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## Description of three new species of *Shigizo* MORIMOTO, and introduction of a new combination (Coleoptera: Curculionidae: Curculioninae)

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### Abstract

Three new species of *Shigizo* MORIMOTO (Coleoptera: Curculionidae: Curculioninae) are described: *S. brancuccii* sp.n. [Vietnam, India], *S. punctatus* sp.n. [India], and *S. sleeperi* sp.n. [India]. *Shigizo variesculptus* (HELLER) comb.n. [Philippines] is transferred from *Curculio* L. and redescribed.

**Key words:** Coleoptera, Curculionidae, Curculioninae, *Shigizo*, *Curculio*, taxonomy, new species, new combination, India, Philippines, Vietnam.

### Introduction

This is continuation of a study of the genus *Shigizo* MORIMOTO of the world. With this being the third paper on the *Shigizo* of the world three new species are described and one new combination is proposed. Included is a revised key to the species of the world.

### Material & Methods

Type specimens are deposited in the Naturhistorisches Museum, Basel (M. Brancucci), Frank W. Pelsue Collection and Staatliches Museum für Tierkunde, Dresden (K. Klass). Portions of the key to the species of the world are taken from PELSUE (2004) verbatim.

#### Abbreviations:

FWPC	Frank W. Pelsue, Jr. Collection, Corona
NHMB	Naturhistorisches Museum, Basel
SMTD	Staatliches Museum für Tierkunde, Dresden
USNM	U.S. National Museum of Natural History, Washington D.C.

### Key to the species of *Shigizo* of the world

- 1 Lateral margin of pronotum with horn extending over lateral margin of elytra. .... 2
- Lateral margin of pronotum without horn extending over lateral margin of elytra. .... 3
- 2 Elytral punctures small (Figs. 1–3); intervals densely clothed with small, narrow, elongate, piceous decumbent scales 3 across; scutellum large in ♀, slightly smaller in ♂ clothed with cretaceous scales (Fig. 2). .... ***brancuccii* sp.n.**
- Elytral punctures large (Figs. 4–5); intervals sparsely clothed with narrow, elongate, cretaceous scales and with smaller narrow, elongate, piceous scales; scutellum small with cretaceous scales (Fig. 5) ♀ 2.6–3.6 mm. .... ***punctatus* sp.n.**
- 3 Metafemur exceeds apex of elytra in lateral view. .... 4
- Metafemur does not exceed apex of elytra in lateral view. .... 6
- 4 Pronotal disc with indication of median carinae. .... 5
- Pronotal disc without indication of median carinae. .... 7

- 5 Rostrum straight to apical  $\frac{1}{4}$  then deflexed to apex; base of elytra with fascia of narrow, elongate, white scales on intervals 1–4..... *basofasciatus*
- Rostrum evenly deflected from base to apex..... 6
- 6 Base of pronotum with rather broad to narrow lateral macula of clavate, white scales. .... 7
- Base of pronotum without lateral macula of white scales. .... 8
- 7 Elytra with macula of clavate, cretaceous scales on intervals 2–3 around scutellum and 7–8 just past middle, apex with short vittae on interval 2 of clavate cretaceous scales (Fig. 6) ♂ 2.9 mm..... *variesculptus* comb.n.
- Elytra without macula of clavate, cretaceous scales on intervals 2–3 around scutellum and 7–8 just past middle, apex without vittae. .... *rhombiformis*
- 8 Mesepimeron sparsely clothed with small, clavate, white scales; rostrum evenly deflected from base to apex..... *obrieni*
- Mesepimeron densely clothed with moderately large, clavate, white scales..... 9
- 9 Rostrum evenly deflected from base to apex; scutellum large, white..... 10
- Rostrum straight for  $\frac{2}{3}$  then deflexed to apex (Fig. 7b); antennomere 1 twice as long as 2, ♂ 3.1 mm. .... *sleeperi* sp.n.
- 10 Mesepimeron densely clothed with short, clavate, recumbent, cretaceous scales..... *obsoletus*
- Mesepimeron not densely clothed with short, clavate, recumbent, cretaceous scales..... 11
- 11 Crosshatch seta-like scales densely compact, erect, becoming longer distally forming a fin-like structure; general coloration of scales testaceous with clavate white scales interspersed; base of profemur piceous, clava fuscous..... *zhangi*
- Crosshatch seta-like scales not as above. .... 12
- 12 Pro- and mesofemur without long ventral seta-like scales forming beard..... *davidi*
- Pro- and mesofemur with long ventral seta-like scales forming beard..... 13
- 13 Scutellum medium-sized, 0.15 mm, fuscous, lacking cretaceous scales; metafemur not exceeding apex of elytra; derm piceous with testaceous scales interspersed with white scales... *morimotoi*
- Scutellum small-sized, 0.10 mm with few cretaceous scales; metafemur slightly exceeding apex of elytra; derm piceous, elytral intervals with small, clavate, white scales..... *tonkinensis*

