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Allenus anthracinus, a new genus and species of polypore fungus beetles (Coleoptera: Tetratomidae: Piseninae) from northern Vietnam

Allenus anthracinus, новый род и вид жуков-тетратомид (Coleoptera: Tetratomidae: Piseninae) из северного Вьетнама

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***Key words*:** new genus, new species, Tenebrionoidea, Southeast Asia.
***Ключевые слова*:** новый род, новый вид, Tenebrionoidea, Юго-Восточная Азия.

Abstract. Based on a single male specimen recently collected in the Yen Bai province (Vietnam), *Allenus anthracinus* Háva & Alekseev **gen.** et **sp.n.** is described as new for science, being illustrated and compared here with related genera belonging to the subfamily Piseninae within the family Tetratomidae. The new tetratomid genus may be separated from all other representatives of this group by the following peculiar external characters: long antennae reaching middle of elytra, a loose antennal club consisting of weakly dilated segments, and a pronotum with two oval bump-shaped protuberances anteriorly. The described taxon extends the known distribution range of the subfamily Piseninae in the south to the Oriental Region.

Резюме. По единичному экземпляру самца, собранного во вьетнамской провинции Йенбай, описываются новые для науки род и вид жуков-тетратомид: *Allenus anthracinus* Háva & Alekseev **gen.** et **sp.n.** Приводятся иллюстрации морфологических признаков жука, проведено сравнение с родственными родами из подсемейства Piseninae семейства Tetratomidae. Новый род жуков-тетратомид отличается от представителей этой группы по следующим характерным внешним признакам: усики длинные, достигающие середины надкрылий; булава рыхлая, состоящая из слабо расширенных антенномеров; переднеспинка с двумя овальными шишковидными выпуклостями спереди. Описанный таксон расширяет известную область распространения подсемейства Piseninae далее к югу в Ориентальную зоогеографическую область.

Introduction

Currently, the family Tetratomidae Billberg, 1820 contains 154 extant species in 13 genera distributed throughout all continents except Antarctica, Australia and New Zealand [Nikitsky, 1998, 2004a, b, 2005, 2016; Pollock, 2012; Yoshitomi, Yamasako, 2016; Saitô, Konvička, 2017]. Additionally, 10 extinct polypore fungus beetles species belonging to 9 genera are described as fossils [Alekseev, Bukejs, 2022; Aalbu et al. 2023; Nabozhenko et al., 2023]. The family is divided according to Nikitsky [1998] into five following subfamilies: (1) Tetratominae Billberg, 1820 (1 extant genus with 5 subgenera, including 25 extant and 1 extinct species plus one fossil monotypic tribe pending further revision); (2) Piseninae Miyatake, 1960 (3 genera, 9 extant species); (3) Penthinae Lacordaire, 1859 (2 genera, 16 extant species); (4) Hallomeninae Gistel, 1848 (2 extant genera with 17 species and 2 extinct monotypic genera); and (5) Eustrophinae Gistel, 1848 (5 extant genera with 87 extant species and 1 extinct species, plus 4 extinct genera with 5 extinct species).

The subfamily of interest, Piseninae, consists of three extant genera [Nikitsky, 1998, 2004b; Young, Pollock, 2002]: (1) *Pisenus* Casey, 1900 (6 spp.) currently distributed in Eastern Asia (4 spp. in south ofthe Russian Far East, Korea, Japan, and Taiwan) and North America (2 spp.), (2) monotypic *Notopisenus* Nikitsky et Lawrence, 1992 known from Chile only; (3) *Triphyllia* Reitter, 1898 distributed in the Caucasus (1 sp.) and in western North America (1 sp.).

This paper provides illustrated description of one new genus and species of polypore fungus beetles, extending the distribution range of the subfamily Piseninae southwards into Oriental Region.

