

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Papers in Entomology

Museum, University of Nebraska State

September 2001

***TYRANNASORUS REX* RATCLIFFE AND OCAMPO, A NEW GENUS AND SPECIES OF MIOCENE HYBOSORID IN AMBER FROM THE DOMINICAN REPUBLIC (COLEOPTERA: SCARABAEOIDEA: HYBOSORIDAE)**

Brett C. Ratcliffe

University of Nebraska-Lincoln, bratcliffe1@unl.edu

Federico Carlos Ocampo

University of Nebraska-Lincoln, focampo@unlserve.unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/entomologypapers>



Part of the [Entomology Commons](#)

Ratcliffe, Brett C. and Ocampo, Federico Carlos, "*TYRANNASORUS REX* RATCLIFFE AND OCAMPO, A NEW GENUS AND SPECIES OF MIOCENE HYBOSORID IN AMBER FROM THE DOMINICAN REPUBLIC (COLEOPTERA: SCARABAEOIDEA: HYBOSORIDAE)" (2001). *Papers in Entomology*. 46.

<https://digitalcommons.unl.edu/entomologypapers/46>

This Article is brought to you for free and open access by the Museum, University of Nebraska State at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Papers in Entomology by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

TYRANNASORUS REX RATCLIFFE AND OCAMPO, A NEW GENUS AND SPECIES OF MIOCENE HYBOSORID IN AMBER FROM THE DOMINICAN REPUBLIC (COLEOPTERA: SCARABAEOIDEA: HYBOSORIDAE)

BRETT C. RATCLIFFE AND FEDERICO C. OCAMPO
Systematics Research Collections, W436 Nebraska Hall
University of Nebraska State Museum
Lincoln, NE 68588, U.S.A.
bratcliffe1@unl.edu; focampo@unlserve.unl.edu

Abstract

Tyrannasorus rex Ratcliffe and Ocampo (Coleoptera: Scarabaeoidea: Hybosoridae), a **new genus** and **new species** of fossil hybosorid, is described from the Dominican Republic. This fossil scarabaeoid is embedded in the amber resin of *Hymenaea protera* Poinar (Leguminosae), and it dates from the Miocene.

Resumen

Se describe *Tyrannasorus rex* Ratcliffe and Ocampo (Coleoptera: Scarabaeoidea: Hybosoridae), un nuevo género y especie de hybosórido fósil de República Dominicana. Este scarabaeoideo fósil está incluido en ámbar originado de la resina de *Hymenaea protera* Poinar (Leguminosae) y data del Mioceno.

The door to the past is a strange door. It swings open and things pass through it, but they pass in one direction only.