### *Shigizo brancuccii* sp.n.

TYPE MATERIAL: **Holotype** ♂ (NHMB): “N. Viet Nam (Tonkin)\pr. Vinh Phu\1990\Tam Dao\17-21-V\lg Pacholatko”. **Paratype**: 1 ♀: “N E India\Assam\5 km N of Umrangso\700 m\25°27’N92°43’E\21-V-199\lg. Dembicky & Pacholatko” (FWPC).

DESCRIPTION: ♂ Habitus (Fig. 1). Length: 2.8 mm. Width: 1.6 mm. Head: broad; glabrous with small, oval, shallow slit-like punctures; eyes large roundish oval; gena glabrous. Frons: 0.04 as broad as head across eyes, narrower than base of rostrum, with very narrow, elongate, fuscous scales emerging from irregular shaped punctures. Rostrum: 1.5 mm long; 0.54 as long as body; derm fuscous; cylindrical; shallow punctures small slit-like to apex; 3 straight indistinct carinae going just past insertion of scape from base; almost straight to insertion of scape then slightly deflexed to apex; scrobe ventral not reaching eye; insertion of 0.75 mm from base; scape inserted just past midpoint. Antennal scape 0.6 mm; funicule 0.7 mm; club 0.3 mm in long; scape 0.86 as long as funicle; antennomere 1 as long as 2, antennomeres 3–6 subequal, antennomeres 6–7 wider than others; club longer than antennomere 4–7. Thorax: 1.2 mm long, 1.6 mm wide; 0.75 as long as broad; derm fuscous; pronotal disc slightly convex in lateral view, punctures small, shallow, with defined margins, clothed with small, narrow, elongate, fuscous scales with confused, broader, longer, white scales; base as broad as base of elytra, lateral angle with

prounced cornu (horn) (Fig. 2a) extending over basal angle of elytra, ventral of humeri; pleuron with broader, truncate white scales; scutellum round, moderately large clothed with white scales (Fig. 2b); mesepimeron, mesepisternum, and metaventrite clothed with discrete, clavate, white scales; metaventrite derm fuscopiceous. Elytra: derm fuscous; striae deep, punctures small; scutellar declivity moderately deep running to beginning of crosshatch setae; humeri rounded; intervals broad, flat, clothed with narrow, elongate, fuscous scales 3–4 abreast with scattered longer white scales; crosshatch setae long, suberect, apical setae longer forming fin-like tail. Legs: pro- and mesofemoral teeth small, metafemoral tooth small, larger than pro- and mesofemoral teeth; metafemur not longer than apex of elytra; shank of metafemur rubiginose, clava fuscous to fuscopiceous; vestiture of narrow, elongate, white scales; tibiae sinuous, with apical comb extending up one fifth of length of long seta-like scales; apical hook with acute apex, pro- and mesotarsus medium sized. Abdomen: sternum I longer than II behind coxal cavity; sternum III longer than IV; sternum V not as long III+IV; derm fuscous; sternum V with lateral tufts of long white seta-like scales; vestiture of clavate fuscous and white scales, fuscous scales longer and narrower than white scales. Pygidium: small; clothed with moderately long testaceous seta-like scales. Genitalia: median lobe 0.7 mm long, in dorsal view margins slightly narrower basally gradually broadening to rounded apex with small point terminally, endophallus sac shaped with oval orifice, laterally thickened, deflexed at apex; apodeme 0.6 mm long (Fig. 8).

