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# An Orthognathine Weevil of the Genus *Mesocordylus* in Dominican Amber

(Coleoptera: Curculionoidea: Dryophthoridae)

With 7 figures

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## Summary

A new orthognathine weevil species (Curculionoidea: Dryophthoridae), *Mesocordylus longiscapus* sp. n., is described and illustrated from Early Miocene Dominican amber. It represents the first amber fossil record of *Mesocordylus* and the second for the subfamily Orthognathinae.

## Zusammenfassung

Es wird eine neue orthognathe Rüsselkäferart (Curculionoidea: Dryophthoridae), *Mesocordylus longiscapus* sp. n. aus dem Dominikanischen Bernstein des frühen Miozän beschrieben. Das ist der erste Nachweis für die Gattung *Mesocordylus* und der zweite für die Unterfamilie Orthognathinae als Bernsteinfossil.

## Key words

Tertiary, Caribbean, paleontology, Polyphaga, taxonomy

## New species

*Mesocordylus longiscapus* sp. n.

## Introduction

The dryophthorid weevils in Dominican amber as well as the history of the family were recently reviewed by DAVIS & ENGEL (2006). Herein we supplement that work based on a new species of the genus *Mesocordylus* LACORDAIRE recently identified from Early Miocene (Burdigalian) Dominican amber. Terminology and format generally follow that employed in DAVIS & ENGEL (2006), although the higher classification used in that work followed ANDERSON (2002b), while the classification of ALONSO-ZARAZAGA & LYAL (1999) is used herein in attempt for greater consistency by following the most prevalent classificatory system.

The genus *Mesocordylus* is basically Neotropical in distribution, extending from central and northern South America through Central America (VAURIE, 1970). VAURIE (1970, 1973) provided a revision of the genus and described many new species, and ANDERSON (2002a) reviewed the Costa Rican and Panamanian fauna. The material discussed herein represents the second amber fossil placed in the subfamily Orthognathinae, the first definitive account of *Mesocordylus* in amber, and dates the history of this genus to at least 19 million years ago. An earlier description by SCHLEE (1990), as explained by ZHERIKHIN (2000), represented the first report of an amber orthognathine (in middle Eocene Baltic amber), and is likely a member of *Sipalinus* MARSHALL since *Mesocordylus* is only New World in distribution. *Mesocordylus longiscapus* sp. n., described herein, appears similar to *M. mexicanus* VAURIE (1970), even though it is not known to presently

occur in the Dominican Republic, and accordingly might belong in *Mesocordylus* species group I of VAURIE (1970); however, *M. longiscapus* sp. n. also bears strong resemblance to some species within Vaurie's *Mesocordylus* species group II, such as *M. subulatus* (GERMAR) and *M. porriginosus* (BOHEMAN), thus possessing characters present in both species groups and making definitive assignment to either of the two species groups of VAURIE (1970) difficult and uncertain.

## Systematic Paleontology

### *Mesocordylus longiscapus*, sp. n. (Figs 1-7)

#### Diagnosis:

Integument dark. Antenna with scape slightly more than 3x as long as wide, projecting to anterior margin of compound eye; antennal club composed of two distinguishable parts, a large, basal glabrous part comprising most of the club, and a setose part occupying slightly less than the apical third. Scrobe short and deep, lower margin only slightly visible dorsally; scrobe slightly sinuate basally adjacent to eye, but sinuate groove shallow and not visible dorsally. Mandibles large and lacking teeth along outer margin (Fig. 3). Compound eyes contiguous ventrally on head. Pronotum with lateral margin broadly rounded, with postocular lobes. Procoxae contiguous; tibiae with apical width slightly greater than basal width; tarsal articles 1–3 with a pair of elongate, sparse ventral setal tufts restricted to antero-lateral areas; article 3 tubular and similar in size to 2 (Figs 4, 7).