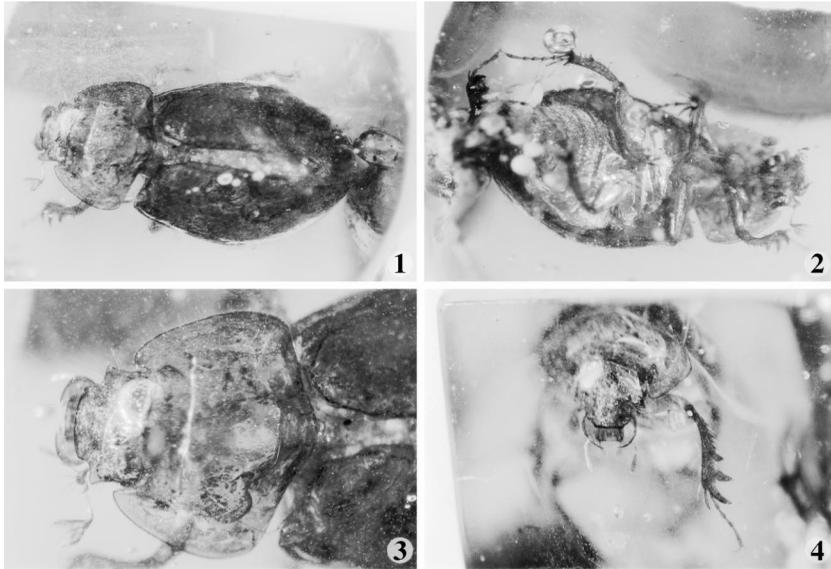
———— Loren Eiseley

For the past 30 years, many fossil animals, especially insects, have been described from amber from the Dominican Republic (Poinar 1992; Grimaldi 1996). So far, very few fossil scarabaeoid beetles have been named although we know of several Ceratocanthidae that are currently being studied by specialists. Robert Woodruff (pers. comm., March 2000) has worked with Dominican amber for many years and has specimens of *Ataenius*, *Rhyparus*, and *Termitodius* (all Scarabaeidae: Aphodiinae), a canthonine (Scarabaeidae: Scarabaeinae), another hybosorid, a stag beetle (Lucanidae), and an unknown scarab awaiting description. In this work we present what we believe is the first description of a fossil hybosorid from Dominican amber, and it represents a new genus and new species.

Tyrannasorus Ratcliffe and Ocampo, **new genus**

Type Species. *Tyrannasorus rex* Ratcliffe and Ocampo.

Description. Body form (Fig. 1) convex, subglobose. Color reddish brown. **Head:** Frons irregularly punctate, lateral margins narrowly reflexed. Clypeus with anterior margin truncate. Labrum protruding beyond clypeus, weakly trapezoidal, wider at apex, with series of setae either side of middle. Antennae (Figs. 3, 6) with 9 segments; basal segment apically expanded, with long erect setae on anterior side, second segment broader than long, third segment about twice as long as wide, fourth as long as wide, fifth and sixth wider than long, fifth with 2 setae; club 3-segmented with basal segment weakly hollowed to receive second and some of third segment; all segments tomentose. **Pronotum:**

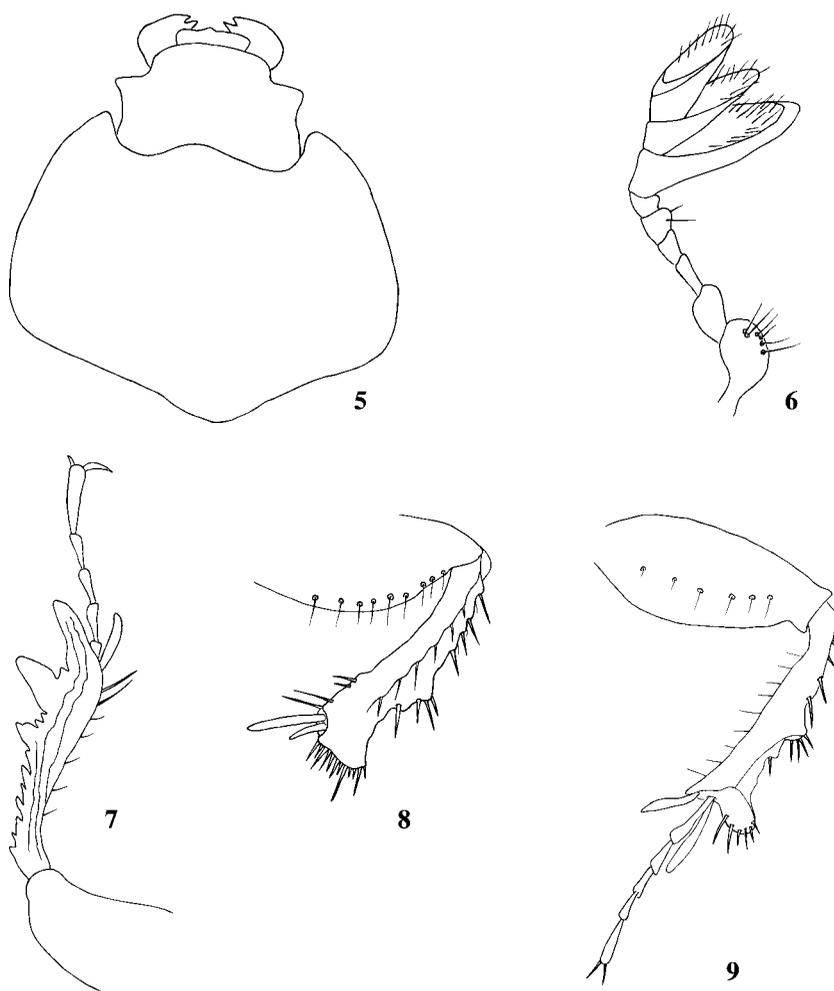


Figs. 1–4. Holotype of *T. rex* embedded in amber. 1) Dorsal view; 2) oblique ventral view; 3) dorsal view of head and pronotum; note especially antenna, clypeus, and mandibles; eyes are not dorsally visible; 4) anterior view of head and proleg.

