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A New Species of *Apozomus* (Arachnida: Schizomida: Hubbardiidae) from Peninsular Malaysia

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Abstract

A new species of the genus *Apozomus* Harvey 1992 is described from Malaysia. It was collected in a termite nest and is therefore likely a termitophile. The new species is the 14th described species of the order from Southeast Asia, and the 19th member of the genus *Apozomus*. The described taxa of the Schizomida from Southeast Asia are reviewed. Many species remain to be studied and described.

Key words: *Apozomus*, *Longipeditermes,* new species, Peninsular Malaysia, schizomid, taxonomy, termite

Introduction

Thirteen species of Schizomida (all members of the Hubbardiidae) have been reported (Harvey 2003) from Southeast Asia, 11 of which were originally described from this area. Thorell (1889) described the genus *Tripeltis* and *Tripeltis cambridgei* and *Tripeltis grassii* from Myanmar (=Burma). *Trithyreus* Kraepelin 1899 was used as a replacement name for *Tripeltis* which was preoccupied. *Trithyreus grassii* was redescribed by Reddell and Cokendolpher (1985). *Trithyreus cambridgei* is presently considered a *species inquirenda* (Sissom 1980) because the immature holotype is lost. Hansen (in Hansen and Sörensen 1905) described *Trithyreus luzonicus* from Luzon, Philippine Islands; *Trithyreus procerus* and *Trithyreus claviger* from Singapore; and *Trithyreus siamensis* from Thailand.

Cokendolpher and Tsurusaki (1994) described the genus *Orientzomus* and listed *luzonicus* in combination with it. Reddell and Cokendolpher (1995) described the genus *Clavizomus* and named *T. claviger* the type species and redescribed the species. Harvey (1992) described the genus *Bamazomus* and listed *T. siamensis* as a member. This species was redescribed by Cokendolpher and Reddell (1986) and Cokendolpher (1988).

Jackson (1908) described *Trithyreus bagnallii* from the hothouses of the Kew Botanical Gardens in England. Reddell and Cokendolpher (1995) used this species as the type for their new genus *Zomus* and along with Harvey (2001) reported this species from its native lands in western Malaysia, Sarawak, Singapore, Krakatau Island in Indonesia, island of Rodriguez, Seychelles, Fiji, and the Cook Islands.

Gravely (1912) described *Schizomus cavernicola* from Myanmar. Buxton (1917) reported specimens of *Schizomus modestus* Hansen (in Hansen and Sörensen

1905) from Kedah and Perak, West Malaysia. This species was described from Papua New Guinea and the Malaysian specimens are probably misidentified. Rémy (1946) described *Trithyreus peteloti* from Vietnam. Harvey (2003) listed this species in combination with *Schizomus*. *Schizomus sauteri* Kraepelin (1912), described from the Republic of China, was later reported by Silvestri (1947) from Vietnam and redescribed by Cokendolpher (1988). Reddell and Cokendolpher (1995) transferred the species to *Apozomus* Harvey 1992. These specimens have not been restudied and the Vietnam record should be verified.

Brignoli (1974) described *Trithyreus pileti* from the Batu Caves, West Malaysia. Reddell and Cokendolpher (1995) transferred the species to *Bamazomus* Harvey 1992. Sissom (1980) described *Schizomus biocellatus* from Sumatra. Reddell and Cokendolpher (1995) described the genus *Oculozomus* and listed *biocellatus* as the type species. The most recent Southeast Asian species to be described is *Schizomus oculatus* Cokendolpher and Sites (1988), which was later transferred to *Javazomus* Reddell and Cokendolpher 1995.

The Schizomida of Asia are poorly known and new collections from litter, soil, and animal nest from the region should reveal many new taxa. Reddell and Cokendolpher (1995), as well as Annandale and Gravely (1913), Aoki and Harada (1982), Beron (1976), Chapman (1980, 1982, 1984), Collins (1980), Deharveng (1981), Giltay (1931), Gravely (1915), Leakey and Proctor (1987), Leclerc (1986), Speijer (1936), and Starr (1983), have already reported unidentified specimens from the region. It is the purpose here to report and describe a new species from Malaysia, taken from a termite mound near Bukit Tersek.

METHODS

Total length is measured from the anteriormost pair of setae to the base of the flagellum. Pedipalp and leg segments are measured from dorsolateral to opposite dorsolateral joint. The description of the cheliceral structures follows Lawrence (1969).

