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New Sightings of Northern Muriqui (*Brachyteles hypoxanthus*) Females in Forest Fragments Surrounding the Estação Biológica De Caratinga-RPPN Feliciano Miguel Abdala, Minas Gerais, Brasil

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The northern muriqui (*Brachyteles hypoxanthus*) is a critically endangered primate with about 1,000 individuals distributed among 12 remaining populations (Mendes *et al.*, 2005). Nearly 300 individuals, representing nearly a third of the entire species, are distributed in the four mixed-sex groups at the RPPN Feliciano Miguel Abdala (RPPN-FMA; previously known as the Estação Biológica de Caratinga), a privately protected forest fragment of roughly 1,000 ha (updated from Strier *et al.,* 2006). This population has been monitored systematically since 1982, when it was estimated to consist of just 40–50 individuals (Valle *et al.*, 1984). Hunting had long been prohibited at this site, and the six-fold increase documented in the size of the population in less than 30 years can be attributed, at least in part, to improved habitat protection. There has been some habitat recovery within and around the RPPN-FMA due to the regeneration of small parcels of land that had previously been cleared for small coffee plantations and pasture, but the growth of the muriqui population has far exceeded the expansion of the forest.

Previous analysis of this population's potential long-term viability identified the need for increasing the amount of suitable habitat available to this growing population (Strier, 1993/1994). The establishment of ecological corridors to connect neighboring forest fragments with the protected forest in the RPPN-FMA has been a critical component of ongoing and long-term management plans for this species (Strier and Fonseca, 1996/1997; Rylands *et al.*, 1998). However, until recently, nothing was known about the accessibility of these surrounding forest fragments or whether they could support muriquis. Here we report the first confirmed sightings of four female northern muriquis (1 adult and 3 subadults) in three of the fragments. The new findings indicate that these fragments provide a minimum structure for supporting muriquis and represent key areas for the establishment of the corridor.

Systematic censuses were conducted in eight forest fragments surrounding the RPPN-FMA between June 2008-October 2009; muriquis were sighted in three of these fragments (Figure 1). On 30 June 2008 a solitary adult female was encountered in one fragment (19° 45' 54" S, 41° 49' 23" W). The next year, on 23 July 2009,

two subadult females were encountered together in a different fragment located on the same property as the fragment in which the first solitary female was sighted (19° 45' 27" S, 41° 48' 07" W). A few months later, on 11 October 2009, a third solitary sub-adult female was encountered in a more distant fragment located at least 3 km from the nearest boundary of the RPPN/FMA (19° 46' 50" S, 41° 48' 11" W).

Like all of the muriquis in our study population, all four of the females located in the forests surrounding the RPPN-FMA could be individually identified by their natural markings. All three of the subadult females encountered in these fragments were recognizable as females who originated from our study groups in the RPPN-FMA. The two subadult females (TP-M2 and NK-N) had previously dispersed from different natal groups (M2 and Nadir, respectively). TP-M2 visited NK-N's group before joining a third group (Matão), where she remained until at least 29 January 2009, when she was last seen in the RPPN-FMA. NK-N also visited the Matão group in February 2009, but then returned to her natal group where she remained until at least 19 April 2009, the last time she was seen in the RPPN-FMA. Importantly, both of these females were last seen in the fragment outside of the RPPN-FMA on 2 October 2009. By 11 November 2009, NK-N was observed back inside the Reserve, traveling with her natal Nadir group, and by the first week of January 2010, both females were seen traveling with the Matão group in the RPPN-FMA again. The subadult female (EE-M2) who was encountered alone in the most distant fragment was last seen in her natal group in the RPPN-FMA on 4 December 2007. She was not subsequently sighted in any other groups in the RPPN-FMA, but we do not know how long she remained in the Reserve before moving into the fragments. In contrast to the three subadult females, the solitary adult female encountered first was not recognizable to observers. The unfamiliarity of this female could be the result of her having emigrated from the RPPN-FMA prior to 2002, when only one of the muriqui groups in the forest was being systematically monitored. Alternatively, the solitary adult female could have originated from another relic population in the region that has not yet been discovered.