Surface weakly convex. Anterior margin sinuate; anterior angles strongly produced, subacutely rounded (Fig. 3); lateral margins rounded, widest just behind middle; posterior angles broadly rounded; posterior margin sinuate, produced backward at middle; anterior and lateral margins with marginal bead. *Scutellum*: Surface smooth. *Elytra*: Shape convex, subglobose. Lateral margins rounded, widest at middle, and with marginal bead. *Legs*: Claws on all legs simple. Meso- and metatibiae (Figs. 8–9) with transverse ridge near middle of external surface, ridge with erect setae on margin; apex with 2 spurs, external spur much longer than first segment of respective tarsus, median spur shorter than first tarsal segment; apex of tibiae truncate, dilated, with large, rounded, flattened lobe on external edge, lobe with crown of setae.

Remarks. The genus *Tyrannasorus* is unique among other hybosorids from the West Indies because it has 9-segmented antennae whereas all the other genera have 10-segmented antennae. The genus *Tyrannasorus* is similar to the genera *Coilodes* and *Apalonychus* in the following characters: body form convex, subglobose; color reddish brown; apex of tibiae truncate, dilated, and with a large, rounded, flattened lobe on its external edge, lobe with terminal crown of setae. *Coilodes* species are different from *Tyrannasorus* species because they have a cup-shaped antennal club (only weakly concave in *Tyrannasorus*), a labrum wider at its base, and the anterior margin of pronotum not sinuate. *Apalonychus* species are different from *Tyrannasorus* species because they have the club of the antenna much more elongated, a labrum wider at its base, the anterior margin of pronotum not sinuate, and eyes subglobose and clearly visible in dorsal view (eyes not clearly visible in dorsal view for *Tyrannasorus*).

Etymology. The loosely formed stem of this name, *tyranna*, is from the



Figs. 5–9. Line drawings of *T. rex*. **5)** Dorsal view of head and pronotum; **6)** dorsal view of left antenna; **7)** dorsal view of left proleg; **8)** ventral view of left middle leg; **9)** ventral view of left posterior leg.

Latin *tyrannus*, indicating “master” or “tyrannical.” The suffix *sorus* is Latin meaning “hump” or “pile”, and it is also the suffix for the family name of Hybosoridae and its type genus, *Hybosorus*. Hence, we have the tyrannical hump, suggesting the possible state of “mind” (ganglion?) of this small, humped beetle getting hopelessly stuck in a blob of sticky *Hymenaea* sap. The genus is masculine in gender.

Tyrannasorus rex Ratcliffe and Ocampo, **new species**

Figs. 1–9

Type Material. Holotype (probably female) from the Dominican Republic, specimen number AMNH DR-10-702, embedded in amber, age Miocene. Ho-

lotype deposited in the Amber Fossil Collection, Dept. of Entomology, American Museum of Natural History, New York.

Description. Holotype. Length 5.8 mm; greatest width 2.7 mm. Color reddish brown. *Head:* Frons with surface irregularly punctate, punctures moderate in size and density. Eye canthus elongate, subrectangular, apex truncate. Frontoclypeal suture not visible. Clypeus with surface similar to that of frons, anterior margin truncate, lateral margin arcuate and narrowly reflexed. Mandibles large, external edge broadly rounded; dorsal surface smooth, slightly concave, apex with well-developed, dorsal, subapical tooth (Figs. 3, 5). Maxilla and galea with dense, slender setae; maxillary palpus with 4 segments, first segment short, second longer than first or third, fourth longer than second and third combined. Labium with numerous long setae. *Pronotum:* Surface weakly convex, irregularly punctate; punctures moderate in size and density. *Scutellum:* Shape subtriangular, apex slightly rounded. *Elytra:* Surface smooth, with sparse, minute punctures that do not delimit striae or intervals. Humeral umbone weakly elevated. *Legs:* Protibia (Figs. 4, 7) on external margin with 3 long, acute teeth and with 7 denticles behind basal tooth and 2 denticles between median and basal teeth; apical spur reaches apex of second tarsal segment. Protarsus with basal segment long, segments 2–4 subequal in length and shorter than first, each with slender distal setae; fifth segment slightly longer than any of segments 2–4. Meso- and metatarsi with segments 1 and 5 longer than any others, segments 2–4 subequal in length; segments 1–5 each with pair of setae at apex.

