tde-20122011– 143229/. Acessada em 23 de setembro de 2013.

Oliveira, M. M. e Langguth, A. 2006. Rediscovery of Marcgrave's capuchin monkey and designation of a neotype for *Simia flavia* Schreber, 1774 (Primates, Cebidae). *Bol. Mus. Nac. Zool.* 523: 1–16.

Oliveira, M. M. e Oliveira, J. C. C. 1993. A situação dos cebídeos como indicador do estado de conservação da Mata Atlântica no Estado da Paraíba, Brasil. Em: *A Primatologia no Brasil 4*, M. E. Yamamoto e M. B. C. Souza. (eds.), pp.155-167. Editora Universitária/UFRN, Natal.

Oliveira, M. M., Boubli, J. P. e Kierulff, M. C. M. 2008. *Cebus flavius*. Em: *IUCN Red List of Threatened Species. Version 2013.1.* Website: http://www.iucnredlist.org/details/ 136253/0. Acessada em 29 de agosto de 2013.

Pontes, A. R. M., Malta, A. J. R. e Asfora, P. H. 2006. A new species of capuchin monkey, genus *Cebus* Erxleben (Cebidae, Primates): found at the very brink of extinction in the Pernambuco Endemism Centre. *Zootaxa* 1200:1–12.

Schreber, J. C. D. 1774. *Die Säugthiere in Abbildungen nach der Natur mit Beschreibungen*. Erlangen: Theil 1, Heft 4.

Silva, E. A. A. e Fialho, M. S. 2013. Geoprocessamento aplicado ao Plano de Ação Nacional para a conservação dos primatas do Nordeste – PAN: identificação, monitoramento e manejo de áreas estratégicas à conectividade funcional das espécies-alvo. Em: *Anais do V Seminário de Pesquisa e V Encontro de Iniciação Científica do Instituto Chico Mendes de Conservação da Biodiversidade*, I. Salzo, G. F. M. Ferreira e K. T. Ribeiro (orgs.), p.50. Instituto Chico Mendes de Conservação da Biodiversidade, Brasília.

Silva, J. M. C. e Tabarelli, M. 2001. The future of Atlantic forest in northeastern Brazil. *Conserv. Biol.* 15:819– 820

Souza, A. P. e Monteiro da Cruz, M. A. O. 2005. Ecologia comportamental de uma população remanescente de *Alouatta belzebul*, em um fragmento de Mata Atlântica no Estado de Pernambuco, Brasil. Em: *Programa e Livro de Resumos do XI Congresso Brasileiro de Primatologia*, J. C. Bicca-Marques (org.), p. 167. Sociedade Brasileira de Primatologia, Porto Alegre.

Tabarelli, M., Pinto, L. P., Silva, J. M. C., Hirota, M. M. e Bedê, L. 2005. Desafios e oportunidades para a conservação da biodiversidade na Mata Atlântica brasileira. *Megadiversidade* 1: 132–138.

Veiga, L. M., Kierulff, C. e Oliveira, M. M. 2008. *Alouatta belzebul*. Em: *IUCN Red List of Threatened Species. Version 2013.1*. Website: http://www.iucnredlist.org/details/ 39957/0. Acessada em 29 de agosto de 2013.

CAPTURE OF A COMMON MARMOSET (*CALLITHRIX JACCHUS*) BY A CAPUCHIN MONKEY (*SAPAJUS* SP.) IN THE IBURA NATIONAL FOREST, SERGIPE (BRAZIL)

Natasha M. Albuquerque
Saulo M. Silvestre
Thayane S. Cardoso
Juan Manuel Ruiz-Esparza
Patrício A. Rocha
Raone Beltrão-Mendes
Stephen F. Ferrari

