

- Bonvicino, C. R. 1989. Ecologia e comportamento de *Alouatta belzebul* (Primates: Cebidae) na Mata Atlântica. *Rev. Nordest. Biol.* 6(2): 149–179.
- Cabrera, A. 1957. Catalogo de los Mamíferos de America del Sur. *Museo Argentino de Ciencias Naturales Bernardino Rivadavia e Instituto Nacional de Investigación de las Ciencias Naturales* 4(1): 1–627.
- Carpenter, C. R. 1934. A field study of behavior and social relations of howling monkeys (*Alouatta palliata*). Em: *Naturalistic Behavior of Nonhuman Primates*, C. R. Carpenter (ed.), pp.3–92. Pennsylvania State Press, University Park, Pennsylvania.
- Chiarello, A. G. 1994. Diet of the brown howler monkey *Alouatta fusca* in a semideciduous forest fragment of south-eastern Brazil. *Primates* 35: 25–34.
- Gilbert, K. e Stouffer, P. C. 1989. Use of a ground water source by mantled howler monkeys (*Alouatta palliata*). *Biotropica* 21: 380.
- Glander, K. E. 1978. Drinking from arboreal water sources by mantled howling monkeys (*Alouatta palliata* Gray). *Folia Primatol.* 29: 206–217.
- Gregorin, R. No prelo. Taxonomia e variação geográfica das espécies do gênero *Alouatta* Lacépède (Primates, Atelidae) no Brasil. *Revista Brasileira de Zoologia* 23.
- Hirsch, A., Landau, E. C., Tedeschi, A. C. M. e Menegheti, J. O. 1991. Estudo comparativo das espécies do gênero *Alouatta* Lacépède, 1799 (Platyrrhini, Atelidae) e a sua distribuição geográfica na América do Sul. Em: *A Primatologia no Brasil* – 3, A. B. Rylands e A. T. Bernardes (eds.), pp.239–263. Fundação Biodiversitas, Belo Horizonte.
- IAPAR. 1978. *Cartas Climáticas Básicas do Estado do Paraná*. Instituto Agrônômico do Paraná, Londrina.
- Milton, K. 1980. *The Foraging Strategy of Howler Monkeys: A Study in Primate Economics*. Columbia University Press, New York.
- Miranda, J. M. D. 2004. Ecologia e conservação de *Alouatta guariba clamitans* Cabrera, 1940 em Floresta Ombrófila Mista no Estado do Paraná. Tese de mestrado, Universidade Federal do Paraná, Curitiba.
- Miranda, J. M. D. e Passos, F. C. 2004. Hábito alimentar de *Alouatta guariba* (Humboldt, 1812) (Primates, Atelidae) em Floresta de Araucária, Paraná, Brasil. *Rev. Brasil. Zool.* 21(4): 821–826.
- Miranda, J. M. D. e Passos, F. C. 2005. Composição e dinâmica de grupos de *Alouatta guariba clamitans* Cabrera, 1940 (Primates, Atelidae) em Floresta Ombrófila Mista no Estado do Paraná, Brasil. *Rev. Brasil. Zool.* 22(1): 99–106.
- Miranda, J. M. D., Bernardi, I. P., Moro-Rios, R. F., Aguiar, L. M., Ludwig, G. e Passos, F. C. 2004. Social structure of *Alouatta guariba clamitans*: A group with a dominant female. *Neotrop. Primates* 12(3): 135–138.
- Miranda, J. M. D., Bernardi, I. P., Moro-Rios, R. F. e Passos, F. C. No prelo. Antipredator behavior of brown howlers attacked by black hawk-eagle in Southern Brazil. *Int. J. Primatol.* 27.
- Neville, M. K., Glander, K. E., Braza, F. e Rylands, A. B. 1988. The howling monkeys, genus *Alouatta*. Em: *Ecology and Behavior of Neotropical Primates*, Vol. 2, R. A. Mittermeier, A. B. Rylands, A. F. Coimbra-Filho e G. A. B. da Fonseca (eds.), pp.349–453. World Wildlife Fund, Washington, DC.
- Serio-Silva, J. C. e Ricco-Gray, V. 2000. Use of a stream by Mexican howler monkeys. *Southwestern Naturalist* 45(3): 332–333.
- Steinmetz, S. 2001. Drinking by howler monkeys (*Alouatta fusca*) and its seasonality at the Intervalas State Park, São Paulo, Brazil. *Neotrop. Primates* 9(3): 111–112.
- Terborgh, J. 1983. *Five New World Primates: A Study in Comparative Ecology*. Princeton University Press, Princeton, New Jersey.
- von Ihering, H. V. 1914. Os bugios do gênero *Alouatta*. *Rev. Mus. Paulista* 9: 231–256.

