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## Articles

### CURRENT STATUS OF PRIMATES IN VENEZUELAN ZOOS

Primates are considered by many zoos, especially in most developed countries, as animals with great exhibit potential and hence visitor attraction. Not least amongst their attributes, they offer the opportunity to enhance people's appreciation and understanding of the natural world: the sheer diversity of primates is a feature long since used to good effect by education departments in zoos, and increasingly linked to conservation issues in the more progressive of these institutions. At the same time, the increase in number and effectiveness of cooperative breeding programs, such as Species Survival Plans, indicates a growing concern by the zoological community that it has no real alternative but to multiply its resources for primate conservation. This describes the situation in the richer countries of the north which have next to no wild-living primates but do have the resources on which good exhibits and educational programs can be run. These resources also extend to publishing much useful information about where captive primates are located, population sizes and dynamics through studbook analyses, and multiple aspects of captive management. In particular, the reference sections of the *International Zoo Yearbook* have presented useful information, not least to measure trends, and more latterly the International Species Information System (ISIS) presents the possibility of detailed analyses and access to current status information.

By contrast, the countries with high primate diversity in the wild (and possibly also in captivity but we lack the statistics) have fewer resources for their zoos to make the most of them in promoting their conservation. Here too the exhibition value is clearly understood, but the actual exhibits often do not inspire or educate the zoo visitor. Conversely, the free-living groups of native species that one can frequently find in zoos of the tropics represent a gift for education and study. Limited resources and organizational difficulties also conspire against many of these zoos in publicizing the primates that they maintain and in joining cooperative breeding efforts. Thus a reasonable first step to addressing these difficulties is to ensure that the communities with primate and conservation interests are informed of what primates are present in the zoos. Venezuela is a country typical of this situation, and the objective of this paper is to present the current

status of primates in the zoos as a stimulus for improving conservation action.

The Fundación Nacional de Parques Zoológicos y Acuáticos (FUNPZA) currently recognizes fifteen zoos in Venezuela which, to function properly, should be legally registered with the Servicio Autónomo Profauna of the Ministerio del Ambiente y Recursos Naturales Renovables (MARNR). Annual inventories (covering the years 1991-1993) of eleven of these zoos were available (sent to FUNPZA) and permitted basic analysis. Species native to Venezuela, with the geographical range entirely or partly within the country, were checked using Eisenberg (1989). Separation of taxa into those with some category of threat and those not threatened (non-threatened) was made with reference to the *IUCN Mammal Red Data Book* (Thornback and Jenkins, 1982), the *1990 IUCN Red List of Threatened Animals* (IUCN, 1990) and Rylands *et al.* (1993). The categories of threat were thus those traditionally used by IUCN. The lack of immediate availability of much more demanding data sets precluded the use of Mace-Lande criteria of threats (Mace and Lande, 1990).

The representation in captivity of species listed as globally threatened was also examined by means of the IZY annual censuses of wild animals bred in captivity, rare animals, and international studbook registrations (Olney and Ellis, 1991, 1992), and the ISIS biannual taxa distribution reports (ISIS, 1991). The IZY figures for captive populations of selected threatened species, the number of zoos holding these populations and the number of zoos reporting breeding the same species were the rounded averages from the two most recent years of data.

Table 1 lists the primate species occurring in the Venezuelan zoos, the number of specimens for each and the number of institutions involved in their maintenance. Of the total of 21 species, 14 are New World and 50% of these are native to Venezuela. Eight threatened species are held and, based on the present threat categorization, the one of most conservation concern is the non-native *Saguinus oedipus*. However, in terms of relative security afforded by regularly breeding captive populations of reasonable size outside of Venezuela, *S. oedipus* also had an IZY population size of 1128 in 104 zoos, and 1,576 were registered in the third edition of the international studbook (Olney and Ellis, 1991). With least security in terms of a captive population, the species apparently in most need is *Ateles belzebuth*; the

only threatened species in this listing which is native to the country. This is perhaps where the Venezuelan zoological community can do good work through a cooperative breeding program, particularly if more zoos can become involved. Absent from zoos in Venezuela, and almost absent globally (only two registered in two zoos in IZY), is *Cacajao melanocephalus*, a species native to Venezuela and now classified as endangered. Insufficient attention has been paid to the requirements of uakaris in captivity. They are considered difficult in this respect and captive breeding is not a priority safeguard in their conservation. This, together with the broad range of improvements necessary in Venezuelan zoos, means that conservation of the black-headed uakari will not be helped by having them in captivity in the country until we learn much more.

As regards attempting to hold viable captive populations in Venezuela, there would have to be the involvement of more zoos and more managerial

responsibility for the allocation of space, cooperative actions and improved husbandry. Even the highest number, that of *Cebus nigrivittatus* with 95 specimens, conceals as high a proportion which are free-living in some zoos, thereby posing difficulties for interactive management. Related to the space necessary to maintain viable populations of primates is the issue of subspecies recognition. Due to previous inattention to the proper recording of capture location in the wild, coupled with (or the perception of) limited space available, some primate species in captivity have populations of mixed subspecies, which compromises their conservation utility. This is a global zoo issue, but none of the primates listed in the Venezuelan zoo inventories were named to subspecies level and to discover what subspecies are held could be difficult. This would involve scrutiny of the few records available, what some people might remember, direct examination of the animals and the final option of genetic studies, which would be prohibitively costly for the zoos.

Table 1. Captive population statistics on primate species currently held in eleven Venezuelan zoos.

Taxa	IUCN Category	No. of Venezuelan Zoos	No. of Specimens			ISIS		IZY Zoos Bred
			M	F	T	Pop.	No. of Zoos	
<b>Lemuridae</b>								
<i>Lemur catta</i>	V	1	1	4	5	902	123	80
<b>Callitrichidae</b>								
<i>Cebuella pygmaea</i>		1	4	6	10			
<i>Callithrix jacchus</i>		1		2	2			
<i>Saguinus fuscicollis</i>		1	4	4	8			
<i>Saguinus oedipus</i>	E	1	1	6	7	414?	59	60
<b>Cebidae</b>								
<i>Alouatta seniculus*</i>		5	6	1	20			
<i>Aotus trivirgatus*</i>		2	1	1	2			
<i>Ateles belzebuth*</i>	V	6	8	18	26	36?	15	4
<i>Ateles geoffroyi</i>	V	1	0	1	1	205	46	20
<i>Ateles paniscus</i>	V	2	2	1	3	58	23	10
<i>Cebus albifrons*</i>		3	3	1	12			
<i>Cebus apella*</i>		3	3	0	3			
<i>Cebus nigrivittatus*</i>		8	31	26	95			
<i>Saimiri sciureus*</i>		1	1	1	2			
<b>Cercopithecidae</b>								
<i>Macaca fascicularis</i>		2	4	1	3			
<i>Macaca nemestrina</i>		1	1	2	3			
<i>Papio hamadryas</i>	R	5	8	6	15	342	27	64
<i>Papio sphinx</i>	V	2	3	4	7	322	63	43
<i>Cercopithecus aethiops</i>		3	9	8	18			
<b>Pongidae</b>								
<i>Pan troglodytes</i>	V	3	4	2	6	2237	108	49

Notes: IUCN cat. = IUCN Threat Category (IUCN, 1990; Rylands *et al.*, 1993). No. Venezuelan Zoos = Number of Venezuelan zoos holding the taxa. No. of Specimens = males, females and total (incl. sex unknown) number present in Venezuelan zoos. ISIS Pop., No zoos = the total International Species Information System population and number of collections (zoos) reporting Dec. 1991 (ISIS, 1991). IZY Zoos Bred = the International Zoo Yearbook Census of Species of Wild Animals Bred in Captivity giving the number of zoos which reported breeding (Olney and Ellis, 1991, 1992). ?Subspecies *oedipus* (as previously classified) 271 in 39. ?Subspecies *belzebuth* 6 in 3. \* Native to Venezuela.

The financial and bureaucratic obstacles to the Venezuelan zoos in acquiring primate representatives from other continents have increased in recent years and such importation is now a rare event. Thus the indications are that these zoos will from necessity concentrate on New World species, particularly those indigenous to Venezuela. Lacking sufficient breeding, and without assistance to import new animals, the stocks of Old World primates appear set to die out. Based on so few years data, crude estimates of natality and mortality rates covering all age classes for these captive primates (calculated from births and deaths each divided by living animals) are respectively 0.185 and 0.13 (0.19 and 0.17 only for New World species).

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## SÃO FRANCISCO XAVIER: A NEW SITE FOR PRIMATOLOGICAL RESEARCH AND CONSERVATION IN THE BRAZILIAN ATLANTIC FOREST

Neotropical primates endemic to the Atlantic forest are threatened by the degree of human activity in southeastern Brazil. Less than 5% of the region's natural cover has resisted human interference since the Portuguese colonization in the 16th century. As a result, the Atlantic forest is today restricted to "islands" of natural vegetation, surrounded and isolated by pastures, crop plantations and urban areas. Many of these "islands" belong to private owners (Diego *et al.*, 1993). Even the legally protected forests are of diminutive size when compared to the areas of other Brazilian ecosystems' reserves. Protecting tracts of Atlantic forest which still hold natural groups of endemic primates is therefore an important conservation measure. One such tract is a 4,000 ha forest patch located at the north border of the district of São Francisco Xavier (Fig. 1), municipality of São José dos Campos, in the state of São Paulo (23° 12'S, 45° 52' W). The forest covers a set of mountain ranges (Poncianos, Selado, Santa Bárbara, Queixo D'anta, Palmital, Guirra, Guaxindivia and Roncador), and includes part of the Rio Peixe basin, a tributary of the Rio Paraíba do Sul and an important water source in the region. Beyond the state's northern border, the forest stretches for another 7000 ha in the Fazenda Levantina (property of Companhia Melhoramentos), in the municipality of Camanducaia, state of Minas Gerais.

Although no systematic faunal surveys have been carried out, more than eighty bird species have been identified. Mammals reported and/or observed in the region include ocelots (*Felis pardalis*), puma (*Felis concolor*), foxes (*Cerdocyon thous*), otters (*Lutra*), capybaras (*Hydrochaeris hydrochaeris*), and agoutis (*Dasyprocta*). Masked titi monkeys (*Callicebus personatus nigrifrons*), brown howlers (*Alouatta fusca*), and tufted capuchin monkeys (*Cebus apella*) are also known to occur at São Francisco Xavier. In November 1990, a group of at least 15 muriquis (*Brachyteles arachnoides*) were located and photographed in the forest (LAA). Various sightings of the species have followed since then, and the site was mentioned in a recent survey of the species (Martuscelli *et al.*, 1994). With the exception of *Cebus apella*, the other three primate species are endemic to the Atlantic forest. The 1994 IUCN Red List of Threatened Animals gives *Brachyteles arachnoides* and *Callicebus p.nigrifrons* as endangered, and

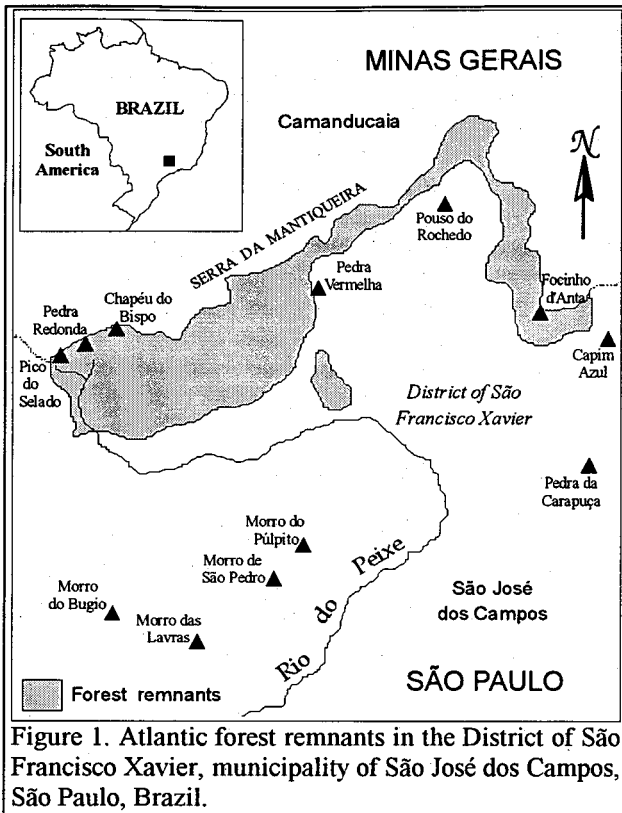


Figure 1. Atlantic forest remnants in the District of São Francisco Xavier, municipality of São José dos Campos, São Paulo, Brazil.

*Alouatta fusca* as vulnerable (Groombridge, 1993). The forest at São Francisco is theoretically protected by two legal measures. On 4 April 1979, the entire basin of the Rio Paraíba do Sul was decreed an Area of Environmental Protection (APA) (Decree No.87651). In 1992, the municipal administration passed law No.102/92, giving the status of APA to the forest at São Francisco Xavier. The municipal administration also launched an environmental education campaign in 1990, in order to instruct and gain support from the local population. Despite past measures, the area is still subject to illegal hunting and deforestation. One of the main problems is that the forest covers an area that belongs to several private properties, and the owners' attitudes towards conservation range from support to total indifference. The conservation of São Francisco's biodiversity may therefore depend on further legal interference. One possibility is the transformation of the area from an APA into an officially protected state reserve. The local administration of São José dos Campos has just endorsed a letter to the State Environmental Agency (SEMA), requesting the creation of a park in the region. The involvement of field researchers and outside conservationists is also important. A detailed census of the primate population is currently needed. Comparative ecological and behavioral data may also provide relevant

information for the development of management plans for endangered species (i.e., mureiqui; Mendes, 1994). Some of the large properties in São Francisco Xavier are protected by the landowners, and may prove suitable for immediate research. In one of them, with approximately 800 ha of forest, the owner is favorable to the establishment of a field station on his land. The continuous presence of scientists has been instrumental in the protection of other Atlantic forest reserves (see Strier, 1992), and would undoubtedly reinforce other actions to protect the entire forest of São Francisco Xavier.

