



Rediscovery of *Cylindrepomus filiformis* Breuning, 1938 (Cerambycidae: Lamiinae: Dorcaschematini) from the Andaman Islands, India

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ABSTRACT: *Cylindrepomus filiformis* Breuning, 1938 (Cerambycidae: Lamiinae: Dorcaschematini) has been rediscovered from south Andamans, India, after nearly eight decades. Redescription and digital illustrations of the species, along with notes on natural history, are provided. *Ficus hederacea* Roxb. (Moraceae), which was found with large numbers of these beetles, is a probable host plant of *C. filiformis*. © 2014 Association for Advancement of Entomology

KEYWORDS : Cerambycidae, Lamiinae, Dorcaschematini, *Cylindrepomus filiformis*, *Ficus hederacea*

INTRODUCTION

The genus *Cylindrepomus* comprises 44 species, mostly distributed in the Indo-Malayan subregion of the Oriental Region (according to the unpublished internet list on Animal Diversity Web, University of Michigan, by Myers *et al.*, accessed on May 4, 2015). The genus included two species described earlier from the Andaman and Nicobar Islands, namely *C. andamanicus* Gardner, 1930 and *C. filiformis* Breuning, 1938. Now, *C. andamanicus* has been transferred to the genus *Macrocamptus* Dillon & Dillon (Dillon and Dillon, 1947).

The Tribe Dorcaschematini Thomson, to which the genus *Cylindrepomus* Blanchard, 1853, belongs, was first revised by Breuning (1940). In that paper, Breuning included 25 species. Dillon & Dillon (1948) subsequently revised the tribe again and included 23 *Cylindrepomus* species (some species listed by Breuning were transferred to other genera and some were described as new). A few species have since been added, e.g. Hüdepohl (1989) and Vitali (2000) described one new species each. Hüdepohl (1987), while describing three new species

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of the genus, and providing key to the 14 species present in the Philippines, mentioned the list published by Breuning in 1947 (not seen in original). However, an authentic list or revision of all *Cylindrepomus* is not yet published since then. Breuning (1940) and Dillon & Dillon (1948) have given characters of the genus and keys to the known species. Our specimen was identified with these keys and characters, as *Cylindrepomus filiformis* Breuning.

Cylindrepomus filiformis is known only from the holotype so far and no further information is available since its original description and that given by Breuning and Dillon & Dillon cited above. Adults of *C. filiformis* were collected on *Ficus hederacea* Roxb. (Moraceae) from the campus of the Central Island Agricultural Institute, Port Blair, South Andamans (N 11° 50' 06.43" E 93° 02' 35.29"), during July 2014. The species is redescribed and illustrated here, with notes on its biology. *Ficus hederacea* (synonyms: *Ficus scandens* Roxb., *F. anabatos* Voigt, *F. cantoniensis* Bodinier ex Levl., *F. fruticosa* Roxb., *F. longipes* Griff., and *F. ludens* Wall.) is a woody creeping strangler distributed in north India, Myanmar, south China, Tonkin, Laos, Annam, north Thailand and the Andaman Islands (Corner, 1965) (Figs 1, 2). Insect pests of *Ficus* in India and the adjacent countries were documented by Mathur and Singh (1959). Large number of insect pests belonging to all major phytophagous families infest members of the genus *Ficus*. However, *Stromatium barbatum* (Fabricius, 1775), whose larvae bore into the dry wood, is the only pest recorded on *F. hederacea* (under the name *F. scandens*).

MATERIAL AND METHODS

Cylindrepomus filiformis Breuning, 1938: 225; 1940: 533; Dillon and Dillon 1948: 276

Eight adults collected from 4 to 7th July 2014 (deposition: 4 NBAIL, 2 CIARI, 2 HVG). The specimens are deposited in the National Bureau of Agricultural Insect Resources, Bangalore (NBAIR), Central Island Agricultural Research Institute, Port Blair (CIARI) and the personal collection of the first author (HVG).