Material and Methods

Abbreviations of morphological measurements used herein are as follows: TL — total length (linear distance measured from anterior margin of head to apex of elytra), PW — width of pronotum (maximum linear transverse distance across pronotum), EW — elytral width (maximum linear transverse distance across elytra).

Measurements of the holotype were made using an ocular micrometer in a stereoscopic microscope. The photographs of the specimen were taken using a digital

camera Olympus DP 72 on a stereobinocular microscope Olympus SZX 16. All images were edited to create figures using Adobe Photoshop 7.0 software.

The material examined (the holotype) is deposited in the Private Entomological Laboratory & Collection of Jiří Háva (Únětice u Prahy, Prague-West, Czech Republic) [abbreviated as JHAC]. The holotype is glued to cardboard plate and provided with red label with the following printed text: «HOLOTYPE / *Allenus* gen. nov. / *anthracinus* sp. nov. / J. Háva & V. Alekseev des. 2024».

The male genitalia and wing are glued on separate cardboards.

The use of terminology is standard for describing the anatomy of Coleoptera in accordance to the following sources were used for the systematic placement and comparison with extant taxa: Reitter [1898], Nikitsky [1998, 2004b], Young, Pollock [2002].

Nomenclatural acts introduced in the present work are registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:D79E2021-C7AB-4396-BA38-509FA5384E14.

Results

Tetratomidae Billberg, 1820
Piseninae Miyatake, 1960
Allenus Háva & Alekseev **gen.n.**

Type species: *Allenus anthracinus* Háva & Alekseev **sp.n.**, by present designation.

Urn:lsid:zoobank.org:act:D2A5EBDE-DBC1-4D07-8983-6D2E9A6F2E7B.

Taxonomic position. The studied specimen shows a combination of characters corresponding to the family Tetratomidae: (1) 5-5-4 simple tarsi without ventral lobes; (2) antennal insertions not visible from above; (3) procoxae separated by complete prosternal process; (4) eyes emarginate; (5) apical maxillary palpomere obliquely truncate and oblong; (6) mandible bidentate; (7) pretarsal claws simple. The beetle was assigned to the subfamily Piseninae based on the presence of the above-mentioned and following characters: (1) antennae with last three antennomeres forming loose antennal club (2) scutellar shield without dense, light and contrast pubescence, (3) protrochantin well-visible, (4) frontoclypeal suture semicircular, (5) aedeagus with setigerous sensory lobes, (6) tibial spurs short, and (7) elytral punctuation not forming rows.

Description. Body elongate-oval, convex dorso-ventrally; dorsal surface shiny, punctate, with pubescence fine and decumbent. Eyes oval, vertical, weakly convex, weakly emarginate at antennal insertions. Frontoclypeal suture semicircular. Antennae long, reaching middle of elytra; antennomere 3 longest (but shorter than antennomeres 4 and 5 combined); antennomeres 9–11 slightly wider than antennomeres 1–8, with densely pubescent sensory apical parts, forming very loose symmetrical antennal club. Pronotum transverse, with two symmetrical anterior protuberances (bumps) and distinct paired basal impressions (foveae). Lateral sides of pronotum not flattened. Prosternal process complete, weakly dilated, with slightly emarginae apex. Procoxal cavities transverse, narrowly separated by prosternal process, externally open, internally closed. Elytra non-striate, densely confusedly punctuate. Metathoracic wings with distinct subcubital fleck. Abdominal ventrite 1 distinctly longer than abdominal ventrite 2. Aedeagus with pair of sensory lobes.