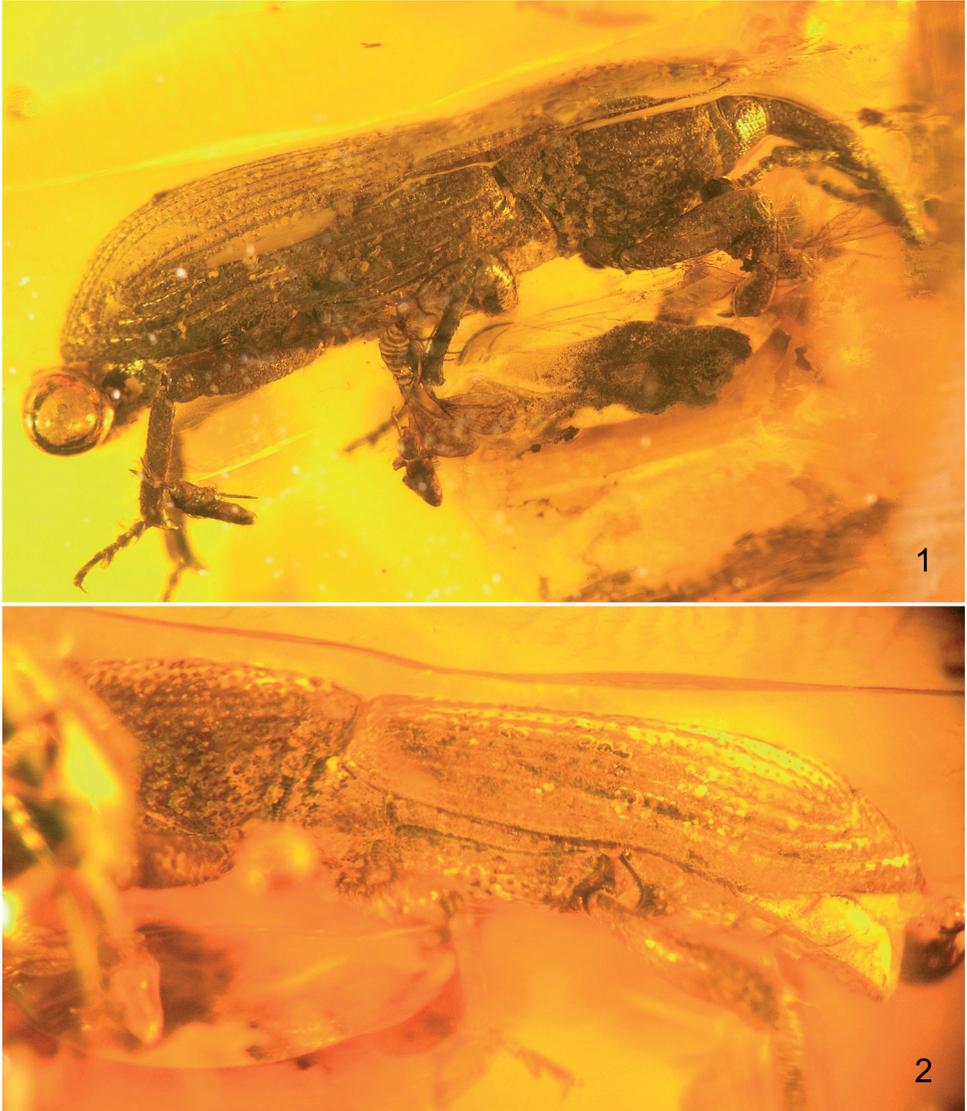
#### Description:

♀ (due to the rather abrupt narrowing of the rostrum from approximately middle to apex, as viewed anteriorly; Fig. 3): Total body length (including rostrum) ca. 8.5 mm; maximal width ca. 2.8 mm; elytral length ca. 4.7 mm. Integument dark gray to black (Figs 1-2). Compound eyes flattened and elongate, touching ventrally on head; interocular distance slightly greater than basal width of rostrum in dorsal view. Rostrum with large, shallow punctures basally, punctures separated by 1–1.5 times a puncture diameter; punctures becoming smaller apically; rostrum approximately equal in length to pronotum; broadly and uniformly curved along entire length; rostrum width subequal along length, slightly widened basally in lateral view; widened basally and narrowing apically in dorsal view (Fig. 6). Antennae inserted slightly before middle of rostrum (Fig. 6); scrobe short and well developed, extending apically on rostrum beyond antennal insertion, with a slightly sinuate, shallow elongation of scrobe reaching basally on rostrum just before eye and scarcely continuing dorsally but not visible in dorsal view; dilation of lower edge marginally visible in dorsal view; tomentose area near scrobe appears to not extend to basal area and does not reach eyes. Scape short, slightly extending to but not touching anterior margin of compound eye; scape length slightly greater than 3x its width; funicle compact, composed of six articles, gradually widening before club; club divided into two distinct regions, basal portion elongate and glabrous, comprising most of club area, apical portion setose and black, occupying slightly less than one-third of apical region (Figs 5a, 5b). Vertex glabrous with large, shallow punctures. Pronotum glabrous, broadly rounded, with anterior constricted, forming a collar at border with head; postocular lobes present on lateral sides of collar; large, shallow punctures present, punctures separated by 0.5–1x puncture diameter; lateral margins broadly rounded. Procoxae touching. Mesoscutellum elongate with rounded apices. Elytra each with 10 striae; punctures of elytral striae small and shallow, separated by approximately 1–1.5 times a puncture diameter; intervals with one row of small, shallow punctures; humeri rounded; spots of tomentose hairs on dorsum present. Metasternum and abdominal ventrites with large, shallow punctures, similar to those on pronotum. Femora widest slightly past mid-length and with small,

