



**EXECUTIVE SUMMARY  
OF THE NATIONAL ACTION PLAN  
FOR THE CONSERVATION OF MURIQUIS**



The mega-diverse country of Brazil is responsible for managing the largest natural patrimony in the world. More than 120,000 species of animals occur throughout the country. Among these species, 627 are registered on the Official List of Brazilian Fauna Threatened with Extinction. The most affected Biome is the Atlantic Forest, within which 50% of the Critically Endangered mammalian species are primates endemic to this biome.

The Chico Mendes Institute is responsible for the development of strategies for the conservation of species of Brazilian fauna, evaluation of the conservation status of Brazilian fauna, publication of endangered species lists and red books and the development, implementation and monitoring of National Action Plans for the conservation of endangered species.

Action plans are management tools for conservation of biodiversity and aligning strategies with different institutional stakeholders for the recovery and conservation of endangered species. The Joint Ordinance No. 316 of September 9, 2009, was established as the legal framework to implement strategies. It indicates that action plans together with national lists of threatened species and red books, constitute one of the instruments of implementation of the National Biodiversity Policy (Decree 4.339/02).

## TAXANOMIC CLASSIFICATION

**Phylum:** Chordata - **Class:** Mammalia - **Order:** Primates

**Family:** Atelidae Gray, 1825 - **Subfamily:** Atelinae Gray, 1825

**Genus:** *Brachyteles* Spix, 1823

**Species:** *Brachyteles arachnoides* (E. Geoffroy, 1806)

*Brachyteles hypoxanthus* (Kuhl, 1820)

## POPULAR NAMES

Popular names include: Muriqui, Mono Carvoeiro, Mono, Miriqui, Buriqui, Buriquim, Mariquina or Muriquina. In English, they are also known as Woolly Spider Monkeys.

For scientific dissemination, these species are called the Northern Muriqui (*Brachyteles hypoxanthus*) and the Southern Muriqui (*Brachyteles arachnoides*), due to their geographic distribution.

## MORPHOLOGICAL CHARACTERISTICS

Muriquis are considered the largest primates of the Americas. Adult males can reach a length of 150 cm and weigh up to 15 kg. Adult females can reach a length of 120 cm and weigh up to 12 kg. Their coat is thick, woolly and colored beige, yellowish-brown, or gray tones. They have a protruding stomach, due to the consumption of large volumes of leaves.

Their head is rounded, with a flattened face, and they have elongated arms. The tail is long and prehensile, with the final third bare on the ventral surface, which serves as a touchpad. The face, palms, soles and glabrous part of the tail are hairless and black colored. The males have a large scrotum, and females have a prominent clitoris.

Sexual dimorphism is absent, but there are morphological and genetic differences between the two species. Adult Northern Muriquis, *Brachyteles hypoxanthus*, generally have faces and genitalia stained pink and white due to a progressive, depigmentation throughout life. They also have a vestigial thumb. Southern Muriquis, *Brachyteles arachnoides*, do not exhibit this depigmentation and retain the entire facial and genital black color. Southern Muriquis also do not exhibit any trace of a vestigial thumb.



## DIET AND BEHAVIOR

The Muriquis diet consists mostly of leaves and fruits, but they also feed upon flowers, seeds, nectar, tree bark and bamboo shoots. The consumption of insects and larvae may only occur unintentionally. While feeding on ripe fruit, they act as seed dispersers.

Muriquis are diurnal and spend about 50% of the day resting, feeding, and travelling as their most frequent activities. Their principal mode of location is semi-brachiation, using their arms and hands as supports, with the help of their prehensile tail and posterior limbs. In general, Muriquis are peaceful primates, with diminished inter-individual aggression and low levels of competition for food and access to partners. They do not groom, but hugs and vocal contact are commonly affiliative, especially among adult males.

## SOCIAL ORGANIZATION AND REPRODUCTION

Muriquis live in multi-male and multi-female social groups, which may exceed 50 individuals. Each group covers areas ranging from just over 150 ha to more than 1,000 ha, varying according to social group size and habitat quality. However, the current area of group use is generally limited by the restriction of available habitat.

There is no apparent dominance of males, who form family coalitions and live harmoniously, while females disperse when they reach sexual maturity at around 6 years of age.

Muriquis have a promiscuous mating system, and usually each female mates with several males. However, there may be sperm competition. Gestation lasts an average of 7 months and the birth interval is about three years. One offspring is born each gestation and is breastfed for two years. From the age of 5 years, males and females are physically capable to copulate. However, females only give birth to their first offspring around the age of 9 years old, at least two years after joining a new social group.



Daniel da Silva Ferraz



Distribution map of Northern Muriquis, *Brachyteles hypoxanthus* and Southern Muriquis, *Brachyteles arachnoides*.

