

botânico Luiz Carlos de Almeida Neto por incentivar os estudos na área do Jardim Botânico de Bauru. Agradecemos ao DAE pelo fornecimento dos mapas.

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Referências

- Cavassan, O. 1990. Florística e fitossociologia da vegetação lenhosa em um hectare de cerrado no Parque Ecológico Municipal de Bauru (SP). Tese de doutorado, UNICAMP, Campinas, Brasil.
- Cavassan, O., Cesar, O. e Martins, F. R. 1984. Fitossociologia da vegetação arbórea da Reserva Estadual de Bauru, Estado de São Paulo. *Rev. Bras. Botânica* 7: 91–106.
- Digby, L. J. e Barreto, C. E. 1993. Social organization in a wild population of *Callithrix jacchus*: Group composition and dynamics. *Folia Primatologica* 61: 123–134.
- Epple, G. 1968. Comparative studies on vocalizations in marmoset monkeys (Hapalidae). *Folia Primatologica* 8: 1–40.
- Faria, D. S. 1989. O grupo social em *Callithrix penicillata*, o mico-estrela do Planalto Central Brasileiro: Estudo realizado na floresta de galeria do córrego Capetinga, Brasília – DF. Tese de doutorado, Universidade de São Paulo, São Paulo, Brasil.
- Favorite, S. R., Mattos, C. C., de Moraes, N. B., Alves Araújo, F. A. e Mattos, C. A. 2001. Rabies in marmosets (*Callithrix jacchus*), Ceará, Brazil. *Emerg. Infect. Dis.* 7: 1062–1065.
- Hirsch, A., Dias, L. G., Martins, L. O., Campos, R. F., Landau, E. C. e Resende, N. A. T. 2002. BDGEOPRIM – Database of geo-referenced localities of Neotropical primates. *Neotrop. Primates* 10(2): 79–84.
- Mittermeier, R. A., Coimbra-Filho, A. F., Constable, I. D., Rylands, A. B. e Valle, C. 1982. Conservation of primates in the Atlantic forest region of eastern Brazil. *Int. Zoo Ybk.* 22: 2–17.
- Müller-Dombois, D. e Ellenberg, H. 1974. *Aims and Methods of Vegetation Ecology*. John Wiley & Sons, New York.
- Stevenson, M. F. e Rylands, A. B. 1988. The marmosets, genus *Callithrix*. Em: *Ecology and Behavior of Neotropical Primates*, R. A. Mittermeier, A. B. Rylands, A. F. Coimbra-Filho e G. A. B. da Fonseca (eds.), pp.131–222. World Wildlife Fund, Washington DC.
- Vilela, S. L. and Faria, D. S. 2002. Dieta do *Callithrix penicillata* (Primates, Callithrichidae) em áreas de cerrado no Distrito Federal, Brasil. *Neotrop. Primates* 10(1): 17–20.

BOA CONSTRICTOR PREDATION ON A TITI MONKEY, *CALICEBUS DISCOLOR*

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Although it is thought that predation has played a major role in the evolution of primate sociality, actual predation events involving primates are rarely documented (Van Schaik, 1983; Boinski *et al.*, 2000). Birds of prey, felids, mustelids, and snakes are known predators of Neotropical primates. Most reported attacks by Neotropical snakes on monkeys are attributed to *Boa constrictor*, which feeds on callitrichids (*Saguinus*) and cebids (*Saimiri*, *Cebus*, *Alouatta* and *Chiropotes*), as well as a wide variety of small- and medium-sized mammals (didelphids, dasypodids, vespertilionids, molossids, procyonids, agoutids, dasyprotids, echimyids, murids and sciurids), birds (falconids, cottingids and formicariids), and reptiles (teiids) (Janzen, 1970; Greene, 1983; Chapman, 1986; Trail, 1987; Henderson *et al.*, 1995; Martins and Oliveira, 1998; Thorstrom and Morales, 2000; Shahuano Tello *et al.*, 2002; Perry *et al.*, 2003; Urbani, 2003; Ferrari *et al.*, 2004; pers. obs.).

Here we report an instance of predation by *Boa constrictor* on *Calicebus discolor*, observed during fieldwork at the Tiputini Biodiversity Station (TBS), a field station located in the Ecuadorian Amazon (00°37'05"S, 76°10'19"W, elev. 215 m; see Cisneros-Heredia, 2003). A total of 12 primate species have been recorded at TBS: *Cebuella pygmaea*, *Saguinus tripartitus*, *Aotus vociferans*, *Calicebus discolor*, *Pithecia monachus*, *Pithecia aequatorialis*, *Saimiri sciureus*, *Cebus albifrons*, *Cebus apella*, *Alouatta seniculus*, *Lagothrix lagotricha* and *Ateles belzebuth*. This is the first report of boa predation on monkeys of the genus *Calicebus*.

On 28 September 2003, at 11:30 am, we heard the calls of at least two *Calicebus discolor*. Following the calls, we discovered an adult *Boa constrictor* (total length ca. four meters) constricting a *Calicebus discolor* in a tree, approximately five meters above ground. The boa was coiled around the monkey, still shifting and squeezing. A second monkey was about four meters from the boa at the same height and called out once. No physical interactions were observed between the second monkey and the boa. The boa remained coiled around the carcass for some 45 minutes and then took approximately one hour to swallow it.

