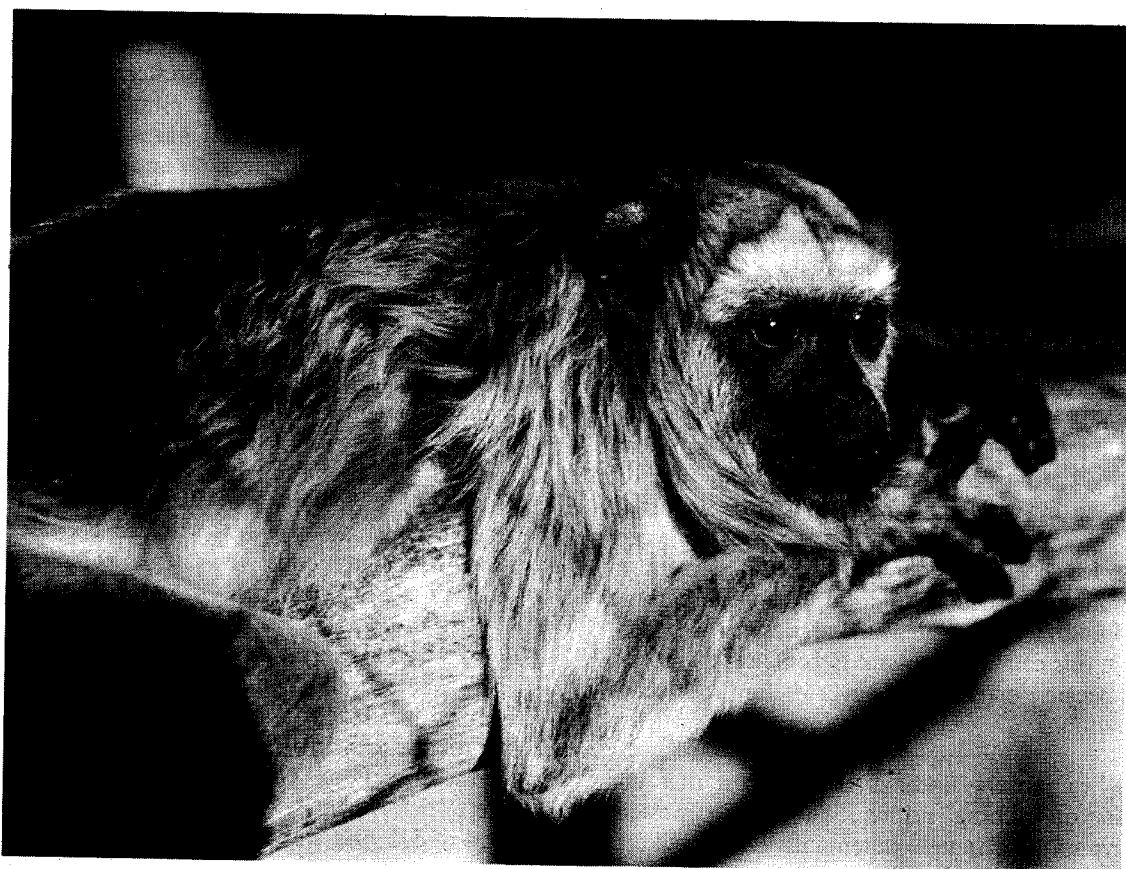


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*Editors: Anthony B. Rylands and Ernesto Rodríguez Luna
PSG Chairman: Russell A. Mittermeier
PSG Deputy Chairman: William R. Konstant*



Articles

THE URGENCY OF FINDING NEW DIRECTIONS FOR PRIMATE CONSERVATION IN WESTERN AMAZONIA

Summary: Primate populations are declining throughout Amazonia due to overhunting. In the Peruvian Amazon, primate captures for biomedical research contribute only between 0.4-2.0% of the primate harvests, while 98.0-99.6% can be attributed to local hunters. In these forests (covering an area of 203,260 km²) we estimate that between 40,000-200,000 primates are harvested annually. In western Amazonia, conservation efforts must focus on effective ways to curb hunting of primates by local people. Managing wildlife hunting with local communities outside of fully protected areas is likely to result in reduced harvests of primates.

Introduction: Primate populations are declining worldwide due to habitat destruction and overhunting (Mittermeier, 1986). In the western Amazon, overhunting is the major cause of the decline in primate populations (Peres, 1990; Puertas and Bodmer, 1993). In Peru, the impact of live-capture of primates for biomedical research has received much conservation attention (Proyecto Peruano de Primatología, 1990), but primate conservation in this region must focus more on finding real solutions to the overhunting of primates by rural communities who live outside fully protected areas. During the past ten years there has been considerable attention devoted to environmental education as a means of curbing overhunting of primates in the western Amazon. While this can be successful in some cases, it often fails because market forces overwhelm the effect of education.

Here we present findings that suggest that one means of curbing primate hunting in western Amazonia is through community-based wildlife management. First we show the urgency of reducing primate hunting. We then show how current harvests of primates are linked to the market economy of rural people, and the importance of involving local communities in developing wildlife management programs that integrate economics with primate conservation.

Primate Conservation in Western Amazonia: To set up primate conservation efforts in western

Amazonia outside fully protected areas it is necessary to question the focus of primate conservation in the region. The impact of live-trapping of primates for biomedical research has been one focus of primate conservation in the Peruvian Amazon. This market has concentrated on the smaller species such as pygmy marmosets (*Cebuella pygmaea*), tamarins (*Saguinus*), night monkeys (*Aotus*), and squirrel monkeys (*Saimiri*). Populations of small-bodied primates are generally more abundant and have higher reproductive rates than larger-bodied species (Robinson and Redford, 1986), enabling them to recover rapidly from harvesting.

Conversely, curbing hunting of primates by rural people has received little attention in western Amazonia, except for the occasional environmental education initiative. This lack of emphasis on hunting is because killing of primates by local people is illegal in the western Amazonian countries. While legislation aims at controlling hunting of primates, management authorities in this region lack resources to enforce the laws, which even if enforced would cause social conflict between government bodies and rural communities. Primate conservation efforts in the western Amazon should concentrate more on the effects of hunting: considerably more deleterious than harvesting for biomedical research. Hunters usually take larger-bodied primates such as woolly monkeys (*Lagothrix*), howling monkeys (*Alouatta*), spider monkeys (*Ateles*), capuchin monkeys (*Cebus*) and sakis and uacaris (*Pithecia* and *Cacajao*). Populations of these species are less resilient than the smaller primates because they have lower reproductive rates (Robinson and Redford, 1986; Bodmer, 1994).

