

A New Species of the Genus *Sinonychus* (Coleoptera, Elmidae)  
from Japan

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**Abstract** A new species of the genus *Sinonychus* is described from Tokashiki-jima and Zamami-jima, Japan under the name of *S. satoi*. Key to the Japanese genera of the tribe Macronychini is provided.

The genus *Sinonychus* is a member of the tribe Macronychini, and represented by only one species from China (JÄCH & BOUKAL, 1995).

In 2000 the late Dr. SATÔ collected a specimen of the genus *Sinonychus* from Zamami-jima. Recently, one of the authors, NAKAJIMA had a chance to obtain additional specimens from Tokashiki-jima. After a careful examination, it became apparent that they belong to the same species which is new to science. In this paper, we are going to describe a new species of *Sinonychus* for the first time from Japan.

Morphological abbreviations used in measurement are as follows: PL – length of pronotum; PW – width of pronotum; EL – length of elytra; EW – width of elytra; TL – total length (head to elytral apices). The average is given in parenthesis after the range.

The holotype and some paratypes to be designated in this paper will be preserved in the National Science Museum, Tokyo (NSMT), and other paratypes in the Entomological Laboratory, Faculty of Agriculture, Ehime University, Matsuyama (EUM) and in the Naturhistorisches Museum, Wien (NMW).

Technical terms of the genitalia follow KODADA & JÄCH (2005).

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their kind help in various ways.

*Sinonychus* JÄCH et BOUKAL, 1995

*Sinonychus* JÄCH et BOUKAL, 1995, 306.

Type species: *Sinonychus lantau* JÄCH et BOUKAL, 1995 (by original designation).

Diagnosis (after JÄCH & BOUKAL, 1995). Body length about 1.1 mm. Antennae 7-segmented. Pronotum wider than long; sublateral grooves present; median groove extending from base almost to anterior margin. Elytra obovate; disc more or less roof-like in cross section; elytral intervals III, V, VI, VII or V, VI, VII with carinae. Hind wing absent. Legs moderately long.

Remarks. This genus is easily distinguishable from other genera of the tribe Macronychini by the 7-segmented antennae. It is probable that this character is apomorphic in the tribe.

*Sinonychus satoi* sp. nov.

[Japanese name: Satô-kara-hime-doromushi]

(Figs. 1-3)

Type series. Holotype (NSMT): 1 male, Tokashiki-jima, Kerama, Okinawa Pref., 10-III-2005, J. NAKAJIMA leg. Paratypes. 8 males & 3 females, same data as for the holotype (one male on slide no. HY 1027, female genitalia on slide no. HY 1030).

Additional material. 1 female, Zamami-jima, Kerama, Okinawa Pref., 26~29-X-2000, M. SATÔ & M. KIMURA leg.

Adult. Male. Body obovate, well convex above, slightly shining. Coloration of body almost black, but mouth parts, antennae, legs, and abdominal sternites are brown.

Head almost flat on dorsal surface, densely covered with granules. Eyes moderate in size, slightly prominent; the distance between eyes about 1.7 times as long as the maximum diameter of an eye. Mandibles with two apical teeth. Antennae closely covered with short setae in apical part of segment VII; approximate ratio of each antennal segment as 4.3 : 4.0 : 2.3 : 1.3 : 1.0 : 1.0 : 5.6. Pronotum finely punctate, densely covered with granules in lateral part; antero-lateral angles produced anteriad; postero-lateral angles almost rectangular; sublateral grooves extending from the base to basal 1/2; median groove extending from the base to just before anterior margin; PW/PL 1.25-1.57 (1.35). Scutellum subtriangular. Elytra obovate, widest at basal 2/3, roof-like in cross section; elytral intervals V-VII bearing granules from base to basal 3/4; lateral margins distinctly serrate; EL/EW 1.16-1.23 (1.20); EL/PL 1.80-2.40 (2.03); EW/PW 1.20-1.32 (1.25); TL/EW 1.81-1.95 (1.90). Aedeagus long, about 0.5 mm, moderately sclerotized; phallobase short, lacking setae; penis long, about 4.3 times as long as phallobase, gently curved dorsad, punctate in apical part; parameres short,



