

A new species of the genus *Synchroa* from Taiwan, with a key to the world fauna (Coleoptera: Synchronoidae)

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Abstract. A new species, *Synchroa formosana* sp. nov., is described from Taiwan, representing the first occurrence of the family Synchronoidae Lacordaire, 1859 in Taiwan; ecological information is provided. In addition, the new species is included in a key to the world fauna of Synchronoidae.

Key words. Coleoptera, Synchronoidae, *Synchroa*, new species, new recorded family, key to world fauna, Taiwan

Introduction

The family Synchronoidae Lacordaire, 1859 was historically regarded as part of Melandryidae and not even separated into a subfamily or tribe. However, some taxonomists pointed out the obvious similarity among the larval morphology of Synchronoidae, Stenotrachelidae and Zopheridae (BÖVING & CRAIGHEAD 1931, CROWSON 1966). HAYASHI (1975) placed the genus *Synchroa* in Stenotrachelidae based on larval characters of *S. melanotoides* Lewis, 1895, and since then, Synchronoidae has been treated as a distinct family. NIKITSKY (1999) revised the world fauna and included three genera: *Mallodrya* Horn, 1888, a monotypical genus from North America; *Synchroa* Newman, 1838, comprising four species; and *Synchroina* Fairmaire, 1898, which includes two species.

Recently, two larvae were collected in Malunshan, which is located in the central area of Taiwan. After careful larval rearing, the adults emerged successfully, although one individual had been dead for some time and was damaged. There is no record of the family Synchronoidae from Taiwan and characters of this species do not match the descriptions of other species distributed in countries near Taiwan, so it is considered a new species.

Materials and methods

The terminology for morphology used in the descriptions follows that of NIKITSKY (1999). The penis was separated from the aedeagus and all anatomical structures were observed using a Leica M205 C stereomicroscope, and then preserved in a genitalia vial (products of BioQuip,

USA) with glycerol, which was pierced with the same pin as the body parts. The habitus photo was taken with a Nikon COOLPIX P310 digital camera. Body length is measured from the anterior margin of the clypeus to the apices of elytra and width is measured at the widest part of combined elytra. Absolute measurements were used in millimeters (mm).

Taxonomy

Genus *Synchroa* Newman, 1838

Synchroa Newman, 1838: 378. Type species: *Synchroa punctata* Newman, 1838, by monotypy.

Synchroa formosana sp. nov.

(Figs 1–7)

Type locality. Taiwan, Malunshan, 24°11'30"N 121°1'10"E, 1167 m a.s.l.

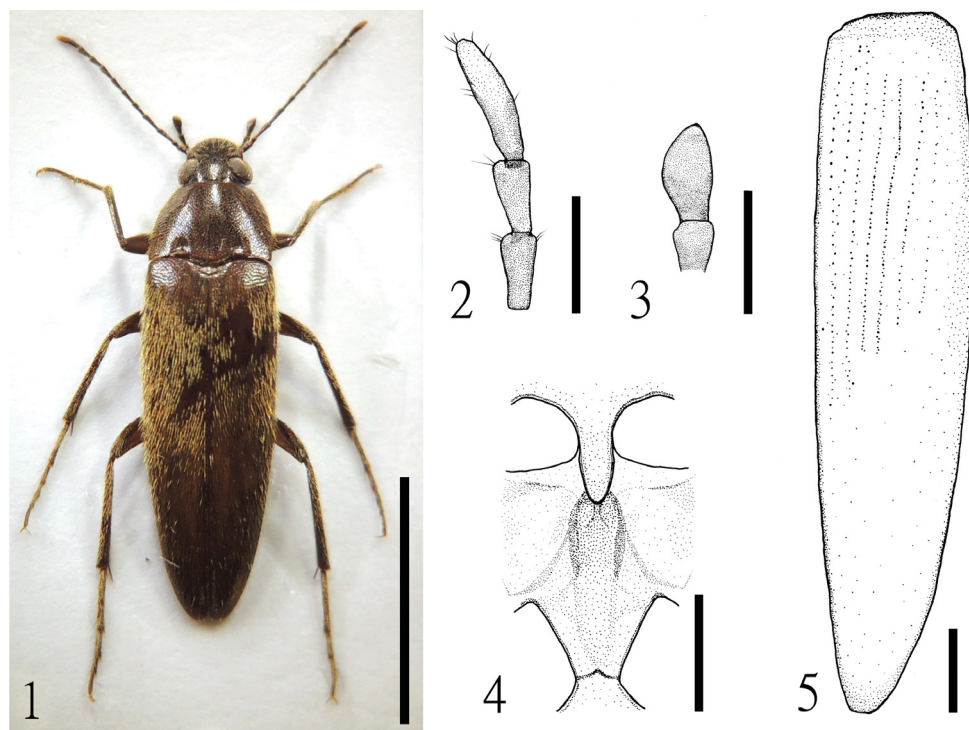
Type material. HOLOTYPE: ♂, 'TAIWAN / Malunshan, 1167 m / 24°11'30"N 121°1'10"E / 4. iv. 2013 ex larva / Yun Hsiao leg.' PARATYPE: 1 unsexed specimen, same data as holotype. Both specimens will be deposited in the National Museum of Natural Science, Taichung City (NMNS).