Female (Fig. 3): 3.2 mm long, 2.0 mm wide. Rostrum: 2.8 mm long. Frons: 0.08 as broad as head across eyes; antennae: scape 0.6, funicle 1.1 mm long. Thorax: 1.4 mm long. 2.0 mm wide. Genitalia: spermatheca 0.01 mm long in lateral view. Ramus and collum united; cornu slightly longer than united ramus and collum (Fig. 9).

**DIFFERENTIAL DIAGNOSIS:** The female of this species is very similar to *S. punctatus* in size and coloration, they differ in the elytral punctures being larger in *S. punctatus*. Can not compare the ♂ as I do not have a specimen for *S. punctatus*. Derm is darker and the scutellum larger in *S. brancuccii*. This species could be confused with *Labaninus corneus* PELSUE (PELSUE 2005) in that it also has a lateral pronotal cornu (horn).

**DISTRIBUTION:** NE India, Vietnam.

**ETYMOLOGY:** Named in honor of Dr. M. Brancucci of the Naturhistorisches Museum Basel.

### *Shigizo punctatus* sp.n.

**TYPE MATERIAL:** **Holotype** ♀ (NHMB): “NE India Meghalaya\1999\3 km E. Tura\1150 m\25°33’N90°14’E\4-V\lg Dembicky & Pacholatko”. **Paratype**: 1 ♀: same data as holotype (FWPC).

**DESCRIPTION:** ♀ **Habitus** (Fig. 4). Length: 2.6–3.6 mm. Width: 1.5–2.1 mm. Head: distance from frons to insertion of scape 0.6–1.3 mm; 0.43 as wide as pronotum; glabrous; eyes large; gena glabrous. Frons: 0.12 as wide as head across eyes; glabrous. Rostrum: 2.1–3.2 mm long; 0.89 as long as body; derm testaceous; cylindrical, straw-like; abruptly emerging from head; acarinate; straight to insertion of scape then evenly deflexed to apex; scrobe lateral reaching eye; scape inserted before middle. Antennal scape 1.3 mm, funicle 1.3 mm, club 0.5 mm long; antennomere 1 longer than 2, 3 half as long as 2, 3–4 same length, 5–7 subequal to 4, club as long as 4–7. Thorax: 1.2 mm long, 1.9 mm wide, 0.63 as long as wide, disc slightly convex in lateral view, as wide as base of elytra, with lateral basal cornu dorsad of mesepimeron, punctures small, numerous with defined margins somewhat reticulate with scattered narrow, elongate, recumbent, white scales; pleuron with larger, broader, more clavate, white scales on anterior carinae defining median channel; mesepimeron, mesepisternum, metepisternum, and metaventrite with scattered white scales; mesoventral intercoxal process not visible in lateral view; scutellum small, almost square, sparsely clothed with narrow, elongate, white scales. Elytra: derm fuscous; striae shallow, with large deep punctures (Fig. 5); scutellar declivity depressed; humeri rounded;

intervals broad, clothed with short, narrow, piceous scales 3 abreast and scattered larger narrow, elongate, white scales; crosshatch seta-like scales erect, long, testaceous. Legs: pro-, meso- and metafemur with small teeth; profemur piceous at base to bend then testaceous to apex; metafemur not reaching apex of elytra; clothed with narrow, elongate, white scales; tibiae subsinuate, pro- and mesotarsus medium sized; metatibiae with small mucro; metatibiae with apical comb extending up one fifth of length of tibiae. Abdomen: sternum I longer than II behind coxal cavity; III longer than IV longer than V; sternum III+IV clothed with broad, clavate, white scales; sternum I–II with smaller, narrower, white scales. Pygidium: not visible. Genitalia: spermatheca with short ramus; collum extended to long cornu with tail at apex (Fig. 10).

**DIFFERENTIAL DIAGNOSIS:** Almost identical to female of *S. brancuccii* sp.n. except in coloration, less dense vestiture, and larger elytral punctures. Females can be separated from *S. brancuccii* by the spermatheca.

**DISTRIBUTION:** NE India.

**ETYMOLOGY:** Named for the very large elytral punctures.

### *Shigizo sleeperi* sp.n.

**TYPE LOCALITY:** **Holotype** ♀ (FWPC): “S. India\Anamatal [!] Hills, Cinchona” [1<sup>st</sup> label], “P. S. Nathan, Collr”. [2<sup>nd</sup> label].