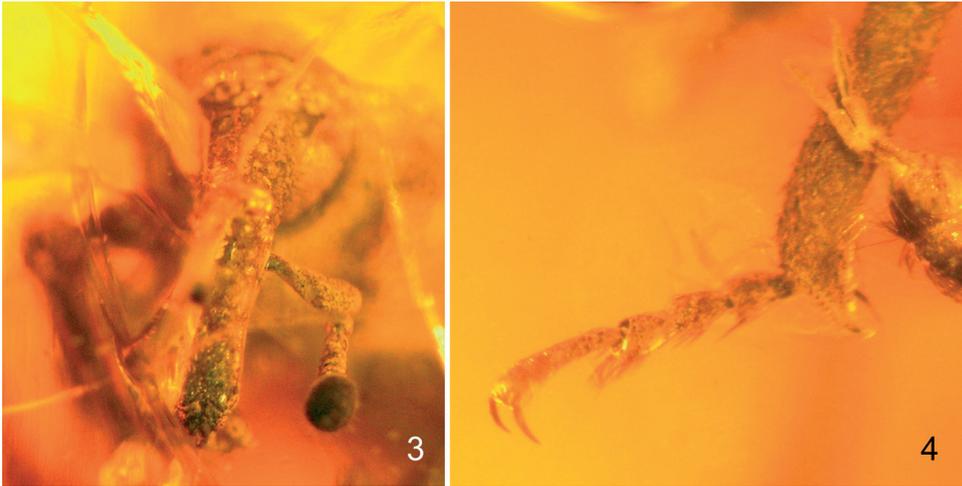
shallow punctures; tibiae subequal in width along length, slightly expanded medially; tibiae with apical unculus large, approximately equal to length of basitarsus; no other smaller denticles present apically; tarsal article 3 tubular, similar to articles 1 and 2; articles 1–3 with ventral pilosity elongate, sparse, and restricted to antero-lateral margins; pilosity most developed on article 3; pretarsal ungues (*i.e.*, claws) widely separated (Figs 4, 7).

#### Holotype:

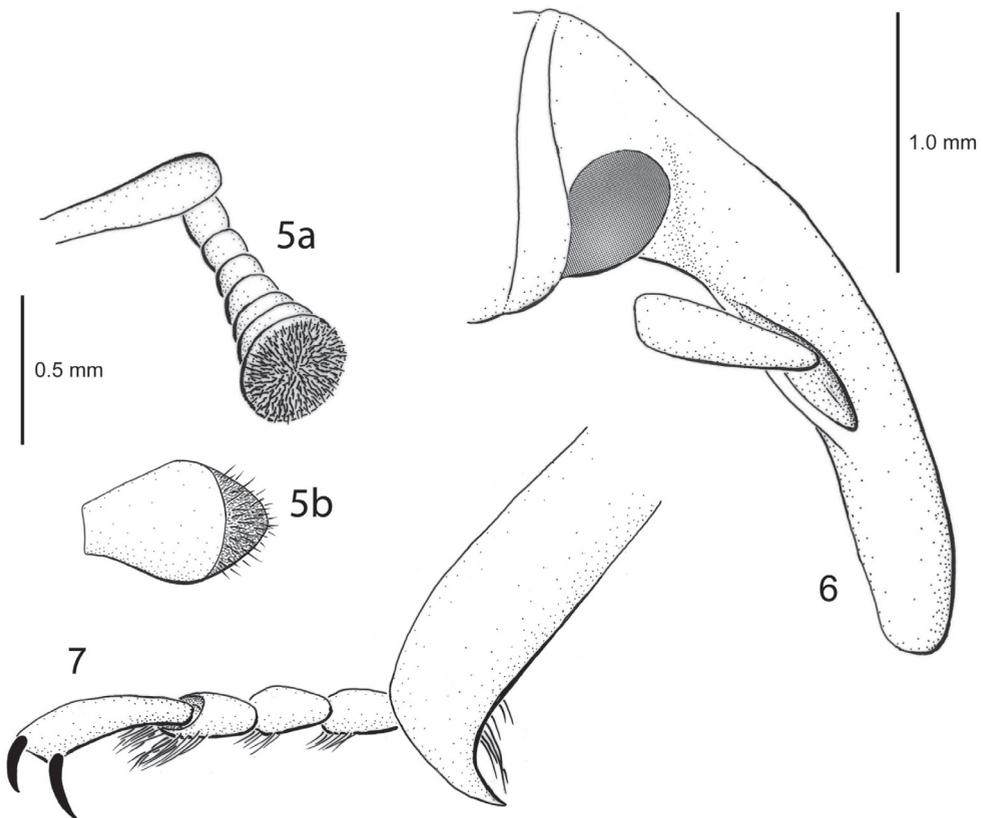
Holotype ♀ (Figs 1-7), USNM 506758 (Woodruff #11631). Deposited in the Department of Paleobiology, United States National Museum of Natural History, Smithsonian Institution, Washington, D. C.