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## LEVANTAMENTO DE PRIMATAS E ZONEAMENTO DAS MATAS NA REGIÃO DO PARQUE ESTADUAL DO IBITIPOCA, MINAS GERAIS, BRASIL

O Parque Estadual do Ibitipoca (1,488 ha) fica situado no município de Lima Duarte, Minas Gerais, entre 21°42'S e 43°53'W (Fig.1). Quanto à topografia, o Parque possui variações de altitude

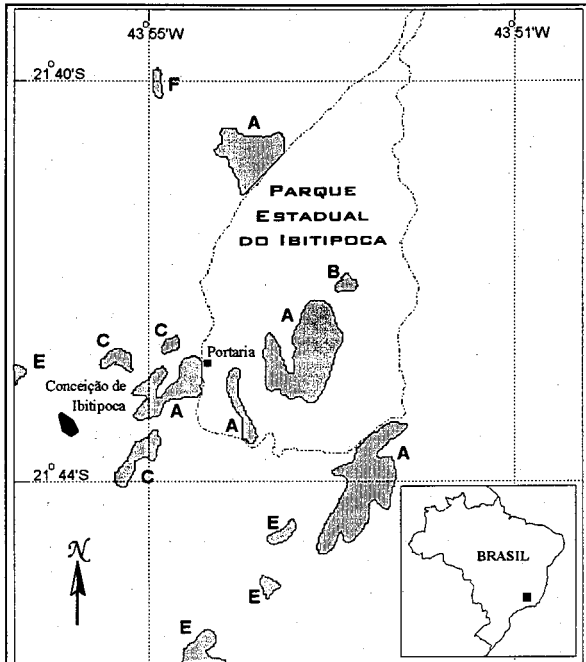


Figura 1. Mapa do Parque Estadual do Ibitipoca onde se observam as matas inventariadas e a sua categoria na chave de classificação (Tabela 1).

que vão de 1.050 m a 1.784 m, estando localizado na Serra do Ibitipoca, complexo da Serra da Mantiqueira. Em termos de diversidade de primatas, Drumond (1987) cita quatro espécies para o Parque: *Alouatta fusca*, *Callicebus personatus*, *Callithrix penicillata* e *Cebus apella*.

Este estudo teve como objetivos: a) levantamento dos primatas a nível de subespécie e a sua distribuição na área de estudo; b) levantamento dos parâmetros populacionais; e c) mapeamento da área de uso dos primatas, visando subsidiar o zoneamento do Parque. O levantamento foi realizado através do registro de vocalizações, "play-back", censo, enrevistas com moradores, e visitas de reconhecimento das matas. Para o zoneamento das matas do Parque e o de seu entorno, foi elaborada uma chave de classificação com base em valores ecológicos das meamas. Esta chave constou de seis classes, considerando-se: 1) conectividade entre as matas; 2) presença de espécies ameaçadas de extinção; e 3) número de grupos observados (ver Tabelas 1 e 2). Foi investigado um total 17 matas, sendo registrados 50 grupos. A espécie mais frequente foi *C. personatus nigrifrons* com 27 grupos (54%), seguida de *C. penicillata* com 14 grupos (28%) e *A. fusca clamitans* com nove grupos (18%). Este número de grupos é muito grande, considerando-se o pequeno tamanho das matas inventariadas. A estimativa da área amostrada foi 30,8 ha sendo a distância percorrida de 17,4 km em 24,4 horas de

Tabela 1. Chave de classificação das matas do Parque Estadual do Ibitipoca e de seu entorno

Classe	Chave
A	conectividade natural, com espécies ameaçadas
B	conectividade natural, sem espécies ameaçadas
C	sem conectividade, mas próxima, com espécies ameaçadas
D	sem conectividade, mas próxima, sem espécies ameaçadas
E	sem conectividade e distante, com espécies ameaçadas
F	sem conectividade e distante, sem espécies ameaçadas

censo. Incluindo as matas dentro e fora do Parque, *C. p. nigrifrons* apresentou uma densidade de  $0,74 \pm 1,57$  ind./ha, *A. f. clamitans*  $0,13 \pm 0,20$  ind./ha, e *C. penicillata*  $0,11 \pm 0,32$  ind./ha. A densidade total de primatas dentro e fora do Parque foi de  $0,97 \pm 1,72$  ind./ha. Por outro lado, a densidade foi maior em matas fora do Parque;  $2,63 \pm 2,29$  ind./ha fora do Parque e  $0,40 \pm 0,39$  ind./ha dentro do Parque, ou seja seis vezes maior.

Tabela 2. Classificação das matas do Parque Estadual do Ibitipoca e do seu entorno, em ordem de importância para o zoneamento e a conservação das espécies de primatas.

Classe	Matas
A	Mata Grande, Matinha, Portaria, Muricis, Maniquinha, Alojamento, Caetés e Morro do Gavião
B	Gruta do Pião
C	Buraco, Casarão e Chalé
D	---
E	Andorinhas, Araucárias, Boqueirão e Encosta (Boq.)
F	Estrada para Santa Rita

Quanto à distribuição geográfica de duas das espécies encontradas, os dados obtidos confirmam as citações da literatura. Kinzey (1981) citou *C. personatus nigrifrons* para a região da Serra do Ibitipoca. A distribuição natural de *A. fusca* cobre a região de Parque e era esperado que a subespécie fosse *clamitans* (veja Hirsch et al., 1991). Em relação a *C. penicillata*, sua ocorrência na região do Parque foi, de certa forma, surpreendente, uma vez que a literatura cita várias localidades próximas para a espécie *C. aurita* (veja de Vivo, 1991). As localidades citadas mais próximas do Parque para *C. penicillata* são Lagoa Santa (200 km ao norte) e Passos (300 km ao noroeste) (Ferrari, 1988; de

Vivo, 1991). Quanto a *Cebus apella (nigritus?)*, citada por Drumond (1987), não foi possível obter nenhum registro confirmando ou não a sua ocorrência na área percorrida pelos pesquisadores.

A partir da chave de classificação das matas, observa-se que na "Classe A" estão agrupadas a maioria das matas investigadas (Tabela 2) e são as que devem ser consideradas de máxima importância para a conservação dos primatas que nelas habitam. Embora ocorrendo somente três espécies de primatas na região do Parque, a área pode ser considerada rica em termos de densidade, e de muita importância no contexto regional. Duas das espécies, *A.fusca* e *C.personatus*, estão citadas no 1994 IUCN Red List of Threatened Animals (Groombridge, 1993). Fica evidente com os dados obtidos, que os atuais limites do Parque do Ibitipoca não incluem as melhores matas, e os mesmos precisam ser redefinidos e ampliados.

Os autores agradecem à Engevix Engenharia e ao Instituto Estadual de Florestas (IEF) de Minas Gerais pelo apoio logístico. O estudo foi financiado pelo BIRD/Pró-Floresta. O Projeto também consta de um vídeo SVHS "Projeto Primatas do Ibitipoca".

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## TWINS OR ADOPTION?

Since August 1989, we have been studying a black howling monkey (*Alouatta caraya*) group in the southern limit of the species' distribution - Estância Casa Branca (29<sup>o</sup> 37'S, 59<sup>o</sup> 17'W) (Bicca-Marques, 1990). Our research began with an intensive 12-month study (Bicca-Marques, 1991; Calegare-Marques, 1992), followed by yearly surveys of the age-sex composition of the population.

In January 1994, we observed an adult female (CAN) nursing and carrying two infant males of about 9 to 12-months of age. Since we did not observe the birth, we considered the hypothesis of adoption of one of the infants by CAN. However, we believe this to be unlikely due to the evolution of the group composition since the last survey, in late December 1992, because all the adult females present in the group in the January 1994 survey were also present in the previous survey and no other reproductively mature female was recruited. The infants' age indicated that the adoption hypothesis could be real only if one of the infants was the son of an immigrating female that died after giving birth. Information from local people corroborates the hypothesis of twins. Thus, we believe that this is a real case of twinning in *A. caraya* (for further information regarding the reproductive behaviour of this *A. caraya* population, see Calegare-Marques and Bicca-Marques, 1993). Twinning is uncommon in Cebidae but has been reported for *Alouatta seniculus* by Crockett and Rudran (1987) and Schultz (1921; cited in Hill, 1962), and also *Brachyteles* (Strier, 1992).

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## AN UPDATE ON THE LONG-TERM FIELD RESEARCH ON RED HOWLER MONKEYS, *ALOUATTA SENICULUS*, AT HATO MASAGUARAL, VENEZUELA

**Introduction:** Field studies on the demography and behaviour of red howler monkeys, *Alouatta seniculus*, at Hato Masaguaral, Estado Guarico, Venezuela, have been carried out under the direction of Dr. Rudy Rudran of the Smithsonian Institution since 1976 (Agoramoorthy and Rudran, 1993). Hato Masaguaral is a wildlife preserve and working cattle ranch, located in the central llanos of Venezuela, about 45 km south of the town of Calabozo, approximately 8° 34' N, 67° 35' W. At Masaguaral, the forest and native wildlife species are protected by the owner, Sr. Tomas Blohm, while domestic animals are controlled so as to have a minimal impact on the howlers' habitat and food

resources. The vegetation in this area is semi-deciduous, and most trees and shrubs lose their leaves in January and February (Troth, 1979; Crockett and Rudran, 1987a, 1987b). The red howlers in the savanna woodlands and gallery forest are sympatric with wedge-capped capuchin monkeys (*Cebus olivaceus*).



**Methods:** I have been monitoring some 36 groups in the savanna woodlands and 25 groups in the gallery forest since 1989 on a monthly basis to record demographic data. Most of the home ranges of red howler groups at Hato Masaguaral are already known. I usually record demographic details of group composition, sex of individuals, age classification, physical characteristics (for example, body size, coat color of infants, size and shape of nipples and female genitalia, and the size of the throat/beard of the males), births, emigration and immigration. Between 1989 and 1993, certain howler groups were selected to record data on social interactions. Social interactions of several groups which had been invaded by males were observed from dawn to dusk for five continuous days each month, but were also observed for at least three or four hours per day during the rest of the month. In each case, the identity and approximate age of the invading males, body size and the physical condition of both invading and resident males, and the social interactions between group members were recorded. Social interactions were recorded in three major categories: aggressive, affiliative and sexual. All-occurrences sampling and scan sampling were used as observational methods (Altmann, 1974).

**Recent findings:** Red howlers have attracted attention in recent years because of the occurrence of infanticide during and after male invasion (Rudran, 1979a, 1979b, 1974; Sekulic, 1983; Crockett and Sekulic, 1984; Agoramoorthy, 1992;



Agoramoorthy and Rudran, 1992, 1993, 1994b). The first evidence for infanticide by a platyrrhine during male invasion was observed among free-ranging red howlers by Rudran (1979a, 1979b). Similarities and some differences were recorded when compared to infanticidal situations described for Old World monkeys (Rudran, 1994). A dozen cases of infanticide have been observed during the period 1989-1994, and most of the one-male groups of red howlers became stable multi-male groups after successful male invasion (Agoramoorthy, 1992; Agoramoorthy and Rudran, 1994b). Within these multi-male troops, estrous females interacted sexually with several males (including the resident(s) and infanticidal/non-infanticidal invaders), and in some cases the resident male(s) stayed with the invader(s) for long periods of time. However, infanticidal males were not always observed to have immediate sexual access to females who had lost infants (Agoramoorthy, 1992; Agoramoorthy and Rudran 1994b; Rudran, 1994).

Three cases of infant adoptions among red howlers were observed for the first time in Venezuela. Two infants were adopted by their relatives and the third one was adopted by a non-relative (Agoramoorthy and Rudran, 1992). Twenty-one males migrated to join new social groups and the majority of them (61.9%) dispersed at or before the attainment of sexual maturity (Agoramoorthy and Rudran, 1993). The age of the dispersing males ranged from 2.3 to 19 years.

The company of a father or a brother appeared to be crucial for the dispersal of immature males because adult males over five years of age dispersed singly. The presence of a sexually mature kin-related female(s) was a factor promoting the dispersal of adult males. Infant killing or infant disappearance resulted after male immigration into groups that had infants except in two cases where the immigrants were related to the resident males. One of the males was observed to play, groom and lick the infants on several occasions (Agoramoorthy, unpubl. video document). This kind of interaction between a male immigrant and infant had not been previously reported for howler monkeys (see Agoramoorthy and Rudran, 1993 for details).

Between 1989 and 1991, 50 howlers monkeys were captured to ear-mark, measure, and collect hair and blood samples for a DNA fingerprinting study. Howlers were immobilized with Telazol or TEL (tiletamine hydrochloride and zolazepam hydrochloride). The mean dosages of TEL used for

adult males and adult females were 22.4 ( $\pm 7.3$ ) mg/kg and 22.5 ( $\pm 5.0$ ) mg/kg, respectively. Juveniles of both sexes received a mean dose of 30.5 ( $\pm 5.6$ ) mg/kg. The induction time for TEL ranged from 1 to 6.2 minutes. Total recovery time ranged from 39 to 308 minutes. There were no apparent side effects to the fetuses of two pregnant females. The mean dose of TEL in this study is greater than that reported for mantled howler monkeys (*Alouatta palliata*) in the wild (Glander *et al.*, 1991) and in captivity (Bush *et al.*, 1977). However, wild spider monkeys (*Ateles geoffroyi*) in Costa Rica were immobilized with a mean dose of 22.1 mg/kg (Glander *et al.*, 1991) which is similar to the doses reported here for red howlers. In general, TEL appeared to be a good immobilizing agent for this species (see Agoramoorthy and Rudran, 1994a).

*On-going Research Projects:* The following research projects are presently being carried out on the red howlers at Hato Masaguaral:

- 1) Demography and social mobility - R.Rudran and G. Agoramoorthy;
- 2) Social interactions within invaded groups - G.Agoramoorthy;
- 3) Reproductive physiology involving the study of urinary estrogen - J.Harder, R.Rudran and G.Agoramoorthy;
- 4) Population genetics and DNA fingerprinting - M.Hsu, R.Rudran and G.Agoramoorthy;
- 5) Vocal communication - G.Agoramoorthy;
- 6) Stress and reproduction in adults - R.Lohmann, G.Agoramoorthy and R.Rudran;
- 7) Field capture and chemical immobilization - G.Agoramoorthy.

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## News

## MURIQUI BIRTHS AT THE RIO DE JANEIRO PRIMATE CENTER

Following the reports on the captive breeding program of the muriqui, *Brachyteles arachnoides*, at the Rio de Janeiro Primate Center (CPRJ) of the Fundação Estadual de Engenharia do Meio-Ambiente (FEEMA) (Coimbra-Filho *et al.*, 1993, 1994), a further three infants have been born, sired by the male *B.a.arachnoides* (CPRJ 1091). The first was a female born on 12 October 1993 to the female *B.a.hypoxanthus* (CPRJ 924). It unfortunately died on the same day. The second, a male (CPRJ 1475), was born to the female *B.a.hypoxanthus* (CPRJ 891) on 25 April 1994. The female CPRJ 924 gave birth again on 24 June 1994 to a female infant CPRJ 1488. Both surviving infants are developing well and are in excellent condition. This brings the total births to six since the beginning of the program three years ago. Four are alive and well; three females and one male. All were births of just two females (Table 1).

Table 1. Muriqui births at the Center

<i>Male CPRJ 1091 x Female CPRJ 891</i>			
30.10.91	CPRJ 1286	Female	
25.04.94	CPRJ 1475	Male	
<i>Male CPRJ 1091 x Female CPRJ 924</i>			
10.09.91	CPRJ 1245	Female	Died 12.09.91
03.06.92	CPRJ 1335	Female	
12.10.93	CPRJ 1430	?	Died 12.10.93
24.06.94	CPRJ 1488	Female	

Source: CPRJ Records.

