lion tamarin exhibit, located in the Tropic Building, features trees with special feeding holes. Keepers place fruit, meal worms, and other foods into different combinations of holes each day to stimulate the tamarins to search for their meals. The exhibit also includes vines for climbing which can be moved around for variety. Similar environmental enrichmnents are also provided to the pair off exhibit.

In addition to providing the black lion tamarins with a stimulating environment, the Central Park Wildlife Center aims to educate the public about the threats to this species. Graphics explain that the endangered status of the black lion tamarin is due to the destruction of their rain forest home. The Wildlife Center also has two other types of tamarins, the cotton-top, *Saguinus oedipus*, and the golden-headed lion tamarin, *L. chrysomelas*, which also provide opportunities for education. In addition, a stage show presented for zoo visitors uses cotton-top tamarin puppets to educate children about the destruction of the forest, and the importance of saving this environment for tamarins and other animals which live there.

Alison Levine, Public Affairs, Central Park Wildlife Center, Wildlife Conservation Society, 830 Fifth Avenue, New York, New York 10021, USA.

1994 International Studbook for the Golden-Headed Lion Tamarin

The 1994 Studbook for the golden-headed lion tamarin, *Leontopithecus chrysomelas*, was recently published by the Royal Zoological Society of Antwerp on behalf of the International Recovery and Management Committee for the species. This, the 7th International Studbook, prepared by Helga De Bois, Antwerp Zoo, covers the period 1 January 1994 to 31 December 1994. It contains information on animal identities and locations, sex, parentage, and causes of deaths. In addition, it includes a list of addresses of holders, data on the current demographic and genetic status of the population, and a bibliography. It is maintained in SPARKS, developed by the International Species Information System (ISIS), and is available free of charge from the studbook keeper.

On 31 December 1994, the number of living animals in captivity was 616, distributed through Brazil (245 in 13 institutions), North America (99 in 19 institutions), Europe (233 in 25 institutions) and Asia (39 in two institutions). The number of founders increased from 108 to 160 (33 without living descendants). The percentage growth of the population during 1994 was 6%.

Helga De Bois, Royal Zoological Society of Antwerp, Koningen Astridplein 26, 2018 Antwerpen, Belgium. Tel: +32 3 2024 580, Fax: +32 3 2024 547.

Reference

De Bois, H. 1995. *1994 International Studbook for the Golden-Headed Lion Tamarin* Leontopithecus chrysomelas. Royal Zoological Society of Antwerp, Antwerp. 81pp.

EEP Studbook for the Emperor Tamarin

The first international studbook for *Saguinus imperator imperator* and *S. i. subgrisescens* (1991) was compiled by Lee Nesler, Pittsburgh Zoo (Nesler, 1993). The first studbook for the European population of emperor tamarins has now been compiled by the Studbook keeper and EEP Coordinator for the species, Eric Bairrão Ruivo, with assistance from Cristiane Silveira, both of the Lisbon Zoo, Portugal. It was sponsored by Compaq, and covers the entire history of the species in Europe up to 31st December 1994. The emperor tamarin EEP was first approved by the Executive Office of the European Endangered Species Program (EEP) in 1990, and, till 1994, Rob Colley, Penscynor Wildlife Park, was coordinator. Eric Bairrão Ruivo took over in 1994. The Studbook is divided into five sections: A summary of some taxonomic and biological aspects of the species; a full historical listing of the European population; a listing of the living population of the two subspecies by location; a studbook analysis; and an evaluation of the progress, status, and future action of the program for the species in European zoos and animal collections.

The European captive population of *S. i. imperator* has never been sizable. It began in 1962 with just one female, and only in 1976 were three more imported, and in 1977 a further four animals. The population grew to a maximum of 15 individuals in 1983, and declined from there on. On 31 December 1994, there were believed to be four animals (3.1) in Europe, although only one male (in the Frankfurt Zoo) is officially registered. *S. i. subgrisescens* was first registered for Europe in 1964, but no records were kept until 1978. Since then the population has increased to 128 (63.61.4) animals in 35 European institutions. The main problem with this captive population, however, is infant and juvenile mortality (45% mortality in the first year); the reason for a lack of increase in

growth rate since 1978. The founder population is 34 (11 are still alive), and all except three have contributed descendants. The Studbook concludes that the population is still too small for an adequate breeding program. Some founders are over represented, but the coordination recommend that none should have their breeding curbed, although emphasis will be given to encouraging breeding in the under represented lines. The studbook keepers would be most grateful for information on any research projects on captive or wild populations of this species.