**DESCRIPTION:** ♀ Habitus (Fig. 7). Length: 3.1 mm. Width: 1.65 mm. Head: moderate sized; glabrous; punctures shallow, margined appearing reticulate; base of rostrum to insertion of scape 0.7 mm; gena with few small, narrow, elongate, white scales around base of rostrum; eyes large. Frons: 0.16 as broad as head across eyes; with small, elongate, white scales along margin of eye. Rostrum: 2.2 mm long. 0.71 as long as body; cylindrical, straw like; abruptly emerging from head; not carinate; glabrous; straight for basal  $\frac{2}{3}$  of length then deflexed to apex; scrobe lateral reaching margin of eye; scape inserted before middle. Antennal scape 0.65 mm, funicle 0.90 mm, club 0.30 mm long; scape 0.72 as long as funicle; antennomere 1 2x as long as 2, 3 subequal to 2, 4–7 same but length not as long as 3, club longer than antennomeres 4–7. Thorax: 1.2 mm long; 1.5 mm wide; 0.8 as long as broad; disc with median carinae beginning at anterior margin running to just before scutellar declivity, punctures deep, ridged, appearing reticulate with small, very narrow, elongate, decumbent, fuscous scales; pleuron with larger some broader more clavate cretaceous scales; anteromedian channel rather shallow, lined with broad, clavate, recumbent, cretaceous scales; scutellum small, round, clothed with small, narrow, white scales; mesepimeron densely clothed with broad, recumbent, clavate, cretaceous scales; mesepisternum with separated clavate cretaceous scales; metepisternum clothed with anterior macula of small, clavate, cretaceous scales and larger dense posterior macula of larger, clavate, cretaceous scales. Elytra: derm fuscopiceous; striae narrow, deep, with small punctures; scutellar declivity rather deep; humeri rounded, not prominent; intervals broad, clothed with small, narrow, elongate, decumbent, fuscous scales, with scattered larger white scales; crosshatch setae sparse not prominent, except few suberect white setae at beginning of setal string. Legs: pro-, meso- and metafemoral teeth medium, spine-like; metafemur rather slender; derm piceous; metafemur slightly exceeding apex of elytra; clothed with narrow, elongate, recumbent, white scales, tibiae subsinuate, pro-, meso- and metatarsus medium to large sized; clothed with white scales. Abdomen: sternum I longer than II behind coxal cavity; sternum III+IV longer than II; sternum V not as long III+IV; sterna I–IV densely clothed with broad, recumbent, clavate, cretaceous scales; sternum V clothed with shorter, narrow, elongate, white scales; apex truncate. Pygidium: half moon shaped, somewhat depressed, clothed with short hair-like scales. Genitalia: spermatheca with ramus and collum undifferentiated, broadly rounded to rather thick cornu with rounded point at apex (Fig. 11).

**DIFFERENTIAL DIAGNOSIS:** This species is very similar to *S. davidi* in coloration, size, and shape, but distinguished by deflexed rostrum and the densely clothed mesepimeron and the two macula on the metepisternum. Also, could be confused with *S. morimotoi*, but differs in the rostrum not being deflexed toward the apex and the presence of a beard of long seta-like scales on the ventral profemur of this species.

**DISTRIBUTION:** S India.

**ETYMOLOGY:** Named in reference to the person from whom I obtained the specimen.

***Shigizo variesculptus* (HELLER) comb.n.**

*Balaninus variesculptus* HELLER, 1927: 243.

*Curculio variesculptus* (HELLER, 1932: 29).