Introduction

Together with chimpanzees and baboons, capuchins (*Cebus* and *Sapajus* spp.) are the most carnivorous – rather than insectivorous – nonhuman primates (Freese and Oppenheimer, 1981; Rose, 1997). Capuchins are known to feed on a wide range of vertebrate prey, including mammals (Resende et al., 2003; Rose et al., 2003; Cunha et al., 2006; Milano and Monteiro-Filho, 2009; Palmeira and Pianca, 2012; Rodrigues, 2013), and other monkeys (Sampaio and Ferrari, 2005; Carretero-Pinzón et al., 2008). However, while marmosets and tamarins (Callitrichidae) are found throughout most of the geographic range of the capuchins, and are of similar size to the mammalian prey typically captured by these larger monkeys, no predation events involving callitrichids have ever been recorded. The present study reports on the capture of a common marmoset (*Callithrix jacchus*) by an adult male capuchin at a site in northeastern Brazil. The observed sequence of events indicates concerted group foraging behavior and an ambush type of strategy on the part of the adult male that captured the marmoset.

Methods

The event reported here was observed during fieldwork at the 144 hectare Ibura National Forest (10°51' S, 37°07' W) in Nossa Senhora do Socorro, Sergipe, northeastern Brazil, on February 23rd, 2013. The local forest is inhabited by at least eight marmoset (*C. jacchus*) groups, and a group of capuchins, with five members at the time of the present observation. As a number of confiscated capuchins have been released into the forest in recent years, it is unclear which species are represented in the local population, especially as many of the individuals present pelage more characteristic of *Sapajus nigritus* or *Sapajus libidinosus* than *Sapajus xanthosternos*, the native local species (Rylands *et al.*, 2013). Given this, the members of the capuchin group were classified as *Sapajus* sp. for the purposes of the present study.

Results

At 06:20 h on February 23rd, 2013, a number of animals – both capuchins and marmosets – were observed moving

Figure 1. Adult male tufted capuchin (*Sapajus* sp.) responsible for the attack on a marmoset in the Ibura National Forest, Sergipe (Brazil), showing its distinctive tail. Photo: Natasha

rapidly within the dense crowns of fruit-bearing mango (*Mangifera indica*) trees at heights of 10–13 m. Members of both species were emitting intense vocalizations, and eight marmosets were observed moving rapidly on horizontal branches, more dispersed in the lower strata in at least three trees, followed by at least three capuchins, more closely grouped together, with the adult (alpha) male at the front and a female carrying an infant behind. The distribution and movements of the animals indicated that the capuchins were chasing the marmosets.

As the animals approached each other, the alpha male (*Sapajus libidinosus* morphotype), easily distinguished by its amputated tail (Fig. 1), was observed resting in dense foliage close to the branches along which the marmosets were moving. The capuchin then snatched at an adult marmoset as it passed and captured the monkey in its right hand. As soon as it caught the marmoset, the alpha male moved rapidly out of sight, followed by the other capuchins, which now ignored the marmosets. Although no predation was observed directly, the sequence of events indicates clearly that the capuchin killed and presumably ingested the marmoset. The remaining marmosets continued moving rapidly and vocalizing excitedly for approximately one minute and then also moved away into the forest. The whole sequence of events lasted around 10 minutes.

The sequence of events observed here indicates that the alpha male capuchin had been waiting in anticipation of an opportunity to ambush a passing marmoset. This contrasts with the behavior of the other capuchins, which were chasing the marmosets actively, although it is unclear whether this represented a purposeful attempt to capture one of these monkeys or to displace them from a food source (mango tree) in a form of interference competition. The alpha male was observed actively attempting to capture marmosets on two other occasions, in April 2013. During each of these events, however, the capuchin pursued the marmosets and attempted to snatch them using both hands, rather than waiting in ambush. While the marmosets often reacted to the presence of the capuchin group with alarm and mobbing vocalizations, and evasive behavior, they were also observed frequently in the vicinity of the capuchins without reacting to their presence, even in feeding trees.

Discussion

The events reported here are not totally unexpected, given the predatory potential of capuchins (Sampaio and Ferrari, 2005; Carretero-Pinzón *et al.*, 2008), although in most cases, it seems likely that the small size and agility of the marmosets may ensure that they avoid predation by other mammals (Ferrari, 2009). Given this, a surprise attack or ambush, as observed in the present study, may normally be the only viable approach for the capture of a marmoset. In the event observed here, even if the behavior of the capuchins did represent a concerted attempted to capture marmoset prey, as proposed by Rose (1997) for *Cebus capucinus*, it seems unlikely that this represented a coordinated hunting strategy, such as that observed in chimpanzees (Nishida, 1992; Boesch, 1994).