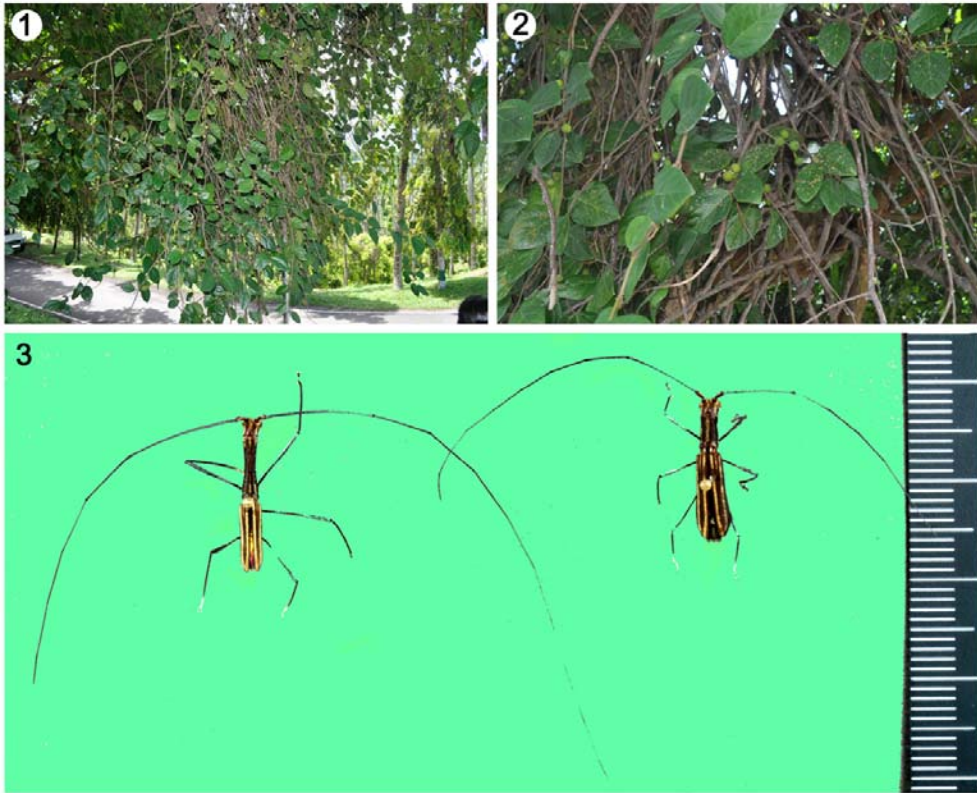
The insects were photographed on Canon Digital SLR with macro lens while details of various parts were photographed under Leica MZ6 with Canon PowerShot S50. Several images were taken at different focus and stacked with Combine ZM software. Images were further processed in Photoshop. For SEM, elytra were thoroughly washed with absolute alcohol and dried before mounting on SEM stub with carbon tape and were sputter-coated with platinum (at thickness of about 10nm). Specimens were scanned and photographed using Analytical SEM (JEOL JSM - 6360 A).

RESULTS AND DISCUSSION

Redescription

Male:

Medium sized, about 14.5 mm long between vertex and tip of elytra, very narrow, elongate with



Figs. 1 & 2. Host plant, *Ficus hederacea*, of the cerambycid beetle *Cylindrepomus filiformis*

Fig. 3. Male (left) and female (right) showing relative difference in the length of pronotum, legs antennae and also elytral breadth. Note extremely thin antennae.

very thin antennae. Dorsal side with head pale brown, pronotum and elytra dark brown or almost black, with longitudinal stripes of short and thick scale-like, yellowish white setae on the dorsal surface of head, pronotum and elytra, and fine thin white short or long setae laterally on head, prothorax and antennae; ventrally blackish. Legs dorsally with sparse white setae and abdomen ventrally with similar setae (see Fig. 3).