We estimated the annual offtake of primates by local hunters and compared this to the annual average harvest for biomedical research. Data on hunting of primates came from two study sites in northeastern Peru. One was the 500 km² Tahuayo site, which is heavily hunted. There we recorded a total of 515 primates killed over a one year period (Bodmer *et al.*, 1994). The second area was the 250 km² Yavari Miri site which is lightly hunted, and where a total of 52 primates were killed during one year. These localities are within the land use category of Production Forests, which in northeastern Peru cover 203,260 km² (COREPASA, 1986). Taking these figures as representative of heavily and lightly hunted areas, we estimated that rural communities hunt somewhere between 40,000 and 200,000 primates

research during ten years (Tapia *et al.*, 1990). The average of 817 primates captured annually means that 98-99.6% of the annual loss to wild populations from these two causes is due to hunting rather than capture.

At least in western Amazonia, hunting is reducing populations to such low levels that local extinctions will become frequent. For example, in the heavily hunted Tahuayo site the biomass of the larger-bodied primates was estimated at 157 kg/km², less than half that estimated for the lightly hunted Yavari Miri site, which was 420 kg/km² (Puertas and Bodmer, 1993). The species most affected were the woolly monkey, spider monkeys, saki monkeys, white-fronted capuchin (*Cebus albifrons*), and the brown capuchin (*Cebus apella*).

New Directions: Conservation education in the western Amazon is a way of reducing the hunting of primates by rural communities. However, while this has been effective in some restricted areas, it has not produced real changes in the hunting pressures inflicted on primates in the Peruvian Amazon as a whole. Poverty is the reason that conservation education has not produced the expected results. Indeed, hunting of primates is linked to local market economies, and only by integrating these economies with primate conservation can we hope to curb current overhunting.

The value of game meat in local markets is an important factor (Bodmer, 1990). Although primates are only infrequently commercialized, they do play an important part in the economics of game hunters who seek ungulates and large-bodied rodents for their greater market accessibility (selling them for cash) while the primates and other smaller mammals are consumed by the hunters and their families. Thus, the primates are experiencing substantial harvesting as subsistence game.

Primate conservation efforts in western Amazonia will be fruitless unless they take a new direction. The focus must be on currently unmanaged game hunting. The challenge lies in attaining effective management programs in the context of impoverished economies, with management authorities unable to control with effect the rural hunters and small unlicensed meat vendors. Legislation governing wildlife is ineffectual when dealing with these lower income groups, especially in rural areas. By contrast, informal legislation developed by the rural communities themselves can be highly effective. Implementing community-

based wildlife management for primate conservation requires the integration of the socioeconomics of local people with the population biology of the primates (Bodmer, 1993).

How might this be done? One example may be found in the Reserva Comunal Tamshiyacu-Tahuayo in northeastern Peru. Studies conducted in this reserve have examined 1) the impact of hunting on mammals, 2) the connections between market sales and subsistence uses of mammals, and 3) ways to develop management programs with local people that incorporate both the biological responses of mammals to hunting pressure and the economic implications involved in converting an unmanaged system to one that is managed (Bodmer, 1993).

Population analyses of game species in the Reserve suggest that peccaries, deer, and large rodents are not currently overhunted. In contrast, populations of primates and tapirs are. Thus, a more sustainable system would require that hunting primates and tapirs should cease, and the harvest of peccary, deer, and large rodents should be set at or below current levels. The communities in the Tamshiyacu-Tahuayo Reserve have established a management program that allows hunters to cull a greater proportion of males of species that are not currently overharvested, while prohibiting the hunting of species which were being overexploited. This male-directed hunt does not increase the current harvest of peccaries, deer and large rodents, because only males are commercialized, while females are used for subsistence. Of interest is that this management program should dramatically curb the hunting of primates, because primate meat will be substituted by meat from female peccaries, deer and large rodents. The management program takes into account the rural communities' needs while simultaneously reducing the hunting of threatened species. It will have short term costs for hunters, but there will be real social benefits, because opportunity costs will be outweighed by benefits incurred from future hunting revenue.

To summarize, we suggest that to conserve primates outside fully protected areas in western Amazonia we need new directions which will consider: 1) that local hunters should be the focus of conservation efforts; 2) that unmanaged hunting *can* be converted to managed hunting; and 3) that wildlife management programs must integrate the socioeconomics of rural peoples with the need to conserve primates.

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Richard E. Bodmer, Tropical Conservation and Development Program, Latin American Studies, 319 Grinter Hall, University of Florida, Gainesville, Florida 32611-5531, USA, **Pablo E. Puertas**, Instituto Veterinario de Investigaciones Tropicales y de Altura, Apartado 621, Iquitos, Peru, and **Tula G. Fang**, Facultad de Ciencias Biológicas, Universidad Nacional de la Amazonía Peruana, Plaza Serafin Filomeno, Iquitos, Peru.

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RECOVERY AND RELEASE OF AN INFANT MURIQUI, *BRACHYTELES ARACHNOIDES*, AT THE CARATINGA BIOLOGICAL STATION, MINAS GERAIS, BRAZIL

Unexplained disappearances of primate infants have been reported from a number of long-term field studies, but rarely do observers encounter living infants which have been abandoned by their mothers and other group members. This report describes one such discovery, involving a 4-month old infant mureiqui (*Brachyteles arachnoides*) at the Caratinga Biological Station (EBC), Minas Gerais, Brazil, which was successfully returned to her mother in the wild within 27 hours of contact. Mureiquis are among the most endangered primates worldwide, and our active intervention was a conscious effort on behalf of this species' conservation.

At 0750 h on 11 November 1992, observers detected cries and movement from the forest floor close to where the 48-member mureiqui group had spent the night. A female infant was sighted; she was cold to the touch, her eyes were closed, and her reflexes were poor. The rest of the group was nowhere in sight. One observer (CN) brought the infant back to the research house while another (LO) searched for the group. The infant was given a blanket for warmth, kept in a dimly lit room, and bottle-fed whenever she cried with a mixture of 20 ml powdered milk (Nutricia, Fábrica de Laticínios Nutricia S.A.) and 80 ml filtered and boiled water (Table 1). After the second feeding, the infant's temperature and reflexes appeared to return to normal, and her eyes were open and clear. Examination revealed no visible wounds or broken bones; rough measurements are shown in Table 2.

By early afternoon, the rest of the study group was located and the infant's identity was established by confirming the presence of all other members, which are distinguishable by their natural

Table 1. Infant feeding schedule

Date	Feeding	Time	Type*	Quantity
11/11/92	1	0840	Milk	20 ml
	2	0915	Milk	20 ml
	3	0935	Milk	10 ml
	4	1002	Milk	10 ml
	5	1023	Milk	10 ml
	6	1055	Milk	10 ml
	7	1142	Milk	20 ml
	8	1325	Milk	25 ml
	9	1545	Apple	1/4
	10	2027	Milk	20 ml
	11	2125	Milk	30 ml
	12	2310	Milk	30 ml
12/11/92	13/14/15	-	Milk	65 ml**
	16	0600	Milk	20 ml
	17	0743	Apple	3/4

*Composition of powdered milk: lactose-38%, protein-27%, fat-26%, minerals-6%; preservatives-3%.

