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A Remarkable New Species of *Megaceras* from Peru (Scarabaeidae: Dynastinae: Oryctini). The "Dim Effect": Nature Mimicking Art

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Abstract

Megaceras briansaltini Ratcliffe, new species, is described from Peru. A description, diagnosis, and illustrations are provided, and the new species is compared with *M. morpheus* Burmeister, with which it shares similarities.

Although a good deal is too strange to be believed,
nothing is too strange to have happened.
— Thomas Hardy

The genus *Megaceras* (Dynastinae: Oryctini) consists of 18 species (Endrödi 1985; Dechambre 1981, 1998*a*, *b*), and the description of a new species below constitutes the 19th species of these mostly large rhinoceros beetles. All of the species occur in South America, with two of them extending northward into Central America, where they are relatively uncommon. Very little is known about the biology of these beetles. Adults are active at night and are often attracted to lights. They seem to be found primarily in areas of lowland and montane broadleaf forests. The larvae probably live in decaying logs or in the soil feeding on organic material.

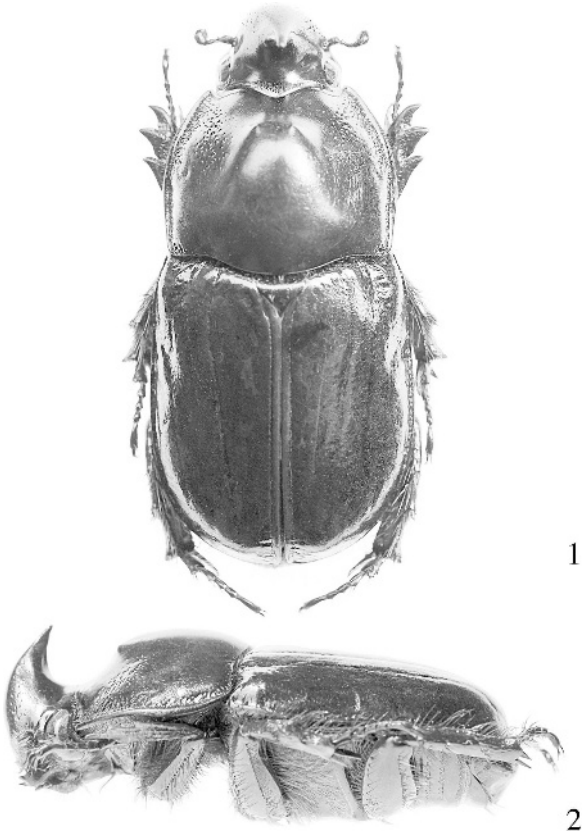
Species of *Megaceras* are characterized within the tribe Oryctini by a tridentate protibia, frons with a single horn in the males or a single tubercle in the females, prosternal process present, smooth elytra, and mandibles distinctly bidentate and exposed.

In this paper I adhere to the phylogenetic species concept as outlined by Wheeler and Platnick (2000). This concept defines species as the smallest aggregation of populations diagnosable by a unique combination of character states.

Megaceras briansaltini Ratcliffe, new species
(Figs. 1–3, 5, 7–8, 11)

