# A New Species of *Atheta* (Coleoptera: Staphylinidae) from Sri Lanka found with Termites (Isptera: Termitidae)

by

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## ABSTRACT

*Atheta dominguezae* (Coleoptera) is described from SRI lANKA where it is found with *Hospitalitermes monocerus* (Isoptera). Behavioral observations indicate that the beetles are termitariophiles. What is novel about this ttermitariophile is that this species was found to live in this same nest over a period of 13 years .

Key words: *Atheta dominguezae, Hospitalitermes monoceros*, termitariophiles, Sri Lanka

## MATERIAL AND METHODS

Field methods: Specimens of the new species were collected on two occasions' both from what appeared to be the same nest of *Hospitalitermes monoceros (*Koenig) (det. A.E. Emerson, 1963). Since the first captures (1960) had no speacific termitophilous adaptations, we simply collected a small series although we did note that the beetles were active in the same trails as the termites. Later (1973), I returned to Sri Lanka and found the identical tree in the Botanic Gasrden at Kandy. I took about 4 hours to cut part of the nest off the tree and then studied the beetles interactions with their host termites in the exposed trails.

Laboratory methods: Specimens were studied dried and mounted on microscope slides after being cleared in KOH, washed in $H_2O$, and mounted in Hoyer's medium. Multiple photographs were made through either a binocular dissecting microscope or a regular compound scope. The photographs were all augmented using the Automontage program and Photoshop. Measureaments were made using an ocular micrometer.

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## RESULTS

The specimens are a new species of *Atheta,* described below.

### *Atheta (Atheta) dominguezae* new species

Figs. 1-5

Related to *Atheta graminincola* Gravenhorst =the generatype of *Atheta* (Blackwelder 1952) through its geral habitus aand color but distinguished there from by its smaller size and the shape of the spermatheca. See Fig. 6 for a photo of the spermatheca of *Atheta graminincola*a.

Overall appearance slender as in Fig. 1. Head wider than long and about as wide as the pronotum, shaped as in Fig. 2A. Neck short. Sides of gula bowing mesad; submentum separate from the mentum. Mouthparts similar to other Myrmedoniina, but with variations from the mouthparts of the other species. Labrum wider at the apex than at the base, shaped as in Fig. 2C. Mandibles shaped as in Figs. 2E and F, both with only traces of median teeth and so are practically mirror images of each other. Maxillae shaped as in Fig. 2B, with the lacinia about 20% shorter than the galea. Maxillary palpi 4-segmented with the 3rd segment about equal in length to the 2nd, the 1st segment short, the 4th segment spindle shaped and about 4X longer than the 1st. Acetabulae of the maxillae emarginate. Labium and submentum shaped as inall *Athaaeta*; labial palpi 3-segmented with segment 1 longer than segment 2 but with segment 3 longer than segment 2 but shorter than segment 1. . Entire antenna shaped as in Fig. 2D.

Fig. 1. *Atheta dominguesae*, dorsal view

Pronotum wider than long and wider thsns the head, somewhat flattened dorsally, as in Figs. 1 & 3A, with many setae presumed to

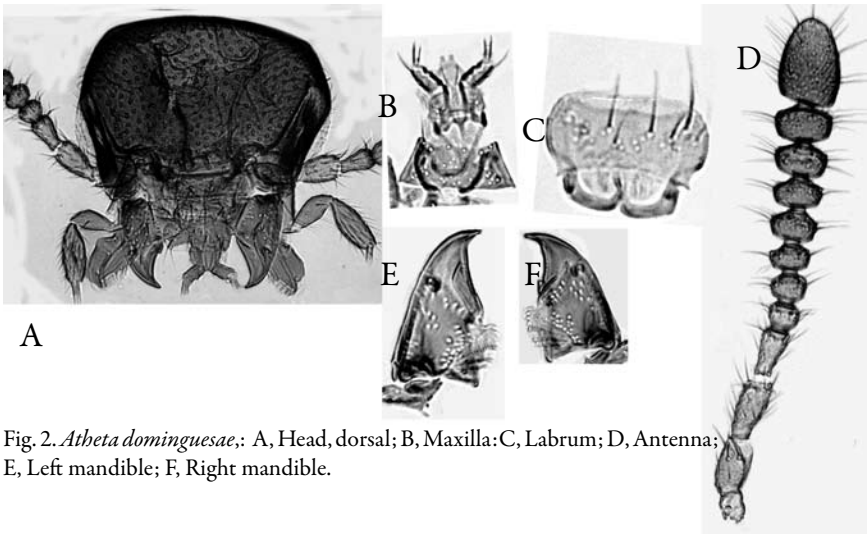


Fig. 2. *Atheta dominguesae*,: A, Head, dorsal; B, Maxilla: C, Labrum; D, Antenna; E, Left mandible; F, Right mandible.