**Total for three early morning feeds (0000-0500).

markings. The infant's mother was travelling alone, with visibly swollen nipples.

Bottle-feeding continued throughout the day and night whenever the infant cried, and was supplemented twice with mashed apple fed with a teaspoon. Feeding quantities and frequencies are shown in Table 1. Contact with the infant was kept to a minimum; one observer (ARC) assumed principle responsibility for the infant's care. A small branch was brought in from the forest which the infant clung to between feedings. Fecal and urine samples were collected and frozen; ectoparasites were preserved in 94% alcohol, and sent to Dr. Michael Stuart at the University of North Carolina-Ashville for identification. They appeared to be a species of louse, *Cebidicola armatus*, which Stuart had previously identified from *Brachyteles* at two other sites (unpublished).

On 12 November 1992, two observers tracked the study group, while a third stayed with the infant at the research house. When the group was located, one observer kept the infant's mother in sight while the other returned to the house to retrieve the infant, which was carried to the forest inside the blanket so that the other monkeys would not witness her contact with humans. The infant responded to vocalizations exchanged between group members.

At 1039, the infant was left inside the blanket at the base of a small tree closest to her mother; the observers withdrew from view. The infant immediately climbed the tree and vocalized. Her mother had been feeding; when her daughter vocalized she immediately stopped and looked in

the direction of the calls. She spotted her infant, and moved toward her. Other females in the group also oriented toward the calls but did not approach. At 1051, the mother pulled her infant onto her back and began to move off. Two minutes later, the infant climbed off her mother and screamed. Her mother remained within a meter, calling to her infant. At 1105, the infant approached her mother's ventrum, but when her mother began to move she separated herself and screamed again. Her mother maintained close proximity, softly clucking to her infant, and five minutes later, the infant returned to her mother's ventrum and began to suckle. The infant continued to nurse as her mother began to move off as if no separation had occurred. The infant is now apparently healthy and developing normally.

We do not know why this infant was alone on the forest floor in the first place. During the 10 years that this group has been under study (Strier, 1991, 1992), falls involving infants and other age classes have been observed occasionally, but usually they climb back up the trees immediately or, in the case of young infants, are immediately retrieved by their mothers. In this case, the distance between the rest of the group and the infant when she was discovered suggests that she had been abandoned after she fell. She was her mother's first offspring, and it is possible that her mother's inexperience was responsible for her neglect. In any case, the infant's young age and poor condition when she was found suggest that she would have died without human intervention.

Once she was brought to the research house, two options for her future were discussed. One was to care for her until arrangements could be made to send her to the Centro de Primatologia do Rio de Janeiro where captive breeding facilities for this species exist (Coimbra-Filho *et al.*, 1993). In addition to concern for her survival during the 10-12 hours of transit, however, we have never observed a wild female muriqui adopt an infant, and we did not know how she would fare with other unrelated muriquis in a captive setting. Consequently we opted to attempt to return her to her mother in the wild.

Table 2. Measurements of the 4-month old female *Brachyteles arachnoides*.

Weight	c.900 g (weighed with 5 kg scale)
Body length	21.0 cm (top of head to base of tail)
Tail length	27.0 cm (base of tail to point)
Foot length	8.0 cm (heel to tip of middle digit)
Hand length	6.0 cm (wrist to tip of middle digit)
Head length	9.5 cm (tip of nose to occipital)



The success of the return may have been facilitated by our ability to identify the infant and to release her near her mother. Furthermore, by not feeding the infant immediately prior to her release, she may have been hungry and therefore more responsive to her mother's initiative.

We recognize that similar recoveries of wild primates may not always be merited. In particular, if a primate has had extended contact with humans, it may be risky to return it to the wild, because it may transmit infectious pathogens. Similarly, if a dependant infant cannot be returned to its biological mother, releasing it in the wild may be condemning it to starvation. However, the success of our release indicates that such efforts are feasible and, under circumstances similar to those we describe, may be desirable, particularly for species as endangered as the marmoset.

Cláudio P. Nogueira, Universidade de Guarulhos, Rua José Bonifácio 152, Caçapava, 12280-000 São Paulo, Brazil, **Ana Rosi D. Carvalho**, Departamento de Ciências Biológicas, Universidade de Taubaté, Praça Marcelino Monteiro 63, 12100 Taubaté, São Paulo, Brazil, **Lúcio P. Oliveira**, Departamento de Zoologia, ICBG, Universidade Federal de Juiz de Fora, 36035-330 Juiz de Fora, Minas Gerais, Brazil, **Eduardo M. Veado**, Estação Biológica de Caratinga, Caixa Postal 82, 36950-000 Ipanema, Minas Gerais, Brazil, and **Karen B. Strier**, Department of Anthropology, University of Wisconsin - Madison, 1180 Observatory Drive, Madison, Wisconsin 53706, USA.

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MURIKUIS AT THE RIO DE JANEIRO PRIMATE CENTRE

Very few marmosets, *Brachyteles arachnoides*, have been kept in captivity. Without exception, these were housed in inappropriate cages and lacked adequate husbandry, often being maintained alone, or in conditions which were unfavourable for reproduction, and receiving diets which in no way corresponded to their nutritional requirements. The continuing and drastic degradation and loss of habitat for these monkeys, the Brazilian Atlantic forest from the states of Bahia to Paraná (see Aguirre, 1971; Coimbra-Filho, 1972; Strier, 1992), has long since obviated the urgent need for an *ex situ* breeding program, and in 1984 the Rio de Janeiro Primate Centre (CPRJ/FEEMA) completed the construction of a large enclosure, designed specifically for the species (Anon., 1985; Coimbra-Filho *et al.*, 1993). It was financed by Wildlife Preservation Trust International (WPTI). It consists of a large exercise area (15.4 x 5.8 x 4.7 m), with a lean-to at each end, one for preparing food and the other as a retreat for the animals and to facilitate their capture. Part of one end of the exercise area is covered to provide shade and shelter from the rain. As such, the enclosure took into account the need to maximize space, and opportunities for exercise were also provided by positioning poles and supports in such a way that they could fully use their capacity for semi-brachiation.

The experimental colony obtained its first member,

an immature female of 3-4 months (Registration No.850), on the 11 September 1987. It arrived with breathing and gastrointestinal problems, and also showed signs of an abnormal "imprinting" on humans. It was being kept as a pet, its mother having been shot for food, in a village in the east of the state of Minas Gerais. It died on the 25 July 1990. Two other subadult females (Nos. 891 and 924) were acquired in January and July 1988, also from the state of Minas Gerais. As with the first female, they arrived in terrible condition, but recovered well following intensive veterinary care. The two females were first introduced to each other and to the cage, on the 15th May 1989. They demonstrated immediate affiliative behaviour (embracing) and vocalizing, either hanging by the tail side-by-side, or sitting beside each other emitting low friendly sounds. Subsequently two immature males (Nos. 1012 and 1091) were acquired from the state of São Paulo, in May 1989 and January 1990. The still infant male (No.1012) was introduced to the three females on the 19th June 1989. He was accepted immediately, the females repeatedly touching him without any signs of aggression. Although still of an age, none of the three females attempted to carry him. The second male (No.1091) was introduced on the 5th January 1990, with a similar outcome. The group has remained completely stable.