AN UPDATE ON THE DISTRIBUTION OF PRIMATES OF THE TAPAJÓS-XINGU INTERFLUVIUM, CENTRAL AMAZONIA

Flávio Eduardo Pimenta
José de Souza e Silva Júnior

Introduction

The first records of the primate fauna in the Tapajós-Xingu interfluvium date from the beginning of the 20th century. Sneath (1912) listed *Chiropotes albinus* and *Ateles marginatus* as the most conspicuous species of the region, and also cited the presence of *Saimiri sciureus*, *Cebus* sp., *Calli-*cebus** sp. and *Alouatta* sp. Almost a century later, this region remains poorly studied, and our knowledge of the local primate species and their distribution is still incomplete. This paper updates the list of primate species in the Tapajós-Xingu interfluvium, and adds new records for the southern part of this region. We emphasize the need to conserve the primate fauna of this region, as this portion of Amazonia is a target for development projects and is subject to strong pressures from logging and ranching activities.

Methods

We compiled data on the occurrence of primates in the Tapajós-Xingu interfluvium by literature review (Appendix 1), as well as from field observations and by the examination of specimens deposited at the Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ), the Museu Paraense Emílio Goeldi (MPEG) and the Museu de Zoologia da Universidade de São Paulo (MZUSP). We calculated geographic coordinates based on information in catalogues, systematic revisions, faunistic surveys, maps (IBGE, 1972) and gazetteers available on the Internet such as Species Link – Geoloc (CRIA, 2005) and Global Gazetteer 2.1 (FRG, 2004). We plotted the points corresponding to these coordinates (Fig. 1) using the program ArcView 3.3 (ESRI, 2002). The species nomenclature follows Rylands *et al.* (2000).

Our fieldwork was carried out during two excursions to the region of Serra do Cachimbo, southern Pará State,

