

Observations of courtship in *Megaceras jasoni* (Coleoptera, Scarabaeidae), the rhinoceros beetle or great horned scarab

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Editado por/Edited by: D. F. Cisneros-Heredia, M.Sc.

Recibido/Received: 03/20/2010. Aceptado/Accepted: 04/07/2012.

Publicado en línea/Published on Web: 06/30/2012. Impreso/Printed: 06/30/2012.

Abstract

Megaceras jasoni has been observed in courtship at the Tiputini Biodiversity Station (TBS-USFQ) in Yasuní on two occasions, but only once resulting in mating. Observations of related behavior are reported here.

Keywords. scarab, courtship, Yasuní, *Megaceras*

Resumen

Megaceras jasoni ha sido observado en cortejo en la Estación de Biodiversidad Tiputini (EBT-USFQ) en Yasuní en dos ocasiones, con una sola terminando en apareamiento. Observaciones relacionadas con este comportamiento se reportan aquí.

Palabras Clave. escarabajo, cortejo, Yasuní, *Megaceras*



Figure 1: Rhinoceros beetles, *Megaceras jasoni*

Rhinoceros beetles, *Megaceras jasoni*, are large horned scarabs that are rarely observed in most parts of their range and consequently, essentially nothing is known of the species' behavior. While they may not be truly rare, their nocturnal habits make them relatively inaccessible to most observers in Neotropical rainforests [1]. Certainly, these beetles are rarely seen at the Tiputini Biodiversity Station (TBS-USFQ) on the northern boundary of the Yasuní National Park. Like most members of their subfamily, Scarabeinae, they exhibit obvious sexual dimorphism; in this species, males are much larger

than females and have one large horn extending upward and curving backward from the snout to meet another pair of forward-directed horns that arise from an elevated portion of the thorax. Because the head is mobile, these horns may be brought together in a forceps-like manner, supposedly useful in male-male competition for access to females [1]. However, when two to three males were experimentally brought together in captivity on 18 April 2011 in the presence of a female, no such sparring/wrestling behavior was witnessed.

These beetles have been observed in courtship on two occasions, 18 April 2008 and 18 April 2011, after having been attracted to artificial lights at the Tiputini Biodiversity Station between the hours of 1930 and 2100. They were observed to mate only on the earlier date. The name rhinoceros applies very nicely to these beetles in many ways, including their overall appearance and lumbering movements. The analogy can be further extended in one aspect of courtship; once a female has attracted a male, likely through pheromone cues, she begins walking quickly and he gives chase. In the rhinoceros mammals, similar female "coyness" and male following behavior involve a steady trot and may continue for hours and several kilometers [2, 3, 4], provoking our

typical evolutionary explanation that this serves to test the male's level of fitness [5] and thereby, his potential to pass along genes for strength and endurance to offspring which, in the lifetime of any female, are extremely few and which require tremendous effort on the part of the mother in the form of parental care. In these beetles, a similar chase may continue for more than an hour and cover several meters through the leaf litter. This may also be interpreted as a test of strength and endurance in order to ensure that the best possible genes may be passed on to any offspring. When the male actually catches up with the female, she slows her pace and he may walk around her slowly as if to give her a chance to evaluate his size and shape. Eventually he will push his head against her mid-body at a perpendicular angle. After several minutes of this behavior, she again begins to walk slowly, but this time, much more slowly than in the previous phase. The male follows once again, now in a position very close behind her, with his head actually touching the posterior part of her body. Soon, after about 2 minutes, she stops and he proceeds to mount her, very much in a style similar to land tortoises. Copulation ensues and continues for at least 15 minutes. After mating, the individuals separate and show no further interest in one another. They rest almost motionless for nearly one half hour before moving off in different directions.

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