**TYPE LOCALITY:** Philippines, Luzon, Mt. Banahao.

**TYPE MATERIAL:** **Holotype** ♂ (SMTD).

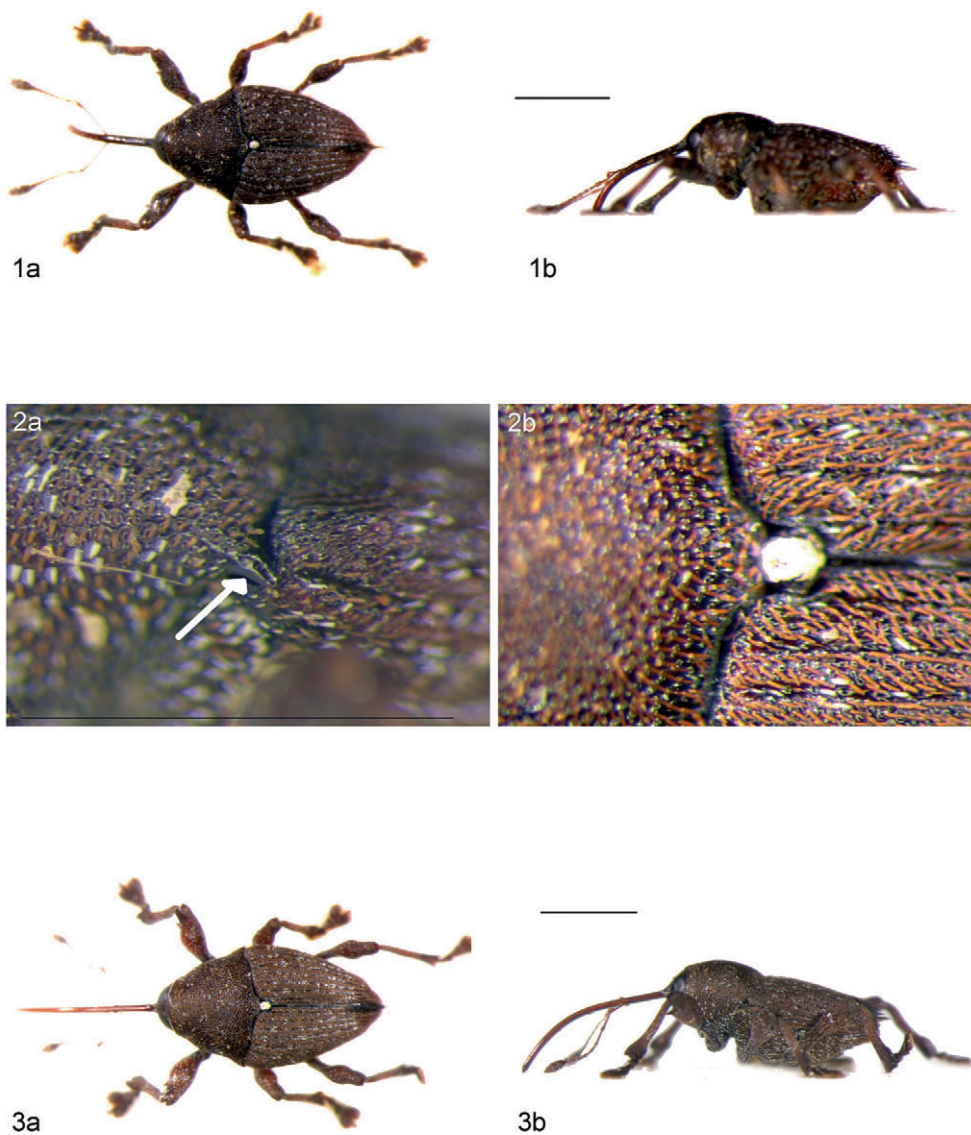
**ADDITIONAL MATERIAL EXAMINED:**

PHILIPPINES: "Dapitan, Mindanao, Baker". (USNM).