Muriquis are folivore-frugivores (Strier, 1992), and the most folivorous of the atelines (*sensu* Rosenberger and Strier, 1989), excepting *Alouatta*. The foods provided for the captive muriquis reflect this high degree of folivory, and leaves of species preferred by wild populations are mixed with the commercial foods included in the diet. They include garapa, (*Apuleia leiocarpa*), jacaranda-branco (*Platypodium elegans*), bicuiba (*Virola* sp.), young embauba leaves (*Cecropia* sp.) and a number of other smaller trees, including for example cana-de-macaco (*Costus* spp.). These trees have been planted in the grounds of the Primate Centre. The commercial fruits and leaves in the diet include cabbage, chicory, bananas, mangos, and apples. A special feeder has been developed in order to minimize waste as well to facilitate provisioning (Rocha e Silva *et al.*, 1991). This diet has been highly successful, evidenced by the recovery and now excellent state of health of the subadult females, and by the rapid growth of the young males and infants (see below). The young males now weigh over 15 kg.

Recent studies have demonstrated the likelihood of two subspecific forms of muriqui, a southern nominal form from the state of São Paulo and the

northern form, *B.a.hypoxanthus*, from Espírito Santo and Minas Gerais. The existence of two muriqui subspecies was first argued by Vieira (1944). Based on observations of the captive colony at CPRJ, we recognised the validity of his supposition (Coimbra-Filho, 1990, 1992) and studies of some genetic and morphological characters of populations from the south of its range in the state of São Paulo and from Minas Gerais have also reinforced this (see Lemos de Sá and Glander, 1993; Lemos de Sá *et al.*, 1993). Lemos de Sá *et al.* (1993) suggest that the Rios Grande and Paraíba do Sul and the Serra da Mantiqueira divide the two populations.

The two females from Minas Gerais and the two males from São Paulo in the CPRJ colony show marked differences. The nominal southern form is more robust, the skin is uniformly pigmented black (notable on the hairless parts of the face, and scrotum or vulva), and lacks a rudimentary thumb. Lemos de Sá and Glander (1993) confirmed the lack of a thumb in two individuals captured in the Fazenda Barreiro Rico, São Paulo. The skin of the northern subspecies, *B.a.hypoxanthus*, is mottled black interspersed with numerous pinkish patches and spots, and all individuals from the north of the species' range that we have observed have a rudimentary thumb (illustrated in Rosenberger and Strier, 1989; p.723). Lemos de Sá and Glander (1993) recorded a small thumb on all of 10 individuals captured in the Fazenda Esmeralda, Minas Gerais. Lemos de Sá *et al.* (1993) also found a regional difference in canine length. Strong sexual dimorphism was found for individuals belonging to populations south of 22° latitude but none for individuals north of 21° latitude. Studies of genetic distance and similarity between the Minas Gerais (Fazenda Esmeralda) and São Paulo (Fazenda Barreiro Rico) muriquis have also indicated a high level of divergence between the populations (T.R.Pope, manuscript submitted, cited in Lemos de Sá and Glander, 1993).

The first birth occurred on the 10th September 1991, the result of a mating between the black-faced male (No.1091) of the subspecies *B.a.arachnoides* and the female (No.924) of the subspecies *hypoxanthus*. The skin of the neonate was dark grey with a slightly purple tone. The ventral parts were also well pigmented but a little paler. The face was entirely pigmented black. In general, the fur was sparse, and dull yellowish, and denser on the back and crown, particular on the forehead and above the eyes. The hairs on the limbs and tail were short and sparse, particularly on the inner parts. The tail was hairless on the

ventral distal parts, and already functionally prehensile. The hands and feet were relatively large. Most significant was the presence of an outline of a rudimentary thumb, characteristic of the northern subspecies *B.a.hypoxanthus*. The infant unfortunately died two days after its birth. The second infant, a female (No.1286), was born on the 30th October 1991. The parents were the wild-born male *B.a.arachnoides* (No.1091) and the wild-born female *B.a.hypoxanthus* (No.891). The female *B.a.hypoxanthus* No.924 gave birth again to a female (No.1335) on the 3rd June 1992. As in the previous two births, the father was the male wild-born *B.a.arachnoides* No.924. On two occasions it was necessary to carry out veterinary care for inflammations caused by botfly infections. This may have been a reflection of a certain lack of care on the part of the mother. Both this and the second infant were born uniformly pigmented and with small thumbs, typical of *B.a.hypoxanthus*.

The recent evidence consolidating the arguments for two subspecies (see above) has led to the realization that our initial births have been hybrids. Unfortunately, we have as yet been unable to acquire a founder population at CPRJ which could permit separate programmes, a vital next step which will depend on the collaboration of field researchers in setting up management programs for the isolated populations and which will include measures for the consolidation and diversification of the captive founders, without of course in any way prejudicing the survival of surviving wild populations.

Adelmar F. Coimbra-Filho, Alcides Pissinatti, Centro de Primatologia do Rio de Janeiro (CPRJ/FEEMA), Rua Fonseca Teles 121, São Cristovão, 20940-050 Rio de Janeiro, Rio de Janeiro, Brazil 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 CASE OF GEOPHAGY IN THE BLACK HOWLING MONKEY *ALOUATTA CARAYA*

A case of geophagy by a black howling monkey was observed during a 12-month (August 1989-July 1990) field study on the ecology and behavior of a group in a seminatural forest of two hectares at the southernmost geographical limit of the species (29°37'S, 56°17'W) (Bicca-Marques, 1990). It occurred on 9 September 1989, when a juvenile female was observed nibbling on a small quantity of clay from a deserted, unfinished nest of an ovenbird (*Furnarius rufus*). The ovenbird

constructs its nest with wet mud. Whether there was any difference in the composition of the mud of the nest with that on the ground is not known, but there was the evident advantage that the female was not obliged to descend the tree. The nest was located about 10 m above the ground in the fork of an angico tree (*Parapiptadenia rigida*).