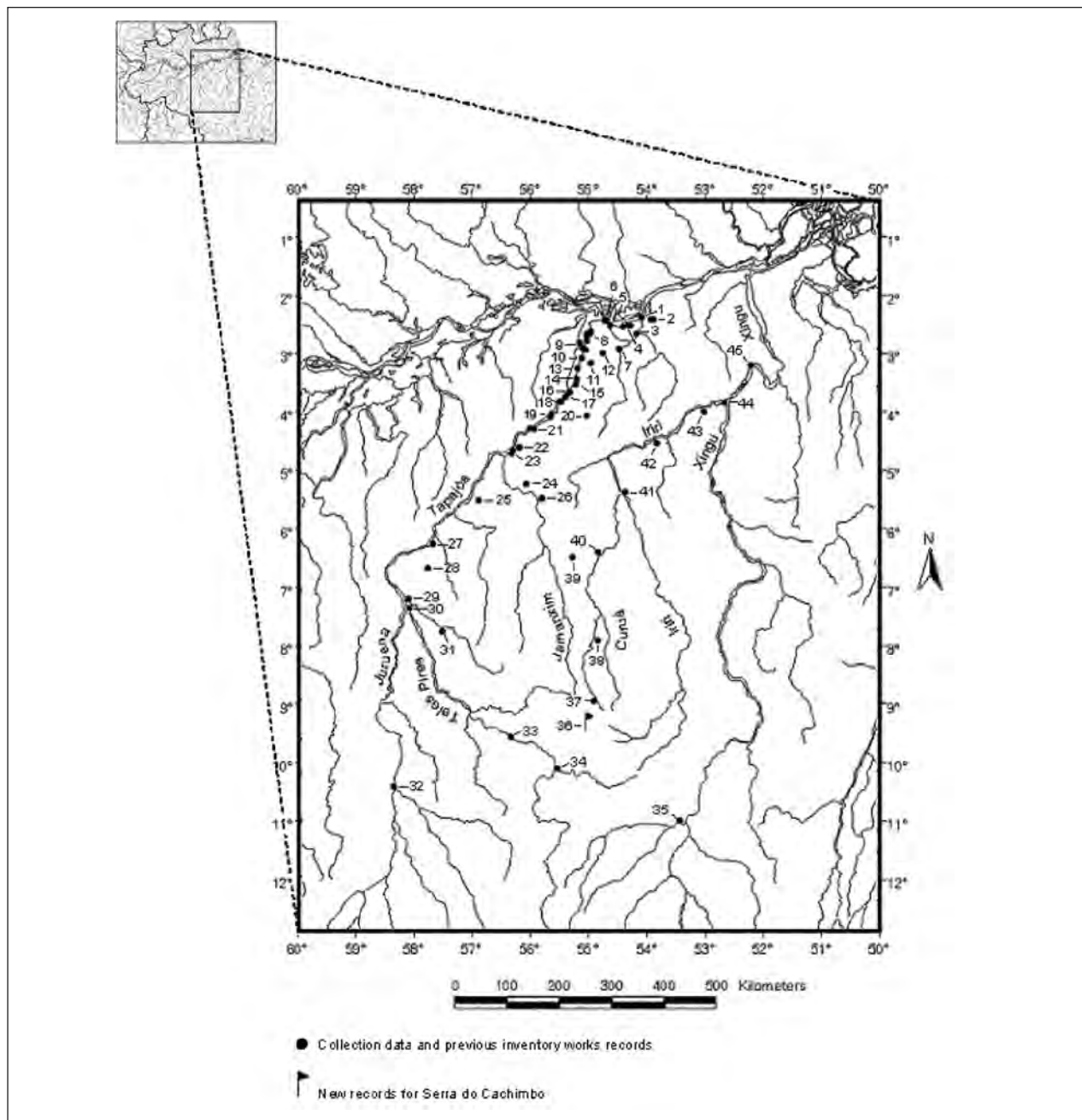


Figure 1. Map of the Tapajós-Xingu interfluvium, showing the localities of primate records. 1. Mouth of the Rio Curuá-Una (02°23'S, 54°05'W); 2. Cuçari, between the lower reaches of the Rios Xingu and Tapajós (02°25'S, 53°55'W), Tamaruri (02°25'S, 53°52'W); 3. Mouth of the Rio Curuá do Sul (02°40'S, 54°10'W); 4. Os Patos (02°31'S, 54°18'W), Taperinha (02°32'S, 54°17'W), Maicá (02°33'S, 54°24'W); 5. Mararu (02°32'S, 54°38'W); 6. Santarém (02°26'S, 54°43'W), Mojuí dos Campos (02°26'S, 54°42'W); 7. Curuá-Una, 54 km S and 40 km E of Santarém (02°55'S, 54°28'W); 8. Belterra (02°38'S, 54°57'W), Cajutuba (02°40'S, 55°00'W), Aramaná (02°43'S, 55°00'W), Maguari (02°47'S, 55°01'W), Piquituba (02°40'S, 54°58'W); 9. Caxiricutuba (02°50'S, 55°08'W), Tapaiúna (02°54'S, 55°05'W), Itapoama (02°57'S, 55°02'W); 10. Tauari (03°05'S, 55°06'W); 11. Santarém-Cuiabá highway km 84 (03°10'S, 54°58'W); 12. Rio Curuá-Tinga, tributary of the Rio Curuá-Una (03°00'S, 54°45'W); 13. Aveiros (03°15'S, 55°10'W); 14. Tavio, Rio Tapajós (03°27'S, 55°11'W); 15. Igarapé-Açú (03°32'S, 55°12'W); 16. Fordlândia (03°40'S, 55°18'W); 17. Rio Cupari, tributary of the Rio Tapajós (03°45'S, 55°23'W); 18. FLONA Tapajós (03°50'S, 55°27'W), Rio Tapurucurazinho (3°50'S, 55°29'W), Araipá (03°50'S, 55°28'W); 19. Monte Cristo (04°06'S, 55°38'W), Pedreira, Rio Tapajós (04°03'S, 55°37'W); 20. Santarém-Cuiabá km 212 (04°04'S, 55°00'W); 21. Santarém-Cuiabá-Itaituba (04°18'S, 55°55'W); 22. Pimental (04°37'S, 56°11'W); 23. Rio Jamanxim (04°43'S, 56°18'W), Estrada do Palhau km 5 (04°40'S, 56°17'W); 24. Santarém-Cuiabá highway km 446 (05°15'S, 56°03'W); 25. Bom Jardim (05°31'S, 56°52'W); 26. Cachoeira da Estiva (05°29'S, 55°47'W); 27. Missão Cururú (06°16'S, 57°39'W); 28. Prainha (06°40'S, 57°45'W); 29. Upper Cururu (07°12'S, 58°04'W); 30. São Manoel, Rio Teles Pires (07°21'S, 58°03'W); 31. Rio Cururu (07°45'S, 57°30'W); 32. Rio Arinos (10°25'S, 58°20'W); 33. Left margin of the Rio Santa Helena, tributary of the Rio Teles Pires (09°34'S, 56°19'W); 34. Fazenda São José, Peixoto de Azevedo (10°06'S, 55°31'W); 35. Rio Arraios, upper Rio Xingu (11°00'S, 53°25'W); 36. Serra do Cachimbo (09°22'S, 55°00'W); 37. Cachimbo (08°57'S, 54°54'W); 38. Maloca, Rio Curuá (07°55'S, 54°50'W); 39. Jamanxim-Curuá (06°30'S, 55°15'W); 40. Upper Rio Curuá (06°25'S, 54°50'W); 41. Mouth of the Rio Curuá (05°23'S, 54°22'W); 42. Mundo Novo, right margin of the Rio Iriri (04°33'S, 53°49'W); 43. Largo do Souza, Rio Iriri (04°00'S, 53°00'W); 44. Iriri-Xingu (03°51'S, 52°40'W), Cocal, Rio Iriri (03°51'S, 52°40'W); 45. Altamira (03°12'S, 52°12'W).