**DESCRIPTION:** ♂ Habitus (Fig. 6). Length: 2.9 mm. Width: 1.6 mm. Head: of moderate size, glabrous, punctures shallow, ridged; eyes large. Frons: 0.17 as wide as head across eyes; glabrous. Rostrum: 1.8 mm long; 0.62 as long as body; derm piceous; sub cylindrical; abruptly emerging from head, three dorsal carinae from base to insertion of scape, lateral carinae branching forming network of ridges, evenly deflected from base to apex, scrobe ventral, scape inserted past middle, not reaching eye. Antennal scape 0.8 mm, funicle 0.8 mm, club 0.4 mm long; antonnomere 1 as long as 2, 3 subequal to 2, 4–5 same length not as wide as 6–7 or as long as 6+7, club as long as 4–7. Thorax: 1.0 mm long, 1.4 mm wide, 0.74 as wide as long, disc punctures larger, ridged, close together, anterior margin sinuate with indication of postocular lobes; eyes 50% covered when rostrum tucked in median channel; channel densely lined with large, recumbent, clavate, cretaceous scales; lateral carinae pronounced; disc with thin basolateral macula of clavate, cretaceous scales; anterolaterally long fascia like macula almost reaching top of disc of clavate, recumbent, cretaceous scales; scutellum of moderate size, square, clothed with few small, narrow, white scales; mesepimeron, mesepisternum, metaventrite, densely clothed with broad, clavate, cretaceous scales. Elytra: striae narrow, moderately deep, punctures small; derm piceous; post scutellum declivity rather moderately deep; humeri rounded; intervals flat, broad, clothed with narrow, elongate, fuscopiceous scales; intervals 1–2 with short vittae flanking scutellum; with short vittae at middle on intervals 2, 3, 7, 8 of broad, recumbent, clavate, cretaceous scales; apex with short vittae on interval 3 of same scales; crosshatch setae long, erect, piceous. Legs: pro-, meso- and metafemoral teeth small to medium; femoral clava of moderate size; metafemur exceeds apex of elytron; clothed with narrow, elongate, cretaceous scales; tibiae subsinuate; pro- and mesotarsus moderate; metatibial inner hook large. Abdomen: sternum I longer than II; sternum III+IV longer than II and V; sternum V apex truncate; all sterna densely clothed with broad, clavate, cretaceous scales; sternum V with tufts of long, narrow, hair-like white scales laterally. Pygidium: half moon shaped, clothed with short, narrow, fuscous scales with few white scales dorsomedially. Genitalia not dissected.

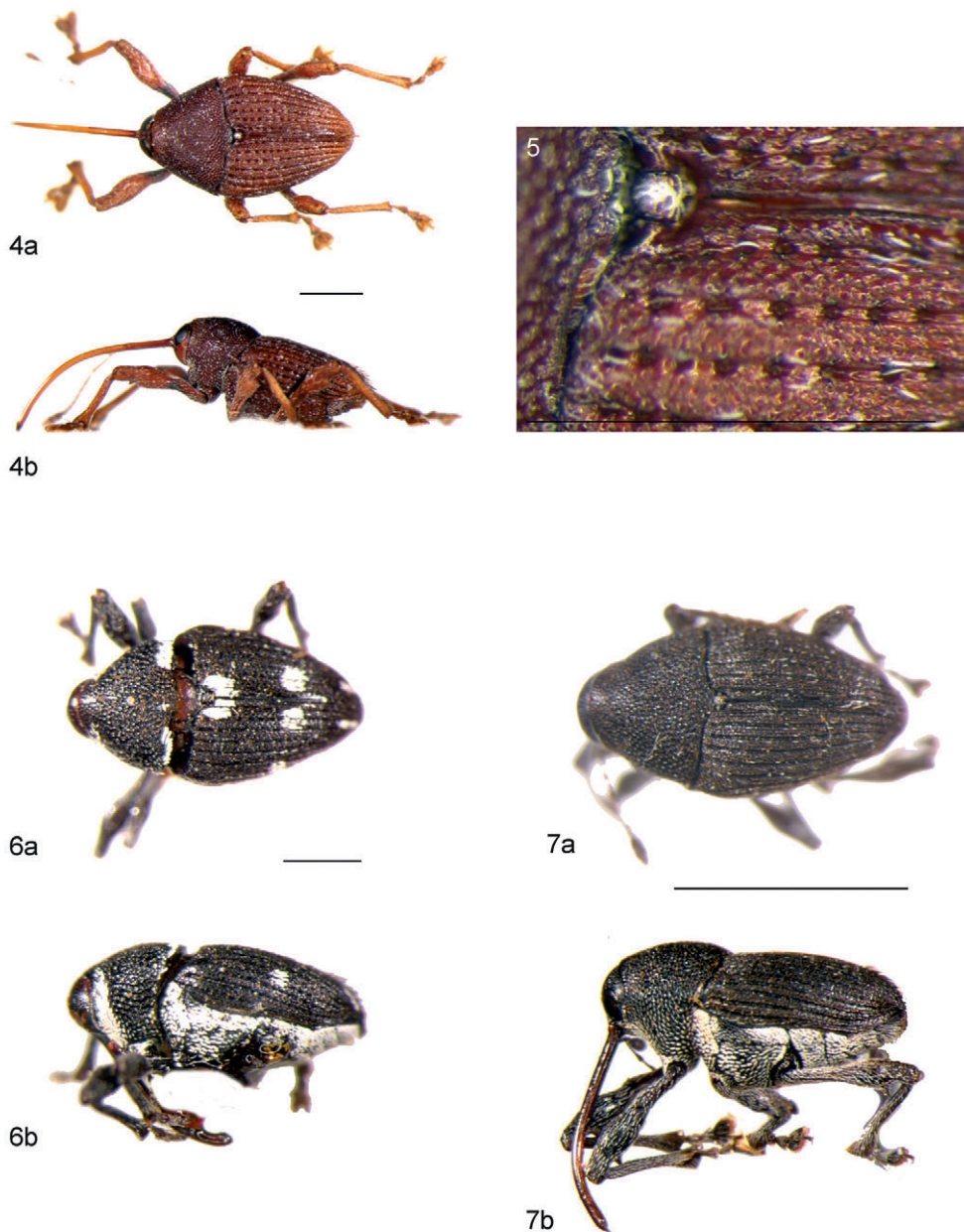
**DISTRIBUTION:** Philippines (Luzon, Mindanao).