Earth-eating has been observed in many Old World (for example, Davies and Baillie, 1988; Goodall, 1965; Hall, 1962; Hladik, 1977a; Inoue, 1987; Lindburg, 1977) and some New World primates, such as *Saguinus mystax* (v. Heymann and Hartmann, 1991), *Callithrix jacchus* (in captivity, N.J.Junqueira, pers. comm.), *Alouatta seniculus* (v. Izawa, 1975; M.B.Diogenes, pers. comm.), *Alouatta belzebul* (R.Ghilardi Jr, pers. comm.), *Ateles belzebuth* (v. Izawa et al., 1979); and *Lagothrix lagotricha* (in captivity, M.C.A.G.Fernandes, pers. comm.). At La Macarena, Colombia, *A.belzebuth* and *A.seniculus* have been observed eating soils from "salado" (salty) sites, and in the case of *A.seniculus*, the soil from arboreal termitaria (Hirabuki and Izawa, 1990; Izawa et al., 1990; Izawa and Lozano, 1990), also recorded for chimpanzees (Uehara, 1982). *A.belzebuth*, but not *A.seniculus*, have been observed drinking the water from the "salado" sites (Izawa and Mizuno, 1990; Izawa, 1993).

Five explanations have been proposed to interpret the occurrence of geophagy: 1) as a dietary mineral supplement (Clutton-Brock, 1977; Davies and Baillie, 1988; Heymann and Hartmann, 1991; Hirabuki and Izawa, 1990; Izawa et al., 1990; Johns and Duquette, 1991; Jolly, 1985; Mahaney et al., 1990; Oates, 1977; Ozaki et al., 1989; Waterman, 1984), although the mineral concentrations available in soil samples analysed frequently do not exceed those present in many common foods and give no indication of elements which may be influencing the soil-eating habits (see Goodall, 1965; Hladik, 1977a, 1977b; Hladik and Gueguen, 1974; Jolly, 1985; Lindburg, 1977; Schaller, 1965); 2) the clay may act as an adsorbent of tannins frequently found in small quantities in leaves, and thus reduce their inhibitory effects on protein absorption, as well as increasing detoxification capacity for poisonous secondary compounds (Hladik, 1977a, 1977b; Johns and Duquette, 1991); 3) the earth provides some mechanical aid to digestion (Jolly, 1985); 4) alleviation of digestive disorders, such as forestomach acidosis (Davies and Baillie, 1988) - chemical analyses of soils eaten by *A.seniculus* showed that they had higher pH values than those which were not (Hirabuki and Izawa, 1990); and 5)

the soil of termite mounds eaten by chimpanzees may provide information on the reproductive state of the termites (Uehara, 1982).

In our case of oven-bird nest eating, any of the first four explanations are possible. In comparison to *A.seniculus*, however, this was evidently a very rare behavior (Izawa and Lozano, 1990). Another possibility is that geophagy may be related to infestations of internal parasites. In the Amazonian state of Acre, where red howling monkeys (*A.seniculus*) have been observed frequenting "barreiros" (the Brazilian equivalent of "salado" sites, see Ayres and Ayres, 1979) to eat soil, an analysis of the digestive tract of one individual showed a very large quantity of earth and a very high infestation of worms in the stomach, whereas other digestive tracts analysed presented few worms and little soil (F.L.França, unpubl.data). The black howling monkeys we studied had large numbers of cestode worms in the feces.

Júlio César Bicca-Marques and Cláudia Calegare-Marques, Departamento de Ciências da Natureza and Parque Zoobotânico, Universidade Federal do Acre, Caixa Postal 1012, 69908-210 Rio Branco, Acre, Brazil.

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MORE UNTUFTED CAPUCHINS IN SOUTHEASTERN AMAZONIA?

Until the description of *Cebus kaapori* Queiroz 1992 from the Brazilian State of Maranhão, the known distribution of untufted capuchins (*Cebus albifrons* and *Cebus nigrivittatus*) in the Amazon basin was restricted to the north and west of the Amazonas/Tapajós river system. Lopes and Ferrari (1993) extended the range of *C.kaapori* as far west as the Rio Tocantins, but it remains unclear whether untufted capuchins occur further west. If an untufted capuchin does occur west of the Tocantins, its absence from the literature may be a consequence of the same two factors which contributed to that of *C.kaapori* prior to 1992: exceptionally low population densities (Queiroz, 1992; Lopes, 1993) and a restricted geographical distribution.

With this in mind, the region to the south of Cameté on the left or west bank of the Tocantins was visited in July and September 1993 in an attempt to confirm, or otherwise, the occurrence of an untufted capuchin in the lower Tocantins/Xingú interfluvium (fieldwork supported by the Universidade Federal do Pará). During interviews, only about one in ten residents reported the

presence of a "cairara" (untufted capuchin) in local forests, although these reports seem reliable, given that they invariably came from the older and most experienced residents, who characterized the animal as extremely rare and difficult to observe. This is consistent with records of *C.kaapori* east of the Tocantins.

Unfortunately, it was not possible to confirm these reports through either sightings or specimens, although further expeditions are planned. If an untufted capuchin does exist in this region, it is also likely to occur in the Caxiuanã National Forest, where a research station has been recently established by the Goeldi Museum, Belém. Hopefully, then, we may have some more concrete information in the not too distant future.

Stephen F. Ferrari and Arlindo P. de Souza Junior, Departamento de Genética, Universidade Federal do Pará, Caixa Postal 8607, 66075-150 Belém, Pará, Brazil.

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ILHABELA STATE PARK: A POORLY KNOWN RESERVE IN SOUTHEAST BRAZIL

The Ilhabela State Park, created in 1977 by the



Forestry Institute of the state of São Paulo, covers 80% of the Island of São Sebastião (Brazil's largest offshore island) along with all of the smaller islands belonging to the municipality of Ilhabela, São Paulo. The Park covers 27,025 ha, and on the Island of São Sebastião has an altitudinal range from sea level to 1,350 m, with a mean elevation of 800 m. The vegetation is typical of the Atlantic coastal forest, varying according to the altitude and slope. At higher altitudes the forest has remained essentially untouched, although subsistence and intensive agriculture (mainly sugar cane and coffee) during the 19th and early 20th Centuries completely devastated the lower slopes (below 300 m), today evidenced by large areas of secondary forest.

Despite some collecting, practically nothing is known of the island's flora, and very little of its fauna (see Lüderwaldt, 1929; Müller, 1966). Expeditions have been carried out by the Zoology Museum of the University of São Paulo, and a current research project is inventorying the avifauna of the islands. There is at least one mammal known to be endemic to the island, a spiny rat known as the cururuá, *Nelomys thomasi* (Thering, 1871) (also placed in the genus *Echimys*), along with some amphibians and reptiles. Current research is, however, already indicating further endemics, including mammals. This is of special interest because the island is separated from the mainland by a channel only 2 km wide, and in some places not more than 10 m in depth. The time the island was separated from the mainland can be determined with some accuracy, and the Park provides a remarkable natural experiment for island biogeography and for examining rates of evolution.