Z-axis montages of photographs were created with Helicon Focus (Helicon Soft Ltd.).

TAXONOMY

Apozomus termitarium Cokendolpher, Sissom, and Reddell, new species

Figures 1-11

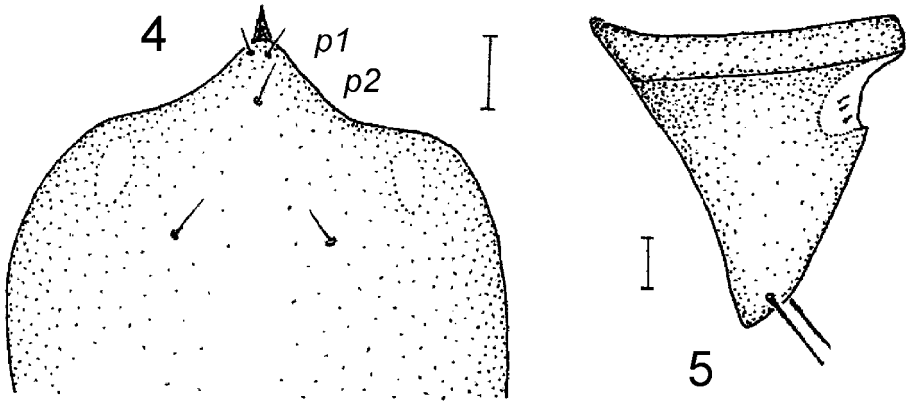
Type-data.—Male holotype from 2nd hill north of Bukit Tersek, Taman Negara, Malaysia, 1 July 1973 (D. H. Kistner, H. R. and J. A. Jacobson, and H. Grover), #3419 (American Museum of Natural History); removed from the nest T-720 of *Longipeditermes longipes* (Haviland) (Termitidae: Nasutitermitinae).

Etymology.—The species epithet (L.) is based on the name for a nest of termites, the microhabitat from which the holotype and only known specimen was collected. It is used as a noun in apposition.

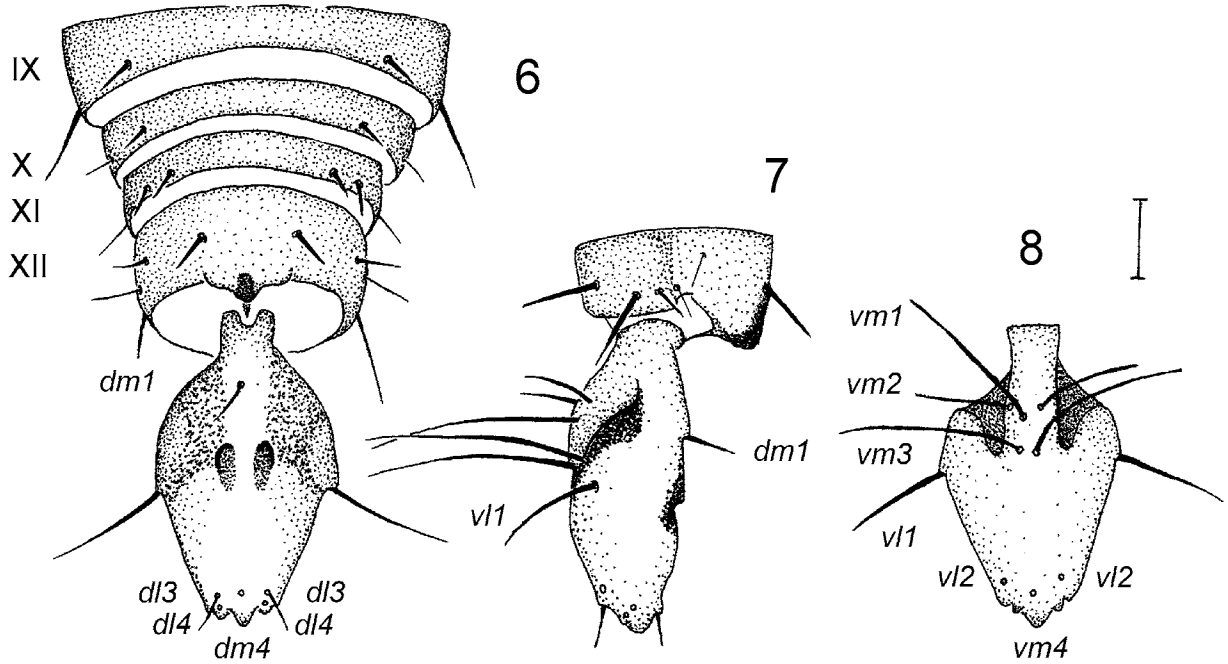
Diagnosis.—The new species is assigned to the widespread Australasian genus *Apozomus*, on the basis of the following characters: (1) setae on anterior process of propeltidum 2+1; (2) eyes not corneate; (3) metapeltidium divided; (4) abdominal tergite II with one pair of large setae; (5) setae of body and legs not clavate; (6) pedipalpal trochanter with mesal spur; (7) movable finger of chelicerae with one accessory tooth; (8) leg femur IV produced at 90°; (9) abdomen not elongated; (10) posterodorsal process present (but small) on abdominal segment XII; (11) flagellum dorsoventrally flattened, without holes; and (12) pedipalps with spinose setae.