**DIFFERENTIAL DIAGNOSIS:** Appears very similar to *S. rhombiformis* MORIMOTO, but can be distinguished from that species by the lack of a short vitta on interval 1 distal of scutellum and an abbreviated fascia just past the midpoint on the dorsal elytra where there are macula on intervals 1–2 skipping to intervals 6–7 with the macula on the laterobasal pronotum being much larger (see MORIMOTO 1981).



Figs. 1–3: *Shigizo brancuccii* sp.n.; 1) habitus of holotype (male) in dorsal (a) and lateral (b) view; 2) same, scutellum and anterior part of left elytron enlarged, arrow indicating lateral pronotal horn (a), vestiture of scutellum and elytra (b); 3) habitus of paratype (female) in dorsal (a) and lateral (b) view. Scale = 1.0 mm.





Figs. 4–7: 4) Habitus of *Shigizo punctatus* sp.n., female, dorsal (a) and lateral (b) view; 5) same, scutellum and anterior part of left elytron enlarged, showing vestiture and size of punctures; 6) habitus of *S. variesculptus*, dorsal (a) and lateral (b) view; 7) habitus of *S. sleeperi* sp.n., holotype (female), dorsal (a) and lateral (b) view. Scale = 1.0 mm.

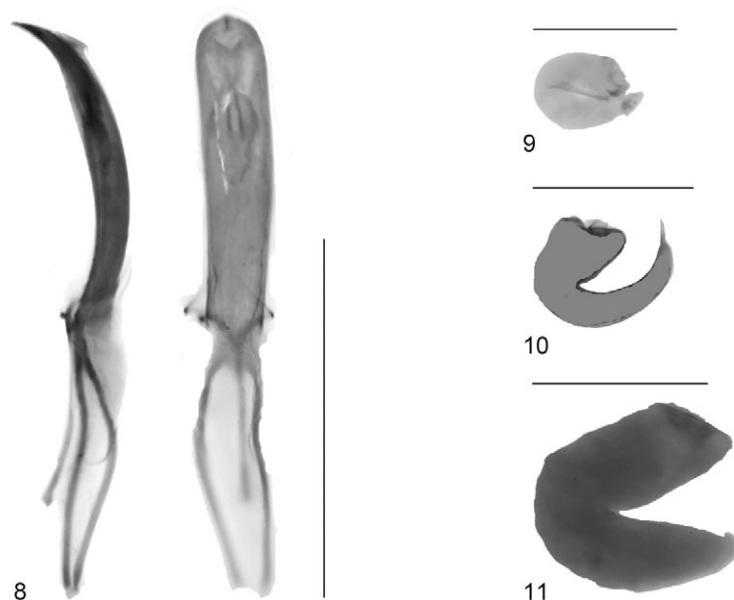


Fig. 8: Aedeagus of *Shigizo brancuccii* sp.n., dorsal and lateral view. Scale = 0.5 mm.

Figs. 9–11: Spermatheca of 9) *Shigizo brancuccii* sp.n.; 10) *S. punctatus* sp.n.; 11) *S. sleeperi* sp.n. Scales: 9–10 = 0.1 mm; 11 = 0.2 mm.

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