Head: Pale brown with reddish tint. More or less rectangular as seen from dorsal side; vertex elongate behind eyes, slightly compressed laterally in middle; front of head flat, at right angles to vertex; antennal tubercles prominently raised with prominent inner angle, area in between grooved longitudinally, a thin sulcus continues from this groove and extends along entire length of vertex right up to anterior border of prothorax. Antennae very thin, hair-like, except for scape which is swollen, pyriform and without cicatrix; scape slightly convex dorsally and covered with spiny short tubercles (asperate), ventral surface slightly concave; third

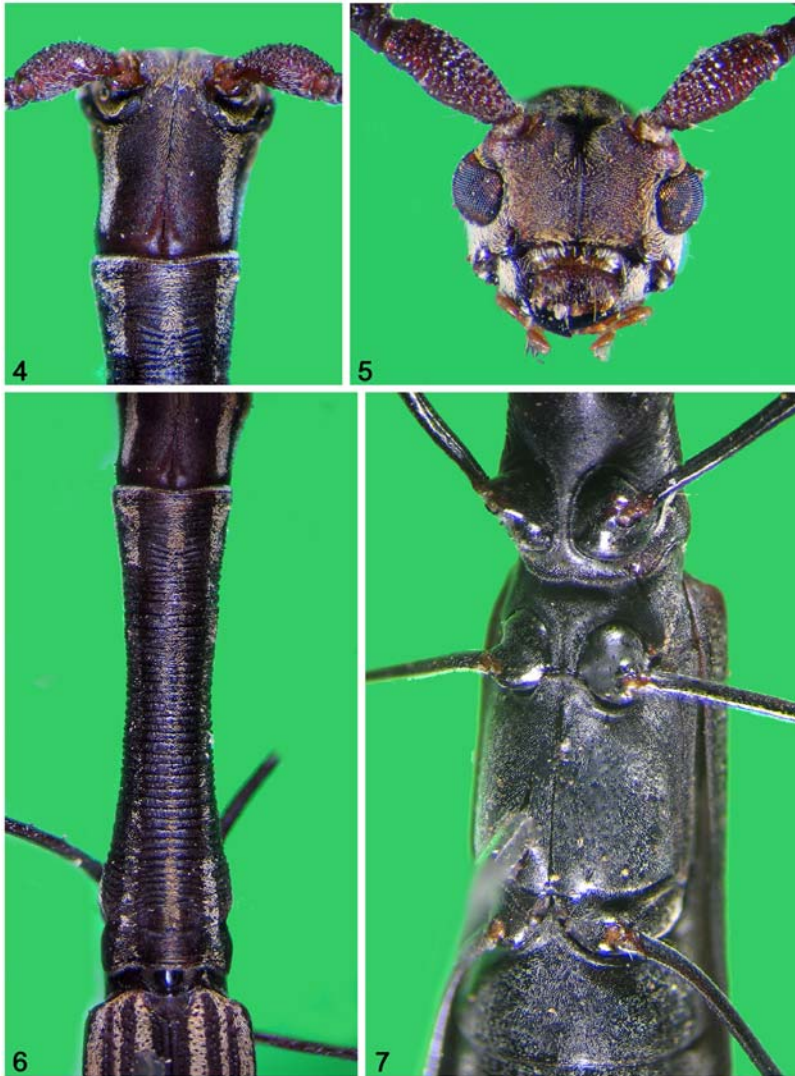


Fig. 4. Close up of head in dorsal view. Note elongate portion of head behind eyes and dorsally convex, asperate, scape. Yellowish white bands formed by flat setae are prominent.

Fig. 5. Head in front view. Asperate nature of the scape, coarsely faceted eyes and the shape of frons is visible.

Fig. 6. Flask like elongate pronotum of male. Note complete surface (except some part at the base) covered by rings and bands of whitish setae.

Fig. 7. Ventral view of female showing pro-meso and metasternum. Also note sparse, short whitish setae on glossy black body.