Differential diagnosis. The new genus, *Allenus* Háva & Alekseev gen.n., is morphologically most similar to the genus *Pisenus* Casey and can be distinguished from the latter by the following unique characters, requiring the establishment of a new genus: (1) segments of antennal club slightly wider than previous antennomeres, forming loose antennal club almost as long as antennomeres 6–8 combined; (2) pronotum with two symmetrical, oval, bump-shaped protuberances anteriorly. Additionally, *Allenius* Háva & Alekseev gen.n. differs from *Triphyllia* Reitter in non-flattened pronotal sides, distinct basal impressions, comparatively longer abdominal ventrite 1, and aedeagus with sensory lobes. The new genus can be distinguished from *Notopisenus* Nikitsky et Lawrence in shorter and symmetrical antennal club (asymmetrical and as long as antennomeres 1–8 combined in *Notopisenus* Nikitsky et Lawrence), and distinct basal impressions. *Allenus* Háva & Alekseev gen.n. can be easily distinguished from three known genera of Piseninae by long antennae reaching middle of elytra, all antennomeres elongate (including weakly dilated antennomeres of loose antennal club), and pronotum with two protuberances anteriorly. Additionally, *Allenus* Háva & Alekseev gen.n. differs by the slightly larger body size (5.3 mm compared with 3.8–4.8 mm in *Notopisenus* Nikitsky et Lawrence, 3.3–4.7 mm in *Triphyllia* Reitter, and 2.5–5.0 mm in *Pisenus* Casey).

Etymology. The name of this new genus is patronymic, dedicated to Mr. Albert Allen (Boise, Idaho, USA). The gender is masculine.

Composition. The new genus is monotypic, represented by the type species only.

Allenus anthracinus Háva & Alekseev **sp.n.**

Figs. 1–8.

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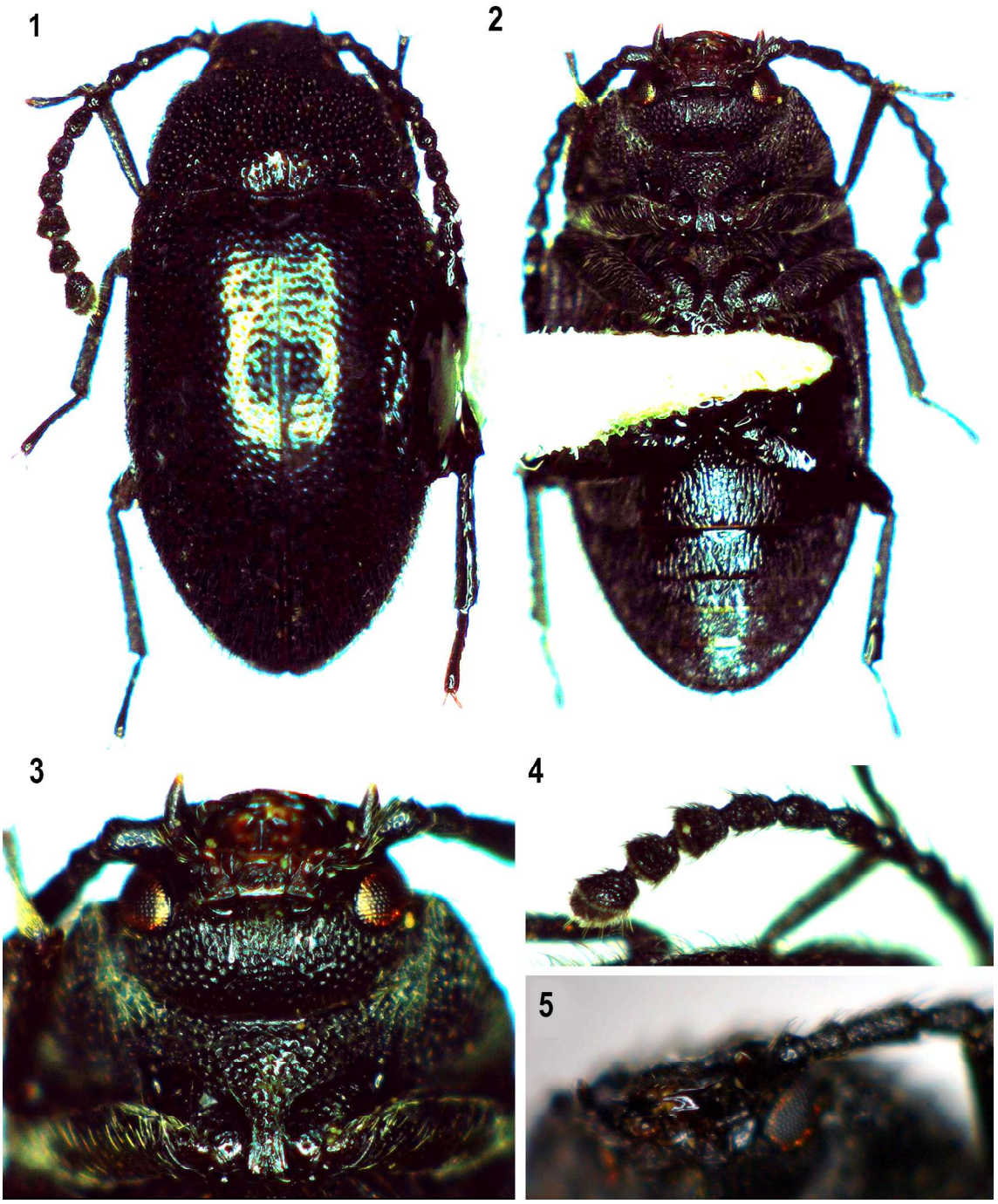
Material. **Vietnam:** Holotype, ♂, Yen Bai, v.2023, local collector unknown [JHAC].