Brazil. The first excursion was during the rainy season (1–28 March 2004) and the second in the dry season (29 August–17 September 2004). Serra do Cachimbo is located in a transitional zone between the biomes of Amazonia and the Cerrado; from this complex arise several tributaries of the Rios Xingu and Tapajós. The landscape is dominated by a mosaic of vegetation types, including cerrado formations, white sand vegetation, and typical Amazonian forest formations such as *terra firme* forests and *igapó* (Lleras and Kirkbride Jr., 1978).

FEP made direct observations of six primate species at Serra do Cachimbo, following existing trails through all the vegetation types in the study area. Those species directly observed included *Mico emiliae*, *Callicebus moloch*, *Cebus apella*, *Chiropotes albinasus*, *Alouatta belzebul discolor* and *Ateles marginatus*. FEP also collected specimens which were later deposited in the MPEG mammal collection (MPEG 37806–37811). We identified the species we collected and observed using illustrations and diagnostic characters described in the literature (Kellogg and Goldman, 1944; Hershkovitz, 1977, 1985, 1990; Jones and Anderson, 1978; Vivo, 1991; Auricchio, 1995; Gregorin, 1996; Emmons and Feer, 1997; Van Roosmalen *et al.*, 1998, 2002; Silva Júnior, 2001), as well as by direct comparison with museum specimens.

Results and Discussion

The majority of the records for primates in the Tapajós-Xingu interfluvium are restricted to the regions close to the lower Rio Tapajós and to the Rio Amazonas. By contrast, there is virtually no information available on the primate fauna in the central regions of the interfluvium.

We compiled a total of 45 localities in the Tapajós-Xingu interfluvium where primates have been recorded, confirming the presence of 13 taxa in this region (Table 1). Five

of these taxa (*Cebus apella*, *Callicebus moloch*, *Chiropotes albinasus*, *Ateles marginatus* and *Alouatta belzebul discolor*) have wide distributions in this region. Of the others, *Cebus albifrons* and *Mico leucippe* have been recorded only from the east bank of the Rio Tapajós; *Aotus azarae infulatus* and *Mico argentatus* from the north of the interfluvium, *Saimiri ustus* from the north-central portion, *Saimiri sciureus* from the central region, *Mico emiliae* only from the southern portion and *Alouatta seniculus* from the south-central area.

Species distribution in the Tapajós-Xingu interfluvium

The distribution of *A. marginatus*, as defined by Kellogg and Goldman (1944), includes the forests of the south bank of the Amazon River between the Rios Tapajós and Tocantins, in the Brazilian state of Pará. However, although Kellogg and Goldman (1944) designated its type locality as Cameté—on the west bank of the lower Rio Tocantins—no specimen has been observed in the Tocantins-Xingu interfluvium since then, despite many surveys of the mammals of the region. Its historical occurrence in this region is doubtful at best, and the given type locality is almost certainly incorrect (Martins *et al.*, 1988). Thus, this species is effectively known only from the Tapajós-Xingu interfluvium. The southernmost records are restricted to Sneath's observations from 1912. Our observations in Serra do Cachimbo agree with the hypothesis of Martins *et al.* (1988), who gave the Rio Teles Pires as the southern limit of *A. marginatus*.

The distribution of *Chiropotes albinasus* is restricted to the south of the Amazon River, from the west bank of the Rio Xingu-Iriri to the Rio Madeira (Hershkovitz, 1985). In the Tapajós-Xingu interfluvium, the most southerly records for this species are given by Hershkovitz (1985) and in this paper.

According to Gregorin (1996), *A. belzebul discolor* (*sensu* Rylands *et al.*, 2000) is distributed to the south of the Amazon

Table 1. Species recorded from the Tapajós-Xingu interfluvium with their known localities of occurrence. The numbers follow the localities in Fig. 1.

Species	Locality
<i>Mico argentatus</i> (Linnaeus, 1766)	2, 4, 5, 6, 7, 8, 9, 10, 11, 13, 20, 23, 42, 45
<i>Mico emiliae</i> (Thomas, 1920)	34, 36, 38, 40
<i>Mico leucippe</i> (Thomas, 1922)	5, 14, 16, 18, 19, 22
<i>Saimiri sciureus</i> (Linnaeus, 1758)	4, 6, 8, 9, 10, 13, 14, 16, 18, 19, 25, 39
<i>Saimiri ustus</i> I. Geoffroy, 1843	4, 5, 6, 8, 9, 12, 13, 15, 25, 29, 42
<i>Cebus albifrons</i> (Humboldt, 1812)	4
<i>Cebus apella</i> (Linnaeus, 1758)	4, 5, 6, 8, 9, 13, 16, 18, 19, 24, 25, 27, 29, 36, 39, 41, 42, 43
<i>Callicebus moloch</i> (Hoffmannsegg, 1807)	2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 25, 29, 30, 31, 32, 34, 35, 36, 37, 39, 41, 42
<i>Chiropotes albinasus</i> (I. Geoffroy & Deville, 1848)	6, 8, 9, 16, 18, 19, 23, 24, 26, 29, 30, 31, 34, 36, 37, 39, 42, 44, 45
<i>Ateles marginatus</i> (É. Geoffroy, 1809)	1, 3, 4, 5, 6, 8, 9, 10, 13, 16, 17, 18, 27, 29, 36, 37, 39, 41, 42, 45
<i>Alouatta belzebul discolor</i> (Spix, 1823)	4, 6, 8, 9, 11, 13, 16, 18, 19, 25, 28, 29, 33, 36, 37, 39, 42, 43
<i>Aotus azarae infulatus</i> (Kuhl, 1820)	4, 8, 9, 13, 18, 19, 42, 43
<i>Alouatta seniculus</i> (Linnaeus, 1766)	33

River, from the east bank of the Rio Tapajós to the lower Rio Tocantins and the island of Mexiana. The southernmost records of this species' distribution include our observations (Fig. 1, loc. 36) and those given by Pinto and Setz (2000) for the west bank of the Rio Santa Helena, a tributary of the Rio Teles Pires (Fig. 1, loc. 33). Pinto and Setz (2000) also recorded *A. seniculus* in the same locality — the only record for this species in the Tapajós-Xingu interfluvium.

Callicebus moloch is distributed between the Rios Araguaia-Tocantins and Tapajós (Hershkovitz, 1990; Van Roosmalen *et al.*, 2002), limited in the south to the region between the headwaters of the Rios Xingu and Juruena (Fig. 1, loc. 32 and loc. 35).

The three species of *Mico* found in the interfluvium have distributions which are restricted or poorly understood. *Mico leucippe* seems to be endemic, with records only in the Tapajós-Cupari interfluvium (Ávila-Pires, 1969, 1986; Napier, 1976; Hershkovitz, 1977; Branch, 1983; Vivo, 1985; George *et al.*, 1988; Alperin, 1993). *Mico argentatus* is recorded from the north (Fig. 1, Table 1), restricted to the lower courses of the Rios Tapajós and Tocantins (Ferrari and Lopes, 1990). Hershkovitz (1977) extended its distribution to include the Curuá-Iriri interfluvium, as he considered *Mico emiliae* to be a synonym of *M. argentatus*. *M. emiliae* has a relatively wide distribution, apparently including the Brazilian states of Amazonas, Mato Grosso, Pará and Rondônia (Vivo, 1985, 1991; Ávila-Pires, 1986; Ferrari and Lopes, 1992; Alperin, 1993; Roosmalen *et al.*, 2000). However, the details of this distribution are still not well understood, because of its apparent discontinuity. Rylands *et al.* (1993) suggest that the form of *M. emiliae* recorded in Rondônia (Vivo, 1985, 1991) is distinct from that described by Thomas (1904) in the Tapajós-Xingu interfluvium. This was corroborated by Sena (1998) and Ferrari *et al.* (1999), who demonstrated that the form of *emiliae* found in the Tapajós-Xingu interfluvium is more similar in every way to *M. argentatus* than to the form of "*emiliae*" found in Rondônia. Until now, *M. emiliae* had not been proven to occur in the region of Serra do Cachimbo. Our observation provides a significant range extension of *M. emiliae* to the southwest, to at least the right bank of the Rio Teles Pires.

The possible presence of *Cebus albifrons* in the Tapajós-Xingu interfluvium is controversial. There is only one record from the region, on the lower Tapajós (Napier, 1976), which we believe to be valid; but more observations will be required to determine whether *C. albifrons* is widespread in the interfluvium.

The records of *Saimiri sciureus* in this area are restricted to the middle and lower Tapajós (Ayres and Milton, 1981; Thorington, 1985; George *et al.*, 1988; Silva Júnior, 1992; Vaz, 2001). The only record of this species beyond the right bank of the Rio Tapajós is that of Sneath (1912) from the Jamanxim-Curuá interfluvium. In the area of the Rio Xingu, this species has only been recorded from the east bank (Voss and Emmons, 1996). Almost all the records of

Saimiri ustus are from the middle and lower Rio Tapajós, but one record (Martins *et al.*, 1988) is from outside of this region (Fig. 1, loc. 42).

Recorded localities for *Aotus azarae infulatus* extend from the Rios Tapajós and Juruena (Pieczarka *et al.*, 1993) to the Rio Paraguai in the south of Mato Grosso (Ford, 1994), and throughout the reach of the Rio Tocantins (Schneider *et al.*, 1989). This taxon is known only from the northern portion of the Tapajós-Xingu interfluvium (Vieira, 1955; Branch, 1983; Martins *et al.*, 1988; Vaz, 2001).

Threats to the primates of the Tapajós-Xingu interfluvium

Ateles marginatus is listed as Endangered by the IUCN Red List (IUCN, 2003) due to hunting pressure and environmental degradation in the Tapajós-Xingu interfluvium. This is due mainly to the exploitation of the region along the Transamazônica (BR-230) and Cuiabá-Santarém (BR-163) highways, primarily from logging and ranching. Furthermore, its restricted distribution — as well as those of *M. emiliae* and *M. leucippe* — is a contributing factor to threats to these species.

Acknowledgements: Part of this research was financed by grants from the Ministério do Meio Ambiente through the PROBIO project. The authors wish to thank the staff of the Museu Paraense Emílio Goeldi (MPEG), the Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ), and the Museu de Zoologia da Universidade de São Paulo (MZUSP). The authors would also like to thank Mike Hopkins for his helpful comments on this manuscript.

Flávio Eduardo Pimenta and José de Souza e Silva Júnior, Setor de Mastozoologia, Coordenação de Zoologia, Museu Paraense Emílio Goeldi, Belém, Pará, Brazil. E-mail: <flavioedupimenta@ig.com.br>.

References

- Alperin, R. 1993. *Callithrix argentata* (Linnaeus, 1771): Considerações taxonômicas e descrição de subespécie nova. *Bol. Mus. Para. Emílio Goeldi, Sér. Zool.* 9(2): 317–327.
- Auricchio, P. 1995. *Primatas do Brasil*. Terra Brasilis, São Paulo.
- Ávila-Pires, F. D. 1969. Taxonomia e zoogeografia do gênero "*Callithrix*" Erxleben, 1777 (Primates, Callithricidae). *Rev. Brasil. Biol.* 29(1): 49–64.
- Ávila-Pires, F. D. 1986. On the validity and geographical distribution of *Callithrix argentata emiliae* Thomas 1920 (Primates, Callithricidae). In: *A Primatologia no Brasil*, Vol. 2, M. T. Mello (ed.), pp.318–322. Sociedade Brasileira de Primatologia, Brasília.
- Ayres, J. M. and Milton, K. 1981. Levantamento de primatas e habitat no Rio Tapajós. *Bol. Mus. Para. Emílio Goeldi, Sér. Zool.* 111: 1–11.
- Branch, L. C. 1983. Seasonal and habitat differences in the abundance of primates in the Amazon (Tapajós) National Park, Brazil. *Primates* 24(3): 424–431.