Remarks. We surmise that the holotype is a female based on the presence of character states for the foretibia and tarsal claws that are the same for females in the genus *Apalonychus*, a genus of hybosorid that also occurs in the West Indies. Certain characters of the body (especially ventrally) cannot be seen because of the dark nature of the amber.

The tree that produced the resin that trapped this specimen is *Hymenaea protera* Poinar (Leguminosae, Caesalpinioideae). The amber in which it is embedded has been dated as Miocene in age (Grimaldi 1995). Iturralde-Vinent and MacPhee (1996) indicated that all the main amberiferous deposits in the Dominican Republic (including those with biological inclusions) were formed in a single sedimentary basin during the late Early Miocene through early Middle Miocene (15–20 million years ago). Previous dating of Dominican amber as Oligocene or especially Eocene (Lambert *et al.* 1985) is probably erroneous (Grimaldi, pers. comm., 2000; Iturralde-Vinent and MacPhee 1996). A specific collecting locality for the specimen is not possible because virtually all amber material in the Dominican Republic is purchased from miners by dealers who then sell it to researchers and collectors. The amber piece probably came from the northern mountain range north of Santiago de los Caballeros in the Dominican Republic where most of the mines are located. The amber-bearing unit comprises the upper 300 m of the La Toca Formation and consists of sandstone interspersed with a conglomerate of pebbles, organic matter, and thin coal lamellae (Iturralde-Vinent and MacPhee 1996). The amber occurs in the lignite-rich sandstone beds or in lignite seams (Eberle *et al.* 1980; Grimaldi 1996).

Etymology. From the Latin *rex*, meaning “king”... a play of words on another famous, and *much larger*, species of extinct animal that has a similar-sounding generic name.

Acknowledgments

We thank David Grimaldi (American Museum of Natural History, New York) for making the specimen available to us for study. Henry Howden (Canadian Museum of Nature, Ottawa) is gratefully acknowledged for viewing the specimen and sharing with us his observations, and Andrew Smith (University of Nebraska, Lincoln) was kind enough to transport the specimen to and from Dr. Howden. Mary Liz Jameson (University of Nebraska, Lincoln) and two anonymous reviewers are thanked for their helpful remarks to improve the manuscript. This project was supported by an NSF/PEET grant (DEB-9712447) to B. C. Ratcliffe and M. L. Jameson.

Literature Cited

- Eberle, W., W. Hirdes, R. Muff, and M. Pelaez. 1980.** The geology of the Cordillera Septentrional. Proceedings of the Ninth Caribbean Geological Conference (Santo Domingo, August 1980), p. 619–632.
- Grimaldi, D. 1995.** The age of Dominican amber [pp. 203–217]. *In*: Amber, Resinite, and Fossil Resins (K. B. Anderson and J. C. Crelling, editors). American Chemical Society Symposium Series 617, Washington, D. C.
- Grimaldi, D. 1996.** Amber. Window to the past. Harry N. Abrams, Inc., NY. 216 pp.
- Iturralde-Vinent, M., and R. D. E. MacPhee. 1996.** The age and paleogeographical origin of Dominican amber. *Science* 273:1850–1852.
- Lambert, J. B., J. S. Frye, and G. O. Poinar, Jr. 1985.** Amber from the Dominican Republic: analysis of nuclear magnetic resonance spectroscopy. *Archaeometry* 27: 43–51.
- Poinar, Jr., G. O. 1992.** Life in Amber. Stanford University Press, Stanford, CA. 350 pp.

(Received 23 March 2000; accepted 12 June 2000)