vary by species. Prosternum carinate (Fig. 3A). Elytra shaped as in Fig. 3B, with sculpture and chaetotaxy which probably vary by species. Metanotum and abdominal segment I shaped as in Fig. 3C. Metanotum about equal to 4X the length of abdominal segment I. Mesonotum (scutellum) shaped as in most Myrmedoniiina (Fig. 3C). Meso- and metasternum shaped as in Fig. 3D, with the mesosternal intercoxal process wide, blunt, and carinate; and with the mesothoracic acetabulae completely margined. . Pro-, meso-, and metathoracic legs shaped as in Figs. 4A, B, & C,, respectively; tarsal formula 4-5-5. Empodia of all legs shaped normally and of normal length. Wings shaped as in Fig 3E

Overall abdominal shape as in Fig. 5.A Segment II represented by the tergite alone (Fig.5A). Segments III-VI consisting of a tergite, a sternite, and 2 pairs of paratergites each (Fig. 5A. Segment VII (Fig. 5A) consisting of a tergite, a sternite and 2 pairs of paratergites with the inner paratergite small and difficult to see. Segment VIII consisting a tergite and a sternite alone (Fig. 5A). Segment IX of male with long anterior apodemes and a sternite (Fig. 5D); the long apodemes are lacking in females (5B). Median lobe of the male genitalia shaped as in Fig. 5E Lateral lobe of the male genitalia shaped as in

