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### TERRESTRIAL TRAVEL IN MURIQUIS (*BRACHYTELES ARACHNOIDES*) ACROSS A FOREST CLEARING AT THE ESTAÇÃO BIOLÓGICA DE CARATINGA, MINAS GERAIS, BRAZIL

Muriqui monkeys (*Brachyteles arachnoides*) have been the subjects of systematic studies at the Estação Biológica de Caratinga (EBC) in Minas Gerais, Brazil, since 1983 (Fonseca, 1983; Strier, 1986, 1992; Mendes, 1990, 1995; Odalia Rímoli, 1992; Rímoli, 1994; Nogueira, 1996). As in many other populations, the EBC muriquis are confined to a protected tract of forest isolated from other forest patches by pasture and fields (Strier and Fonseca, in press). Over the years, researchers have occasionally observed members of the main study group descend to the ground to cross gaps in the canopy or to drink or feed within the forest (Valle *et al.*, 1984). Observations of quadrupedal terrestrial travel have increased over the years as the group has become more habituated to the presence of researchers in remote parts of the forest (Strier, 1992). Nevertheless, it is still rare for muriquis to travel more than a few meters on the ground before climbing back into the canopy, where they spend most of their time and where, until recently, all of their long distance travel occurred.

On 18 November 1996, a subgroup of 41 individuals belonging to the 59 member main study group was monitored as it crossed an open clearing in the forest measuring 20 meters in width. Researchers had been accompanying the muriquis in a part of the forest they seldom use. After a long rest period, the muriquis started to travel until they reached the edge of the open clearing. They stopped suddenly at the forest edge, and began to embrace one another while vocalizing in a prolonged display. Their display was typical of their response during tense situations, such as intergroup encounters (Valle *et al.*, 1984; Strier, 1992) or the proximity of potential predators (Printes *et al.*, 1996). Adults of both sexes participated in the display, which persisted for 39 minutes without pause.

At 1220 h, AR, the only adult female in the subgroup without an infant, was identified at the other side of the clearing although she had not been observed to cross it. She emitted a series of long neighs, which were answered by other members of the group from the far side of the clearing. At 1259 h, CL, one of the oldest adult males present, descended to the ground and walked (quadrupedally) across the 20 m clearing. The rest of the subgroup followed after him in a single line. The sequence

of the progression following him was: nine other adult males, then the other 12 adult females with their infants and juveniles, and the last two adult males in the subgroup at the rear. Once the muriquis reached the trees on the far side of the clearing, they resumed traveling in the direction they had originally been heading.

Such a progression is not exceptional, for muriquis at the EBC commonly travel in a single file through the canopy when they are moving rapidly from one part of the forest to another, or when they descend to the ground between adjacent trees. It is also common for older adult females or males to take the lead in group movements, as they did when they crossed the clearing.

Adults are usually active participants during displays toward potential threats. They may have displayed at the clearing in the same way they respond to other threats because they were surprised to discover such an extensive gap in the forest, or because they perceived their vulnerability to predators if they were to cross such an open expanse. Despite their obvious tension, the fact that they ultimately crossed the clearing instead of returning by safer arboreal routes to where they had previously been suggests that foraging needs may have outweighed these other concerns.

The risk of attack from terrestrial predators may be high for muriquis traveling long distances on the ground, particularly in rural areas where semi-feral dogs frequently hunt. The only other report of long distance terrestrial travel we know of for muriquis involved a solitary female from the Rio Casca population, whose only dispersal option from her natal group required her unsuccessful attempt at crossing a pasture to reach a different forest tract (Lemos de Sá, 1988).

Although the EBC muriquis were evidently disturbed when they reached the forest clearing, the fact that this large social unit traversed an expanse of ground may be indicative of their potential to move between forest patches to increase the area of forest available to them. As protected populations such as that at the EBC expand in size (Strier, 1996), such terrestrial movements may permit them to colonize new forests.

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## HYBRIDIZATION BETWEEN *CALLITHRIX GEOFFROYI* AND *C. PENICILLATA* IN SOUTHEASTERN MINAS GERAIS, BRAZIL

*Callithrix geoffroyi* occurs in the south of the state of Bahia, almost the entire state of Espírito Santo, and east of the Serra do Espinhaço in the state of Minas Gerais (Vivo, 1991). Rylands *et al.* (1995), using the Mace-Lande system (see IUCN 1994 for further explanations), recently considered this species threatened in the category "Vulnerable". Another species occurring in Minas Gerais is *Callithrix penicillata*, which is known to hybridize with *C. geoffroyi*. *C. penicillata* has a very wide geographical distribution, occurring in the states of Bahia, Minas Gerais, Goiás, and adjacent areas of Maranhão and São Paulo (De Vivo, 1991). These two species occur in contact in southeastern Minas Gerais, and hybrids were reported at the Peti Development and Environmental Research Reserve (Rylands and Costa, 1988) and the Serra da Piedade (I. B. Santos and C. M. C. Valle, pers. comm.). Here, we report on hybridization between these two species at new localities, with information on group composition, and suggest some possible reasons for this phenomenon.

These observations were made during a faunal survey at the Guilman-Amorim Private Reserve. A hydroelectric dam, under the supervision of Ecodinâmica Ltd., will be established in this area. Belgo Mineira S.A., one of the most important steel companies in Brazil, is the owner of this land, composed of small fragments and areas of gallery forest isolated by an extensive *Eucalyptus* plantation.

During February and April 1996, we conducted a survey in this area using "play back" recordings of marmoset vocalizations. We identified five groups of marmosets along the Córrego Machado, one of the tributaries of the Rio Piracicaba, in the municipality of Antônio Dias (Figure 1). In three of these five groups we observed at least one hybrid (an individual with characteristics of the two species). The pelage characteristics of these individuals are similar to *C. geoffroyi*, although they have a conspicuous white spot on the median forehead, and the rest of the face is grayish-white. Other members of the groups showed pelage characteristics of *C. geoffroyi* individuals following the description of Hershkovitz (1997) and De Vivo (1991).

These groups were found in gallery forests and forest fragments, dense in lianas, characteristic of secondary vegetation. The members of the groups were eating gums of angico (*Anadenanthera peregrina*), arranha-gato (*Acacia paniculata*), ingá (*Inga* sp.), Jacaré (*Piptadenia gonoacantha*) and an unidentified species of Sapindaceae; all abundant at the site.

The original distribution of these species might be limited by the Serra do Espinhaço. Nevertheless, in the south, *C. penicillata* seems to be entering the areas along the Rio Piracicaba and its tributaries, where it meets *C.*