## DISTRIBUTION AND HABITAT

Muriquis are endemic to the Atlantic forest, occurring typically between 200m and 1200m in altitude. They occupy distinct vegetation zones and preferentially use the highest canopy of forest. Northern Muriquis, *Brachyteles hypoxanthus*, currently exist in 11 areas in the extreme south of Bahia, Espirito Santo and northern Rio de Janeiro, with the main remnant populations in eastern Minas Gerais. Southern Muriquis, *Brachyteles arachnoides*, occur from south of Rio de Janeiro until the extreme north of Paraná, with the majority of populations in São Paulo State. The generally accepted limit of distribution between the two species is the Serra da Mantiqueira.



## PRESENCE IN CONSERVATION AREAS

<i>Brachyteles arachnoides</i>	<i>Brachyteles hypoxanthus</i>
<b>FEDERAL PROTECTED CONSERVATION AREAS</b>	<b>FEDERAL PROTECTED CONSERVATION AREAS</b>
Serra da Bocaina National Park, SP and RJ Serra dos Órgãos National Park, RJ	Augusto Ruschi Biological Reserve, ES Mata Escura Biological Reserve, MG Alto Cariri National Park, BA Caparaó National Park, MG and ES Itatiaia National Park, RJ RPPN Duas Barras Farm, MG RPPN Feliciano Miguel Abdala, MG RPPN Mata de Sossego, MG
<b>STATE PROTECTED CONSERVATION AREAS</b>	<b>STATE PROTECTED CONSERVATION AREAS</b>
Juréia-Itatins Ecological Station, SP Carlos Botelho State Park, SP Intervalos State Park, SP Serra do Mar State Park, SP Alto Ribeira Tourist State Park, SP Desengano State Park, RJ Três Picos State Park, RJ Cairuçu Environmental Protection Area, RJ	Alto Cariri State Park, MG Rio Doce State Park, MG Serra do Brigadeiro State Park, MG Wildlife Refuge Mata dos Muriquis, MG

## MAIN THREATS

The Muriquis are currently under a high risk of extinction throughout their geographical distribution, mainly due to the historical destruction of forests. This extensive deforestation occurred – and is still occurring – for converting land for agriculture, livestock, urbanization and infrastructure projects (e.g. dams, roads). The remaining populations are suffering the impact of this current reduction and fragmentation of their habitats, resulting in demographic and genetic consequences not yet fully identified, such as inbreeding. Isolated in small pieces or in areas attractive for extraction (e.g. wood and palm), Muriquis are more exposed to hunting, usually for human consumption. These factors together have reduced populations to critical levels. It is estimated that there are fewer than 1,000 *Brachyteles hypoxanthus* individuals and less than 2,000 *Brachyteles arachnoides* individuals.

Habitat loss remains a threat, especially in small private properties, where there is a continuing pressure of deforestation for increasing areas of commercial production. On the other hand, there seems to be a greater hunting pressure on protected conservation areas, especially those that have greater territorial extensions, hampering effective fiscalization activities.

In addition, the Muriquis have a low reproductive rate and long life cycle, which complicates the recovery of populations after extreme decreases in population size and increases their vulnerability to extinction. Most populations survive in environments under strong anthropogenic interference, in contact with humans, domestic animals and contaminated rivers, increasing susceptibility to disease introduction.





Adriano Gambarini



## CONSERVATION STATUS

The two species, *Brachyteles arachnoides* and *Brachyteles hypoxanthus*, are listed on the Official List of Brazilian Fauna Threatened with Extinction (Instruction N<sup>o</sup>. 3, May 27, 2003, Ministry of Environment). The Northern Muriqui is considered Critically Endangered by the national assessment and the IUCN. The Northern Muriqui is also listed under the same category on the Espírito Santo State list and is also considered Endangered on the Minas Gerais State list. The Southern Muriqui is already considered as Endangered

on the national and IUCN lists. This species is listed as Critically Endangered on the lists of São Paulo, Paraná and Rio de Janeiro and the species was classified as Data Deficient in Minas Gerais State.

## STRATEGY OF THE CHICO MENDES INSTITUTE FOR THE CONSERVATION OF MURIQUIS

The National Action Plan (PAN) for the Conservation of Muriquis was prepared during three workshops. On June 1st and 2nd 2005, the goals were elaborated for the conservation of both species. Between June 10th-13th 2008, the objective was established, the goals were reviewed and the actions were listed. From March 29th to April 1st, 2010, the actions and protocols were reviewed and developed to support the implementation of PAN Muriquis.

The objective of this Action Plan is to increase awareness and protection of Muriqui populations and to genuinely reduce (*sensu* IUCN) at least one extinction category level for both species by 2020. Thereby, changing *Brachyteles hypoxanthus* from Critically Endangered to Endangered and changing *Brachyteles arachnoides* from Endangered to Vulnerable.

