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On the Capture of Titi Monkeys (*Callicebus cupreus*) Using the Peruvian Method

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Cláudio Arani Nunes

Titi monkeys are shy and difficult to capture using baited traps. This note reports the capture of two red titi monkeys (*Callicebus cupreus cupreus*) using a so-called "*Saguinus* trap" by the Peruvian Method (see details of the method in Encarnación *et al.*, 1990). The capture was part of an experimental field study on feeding competition among sympatric groups of tamarins (*Saguinus imperator imperator* and *Saguinus fuscicollis weddelli*) and titi monkeys (*C. c. cupreus*) conducted by G. Silveira and supervised by J. C. Bicca-Marques. The research was carried out from May to August 1998 at the Zoobotanical Park of the Federal University of Acre (UFAC) (9°56'30"-9°57'19"S, 67°52'08"-67°53'00"W; 100 ha), Rio Branco, state of Acre, Brazil.

The Peruvian trapping method has been used by Bicca-Marques and colleagues (Bicca-Marques *et al.*, 1997; Calegaro-Marques and Bicca-Marques, 1994; Santos *et al.*, 1995) to capture tamarins in several parts of the Rio Branco study site since 1994. More than 80 tamarins were captured in the following periods: April-June 1994, October-November 1994, February 1995, August-October 1997, December 1997, March 1998, and May 1998. Although titi monkeys are found throughout the study site, and were often observed near or on the capture platform, prior to May 1998 they were only once observed entering the trap and eating the bait (February 1995; M. A. Azevedo-Lopes, pers. comm.).

During the last capture period (May 1998) a group of titi monkeys comprised of four individuals (one adult female and three immature males; the adult male of this group died in January 1998) were observed to enter the traps and eat the bananas. This group was very well habituated to the researchers' presence. It was observed on 115 days from 22 September 1997 to 29 January 1998 and was often observed eating bananas on experimental feeding platforms (30 cm x 45 cm) located 1.5 m above the ground. These platforms were being used for a study on primate foraging decisions (see Bicca-Marques *et al.*, 1998). Members of the titi monkey group were first observed entering the trap on 18 May. From 18 to 21 May, all individuals fed inside the trap at the same time. On 26 May, two immature males were captured (Fig. 1). Both were anaesthetized with a mixture of Tiletamine hydrochloride and Zolazepam hydrochloride (Telazol® by Elkins-Sinn, Inc., Cherry Hill, NJ 08003, U.S.A.; diluted in 10 ml distilled water; doses=0.06 ml and 0.10 ml) (Fig. 2), weighed, measured, sexed, and fitted with color-coded collars for individual recognition. The other two group members (the adult female and an immature male) could be distinguished by their physical traits. The oldest individual captured weighed 745 g and measured 287 mm head and body length and 435 mm tail length. His left testicle was approximately 8.0 mm long and 5.6 mm wide. The youngest individual weighed 590 g and measured 280 mm head

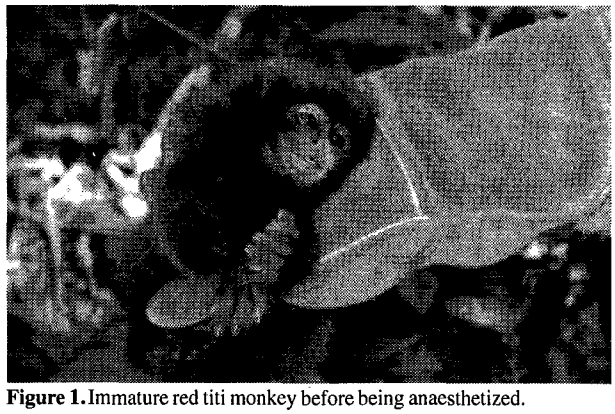

Figure 1. Immature red titi monkey before being anaesthetized.

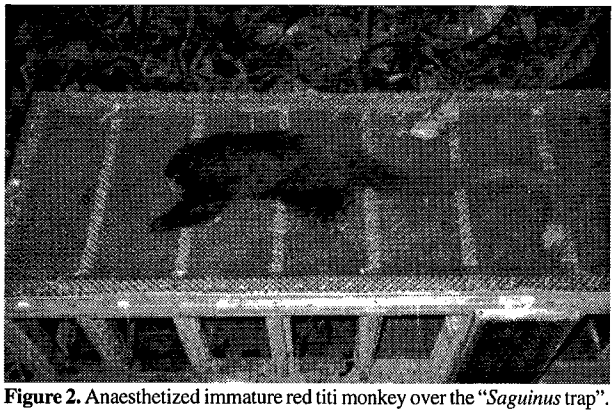

Figure 2. Anaesthetized immature red titi monkey over the "*Saguinus* trap".

and body length and 365 mm tail length. Testicles of this individual were very small and were not measured. Following capture, the group spent eight days without returning to the Feeding Station where it was captured. However, the monkeys returned to feed on 4 June and revisited the platforms on a daily basis until the end of the study (8 August).

In conclusion, the Peruvian Method proved useful in capturing titi monkeys. Its efficacy, however, is low and seems to depend strongly on the animals' habituation. We believe that widening the individual compartments of the trap, putting the traps in a shady place, for example, close to lianas, and having a detailed knowledge of the group's range would greatly increase the facility with which titi monkeys can be captured using this trapping method.

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Proximity and Grooming Interactions as Indicators of the Social Organization of Brown Howling Monkeys (*Alouatta fusca clamitans*)

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The frequency of social behaviors is much lower in howling monkeys (genus *Alouatta*) than in other primate species (Neville *et al.*, 1988); a feature believed to be related to a strategy of reduced energy expenditure (Crockett and Eisenberg, 1987; Neville *et al.*, 1988; Milton, 1980, 1981). Our own field data indicate that brown howling monkeys (*Alouatta fusca clamitans*), observed at the Cantareira State Park, São Paulo, spend less than 5% of their day in explicit social activities (Oliveira and Ades, 1993; Oliveira, 1997). The scarcity of social interactions makes the assessment of aspects of group structure and organization time-consuming and difficult.

Besides displays and ostensible interactive behaviors, howlers communicate and organize their behavior as members of a group through *indirect* signals, such as approaches, retreats, following bouts, and huddling (Jones, 1980, 1983). Spatial relationships among howlers may constitute, as in other primates (Rowell and Olson, 1983), an important indication of how they relate to each other in the group and of the prevailing social organization (Jones, 1980).

The main aim of this research, which was part of a study of vocal communication (Oliveira, 1997), was to evaluate aspects of the social organization of brown howlers using records of inter-individual distances and, as supplementary information, data on grooming episodes (Mendes, 1989; Chiarelli, 1995). The observation method adopted is simple, reliable and relatively economic in terms of the time spent in the field.

Our research site, the Cantareira State Park, is a large urban reserve (7,900 ha) in the middle of the metropolitan region of São Paulo. It is comprised predominantly of secondary forest and, besides *A. fusca clamitans*, the primate community there includes capuchins (*Cebus apella nigritus*), marmosets (*Callithrix aurita*) and masked titi monkeys (*Callicebus personatus nigrifrons*).

Howlers at Cantareira spend about 60% of the day resting, about 18% and 15% foraging and travelling, respectively, and the remaining, short time in social and other