We are most grateful to the Coffin Group (Refrigerantes Niterói S.A.) for constant financial help in the feeding and management of the captive primate colonies at CPRJ. Likewise, we thank the Cia.Souza Cruz (Brazil), Jersey Wildlife Preservation Trust (JWPT). Wildlife Preservation

Trust International (WPTI), the Brazil Science Council (CNPq - Proc.2.2220414.76), the Brazilian Institute for the Environment (Ibama) - Rio de Janeiro State Environment Foundation (FEEMA) (IBDF-FEEMA Proc.5687/87-AC) and the Fundação Biodiversitas, Belo Horizonte, for continued and invaluable support.

**Alcides Pissinatti, Ademar F. Coimbra-Filho, João Lourenço dos Santos**, Centro de Primatologia do Rio de Janeiro, Fundação Estadual de Engenharia do Meio-Ambiente (FEEMA), Rua Fonseca Teles 121, Sala 1624, 20940-200 Rio de Janeiro, Rio de Janeiro, and **Anthony B. Rylands**, Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, 31270-901 Belo Horizonte, Minas Gerais, Brazil.

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## A STUDY ON THE BEHAVIORAL ECOLOGY OF THE SPIDER MONKEY, *ATELES GEOFFROYI*, IN THE MONTES AZULES BIOSPHERE RESERVE, CHIAPAS, MEXICO



PROYECTO  
ATELES

A field study on the behavioral ecology of *Ateles geoffroyi* in the Lacandon Rain forest of Montes Azules Biosphere Reserve, Chiapas, Mexico, has been underway since the Spring of 1993. The study is based at the Chajul Biological Station, at the south end of the Reserve (see Fig. 1). It is being supported by Conservation International and will comprise the Ph.D. theses of the following researchers: Roberto Ruiz-Vidal (University of Barcelona, Spain), Gabriel Ramos-Fernández (University of Pennsylvania, USA), and Alba Pérez-Ruiz (National Autonomous University of Mexico). The aim is an interdisciplinary study of the species, specifically to contribute to its conservation considering its endangered status (Groombridge, 1993).

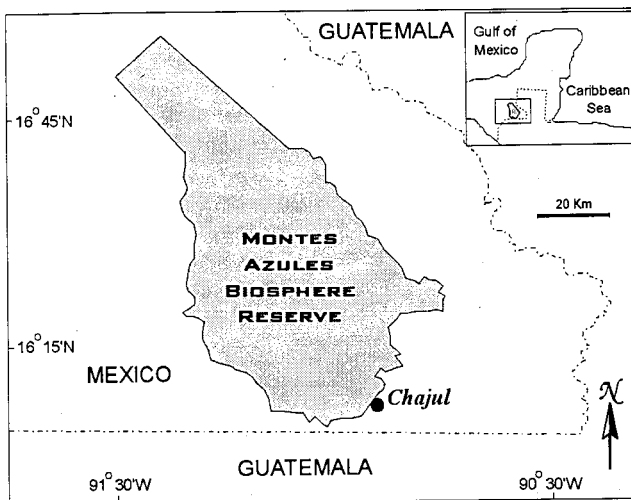


Figure 1. Map showing the Chajul Biological Station and the Montes Azules Biosphere Reserve, Mexico.

The Montes Azules Biosphere Reserve is located in the east of Chiapas, and comprises more than 331,000 ha of tropical rain forest. It is one of the last places in Mexico where this type of forest can be found, and is believed to be the reserve with the highest biodiversity anywhere in the country (Vásquez-Sánchez, 1992). The mean annual temperature is over 22°C, and annual precipitation is between 1,500 and 3,000 mm. The study site is in evergreen rain forest in the south of the Reserve, beside the Río Lacantún (16° 06'N, 90° 58'W). The black howling monkey, *Alouatta pigra*, also occurs there.

An interdisciplinary approach is necessary to understand the behavior of this species in relation to its ecology. Of the various aspects which will be dealt with in this project, the first will examine the relationship between the population of spider monkeys and their habitat; describing such as feeding and ranging patterns, and daily activities. Of particular interest is the diversity of the species' diet (Van Roosmalen and Klein, 1988). Comparing the results with other studies of the same and other *Ateles* species will shed light on the ecological factors that shape a spider monkey population. To this end we are also carrying out demographic analyses of the local population, along with vegetation analyses at the study site. A second project is aimed at understanding the social relationships between the group (community) members and between different communities. A complete description of the fission-fusion social system in these spider monkeys is needed in order to obtain an understanding of the relations between ecology and social organization (Symington, 1990). A study of vocal communication is also planned, not only as an important component of

their social relationships, but also for an understanding of their cognitive ethology. There are several reasons to consider that the spider monkey is an important species for this area of research, not least being their complex social system. Systematic data are being collected in order to test hypotheses concerning affiliative, reproductive, and agonistic behavior, which will eventually permit the construction of field experiments to address specific questions on cognition.

**Roberto Ruiz-Vidal, Alba Pérez-Ruiz,** Conservation International - México, Camino al Ajusco 124, Primer piso, Jardines en la Montaña, 14210 México D.F., México, and **Gabriel Ramos-Fernández,** Graduate Program in Biology, University of Pennsylvania, 214 Goddard Laboratories, Philadelphia, PA 19014-6017, USA.

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## THE BLACK UAKARI MONKEY IN THE PICO DA NEBLINA NATIONAL PARK

Pitheciine monkeys remain amongst the most poorly investigated of the New World primates. In particular, the black uakari, *Cacajao melanocephalus*, has never been studied in the wild or in captivity, and is therefore one of the least known. It is restricted to north-western Amazonia, and is listed as vulnerable in the *1994 IUCN Red List of Threatened Animals* (Groombridge, 1993).

Although very little studied, field observations have shown that *C.melanocephalus* lives in groups of up to one hundred individuals (pers. obs.;

Defler, 1991), representing the largest group size observed for any New World primate species (*Saimiri* may also be found in very large groups but Terborgh (1983) has suggested they may be temporary aggregations).

This year, I am starting a systematic field study of the behaviour and ecology of *C.melanocephalus* in the Pico da Neblina National Park, Amazonas. Emphasis will be given to the ecology of group size in this primate, investigating, in particular, the role of food patch size, abundance, and distribution. As proposed by various authors (see Terborgh and Janson, 1986, for a review), the size of a social group is limited by intragroup competition over access to feeding sites. In this regard, the size, abundance and distribution patterns of resource patches on which a species feeds are believed to set a limit on the number of animals able to feed (Leighton, 1982). By examining the size, abundance and distribution of patches of foods preferred by black uakari in the Pico da Neblina National Park I will shed light on understanding the reasons for the formation of the large groups characteristic of the genus.



The Pico da Neblina National Park of 2,200,000 ha is located in the state of Amazonas, Brazil, on the border with Venezuela. It is contiguous with the Venezuelan "Serranía de la Neblina" National Park (1,360,000 ha), and together they comprise the largest tract of protected tropical rainforest in South America. The Park is home for the Yanomami Indians who have been settled in a village (Maturacá) around a Salesian Mission since 1955. The Brazilian army also has a small base in Maturacá, founded in 1987. Since 1986, goldminers have been entering the park promoting increasing habitat disturbance in certain areas such as Pico da Neblina and Igarapé Tucano.

During July-August 1991, I conducted a three-month survey for uakaris in the Park and recorded six primate species: *Aotus trivirgatus*, *Ateles belzebuth*, *Alouatta seniculus*, *Cacajao melanocephalus* (subspecies *melanocephalus*, see Boubli, 1993), *Callicebus torquatus*, and *Cebus albifrons*. Groups of *C. melanocephalus* were observed in several different forest types including Amazonian *caatinga* or *campinarana* (forest on white sands), flooded forest (*igapó*), *terra firme* forest, and in forests on the slopes of mountains. It is interesting to note that most of the black uakari

groups were found in forests that are never flooded. In fact, two groups were observed on mountains at altitudes between 400 and 600 m above sea level. This is surprising since primates of the genus *Cacajao* are considered to be flooded-forest specialists (Ayres, 1986).

The diet of the black uakari has not yet been determined. However, my preliminary observations recorded that the seeds of unripe fruits of *Cunuria* sp., an abundant Euphorbiaceae tree in the Park, are evidently an important item in its diet.

I am indebted to the Brazilian army for their logistic support in Maturacá, especially Cel. Eudes Sampaio, Cel. Castello Branco, Gen. Aparício, Gen. Décio, Cap. Sidnei, and Sgt. Felix and his wife. I thank Júlio Goés and the Yanomami Indians for their invaluable help. I am also grateful to the physical anthropologist Mandy Colombo for assisting me in the field, and Drs. Katherine Milton and Marc van Roosmalen for their advice. The study is being supported by grants from the Louis Leakey Foundation, National Geographic Society, the World Wide Fund for Nature (WWF), and the National Science Foundation (NSF). My studies at the University of California are funded by a scholarship from the Brazilian Science Council (CNPq).

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### CYTOGENETIC STUDIES IN NEOTROPICAL PRIMATES

Cytogenetic studies can contribute to a better understanding of taxonomic and phylogenetic relationships among the Neotropical primates. However, taking into account the rapid development of new research techniques, there are still immense gaps in our knowledge, and for many of the species the karyotypes remain unknown. A research group in the Department of Genetics of the Federal University of Pará, Belém, has been working in this field since the early 80's (see references). The Group is composed of Dr Regina Maria de Souza Barros, Júlio César Pieczarka and Cleusa Yoshiko Nagamachi. In early 1990, they joined forces with Dr Margarete Suñe Mattevi (Department of Genetics, Federal University of Rio Grande do Sul, Porto Alegre), who is supervising the doctoral theses of both Pieczarka and Nagamachi.

Pieczarka's research is examining the nature and variability of constitutive heterochromatin of a number of South American primates, namely *Callithrix geoffroyi*, *C. argentata*, *C. emiliae*, *C. humeralifera*, *Cebuella pygmaea*, *Saguinus mystax*, *S.f. fuscicollis*, *Leontopithecus rosalia*, *Ateles p. paniscus*, and *Aotus*. The analyses use the method of banding with restriction endonucleases which cut the DNA in specific nucleotide sequences, giving a banding pattern unique for each enzyme. Seven different enzymes are used. Fluorescent dyes (CMA<sup>3</sup> and DA/DAPI) are also used to stain DNA's of different base compositions. CMA<sup>3</sup> stains G-C rich sequences, and DA/DAPI stains A-T rich sequences. Hopefully, these studies will permit the determination of the number of existing heterochromatins in each species, as well as the constitutive heterochromatins which they share.

The thesis of Nagamachi involves research into the chromosomal and phylogenetic relationships of the Callitrichidae. She is examining the karyotypes of the following species and species groups through G- and C-banding and NOR-staining: *Cebuella pygmaea*, *Callithrix argentata* group (5 taxa), *C. jacchus* group (5 taxa), *Leontopithecus* (2 taxa), *Saguinus midas niger*, and *Callimico goeldii*. Chromosomal differences (rearrangements involved in karyotypic differentiation) will be determined by comparing the karyotypes of each of

the taxa of the same genus and by comparing genera. The results will be transformed into basic data matrices and analysed using the computer programs PAUP (cladistic) and NT-sys (phenetic). The karyotype of *Cebus apella* will be used as an outgroup for the cladistic analysis.

Dr Regina Barros has also supervised two Master's theses. Manoel Alfredo Medeiros studied the cytogenetics of *Ateles*, and Sandra M.M.Dantas carried out a similar study of *Saimiri*. The aim of both was to determine chromosomal relations between the congeneric species for a better understanding of their phylogeny. In collaboration with researchers from the University of Barcelona, Spain, Dr Barros is also carrying out studies of ateline chromosomes, using G- and C-banding, NOR-staining, and restriction enzyme banding.

The Group will eventually expand their studies to all the platyrrhine genera in order to determine their cytotaxonomic relations and the structure of the constitutive heterochromatin of the various taxa. The research is supported by the Universities of Pará and Rio Grande do Sul along with the following institutions: in Porto Alegre - the Brazil Science Council (CNPq), the Organization of American States (OAS), the *Financiadora de Estudos e Pesquisas* (FINEP), the *Fundação de Amparo à Pesquisa do Rio Grande do Sul* (FAPERGS), and the *Programa Integrado de Capacitação de Docentes* (PICD) of the Brazilian Higher Education Authority (CAPES); in Belém - CNPq, FINEP, and the *Centrais Elétricas do Norte do Brasil* (Eletronorte); and in Spain - FIS 93/0657.

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## SOCIAL STRUCTURE OF SEMI-CAPTIVE BROWN CAPUCHINS

Patrícia Izar recently completed a Master's thesis in Experimental Psychology for the Institute of Psychology, University of São Paulo, entitled "Analysis of the Social Structure of a Semi-Captive Group of Brown Capuchin Monkeys". The thesis was supervised by Dr Takechi Sato, and financed by the University and the *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP). The following is the abstract of the thesis.

"Wild Groups of *Cebus apella* are distinguished by a linear dominance hierarchy which determines a non-random spatial organization of the group members in terms of the exploitation of food resources and the advantages of group vigilance. A semi-captive, artificially-formed group of this species, with a composition varying between 40 and 47 individuals, was studied to describe the social structure, investigate the cohesion of the group members, and verify possible consequences resulting from captive conditions involving abundant food and an absence of predators, on its social organization. Dominance relationships and spatial organization were similar to that described for wild groups only at the moment that food was supplied. During the rest of the day the significance of food competition for the social structure of the group was relaxed, and strong affiliative relationships were observed. The relationships established between different group members could be understood in terms of strategies for the acquisition of allies, enhancing reproductive opportunities, and the development of social skills, according to sex, age, and dominance status of the individuals involved".

Research on *C. apella* social organization is continuing with a study of wild groups in Atlantic forest in the state of São Paulo. The main objectives include the influence of ecological factors, such as food availability, over the social structure, and the reproductive strategies employed by both sexes. The study will be supervised by Dr Takechi Sato (University of São Paulo) and Dr John Hearn (Wisconsin Regional Primate Research Center, Madison).

**Patrícia Izar**, Departamento de Psicologia Experimental, Instituto de Psicologia, Universidade de São Paulo, Av. Professor Mello Moraes 1721, Caixa Postal 66261, 05508-901 São Paulo, São Paulo, Brazil.

#### Reference

Izar, P. 1994. Análise da estrutura social de um grupo de macacos-prego (*Cebus apella*) em condições de semi-cativeiro. Master's thesis, Instituto de Psicologia, Universidade de São Paulo, São Paulo. 119pp.

#### DEVELOPMENT OF A PANAMANIAN PRIMATE CENTER

A group of educational and research institutions are actively developing a center for the study of nonhuman primates in Panama. This group

includes the Animal Behavior Research Institute, the Institute of Tropical Studies of Florida State University, the University of Panama, the Summit Zoo, the Panamanian Ministry of Natural and Renewable Resources (IN.RE.NA.RE), School of Veterinary Medicine of Tufts University, and the National Institute of Health (NIH).