The new species differs from all other species of *Apozomus* for which males are known in the shape and

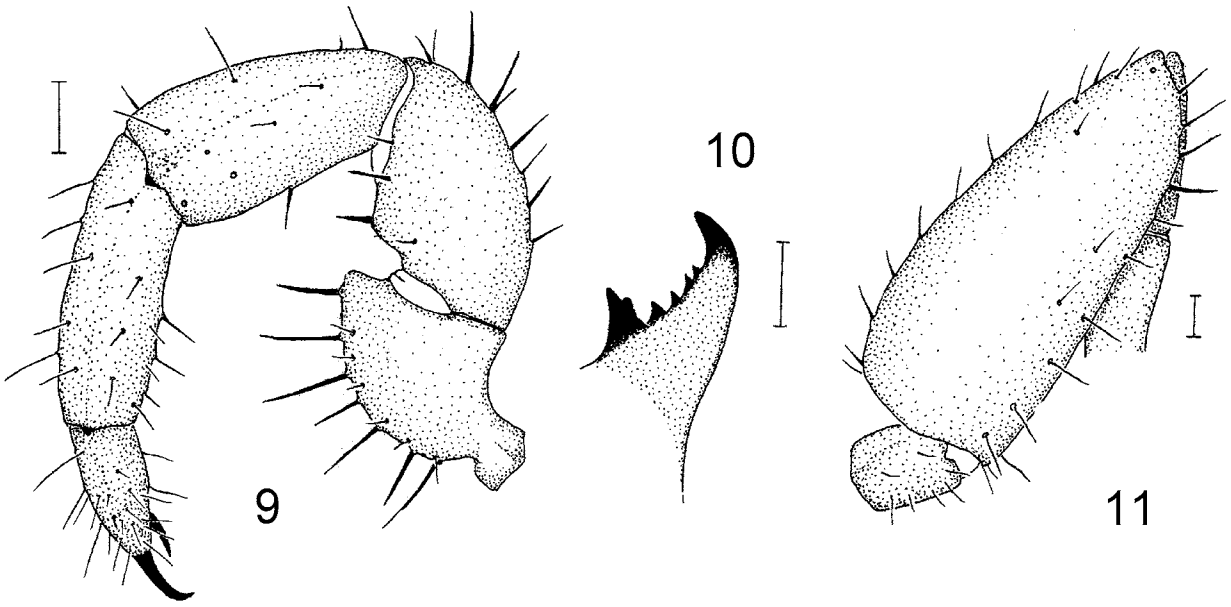
Figures 1-3. Morphology of male holotype of *Apozomus termitarium*, new species. 1, dorsal view; 2, lateral view; 3, ventral view.



Figures 4-5. Morphology of *Apozomus termitarium*, new species. 4, Dorsal view of anterior third of propeltidium; 5, left lateral view of tergite II (three pairs of minute setae in dorsal depression, anterior side is up in the illustration). See the text for details of setal numbers. Scale bars = 0.1 mm.



Figures 6-8. Morphology of *Apozomus termitarium*, new species. 6, dorsal view of tergite IX to flagellum; 7, left lateral view of segment XII to flagellum; 8, ventral view of flagellum. See the text for details of setal numbers. Scale bar = 0.1 mm.



Figures 9-11. Morphology of *Apozomus termitarium*, new species. 9, lateral view of left pedipalp; 10, lateral view of fixed cheliceral finger; 11, lateral view of left trochanter and femur IV. Scale bars = 0.1 mm.

setational pattern of the flagellum. The absence of a guard tooth from the cheliceral serrula is also unique among *Apozomus* and is otherwise known only in *Clavizomus*. This last character suggests it could be a representative of an as yet undiagnosed genus, but until a female is studied we will refrain from naming another genus.