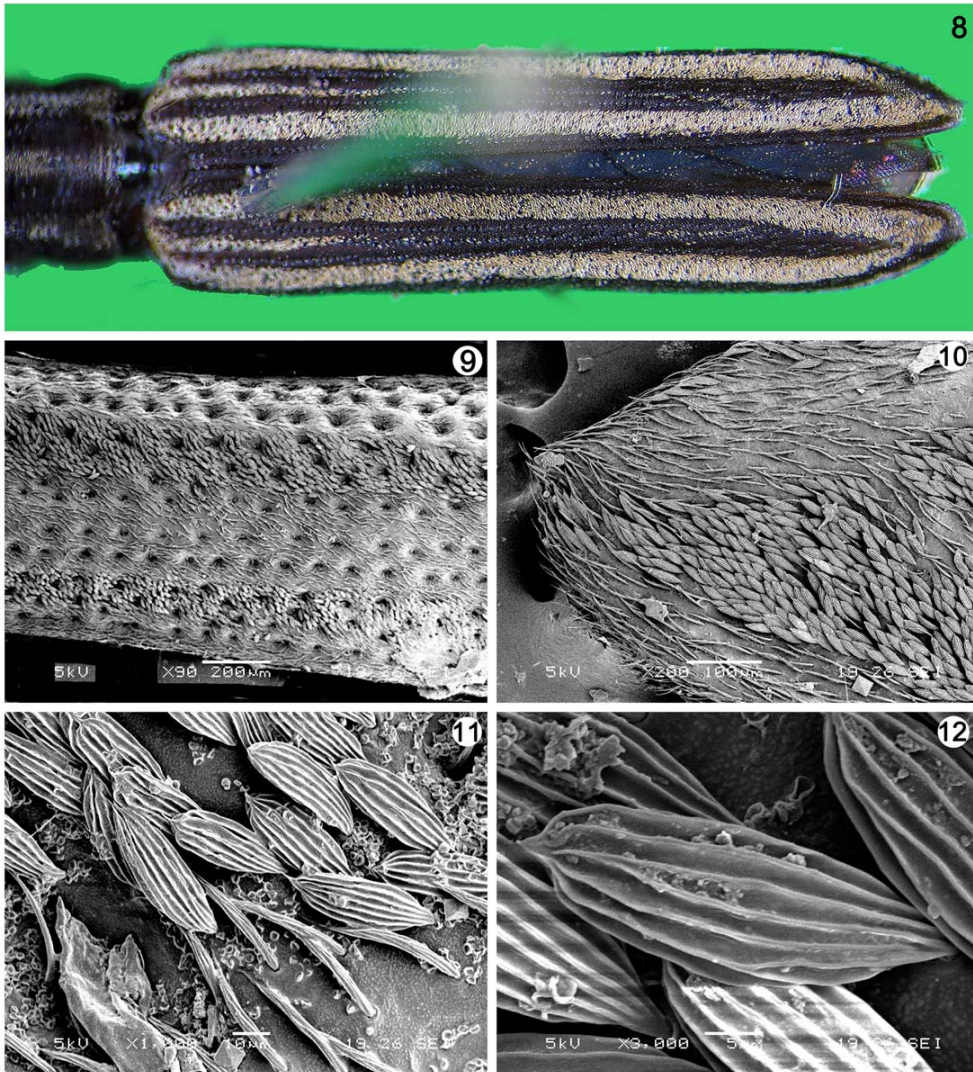


Fig. 8. Dorsal view of elytra : note relative breadth and length as well as broad bands of whitish, flat setae.

Fig. 9. SEM image of elytron showing setae and punctures

Figs. 10 – 12. SEM images of different magnification to show two types of setae on elytra; note scale like setae with 6-7 ribs



Fig. 13. Male genitalia median lobe (on left) and tegmen (on right).

Fig. 14. Male genitalia: median lobe in lateral view

Fig. 15. Male genitalia: details of inner sac within median lobe in transmitted light.

antennomere very long, almost 11 times longer than scape and with many fine spinules, remaining antennomeres with sparse spinules. Eyes moderately large, coarsely faceted, deeply emarginate, lower lobe very large, transverse and connected to small upper lobe by a thin bridge; each eye surrounded by a broad band of yellowish white setae except for a small area near innermost edge. Vertex finely punctured, with fine short greyish setae and five longitudinal stripes of yellowish white, short and thick setae, three of them visible on disc from above: one median and one at either side; median stripe with sparse setae and divided in two behind middle, hence appearing as an inverted Y. A narrow transverse strip at base of vertex devoid of pubescence, smooth. Lateral stripes also with sparse setae and not of full length (Fig. 4).

Frons slightly broader than long, with a distinct median carina along entire length, finely punctate, sparsely covered with yellowish pubescence, which is denser at sides, near eyes, and at base. Clypeus pale, translucent, labrum partly dark partly pale brown, with long and short setae; mandibles black with coarse punctures at base; palps pale brown, partly setose; lateral part with short, thick setae; gular area smooth and shining without any punctures (Fig. 5).