The primary focus of the Center is naturalistic studies of nonhuman primates, with a strong emphasis on studies of behavior. Psychobiological, physiological, and medical studies will be conducted when they contribute to the Center's goals. The development of a Panamanian Primate Center will result in the creation of an international research, education, and ecotourism resource. It will be located on a group of about a dozen islands in Lake Gatun, created through the construction of the Panama Canal.

Our initial efforts are focused on a 33 ha island, Isla Tigre, which is currently the site of an intensive study of Panamanian tamarins, *Saguinus geoffroyi*, a small group having been released there in 1987. Tamarins are found in the forests bordering Lake Gatun, and the release was, therefore, a reintroduction; the species evidently having occurred there prior to the creation of the lake. The tamarins are currently the subject of an ongoing study on the influences of observers on their range use.

Isla Tigre will serve as an initial model for the development of neighboring islands, where other native species of nonhuman primates will be introduced: capuchin monkeys, spider monkeys and howling monkeys. Night monkeys already occupy some of the islands. An hour-long video tape on the project ("Isla Tigre: An Island for Tamarins") is available, and can be borrowed from the library of the Wisconsin Regional Primate Research Center at Madison, Wisconsin, or from the author. Courses in Primate Social Biology and several related areas in psychology and biology are offered at Florida State University, Panama Canal Branch. International collaborative agreements are being developed for projects at the Primate Center, as are direct links with the Association of Panamanian Primatologists.

Help in the conduct of this study and the development of the Primate Center has been provided by Professors F.S. Nuñez and D. Carter, and by G. Carter, A. de Telesca, J. Torres Miranda, V. de Telesca, C.A. Rasmussen, R. Valdez, 28 undergraduate field assistants, and the Student Biology Association (SIBUP) of the University of

Panama. The project has received support from SFS, NIMH, NIH, NSF, WWF, the L.S.B. Leakey Foundation, the Smithsonian Tropical Research Institute, the Ministry of Housing of the Republic of Panama, and IN.RE.NA.RE. This is publication number 32 of the Animal Behavior Research Institute.

**Dennis R. Rasmussen**, Florida State University, Panama Canal Branch, PSC #02, Box 2663, APO AA 34002, Panama.

### INTERNATIONAL COLLABORATION FOR MARMOSET RESEARCH BETWEEN BRAZIL AND ENGLAND

The Department of Psychology of the University of Reading, UK, and the Department of Physiology of the Federal University of Rio Grande do Norte (UFRN), Natal, Brazil, have recently signed an Inter-institutional Links Program supported by the Brazilian Higher Education Authority (CAPES) and the British Council. This link program has as its overall aim the development of scientific cooperation between Brazilian and British scientists, the exchange of postgraduate students for training in primate biology, and the eventual expansion of the Psychobiology postgraduate program of UFRN from the Master's to the Doctoral level. The program is focused on the common marmoset (*Callithrix jacchus*), native to north-east Brazil. Both universities have traditions in terms of research projects involving the species, and collaboration between them is already well established. Dr Hilary O.Box, the British Coordinator for the Link, has made several visits to Natal in recent years. She has given courses in the Psychobiology Master's program there and played an important role in advising on a number of the research projects underway. Dr Maria Emilia Yamamoto, the Brazilian Coordinator, has collaborated in the supervision of two students from Reading: Andrew Smith and David Owens visited Natal for three-month internships involving studies of common marmosets in captivity and in the wild. Dr Yamamoto is currently spending a sabbatical year at the University of Reading; a post-doctoral fellowship awarded by the Brazil Science Council (CNPq). A Brazilian student, Maria Teresa Mota, recently began her doctoral research on male reproductive strategies in *C.jacchus*, a project supported by CNPq and supervised jointly by Dr Hilary Box and Dr Maria Bernadete Cordeiro de Sousa (Natal). Arrangements are also being made for a student from Reading University to spend a year in Brazil to study *C.jacchus* groups in the wild, at the Nisia Floresta Reserve of the

Brazilian Institute for the Environment (Ibama) near Natal. This research will be supervised by Dr Maria de Fátima Arruda (UFRN). The first formal exchange this year will involve a visit by Dr Christopher Faulkes, who studies reproductive physiology at the Institute of Zoology, London Zoo, to Brazil, with Dr Maria Bernadete Cordeiro de Sousa going to Reading.

**Maria Emília Yamamoto**, Setor de Psicobiologia, Centro de Biociências, Universidade Federal do Rio Grande do Norte, Caixa Postal 1511, 59072-970 Natal, Rio Grande do Norte, Brazil, and **Hilary O. Box**, Department of Psychology, University of Reading, 3 Earley Gate, Whiteknights Road, Reading RG6 2AL, Berkshire, England.

### POSICION DE LA UICN SOBRE LA CRIA EN CAUTIVIDAD

Posición preparada por el Grupo de Especialistas en Cria en Cautividad de la Comisión de Supervivencia de Especies. Adaptada por la 22<sup>a</sup>. Reunión del Manejo de la Unión Internacional para la Conservación de la Natureza y de los Recursos Naturales (UICN). Gland, Suiza, 4 de Setiembre de 1987.

*Sumário:* la sola protección de los hábitat no es suficiente si el objetivo de la Estrategia Mundial para la Conservación en cuanto al mantenimiento de la diversidad biótica, quiere ser alcanzado.

El establecimiento de poblaciones cautivas autosuficientes y una intervención de apoyo serán necesarios para evitar la pérdida de muchas especies, especialmente aquellas en situación de gran riesgo por encontrarse en hábitat que se han visto muy reducidos, altamente fragmentados y alterados. Se necesitan establecer programas de cria en cautividad antes que las especies se vean reducidas a una cantidad de ejemplares críticamente baja, y también es preciso que dichos programas se coordinen internacionalmente según principios biológicos acertados, con miras a mantener o reintegrar poblaciones viables a su medio natural.

#### *Enunciaci3n del Problema*

Los datos de la UICN indican que cerca del 3% de la superficie terrestre est1 oficialmente protegida. Parte de esta 1rea y mucho del restante 97% se est1 volviendo inhabitable para muchas especies, y las poblaciones que quedan est1n en gran medida siendo reducidas y fragmentadas. A partir de la



moderna biología de la población se puede predecir que en esas condiciones muchas especies se perderán. En promedio, en cada año en este siglo se ha perdido más de una especie de mamífero, ave o reptil. El ritmo de desaparición para todas las especies es mucho más elevado, ya que no se registran las extinciones que ocurren en la mayoría de las taxas fuera de estos grupos.

Ciertos grupos de especies, especialmente aquellas con una distribución restringida, las de gran tamaño, las de gran valor económico, aquellas que están al principio de la cadena alimentaria, y las que solamente ocurren en hábitat clímax se hallan en una situación de riesgo particularmente alto. Las especies de las mencionadas categorías son posiblemente las primeras en perderse, pero corren el riesgo una amplia variedad de otros tipos. La conservación a largo plazo requerirá un manejo para reducir el riesgo, incluyendo poblaciones *ex situ* que podrían servir de apoyo e interactuar demográfica y genéticamente con, poblaciones silvestres.

#### Factibilidad

Más de 3000 especies de vertebrados están siendo criados en zoológicos y otras instalaciones para animales en cautiverio. Cuando se hacen serios esfuerzos la mayoría de las especies se reproducen en cautiverio, y poblaciones viables pueden ser mantenidas por largos periodos. Una rica experiencia está disponible en esas instituciones en asuntos que incluyen reproducción animal, medicina veterinaria, biología reproductiva, comportamiento animal, y genética. Ellas brindan un apoyo a las poblaciones de muchas taxas amenazadas, usando recursos que no compiten con aquellos de la conservación *in situ*. Las poblaciones en cautiverio han suministrado en el pasado un apoyo crítico a algunas poblaciones silvestres (por ejemplo el bisonte americano, *Bison bison*) y ha sido para otras la única manera de escapar de la extinción, al ser reintroducidas a su medio natural (por ejemplo el oryx árabe, *Oryx leucoryx*).

#### Recomendación

La UICN insta a todas aquellas organizaciones nacionales e internacionales e instituciones individuales interesadas en el mantenimiento de animales silvestres en cautiverio, a comprometerse, siempre que sea necesario, a desarrollar una política general de desarrollo demográfico autosostenido de poblaciones cautivas de especies en peligro de extinción.

#### Protocolo Sugerido

**Que hacer.** Se deben tener en cuenta los problemas específicos de la especie en cuestión, y se deben explicitar claramente los objetivos del programa de cría en cautividad.

**Cuando.** Siempre se ha subestimado la vulnerabilidad de las poblaciones poco numerosas. Esto ha llevado a que las poblaciones en cautiverio se establezcan demasiado tarde, cuando las crisis es enorme y la extinción probable. Por tanto un reconocimiento temprano de tales situaciones es decisivo y depende de la información sobre el status de las poblaciones silvestres, particularmente la proporcionada por el Centro de Monitoreo de la Conservación de la UICN. El manejo para mejor reducir el riesgo de extinción requiere que se establezcan poblaciones en cautiverio sustentables con mucho más anticipación, preferiblemente cuando la población silvestre está aún en los millares. Los vertebrados con un censo actual por debajo de los mil individuos en su medio natural, requieren una estrecha y rápida colaboración entre los conservacionistas que trabajan en el terreno y aquellos especialistas en cría en cautividad, para hacer sus esfuerzos complementarios y minimizar la posible extinción de la taxa.

**Como.** Para asegurar el objetivo primario, que es la supervivencia de especies a través de poblaciones en cautiverio estables y autosustentadas, es necesario que dichas poblaciones en cautiverio sean establecidas y manejadas según principios científicos válidos. Las poblaciones en cautiverio que sean estables conservan las opciones para la reintroducción y/o el apoyo a las poblaciones silvestres.

El marco para una cooperación y coordinación internacional entre las instituciones de cría en cautividad que poseen especies en situación de riesgo, se debe establecer en un acuerdo para que cooperativamente se manejen dichas especies, a fin de lograr una seguridad demográfica y una diversidad genética. El Grupo de Especialistas en Cría en Cautividad de la UICN/CSE es un grupo consultor apropiado en lo que concierne a la ciencia y recursos de la cría en cautividad.

Los programas de cría en cautividad destinados a especies en situación de riesgo deberán dirigirse en primer lugar a beneficiar a las mencionadas especies, sin que intervengan intereses comerciales. La adquisición de animales para dichos programas no deberá promover actividades comerciales. Cuando sea posible, los programas de cría en cautividad deberán ser llevados a cabo

paralelamente con los estudios de campo y con los esfuerzos destinados a la conservación de las especies en su medio natural.

### **PRIMATE CONSERVATION - THE JOURNAL OF THE IUCN PRIMATE SPECIALIST GROUP**

After a long delay, Number 11 (1990) of *Primate Conservation* has been published (58pp.). With the creation of separate newsletters (*Primate Conservation* started its career as the *Newsletter of the IUCN/SSC Primate Specialist Group* in 1981) for Asia, the Neotropics, Africa (see below) and Madagascar, *Primate Conservation* will now take on the role of a yearbook/journal. As pointed out in the editorial by Russell Mittermeier (Chairman of the PSG) and William Konstant (Editor), this combined format of newsletters and journal is a first for an IUCN/SSC Specialist Group. The four newsletters and *Primate Conservation* are produced and circulated courtesy of Conservation International, Washington, D.C. *Primate Conservation* is also supported by the Department of Anatomical Sciences of the State University of New York at Stony Brook.

As in previous numbers, it is divided into "News from the Field" (short articles or notes reporting on such as status, distribution, and protected areas), "Articles" (longer reports including also conservation and research projects), and "Primate Miscellany". Future numbers will maintain "News from Captivity" for short articles concerning captive breeding and management, to attend to the Captive Breeding Section of the Group. Number 11 includes reports on *Cacajao calvus ucayalii* (Eckhard Heymann), and *Cacajao melanocephalus ouakary* (Alexia C.da Cunha and Adrian Barnett), and two articles on *Brachyteles arachnoides* (Frederico Lane and Rosa Maria Lemos de Sá *et al.*) (see page 24 for full references).

William Konstant, editor of Number 11, is now at the Philadelphia Zoological Society, and has passed the task over to Anthony B.Rylands (Federal University of Minas Gerais, and Conservation International - Brazil Program). Anthony Rylands will be counting on the help of the Regional Vice-chairpersons to bring *Primate Conservation* up-to-date, and consolidate its role as a forum for all aspects concerning the ecology and conservation of primates worldwide. Please send manuscripts to either Russell Mittermeier or Anthony Rylands at the addresses below.

**Russell A. Mittermeier**, Conservation International, 1015 Eighteenth Street N.W., Suite 1000, Washington, D.C. 20036, USA, Fax: (202) 887-0192 or **Anthony B. Rylands**, Conservation International - Brazil Program, Avenida Antônio Abrahão Caram 820/302, Pampulha, 31275-000 Belo Horizonte, Minas Gerais, Brazil, Fax: +55 (31) 441-1795.

### **IUCN/SSC PRIMATE SPECIALIST GROUP NEWSLETTERS - AFRICAN PRIMATES**

A meeting of the IUCN/SSC Primate Specialist Group, held during the XIV Congress of the International Primatological Society (IPS) in Strasbourg in August 1992, decided on the decentralization of the Group to allow for greater efficiency and interaction among its members. Co-chairpersons were elected for three of the four principle regions containing wild primate populations (see editorial in *Neotropical Primates*, Vol.1, No.1); Ardith Eudey - Asia, Anthony Rylands and Ernesto Rodríguez Luna - Neotropics, and Roderic Mast - Madagascar. Ardith Eudey has been editing the newsletter *Asian Primates* since 1991. Roderic Mast edited the first edition of *Lemur News* in May 1993, and *Neotropical Primates* was begun in March 1993. The Africa section was left unattended, but we are now happy to announce that Dr Tom Butynski recently agreed to take on the task of editing a bi-annual newsletter - *African Primates*. It will be published and distributed by Zoo Atlanta, Nairobi, in collaboration with Conservation International, the National Museums of Kenya, and the Kenya Institute of Primate Research. As with the other newsletters, the success of *African Primates* will depend largely on the willingness of those involved in primate conservation in Africa to provide relevant information such as research findings, field survey results, advances in field and laboratory techniques, field action alerts, book reviews, events, job announcements, funding possibilities and recent publications (including reports and theses). *African Primates* will also announce letter writing campaigns and other activities which might benefit from the support of its readership. It will be distributed free-of-charge to all interested persons. The deadline for contributions for the inaugural issue is October 1, 1994.