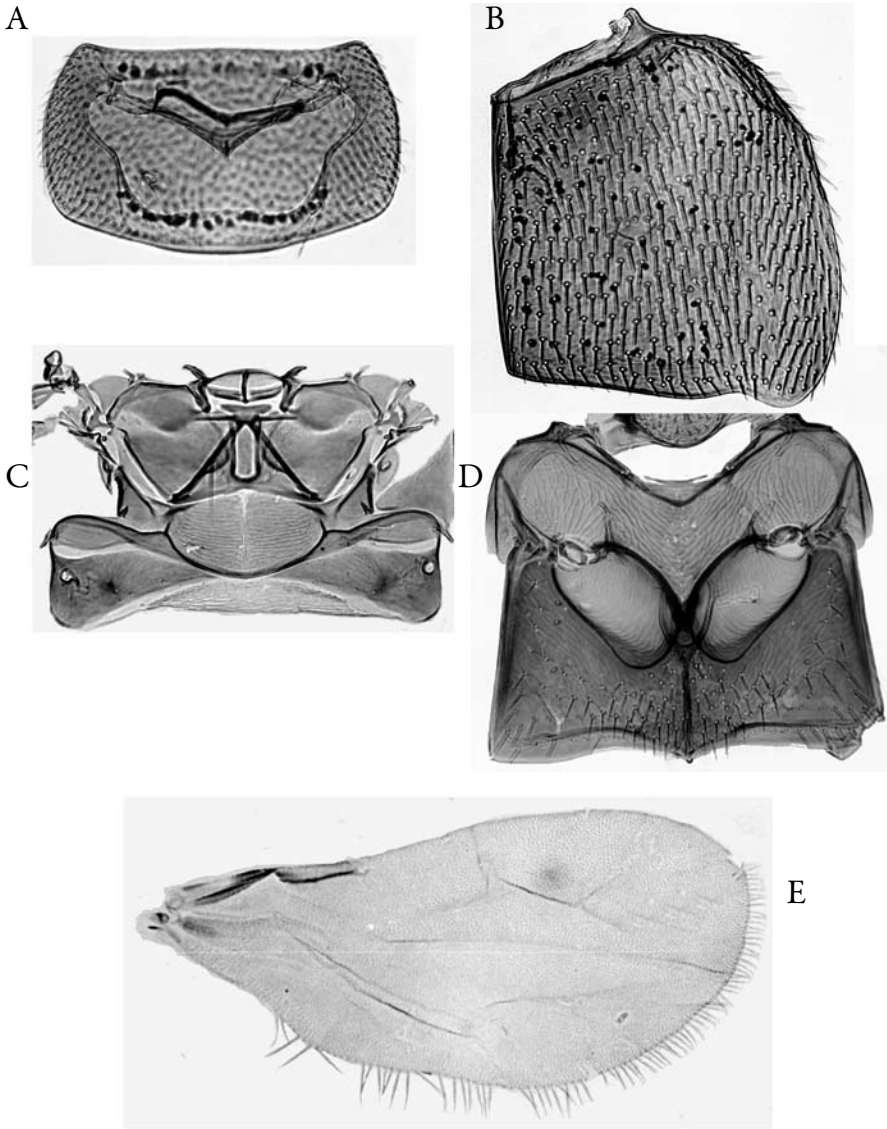


Fig. 3. *Atheta dominguesae*,: A, Pronotum, dorsal; B, Left Elytron; C, Meonotum; metanotum, and abdominal segment 1';D, Meso-and metasternum; E, Wing.

Fig. 5E. Spermatheca shaped as in Fif 5C.

Color dark reddish brown throughout with head, abdomen and legs a

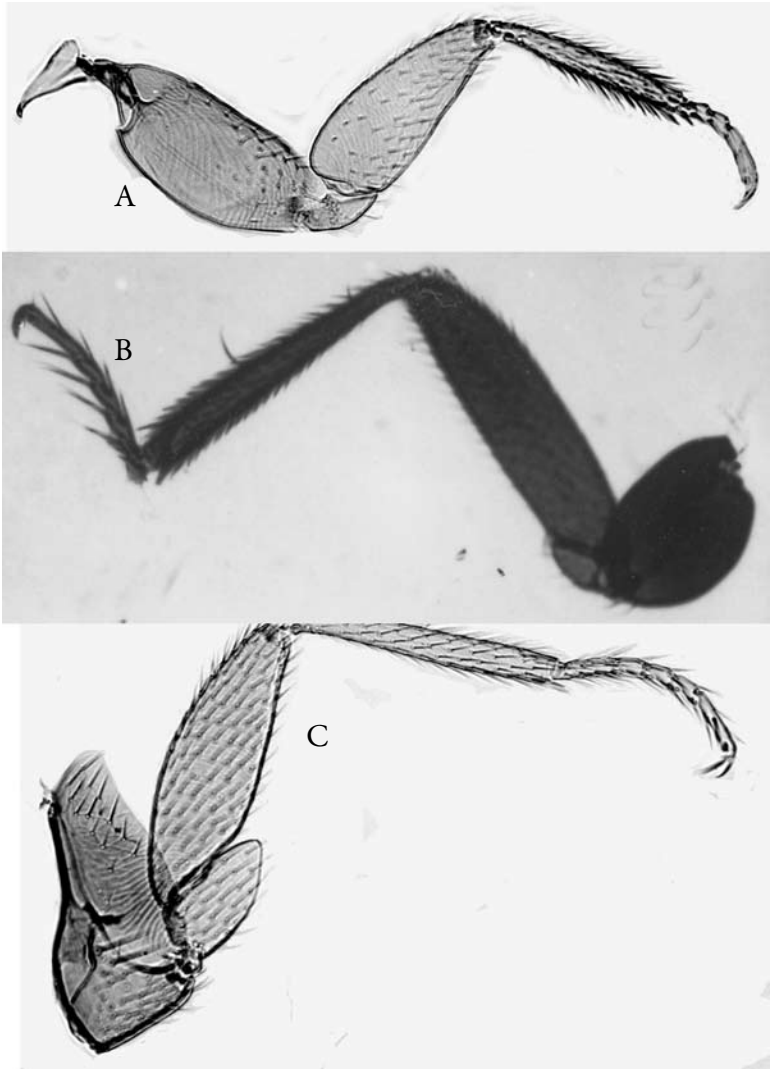


Fig. 4. *Atheta dominguesae*,: A, Prothoracic leg; B, Mesothoracic leg; C, Metathoracic leg.

lighter reddish brown Sculpture of the dorsal surface of the head and abdomen deeply punctate with each puncture bearing a seta. The ventral surface of the body and to a lessor extent the dorsal surface of the abdomen with a