Acknowledgements

We are grateful to IBAMA for authorizing fieldwork at the Ibura National Forest (SISBio: 33930-4), which was supported by CNPq, FAPITEC-SE, CAPES, and the Mohamed bin Zayed Species Conservation Fund (Project: 12055114). We are also grateful to Paulo Cezar Bastos for his support, and all the other Ibura staff for their assistance in the field.

Natasha M. Albuquerque*, Saulo M. Silvestre, Graduate Program in Ecology and Conservation, Universidade Federal de Sergipe, 49.100-000 São Cristóvão - SE, Brazil, * E-mail: < natasha.de.juros@gmail.com >, T**hayane S. Cardoso**, Department of Biology, Universidade Federal de Sergipe, São Cristóvão, Brazil, **Juan Manuel Ruiz-Esparza**, **Patrício A. Rocha**, Department of Ecology, Universidade Federal de Sergipe, São Cristóvão, Brazil, **Raone Beltrão-Mendes**, Graduate Program in Zoology, Universidade Federal da Paraíba, João Pessoa, Brazil, and **Stephen F. Ferrari**, Department of Ecology, Universidade Federal de Sergipe, São Cristóvão, Brazil.

References

Boesch, C. 1994. Cooperative hunting in wild chimpanzees. *Anim. Behav.*48: 653–667.

Carretero-Pinzón, X., Defler, T. R. and Ferrari, S. F. 2008. Observation of black-capped capuchins (*Cebus apella*) feeding on an owl monkey (*Aotus brumbacki*) in the Colombian llanos. *Neotrop. Primates* 15: 62–63.

Cunha, A.A., Vieira, M.V. andGrelle, C.E. 2006. Preliminary observations on habitat, support use and diet in two non-native primates in an urban Atlantic Forest fragment: The capuchin monkey (*Cebus* sp.) and the common marmoset (*Callithrix jacchus*) in the Tijuca forest, Rio de Janeiro. *Urban Ecosyst.* 9: 351–359.

Ferrari, S. F. 2009.Predation Risk and Antipredator Strategies. In *South American primates: comparative perspectives in the study of behavior, ecology, and conservation*, P. A. Garber, A. Estrada, J. C.Bicca-Marques, E. K.Heymann and K. B.Strier, K. B. (eds.), pp. 251-277. Springer, New York, USA.

Freese, C. H. & Oppenheimer, J. R.1981.The capuchin monkey, genus Cebus. In: Ecology and Behaviour of Neotropical Primates. Vol. 1 (Ed. by A. F. Coimbra-Filho & R. H. Mittermeier), pp. 331-390. Rio de Janeiro: Academia Brasileira de Ciências.

Milano, M. Z. and Monteiro-Filho, E. L. A. 2009. Predation on small mammals by capuchin monkeys, *Cebus cay*. *Neotrop. Primates* 16: 78–80.

Nishida, T. 1992. Meat-sharing as a coalition strategy by an alpha male chimpanzee? In *Topics in Primatology, Volume 1: Human Origins*, T. Nishida, W.C. McGrew, P. Marler, M. Pickford and F. B. M. de Waal (eds.), pp. 159–174. University of Tokyo Press, Tokyo, Japan.

Palmeira, F. B. L. and Pianca, C. C. 2012. Predation attempt on a road-killed brown-eared woolly opossum (*Caluromys lanatus*) by a black-horned capuchin (*Sapajus nigritus*). *Neotrop. Primates* 19: 36–38.

Resende, B. D., Greco, V. L. G.,Izar, P.,Ottoni, E.B. 2003. Some observations on the predation of small mammals by tufted capuchin monkeys (*Cebus apella*). *Neotrop. Primates* 11: 103–104.