Fig. 16. Dorsal view of female head and prothorax, note short prothorax and bands of setae.

Fig. 17. Ventral view of female, note pedunculate legs.

Fig. 18. Ventral view of female abdomen enlarged to show sternites of more or less similar breadth.

Fig. 19. Ventral view of male abdomen showing narrowing sternites and relatively dense cover of short, thin, white setae.



Fig. 20. Live beetles aggregating for feeding and mating on leaf, note also feeding pattern.
Fig. 21. Mating pair

Thorax: Pronotum very long, slightly more than three and half times as long as maximum breadth at base, almost cylindrical with moderate narrowing laterally near middle region and some dilation near anterior and posterior borders, darker than head. Entire length of pronotum with thin, complete rings or grooves except for a small area near base, finely punctate with a few setae. Three longitudinal stripes of short, thick, yellowish setae on disc and two at side, all interrupted at places, median row on disc divided in two, slightly after anterior border, and then again united beyond middle (Fig. 6). Both anterior and posterior borders with fringe of setae. A lateroventral stripe of pubescence on each side, significantly interrupted at places, thick and strong at base, whence it is continued as a band on pro-, meso- and metepisterna. Prosternum sparsely punctured and with sparse setae. Prosternal process very narrow, not raised above level of procoxae, widening posterior to coxae; mesosternum depressed anterior to coxae then slightly raised as narrow tongue between mesocoxae, distinctly emarginate at apex; metasternum longer than broad, with an anterior process that meets distal tip of mesosternum. Ventral side of thorax covered with sparse, thin and short greyish setae (Fig. 7).

Elytra: Dark brown to almost black, slightly broader than prothorax at base, much longer (>3 times) than breadth at humerus, coarsely punctured, punctures arranged partly in rows, borders of punctures slightly raised; almost parallel-sided, except at apex, where there is a slight truncated lateral part ending in a small marginal spine. Each elytron with three stripes of thick short yellowish white scale-like setae, two of these stripes (one near suture and one lateral) are broader and complete, and one in between is very short, slightly narrow, only extending about one-fourth of length in basal region. Elytral punctures in some places are obscured under stripes; stripe near suture complete, straight up to apex; lateral stripe complete along entire length from shoulder downward and slightly turned inward, near truncated apical region, to meet near-suture stripe (Fig. 8). Elytron beyond this lateral stripe bent at right angles covering body partly on lateral side. A very thin line of scale-like flat setae present on lateral side at apex. Under Scanning Electron Microscope (SEM), the scale like setae and long thin setae can be seen to have a characteristic appearance. Each seta has longitudinal ribs but these ribs are especially prominent on flat scale like setae. Figs 9 to 12 show dorsal surface of elytra under SEM at different magnifications.

Legs: All legs black, very thin and long and sparsely covered with short thin white setae visible from above, shining black and devoid of setae on underside. Forelegs much longer than other two. Femora pedunculate, tibia slender and of uniform diameter, tarsi moderately long claws divaricate; hind femora just reaching elytral apex.

Abdomen: Five visible sternites, distinctly narrowed towards apex (only in male), especially terminal two segments; surface covered with sparse short white setae.

Male genitalia moderately sclerotized, brownish. Median lobe and tegmen are shown in separated condition (Fig. 13), median lobe is shown in lateral view (Fig. 14) and details of inner sac within median lobe are shown at higher magnification (Fig. 15).

Female:

Distinct sexual dimorphism evident: females have shorter antennae, shorter and broader pronotum (Fig. 16) and shorter legs (especially forelegs) than in males. Body proportions are different in male and female due to very long pronotum in male. In addition, males have slightly narrower and shorter elytra than in females. In full ventral view of female, it is possible to see pedunculate legs (Fig. 17) and finely setose abdominal sternites (Fig. 18), all more or less of same width except last. Compare this with male abdomen in which abdominal sternites are narrowed towards apex (Fig. 19).

Body proportions:

Male – Prothorax 3.3 times longer than head, female – 1.8 times longer than head;

Male – Prothorax about 4 times longer than maximum breadth near base, female—prothorax about 1.6 times longer than maximum breadth near base.