Reducing the risk of predation has been hypothesized to be one of the benefits of group living, and group behaviours such as alarm calls, mobbing and counter-attacks have been reported as primate responses to predation attempts by snakes (Chapman, 1986; Bartecki and Heymann, 1987; Shahuano Tello *et al.*, 2002). During this predation event, the only response behaviour we recorded was the calling from the second individual (rather short, classified into the

second group of Robinson, 1979). The absence of other response behaviours cannot be assumed, however, because we arrived when the boa was already constricting the monkey. It is unknown how predation events may have functioned in the evolution of sociality in *Callicebus*, but this observation, together with similar reports (Chapman, 1986; Bartek and Heymann, 1987; Martins and Oliveira, 1998; Shahuano Tello *et al.*, 2002; Perry *et al.*, 2003; Ferrari *et al.*, 2004), suggests that snakes play a major role as predators of Neotropical primates.

Acknowledgements: We are grateful to Eckhard W. Heymann, Stella de la Torre and Kelly Swing for their critical reading of the manuscript. Susan Perry, Eckhard W. Heymann and Stella de la Torre provided relevant literature. Maria Elena Heredia, Laura Heredia and Hector León provided financial and moral support. Tiputini Biodiversity Station / Universidad San Francisco de Quito provided institutional and logistical support. Video files of this event are deposited in the archives of the Tiputini Biodiversity Station, Universidad San Francisco de Quito. This is a publication of the project "Study of the Herpetofauna of the Tiputini Biodiversity Station" (D. F. Cisneros-Heredia, investigator).

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References

- Bartek, U. and Heymann, E. W. 1987. Field observation of snake-mobbing in a group of saddle-back tamarins, *Saguinus fuscicollis nigrifrons*. *Folia Primatol.* 48: 199–202.
- Boinski, S., Treves, A. and Chapman, C. A. 2000. A critical evaluation of the influence of predators on primates: Effects on group travel. In: *On the Move: How and Why Animals Travel in Groups*, S. Boinski and P. A. Garber (eds.), pp.43–72. The University of Chicago Press, Chicago.
- Chapman, C. A. 1986. *Boa constrictor* predation and group response in white-faced *Cebus* monkeys. *Biotropica* 18(2): 171–172.
- Cisneros-Heredia, D. F. 2003. Herpetofauna de la Estación de Biodiversidad Tiputini, Amazonía Ecuatoriana: Ecología de una comunidad taxonómicamente diversa con comentarios sobre metodologías de inventario. In: *Ecología y Ambiente en el Ecuador: Memorias I Congreso de Ecología y Ambiente*, S. de la Torre and G. Reck (eds.), pp.1–21. Universidad San Francisco de Quito, Ecuador.
- Ferrari, S. F., Pereira, W. L. A., Santos, R. R. and Veiga, L. M. 2004. Fatal attack of a *Boa constrictor* on a bearded saki (*Chiropotes satanas utahicki*). *Folia Primatol.* 75: 111–113.
- Greene, H. W. 1983. *Boa constrictor* (boa, bequer, boa constrictor). In: *Costa Rican Natural History*, D. H. Janzen (ed.), pp.380–382. The University of Chicago Press, Chicago.
- Henderson, R. W., Micucci, T. W. P., Puerto, G. and Bourgeois, R. W. 1995. Ecological correlates and patterns in the distribution of Neotropical boines (Serpentes, Boidae): A preliminary assessment. *Herpetological Natural History* 3: 15–27.
- Janzen, D. H. 1970. Altruism by coatis in the face of predation by *Boa constrictor*. *J. Mammal.* 51: 387–389.
- Martins, M. and Oliveira, M. E. 1998. Natural history of snakes in forests of the Manaus Region, Central Amazonia, Brazil. *Herpetological Natural History* 6(2): 78–150.
- Perry, S., Manson, J. H., Dower, G. and Wikberg, E. 2003. White-faced capuchins cooperate to rescue a groupmate from a *Boa constrictor*. *Folia Primatol.* 74: 109–111.
- Robinson, J. G. 1979. Vocal regulation of use of space by groups of titi monkeys *Callicebus moloch*. *Behav. Ecol. Sociobiol.* 5: 1–15.
- Shahuano Tello, N. S., Huck, M. and Heymann, E. W. 2002. *Boa constrictor* attack and successful group defence in moustached tamarins, *Saguinus mystax*. *Folia Primatol.* 73: 146–148.
- Thorstrom, R., Ramos, J. D. and Morales, C. M. 2000. Breeding biology of barred forest-falcons in northeastern Guatemala. *Auk* 117: 781–786.
- Trail, P. W. 1987. Predation and antipredator behavior at Guianan Cock-of-the-Rock leks. *Auk* 104: 496–507.
- Urbani, B. 2003. Utilización del estrato vertical por el mono aullador de manto (*Alouatta palliata*, Primates) en Isla Colón, Panamá. *Antropo* 4: 29–33.
- Van Schaik, C. P. 1983. Why are diurnal primates living in groups? *Behaviour* 88: 120–143.

UMA AVALIAÇÃO DA DIETA, DA ÁREA DE VIDA E DAS ESTIMATIVAS POPULACIONAIS DE *CEBUS NIGRITUS* (GOLDFUSS, 1809) EM UM FRAGMENTO FLORESTAL NO NORTE DO ESTADO DO PARANÁ

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Introdução

Na porção sul e parte da porção sudeste do Brasil, *Cebus nigritus* (Goldfuss, 1809) é a espécie de macaco-prego característica da Mata Atlântica. Ao norte, sua distribuição limita-se à margem esquerda do Rio Doce (Silva Júnior, 2001; Vilanova *et al.*, 2005) e ao sul limita-se às municípios de São Lourenço do Sul, Rio Grande do Sul (Printes *et al.*, 2001). A leste, a distribuição é limitada pelo oceano Atlântico e a oeste pelo Rio Paraná (Silva Júnior, 2001; Vilanova *et al.*, 2005).