Monitoring the Yellow-Breasted Capuchin Monkey (Cebus xanthosternos) with Radiotelemetry: Choosing the Best Radiocollar

Authors: Kierulff, M. Cecília M., Canale, Gustavo, and Gouveia, Priscila Suscke

Source: Neotropical Primates, 13(1) : 32-33

Published By: Conservation International

URL: https://doi.org/10.1896/1413-4705.13.1.32
MONITORING THE YELLOW-BREASTED CAPUCHIN MONKEY (CEBUS XANTHOSTERNOS) WITH RADIOTELEMETRY: CHOOSING THE BEST RADIO-COLLAR

M. Cecília M. Kierulff
Gustavo Canale
Priscila Suscke Gouveia

The yellow-breasted capuchin monkey, Cebus xanthosternos, is endemic to a restricted area of the Atlantic Forest of eastern Brazil. Because it is heavily hunted, much appreciated as a pet, and its forests are largely destroyed, it is one of the 25 most endangered primates in the world (Kierulff et al., 2005). The remaining populations are fragmented and isolated, and there is no forest within its range large enough to support a viable population.

We began a research program on the ecology of the yellow-breasted-capuchin monkey in the Atlantic Forest of southern Bahia in 2003. It proved, however, extremely difficult to find, never mind observe, these monkeys. Three people censusing the forest five days a week were locating the animals at most once a week, and then for only a few minutes. Radiotelemetry became the only option after a year had passed without any progress in locating and habituating a study group.

We first tested some different radio-collars on captive tufted capuchins in two Brazilian zoos, São Paulo and Belo Horizonte. Tufted capuchin monkeys are robust, intelligent, and highly manipulative, and we needed to check the behavior of the individuals fitted with a radio collar, as well as the behavior of other capuchins towards them. Likewise we needed to find a compromise between a collar tough enough to resist possible biting or chewing, while at the same time not being too hard or abrasive as to cause undue rubbing and lesions on the neck or throat. Capuchin males were captured, fitted with fake radio-transmitters, released back into their groups, and monitored.

The capuchins that received the test radio-collars accepted them very well, and although part of the antenna is external they did not chew it or break it. Other capuchins did not interfere with them either. However, the first collar was made of very hard neoprene (similar to the material normally used for radio-collars on carnivores) and after 15 days caused lesions on the neck (the edges were evidently rubbing the capuchin’s neck), so it was removed. The abrasions were treated, and after three days were completely cured.

A radio-collar made with soft fabric (tubular nylon) was then attached to a subadult male from Belo Horizonte Zoo. After one month we removed the collar and found a rash and signs of irritation on the skin of his neck. With the humidity and high temperatures, the friction of the fabric on the skin was deemed to be the cause of the rash.

A third radio-collar made of a ball chain (similar to the collar used for the radios on golden lion tamarins) was tested on the alpha male of another capuchin group in Belo Horizonte Zoo. The animal was monitored, and again after one month the collar was removed. The radio-collar was intact, with no signs of damage or interference from the male, nor chewing or biting by other group members. No marks or signs were found on the skin of the capuchin’s neck. We thus decided to use ball chains from Advanced Telemetry Systems Inc., Isanti, MN, USA, <www.atstrack.com>, model M1940 (weight 42 g and battery capacity of 394–788 days).

The first capuchin monkeys were captured in a site in the Capitão Private Reserve, owned by the NGO Instituto de Estudos Sócio-Ambientais do Sul da Bahia (IESB), using Tomahawk live traps baited with bananas. We began offering bananas to the group in September 2004 and used camera-traps to check if they were eating the bait inside the Tomahawk traps (Kierulff et al., 2004). Since our objective was to capture just one or two individuals to attach the radio, we used only six traps on the platform.

The monkeys ate the bananas for two months and then stopped visiting the platform for almost nine months. In September 2005, the animals began to eat the bait on the platform again and entered the Tomahawk traps. In October 2005 we set the traps. After ten days we captured two C. xanthosternos in the afternoon. The group remained near to the traps and then slept in a tree close to the platform. The cages were taken to our base, and the two males were processed during the night.

We attached a radio-collar to one of the monkeys, an adult male; the other was too young to carry a radio. The procedure was accompanied at all times by veterinarians. Early in the morning, the cages were taken back to the platform in the forest. At sunrise, the group was heard nearby approaching and calling for the males. We opened the traps and withdrew, and the two capuchins went back to their
Since then, it has been possible to monitor the *C. xanthosternos* group daily using radiotelemetry.

**Acknowledgments:** We thank all those who helped us during the test of the radio and the capture: Christopher O. Kochanny (ATS), Kátia Cassaro (Fundação Parque Zoológico de São Paulo, São Paulo), Valéria do Socorro Pereira (Fundação Zoo-Botânica de Belo Horizonte, Minas Gerais), Mariangela Lozano (veterinarian, Universidade Estadual de Santa Cruz, Ilhéus, Bahia), Lilian Catenatti (veterinarian, IESB, Ilhéus, Bahia), Letícia Castro (veterinary student, Universidade Estadual de Santa Cruz), Camila Cassano, Carlos Guidorizzi, Nayara Cardoso, and Gabriel R. dos Santos (biologists, IESB), and Renato Silveira Bérnils (Museu Nacional/UFRJ, Rio de Janeiro).

This research is supported by the Disney Foundation and European zoos involved in the *C. xanthosternos* EEP (breeding program): Apenheul Primate Park (Apeldoorn, The Netherlands), Amersfoort Zoo (Amersfoort, The Netherlands), Frankfurt Zoo (Frankfurt, Germany), The North of England Zoological Society (Chester, UK), Colchester Zoo (Colchester, UK), Shaldon Wildlife Trust (Devon, UK), Parc Zoologique et Botanique and the Friends of Mulhouse Zoo (Mulhouse, France), La Vallée des Singes (Romagne, France), and Zürich Zoo (Zürich, Switzerland). The study is also kindly supported by Conservation des Espèces et des Populations Animales (CEPA), Schlierbach, France, and the Zoological Society for Conservation of Species and Populations (ZGAP), München, Germany. This study was carried out with the required permits from the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renovaveis (IBAMA).

Maria Cecília M. Kierulff¹,², Gustavo Canale², and Priscila S. Gouveia², ¹Conservation International – Brasil, Avenida Getúlio Vargas, 1300, 7° Andar, Savassi, Belo Horizonte 30112-021, Minas Gerais, Brazil, ²IESB – Instituto de Estudos Sócio-Ambientais no Sul da Bahia, Rua Major Homem Del Rey 147, Cidade Nova, Ilhéus 45650-000, Bahia, Brazil.

**References**
