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FIELD NOTE

Potential agonistic courtship and mating behavior between two adult giant anteaters (*Myrmecophaga tridactyla*)

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Abstract The reproductive behavior of giant anteaters is rarely seen and, as a consequence, hard to study. Most of the few reports that exist are based on observations in captivity. In July 2014, we witnessed what could be *Myrmecophaga tridactyla* courtship and mating behavior in Goiás State, Brazil. Although the couple showed aggressive mating behavior, the offspring was able to stay on its mother's back throughout the entire ritual. This report clarifies how, behaviorally, wild giant anteaters mate and suggests that aggressiveness can be present during courtship at least when the female is carrying an offspring. This kind of observation is very difficult to obtain; without long-term monitoring studies, it simply becomes a matter of luck.

***Keywords*:** Aggressiveness, behavior, courtship, giant anteater, Xenarthra

Comportamento potencialmente agonístico de cortejo e de cópula entre dois tamanduás-bandeira (*Myrmecophaga tridactyla*) adultos

Resumo Testemunhar o comportamento reprodutivo de tamanduás-bandeira é difícil e, portanto, é difícil de ser investigado. Dos poucos relatos existentes, a maior parte é proveniente de cativeiro. Em julho de 2014, presenciou-se o cortejo e o comportamento de cópula de *Myrmecophaga tridactyla* em Goiás, Brasil. O casal demonstrou um comportamento de cópula agressivo, e enquanto o ritual ocorria o filhote permaneceu nas costas da mãe. Essa observação esclarece como tamanduás-bandeira reproduzem na natureza e demonstra que a agressividade pode estar presente no cortejo, mesmo quando a mãe está com filhote. Esse tipo de registro é muito difícil de obter e sem monitoramento em longo prazo torna-se, simplesmente, uma questão de sorte.

***Palavras-chave*:** Agressividade, comportamento, cortejo, tamanduá-bandeira, Xenarthra

Giant anteaters tend to be solitary animals unless they are adult females with their young or they are engaging in courting or agonistic behavior. Their reproductive behavior is not well-known and has primarily been observed in captivity (Bartmann, 1983; Romero *et al.*, 2010). To the best of our knowledge, their courtship has not been documented in the wild until now..

Beginning at 17:20 hr on 30 July 2014, one of the researchers (JF) witnessed and photographed a giant anteater's (*Myrmecophaga tridactyla*) mating behavior during a photographic excursion on a ranch in Santa Rita do Araguaia, Goiás State, Brazil (17°19'S, 53°12'W). The vegetation in this area was a mix of *Brachiaria*, *Vernonia*, and grassland located 200 m away from the Araguaia River. We identified one of the giant anteaters as a female since she was

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carrying a young on her back, and suspect that the other animal was a male because it performed copulation movements on the female several times. Both animals were adult-sized.

Our observation began when the male directly approached the female as she was foraging with her offspring on her back (**Fig. 1**). When the female noticed the male approaching, she produced a loud nasal snarl, and in a matter of seconds both animals were producing this sound. When he was only few centimeters away, the male circled the female (**Fig. 2**), forced her to her hind legs (**Fig. 3**), and struck her with his forepaws in an attempt to take her down (**Fig. 4**). Then, the male stood in front of the female, up on his hind legs, and kept trying to strike her down (**Fig. 5**). In the end, he was unsuccessful, so he began to walk in circles around her instead. The female had also shown her forepaws and tried to remain on her hind legs (**Fig. 6**), but she fled once the male stood on his hind legs.

After both fell down (**Fig. 7**), they stood in front of each other in a lateral position and showed their claws. In this lateral position, the male attempted to mount the female. He simultaneously made repeated copulation movements with whistling sounds, an action that lasted about 15 s and caused both of their tails to rise. At first the female remained still, but soon thereafter she responded by striking him with her forepaws (**Fig. 8**). As she made an effort to rise up on her forepaws (**Fig. 9**), the male tried to force her back down to the lateral position with his own forepaw (**Fig. 10**). The female stood and defended herself with her claws as best as she could, but the male successfully pushed her back down (**Fig. 11**), throwing his weight against her body so that, in this moment, she was actually supporting him. The male made more copulation movements.

At this point, the female rose up on her hind legs (**Fig. 12**) and struck the male with her forepaws. In response, the male also stood up, and the two engaged in fighting (**Fig. 13**). Once again, the male successfully put her down (**Fig. 14**), and more copulation movements were made. They remained stationary for two minutes. After this, the female continued along her initial path with her young. At first, the male started to follow her, but he eventually gave up and remained in the same place.

This ritualized mating behavior lasted 20 min, and, throughout the entire ritual, the offspring held tight to the mother's back. There were brief periods when the offspring was almost smashed between the mother's body and the ground; however, by the end of the ritual, no injuries were visually detected on the offspring's body. We believe that the female was not able, at least behaviorally, to copulate since she resisted all of the male's attempts, an attitude most likely related to the maternal role she assumed to her offspring, which, based on its small size, was presumed to be of very young age.

Shaw *et al.* (1987) reported a much calmer relationship between males and females during courtship episodes, but none of the reported females had young on their backs. Romero *et al.* (2010) suggested that giant anteaters were solitary animals, noting that the females generally kept away from the males and exhibited aggressive behavior toward them.

In the same study, Romero *et al.* (2010) described some postural behaviors of *ex situ* giant anteaters in Bioparque Los Ocarros in Colombia as similar to those we witnessed here, such as "grunting", "persecution", "female resistance", "laying down the female", "striking", "frontal hug", and "copulate". But even though they reported the mating behavior as beginning with the male's agonistic exhibition surrounding the female, the mating behavior in captivity, as a whole, did not match the aggressive copulation episode described here.

As noted in this report, behavioral elements typical of intraspecific aggression are likely to appear in ritualized reproductive behavior (Maier, 2001 *apud* Romero *et al.*, 2010). For instance, the act of circling one another, roaring, and grunting were already registered and included in the class of aggressive behaviors (Shaw *et al.*, 1987; Rocha & Mourão, 2006; Kreutz *et al.*, 2011). In their field notes, both Rocha & Mourão (2006) and Kreutz *et al.* (2011) registered an agonistic encounter between two giant anteaters, although neither were able to identify their sex. Both studies reported injuries, but those registered in Kreutz *et al.* (2011) were more serious.

Romero *et al.* (2010) highlighted the necessity of conducting wildlife studies that focus on the courtship behavior of giant anteaters. We clearly agree with this recommendation, but to be able to register this kind of behavior in nature is very rare. Perhaps long-term studies that monitor giant anteaters would increase the probability of a behavioral observation.

We believe this observation did not reflect a "typical" giant anteater reproductive behavior. Due to the small size of the offspring, we suspect the female had given birth only recently and was therefore not in estrus. Consequently, she was not sexually receptive, thereby defending herself against the male's mating attempts. Nevertheless, the report provides a better knowledge of the giant anteater sexual postures, which had never been reported and photographed in the wild.

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Figures 1–8. Sequence of the courtship and mating behavior of wild giant anteaters (*Myrmecophaga tridactyla*) in Santa Rita do Araguaia, Goiás State, Brazil. All photos taken by José Fernando Miranda Júnior.



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FIGURES 9–14. Sequence of the courtship and mating behavior of wild giant anteaters (*Myrmecophaga tridactyla*) in Santa Rita do Araguaia, Goiás State, Brazil. All photos taken by José Fernando Miranda Júnior.



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