Description.—Male holotype (Figs. 1-3) 2.96 mm long. Color in alcohol: propeltidium, legs, chelicerae, and pedipalps amber brown; abdomen and flagellum slightly darker.

Cephalothorax: propeltidium (Fig. 4) 1.0 mm long, 0.64 mm wide; with two very small *p1* setae, one *p2* seta, and three pairs dorsal setae (median pair much smaller); apical margin drawn to sharp downturned point. Eyespots irregularly elongate oval. Gap between mesopeltidial plates 0.8 times anterior length of one plate. Metapeltidium divided by distinct suture. Anterior sternum with 10 setae; posterior sternum with four setae.

Abdomen: tergite I with three pair very small anterior and one pair large posterior setae; tergite II (Fig. 5) with three pair very small anterior and one pair large posterior setae; tergites III-VII with one pair dorsal setae each; tergite VIII with one pair dorsal and one pair lateral setae; tergite IX (Fig. 6) with one pair dorsolateral and one pair lateral setae. Sternite VI about 2.4 times as wide as long; sternite VI width/length ratio versus body length 1.2. Segment X (Fig. 6) with two dorsolateral, two lateral, and seven ventral setae; segment XI (Fig. 6) with four dorsolateral and seven ventral setae; segment XII (Fig. 6-7) with two dorsal, two dorsolateral, and two ventral setae; segment XII with truncate posterodorsal process. Flagellum (Figs. 6-8) 0.40 mm long, 0.22 mm wide; truncate distally with three small lobes; with two shallow dorsal depressions; one dorsal seta (*dm1*) anterior to depressions and five dorsal setae apically (*dl3*, *dl4*, *dm4*); six setae (vm1-4) on ventral surface and four ventral lateral setae (vl1, vl2).

Pedipalps (Fig. 9): trochanter produced distally to blunt end; mesal spur present; row of seven setae along ventral margin; two setae and one short spinose seta on mesal surface. Femur laterally expanded distally; with two short spinose setae ventrally; three short spinose setae on mesal surface; irregular row of setae and short spinose setae on dorsal surface. Patella, tibia, and metatarsus-tarsus with scattered setae.

Spur about 0.17X, claw about 0.33X dorsal length of metatarsus-tarsus.

Chelicerae: fixed finger (Fig. 10) with large basal tooth, four smaller teeth, and one large distal tooth; basal tooth with one small, blunt, lateral tooth; brush at base of fixed finger with 10 setae, each densely pilose in distal half; lateral surface with four large, lanceolate, terminally pilose setae. Movable finger file composed of 20 long lamellae; guard tooth at end of file not visible; one accessory tooth present near middle of file.

Legs: leg I, including coxa, 6.16 mm long; metatarsus-tarsal segment proportions: 17:4:4:4:4:10. Femur IV (Fig. 11) about 2.25 times as wide as long.

Measurements (in mm): male holotype: pedipalp: trochanter 0.16, femur 0.42, patella 0.40, tibia 0.40, metatarsus-tarsus 0.22, total 1.60. Leg I: trochanter 0.32, femur 1.26, patella 1.74, tibia 1.34, metatarsus-tarsus 0.96, total 5.62. Leg II: trochanter 0.14, femur 0.80, patella 0.42, tibia 0.50, metatarsus 0.48, tarsus 0.40, total 2.47. Leg III: trochanter 0.18, femur 0.64, patella 0.30, tibia 0.30, metatarsus 0.48, tarsus 0.38, total 2.28. Leg IV: trochanter 0.30, femur 1.12, patella 0.54, tibia 0.80, metatarsus 0.74, tarsus 0.50, total 4.00.

Female unknown.

Comment.—The single known specimen of *Apozomus termitarium* was removed from a nest of *Longipeditermes longipes* (Haviland) (Termitidae: Nasutitermitinae). Although schizomids are known from a variety of termite species nests from both the New and Old Worlds, they have not previously been reported from nests of *L. longipes*. This termite is common in southern Thailand, Malaysia, and Indonesia, including Kalimantan (Hoare and Jones 1998). *Apozomus sauteri* (Kraepelin) is reported (Silvestri 1947) from the fungus chamber in the nest of another termite, *Macrotermes barneyi* Light (Termitidae: Macrotermiticae), from Vietnam.

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