Description. *Male.* Measuremenst: TL = 5.3 mm, PW = 2.2 mm, EW = 2.7 mm. Body elongate-oval (total body length / maximum body width = 1.9), convex dorso-ventrally; dorsal surface shiny, densely punctate, with pubescence fine and decumbent; entirely black.

Head prognathous, transverse, densely punctate dorsally; distance between punctures distinctly smaller than diameter of one puncture; clypeus impressed, with rounded anterior margin; frons convex with median longitudinal impression; frontoclypeal suture semicircular, fine. Compound eyes vertical, weakly emarginate at antennal insertions, slightly convex, finely facetted, without interfacetal setation. Antennal insertions not visible from above, concealed by weak lobe of frons. Antennae long, reaching middle of elytra, 11-segmented; with very loose, symmetrical antennal club, forming by antennomeres 9–11. Antennal club long, almost as long as antennomeres 6–8 combined, not flattened. Segments of antennal club (antennomeres 9–11) slightly wider than previous antennomeres, with densely pubescent sensory areas apically. Scape subcylindrcal, twice longer than wide; pedicel subconical, slightly narrower and shorter than scape; antennomere 3 longest, 3 × longer than wide, about twice as long as pedicel; antennomeres 4–8 subequal in size and shape, elongate, subcylindrical, about 1.5 × longer than wide; antennomeres 9–10 as long as wide, almost as long as antennomere 7, but weakly dilated; antennomere 11 ovoid, about 1.5 × longer than wide, with distinctly separated apical third covered by

