segment smaller than terminal two ones; third segment longer than fourth one (Figure 1). Anterior angles of pronotum rounded; four conspicuous longitudinal carinae on pronotum; elytral ridges rather weak, ridges 3 and 4 joined together before reaching elytral edge. Sculpture on metasternum developed in lateral parts, but vanished in median part; sculpture on ventrites amoeba-like, irregularly connecting here and there (Figure 1a).

Variation. The specimens collected in Hokkaido tend to show two-color body, black (head and prothorax) and reddish (elytra) whereas the body color of specimens from the southern Japan is wholly brawn (somewhat darker on head and thorax than on elytra). Except the body color, no differences are found between the Hokkaido group and the southern Japan group. Considering the isolated distribution (Figure 4) of the two groups, they could represent different subspecies, but the only difference is body color with no taxonomical value.

Lasconotus okadai (Figures 1b and 2b)

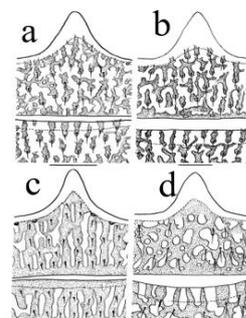


Figure 2: Anterior part of ventrites of the four Japanese species of *Lasconotus*.

Diagnosis. Body black, mat, 2.35–2.90 mm in length; pronotum length 0.63–0.77 mm; pronotum width 0.70–0.78 mm; elytral length 1.70–1.88 mm; elytral width 0.70–0.80 mm; PW/PL 1.01–1.07; EW/PW 1.00–1.03; EL/EW 2.27–2.43; EL/PL 2.53–2.76. Terminal club of antenna consisting of three segments almost equal in size; third segment longer than fourth one (Figure 1b). Anterior angles of pronotum usually produced, but not so prominently and sometimes rounded; among four longitudinal carinae on pronotum, two admedian ones broad and dull; elytral ridges strong, ridges 3 and 4 joined together before

reaching elytral edge. Sculpture on metasternum wholly developed; sculpture on ventrites amoeba-like, irregularly connecting one another (Figure 2b).

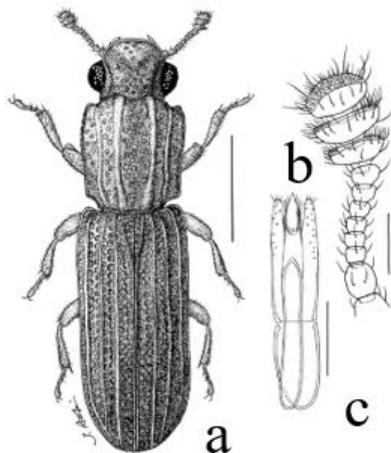


Figure 3: *Lasconotus akitai* sp. nov.

Diagnosis. Body black, glossy, 2.70–2.85 mm in

length; pronotum length 0.64–0.72 mm; pronotum width 0.77–0.89 mm; elytral length 1.67–1.95 mm; elytral width 0.80–0.95 mm; PW/PL 1.21–1.27; EW/PW 1.04–1.07; EL/EW 2.00–2.25; EL/PL 2.60–2.71. Antenna slender, terminal club consisting of three segments almost equal in size; third segment distinctly longer than fourth one (Figure 1c). Anterior angles of pronotum well produced, but not pointed at tip; front margin concave medially, four longitudinal carinae distinct and sharp, sublateral carinae nearly straight, admedian ones strongly sinuate; elytral ridges sharp and conspicuous, ridge 4 strongly inflated in apical part, ridges 3 and 5 vanishing apically. Sculpture on metasternum wholly developed; sculpture on ventrites irregular longitudinal stripes, connecting here and there (Figure 2c).

Distribution. Japan: Kyushu, Tsushima Island, Yaku Island, and Amami-Ôshima Island. Rare species.