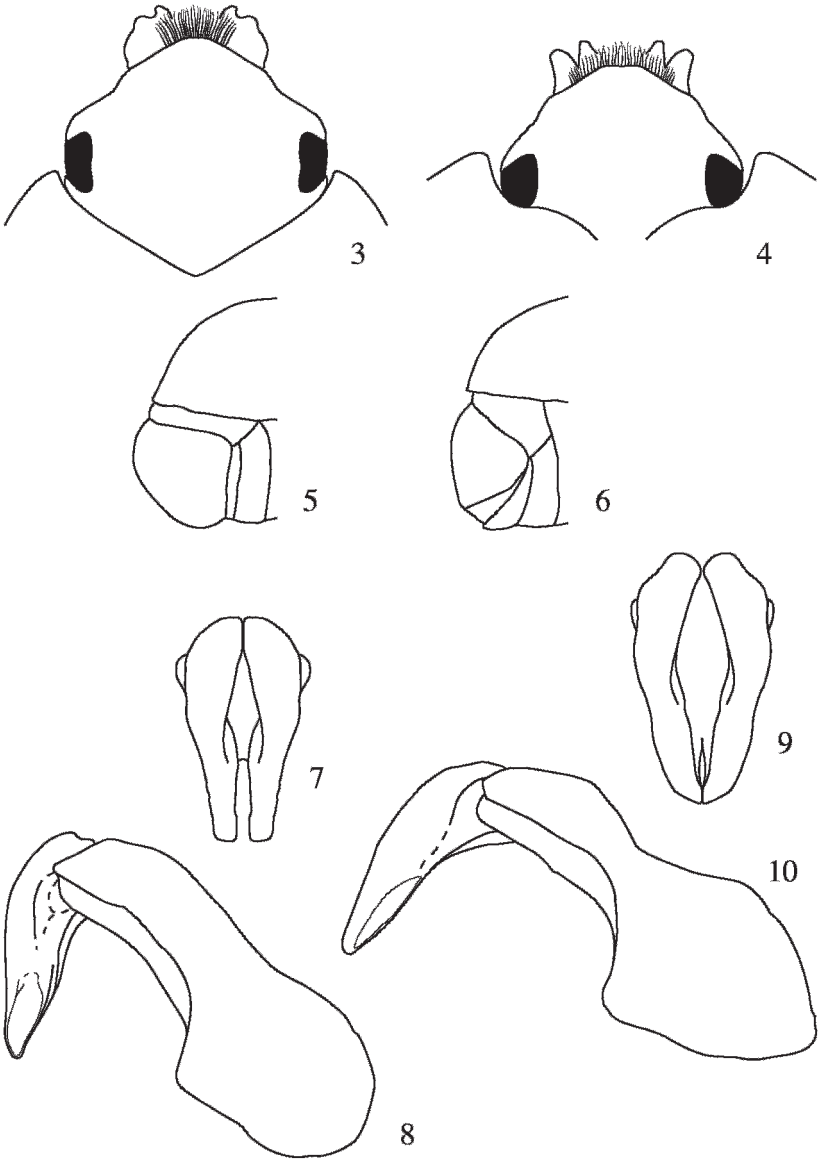
Type Material. Holotype male, labeled "DYNASTINAE, Dynastinae sp., PERU: Calabaza (=street from Satipo to Huancayo), VI-2006, JPSCOLLNO: DYN/0/P00E, Coll. J.-P. Saltin", "Calabaza 1800-2200m, Junin PERU, 2006", and my red holotype label. Holotype deposited at the University of Nebraska State Museum, Lincoln, NE.

Holotype. Length 34.5 mm; width across humeri 14.9 mm. Color of dorsum piceous, weakly shining; venter reddish brown. *Head*: Dorsal surface completely occupied by stout, recurved horn (Fig. 2); horn expanded at base and extending



Figs. 1–2. *Megaceras saltini*, holotype, dorsal and lateral views, respectively. Photos courtesy of J. Saltin.

from clypeal apex to occiput and from eye canthus to eye canthus; surface of horn minutely alutaceous, sides with sparse, moderately large punctures; anterior face with small, sparse punctures; posterior margin just below apex with small swelling (suggestive of a subapical tooth). Clypeus with apex broadly rounded, feebly emarginate at center. Interocular width equals 4.9 transverse eye diameters. Antenna with 10 segments, club subequal in length to segments 2–7. Mandible with large, angulate basal lobe and narrow, acute apical tooth (Fig. 3). *Pronotum*: Surface strongly aciculate, minutely shagreened, punctate in anterior angle and on lateral margin; punctures in anterior angle mostly large, extending obliquely onto disc, those along lateral margin large, becoming confluent and rugose anteriorly. Base with very slender marginal bead. Lateral margins arcuate, widest just before middle. Disc at center with raised, bituberculate prominence, tubercles separated from one another by distance equal to transverse eye diameter. *Elytra*: Surface strongly aciculate, minutely shagreened, rugopunctate at apices. Sutural stria strongly impressed; disc at center and just mesad of humerus with weakly impressed stria. Sides vaguely wrinkled. Lateral margin with strong bead.