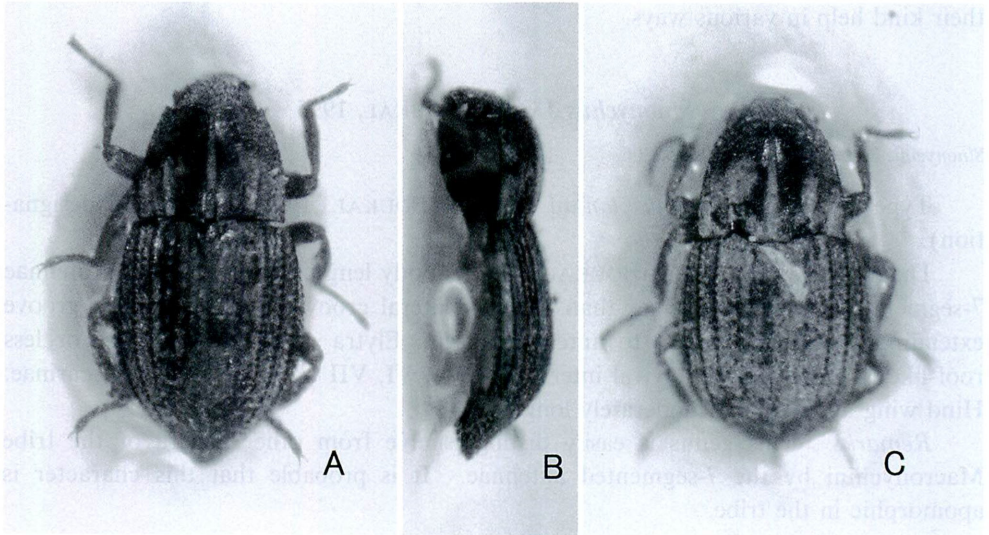


Fig. 1. *Sinonychus satoi* sp. nov. — A, Holotype, male in dorsal aspect; B, ditto in lateral aspect; C, paratype, female in dorsal aspect.

reaching about basal 1/3 of penis, weakly sclerotized, endophallus bearing minute serrulae.

**Female.** Sexual dimorphism indistinct; PW/PL 1.25–1.34 (1.29); EL/EW 1.08–1.31 (1.21); EL/PL 1.97–2.13 (2.03); EW/PW 1.25–1.38 (1.31); TL/EW 1.77–2.08 (1.98). Ovipositor short; approximate ratio of stylus, coxite and valvifer as 1.0 : 6.5 : 9.0.

**Measurement.** Male (n=5): TL 1.10–1.25 (1.15) mm; PW 0.47–0.50 (0.49) mm; PL 0.30–0.40 (0.36) mm; EW 0.58–0.65 (0.61) mm; EL 0.70–0.80 (0.73) mm. Female (n=3): TL 1.15–1.35 (1.25) mm; PW 0.47–0.50 (0.48) mm; PL 0.35–0.40 (0.38) mm; EW 0.60–0.65 (0.63) mm; EL 0.70–0.85 (0.77) mm.

**Distribution.** Japan (Ryukyu Is.: Tokashiki-jima, Zamami-jima).

**Biological notes.** The type locality is a small stream flowing in a natural forest in the northern part of Tokashiki-jima Island. The specimens were collected from under boulders or cobbles in riffles.

**Remarks.** This is the second species of the genus *Sinonychus*, but two undescribed species are known from China (JÄCH & BOUKAL, 1995). *Sinonychus satoi* is closely related to *S. lantau* JÄCH et BOUKAL, but differs from it in the following characters: 1) mandible with two apical teeth (three in *S. lantau*), 2) antennal segment VII closely covered with short setae in apical part (long setae in *S. lantau*), 3) apical part of aedeagus more elongate.