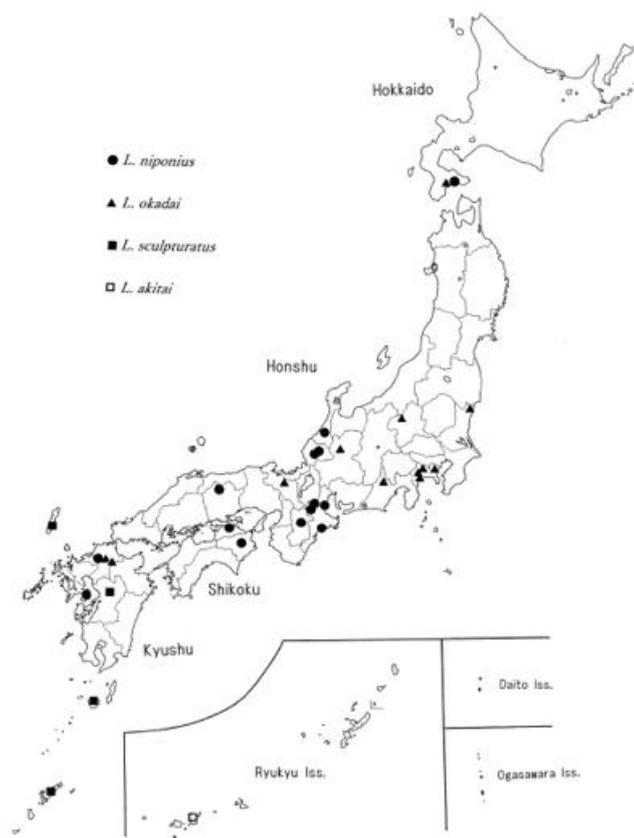


Figure 12: Distribution map of the four Japanese species of *Lasconotus*

***Lasconotus akitai* sp. nov. (Figures 1d, 2d, 3a, 3b, 3c)**

Type series. Holotype (NSMT-I-C 200237): Mt. Yara-budake, Ishigaki-jima island, the Ryukyu Islands, Japan, 24°25'20"N, 124°5'42", 24 May 2010, K. Akita 12

leg. Para-types: 1 ex. (NSMT-I-C 200238), data same as in holotype; 1 ex. ♂ (NSMT-I-C 200239, dissected and mounted on slides), same data as in holotype; 1 ex. (NSMT-I-C 200240, dissected and mounted on slides), same data as in holotype; 1ex. (OMNH-TI), place same

as in holotype, 13 April 2016, S. Sugimoto leg. light trap; 1 ex. (MNMI 9000005), data same as in holotype.

Description (the value in holotype presented in parentheses). Body length 1.52–1.90 (1.82) mm. Body yellowish brown, rather glossy. Pronotum length 0.44–0.52 (0.48) mm; pronotum width 0.40–0.51 (0.51) mm; elytral length 1.00–1.20 (1.20) mm; elytral width 0.47–0.55 (0.55) mm; PW/PL 0.91–1.06 (1.06); EW/PW 0.98–1.08 (1.08); EL/EW 2.18–2.36 (2.18); EL/PL 2.27–2.53 (2.50). Sides of vertex raised and carinate, frons and vertex granulate, eyes large, half as long as their mutual distance, bearing thick facetal setae. Antenna rather short and thick, 11-segmented, antennal club consisting of terminal three segments of equal size, all transverse, last segment twice as wide as long; segments III and IV same in size (Figures 1d and 3b). Pronotum, sides straight or slightly sinuate, parallel-sided or feebly narrowing posteriorly, four longitudinal carinae distinctly developed, admedian carinae nearly straight and parallel to each other, sublateral ones weakly sinuate, anterior and posterior angles distinct, nearly right angles; surface of pronotum covered with polygonal granules rather sparsely arranged. Elytra with distinct ridges, ridges 3 and 4 joined together before reaching elytral edge; sharply pointed setae arranged on ridges and intervals among punctures. Mesosternum, metasternum and abdomen ventrally covered all over with babble-shaped punctures of various shapes and sizes (Figure 2d), ventral setae long, about 0.13 × the length of metasternum. Aedeagus (Figure 3c) trilobed-type, median lobe sharply pointed at tip, with fine hairs densely arranged on an elongate ring, parameres straight, each with four minute setae, 1.4 times as long as basal piece.

Distribution. Japan: The Ryukyu Islands (Ishigaki-jima island).

Etymology. The new species is named after Mr. Kat-sumi Akita who collected the specimens and offered them for my study.

Discussion

Pal described *Lasconotus lushaicus* Pal, 2007 from India which is very similar to *L. akita* sp. nov. However, the latter differs from the Indian species in the following

features (character states of *L. lushaicus* in parentheses): (1) smaller body size, *i.e.*, 1.52–1.90 mm (2.80 mm), (2) antennal segments III and IV same in shape and size (segments III elongate and longer than IV), (3) sublateral carinae on pronotum straight (sinuate), (4) elytral ridges 3 and 4 joining together apically (3 and 4 separated, 4 vanishing apically), and (5) parameres of aedeagus rather straight and parallel to each other (incurved apically).

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