Figs. 3–10. Dorsal view of head of (**3**) *M. saltini* and (**4**) *M. morpheus* showing form of mandibles. Lateral view of pygidium of (**5**) *M. saltini* and (**6**) *M. morpheus* showing surface convexity. Parameres (caudal and lateral views) of (**7–8**) *M. saltini* and (**9–10**) *M. morpheus*.

Fig. 11. Lateral view of head of Dim and *M. saltini* showing similarity in horn configuration ("the Dim Effect"). Dim character © Disney Enterprises, Inc. and Pixar. Used by permission from Disney Enterprises, Inc.

Pygidium: Surface weakly aciculate, minutely alutaceous. Base with transverse row of large, moderately dense, setigerous punctures; setae long, reddish brown. In lateral view, surface strongly convex in basal fourth, nearly flat elsewhere (Fig. 5). *Legs*: Protibia tridentate, teeth subequally spaced. Meso- and metatibia each with 2 transversely oblique carinae. Metatibia at apex with large, narrowly rounded lobe. *Venter*: Prosternal process long, subconical. Pro-, meso-, and metasternum with long, reddish brown setae. Metasternum either side of middle nearly completely punctate; punctures dense, small; metasternum at center impunctate. *Parameres*: Figs. 7–8.

Etymology. At the request of Jochen-P. Saltin, who graciously donated the specimen for description, this species is named in honor of his son, Brian. Brian has sustained, without complaint, his father's passion for beetles and is now himself studying biology.

Distribution. *Megaceras briansaltini* is known only from the type locality near Calabaza (on the road from Satipo to Huancayo), District of Pampa in the Department of Junin, Province of Satipo on the eastern slopes of the Andes in Peru.

Diagnosis. *Megaceras briansaltini* is most similar to *M. morpheus* Burmeister and will key to this species in Endrödi (1976, 1985). *Megaceras briansaltini* differs from *M. morpheus* in the form of the parameres, head horn, dorsal surface of the clypeus, teeth of the mandibles, and pygidium.

The parameres, in caudal view, of *M. briansaltini* are subquadrate at their apices (Fig. 7), whereas they are narrowly rounded in *M. morpheus* (Fig. 9). In lateral view, the subapical, lateroventral depression of the parameres is wide in *M. briansaltini* (Fig. 8) and narrow in *M. morpheus* (Fig. 10).

The form of the head horn in *M. briansaltini* (Figs. 2, 11) is unlike that of any other dynastine species with which I am familiar, because it is so swollen at its base . . . so much so that it obscures or encompasses most of the top of the head. The clypeus is not visible except at its extreme apex. In *M. morpheus*, conversely, the dorsal surface of the clypeus is clearly evident anterior to the base of the horn.

Because of the unusual nature of the horn, the possibility remains that the horn configuration is a monstrosity, but additional material is needed to ascertain this.

The form of the horn is startlingly similar to that of Dim, the blue rhinoceros beetle in the Disney/Pixar animated motion picture, *A Bug's Life* (Fig. 11). I know of no dynastine head horn that has ever had the shape of the one seen in *M. briansaltini*, and so its resemblance to a movie character seems like a case of nature mimicking art . . . or what could be referred to as "the Dim Effect." There are numerous examples of art mimicking nature (paintings, sculpture, etc.), but that cannot be the case here, because there had never been a known rhinoceros beetle in nature upon which the creators of Dim could have used as a model for the head horn. In my experience, then, Dim was the first "rhinoceros beetle" to display such a horn, and the discovery of *M. briansaltini*, a real rhinoceros beetle, came later.

The teeth of the mandibles differ between *M. briansaltini* and *M. morpheus*. In *M. briansaltini*, the basal lobe of the mandible is large, obtusely rounded, weakly bilobed, while the apical tooth is narrow and acute (Fig. 3). In *M. morpheus*, the basal and apical teeth are both acute (Fig. 4).

Lastly, the form of the male pygidium differs between the species. In lateral view, the pygidium of *M. briansaltini* is strongly convex and protuberant in the basal fourth and nearly flat elsewhere (Fig. 5). In *M. morpheus*, however, the pygidium is normally and evenly convex, not strongly protuberant (Fig. 6).

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