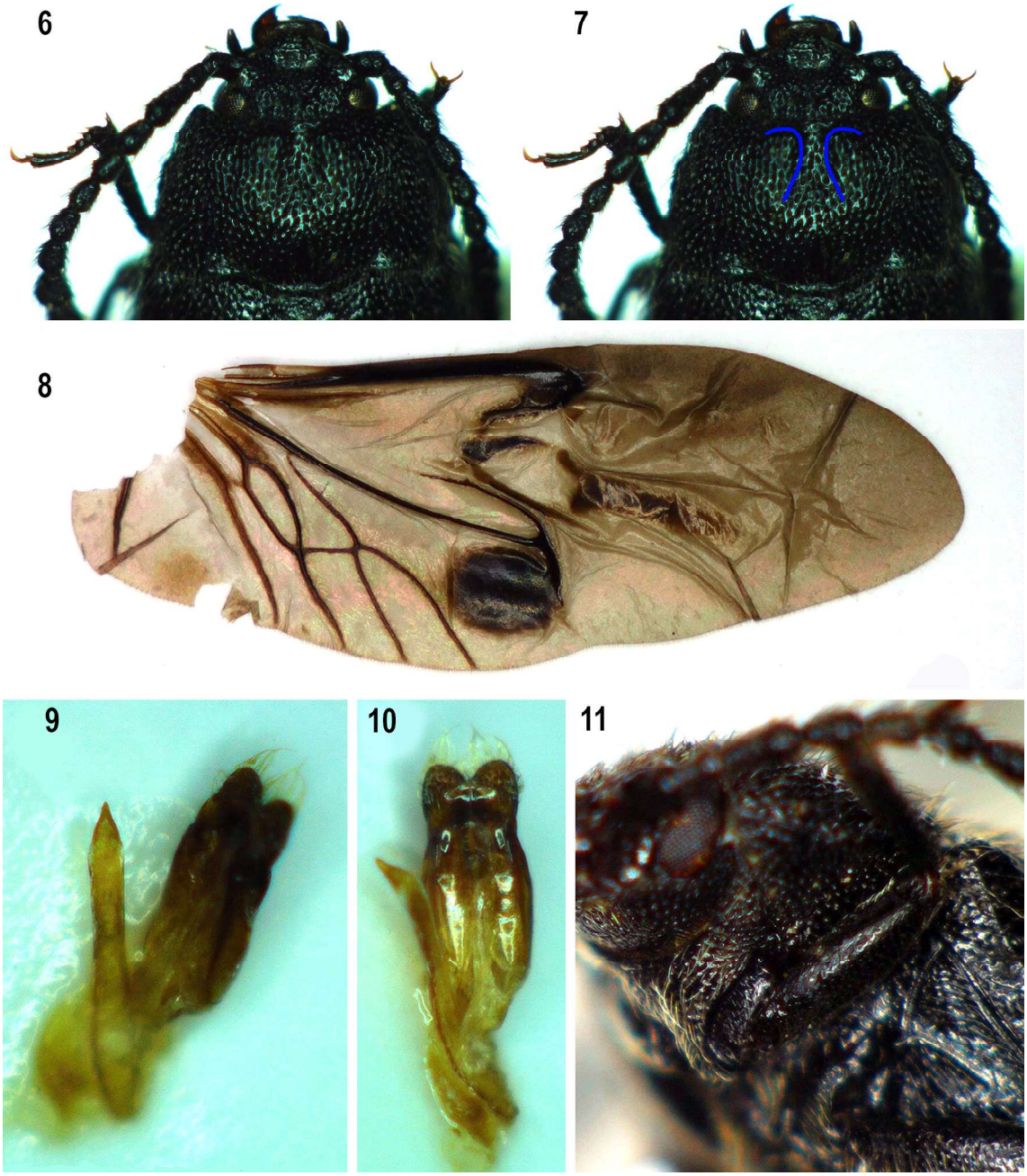


Figs 1–5. Details of *Allenus anthracinus* Háva & Alekseev gen. et sp.n. holotype morphology: habitus (1, 2), head (3, 5), protorax (3), distal part of left antenna (4) and apex of left mandible (5). 1, 4 — dorsal view; 2, 3 — ventral view; 5 — ventro-lateral view.

Рис. 1–5. Детали строения голотипа *Allenus anthracinus* Háva & Alekseev gen. et sp.n.: габитус (1, 2), голова (3, 5), переднеспинка (3), дистальная часть левого усика (4), вершина левой мандибулы (5). 1, 4 — дорзально; 2, 3 — вентрально; 5 — вентро-латерально.

long, dense, erect pubescence. Mandible triangular, bidentate at apex. Maxillary palps 4–segmented; palpomere 1 smallest (poorly visible in specimen); palpomeres 2–3 subequal in length and shape, elongate, about 1.5× as long as wide; palpomere 4 oblong, about twice as long as wide, obliquely truncate. Labial palps with small, narrowly elongate terminal palpomere.

