Short Note

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Abduction and potential case of predation of an infant howler monkey (*Alouatta guariba clamitans*) by a tufted capuchin monkey (*Sapajus nigritus*)

Abstract: The likelihood of interspecific interactions between wild primates is particularly high for species with overlapping territories. The sharing of the same or similar ecological niches can result in competition for space or resources, which can lead to agonistic encounters such as predator-prey interactions. Here, we report the observation of an abduction and potential case of predation of an infant howler monkey (*Alouatta guariba clamitans*) by an adult male capuchin monkey (*Sapajus nigritus*) in Minas Gerais, Brazil. Evidence of capuchin monkeys' predation of other smaller sympatric primate species has already been reported, as well as description of agonistic interactions between capuchin and howler monkeys, but none as drastic as the case described here. Although we were not able to collect evidence after the abduction, we discuss the events leading up to it and present arguments in favour of the case of interspecific predation or infanticide.

Keywords: abduction; *Alouatta guariba clamitans*; diet; interspecific aggression; predation; *Sapajus nigritus*.

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Interspecific interactions are an important feature of the behavioural ecology of wild primates. Although rare, under high population density conditions, agonistic interactions between sympatric species that share ecological niches can increase as a result of resource or space competition (Stevenson et al. 2000, Rose et al. 2003). In drastic cases, these competitive interactions can sometimes result in interspecific infanticide, possibly to eliminate potential future competitors (Rimbach et al. 2012). Predator-prey interactions represent another type of interspecific agonism. These interactions have been particularly well documented between chimpanzees and colobus monkeys (e.g., Boesch 1994, Watts and Mitani 2002) but rarely between neotropical primate species (Sampaio and Ferrari 2005, Carretero-Pinzón et al. 2008).

Here, we report an observation of an abduction and potential predation of an infant howler monkey by an adult capuchin monkey. The event took place at the Reserva Particular do Patrimônio Natural–Feliciano Miguel Abdala (RPPN-FMA), Minas Gerais, Brazil, where brown howler monkeys (*Alouatta guariba clamitans*) and tufted capuchin monkeys (*Sapajus nigritus*) coexist and have been previously studied (e.g., Mendes 1989, Lynch and Rímoli 2000).

Although both species live in the same area, they do not appear to compete for food at this site (Dias and Strier 2000). However, a long-term study conducted at three different Costa Rican field sites reported several agonistic interactions between white-faced capuchins (*Cebus capucinus*) and mantled howlers (*Alouatta palliata*) and, in these cases, almost all of the aggressive behaviours were directed by the capuchins towards the howlers (Rose et al. 2003). The authors argue that capuchins are more likely to engage in interspecific aggressive behaviours as a result of their pugnacious temperament, a statement which was recently supported by a captive study on mixed-species communities of tufted capuchins (*Sapajus apella*) and common squirrel monkeys (*Saimiri sciureus*) (Buchanan-Smith et al. 2013).

Capuchin monkeys are omnivorous and feed very opportunistically. They persistently forage and feed on a large variety of plants, fruits, leaves and animal prey (for reviews, see Fragaszy et al. 2004, Miller and Treves 2011). Along with several species of small mammals, two cases

of predation by capuchin monkeys have been reported on other primate species: owl monkeys (*Aotus brumbacki*) and titi monkeys (*Callicebus moloch*) (Sampaio and Ferrari 2005, Carretero-Pinzón et al. 2008). While these two observations failed to provide much information on how these predatory capuchin monkeys located and hunted these primates, they nevertheless emphasised the potential of the capuchins to exploit large prey.

Our observation took place on 7 September 2011. A group of seven howler monkeys (one adult male, one subadult male, one juvenile male, two adult females, one juvenile female and one infant) was opportunistically observed while feeding on leaves in a tree at the edge of the forest, near the field research station. The adult male howler monkey started to roar and the entire group gathered in a line on the same branch. No calls from other surrounding groups could be heard, suggesting that the male was not just emitting position calls. After several minutes, an adult male capuchin monkey entered the same tree. The group of howlers seemed nervous and dispersed to avoid the intruder. The male capuchin slowly approached an adult female howler that was carrying a small infant (Figure 1) and he moved around the tree, apparently to block her escape routes. Suddenly, this male grabbed the infant using one hand and his mouth to pull it away from the female (Figure 2). The infant clung forcefully onto the female's fur with its tail and squealed, but it was ripped off by the capuchin. The male capuchin fled into the forest with the infant in his mouth. Interestingly, contrary to what has been reported with mantled howler monkeys during an agonistic interaction with tayras (*Eira barbara*; Asensio and Gómes-Marín 2002), none of the howlers present tried to deter or expel the capuchin during or after the interaction. Instead, they showed a lack of reaction and an absence of interference behaviours, similarly to what has been described during infant-directed aggression by spider monkeys (*Ateles hybridus*; Rimbach et al. 2012). The adult male howler continued to roar for several minutes after the abduction. After he stopped, the whole group, including the female previously carrying the infant, recommenced feeding in the tree.

Although we were unable to collect subsequent evidence for prey consumption or infanticide (since the capuchin monkey fled into the forest), the behaviour of blocking the apparent escape routes and biting the infant was similar to the hunting technique of white-faced capuchins described in their predation of squirrels (Rose et al. 2003). Furthermore, the fact that the capuchin fled with the infant in his mouth, which could result in a potentially fatal outcome, supports a possible case of predation.

An alternative explanation to predation or infant killing would be interspecific abduction followed by adoption. Indeed, there is at least one reported case of adoption of a baby marmoset (*Callithrix jacchus*) by a foster capuchin (*Sapajus libidinosus*) (Izar et al. 2006). In this case, the infant was successively adopted by two females of the same group (Izar et al. 2006), a more typical pattern expected for female than for male primates (Schino et al. 1993, Maestripieri 2001). Considering that, in the present case, the abductor was an adult male and bearing in mind that his behaviour could potentially have been fatal to the infant, we argue that interspecific adoption is unlikely.

Agonistic interactions between capuchins and howlers described at other sites sometimes involved

Figure 1 Male capuchin monkey (A) approaching a female howler monkey (B) carrying the infant (photo credit: E. Genty).

Figure 2 Male capuchin monkey (A) pulling the infant howler (C) away from the female howler monkey (B) before fleeing with the infant in his mouth (photo credit: E. Genty).

pulling or dragging of infant or juvenile howlers, but none was ever as drastic as the one reported here. Although cases of predation by capuchins on other primates have been reported, as far as we are aware, none has been documented on a monkey as large as a howler (for a review, see Fragaszy et al. 2004, Miller and Treves 2011). As a result, we propose that the observation described here may represent the first reported case of abduction and potential predation of a capuchin on an infant howler.

Predation in primates is an inherently rare event to observe from initiation to completion, making it difficult to be studied systematically. Therefore, all anecdotal observations are worth reporting to expand our knowledge on wild primates' behavioural ecology and foraging strategies.

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