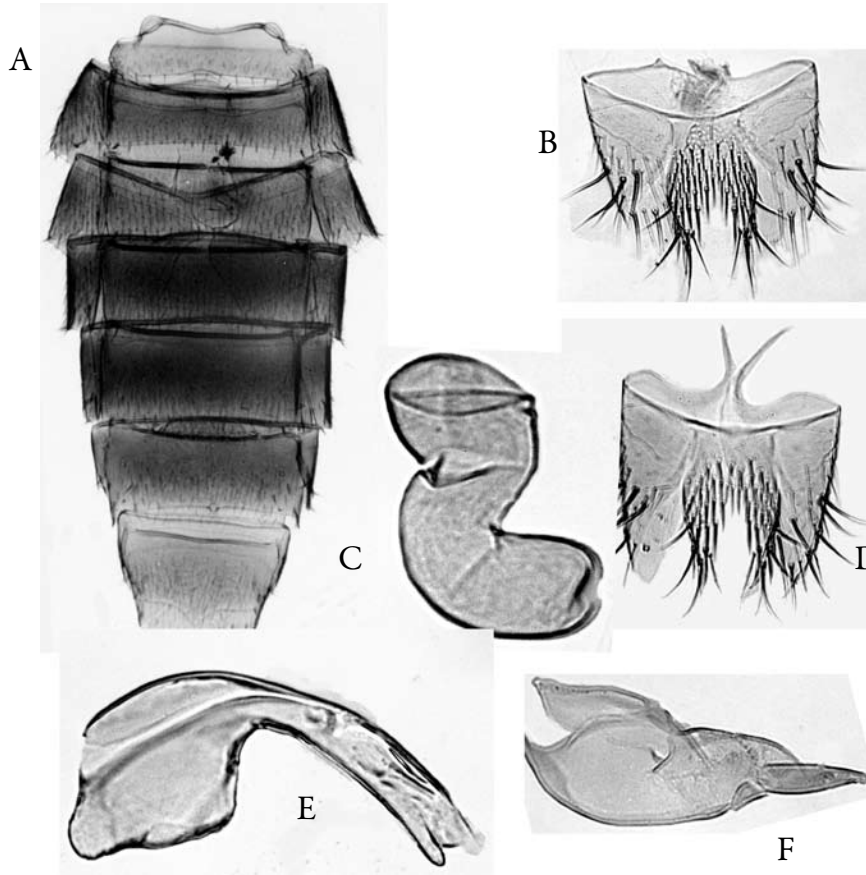


Fig. 5;. *theta dominguesae*,: A, Abdominal segments II-VIII, dorsal; B, Female abdominal segment IX; C, Female spermatheca; D, Male abdominal segment IX; E, Male median lobe of male genitalia; F, Lateral lobe of male genitalia.

even vestiture of fine yellow setae. Macrochaetotaxy of abdominal tergites II-VIII: 2,2,2,2,2,0.

Measurements: (in mm.) Pronotum length, 0.13-0.16; ; elytra length, 0.11-0.14. Number measured, 10.

*Holotype:* male, No.21323, Sri Lanka, Kandy, Botanic garder , 50 May 1973, dex nest T-622, Collected by D.H. Kistner, No. 3153. In the collection of D.H. Kistner to be eventually deposited in the Field Museum of Natural History, Chicago.

Fig, 6. spermatheca of A*theta graminincola*

*Paratypes:* 70, ( including 4 partially on slides), same data as the holotype (F.M.N.H., D.K.); 6, (including 3 partially on slides), Sri Lanka, Kandy, Botanic Garden, 16 August 1960, ex nest T-25, Collected by D.H. & A.C. Kistner, No. 655, (F.M.N.H.).

Notes: At the time of captire of lot 655, Sri Lanka was called Ceylon and those specimens are so labelled.

This species is named for MS Esmeralda Dominguez who greatly assisted the author in reading pin labels and other materials that were difficult for his aged eyes.

## BEHAVIOR OF THE SPECIES

Interaction between the termites and the *Atheta* were watched in the columns and in Petri dishes for over four hours. The termites were never aggressive to the *Athetta* nor vice versa. Soo far as I could see, the *Atheta*

walked among the termites but were ignored. Thus they fit in the category of termitariophiles as defined by Araujo (1970). What this species adds to the concept is longevity as the species persisted in the same nest over a period of 13 years.

## ACKNOWLEDGMENTS

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## REFERENCE

Araujo, Renato L. 1970. Termites of the Neotropical Region. Chapter 12 *in* Biology of Termites, Edited by Kumar Krishna and Frances M. Weesner, Academic Press, New York & Lon1951on, pp. 527-576.

Blackwelder, Richard E. 1952. The generic names of the beetle family Staphykinidaee with an essay on genotype. Smithsonian Institution, United States National Museum Bulletin 200, pp 1-483.