**Thomas M. Butynski**, Editor - *African Primates*, Zoo Atlanta, P.O.Box 24434, Nairobi, Kenya.

**CURSO: INTRODUÇÃO A PRIMATOLOGIA**

O Centro Argentino de Primates (CAPRIM), com sede em Corrientes, Argentina, está oferecendo um curso "Introdução a Primatologia". Objetivos do Curso: que os participantes a) introduzam-se no estudo de primatologia, b) conheçam a biologia das espécies *Saimiri boliviensis*, *Cebus apella* e *Alouatta caraya*, c) adquiram treinamento em manejo, captura, identificação, determinação de idades, alimentação, coleta de amostras, diagnóstico de gestação e técnicas de observação destas espécies. Programa: Taxonomia e distribuição dos primatas. O modelo primata em pesquisas biomédicas. Nutrição e alimentação. Biologia da Reprodução. Medicina primatológica. Zoonoses. Etologia dos primatas. Instalações para primatas em cativeiro. Captura e imobilização. Identificação e registro de dados. Requisitos de admissão: estudantes avançados de Veterinária e Biologia, profissionais ou técnicos relacionados com o assunto. Duração: 5 dias (carga horária 40 horas). Custo: US\$250 (inclue alojamento com pensão completa no CAPRIM e material didático, embora será necessário trazer roupa de cama e banho, botas de borracha e avental). Data: a determinar. Contato: Centro Argentino de Primates (CAPRIM), Casilla de Correo 145, (3400) Corrientes, Argentina. Tel./Fax: (54) (783) 27790.

**EVOLUTION OF THE PRIMATES: AN INTERNATIONAL PRIMATOLOGY COURSE - STRASBOURG, FRANCE**

Since 1998, an annual International Course in Primatology has been held in the Université Louis Pasteur (ULP), Strasbourg, France, and occasionally partly in the Ruhr Universität, Bochum, Germany. The course provides the "Certificat Européen de Primatologie", and is reserved for graduate students in Biology, Medicine, Psychology, Veterinary Science, and Zoology who hold a Master's degree or equivalent, or have completed two years of studies in a medical discipline. It is co-organized by Professors Yves Rumpler and Holger Preuschoft, and lasts three weeks (full-time: 60 hours of lectures and 40 hours

of practical work), during March-April. The languages used are English and French, and lecturers are recruited from a number of European countries. Assessment is in the form of a written essay.

The Course is divided into three sections: 1) # Systematics, Evolution of the Brain, # Comparative Anatomy, Fossils, and Functional Anatomy of the Locomotor Apparatus (Biomechanics); 2) # Population Genetics, Phylogeny, # Genetic and Cytogenetic Factors in Evolution, # Molecular Biology, and # Application of Genetic Prints to Reproductive Strategies; and 3) # Ecology, Socio-Ecology, Cognition, Chronobiology, # Evolution of Behaviour, Social Structure, # Vocal Communication, and Mother-Infant Relationships, # Field Studies of Behaviour, # Conservation Strategies, and Captive Housing. Lecturers: G. Anzenberger (Zürich-Irchel University); R. H. Crompton (Liverpool University); B. Dutrillaux (Curie Institute, Paris); H. Erkert (Tübingen University); N. Herrenschmidt (Primate Centre, ULP, Strasbourg); J. M. Le Minor (Medicine, ULP, Strasbourg); R. D. Martin (Zürich-Irchel University); A. Paul (Göttingen University); J. J. Petter (National Museum of Natural History, Paris); P. Picq (Collège de France, Paris); H. Preuschoft (Ruhr University, Bochum); J. J. Roeder (Primate Centre, ULP, Strasbourg); Y. Rumpler (Medicine, ULP, Strasbourg); W. Scheffrahn (Zürich-Irchel University); J. A. R. A. M. van Hooff (Utrecht University); S. Warter (Medicine, ULP, Strasbourg); and P. Winckler (Göttingen University).

For further information: Professor Yves Rumpler, Directeur - Institut d'Embryologie, Faculté de Médecine, Université Louis Pasteur, 11 rue Humann, F-67085 Strasbourg Cedex, France. Tel: (33) 88 35 87 76, Fax: (33) 88 24 20 05 or (33) 88 35 87 99. Inscriptions: 15 September to 31 December 1994, in Strasbourg.

**REACTIVACION DE LA REVISTA INTERNACIONAL VIDA SILVESTRE NEOTROPICAL**

El número 3(1) de *Vida Silvestre Neotropical (VSN)* fue publicado en junio de 1994 y fue distribuido en la reunión conjunto de la Sociedad de Conservación Biológica y Asociación de Biología Tropical en Guadalajara, México. Encabezado por un ensayo escrito por Daniel

Janzen sobre el manejo de la biodiversidad en los áreas silvestre de los trópicos, también incluye artículos sobre la socioecología del zorro gris, *Dusicyon griseus*, en la Patagonia de Chile (Johnson y Franklin), la conservación de los primates en la Argentina (Brown y Zunino) y el análisis microhistológico de hábitos alimentarios de herbívoros en el trópico (Middleton y Sánchez). Además incluye revisiones de seis libros importantes para los científicos neotropicales. Finalmente presente la sección de Anuncios que detalla conferencias, becas, empleo y los objetivos y políticas de *VSN*.

*VSN* es una revista técnica para la publicación de artículos de alta calidad acerca de la investigación y manejo de los recursos bióticos en el Neotrópico y región austral de Sur América. *VSN* responde a la necesidad de una revista internacional para publicar la información nueva que se está generando rápidamente en el campo de la conservación biológica en América Latina y pretende asegurar su disponibilidad a investigadores, administradores y estudiantes interesados en este campo. Los manuscritos pueden ser sometidos en español, portugués o inglés y serán publicados en el idioma en que fueron presentados. Solicitamos manuscritos sobre el tema principal de *VSN*: el manejo de la vida silvestre y la conservación biológica en el Neotrópico y la región austral de Sur América. Los costos por suscripciones son: para América Latina -estudiantes US\$8.00, profesionales US\$12.00, instituciones US\$15.00; otros estudiantes US\$15.00, profesionales US\$24.00, instituciones US\$30.00. Se reciben pagos mediante tarjeta de crédito, cheques y ordenes de compra. Para información adicional favor escribir a: *Vida Silvestre Neotropical*, Programa Regional en Manejo de Vida Silvestre, Dept. SJO 278, P.O.Box 025216, Miami, Florida 33102, USA o *Vida Silvestre Neotropical*, Apartado 1350, Heredia 3000, Costa Rica. El próximo número 3(2) saldrá en noviembre de 1994.

## WILDLIFE DISEASE ASSOCIATION - LATIN AMERICAN SECTION

The Wildlife Disease Association (WDA), founded in 1951 and based in Ames, Iowa, is an international non-profit organization dedicated to wildlife conservation through the study of diseases in wild animals and fish. The primary goal is to advance the understanding of the effects of infections, parasites, environmental toxins, and

nutritional, physiological, developmental and neoplastic diseases on free-living and captive wild animals, and their relationship to man. The WDA has over 700 members from 45 countries who are engaged in research, teaching, and service activities related to wildlife. The concerns of the organization include game and furbearing mammals, nongame and endangered species, wildlife relocation and rehabilitation, zoological parks, public health, livestock and poultry health, comparative medicine, and aquatic animal health. WDA membership benefits include: *The Journal of Wildlife Diseases* (quarterly), with reports on wildlife disease investigations, research papers, brief research notes, case and epizootic reports, and information concerning the WDA's activities; *The Wildlife Disease Newsletter*, published quarterly with the journal and which keeps member's informed of association business and items of contemporary interest in wildlife diseases; and an annual meeting (August) sponsored by the WDA. Graduate and veterinary student participation in the annual meeting is encouraged with research recognition and student presentation awards. The 1995 Meeting will be held in East Lansing, Michigan, in conjunction with the American Association of Wildlife Veterinarians and the American Association of Zoo Veterinarians. Latin American members are encouraged to participate.

Till recently the WDA has supported Australasian, Nordic, and European Sections. However, in July 1994, Dr Alonso Aguirre was appointed temporary Chairman (until an election is held) of a newly-formed Latin American Section, in a WDA Council meeting in Monterey, California. The creation of the Section was supported by 17 active members from nine Latin American countries. The long-overdue formation of WDA's Latin American Section is an important step to initiate and maintain contact with Latin American biologists and veterinarians interested in wildlife diseases. In addition, the Section will provide a vehicle to open communication on wildlife diseases that have gone undocumented in many Latin American countries. The *Wildlife Disease Newsletter* will be the means of communication with a part designated to "News from WDA's Latin American Section". The official language is English, but items in Portuguese and Spanish are welcomed.

For further information please contact: Dr Alonso Aguirre, Chairman WDA Latin American Section, P.O.Box 1522, Fort Collins, CO 80522, USA. Tel: (303) 484-6267, Fax: (303) 482-6184.

## **APPLIED ETHOLOGY AND ANIMAL WELFARE - E-MAIL NETWORK**

Those with an interest in applied ethology or animal welfare might be interested in joining the e-mail network APPLIED-ETHOLOGY, set up for the exchange of information, discussions, announcements, and news items. This network was the initiative of members from the International Society of Applied Ethology (ISAE), with the help of computer systems experts from the University of Saskatchewan. Non-ISAE members with an interest in applied animal ethology are welcome to participate. If you wish to join the network send a message to "applied-ethology-request@sask.usask.ca". Within the text of your message (not at the subject header) you must type the command: SUBSCRIBE applied-ethology followed by your e-mail address. Alternatively, send a message to Joe Stookey (stookey@sask.usask.ca) or Jeff Rushen (rushenj@cccot2.agr.ca) who will join you up. To send a message to the entire network: applied-ethology@sask.usask.ca.

## **WILDLIFE TRADE AND CITES**

The World Conservation Monitoring Centre (WCMC), based in Cambridge, England, has announced "CITES-L", an electronic listing for discussion and postings of issues in wildlife trade and the Convention on International Trade in Endangered Species (CITES). WCMC has had over 12 years of experience in dealing with wildlife trade issues and maintains a database of all reported trade in CITES-listed species on behalf of the CITES Secretariat, Geneva. The 9th CITES Conference will be held in November in Fort Lauderdale, Florida, and WCMC hopes to post decisions and results of discussions as they take place.

Messages sent to CITES-L are distributed automatically and authors are solely responsible for the content of their postings. WCMC and CITES do not verify the accuracy of submitted messages nor do they endorse their content. Those interested in joining the list should send a one-line message to listproc@wcmc.org.uk with the command line (in message body): subscribe cites-l <your name>. It should be noted that replying to a message from the list will reply to all subscribers. Further information: Helen Corrigan, CITES-L List Manager, Wildlife Trade Monitoring Unit, World Conservation Monitoring Centre, 219 Huntingdon

Road, Cambridge CB3 0DL, U.K. Tel: +44 223 277314, Fax: +44 223 277136, e-mail: helen.corrigan@wcmc.org.uk.

## **POST IN CONSERVATION BIOLOGY**

The Center for Conservation Biology at Stanford University seeks an Associate Director for Tropical Conservation Biology. The Tropical Program consists of several semi-autonomous research projects in Latin America. The primary responsibility is to advance the application of science in conservation planning and management in the tropics. Duties include both program administration and research. Substantial international travel is involved. Requirements include: Ph.D. demonstrable experience in research at the interface between science and public policy in the tropics, and fluency in English and Spanish. Latin American citizens are encouraged to apply. For a full description, contact: Tropical Research Search, Center for Conservation Biology, Department of Biological Sciences, Stanford University, Stanford, CA 94305-5020, USA. Fax: (415) 723-5920.

## **POST IN ECOLOGY AND BEHAVIOR OF NONHUMAN PRIMATES**

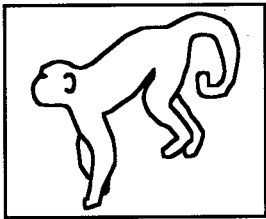
The Department of Anthropology, Yale University, is seeking to fill a junior position in Biological Anthropology at the level of Assistant Professor, beginning 1 July 1995. Candidates should complement the existing research interests of the faculty: specialization in the ecology and behavior of nonhuman primates is preferred. Send curriculum vitae, references, a statement of research and teaching interests, and writing samples by 31 October 1994 to Professor Andrew Hill, Chair, Biological Anthropology, Search Comm., Department of Anthropology, Box 208277 Yale Station, New Haven, CT 06520-8277, USA.

## **POST IN ANIMAL BEHAVIOR AND BIOLOGY - BUCKNELL UNIVERSITY**

With a strong interdisciplinary interest and training in Biology, the candidate is required to take responsibility for long-standing, group-housed primate colonies at Bucknell, and to involve undergraduate students in non-invasive research with primates. Assistant Professor entry-level preferred. Tenure-track position begins in Fall

1995. Salary competitive and commensurate with qualifications. Bucknell is a largely undergraduate (3,200) school with an additional 200 graduate students studying for MA/MS. A strong commitment to excellence in teaching and to using research as a teaching tool is demanded. The successful candidate will teach part of the core coursework in Biology, contribute to the General Education Program, and offer courses and labs in the Program in Animal Behavior. Send letter describing qualifications, names and addresses of references, and reprints to Professor Douglas Candland, Chair, Program in Animal Behavior, Bucknell University, Lewisburg, PA 17837, USA. Applications' review beginning December 15 1994. Women and members of minority groups are encouraged to apply.

## Primate Societies



### VI CONGRESSO BRASILEIRO DE PRIMATOLOGIA

No período de 24 a 29 de julho de 1994, foi realizado, com grande êxito, o VI Congresso

Brasileiro de Primatologia, na Universidade Federal do Rio de Janeiro, Rio do Janeiro. O Comitê Organizador foi composto pelas seguintes pessoas: Horacio Schneider (Presidente da Sociedade Brasileira de Primatologia - SBPr), Stephen F. Ferrari (Vice-Presidente da SBPr), Aline Da Rin P. de Azevedo (1<sup>a</sup>. Secretária da SBPr), Iracilda Sampaio (2<sup>a</sup>. Secretária da SBPr), Maria Paula C. Schneider (1<sup>a</sup>. Tesoureira da SBPr) e José de Sousa e Silva Júnior (2<sup>o</sup>. Tesoureiro da SBPr). Foram apresentados 87 trabalhos, sendo 22 através da programação do XX Congresso Brasileiro de Zoologia (realizado simultaneamente) e 65 através da programação do Congresso de Primatologia (veja pp. 29-31). Estes 65 trabalhos foram distribuídos nas seguintes sessões:

- Simpósio I - Pesquisas e Conservação do Muriqui, coordenado pela Dra. Karen B. Strier (Universidade de Wisconsin), 11 trabalhos;
- Simpósio II - Novas Perspectivas sobre a Ecologia, Comportamento e Taxonomia dos Sagüis do Gênero *Callithrix*, coordenado pelo Dr. Stephen F. Ferrari (Universidade Federal do Pará), 7 trabalhos;
- Simpósio III - Genética e Evolução dos Atelídeos, coordenado pela Dra. Iracilda

Sampaio (Universidade Federal do Pará) - 2 trabalhos;

- Comunicações Orais - Quatro sessões, 42 trabalhos.
- Conferência I - Ecologia e Conservação do *Brachyteles*: indicações sobre a viabilidade de uma população - Dra Karen B. Strier;
- Conferência II - Uma Proposta Molecular para a Taxonomia dos Primatas do Novo Mundo - Dr Horacio Schneider;
- Mesa Redonda - Fontes de Financiamento para Pesquisas em Primatologia.