From the viewpoint of conservation, the Park is important not only for its forests and endemics, but also many species restricted to the Atlantic coastal forest, and such as the oncilla (*Leopardus tigrinus*), ocelot (*Leopardus pardalis*), piping guan (*Pipile jacutinga*), the golden-tailed parrotlet (*Touit surda*), and the solitary tinamou (*Tinamus solitarius*). The only primate which is definitely known to occur on the island is the black-horned capuchin, *Cebus apella nigrinus* (Goldfuss, 1809), a large, dark colored race, which also occurs as far north as the Rio Doce in the states of Espírito Santo and Minas Gerais, and extends south into northeastern Argentina (see Di Bitteto and Arditi, 1993). Local people also indicate the presence of a large, paler monkey, as well as a black monkey with white around its face, different to and larger than the capuchin monkey. The first may be the

muriqui, *Brachyteles arachnoides*. *C.a.nigrinus*, however, like all capuchins shows considerable individual variation, and includes specimens ranging from black to brown (juveniles tend to be more brownish), and adults may also have white or whitish hairs surrounding the face, as well as white ear tufts (Hill, 1960). The second species indicated by locals may not therefore be valid. The possibility also remains that *Callithrix aurita*, present on the mainland nearby, may occur on the island, but no evidence is yet available to confirm or refute this.

Ilhabela offers excellent opportunities for primatological studies, despite being only a three-hour drive from the city of São Paulo, and an important holiday resort. Inquiries and further information concerning the possibilities of research in this Park are welcomed.

Fábio Olmos, Parque Estadual de Ilhabela, Rua Morro da Cruz 608, 11630-000 Ilhabela, São Paulo, Brazil.

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THE DISTRIBUTION OF THE BLACK-HEADED MARMOSET, *CALLITHRIX NIGRICEPS*: A CORRECTION

In the article "An update on the black-headed marmoset, *Callithrix nigriceps* Ferrari and Lopes 1992", published in *Neotropical Primates* 1(4), 1993, I reported on a new locality for *C.nigriceps* on the west bank of the Rio dos Marmelos: the Tenharin Indian Settlement. With the concurrent finding that *C.emiliae* occurred on the east bank of the river at the same locality, this confirmed our supposition (Ferrari and Lopes, 1992) concerning

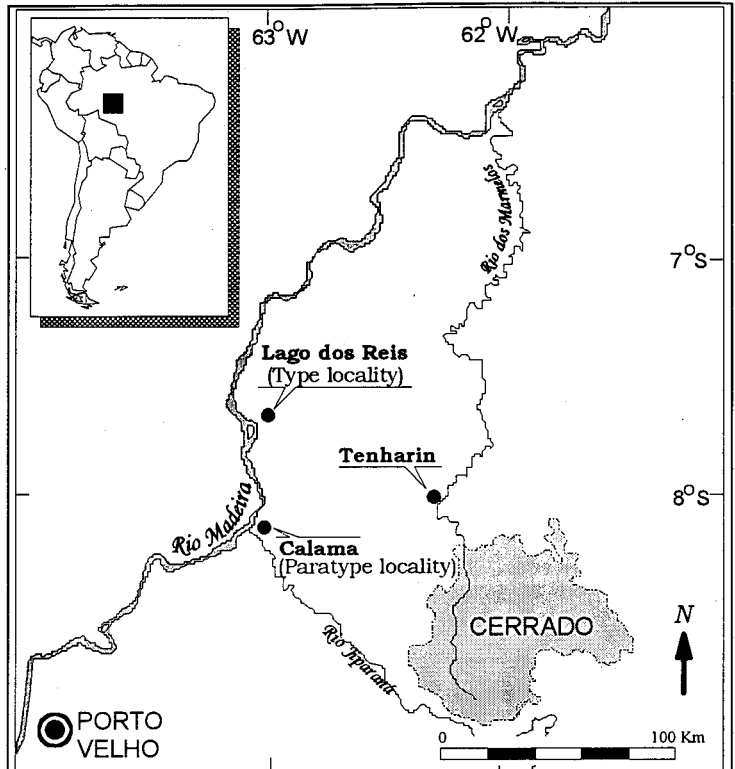


Figure 1. Map showing the distribution of and three localities for *Callithrix nigriceps*. This map replaces the one published in Ferrari, S.F., *Neotropical Primates*, 1(4):12, 1993.

the eastern extreme of the species range: the blackwater Rio dos Marmelos. The coordinates given in the article were correct ($07^{\circ}57'S$, $62^{\circ}03'W$), but the editors mistakenly placed Tenharin too far to the north on the map (Figure 1, p.12). Here the map is republished with the correct location of the Tenharin settlement. The type locality for the species, Lago dos Reis ($07^{\circ}31'S$, $62^{\circ}52'W$, = Lago Paraíso), 17 km east of Humaitá, Amazonas, Brazil, on the Trans-Amazon highway BR-230 (right or east bank of the Madeira River), and the paratype locality, Calama ($08^{\circ}03'S$, $62^{\circ}53'W$), Rondônia, Brazil (right or east bank of the Madeira River, east of the Jiparaná River), are also shown.

Stephen F. Ferrari, Departamento de Genética, Universidade Federal do Pará, Caixa Postal 8607, 66075-150 Belém, Pará, Brazil.

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Brazilian Amazonia. *Goeldiana Zoologia*, (12):1-13.

Editor's note: The editors apologise for the error reported here.

UMA EXPERIÊNCIA DE CONSERVAÇÃO NA VÁRZEA DA AMAZÔNIA BRASILEIRA

Desde o final de 1992 tem sido realizada uma experiência na tentativa de conservar parte da várzea amazônica em território brasileiro. A várzea perfaz uma pequena fração do bioma amazônico, e é onde concentra-se a maior porção de sua população humana. As pressões sobre o ambiente são, por este motivo, geralmente mais fortes que em outras partes da região. Tais pressões exercem uma constante ameaça à flora e à fauna locais, caracterizadas por um alto grau de endemismos. Só existe uma Unidade de Conservação destinada à proteção da várzea amazônica no Brasil, a Estação Ecológica Mamirauá (EEM), área do Governo do Estado do Amazonas, e sob jurisdição da Secretaria Estadual do Meio Ambiente, Ciência e Tecnologia deste Estado (SEMACT-AM).

A EEM, com 1.240.000 ha. encontra-se na confluência dos Rios Solimões e Japurá.

Constituída exclusivamente de várzeas (terrenos sazonalmente alagados por *água branca*, rica em sedimentos e nutrientes), toda a área fica completamente submersa por, no mínimo, quatro meses a cada ano. O nível d'água varia anualmente em até 12 metros. Em condições tão adversas, são muitas as adaptações ao *stress* hídrico nas comunidades animal e vegetal.