The PAN Muriquis was officially approved by Ordinance No. 87, August 27, 2010, by the Chico Mendes Institute, and the Strategic Advisory Group to assist with the implementation, monitoring and adjustment of PAN Muriquis was designated by Ordinance No. 52, July 12, 2011. The coordination of PAN Muriquis is a responsibility of the National Center for Research and Conservation of Brazilian Primates-CPB, under the supervision of the General Coordination of Threatened Species for Biodiversity Conservation Board - CGESP / DIBIO of the Chico Mendes Institute. The actions of the plan should be completed by August 2015, with the supervision and annual monitoring of the implementation process.



Fernanda P. Tabacow



## ACTION PLAN - GOALS AND ACTIONS

GOAL	ACTIONS
<p><b>1.</b> To quantify remnant Muriqui populations by 2015</p>	<ul style="list-style-type: none"> <li>• Develop a database of areas with reported occurrences of Muriquis, considering the type of report (trusted/untrusted) and date of last sighting</li> <li>• Identify priority areas to confirm reports of the occurrence of Muriquis</li> <li>• Undertake expeditions to confirm the occurrence of Muriquis in selected areas</li> <li>• Define standard protocol for counting individuals of <i>Brachyteles</i></li> <li>• Undertake expeditions to estimate the population sizes of Muriquis</li> </ul>
<p><b>2.</b> To increase control measures to effectively reduce hunting pressure on Muriqui populations in protected conservation areas and their surroundings, by 2015</p>	<ul style="list-style-type: none"> <li>• Create internal management in the institutions, enabling the creation of the Management Committee of Integrated Environmental Monitoring or Working group, composed of similar enforcement agencies and other groups with experience in the environment to manage effective enforcement actions</li> <li>• To raise the awareness of the Group Manager Integrated Inspection created for the importance of combating Muriqui hunting, using intelligent activities (investigation and infiltration) in areas with hunting pressures</li> <li>• Include the problem of Muriqui hunting in the event program on monitoring fauna protection, ensuring the participation of agents from all states with Muriqui occurrence, and improving techniques for intelligent monitoring</li> <li>• Preparation of a booklet with guiding actions aimed at protecting the Muriquis</li> <li>• Manage to ensure vacancies in public job concourses for hiring park rangers (<i>lato sensu</i>) in Protected Conservation Areas</li> <li>• Conduct a survey of staff involved in the fiscalization of Protected Conservation Areas</li> <li>• Identify and disseminate feasible alternatives to strengthen the staff involved in supervision in Protected Conservation Areas</li> </ul>
<p><b>3.</b> By 2012, to create or enhance Integrated Protection of Protected Conservation Areas and RPPNs (Private Reserves of Natural Heritage), where there are potential, viable Muriqui populations known from 50 years ago until 2010</p>	<ul style="list-style-type: none"> <li>• Manage with State employees the surveying and characterizing of potential areas for creating and expanding Integrated Protection of Protected Conservation Areas and RPPNs by State, at least in the following areas: Taquaral Park (near P.E., Carlos Botelho State Park, SP); Neblinas Park (Bertioga, SP); São Sebastião do Ribeirão Grande Farm (Pindamonhangaba, SP); Barreiro Rico Farm (Anhembí, SP); Private areas between P.E. Jurupará and P.E. Carlos Botelho (SP), Santa Maria do Jetibá (ES); Fazenda João Paulo II (Castro, PR); Cunhambebe State Park (RJ)</li> <li>• Coordinate with State employees</li> <li>• To raise awareness and provide guidance to private landowners in creating RPPNs in areas relevant for Muriqui conservation</li> <li>• To manage with State employees to intra-institutionally coordinate the creation of RPPNs within indicated areas</li> <li>• To manage with State employees and competent institutions to start the process of creating and expanding the Integrated Protection of Protected Conservation Areas within indicated areas</li> </ul>
<p><b>4.</b> To initiate a Fund to finance Muriqui research and conservation activities by 2012</p>	<ul style="list-style-type: none"> <li>• Identify the institution managing the Fund for financing Muriqui research and conservation activities</li> <li>• Define the management structure of the Fund for financing Muriqui research and conservation activities</li> <li>• Identify potential donors and to define strategies for fundraising for the Fund to finance Muriqui research and conservation activities</li> <li>• Raise funds to form the minimum capital of the Fund for financing Muriqui research and conservation activities</li> <li>• Prepare and publish the first call for funding Muriqui research and conservation projects</li> </ul>