Although a female specimen from Zamami-jima was excluded from the type series in this study, this specimen is not distinguishable from the latter in the morphological

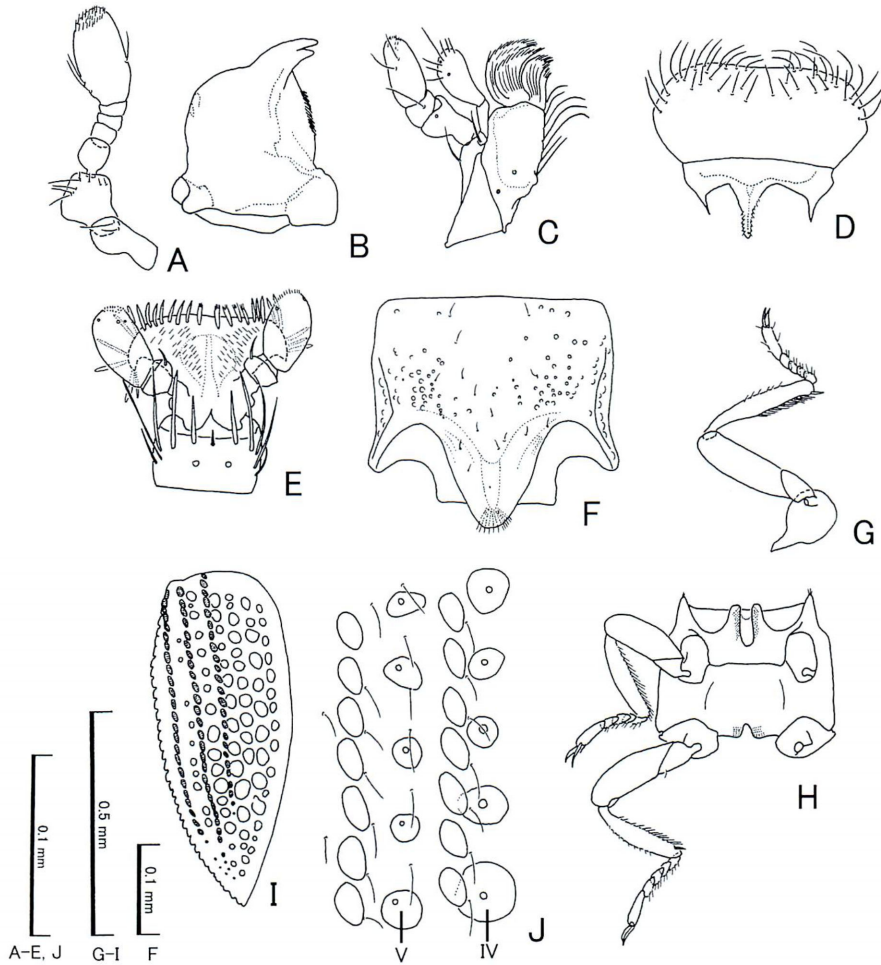


Fig. 2. *Sinonychus satoi* sp. nov., paratype, male. — A, Antenna; B, mandible; C, maxilla; D, labrum; E, labium; F, prosternum; G, proleg; H, meso- and metasterna; I, left elytron; J, elytral punctures and carinae.

structures.

*Etymology.* This species is named after the late Dr. Masataka SATÔ.

#### Taxonomic Note on Japanese Macronychini

Up to the present time, the tribe Macronychini has been represented by 15 species under five genera from Japan (SATÔ, 1985; KAMITE *et al.*, 2006; present study). However, generic monophyly or species classification still remains unresolved in several