### ASSEMBLÉIA GERAL DA SOCIEDADE BRASILEIRA DE PRIMATOLOGIA

*Nova Diretoria:* Durante a Assembléia da Sociedade Brasileira de Primatologia, realizada durante o VI Congresso Brasileiro de Primatologia (24-29 de julho de 1994, Universidade Federal do Rio de Janeiro) foi eleita uma nova diretoria para o biênio 1994-1996. Uma única chapa foi submetida à Assembléia e a nova diretoria, eleita por unanimidade, ficou assim constituída: *Presidente* - Carmen Alonso (Universidade Federal de Paraíba); *Vice-Presidente* - Alcides Pissinatti (Centro de Primatologia do Rio de Janeiro); *1<sup>a</sup>. Secretária* - Maria Adélia Monteiro da Cruz (Universidade Federal Rural de Pernambuco); *2<sup>a</sup>. Secretária* - Maria de Fátima Ximenes (Universidade Federal do Rio Grande do Norte); *1<sup>a</sup>. Tesoureira* - Maria Bernadete Cordeiro de Sousa (Universidade Federal do Rio Grande do Norte); *2<sup>a</sup>. Tesoureira* - Maria de Fátima Arruda (Universidade Federal do Rio Grande do Norte). *Realização dos Próximos Congressos da SBPr:* A proposta aprovada na Assembléia Geral foi a de se realizar congressos a cada dois anos intercalados com o Congresso da Sociedade Internacional de Primatologia (IPS). Além disso, por questões operacionais, a Assembléia decidiu desvincular o Congresso de Primatologia da programação do Congresso Brasileiro de Zoologia. Assim, os próximos congressos deverão ser realizados nas sedes das diretorias. Ficou acertado, então, a realização de um congresso para julho de 1995 em Natal, Rio Grande do Norte, com data mais exata a ser definida posteriormente. *Valor da Anuidade:* Ficou decidido que a anuidade da SBPr será de um valor equivalente a US\$30.00 para profissionais e US\$15.00 para estudantes. *A Primatologia no Brasil V:* Como de praxe, a Diretoria (1991-1994) cuidará da edição do livro *A Primatologia no Brasil V*. Em breve será distribuída um circular conclamando todos os participantes do VI Congresso Brasileiro de Primatologia a enviarem

seus trabalhos completos para iniciar a edição do livro.

**Iracilda Sampaio**, 2<sup>a</sup>. Secretária da SBPr (1991-1994), Laboratório de Biologia Molecular, Departamento de Genética, Centro de Ciências Biológicas, Universidade Federal do Pará, Caixa Postal 8607, 66075-900 Belém, Pará, Brasil. Tel./Fax: (091) 229-9785.

## SOCIEDADE BRASILEIRA DE PRIMATOLOGIA - CADASTRO DE PESQUISAS

Na ocasião do VI Congresso Brasileiro de Primatologia (Rio de Janeiro, 24-29 de julho de 1994), a Sociedade Brasileira de Primatologia (SBPr) lançou o *Cadastro de Pesquisas em Desenvolvimento na Primatologia Brasileira*, 48pp. organizado por Aline Da Rin Paranhos de Azevedo e Simone Iwanaga. Este cadastro foi o resultado de um levantamento, a nível nacional, das pesquisas em andamento sobre primatas neotropicais. O levantamento foi executado pelo PrimatAM - Banco de Dados sobre Primatas da Amazônia, com o apoio da SBPr. Tentando buscar uma maior cobertura possível na coleta de dados, um formulário foi enviado a todos os sócios da SBPr e pesquisadores cadastrados no PrimatAM. Foram cadastrados 86 projetos. Sabe-se que existem pesquisas que não se encontram nesta publicação, porém infelizmente não foram recebidas respostas aos formulários. Neste cadastro foram registrados 86 projetos de pesquisas a serem realizadas e/ou em andamento no Brasil: Região Norte - 12; Nordeste - 38; Centro-Oeste - 4; Sudeste - 30; e a Região Sul - 2. Cada registro inclui as seguintes informações: título do projeto, objetivos, datas, área geográfica, equipe envolvida, instituição executora, financiadores e endereço para contato. Com esta informação poderemos acompanhar a produção científica na área de Primatologia e identificar as lacunas existentes em pesquisas de espécies e áreas de estudos dos primatas neotropicais. Esperamos que esta iniciativa possa ter continuidade com um aperfeiçoamento nas informações e uma cobertura total na coleta de dados. Com este produto informacional esperamos ter contribuído para um maior conhecimento e intercâmbio da produção científica sobre primatas neotropicais, resultando na excelência de pesquisa.

**Aline Da Rin P. de Azevedo**, Coordenadora do PrimatAM, Departamento de Zoologia, Museu Paraense Emílio Goeldi, Caixa Postal 399, Belém,

Pará e **Horacio Schneider**, Presidente da SBPr (1992-1994), Departamento de Genética, Centro de Ciências Biológicas, Universidade Federal do Pará, Caixa Postal 8607, 66075-900 Belém, Pará, Brasil.



## XVTH CONGRESS OF THE INTERNATIONAL PRIMATOLOGICAL SOCIETY - BALI

The XVth IPS Congress was held, with great success, in Kuta, Bali, Indonesia, from 3-8 August 1994. It was most efficiently hosted by the Indonesian Wildlife Society, and included 41 symposia, meetings, and workshops, with topics varying from conservation, behavioral ecology, cognition, communication, social organization, demography, evolution and systematics to the history of primatology, graduate training, the experimental use of non-human primates, welfare, ethical challenges to primate research and conservation, and ecotourism. The emphasis lay heavily on Asian primates, but two symposia dealt specifically with platyrrhines. The first concerning male-female strategies in New World primates with paternal care was organized by Hilary Box (Reading University, UK) and Gisella Eppe (Monell Chemical Senses Center, Pennsylvania). The second, "Social Influences on Responsiveness to Foods and Food Binding Situations in New World Monkeys", was organized by Dorothy M. Fragaszy (University of Georgia, Athens). See page 31 for a listing of the abstracts of papers concerning New World primates. The XVth IPS Congress will be held in Madison, Wisconsin, 11-16 August 1996, organized as a joint meeting of the IPS and the American Society of Primatologists (APS), and hosted by the University of Wisconsin and Wisconsin Regional Primate Research Center. For further details: Ms. Edi Chan, Congress Coordinator, Tel: (608) 263-3500, Fax: (608) 263-4031.

## Recent Publications

### BOOKS

*Current Primatology: Selected Proceedings of the XIVth Congress of the International Primatological Society, 1994.* Université Louis Pasteur, Strasbourg. In 3 Vols. Vol. I: *Ecology and Evolution*, edited by B. Thierry, J.R. Anderson, J.J. Roeder and N. Herrenschildt, 398pp. (topics: ecology, conservation, functional

morphology, anatomy, palaeontology, systematics and genetics). *Vol.II: Social Development, Learning and Behaviour*, edited by J.J. Roeder, B.Thierry, J.R.Anderson, and N.Herrenschmidt, 404pp. (topics: socio-sexual behaviour, social dynamics, communication, behavioural development, social learning, and cognition). *Vol.III: Behavioural Neuroscience, Physiology, and Reproduction*, edited by J.R.Anderson, J.J.Roeder, B.Thierry, and N.Herrenschmidt, 294pp. (topics: neuroscience, lateralization, endocrinology, reproduction, physiology, captive management, and medical primatology). Price: One volume, £52, DM130, FF450, \$75; Two volumes, £87, DM215, FF750, \$125; Three volumes, £118, DM290, FF990, \$170. Available from: TT4 Promotion, 3 rue Colette, 67800 Bischeim, France. Tel: (33) 88 19 21 21, Fax: (33) 88 19 21 18.

*Los que se Van: Especies Argentinas en Peligro*, by Juan Carlos Chebez, illustrations by Aldo Chiappi, 1994, 605pp. Albatros, Buenos Aires. ISBN 950-24-0623-0. A Red Data Book for Argentinian mammals, birds, reptiles and amphibians. Available from: Albatros, Hipólito Yrigoyen 3920, (1208) Capital Federal, Buenos Aires, Argentina. Tel: 981-1161/982-5439/983-2332.

*International Directory of Primatology*, compiled by Larry Jacobsen, 2nd Edition, 1994, 354pp., spiral bound. Wisconsin Regional Primate Research Center, Madison, Wisconsin. Price US\$15.00 in USA, US\$23.00 in other countries (incl.postage and packing). The purpose of the *Directory* is to enhance communication among organizations and individuals involved in primate research, conservation, and education. It can be used by primatologists as a desktop working tool or by educators, librarians, students, and the general public as a guide to primate programs and information resources. The *Directory* is divided into four sections and five indexes. The sections cover: 1) geographically arranged entries for major primate centers, laboratories, educational programs, foundations, conservation agencies, and sanctuaries; 2) groups involved with nonhuman primate population management; 3) professional primate societies, including the membership roster of the International Primatological Society (IPS); and 4) major information resources in the field. Access to this information is supported by organizational, field site, species, subject, and name indexes. Prepayment is preferred, but electronic and phone orders are welcome. Cheques payable to: Wisconsin Regional Primate Research

Center. Available from: Larry Jacobsen, IDP Coordinator, Wisconsin Regional Primate Research Center Library, 1220 Capitol Court, Madison, WI 53715-1299, USA. Tel: +1 (608) 263-3512, Fax: +1 (608) 263-4031, e-mail: library@primate.wisc.edu.

*Livro Vermelho dos Mamíferos Brasileiros Ameaçados de Extinção*, compiled by Gustavo A.B.da Fonseca, Anthony B.Rylands, Cláudia M.R.Costa, Ricardo B.Machado, and Yuri L.R.Leite, 457pp. 1994. Fundação Biodiversitas, Belo Horizonte. In Portuguese. Price (incl.postage and handling): US\$33.00. Information on the 58 mammal taxa on the Official List of Fauna Threatened with Extinction in Brazil, 26 of which are primates. The treatment for each taxon includes: IUCN and CITES classifications, general information, distribution (including a map) and habitat, biological and ecological aspects, population, principal threats, conservation strategies, occurrence in protected areas, and principal scientific bibliography. Besides the compilers, the following also provided the texts for the species: Ilmar B.Santos, Leandro Silveira, Ibsen de Gusmão Câmara, Luiz Paulo de Souza Pinto, Júnio A.dos Santos Silva, Ludmilla M.de Souza Aguiar, Maria Auxiliadora Drumond, and Rodney de A.Mauro. This invaluable reference was produced with the support of Conservation International, World Wildlife Fund, The John D. and Catherine T.MacArthur Foundation, IUCN/SSC, and the Biodiversity Conservation Data Center (CDCB) of Fundação Biodiversitas. Available from: Fundação Biodiversitas, Rua Maria Vaz de Melo 71, Dona Clara, 31260-110 Belo Horizonte, Minas Gerais, Brazil. Tel: +55 31 443-2119, Fax: +55 31 441-7037, e-mail: cdc@ax.apc.org.

*La Vida Silvestre de Mesoamérica: Diagnóstico y Estrategia para su Conservación*, editado por Eduardo Carrillo y Christopher Vaughan, c.200pp. 1994. Editorial de la Universidad Nacional, Heredia. US\$20.00 (incluyendo el envío aéreo). Financiado por la OEA. Basado en un taller regional llevado a cabo en Costa Rica en 1990, con participación de expertos de cada país en la región. Información: Fundación UNA, PRMVS, SJO No.278, P.O.Box 025216, Miami, Florida 33102, USA.

*Field Guide to the Lemurs of Madagascar*, by Russell A.Mittermeier, Ian Tattersall, William R.Konstant, David M.Meyers and Roderic B.Mast, illustrated by Stephen D.Nash, 360pp. 1994.



Conservation International, Washington D.C. This is the first in the Conservation International Tropical Field Guide Series. It is an invaluable reference for scientist and non-scientist alike. Pocket-sized, it is the most comprehensive book on the five families, 32 species and 50 taxa of lemurs ever published. It includes chapters on lemur origins, their discovery and study, and their conservation, with a special section on the eight genera and 15 species that have already gone extinct. A major section of the book is also devoted to a review of behavior, ecology and conservation strategy for all known species and subspecies, together with maps showing their distribution. The *Field Guide* also contains 135 black-and-white postural and behavioral drawings, 35 color plates depicting all known forms including color variants, and color photographs of all major lemur habitats. To order copies at a special pre-publication price of US\$25.00 (incl.postage and handling) write to Russell A.Mittermeier, Conservation International, 1015 Eighteen Street NW, Washington, D.C. 20036, USA. Fax: (202) 887-0192.

*Rastros de Mamíferos Silvestres Brasileiros*, by Marlise Becker and J.C.Dalpoite, 1991, 180pp. Editora Universidade de Brasília, Brasília. ISBN 85-2300306-1. In Portuguese. An excellent field guide to the tracks of 48 Brazilian mammals, including *Callithrix*, *Cebus* and *Alouatta*. Available from: Editora Universidade de Brasília, Caixa Postal 04551, 70919-900 Brasília, D.F., Brazil.

*Anais de Etologia 11*, edited by Antônio Fernandes Nascimento Jr., 1993, 267pp. Editora UNESP, Bauru. Proceedings of the XI Encontro Anual de Etologia, Bauru, São Paulo, Brazil, 7-9 October, 1993. Price US\$10.00 (incl.postage). Also available for the same price: *Anais de Etologia 10*, edited by Mateus J.R.Paranhos da Costa and Manuela Schmidek, 1992, 235pp. Proceedings of the X Encontro Anual de Etologia, October 1992, Jaboticabal, São Paulo. Available from: Mateus J.R.Paranhos da Costa, Treasurer, Sociedade Brasileira de Etologia, Departamento de Melhoramento Genético Animal, Faculdade de Ciências Agrárias e Veterinárias, Universidade Estadual Paulista (UNESP), 14870-000 Jaboticabal, São Paulo, Brazil. E-mail: uejab@brfapesp (Bitnet).

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P.de Azevedo, Simone Iwanaga, and Carmen Martins, 1994, 370pp. Sociedade Civil Mamirauá, Belém. Produced by PrimatAM, Museu Paraense Emílio Goeldi, Belém, with support from The Wildlife Conservation Society (WCS), Conservation International (CI), and the Brazil Science Council (CNPq). Preface by José Márcio Ayres. Lists 5,211 references, with indices for first authors, co-authors, subject and localities of the studies listed. Available from: Aline Da Rin P.de Azevedo, PrimatAM, Departamento de Zoologia, Museu Paraense Emílio Goeldi, Caixa Postal 399, Belém, Pará, Brazil. Tel: (091) 228-2341, Fax: (091) 226-1615.