**Figs 1-2:** Lateral aspects of female holotype of *Mesocordylus longiscapus* sp. n. (USNM 506758) in Early Miocene Dominican amber. – 1 lateral aspect, right. – 2 lateral aspect, left.



Figs 3-4: Photomicrographs of female holotype of *Mesocordylus longiscapus* sp. n. (USNM 506758) in Dominican amber. – 3 anterior aspect of head. – 4 metatibia and metatarsus.



Figs 5-7: Line drawings of female holotype of *Mesocordylus longiscapus* sp. n. (USNM 506758). – 5a antenna; – 5b lateral aspect of antennal club. – 6 head and rostrum, lateral aspect. – 7 metatibia and metatarsus.

**Etymology:**

The specific epithet is composed of the Latin *longus* (meaning, “long”) and *scapus* (meaning, “stem”) and is a reference to the slightly longer antennal scape of this species in comparison to similar congeners.

**Comments:**

Although similar in appearance to *Orthognathus* SCHOENHERR, *Mesocordylus longiscapus* sp. n., *M. striatus*, and other congeners can be recognized by the width of the metatibiae being approximately subequal or the apical width only slightly greater than the basal width, whereas in *Orthognathus* the metatibiae are strongly and abruptly dilated apically. Species of *Mesocordylus* can range from 5.5 – 27 mm in length, excluding the rostrum (VAURIE, 1970), so *M. longiscapus* sp. n. represents a smaller species within this spectrum. *Mesocordylus longiscapus* sp. n. is similar in external appearance to a number of extant species. It seems quite similar in appearance to *M. mexicanus*, although it may also be compared to other congeners also in *Mesocordylus* species group I that appear similar as well, such as *M. striatus* (BOHEMAN), *M. similis* VAURIE, *M. cubensis* VAURIE, and *M. jamaicensis* VAURIE. It can be differentiated from *M. striatus* by having a slender metatibia which is similar in width to the pro- and mesotibiae, an antennal scape that is ~3x as long as wide and only slightly encrusted, a slighter larger pilose area on the apex of the antennal club which occupies slightly less than one-third the length of the club (Fig. 5b), a slightly curved rostrum, and a lower edge of the scrobe that is more rounded and scarcely visible when viewed dorsally (Fig. 3). *Mesocordylus striatus* has a scape that is ~2x as long as wide and is distinctly encrusted, a narrow pilose area on the extreme apex of the antennal club, a fairly straight rostrum, and has been recorded only from Central and northern South America (VAURIE, 1970). *Mesocordylus similis* differs from *M. longiscapus* sp. n. in having a more robust metatibia, in which the apical width is distinctly wider than the basal width, an apical pilose part of the antennal club that is equal in length to the basal glabrous part or longer, and an elongation of the antennal scrobe that is fairly sinuate, reaching basally on the rostrum just before the eye and continuing dorsally so as to be feebly visible in the dorsal view. *Mesocordylus similis* also has been recorded only from Costa Rica and Panamá (ANDERSON, 2002a; VAURIE, 1973). One of the main differences separating *M. longiscapus* sp. n. from *M. cubensis* and *M. jamaicensis* is its lack of tomentose setae along the basal part of the rostrum (which is a notable feature of the latter two species and can be visible in the dorsal view). *M. cubensis* and *M. jamaicensis* also possess a larger pilose area on the apex of the antennal club (approximately one-half the length of the club), a longer scape (~5x longer than wide in *M. jamaicensis* and ~3x longer than wide in *M. cubensis* according to VAURIE (1970), though all specimens we examined appear to have a scape similar in length to *M. jamaicensis*), and hind tibiae which are more curved apically. The ventral pilosity on the tarsal articles of *M. longiscapus* sp. n., however, is elongate and sparse, and is more similar to that of *M. cubensis* than to that of *M. jamaicensis*, which is short and dense. Some of the more notable differences separating *M. longiscapus* sp. n. from *M. mexicanus* are that *M. mexicanus* has a scape that is approximately 3x as long as wide (the scape of *M. longiscapus* sp. n. is slightly greater than 3x as long as wide), the pilose area on the apex of the antennal club is slightly less than one-half the length of the club, the ventral pilosity on the tarsal articles is shorter, and has been recorded only from México (VAURIE, 1970).