Pronotum transverse, about twice wider than long, widest at base, narrowed anteriad, with distinct paired basal impressions (foveae). Pronotal disc weakly convex, with two symmetrical anterior bump-shaped protuberances. Protuberances oval, anteriorly convergent, separated by triangular (arrow-like) median impression. Pronotal surface densely and coarsely punctate. Lateral pronotal sides margined, with fine crenulation. Anterior pronotal margin arcuate; posterior margin margined medially, bisinuate. Anterior angles prominent, triangular, slightly rounded; posterior angles obtuse. Prothoracic notosternal suture complete. Hypomera and prosternum



Figs 6–11. Details of *Allenus anthracinus* Háva & Alekseev gen. et sp.n. holotype morphology: head and pronotum (6, 7), metathoracic wing (8), male genitalia (penis) with aedeagus in different views (9–10) and pro- and mesothorax (11). 6, 7, 9 — dorsal view; 8 — venation; 10, 11 — lateral view. In Fig. 7 pronotal anterior bump-shaped protuberances are marked with the blue color lines.

Рис. 6–11. Детали строения голотипа *Allenus anthracinus* Háva & Alekseev gen. et sp.n.: голова и переднеспинка (6, 7), метаторакальное (заднее) крыло (8), гениталии самца (эдеагус) с пенисом в разных ракурсах и передне- и среднегрудь (11). 6, 7, 9 — сверху; 8 — жилкование; 10, 11 — сбоку. На рис. 7 шишковидные выпуклости спереди переднеспинки отмечены линиями синего цвета.

densely punctate, pubescent. Intercoxal prosternal process elongate, narrow, distinctly narrower than diameter of one procoxa, weakly dilated posteriad, complete, with slightly emarginate apex. Procoxal cavities transverse, externally open, internally closed.

Scutellar shield large, semicircular, transverse, without apparent pubescence.

Elytra elongate (about 1.5 × longer than wide combined, 3.8 × longer than pronotum), moderately convex, widest in the middle, slightly wider than pronotum at base, non-striate, densely confusedly punctuate, with rounded humeral angles. Meso- and metaventrites densely punctate, sparsely pubescent. Mesocoxal cavities open laterally. Metanepisternum complete, without separate triangular area.

Epipleura well-developed, widest in basal half, slightly narrowed posteriad, distinct almost up to elytral apices. Metathoracic wings developed, functional, radial cell absent, anal veins 1–3 complete, subcubital fleck distinct.

Legs slender, finely punctate. Procoxa transverse, completely separated by prosternal process; mesocoxae rounded, narrowly separated by about 0.3× diameter of mesocoxa; metacoxae oval, transverse. Protrochantin well visible. Femora nearly spindle-shaped, flattened, widened medially; femora and tibiae subequal in length. Tibiae longer than tarsi, straight, slightly dilated apically, with short tibial spurs. Tarsal formula 5–5–4; tarsomeres with sparse, fine setation ventrally, simple; metatarsomere 4 longest, longer than metatarsomeres 1–3 combined, slightly curved. Pretarsal claws simple, small.

Abdomen with five visible ventrites, abdominal sutures distinct throughout length; densely punctate. Relative length ratios of ventrites 1–5 equal to 4.0:2.2:1.5:1.5:1.5 (measured medially). Abdominal ventrite 5 with widely rounded apex.

Female unknown.

Differential diagnosis. As stated for the new genus.

Etymology. The name of the new species ‘anthracinus‘ (from the Ancient Greek ἀνθρᾰ́κινος) refers to the black and lustrous body resembling a hard coal (anthracite, the coal type with highest carbon content).

Distribution. Vietnam: Yen Bai province. Known from type locality only.

Bionomy. Unknown.

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