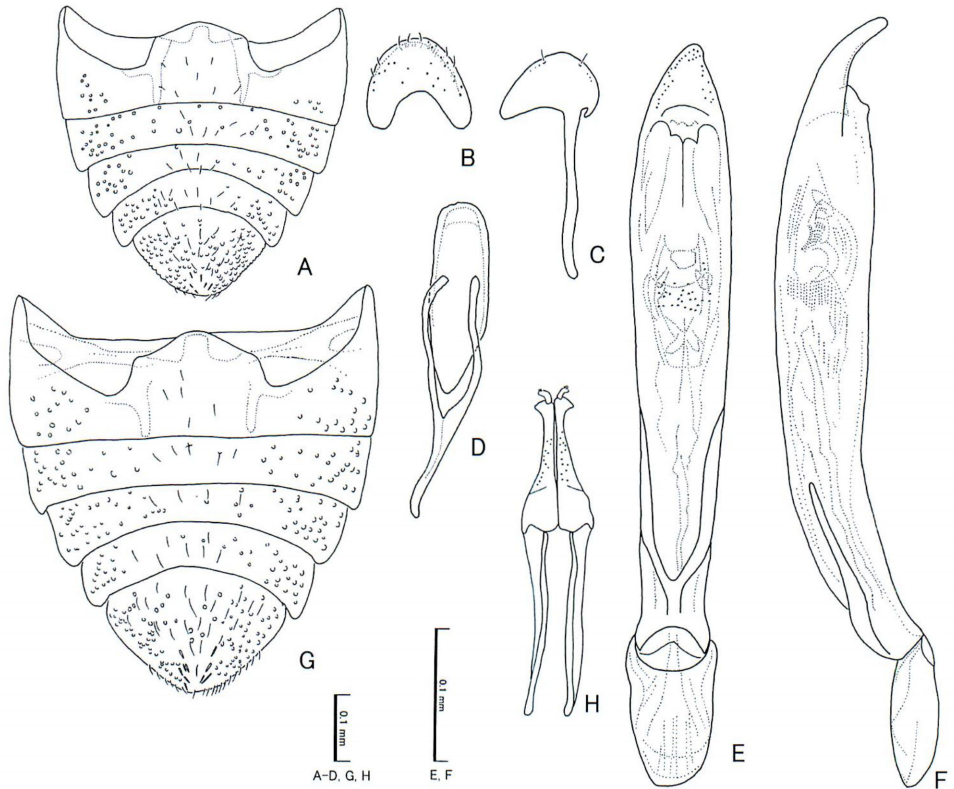


Fig. 3. *Synonychus satoi* sp. nov. — A–F: Male, paratype, A, sternites; B, tergite VIII; C, sternite VIII; D, genital segment; E, aedeagus; F, ditto in lateral aspect. G–H: female, paratype, G, sternites; H, ovipositor.

Table 1. Comparison of the Japanese genera in Macronychini.

| Genus                  | Body length | Antennae    | Elytral intervals with carinae   | Number of Japanese species | Distribution in Japan |
|------------------------|-------------|-------------|----------------------------------|----------------------------|-----------------------|
| <i>Paramacronychus</i> | 2.4–2.7 mm  | 8-segmented | III, V, VII, IX<br>or V, VII, IX | 1 sp.                      | Honshu, Shikoku       |
| <i>Zaitzevia</i>       | 1.5–2.7 mm  | 8-segmented | V, VI, VII<br>or V, VII, VIII    | 8 spp.                     | Hokkaido – Ryukyus    |
| <i>Zaitzeviaria</i>    | 1.1–1.5 mm  | 8-segmented | VII, VIII                        | 4 spp.                     | Hokkaido – Kyushu     |
| <i>Urmaelmis</i>       | 1.7–2.2 mm  | 8-segmented | V, VI<br>(only anterior part)    | 1 sp.                      | Ryukyus               |
| <i>Synonychus</i>      | 1.1–1.4 mm  | 7-segmented | III, V, VI, VII<br>or V, VI, VII | 1 sp.                      | Ryukyus               |



Japanese genera of the tribe (JÄCH & BOUKAL, 1995; OGATA & NAKAJIMA, 2006). Therefore, a taxonomic review of the Japanese genera will be needed in near future.

SATÔ (1985) and SATÔ & YOSHITOMI (2005) showed a key to the Japanese genera of Macronychini, but their key does not fully function because of misinterpretation of the elytral intervals with carinae. For the purpose of completing it, we compared the Japanese genera based on our examination and some previous studies in Table 1 (e.g., JÄCH & BOUKAL, 1995; OGATA & NAKAJIMA, 2006).

## 要 約

吉富博之・中島 淳：日本から見つかったカラヒメドロムシ属 *Sinonychus* の1新種。—— 中国から1種が知られるカラヒメドロムシ属 *Sinonychus* を日本からはじめて発見し、サトウカラヒメドロムシ *Sinonychus satoi* sp. nov. として記載した。本属が含まれる Macronychini 族の属の重要な形質を表に示すとともに、本族に関する考察を行った。

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