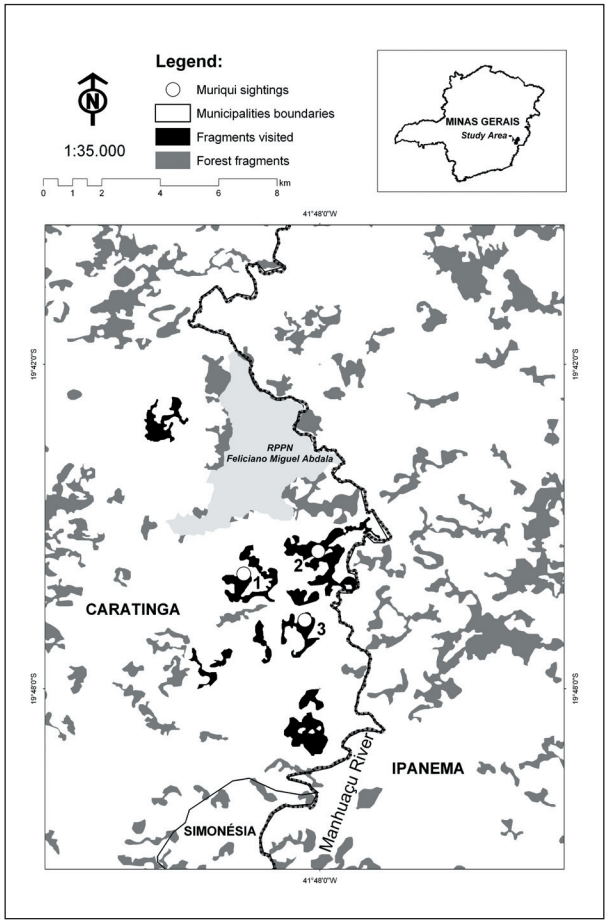

Figure 1. Location of forest fragments outside the RPPN-FMA with confirmed sightings of female northern muriquis (*Brachyteles hypoxanthus*). Points refer to each of the female sightings, as described in the text: 1 – Solitary adult female; 2 – Pair of subadult females; 3 – Solitary subadault female.

It is noteworthy that despite nearly three decades of research, no previous sightings of muriquis in forest fragments surrounding the RPPN-FMA have been reported. The discovery of the emigrant females in these forest fragments reveals that even in a relatively large population with more than one social groups, emigrant females might end up living alone in smaller fragments, confirming earlier recommendations about the need to increase the available habitat for this growing population. These discoveries also emphasize the importance of conservation management plans that include the protection and expansion of critical habitats through the creation of private protected areas, and the establishment of the ecological corridors for this and other populations of critically endangered Atlantic forest primates.

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On the Identification of *Callicebus cupreus* and *Callicebus brunneus*

Jan Vermeer

Introduction

For many years, the preliminary taxonomic review of the genus *Callicebus* by Hershkovitz (1990) was the leading guide for most people involved in research on titi monkeys. The more extensive review of Van Roosmalen *et al.* (2002), illustrated with many pictures and colorful drawings by Stephen Nash, seems to have replaced the earlier work of Hershkovitz. However, closer examination of the publication shows some inaccuracies, which may cause difficulties in the identification of certain individuals. The confusion that the publication caused for the identification of the titi monkeys kept in European zoos encouraged me to study this subject in more detail.

The identification of *Callicebus cupreus*

The diagnostic characters of *Callicebus cupreus* are described by Van Roosmalen *et al.* (2002), and depicted in a drawing by Stephen Nash. The description and the drawing were compared to the lectotypes and the lectoparatypes of *Callicebus cupreus* at the Zoologische Staatssammlung in München (Nos. 10, 24, 89a and 89b). The most important difference between the drawing in the publication and the lectotype is the color of the tail (the color of the tail is not described by Van Roosmalen *et al.*, 2002). While the tail of the animal in the drawing is the same buff-brown agouti color as its hindlimbs, the tail of lectotype No. 10 is much lighter, comparable to that on the drawing of *Callicebus moloch* in the publication of Van Roosmalen *et al.* (2002). The tail of lectoparatype No. 24 is identical to that of the lectotype, while the tails of the paralectotypes 89a and 89b are somewhat darker. Most other specimens of *Callicebus cupreus* that I have examined in the collections of the American Museum of Natural History in New York and the Naturalis Museum in Leiden have lighter and more greyish colored tails than the ones depicted by Van Roosmalen and colleagues (2002).

Observations in the wild by Eckhard Heymann, at Estación Biológica Quebrada Blanco (4° 21' S, 37° 09' W), well within the known distribution of *Callicebus cupreus*, confirm that the tail of adult *Callicebus cupreus* is greyish-white (Eckhard Heymann, pers. comm.). The tail of young *Callicebus cupreus* is brownish, but has the greyish color of the adults by approximately 2 years of age (pers. obs. at La Vallée des Singes, Romagne, France). The captive population in European zoos is partly based on individuals that were captured near the Rio Maniti in Peru by the California National Primate Research Center of Davis. Rio Maniti is also within the distribution of *Callicebus cupreus*. All these animals have greyish tails, strikingly different than the color of their back and legs.

The identification of *Callicebus brunneus*

This species is described by Van Roosmalen *et al.* (2002) as having the forehead, forearms, legs, cheiridia and base of tail blackish to dark-reddish-brown, the rest of the tail contrasted pale or dominantly buffy mixed with blackish. The upperparts are brownish or reddish. The drawing of Stephen Nash is in agreement with this description. The description and the drawing were compared to the lectotype and lectoparatypes of *Callicebus brunneus* at the Naturhistorisch Museum in Vienna, Austria (No. B-3453, B-3454, ST122). The coloration of these specimens differs considerably from the description in Van Roosmalen *et al.* (2002). The upperparts of all specimens are dark brown, the arms and legs only slightly darker than the back, but brownish. The forehead is black, while the rest of the head is strikingly light-brown in all specimens. The tail is dark-brown, in one specimen somewhat lighter than its upperparts. The tip of