Description of male (Fig. 1). Body, antennae, clypeus, labrum, maxillary palpi, femora, tibiae and tarsi reddish to blackish brown. Apex of antennomeres I, II, XI, maxillary palpi, ultimate segment of tarsi and claws slightly lighter.

Body elongate, slightly flattened, rather strongly narrowed posteriorly, covered with elongate yellowish, slightly raised hairs. Eyes lateral, large, emarginate in front on antennal insertions, ratio of eye diameter to interocular space 1.0 : 1.7. Antennae filiform, when directed backwards extending to one-seventh to one-sixth of elytral length. Antennomere I cylindrical, wider than other antennomeres, II short, III somewhat clavate, IV–X slightly long-triangular, XI elongate, 3.90 times as long as wide (Fig. 2). Length ratio of antennomeres as follows: 1.00 : 0.70 : 1.50 : 1.53 : 1.23 : 1.30 : 1.17 : 1.17 : 1.10 : 1.17 : 2.10. Apical maxillary palpomere securiform, margin slightly rounded, terminal angle somewhat acute (Fig. 3). Head somewhat shining, densely but not coarsely punctate; interspaces usually narrower than puncture diameter.

Pronotum truncate anteriorly, bisinuate posteriorly, with obtuse median lobe, 1.50 times as wide as long, 1.67 times as wide as head. Lateral sides rounded and narrowed in anterior two-thirds toward head, not marginate; subparallel in posterior one-third. Anterior angle rounded; posterior angle rectangular and obtuse. Disc slightly flattened medially, surface slightly shining, with punctures sparser in middle part; interspaces considerably narrower than puncture diameter. Scutellum 1.83 times as wide as long.

Elytra elongate, linearly narrowed posteriorly, apex rounded, as wide as pronotum at humeri, 2.51 times as long as wide, less shiny than pronotum. Disc covered with oval punctures, denser in lateral and basal part; interspaces wider than puncture diameter. Seven faint traces of striae noticeable in basal half of elytron (more obvious in paratype), first stria fused with 2nd, 7th indistinct (Fig. 4). Prosternum before coxae 0.79 times as long as longitudinal diameter of fore coxae. Prosternal process long, margined laterally, rounded and pointed apically, length behind fore coxae 1.61 times width between fore coxae. Width between fore coxae



Figs 1–5. 1 – Dorsal habitus of *Synchroa formosana* sp. nov.; 2 – antennomeres IX–XI; 3 – apical maxillary palpomere; 4 – prosternal process and mesoventrite; 5 – elytron. Scale bars: 1 – 5 mm; 2, 3 – 0.5 mm; 4, 5 – 1 mm.

0.40 times transverse coxa diameter. Mesoventrite with shallow, oval depression in which prosternal process fits, moderately punctate (Fig. 5).

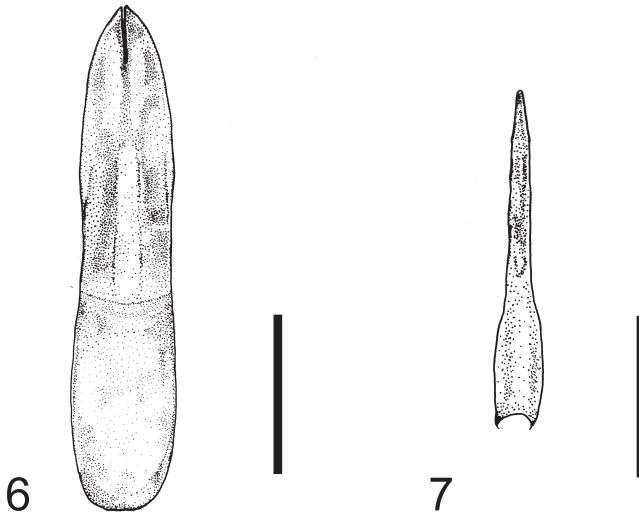
Legs elongate. Tarsomeres simple, tarsal formula 5-5-4. The longest spur of hind tibiae 0.29 times as first tarsal segment; length ratio of tarsomeres as follows: 1.00 : 0.42 : 0.26 : 0.34 (measured without claws). Claws simple.