Neste ambiente único, a comunidade de primatas não é tão diversa quanto a das matas de terra firme circundantes, mas apresenta formas únicas. *Saimiri vanzolinii* e *Cacajao calvus calvus*, não são espécies endêmicas da EEM, como também apresentam duas das menores áreas de distribuição geográfica entre os Cebidae. São também encontrados na Estação *Cebus apella*, *Saimiri sciureus*, *Alouatta seniculus* e *Cebuella pygmaea*. Provavelmente ocorrem em pontos mais remotos da EEM *Ateles sp.* e *Pithecia sp.*



A implantação da Estação está confiada à uma organização não-governamental, a Sociedade Civil Mamirauá, que executa o Projeto Mamirauá. A iniciativa conta com o apoio institucional da Secretaria do Meio-Ambiente do estado do Amazonas (SEMACT-AM), do Conselho Nacional de Desenvolvimento Científico e Tecnológico - Programa do Trópico Úmido (CNPq-PTU) e do Instituto Nacional do Meio Ambiente e dos Recursos Naturais Renováveis (Ibama). Além disto, outras instituições de pesquisa brasileiras, como o Museu Goeldi (MPEG) e o Instituto Nacional de Pesquisas da Amazônia (INPA), além de algumas Universidades Federais, tomam parte nos trabalhos desenvolvidos. O apoio financeiro vem, em sua maior parte, do exterior, através de agências como a Overseas Development Organisation (ODA), o World Wide Fund for Nature (WWF), a NYZS-Wildlife Conservation Society e o Conservation International (CI). Entretanto, várias outras instituições, brasileiras e estrangeiras, governamentais ou não, também apoiam o projeto financeiramente.

Numa abordagem inédita no país, o projeto Mamirauá pretende realizar a implantação da EEM compatibilizando a preservação do meio ambiente com a exploração sustentada de seus recursos pela população humana que habita tradicionalmente o local.

Considerando os custos de vigilância e proteção de uma área tão extensa, propõem-se que os habitantes atuem como protetores, e que sua área de exploração sustentada funcione como uma zona de aortecimento das pressões externas. De modo a viabilizar esta compatibilização, o Projeto Mamirauá vem realizando as primeiras tentativas de zoneamento da área, enquanto são desenvolvidas pesquisas que visam, principalmente, os mais relevantes recursos naturais presentes. Assim estão sendo estudadas as madeiras e o processo de desmadeiramento, a pesca e as mais importantes espécies de peixes comerciais e ornamentais, os jacarés, os animais de caça (como primatas), os mamíferos aquáticos, dentre outros. Outros estudos acerca de aspectos mais amplos e gerais da ecologia da várzea, como estudos botânicos e de inventário de fauna e flora, os de comunidades de aves, de dispersão de sementes, de limnologia das centenas de lagos

presentes, e de auto-ecologia de algumas espécies-chave, também estão sendo desenvolvidos.

Além disto, a população humana também acompanha o processo de implantação da EEM. Para tal, uma série de estudos antropológicos e sócio-econômicos estão sendo levados a termo, junto a trabalhos de educação ambiental, nutrição e saúde. De forma a possibilitar a articulação das lideranças locais em torno da questão, e das autoridades dos municípios da região e os interesses do Projeto, existe um trabalho de participação comunitária. Este trabalho também harmoniza os inúmeros contatos de Projeto e de seus membros com as várias comunidades moradoras e/ou usuárias da EEM. As decisões quanto às práticas de manejo e zoneamento são realizadas em conjunto com as lideranças comunitárias, em reuniões e assembléias gerais.

Neste primeiro momento o Projeto Mamirauá centra suas atividades numa área focal de 200.000 ha, com cerca de 4.000 usuários diretos. Sua infra-estrutura conta com um escritório em Belém (PA) e outro em Tefé (AM). Existem coordenadorias em que se agrupam todas as atividades desenvolvidas. O Programa de Participação Comunitária e Pesquisas Sócio-Econômicas executa todas as atividades relativas à população humana local e os seus desdobramentos. As pesquisas ambientais organizam-se nos Programas de Sistemas Aquáticos e de Sistemas Terrestres. Por fim, um Programa de Banco de Dados organiza as informações obtidas, e trata das informações geográficas e de sensoriamento remoto. São cerca de 100 pessoas envolvidas, entre pesquisadores e pessoal de apoio.

Esta nova concepção de implantação e funcionamento de áreas de conservação objetiva, em especial, discutir o modelo de criação e gerenciamento destas áreas na região amazônica. Pretende-se garantir a manutenção da biodiversidade e do uso sustentado dos recursos naturais, minimizando os atritos que, em geral, decorrem deste ponto de contato. As peculiaridades do modelo desenvolvimentista adotado pela iniciativa oficial e as características particulares da região amazônica (como a alta biodiversidade, a grande extensão territorial e o povoamento concentrado), terminam por exigir um modelo de conservação igualmente peculiar. É sobre estes temas que o Projeto Mamirauá estará se ocupando pelos próximos anos.

Helder Lima de Queiroz, Sociedade Civil Mamirauá, Caixa Postal 38, 69470-000 Tefé,

Amazonas, Brasil.

Referência

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News

A GLOBAL CONSERVATION STRATEGY FOR ZOOS

In September 1993, The World Zoo Organization (IUDZG - The International Union of Directors of Zoological Gardens) and the World Conservation Union (IUCN)/Species Survival Commission (SSC) Captive Breeding Specialist Group (CBSG) launched a most important document - *The World Zoo Conservation Strategy: The Role of Zoos and Aquaria of the World in Global Conservation*. This is the result of two years of intensive discussions, involving zoos and aquaria worldwide which have an annual visitation estimated at 600 million people and as such the potential for one of the largest conservation networks on earth. *The World Zoo Conservation Strategy* points to the great potential of this network, and concludes that conservation must be a central theme of all progressive zoos and aquaria.

The Strategy emphasizes that there are three major areas in which zoos and aquaria can help to achieve conservation goals:

1. By actively supporting the conservation of populations of endangered species and their natural ecosystems. Coöperative zoo breeding programs, 300 of which are already operating, is but a start to addressing an anticipated need for over 1,000 such programs. Many species will only survive if a captive population exists for reintroduction back into the wild, and thus by their presence as flagships support a multitude of other life forms within such habitats.

2. By offering support and facilities to increase scientific knowledge that will benefit conservation. Effective conservation depends on an understanding of the biology of species and the relationship with their surroundings. The many hundreds of zoological and veterinarian experts on the staff of zoos and aquaria represent a

considerable potential contribution to this understanding. Moreover, zoo acquired knowledge is often crucial to the stimulation of further research in the wild.

3. By promoting an increase in public awareness of the need for conservation, a task for which zoos and aquaria are preeminently suited. Zoo education programs provide excellent opportunities for this most important of functions.

The Strategy comprehensively presents these three main aspects of zoo conservation. In doing so, it seeks understanding and support for the conservation potential of zoos from national and international authorities as well as other social and political bodies. Importantly, it gives guidance to individual zoos and aquaria, their governing bodies and staff in the formulation of conservation policies and priorities.