*Food Chemistry, Food Toxicants, Medicinal Plant Use, Geophagy, and Drinking Behavior of Feral and Free-Ranging Primates. A Selective Bibliography, 1985-1994*, compiled by Jackie Pritchard, July 1994. Contains 269 citations with primate and subject indices. Price US\$6.50 + US\$1.50 handling charge per order if billed. Available from: Chico Otsuka-Gooding, Primate Information Center, University of Washington SJ-50, Seattle, WA 98195, USA. Tel: (206) 543-4376, Fax: (206) 685-0305.

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Arruda, M.de F. and Araujo, A. Análise sociométrica de um grupo de *Callithrix jacchus* (Primates: Callitrichidae) em ambiente natural, p.259.

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Carvalho, L.B.C.de and Otta, E. Desenvolvimento de independência em filhotes de macacos-aranha nos doze primeiros meses de vida, p.264.

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Costa, S.F., Campos, M.F. and Souza, M.F. Influência da separação precoce de fêmeas de sagüi (*Callithrix jacchus*) na expressão do comportamento sociosexual na idade adulta, p.261.

Izar, P. and Sato, T. Relações de dominância e competição por alimento em um grupo de macaco-prego (*Cebus apella*) em cativeiro, p.263.

Petroni, L.M. Comportamento alimentar do monarcovoeiro (*Brachyteles arachnoides*, E.Geoffroy 1806) na Fazenda Intervales, São Paulo, p.265.

Santos, C.V. and Otta, E. O cuidado de filhotes em três espécies de *Leontopithecus* em grupos pequenos e grandes, p.262.

Souza, M.B.C de, Souza, M.O.de, Silva, H.P.A.de, Yamamoto, M.E. Estudo sobre preferência manual no sagüi-comum, *Callithrix jacchus*, p.255.

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Alonso, C., Porfiro, S. and Moura, A.C.A. História e evolução de um grupo de mico-leão-de-cara-dourada no cativeiro, p.35.

- Alonso, C. and Silva, S.H.M. Cuidado parental em *Saguinus midas midas*, *Callithrix kuhli*, e *Leontopithecus chrysomelas* nas seis primeiras semanas de vida, p.33.
- Azevedo, A.R.P. and Iwanaga, S. Bibliografia sobre primatas da Amazônia (Primates: Cebidae), p.76.
- Azevedo, C.V.M., Braga, K.R., Silva, L.C., Silva, R.P., Menezes, A.A.L. and Moreira, L.F.S. Influência de fatores sociais no ritmo circadiano de catação do sagüi-comum (*Callithrix jacchus*) em cativeiro, p.26.
- Borda, J.T., Ruiz, J.C. and Negrette, M.S. Carcinoma hepatocelular em *Saimiri boliviensis* (Primates), p.43.
- Borda, J.T., Ruiz, J.C. and Negrette, M.S. Adenoma de glândula mamaria em *Cebus apella* (Primates), p.47.
- Burity, C.H.F., Mandarim-de-Lacerda, C.A. and Pissinatti, A. Body size growth in three marmosets of the genus *Callithrix* Erxleben 1777 (Callitrichidae, Primates), p.28.
- Calegari-Marques, C. and Bicca-Marques, J.C. Vocalizações de *Alouatta caraya* (Primates, Cebidae), p.51.
- Calegari-Marques, C. and Bicca-Marques, J.C. Comportamento agressivo em um grupo de bugios-pretos, *Alouatta caraya* (Primates, Cebidae), p.52.
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- Castro, C.S.S., Menezes, A.A.L. de, Queiroz, W.J., and Moreira, L.F.S. Estudo dos ritmos biológicos da catação no sagüi-comum (*Callithrix jacchus*) em ambiente natural, p.27.
- Coimbra-Filho, A.F., Pissinatti, A. and Rylands, A.B. O retro-cruzamento na preservação do sagüi-da-serra (*Callithrix aurita flaviceps*), Callitrichidae - Primates, p.29.
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- Coimbra-Filho, A.F., Pissinatti, A. and Rylands, A.B. Obtenção simulada de *Saguinus bicolor ochraceus* Hershkovitz, 1966, através de hibridação de *Saguinus bicolor martinsi* com *Saguinus bicolor bicolor* (Callitrichidae, Primates), p.41.
- Cruz, M.A.O. and Sato, T. Alometria em *Callithrix jacchus* silvestres: uma aplicação da teoria dos grafos, p.24.
- Cruz, M.A.O. and Scanlon, C.E. Mudanças no tamanho e na composição de grupos sociais de *Callithrix jacchus* em ambiente natural, p.23.
- Diego, V.H. and Ferrari, S.F. Diferenças sazonais no comportamento dos carregadores de um grupo de sagüis-da-serra (*Callithrix flaviceps*) na Estação Biológica de Caratinga (EBC) - MG, p.30.
- Ferrari, S.F. Novas perspectivas sobre a ecologia, comportamento e taxonomia dos sagüis do genero *Callithrix*, p.21.
- Ferrari, S.F. and Krause, E.A.K. A unha de limpeza ("grooming claw") dos cebídeos, p.73.
- Figueiredo Filho, C.C., Campelo, M.L.C.B., Cruz, M.A.O.M. and Melo, L.C.D. Alimento da área de uso e diversificação da dieta em *Callithrix jacchus*, p.25.
- French, J.A., Pissinatti, A. and Coimbra-Filho, A.F. Factors affecting captive breeding performance in lion tamarins, genus *Leontopithecus*, p.39.
- Gomes, M.T. Aspecto de conteúdo nutricional da dieta e comportamento alimentar de *Brachyteles arachnoides* no Parque Estadual de Carlos Botelho - SP, p.62.
- Giudice, A.M. Activity patterns, diet and social behavior in howler monkeys in Corrientes, Argentina, p.50.
- Iwanaga, S. and Silva Júnior, J.S. Primatas das áreas litorâneas da região norte do Brasil (Primates: Platyrrhini), p.74.
- Izar, P. and Sato, T. Influência de abundância alimentar sobre a estrutura de espaçamento interindividual e relações de dominância em um grupo de macacos-prego (*Cebus apella*), p.46.
- Kierulff, M.C.M., Kleiman, D.G. and Santos, E.M. O uso de "play-back" para o levantamento das populações de mico-leão-dourado (*Leontopithecus rosalia*), p.37.
- Lima, M., Sbalqueiro, I., Pinheiro, M. and Oliveira, E.H. Variabilidade cromossômica em quatro espécies de *Alouatta* (Primates, Cebidae), p.54.
- Limeira, V.L.A.G. and Oliveira, L.F.B. Padrões de dieta de *Alouatta fusca* em período seco e úmido em um fragmento da floresta estacional semidecidual do vale do Rio Paraíba do Sul, Rio de Janeiro, p.53.
- Lopes, M.A. Densidade e biomassa de primatas na Amazônia oriental, p.75.
- Medeiros, M.A.A., Ponsá, M., Garcia, M., Garcia, F., Pieczarka, J.C., Nagamachi, C.Y., Egozcue, J. and Barros, R.M.S. Radiação e especiação do gênero *Ateles* analisada sob o ponto de vista cromossômico, p.71.

- Mendes, F.D.C. Comportamento social e conservação do miquiqui (*Brachyteles arachnoides*), p.65.
- Mendes, F.D.C. Repertório e interações vocais do miquiqui (*Brachyteles arachnoides*), p.67.
- Milani, A.S. and Ruiz, J.C. Dimorfismo sexual en las relaciones materno-filiales de *Saimiri boliviensis* durante los primeros 5 meses de edad, p.44.
- Moraes, P.L.R. Disponibilidade alimentar e padrões de distribuição espacial de espécies utilizadas pelo miquiqui no Parque Estadual de Carlos Botelho, São Paulo, p.61.
- Moura, A.C.A. and Alonso, C. Compartilhamento de alimento entre *Leontopithecus chrysomelas* e *Saguinus midas midas* no cativeiro, p.34.
- Nogueira, C.P. Ecologia e comportamento de fêmeas de miquiqui (*Brachyteles arachnoides*) em diferentes estágios reprodutivos, p.60.
- Oliveira, L.P. Como os miquiquis (*Brachyteles arachnoides*) usam o seu espaço: os efeitos do tamanho do grupo e as implicações de suas preferências de habitat para sua conservação, p.57.
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- Petroni, L.M. Ecologia e comportamento do monarcoveiro (*Brachyteles arachnoides*) na Fazenda Intervalles, Serra de Paranapiacaba, São Paulo, p.58.
- Pinto, L.P.S., Costa, C.M.R., and Tavares, L.I. Levantamento das populações de *Brachyteles arachnoides* (miquiqui) na parte norte de sua distribuição, p.59.
- Pissinatti, A., Cruz, J.B. and Coimbra-Filho, A.F. Clinical, pathological and therapeutical observations in "miquiquis" (*Brachyteles arachnoides*) in captivity, Ceboidea - Primates, p.70.
- Rimoli, A.O. O filhote miquiqui: aspectos gerais do seu desenvolvimento, p.63.
- Rimoli, A.O. and Otta, E. Aspectos gerais do processo de independência do infante miquiqui (*Brachyteles arachnoides*) no grupo de Matão, Estação Biológica de Caratinga, Minas Gerais, p.68.
- Rimoli, J. O forrageamento dos miquiquis (*Brachyteles arachnoides*, Geoffroy, 1806): o papel de sua organização social na dispersão e sementeira de espécies arbóreas da mata Atlântica, p.64.
- Rimoli, J. and Ades, C. Estratégia de forrageamento de um grupo de miquiquis (*Brachyteles arachnoides*, Primates, Cebidae) da Estação Biológica de Caratinga - MG, p.69.
- Rodrigues, F.P., Ruiz, J.C., Verón, A.G. and Verona, C.E.S. Valores hematológicos normales en *Saimiri boliviensis* de diferentes edades, p.45.
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- Sant'Anna, T.M.L. and Pessoa, L.M. Variação cranio-dental em populações naturais e de cativeiro do *Leontopithecus rosalia* Linnaeus, 1766 (Primates, Callitrichidae), p.38.
- Santos, C.V. Cuidado parental em calitriquídeos (*Callithrix kuhli* e *C.geoffroyi*), p.32.
- Sousa, M.B.C., Silva, G.H.A.G., Pricess, C., Gomes, S.C. and Mota, M.T.S. Perfil comportamental da interação entre casais em idade reprodutiva do sagüi-comum, *Callithrix jacchus*, p.22.
- Strier, K.B. Simpósio sobre as pesquisas e conservação do miquiqui (*Brachyteles arachnoides*), p.56.
- Zunino, G.E. Evaluación de la estacionalidad reproductiva en el mono aullador negro (*Alouatta caraya*, Primates, Cebidae) en el noreste de la Argentina, p.49.
- Zunino, G.E., Reisenman, C.E., Bravo, S.P. and Ferreira, F.M. Habitat y estructura poblacional del mono aullador negro (*Alouatta caraya*, Primates, Cebidae) en el noreste de la Argentina, p.48.
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- Burity, C.H.de F., Mandarim-de-Lacerda, C.A. and Pissinatti, A. Morfometria do crânio comparando três espécies do gênero *Callithrix* Erxleben 1777 (Primates: Callitrichidae), p.143.
- Calouro, A.M. and Setz, E.Z.F. Interações sociais em um grupo de parauacus em um fragmento florestal na Amazônia Central, pp.143-144.

- Hirsch, A., Moraes, W.B.de, Landau, C. and Rylands, A.B. Censo de *Alouatta fusca* Geoffroy, 1812 (Platyrrhini, Atelidae) e qualidade do habitat em duas áreas com remanescentes de mata Atlântica em Minas Gerais, p.144.
- Hirsch, A., Subirá, R.J. and Landau, E.C. Levantamento e distribuição de primatas do Parque Estadual do Ibitipoca, Lima Duarte, MG, p.144.
- Kierulff, M.C.M. and Rylands, A.B. Situação atual das populações de mico-leão-dourado (*Leontopithecus rosalia*), p.140.
- Kobayashi, S. Relações infraespecíficas em *Callicebus personatus* com base na morfometria craniana (Primates: Cebidae), p.140.
- Lorini, M.L. and Persson, V.G. Densidade populacional de *Leontopithecus caissara* Lorini & Persson, 1990, na Ilha de Superagüi / PR (Primates - Callitrichidae), p.145.
- Lorini, M.L. and Persson, V.G. Provável polinização de *Norantea brasiliensis* (Marcgraviaceae) por *Cebus apella* e *Leontopithecus caissara*, p.145.
- Marques, A.A.B.de and Ades, C. Alimentação, uso de área e padrões de atividades diárias em *Alouatta fusca clamitans* (Primates, Cebidae) na Estação Experimental de Aracuri-Esmeralda, RS, pp.140-141.
- Marques, A.A.B.de and Ades, C. Estudo da relação mãe-filhote em *Alouatta fusca clamitans* (Primates, Cebidae) na Estação Experimental de Aracuri-Esmeralda, RS, p.141.
- Marroig, G., Bitner-Mathé, B.C. and Cerqueira, R. Variação morfológica em espécies amazônicas do gênero *Callithrix*, p.141.
- Passos, F.de C. Considerações sobre a estratégia de conservação do mico-leão-preto, *Leontopithecus chrysopygus*, p.141.
- Passos, F.D.C. Dieta do mico-leão-preto, *Leontopithecus chrysopygus* (Mammalia, Callitrichidae), p.145.
- Pereira, A., Muniz, J.A., Guimarães, D. and Vale, W. Determinação do ciclo estral de sagüi (Callitrichidae) criados em cativeiro na região Amazônica, resultados preliminares, p.141.
- Persson, V.G. and Lorini, M.L. Distribuição geográfica do mico-leão-de-cara-preta, *Leontopithecus caissara* Lorini & Persson, 1990 (Primates, Callitrichidae), p.145.
- Pinto, L.P.de S. and Tavares, L.I. Notas sobre a distribuição geográfica e situação dos primatas da Região Cacaueira Baiana, p.142.
- Silva, G.S.da and Monteiro da Cruz, M.A.O. Comportamento e composição de um grupo de *Callithrix jacchus* (Primates, Callitrichidae) na Mata de Dois Irmãos - Recife, PE, pp.142-143.
- Souza, S.B.de Manipulação e escolha de itens alimentares por primatas - *Cebus apella* e *Saimiri sciureus* - em cativeiro, p.143.
- Selected abstracts of the XV Congress of the International Primatological Society. In: Handbook and Abstracts: XV Congress of the International Primatological Society, 1994, 440pp. Kuta, Bali, Indonesia, 3-8 August, 1994:**
- Albuquerque, F.S. and Arruda, M.F. Distribution of infant care in the first three months of infant's life in natural habitat, p.246.
- Anaya-Huertas, C., Perez-Ruiz, A. and Mondragon-Ceballos, R. Ludic behavior between adults in a non-female bonded primate species (*Ateles geoffroyi*) and a female bonded primate species (*Macaca arctoides*), p.239.
- Arruda, M.F., Araújo, A., Santee, D.P. and Barreto, C. Stability in group composition in naturally occurring groups of common marmosets (*Callithrix jacchus*), p.151.
- Barreto, C.E. and Arruda, M.F. Scent-marking behavior of two common marmoset *Callithrix jacchus* (Callitrichidae) reproductive females in natural habitat, p.115.
- Bieser, A. Information processing of frequency modulated sounds in the squirrel monkey's (*Saimiri sciureus*) auditory cortex, p.273.
- Box, H.O. Behavioural gender differences in foraging efficiency - studies with marmosets and tamarins (Callitrichidae), p.330.
- Box, H.O. and Epplé, G. New World primates with paternal care: male female strategies, p.329.
- Box, H.O. and Owens, D.B.C. Social influences on exploratory and foraging behaviour in marmosets (*Callithrix* - Callitrichidae): a developmental perspective, p.353.
- Buchanan-Smith, H. M. Environmental enrichment: implications for primates and research, p.358.
- Canales-Espinosa, D. and García-Orduña, F. Situation of *Alouatta palliata* (howler monkey) in two communities of Veracruz, Mexico, p.135.
- Cortés-Ortiz, L., Rodríguez-Luna, E., Martínez-Morales, M. and Carrera-Sánchez, E. Reproductive behavior and demographic data of a group of free-ranging howler monkeys (*Alouatta palliata*), p.150.
- Epplé, G. Gender differences in chemosignalling systems of callitrichid monkeys: a review, p.330.
- Erkert, H. and Rappold, I. Age-related changes in the characteristics of the circadian system in owl monkeys (*Aotus lemurinus*), p.67.
- Ferrari, S.F. Sex differences in dispersal strategies and social behaviour in free-ranging marmosets (*Callithrix flaviceps*), p.332.