Male genitalia (Figs 6–7): Aedeagus ensiform, slightly narrowed on median side and tapered in apical one-fourth. Parameres narrowly separated apically and with a groove in dorsal median part. Penis elongate and tapered to apex.

Length: 10.42–12.00 mm; width: 2.95–3.00 mm.

Female. Unknown.

Differential diagnosis. The new species resembles *Synchroa chinensis* Nikitsky, 1999 and *S. elongatula* Nikitsky, 1999, which are known to occur in China (Sichuan) and Vietnam, respectively. It can be distinguished from *S. chinensis* by the more rounded body posteriorly, and traces of the striae on the basal half of elytra; from *S. elongatula*, it differs in the wider base of the penis and elytra with distinct traces of striae on the surface.



Figs 6–7. *Synchroa formosana* sp. nov. 6 – tegmen in dorsal view; 7 – penis in dorsal view. Scale bars = 0.5 mm.



Fig. 8. The habitat of *Synchroa formosana* sp. nov. at the type locality.

Ecological information. Up to now, the new species has only been collected in the type locality, Malunshan, located in the central area of Taiwan. The altitude of its habitat is about 1,200 meters. The locality can be characterized as broadleaved forest with the family Fagaceae being somewhat dominant (Fig. 8). Nevertheless, only larvae have been collected so far. Larvae seem to prefer to live in damp areas, especially the moist environment beneath the bark of decaying broadleaved trees, similarly to the North American *S. punctata* Newman, 1838 (MAJKA & POLLOCK 2006, YOUNG 1991, PAYNE 1931).

Etymology. The specific name is derived from Formosa, a Portuguese historical name for Taiwan Island, referring to the only known distribution of this new species; adjective.

Distribution. Taiwan.

Key to the world fauna of the family Synchroidae Lacordaire, 1859

(after NIKITSKY 1999)

- 1 Fore coxae almost contiguous. North America. *Mallodrya subaenea* Horn, 1888
- Fore coxae distinctly separated. 2
- 2 Tarsal claws serrate. 3
- Tarsal claws simple. 4
- 3 Punctuation on elytra very fine and sparse in posterior two-thirds; sutural stria on elytra very deep in posterior part. Indonesia (South Kalimantan).
- Punctuation on elytra denser and coarser; sutural stria on elytra shallower. Malaysia (Perak). *Synchroina cuneata* (Champion, 1916)
- 4 Lateral sides of pronotum almost entirely margined. Median part of posterior half of pronotum smooth and impunctate. North America.
- Lateral sides of pronotum not margined or margined only in posterior part. Median part of posterior half of pronotum not smooth. 5
- 5 Sides of pronotum not margined. Faint traces of striae obvious in posterior or anterior part of elytra. 6
- Sides of pronotum distinctly margined in posterior one-third or one-fourth. Elytra with more distinct traces of striae at base, or striae entirely missing. 7
- 6 Body narrower posteriorly. Faint traces of striae obvious in posterior part of elytra. China (Sichuan). *Synchroa chinensis* Nikitsky, 1999
- Body more rounded posteriorly. Faint traces of striae obvious in anterior part of elytra. Taiwan. *Synchroa formosana* sp. nov.
- 7 Elytra strongly elongate, 3.0–3.1 times as long as wide and narrowed posteriorly. Antennomere XI 4.3–5.0 times as long as wide. Antennae, most part of legs and maxillary palpi infusate. Vietnam. *Synchroa elongatula* Nikitsky, 1999
- Elytra less elongate, 2.5–2.8 times as long as wide and not so narrowed posteriorly. Antennomere XI 2.5–2.8 times as long as wide. Antennae and legs partly rufous. Russia (Far East), Japan. *Synchroa melanotoides* Lewis, 1895

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