GOAL	ACTIONS
<p><b>5.</b> To establish by 2015, an integrated program monitoring the demography of populations identified in prioritized areas</p>	<ul style="list-style-type: none"> <li>• Define prioritized areas for monitoring Muriqui population demographics (size and group composition)</li> <li>• Define methods of monitoring Muriquis population demographics (size and group composition)</li> <li>• Run systematic, demographic monitoring of Muriquis populations (size and composition of group)</li> </ul>
<p><b>6.</b> To implement an integrated program for long-term research focused on Muriqui conservation by 2015</p>	<ul style="list-style-type: none"> <li>• Organize a meeting to set guidelines for the Integrated Program of applied research and conservation of the Muriqui</li> <li>• Define molecular markers for genetic studies in <i>Brachyteles</i></li> <li>• Create a bank of biological material for genetic studies in <i>Brachyteles</i>, with defined regulations</li> <li>• Develop studies on intraspecific phylogeography and genetic variability within and between populations of <i>B. hypoxanthus</i>, including captive specimens</li> <li>• Develop studies on phylogeography and intraspecific genetic variability within and between populations of <i>B. arachnoides</i>, including captive populations, to support <i>ex situ</i> management</li> <li>• Develop integrated studies of <i>Brachyteles</i> phylogeny</li> <li>• Integrate studies on life history and population dynamics of Muriquis</li> <li>• Develop and integrate studies on habitat use, carrying capacity and feeding ecology of <i>Brachyteles</i></li> <li>• Develop meta-analyses to characterize the status of threatened Muriqui populations</li> <li>• Develop studies to characterize the hunting pressure on Muriquis</li> <li>• Develop a sub-program of training and capacity building in Muriqui research and conservation</li> <li>• Define the research protocol for collection and disposal of biological material for <i>Brachyteles</i>, including carcasses</li> <li>• Identify groups of professionals and institutions interested in developing conservation medicine studies of <i>Brachyteles</i></li> <li>• Define methodologies and initiate conservation medicine studies of <i>Brachyteles</i></li> </ul>
<p><b>7.</b> To elaborate by 2012, State projects for securing and increasing the connectivity of at least, 50% of areas identified with potentially viable Muriqui populations during the last 50 years</p>	<ul style="list-style-type: none"> <li>• Create a diagnosis of the connectivity of Muriqui populations, by indicating areas for establishing corridors, and considering mining issues in buffer zones of Protected Conservation Areas.</li> <li>• Develop a project to ensure and enhance the connection of areas identified in Minas Gerais State.</li> <li>• Develop a project to ensure and enhance the connectivity of areas identified in Espírito Santo State.</li> <li>• Develop a project to ensure and enhance the connectivity of areas identified in Rio de Janeiro.</li> <li>• Develop a project to ensure and enhance the connectivity of areas identified in Paraná State.</li> <li>• Develop a project to ensure and enhance the connectivity of areas identified in São Paulo State.</li> <li>• Establish mitigating and compensatory measures in licensing entrepreneurship projects, aimed at ensuring the connectivity of areas of Muriqui occurrence.</li> </ul>



GOAL	ACTIONS
<p><b>8.</b> To establish by 2011, strategies for integrating programs on Environmental Education, disseminating science and income generation in human communities within priority areas for Muriqui conservation <i>in situ</i> and <i>ex situ</i></p>	<ul style="list-style-type: none"> <li>Organize a meeting to define strategies for implementation of environmental education programs, disseminating science and income generation in priority areas for Muriqui conservation <i>in situ</i> and <i>ex situ</i></li> </ul>
<p><b>9.</b> To have strategic institutions working in coordination for Muriqui conservation by 2011</p>	<ul style="list-style-type: none"> <li>Negotiate with DIBIO to formalize the strategic working groups for consolidating public policy on Muriqui conservation</li> <li>Organize and update a list of stakeholders with expertise in Muriqui research and conservation</li> <li>Update the Internet discussion group of the Committee and strategic collaborators for Muriqui conservation</li> </ul>
<p><b>10.</b> To implement by 2015, a Program for the management of known populations that are not potentially viable in 50 years</p>	<ul style="list-style-type: none"> <li>By 2010, select and prioritize known, unviable* Muriqui populations to be managed</li> <li>Update the list of unviable* Muriqui populations to be handled first</li> <li>Prepare the sub-management programs for each species of <i>Brachyteles</i> including <i>ex situ</i> populations</li> <li>Initiate the implementation of the sub-management program for the Northern Muriqui, <i>Brachyteles hypoxanthus</i>, including populations <i>ex situ</i></li> <li>Initiate the implementation of sub-management program for the Southern Muriquis, <i>Brachyteles arachnoides</i>, including populations <i>ex situ</i></li> </ul>
<p>* Potentially viable in 50 years = minimum of 10 individuals within an area of at least 100 ha, with current evidence of reproduction.</p>	

### COLLABORATORS



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