- Fragaszy, D.M. Social influences on responsiveness to foods and food-finding situations in New World monkeys, p.352.
- Fragaszy, D.M., Mitra, K. and Galloway, A. May I try some of yours? Social facilitation of feeding in tufted capuchin monkeys, p.351.
- Garber, P.A. One for all and breeding for one: cooperation and competition as a callitrichine reproductive strategy, p.331.
- Hardie, S.M. and Buchanan-Smith, H.M. Vigilance and responsiveness to novel objects in two sympatric tamarin species, p.91
- Hearn, J.P. The NIH-NCRR Regional Primate Research Centers Program (USA), p.374.
- Hearn, J.P., Becker, R., Seshagiri, P. and Teresawa, E. Regulation of embryo implantation in primates, p.296.
- Hernández-López, L., Mayagoitia, L., Esquivel, C. and Díaz, V. Do female spider monkeys show menstrual or estral cycle? A cytological approach, p.230.
- Hodgkinson, M.A. and Rogers, L.J. Handedness, mouthedness and eye preference in the common marmoset (*Callithrix jacchus*), p.203.
- Jürgens, U. Extralaryngeal muscle activities during vocalization in the squirrel monkey, p.273.
- Kappeler, P.M. Female dominance and primate life histories: a test of the energetic constraints hypothesis, p.286.
- Kerl, J. Experiences in the application of longterm heart rate telemetry to common marmosets (*Callithrix jacchus jacchus*) kept undisturbed in their social environment, p.220.
- Kobayashi, S. and Langguth, A.L. New titi monkeys from Brazil, p.166.
- Koenig, A. Group size, composition and reproductive success in wild common marmosets (*Callithrix jacchus*), p.256.
- Kowalewski, F. An approach towards an objective classification of the squirrel monkey's vocal repertoire, p.271.
- Ludes, E. and Anderson, J.R. Use of different substrates in captive *Cebus capucinus*, p.159.
- Mackinnon, K.C. Age-class differences in foraging behavior of the white-faced capuchin monkey (*Cebus capucinus*), p.79.
- Macleod, M.C. The woolly monkey - another patrilineal primate? p.262.
- Mason, W.A. and Menzoa, S.P. Parenting in titi monkeys (*Callicebus*): who is carrying and who cares? p.331.
- Mello, M.T.de Breeding of primates in source countries, for research and conservation, p.369.
- Mendoza, S.P. Social influences on seasonality in squirrel monkeys (*Saimiri sciureus*), p.223.
- Miller, L.E. Life's ups and downs: activity budgets and feeding strategies of adult female wedge-capped capuchins (*Cebus olivaceus*), p.84.
- Morera-Avila, R.A. Activity and habitat selection by monkeys *Cebus capucinus* and *Alouatta palliata* in dry tropical forest of Costa Rica, p.145.
- Müller, K.H. Individual separating from the group and establishment of a new territory in masked titi monkey (*Callicebus personatus*) in Brazil, p.257.
- Norconk, M.A., Conklin, N.L., Kinzey, W.G. Nutritional and deterrent properties of seeds ingested by white-faced and bearded sakis (Pitheciinae) in Venezuela, p.364.
- Peres, C.A. Seed predators in thirty Amazonian primate communities, p.365.
- Petto, A.J. and Buchanan-Smith, H.M. Psychological well-being and other projections of the human condition - their meaning for research activities with non-human primates, p.359.
- Pires, M.R.S. Infant-caregiving relationships in captive *Callithrix jacchus*, p.248.
- Ploog, D.W. Dialoguing in squirrel monkeys, p.114.
- Price, E.C. and Feistner, A.T.C. Studies of food sharing in small New World monkeys, p.352.
- Rodríguez-Luna, E., Martínez-Morales, M., Serio-Silva, J.C. and Domínguez-Domínguez, L.E. Foraging behaviour of free-ranging howler monkeys (*Alouatta palliata*), p.83.
- Ruiz, J.C. Breeding facilities in South America: primate gathering centers or primate breeding centers? p.369.
- Scott, L., Pryce, C.R. and Schnell, C.R. The European Marmoset Research Group - an example of interdisciplinary communication, p.360.
- Sousa, M.B.C.de and Mota, M.T. Allogrooming patterns in common marmosets (*Callithrix jacchus*) couples with and without pregnant females, p.401 (Poster).
- Torre, S.de la Feeding habits of *Saguinus nigricollis graellsii* in northeastern Ecuador, p.82.
- Valderrama, X. An evaluation of potential factors in callitrichine distribution gaps, p.79.
- Vasarhelyi, K. Screening for PCR-based polymorphic markers in the New World primate *Callimico goeldii*, p.422 (Poster).
- Vercauteren Drubbel, R. and Gautier, J.-P. The acoustical structure of the loud calls of wild red howlers in French Guyana, p.166.
- Visalberghi, E., Valente, M., Limongelli, L. and Fragaszy, D.M. Perhaps I will try some too. Social facilitation of feeding on novel foods in tufted capuchin monkeys, p.351.

- Vitale, A. and Santamaria, F. Response to a novel object by socially-housed common marmosets (*Callithrix jacchus*), p.158.
- Wright, P.C., Tan, C. and Rakotonarina, G. Comparisons of infant development and reproductive behavior in New World and Malagasy primates, p.187.
- Zhang, S-Y. Activity and ranging patterns in relation to fruit utilization by brown capuchin monkeys (*Cebus apella*) in French Guiana, p.77.
- Zhang, S-Y. Sleeping habits of brown capuchin monkeys (*Cebus apella*) in French Guiana, p.89.

## Meetings

### 1994

**XII ENCONTRO ANUAL DE ETOLOGIA**, 6-8 October 1994, Avenida Independência 11, Cananéia, São Paulo. Sociedade Brasileira de Etologia. Registration: Students - R\$35.00, Professionals - R\$55.00. Contact: Rafael Resendis Sanches Hidalgo, Rua Professor Besnard s/n, Caixa Postal 43, 11990-970 Cananéia, São Paulo, Brazil. Tel: (0138) 51 1163, Fax: (0138) 51.1108.

**THE L. S. B. LEAKEY FOUNDATION 1994 SYMPOSIUM - PRIMATES: PAST, PRESENT AND FUTURE - EVOLUTION, BEHAVIOR, CONSERVATION**, 21 October 1994. Kaufman Theater, American Museum of Natural History, New York. Organized and co-sponsored by the New York Consortium in Evolutionary Primatology (NYCEP). Morning session: Paleontology and Molecular/Genetic Studies. Afternoon session: Behavior and Conservation. Information and tickets (by mail only): Dr Eric Delson, Department of Vertebrate Paleontology, American Museum of Natural History, New York, NY 10024, USA.

**FOREST CANOPIES - ECOLOGY, BIODIVERSITY AND CONSERVATION**, 10-13 November 1994, Marie Selby Botanical Gardens, Sarasota, Florida, USA. Contact: Dr Meg Lowman, Director of Research, Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, Florida 34236, USA.

**EUROPEAN MARMOSET RESEARCH GROUP, 1ST GENERAL ASSEMBLY**, 14-16 November 1994, Paris. Includes the inaugural workshop of the European Marmoset Research Group (EMRG) with the theme "Fundamental and Applied Aspects of Marmoset Science", including spoken review

papers and specialist spoken posters in six broad fields of fundamental and applied science. Topics include: Housing and Husbandry; Nutrition and Health; Social and Reproductive Biology; Learning and the Central Nervous System; and Physiology. Anthony B. Rylands will present the special guest lecture on "The Callitrichidae: a Biological Overview". The edited proceedings will be published as a "EMRG Laboratory Handbook of Marmoset Science". Contact: Christopher Pryce, Anthropologisches Institut, Universität Zürich-Irchel, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland.

**THE EXPLOITATION OF MAMMALS**, 25-26 November 1994, Zoological Society of London, London. Organized by the Mammal Society in association with the Universities Federation for Animal Welfare (UFAW). The program includes sessions on Mammal Game Ranching, Mammal-oriented Ecotourism, Mammals in Zoos and Circuses, Sport Hunting of Mammals, and Mammal Wildlife Trade and Conservation. Contact: Victoria Taylor, UFAW, 8 Hamilton Close, South Mimms, Potters Bar, Hertfordshire, England EN6 3QD.

**INTEGRATING BEHAVIOUR AND PHYSIOLOGY, PSGB WINTER MEETING 1994**, 30 November 1994. Education Department, London Zoo, Regent's Park, London. Organized by the Primate Society of Great Britain. Including Osman Hill Memorial Lecture by Professor Robin Dunbar, University College, London. Contact: Caroline Ross, Hon. Sec. PSGB, Department of Biological and Chemical Sciences, Roehampton Institute, Whitelands College, London SW15 3SN, England.

**III SIMPÓSIO INTERNACIONAL DE ESTUDOS AMBIENTAIS SOBRE ECOSISTEMAS FLORESTAIS - FOREST '94**, 5-8 dezembro de 1994. Centro de Eventos São José, Hotel São Rafael, Porto Alegre, Rio Grande do Sul, Brasil. Informações e inscrições: Coordenação Executiva, Jussara Ribeiro, Superintendente Executiva da BIOSFERA, Praça Monte Castelo 18, conj.706, Centro, 20051-030 Rio de Janeiro, Rio de Janeiro, Brasil. Tel./Fax: (021) 221-0155, Fax: (021) 551-1893 e 262-5946.

**II CONGRESSO BRASILEIRO DE ECOLOGIA**, 5-9 December 1994, Londrina State University, Paraná, Brazil. Contact: Dr Nélio Roberto dos Reis, Coordenador Científico do II CBE, Departamento de Biologia Animal e Vegetal, Centro de Ciências Biológicas, Campus Universitário, Universidade Estadual de Londrina,

Caixa Postal 6001, Londrina 86051, Paraná, Brazil, Tel: (0432) 21-2000, Fax: (0432) 27-6932.

## 1995

**SYMPOSIUM ON NEOTROPICAL PRIMATE PHYLOGENY**, 28 March-1 April 1995. Oakland, California. In conjunction with the American Association of Physical Anthropology. Focus: New World primate relationships and evolutionary history. Abstract deadline: 30 June 1994. Contact: Jeff Meldrum, Departments of Biological Sciences and Anthropology, Campus Box 8007, Idaho State University, Pocatello, Idaho 93209-8007, USA. Tel: (208) 236-4379, Fax: (208) 236-4570, e-mail: meldd@fs.isu.edu.

**PRIMATE SOCIETY OF GREAT BRITAIN - SPRING MEETING**, 5-6 April 1995, Institute of Cell, Animal and Population Biology, Edinburgh University. Focus: Field studies of primates. The second day (April 6th) will be held at Edinburgh Zoo with primate staff talking of their work. Contact: Elizabeth Rogers, ICAPB, Ashworth Building, University of Edinburgh, West Mains Road, Edinburgh EH9 3JT, Scotland. Tel: +44 31 650-5510, Fax: +44 31 667-3210.

**24TH INTERNATIONAL ETHOLOGICAL CONGRESS**, 10-17 August 1995, Honolulu, Hawaii. Sponsored by the University of Hawaii. Contact: Conference Secretariat, 800 N.W. Loop 410, Suite 150-S, San Antonio, TX 78216-5674, USA. Tel: (210) 341-8131, Fax: (210) 341-5252, e-mail: iec@zoogate.zoo.hawaii.edu.

**III CONGRESO LATINOAMERICANO DE ECOLOGIA**, 22-28 Octubre 1995, Universidad de Los Andes, Merida, Venezuela. Los resúmenes de los trabajos a ser presentados deben ser enviados antes del 30 de Julio de 1995 (Ponencia oral o de Cartel). Los idiomas oficiales: Español y Portugués. Se aceptarán ponencias en Inglés y Francés, esperándose contar con sistemas de traducción simultánea. Inscripciones: Hasta 30/12/94 - Profesionales US\$70.00, Estudiantes de postgrado US\$40.00, Estudiantes de pregrado US\$30.00; Hasta 30/05/95 - Profesionales US\$85.00, Estudiantes de postgrado US\$55.00, Estudiantes de pregrado US\$45.00; Al Congreso - Profesionales US\$100.00, Estudiantes de postgrado US\$70.00, Estudiantes de pregrado US\$60.00. Informaciones: Dr Jaime E. Péfaur, Secretario Ejecutivo, III Congreso Latinoamericano de Ecología, Facultad de Ciencias, Universidad de Los Andes, Merida, Venezuela 5101. Tel: (58)(74) 401305, Fax: (58)(74) 401286, e-mail: clae@ula.ve.

## Contributions

We would be most grateful if you could send us information on projects, research groups, events (congresses, symposia, and workshops), recent publications, activities of primatological societies and NGOs, news items or opinions of recent events and suchlike, either in the form of manuscripts (double-spaced) or in diskettes for PC compatible text-editors (MS-Word, Wordperfect, Wordstar). Articles, not exceeding six pages, can include small black-and-white photographs, figures, maps, tables and references, but please keep them to a minimum.

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earthkind



Recognizing the outstanding contribution of the IUCN/SSC volunteer networks of biodiversity experts worldwide for the conservation of endangered species, Earthkind (The Humane Society's international arm) has joined us in supporting this newsletter. The chairman and the editors extend their thanks and welcome Earthkind in this initiative.

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