Despite its similarities to species within *Mesocordylus* species group I, according to VAURIE (1970), because *M. longiscapus* sp. n. possesses elongate ventral setal tufts on the tarsal articles, it may actually be more properly assigned to *Mesocordylus* species group II. Within this group, *M. subulatus* also appears quite similar to *M. longiscapus* sp. n. in possessing a scape that is ~3x longer than wide, an apical pilose part of the antennal club that occupies less than 1/3 the length of the club, and hind tibiae that are subequal in width along the entire length. *Mesocordylus*

*subulatus* differs mainly in possessing a basal part of the antennal scrobe that is more sinuate, extends just before the eye and slightly dorsally, and a short ventral pilosity on the tarsal articles. It has been recorded from Central America to northern areas of South America (VAURIE, 1970). Probably most similar to *M. longiscapus* sp. n. is *M. porriginosus* (BOHEMAN, 1838). *Mesocordylus porriginosus* has an adult size range into which *M. longiscapus* sp. n. fits, possesses a straight hind tibia, and has an elongate ventral pilosity on the tarsal articles. It differs from *M. longiscapus* sp. n., however, in possessing a slightly longer antennal scape (4-6x longer than wide), a widely dilated lower edge of the antennal scrobe, and a dense ventral pilosity on the tarsal articles (this pilosity is more sparse in *M. longiscapus* sp. n.). *Mesocordylus porriginosus* has been recorded from the islands of Guadeloupe and Dominica (VAURIE, 1970).

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### References

- ALONSO-ZARAZAGA, M. A. & LYAL, C. H. C. 1999: A world catalogue of families and genera of Curculionioidea (Insecta: Coleoptera) (excepting Scolytidae and Platypodidae). – Pp. 315. – Barcelona: Entomopraxis.
- ANDERSON, R. S. 2002a: The Dryophthoridae of Costa Rica and Panama: checklist with keys, new synonymy and descriptions of new species of *Cactophagus*, *Mesocordylus*, *Metamasius* and *Rhodoabaenus* (Coleoptera: Curculionioidea). – *Zootaxa* **80**: 1-94.
- ANDERSON, R. S. 2002b: Curculionidae LATREILLE 1802. – In: ARNETT, R. H., JR.; THOMAS, M. C.; SKELLEY, P. E. & FRANK, J. H. (Eds.): *American Beetles, Volume 2, Polyphaga: Scarabaeoidea through Curculionioidea*. – Boca Raton: CRC Press, 722-815 [Pp. xiv+861].
- BOHEMAN, C. H. 1838: [New species]. – In: SCHOENHERR, C. J.: *Genera et species curculionidum, cum synonymia hujus familiae species novae* [volume 4, part 2]. – Paris: Roret, 1-1121.
- DAVIS, S. R. & ENGEL, M. S. 2006: Dryophthorine weevils in Dominican amber (Coleoptera: Curculionidae). – *Transactions of the Kansas Academy of Science* **109** (3-4): 191-198.
- SCHLEE, D. 1990: Das Bernstein-Kabinett. – *Stuttgarter Beiträge zur Naturkunde, Serie C (Wissen für Alle)* **28**: 1-100.
- VAURIE, P. 1970: Weevils of the tribe Sivalini (Coleoptera, Curculionidae, Rhynchophorinae). Part 2. The genera *Mesocordylus* and *Orthognathus*. – *American Museum Novitates* **2441**: 1-78.
- VAURIE, P. 1973: Two new species of *Mesocordylus* from Mexico and Costa Rica (Coleoptera: Curculionidae: Rhynchophorinae). – *Coleopterist's Bulletin* **27** (2): 75-78.
- ZHERIKHIN, V. V. 2000: Tertiary brachycerid weevils (Coleoptera: Brachyceridae) from the collections of Muséum Nationale d'Histoire Naturelle, Paris, with a review of other fossil Brachyceridae. – *Paleontological Journal* **34** (Supplement to 3): 333-343.

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