Eric Bairrão Ruivo and **Cristiane Silveira**, Jardim Zoológico de Lisboa, Estrada de Benfica 158-160, 1500 Lisboa, Portugal.

References

Nesler, L. 1963. Studbook for captive emperor tamarins. *Neotropical Primates* 1(3): 7.

Ruivo, E. B. and Silveira, C. 1995. *EEP Studbook for the Emperor Tamarin* Saguinus imperator *ssp. Number One, 1994*. Jardim Zoológico de Lisboa, Lisboa.

A Study on the Behavior of Adolescent Female Muriquis

Research is being carried out on the migration of adolescent female muriquis, *Brachyteles arachnoides*, at the Caratinga Biological Station, Minas Gerais. In muriqui groups the proportion of adult females remains nearly constant as a result of the migration of the adolescents, an important feature of the sociodemography of this species (Strier, 1991). The study aims to clarify why females emigrate, and the social mechanisms involved. Data have been collected to answer these, and other related questions, using the observation technique of "focal-animal" (10 minute observation periods), possible due to the tameness of the group under study (see Strier, 1992). Data was collected over 12 months, from August 1994 to July 1995, and has resulted in 1555 focal animal samples. Dr Karen Strier of the Anthropology Department, University of Wisconsin, Madison, USA, and Sandra Hartz, Federal University of Rio Grande do Sul, Porto Alegre, Brazil, are supervising the research, which is supported by a U. S. National Science Foundation Grant (BNS958298), the Liz Clayborne and Art Ortenberg Foundation, the Chicago Zoological Society, and the Lincoln Park Zoo, Chicago.

Rodrigo C. Printes, Rua Tenente Coronel Fabrício Pillar 650/01, Mont'Serrat, 90450-040 Porto Alegre, Rio Grande do Sul, Brazil.

References

Strier, K. B. 1991. Demography and conservation in an endangered primate, *Brachyteles arachnoides*. *Conserv. Biol.* 5: 214-218.

Strier, K. B. 1992. *Faces in the Forest. The Endangered Muriqui Monkeys of Brazil.* Oxford University Press, Oxford.

Variability in Constitutive Heterochromatin in South American Primates

In March 1995, Júlio César Pieczarka defended his thesis on the nature and variability of constitutive heterochromatin in South American primates. The thesis formed part of the requirements for a doctoral degree in Genetics and Molecular Biology at the Federal University of Rio Grande do Sul, Porto Alegre, Brazil. His supervisor was Dr. Margarete Suñe Mattevi, and the study was supported by the Universidade Federal do Pará (UFPA), the Universidade Federal do Rio Grande do Norte (UFRGS), the Fundação de Amparo à Pesquisa do Rio Grande do Sul (FAPERGS), the Financiadora de Estudos e Projetos (FINEP), the Brazil Science Council (CNPq), the Brazilian Higher Education Authority (CAPES), and Eletronorte (Centrais Eléctricas do Norte SA). The following is a summary of the thesis.

The aim of the work was to assess the distribution and variability of constitutive heterochromatin in 10 platyrrhine primate species, and examine the digestion mechanism of DNA by *in situ* restriction enzymes, in a broad study of the reaction of heterochromatin to these enzymes. The following callitrichids were studied: *Cebuella pygmaea*, *Callithrix geoffroyi*, *C. argentata*, *C. humeralifera*, *C. emiliae*, *Saguinus fuscicollis fuscicollis*, *S. mystax*, and *Leontopithecus rosalia*. These species show constitutive heterochromatin with very different patterns of distribution, despite the similarity of their karyotypes in terms of chromosome number and morphology. Two cebid species were studied: *Aotus* and *Ateles paniscus paniscus*, both of which have considerable quantities of heterochromatin. The determination of correct chromosomal pairs in each karyotype was made by sequenced G/C-banding. The constitutive heterochromatin was analyzed by determining the *in situ* digestion pattern using seven restriction enzymes (*Hinf*I, *Mbo*I, *Alu*I, *Rsa*I, *Dde*I, *Hae*III and *Msp*I), sequenced RE/C-banding, and fluorochrome banding (Chromomicyn A^3 and DAPI). This study permitted the following conclusions: