

Study on the Cyphicerine Weevils of the Genus *Canoixus* ROELOFS
(Coleoptera, Curculionidae, Entiminae)

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Abstract The genus *Canoixus* is reviewed taxonomically and a second species is described from Laos and Thailand under the name *C. nodulosus* sp. nov. The weevils were captured on leaves of *Diospyros* sp. of the family Ebenaceae alike the nominotypical species of the genus.

The weevil of the genus *Canoixus* ROELOFS is characteristic among the tribe by the unique features of the rostrum, the multisetose mandibles and so on, and belongs to the tribe Cyphicerini: Cyphicerina (MORIMOTO *et al.*, 2006). In their recent catalogue, ALONSO-ZARAZAGA & LYAL (1999) included E. Siberia, Laos and Thailand in the generic distribution probably based on the following species: *Canoixus costulatus* (MOTSCHULSKY, 1860) known from the Russian Far East and northern China and *C. nigroclavatus* AURIVILLIUS, 1891 from Thailand and Laos. However, the former is now assigned to the genus *Corymacronus* KOJIMA et MORIMOTO, 2006 of the Myllocerina (MORIMOTO *et al.*, 2006) and the latter was synonymized with *Cnaphoscapus decoratus* (FAUST, 1890) by MARSHALL (1944) based on examination of the type materials. Thus, the genus is presently monotypic and occurs in Japan, Taiwan and China (Fukien).

The weevil is not so common in the collection, but they are sometimes found on the Japanese persimmon tree, *Diospyros kaki*. A second species was discovered from Laos and Thailand. Laotian materials were also captured on leaves of *Diospyros* trees. These facts suggest the host association of this genus with the family Ebenaceae.

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

Genus *Canoixus* ROELOFS

Canoixus ROELOFS, 1873, 172 (type species: *C. japonicus* ROELOFS). — MORIMOTO *et al.*, 2006, 214.

For synonymy and diagnosis see MORIMOTO *et al.* (2006) except for the following features emended: antennae with 1st segment nearly as long as or shorter than 2nd, mentum with four, rarely five to six setae and ocular lobes of prothorax with vibrissae. This genus is characterized by the combination of the following characters: mandible multisetose, prementum usually with four, rarely five to six setae, rostrum almost parallel-sided, swinging fossae entirely dorsal and approximated each other, ocular lobes well-marked with vibrissae, female terminalia with bursa copulatrix terminates with more or less extended lobe, spermatheca with amorphous fin and prominence laterally, and extremely long gland.

Key to the Species

- 1(2): Rostrum transverse, 0.8 times as long as wide. Antennae with basal two segments of funicle subequal in length. Pronotum weakly depressed in middle on basal half. Elytra not tuberculated. Middle and hind femora normal, pedunculate. Probably parthenogenetic. Japan, Taiwan, China (Fukien).
 *C. japonicus* ROELOFS
- 2(1): Rostrum nearly as long as wide. Antennae with 2nd segment of funicle longer than 1st. Pronotum with weak median longitudinal carina devoid of scales. Elytra more or less tuberculated on 3rd, 5th and 7th intervals. Middle and hind femora depressed and widened at base. Laos, Thailand.
 *C. nodulosus* sp. nov.

Canoixus nodulosus sp. nov.

(Figs. 1–11)

Male. Length: 6.2–6.8 mm; width: 2.7–3.0 mm. Derm brown to black; scaling predominantly grayish to rusty brown, pronotum usually with three longitudinal dark stripes, lateral ones often extending posteriorly to anterior end of 4th interval of each elytron, elytra usually with pair of blackish patches or band behind middle; ground scales oval to circular, overlapping, each puncture on head and pronotum and elytral intervals with decumbent longer and spatulate scales, the latter scales arranged in a row on each interval, accumulated near top of elytral tubercles and born on minute shiny granules. Antennae with scape rusty brown scaled, funicle with grayish oblong-oval scales on 1st to 6th segments, 7th with brownish setae-like scales.

Head with frons 0.7 times as wide as base of rostrum, flat, median fovea slender, temple with two rows of scales at narrowest portion; eyes weakly convex, 1.3 times as long as wide. Rostrum 0.9 times as wide as long, slightly tapered apically, median carina



Figs. 1, 2. Habitus photographs of *Canoixus nodulosus* sp. nov. — 1, Male; 2, female.

shiny at apex and extending to median fovea on frons, dorsolateral carinae divergent posteriorly from base of swinging fossae close to eyes, posterior scrobes entirely dorsal; epistome symmetrical. Antennae with proportions in length (width) of scape to club as: 138 (23) : 25 (12) : 30 (12) : 18 (11) : 18 (11) : 15 (11) : 15 (11) : 18 (13) : 51 (23).

Prothorax 0.7–0.8 times as long as wide, side weakly rounded a little before middle, weakly constricted at basal 1/3 and then weakly expanded laterally to rectangular hind corners, anterior margin shallowly concave between ocular lobes, narrower than posterior margin, the latter bisinuate; disc with large and small punctures, weakly carinate longitudinally in middle and devoid of scales, distinctly depressed longitudinally on each side before 4th intervals and deepest at basal 1/3, and again shallowly depressed longitudinally along side margin. Scutellum lingulate, with small appressed scales.

Elytra 1.4–1.5 times as long as wide, subparallel-sided behind humeri, 3rd to 7th intervals more or less nodulated, 3rd intervals each with four, rarely five tubercles, 2nd one from base usually merged, 4th and 5th ones high and large, 5th intervals each with four tubercles, the 4th one situated at posterior end of interval, 7th intervals each with



Figs. 3, 4. SEM photographs of head of *Canoixus nodulosus* sp. nov. — 3, Dorsal; 4, ventral. Scale = 0.5 mm.

smaller tubercles except basal one at humerus high and large; striae regular except around tubercles making round.

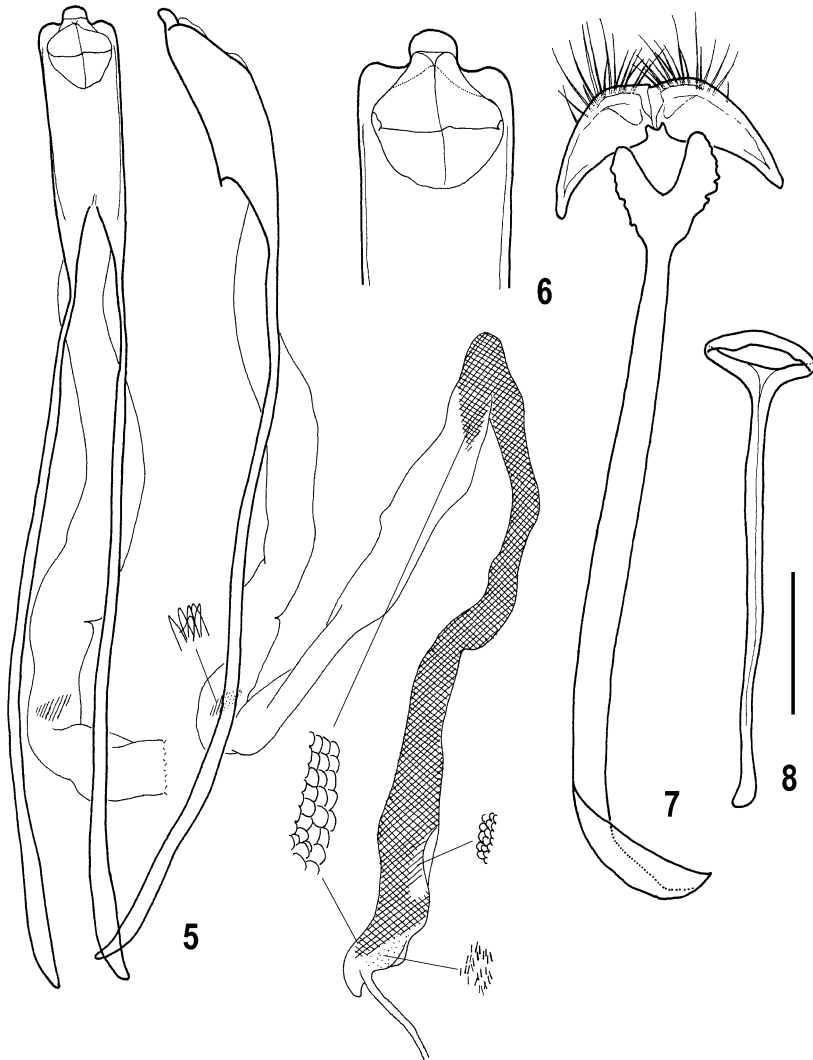
Legs with femora depressed and widened at base in middle and hind pairs, and flattened at base in fore pair.

Venter with 2nd ventrite not inflated.

Terminalia as illustrated (Figs. 5–8). Aedeagus slender, with round median projection at apex, apodeme much longer than aedeagal body, internal sac very long, Z-folded.

F e m a l e. Length: 6.0–8.0 mm; width: 2.7–3.4 mm. Very similar to male except elytra widest a little behind middle, 1.3–1.5 times as long as wide and venter with 2nd ventrite weakly inflated in middle. Terminalia as illustrated (Figs. 9–11). Bursa copularis terminates with extended long lobe.

Type materials. Holotype: male, Nr. Ban Namly (alt. 845 m), Phonsaly Prov., N20° 11' / E102° 06', 11-X-2009, G. OISHI. Paratypes: LAOS. 2 males, same data as the holotype; 1 male and 5 females, same data, H. WAKAHARA; 2 females, same data, N. NAKAMURA; 2 males and 1 female, 24 km south from Phonsaly (alt. 1,220 m), Phonsaly Prov., N21° 36' / E101° 58', 7-X-2009, H. WAKAHARA; 7 males and 5 females, 4 km north from Ban Ava (1,012 m), Phonsaly Prov., N21° 20' / E102° 02', 10-X-2008, H. WAKAHARA; 3 males and 4 females, same data, N. NAKAMURA; 1 male and 5 females,



Figs. 5-8. Male terminalia of *Canoixus nodulosus* sp. nov. — 5, Aedeagus; 6, apex of aedeagus, enlarged; 7, sternite 8 and spiculum gastrale; 8, tegmen. Scale=0.5 mm.

Lak 24 Antenna (alt. 1,220 m), 24 km southeast from Oudomxay, Oudomxay Prov., N20°35'/E102°04', 4-X-2009, H. WAKAHARA; 1 male and 1 female, Ban Phou Yang (alt. 1,300 m), near Salaphoukhun, N19°28'52.0"/E102°30'33.4", 2-IX-2009, T. YORO; 2 males and 3 females, Phou Yang (alt. 1,351 m), Luang Phabang Prov., N19°28'/E102°30', 6-V-2010, H. WAKAHARA; 2 males and 1 female, same data, J. KANTOH; 1 female, Mt. Phu-Pan, Ban Saleui, Xam Neua, 28~30-III-2005, J. YAMASAKO; 1 male and 1 female, Lac 25, 25 km E. from Phonsavan, Xiangkhoan Pr.,

7-VI-2008, J. YAMASAKO; 3 males and 4 females, Ban Om (alt. 1,162~1,200 m), Xieng Khouang Pr., 4-V-2008, H. KOJIMA; 3 females, same locality, 27-VIII-2009, H. KOJIMA; 1 female, same locality, 7-V-2010, H. KOJIMA. THAILAND. 1 male, Mae Hong Son, 10~14-III-2000, M. NISHIMURA.

Distribution. Laos (northern provinces) and N. Thailand.

Remarks. This species is easily separable from the nominotypical species in having the nodulose elytra and the femora flattened or depressed at base. The latter feature is also known in other genera of Cyphicerina: *Paramycter* MARSHALL, 1944, *Thlipsomerus* MARSHALL, 1944 and *Amrikus* PAJNI et SIDHU, 1982 (cf. PAJNI, 1990). However, their structures of the rostra are quite different from *Canoixus* and mandibles are trisetose in the aforementioned genera.

Canoixus japonicus ROELOFS, 1873

(Figs. 12-14)

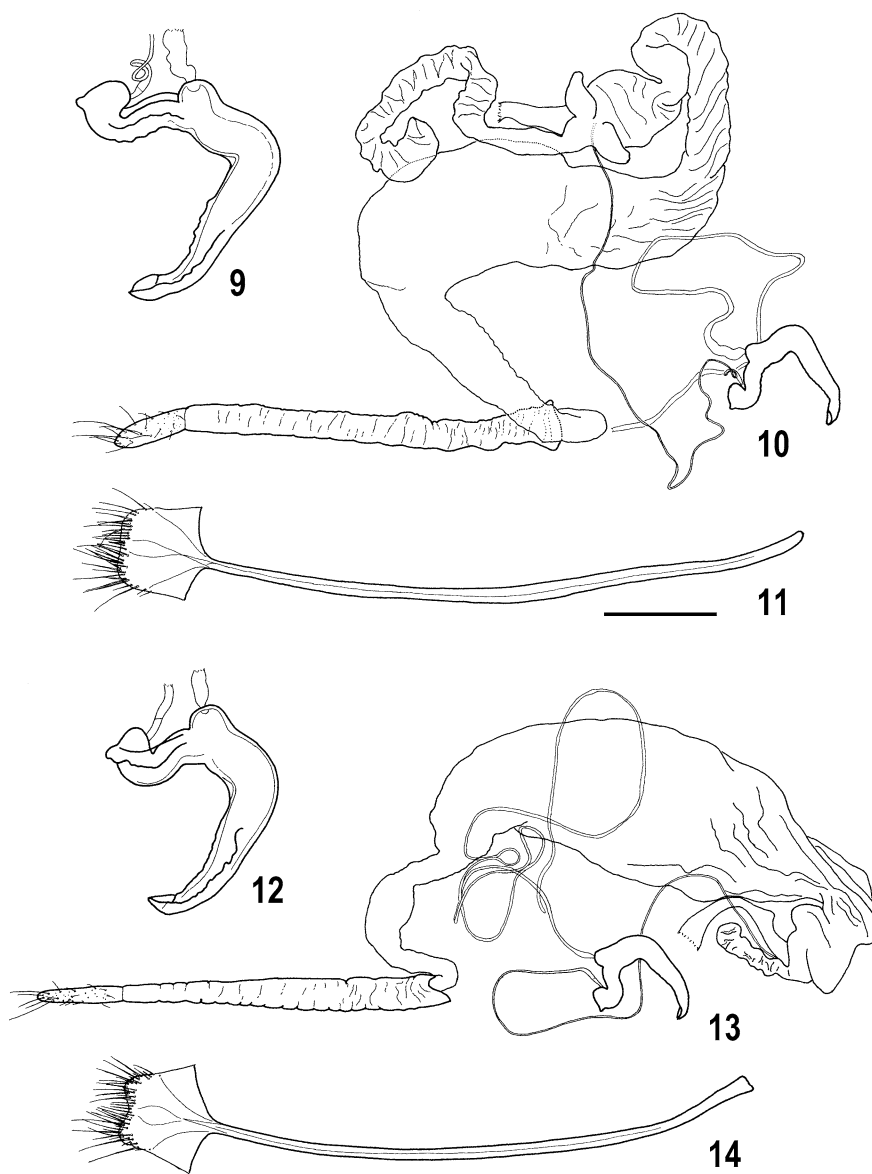
Canoixus japonicus ROELOFS, 1873, 172. — MORIMOTO *et al.*, 2006, 215 (redescription, habitus photo & figure of spermatheca).

See MORIMOTO *et al.* (2006) for synonymy and redescription except for the following features: 6.5-8.0 mm in length and female terminalia as figured, bursa copulatrix terminates with elongate lobe.

Specimens examined. 1 female, Ginzandaira, Niigata, 31-VII-1938, S. MIYAKAWA; 1 female, Suginami, Tokyo, 21-VII-1968, N. KINO; 1 female, Osawa, Mitaka, Tokyo, 2-V-1948, S. MIYAKAWA; 1 female, Kanai-chô, Machida-shi, Tokyo, 11-VII-1982, S. MIYAKAWA; 1 female, Kamakura, Kanagawa, 13-VII-1958, T. YORO; 1 female, same locality, 16-VII-2005, T. YORO; 1 female, same locality, 20-VII-2005, T. YORO; 1 female, same locality, 3-VIII-2007, T. YORO; 1 female, Nokendô, Kanagawa-ku, Yokohama-shi, Kanagawa, 10-VIII-1980, S. MIYAKAWA; 1 female, Kanao, Yorii-machi, Saitama, 6-VII-1984, S. MIYAKAWA; 1 female, Nagara-machi, Chiba, 5~7-VIII-1987, A. NISHIYAMA; 2 females, Matsuno, Ehime, 25-IX-2008, J. AOKI; 1 female, Mt. Yahirodake, Sasebo-shi, Nagasaki, 6-IX-1974, J. OKUMA; 4 females, same locality, 21-V-1981, J. OKUMA; 1 female, same locality, 29-V-1981, J. OKUMA; 4-VI-1982, same locality, J. OKUMA; 1 female, same locality, 2-V-1983, J. OKUMA; 1 female, same locality, 26-V-1983, J. OKUMA.

Distribution. Japan (Honshu, Shikoku, Kyushu, Yakushima), Taiwan, China (Fukien).

Remarks. SASAKI (1902) enumerated this species as a pest of *Zanthoxylum schinifolium* of Rutaceae, but the identification is questionable according to his figure, which looks like *Pseudocneorhinus bifasciatus* ROELOFS, 1880. The latter is known as a pest of various cultivated and ornamental plants including citrus trees (Japan. Soc. Appl. Ent. Zool., 2006).



Figs. 9-14. Female terminalia of *Canoixus* spp. (9-11, *C. nodulosus* sp. nov.; 12-14, *C. japonicus*).
 — 9, 12, Spermatheca; 10, 13, ovipositor; 11, 14, sternite 8. Scale=0.5 mm.

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要 約

養老孟司・小島弘昭：サビクチプトゾウムシ属（和名新称）（コウチュウ目ゾウムシ科クチプトゾウムシ亜科）に関する研究。—— サビクチプトゾウムシ属の分類学的再検討を行い、ラオスおよびタイから本属の2種目となる種を発見し記載した。本種も基準種と同様カキノキから得られたことから、本属の種がカキノキ科植物に依存している可能性が示唆された。佐々木（1902）は、サビクチプトゾウムシ *C. japonicus* をミカン科のイヌザンショウの害虫として記録しているが、スグリゾウムシ *Pseudocneorhinus bifasciatus* ROELOFS の同定間違いの可能性が高い。

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