Male – Third antennomere 10.5 times longer than scape, in female — 6.4 times longer than scape.

According to Breuning (1940), this species is similar to *C. vittatus* (Pic, 1925), but it has only two longitudinal stripes on elytra and third antennomere is 12 times longer than scape; pronotum is four times longer than broad in both the species; besides, elytra are ‘nearly’ 4 times longer than broad at base in *C. vittatus* but 3.7 times longer than broad in *C. filiformis*; elytral apex is also different in these two species: it is much narrower and almost pointed in *C. vittatus* but it is slightly truncate laterally and with a marginal spine in *C. filiformis*. It is also similar to *C. rubriceps* (Aurivillius, 1907), as per description given in Breuning (1940), but *C. rubriceps* has pronotum nearly three times longer than broad in male and two times longer than broad in female; also in *C. rubriceps*, third antennomere in male is 8 times longer than scape; in coloration also *C. rubriceps* has red head, and scape as well as base of elytra while in *C. filiformis*, there is only a reddish tinge on head and scape; both these species have three stripes or bands on elytral disc and a small one at the lateral side near apex of elytra. It may be noted here that Dillon and Dillon (1948) have treated *C. vittatus* as a junior synonym of *C. rubriceps*. The only other Indian species is *C. uniformis* Breuning, 1938; however, it has no bands but uniform coloration on elytra.

Biology: Adults of *C. filiformis* were found feeding on leaves of *Ficus hederacea*, Roxb. (Moraceae), a woody climber on *Crypteronia paniculata* Blume (Crypteroniaceae). Beetles settled themselves on mature green leaves of the climber in cool shady zones and actively fed on the leaf lamina by scraping the green matter, leaving out scorched areas, which subsequently dried up. Continuous adult feeding turned the foliar surface into brownish papery patches. The leaves gave a typical appearance visible even from a distance of about 4 m. The congregating beetles showed more preference for previously infested leaves rather than

fresh tender leaves and were found in groups of two (usually a male and a female) resting on a single leaf. A third member sometimes joined the group on the abaxial surface of the same leaf or on the next closest leaf. The beetles also had a typical habit of dropping down when they sensed an intruder. Once they fell over the dry leaves underneath the tree, they could not be located easily. However in a few seconds they were seen taking off an oblique flight from the ground and landing on some other nearby leaf of *F. hederacea*. They were weak fliers and could fly only for less than a metre.

A pair was collected on the plant on 4th July 2014. Adult population was exclusively confined to thickly shaded regions under the tree *C. paniculata*, where sunlight hardly fell. These beetles could also be noticed in the top-most canopy of *Ficus* leaves, well within the shade of the host tree. A closer observation revealed that an entire shoot of the climber had been killed and showed many circular holes at the tip, with drooping leaves. This indicates that *F. hederacea* is probably the host plant of *C. filiformis* and the grubs are most likely stem borers, as is the case with most cerambycids. Two to five adults were collected every day from 4 to 30th July, 2014. Living adults were light brown with longitudinal stripes. These thin delicate adults never attempted to bite even when held between fingers. The adult activity temporarily ceased from 21 to 24th July 2014. However, adults were again noticed for six more days since 25th July 2014. The adult activity for the year continued only till July 2014 and the beetles were never seen in the ensuing months. However, with the onset of rainfall on 16th April 2015, the climber was again checked for beetle activity. The first beetles of the season were noticed on 25th May 2015 after 14 rainy days. Five and seven beetles each were spotted on 25th and 26th May 2015 respectively. During heavy rains when the climber was checked, beetles could not be seen on any of the shoots accessible from the ground level and also up to a height of about 3 m. A brief observation on mating behaviour showed that mating ensued immediately after confinement of males with females. Frequent and multiple matings were observed under confinement. It was interesting to note that during mating, which lasted for about 30 minutes, the male intermittently released the female for about five seconds while still remaining mounted. This was observed in the case of two pairs. Also in confinement, it was very common to find a pair constituting a male and a female resting on a single leaf. A mating pair, along with two other beetles feeding on a leaf are shown here, also note feeding marks in the form of scraping (Fig. 20, 21).

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