- CRIA. 2005. SpeciesLink: Ferramenta geoLoc. Centro de Referência em Informação Ambiental, Fundação de Amparo à Pesquisa do Estado de São Paulo. Available at <<http://splink.cria.org.br/geoloc>>.
- Emmons, L. H. and Feer, F. 1997. *Neotropical Rainforest Mammals: A Field Guide*. Second edition. The University of Chicago Press, Chicago.
- ESRI. 2002. ArcView GIS 3.3. Environmental Systems Research Institute, Inc., Redlands, CA.
- Ferrari, S. F. and Lopes, M. A. 1990. A survey of primates in central Pará. *Bol. Mus. Para. Emílio Goeldi, Sér. Zool.* 6(2): 169–180.
- Ferrari, S. F. and Lopes, M. A. 1992. A new species of marmoset, genus *Callithrix* Erxleben 1777 (Callitrichidae, Primates), from Western Brazilian Amazonia. *Goeldiana Zoologia* 12: 1–13.
- Ferrari, S. F., Sena, L. and Schneider, M. P. C. 1999. Definition of a new species of marmoset (Primates: Callitrichinae) from southwestern Amazonia based on molecular, ecological, and zoogeographic evidence. In: *Livro de Resumos, IX Congresso Brasileiro de Primatologia*, S. L. Mendes (ed.), pp.80–81. Sociedade Brasileira de Primatologia, Santa Teresa, Espírito Santo, Brazil, 25–30 July 1999.
- Ford, S. M. 1994. Taxonomy and distribution of the owl monkey. In: *Aotus: The Owl Monkey*, J. F. Baer, R. E. Weller and I. Kakoma (eds.), pp.1–57. Academic Press, San Diego.
- George, T. K., Marques, S. A., Vivo, M. de, Branch, L. C., Gomes, N. and Rodrigues, R. 1988. Levantamento de mamíferos do PARNA Tapajós. *Brasil Florestal* 63: 33–41.
- Gregorin, R. 1996. Variação geográfica e taxonomia das espécies brasileiras do gênero *Alouatta* Lacépède, 1799 (Primates, Atelidae). Master's thesis, Universidade do Estado de São Paulo, São Paulo.
- Hershkovitz, P. 1977. *Living New World Monkeys (Platyrrhini)*, Vol. 1. The University of Chicago Press, Chicago.
- Hershkovitz, P. 1985. A preliminary taxonomic review of the South American bearded saki monkeys, genus *Chiropotes* (Cebidae, Platyrrhini), with a description of a new sub-species. *Fieldiana Zool., n.s.* 27: 1–45.
- Hershkovitz, P. 1990. Titis, New World monkeys of the genus *Callicebus* (Cebidae, Platyrrhini): A preliminary taxonomic review. *Fieldiana Zool., n.s.* 55: 1–109.
- IBGE. 1972. Carta do Brasil ao Milionésimo. Edição Comemorativa do Sesquicentenário da Independência. Fundação IBGE and Instituto Brasileiro de Geografia, Editora IBGE: Departamento de Documentação e Divulgação Geográfica e Cartografia, Rio de Janeiro.
- Jones, C. and Anderson, S. 1978. *Callicebus moloch*. *Mammalian Species* 112: 1–5.
- Kellogg, R. and Goldman, E. A. 1944. Review of the spider monkeys. *Proceedings of the U. S. National Museum* 96: 1–45.
- Martins, E. S., Ayres, J. M. and Valle, M. B. R. 1988. On the status of *Ateles belzebuth marginatus* with notes on other primates of the Iriri River Basin. *Primate Conservation* (9): 87–90.
- Napier, P. H. 1976. *Catalogue of Primates in the British Museum (Natural History), Part I: Families Callitrichidae and Cebidae*. British Museum (Natural History), London.
- Pieczarka, J. C., Souza Barros, R. M. de, Faria Jr., F. M. de and Nagamachi, C. Y. 1993. *Aotus* from the southwestern Amazon region is geographically and chromosomally intermediate between *A. azarae boliviensis* and *A. infulatus*. *Primates* 34(2): 197–204.
- Pinto, L. P. and Stez, E. Z. F. 2000. Sympatry and new locality for *Alouatta belzebul discolor* and *Alouatta seniculus* in the Southern Amazon. *Neotrop. Primates* 8(4): 150–151.
- Rosenberg, C. 2005. Global Gazetteer 2.1. Falling Rain Genomics, Inc., Austin, Texas. Available at <<http://www.fallingrain.com/world>>.
- Rylands, A. B., Schneider, H., Langguth, A., Mittermeier, R. A., Groves, C. P. and Rodríguez-Luna, E. 2000. An assessment of the diversity of New World primates. *Neotrop. Primates* 8(2): 61–93.
- Schneider, M. P. C., Sampaio, M. I. C., Schneider, H. and Salzano, F. M. 1989. Genetic variability in natural populations of the Brazilian night monkey (*Aotus infulatus*). *Int. J. Primatol.* 10: 363–374.
- Sena, L. dos S. 1998. Filogenia do gênero *Callithrix* Erxleben 1777 (Callitrichinae, Platyrrhini) baseada em seqüências do gene mitocondrial da Citocromo Oxidase II (COII). Master's thesis, Universidade Federal do Pará, Belém.
- Silva Júnior, J. S. 1992. Revisão dos macacos-de-cheiro (*Saimiri* Voigt, 1831) da Bacia Amazônica (Primates, Cebidae). Master's thesis, Universidade Federal do Pará and Museu Paraense Emílio Goeldi, Belém.
- Silva Júnior, J. S. 2001. Especificação nos macacos-prego e caiararas, gênero *Cebus* Erxleben, 1777 (Primates, Cebidae). Doctoral dissertation, Universidade Federal do Rio de Janeiro, Rio de Janeiro.
- Snethlage, E. 1912. A travessia entre o Xingú e o Tapajós. *Bol. Mus. Para. Emílio Goeldi* 7: 7–99.
- Thomas, O. 1904. New *Callithrix*, *Midas*, *Felis*, *Rhipidomys*, and *Proechimys* from Brazil and Ecuador. *Ann. Mag. Nat. Hist.* 14(7): 188–196.
- Thornington, R. W. 1985. The taxonomy and distribution of squirrel monkeys (*Saimiri*). In: *Handbook of Squirrel Monkey Research*, L. A. Rosenblum and C. L. Coe (eds.), pp.1–33. Plenum Press, New York.
- Van Roosmalen, M. G. M., Van Roosmalen, T., Mittermeier, R. A. and Fonseca, G. A. B. da. 1998. A new and distinctive species of marmoset (Callitrichidae, Primates) from the lower Rio Aripuanã, State of Amazonas, Central Brazilian Amazonia. *Goeldiana Zoologia* 22: 1–27.
- Van Roosmalen, M. G. M., Van Roosmalen, T., Mittermeier, R. A. and Rylands, A. B. 2000. Two new species of marmoset, genus *Callithrix* Erxleben, 1777 (Callitrichidae, Primates), from the Tapajós/Madeira interfluvium, South Central Amazonia, Brazil. *Neotrop. Primates* 8(1): 2–18.
- Van Roosmalen, M. G. M., Van Roosmalen, T. and Mittermeier, R. A. 2002. A taxonomic review of the titi monkeys, genus *Callicebus* Thomas, 1903, with the description

Appendix I. Gazetteer of catalogs, systematic reviews and inventories from the Tapajós-Xingu interfluvium, and localities obtained from analysis of specimens deposited in scientific collections. The numbers follow those in Figure 1.