Rodrigues, K. C. 2013. Padrão de atividades, comportamento alimentar, exploração de habitat e área de vida de um grupo de *Sapajus flavius* (Schreber, 1774) (Primates, Cebidae) em um fragmento de floresta atlântica, Paraíba, Brasil. Masters thesis, Universidade Federal da Paraíba, Rio Tinto, Brazil.

Rose, L. M.1997. Vertebrate predation and food-sharing in *Cebus* and *Pan*. *Int. J. Primatol.* 18: 727–765.

Rose, L. M., Perry, S., Panger, M. A., Jack, K., Manson, J. H., Gros-Louis, J., MacKinnon, K. C. and Vogel, E. 2003.Interspecific interactions between *Cebus capucinus* and other species: data from three Costa Rican sites. *Int. J. Primatol.* 24: 759–796.

Rylands, A. B., Mittermeier, R. A.Bezerra, B. M., Paim, F. P. and Queiroz, H. L. 2013. Family Cebidae (squirrel monkeys and capuchins). In *Handbook of the mammals of the world, Volume 3: Primates*, R.A. Mittermeier, A.B. Rylands and D.E. Wilson (eds.), pp. 348–413. Lynx Edicions, Barcelona, Spain.

Sampaio, D. T. and Ferrari, S. F. 2005. Predation of an infant titi monkey (*Callicebus moloch*) by a tufted capuchin (*Cebus apella*). *Folia Primatol.* 76: 113–115.

Recent Publications

BOOKS

Distributions and Phylogeography of Neotropical Primates: A Pictorial Guide to All Known New-World Monkeys, by Marc G. M. van Roosmalen, Stephen D. Nash and Piero Gozzaglio. 2014. CreateSpace Independent Publishing Platform. 72 pp. ISBN: 978-1494852535. This is the first complete pictorial field guide to all the known Neotropical Primates. All taxa are depicted in full color according to their phylogeography. Included are also a number of recently identified but not yet published taxa new to science.

The Evolution of Social Communication in Primates: A Multidisciplinary Approach, edited by Marco Pina and Nathalie Gontier. 2014. Springer. 326pp. ISBN: 978-3319026688. In this volume the evolutionary origins of social communication in primates is analyzed. Epistemological frameworks associated with primate communication and language evolution are addressed. Chapters highlight cross-fostering and language experiments with primates, primate mother-infant communication, the display of emotions and expressions, manual gestures and vocal signals, joint attention, intentionality and theory of mind. *Contents:* 1) Studing social communication in Primates – Gontier, N. & Pina, M.; 2) Lord Monboddo's *Ourang-Outang* and the origins and progress of language – Blancke, S.; 3) Ferality and morality: the politics of the "forbidden experiment" in the twentieth century – Swart, A.; 4) Experimental conversations: sing language studies with chimpanzees – Jensvold, M. L.; 5) How primate mothers and infants communicate – Botero, M.; 6) On prototypical facial expressions versus variation in facial behavior – Gaspar, A., Esteves, F. & Arriaga, P.; 7) The evolution of joint attention: a review and critique – Racine, T. P., Wereha, T. J., Vasileva, O., Tafreshi, D. & Thompson, J. J.; 8) Describing mental states: From brain science to a science of mind reading – Nagataki, S.; 9) Bodily mimesis and the transition to speech – Zlatev, J.; 10) From grasping to grooming to gossip: innovative use of chimpanzees signals in novel environments supports both vocal and gestural theories of language origins – Leavens, D. A., Taglialatela, J. P., & Hopkins, W.; 11) Reevaluating chimpanzee vocal signals: toward a multimodal account of the origins of human communication – See, A.; 12) Communication and human uniqueness – Tattersall, I.; 13) How did humans become behaviorally modern? Revisiting the "art first" hypothesis – Nolan, R.; 14) Experiments and simulations can inform evolutionary theories of the cultural evolution of language – Tamariz, M.; 15) The emergence of modern communication in primates: a computational approach; 16) What can an extended synthesis do for biolinguistics: on the needsand benefits of Eco-Evo-Devo program – Boeckx, C.