Source	Locality
Alperin (1993)	2, 4, 6, 8, 9, 10, 11, 13, 14, 16, 18, 19, 20, 22, 23, 34, 38, 45
Ávila-Pires (1969)	4, 5, 6, 8, 9, 10, 16, 22, 34, 38, 45
Ávila-Pires (1986)	22, 34, 38
Branch (1983)	18
George <i>et al.</i> (1988)	18
Gregorin (1996)	4, 6, 8, 9, 16, 19, 25, 28, 29, 37
Hershkovitz (1977)	2, 4, 5, 8, 9, 10, 13, 16, 18, 19, 22, 38, 45
Hershkovitz (1985)	8, 9, 16, 18, 19, 23, 26, 30, 31, 34, 37, 44, 45
Hershkovitz (1990)	2, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 16, 19, 20, 21, 25, 30, 31, 32, 34, 35, 37, 41
Kellogg & Goldman (1944)	6, 8, 9, 10, 45
Martins <i>et al.</i> (1988)	42
Napier (1976)	2, 4, 5, 6, 17, 22, 38, 44
Pimenta & Silva Júnior (this paper)	36
Pinto & Setz (2000)	33
Snethlage (1912)	39
Thorington (1985)	4, 5, 6, 8, 9, 10, 13, 14, 16, 19, 25
Vaz (2001)	8, 9
Vieira (1955)	4, 5, 6, 8, 9, 13, 25, 28, 30, 40, 41, 45
Vivo (1985)	2, 4, 5, 6, 8, 9, 10, 14, 16, 19, 22, 38, 45
Collection data (this paper)	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 18, 19, 24, 27, 29, 37, 41, 43, 44

of two new species, *Callicebus bernhardi* and *Callicebus stephennashi*, from Brazilian Amazonia. *Neotrop. Primates* 10(Suppl.): 1–52.

Vaz, S. M. 2001. Primatas da região do Rio Tapajós, Pará, Brasil. *Neotrop. Primates* 9(2): 54–57.

Vieira, C. 1955. Lista remissiva dos mamíferos do Brasil. *Arq. Zool., São Paulo* 8: 341–474.

Vivo, M. de. 1985. On some monkeys from Rondônia, Brasil (Primates: Callitrichidae, Cebidae). *Pap. Avuls. Zool. São Paulo* 4: 1–31.

Vivo, M. de. 1991. *Taxonomia de Callithrix Erxleben, 1777 (Callitrichidae, Primates)*. Fundação Biodiversitas, Belo Horizonte.

Voss, R. S. and Emmons, L. H. 1996. Appendix 8: Rainforest mammals of the lower Rio Xingu. In: *Mammalian Diversity in Neotropical Lowland Rainforests: A Preliminary Assessment*, R. S. Voss and L. H. Emmons (eds.), pp.101–103. *Bull. Am. Mus. Nat. Hist.* 230.

NOVOS REGISTROS DE PRIMATAS NO PARQUE NACIONAL DO ITATIAIA, COM ÊNFASE EM *BRACHYTELES ARACHNOIDES* (PRIMATES, ATELIDAE)

Diogo Loretto
Henrique Rajão

Introdução

O status atual do mureiqui, *Brachyteles arachnoides* (E. Geoffroy, 1806), de espécie criticamente ameaçada de extinção no estado do Rio de Janeiro (MMA/SBF, 2002) é atribuído principalmente à caça e aos intensos desmatamentos sofridos pela Mata Atlântica (Strier e Fonseca, 1996/1997). Há mais de 30 anos, no primeiro levantamento conhecido das populações de *B. arachnoides*, já era evidente que restavam poucos indivíduos nas serras do estado (Limeira, 1999). A ocorrência de mureiquis no Parque Nacional do Itatiaia (PNI) foi registrada pela primeira vez em 1950 por J. Lima (Marroig e Sant'Anna, 2001). Poucos anos depois, Vieira (1955) já cita o PNI como área de distribuição geográfica do mureiqui, informações que foram confirmadas pelos subseqüentes estudos de Aguirre (1971) e Ávila-Pires e Gouvêa (1977), com exemplares coletados a 1300 m de altitude na trilha Maromba-Lamego, e registros visuais entre as cotas de 1000 e 1800 m de altitude.

Somente mais recentemente, outros dois registros desta espécie foram feitos no Parque, em 1992 por Câmara (1995) e em 1993 por Marroig e Sant'Anna (2001). No primeiro deles, um espécime foi encontrado eletrocutado próximo à