The Strategy very clearly points to the fact that - however powerful a role zoos and aquaria can play in conservation - such conservation should be complementary to and not substitute for other fields of conservation activity. It therefore strongly advocates the integration of zoo conservation efforts with those of other conservation bodies. By endorsing *The Strategy* IUCN (the World Conservation Union) and WWF (The World Wide Fund for Nature) have affirmed their support of this view. Additionally, *The World Zoo Conservation Strategy* is based on IUCN's and WWF's vision of global conservation, as formulated in such documents as *Caring for the Earth*, the successor to the *World Conservation Strategy*, published in 1980.

The World Zoo Conservation Strategy indicates how far zoos and aquaria have already progressed in their support to conservation. Yet, *The Strategy* is more than a description of the current situation in the zoo and aquarium community. It looks into the future and aims to increase all zoos' contributions to conservation and sets out the paths along which these goals can be achieved.

In his foreword, HRH Prince Philip, President of WWF, warmly welcomed *The World Zoo Conservation Strategy*, and expressed his hope that it will achieve the necessary cooperation and partnership between zoos and other conservation organizations world-wide that are so vital to the conservation of nature.

Taken from the official press release on the launching of the publication. See also page 25.

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- IUDZG and IUCN/SSC/CBSG. 1993. *The World Zoo Conservation Strategy: The Role of Zoos and Aquaria of the World in Global Conservation. Executive Summary*. The World Zoo Organization (IUDZG), and the IUCN/SSC Captive Breeding Specialist Group (CBSG), published by the Chicago Zoological Society, Chicago. 12pp.

1993 NORTH AMERICAN REGIONAL STUDBOOK FOR THE WHITE-FACED SAKI

Recently published by the Roger Williams Park Zoo, Rhode Island, USA, the North American Regional Studbook for *Pithecia pithecia* registered 96 individuals (47.43.6) in 24 North American Zoos as from 28 March 1993. The studbook includes an introduction on the status of the species and a short article by Anne Savage (Roger Williams Park Zoo) and Susan Shideler and Bill Lasley (ITEH, University of California - Davis) on the behavior and reproductive patterns of the species in captivity. The Studbook proper includes a list of the North American holding institutions, a complete studbook, a studbook of the individuals alive on 28 March 1993, age pyramids for males, females and the total population, institution reports and addresses, and a selected bibliography. In the introduction to the status of the species, the authors point out that only since the mid 1970's have significant numbers been kept in captivity. Today, with close to 100 individuals in American Zoos, reproduction is a regular occurrence. The founder representation is good and inbreeding low. Half of the males and more than half (59%) of the females are aged five years or less. A male on loan to the Pittsburgh Zoo called Jay is 34 years old: the oldest living individual. The authors conclude that the white-faced saki is a species that could and should benefit from cooperative management, and express

the hope that the studbook will aid zoo managers in their attempts to maintain the species in captivity.

Anthony Vecchio, Studbook Keeper, and **Adrienne Miller**, Studbook Registrar, Roger Williams Park Zoo, Providence, Rhode Island 02905, USA.

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Savage, A., Shideler, S. and Lasley, B. 1993. A preliminary report on the behavior and reproductive patterns of captive white-faced sakis (*Pithecia pithecia*). In: *1993 North American Regional Studbook for the White-faced Saki* (*Pithecia pithecia*), A. Vecchio and A. Miller (compilers), 5pp. Roger Williams Park Zoo, Rhode Island.

Vecchio, A. and Miller, A. 1993. *1993 North American Regional Studbook for the White-faced Saki* (*Pithecia pithecia*). Roger Williams Park Zoo, Providence, Rhode Island. 75pp.

THE EUROPEAN MARMOSET RESEARCH GROUP

Marmosets and tamarins are used widely in European research. In 1992, in the UK, for example, 1182 marmosets and tamarins were used in scientific procedures, accounting for 34% of all primates used (British Home Office Statistics).

The idea of a European Marmoset Research Group (EMRG) was first aired during the 14th Congress of the International Primatological Society in Strasbourg in August 1992. The idea, formulated by Christopher Pryce (Anthropology Institute, Zurich University) and Leah Scott (Chemical and Biological Defence Establishment, Salisbury, UK), was well received during an informal meeting at the Congress. Leah Scott, as Convenor of the Captive Care Working Party (CCWP) of the Primate Society of Great Britain (PSGB), organized a subsequent meeting in London in December 1992 in an attempt to foster communication among groups engaged in biomedical research on marmosets and tamarins in the UK. Attended by researchers, study leaders, animal technicians and veterinary surgeons, representing a range of interests in the pharmaceutical industry, zoos and academic institutions, the programme included informal discussions and formal papers. In April 1993, the pharmaceutical company, Fisons Ltd., hosted a second CCWP/PSGB meeting dedicated to

marmosets: specifically to promote information exchange on caging, nutrition, and feeding in the marmoset laboratory. The EMRG was founded at this meeting. It is comprised of a coordinating committee (Leah Scott, Christopher Pryce and Christian Schnell (CIBA-GEIGY AG, Basle, Switzerland)) and some 50 "participants", from France, Germany, Italy, Switzerland, and the UK. One further, non-european, participant, is the Rio de Janeiro Primate Centre (CPRJ/FEEMA).

The objectives of the EMRG include: 1) to identify the needs, capabilities, and susceptibilities of marmosets and tamarins; 2) to optimise the laboratory maintenance and experimental procedures performed on marmosets and tamarins relative to their needs, capabilities, and susceptibilities; 3) to act as a forum for multidisciplinary information exchange via the organisation of workshops and publications as well as affiliation to and interaction with other organisations; and 4) to identify the suitability of marmosets and tamarins for fundamental and applied research compared with other primate and non-primate species.

At the April 1993 meeting, the EMRG was presented with its first formal task: a request from the British Home Office to identify the "best current laboratory housing for marmosets". The EMRG is currently working on this, including the analysis of a questionnaire sent to UK users. The results were discussed at a meeting held in December 1993 and the final report will be presented to the Home Office in April 1994. The EMRG has also produced its first newsletter, which besides reporting on the EMRG's activities includes "Callinews" for announcements and news items concerning callitrichids, a section for invited review articles for highlighting the importance of marmosets and tamarins as subjects of research and for science in general, and bibliographies of callitrichid publications. The newsletter will be published twice a year. In 1993, the EMRG became affiliated to the Primate Society of Great Britain and the European Federation for Primatology. The 1st General Assembly and an Inaugural Workshop of the EMRG will be held in Paris in November 1994 (see "Meetings", page). The edited proceedings of the workshop will be published as a "EMRG Laboratory Handbook of Marmoset Science".

Still in its early days, the EMRG has benefited most especially from the help and support of The Zoological Society of London, The Primate Society of Great Britain, Fisons UK Ltd., Special Diet

Services Ltd., and the establishments at which the coordinators are employed.

Leah Scott, Biology Division, CBDE Porton Down, Salisbury, Wiltshire SP4 0JQ, UK, **Christopher Pryce**, Anthropologisches Institut, Universitat Zürich-Irchel, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland, and **Christian Schnell**, Ciba-Geigy AG, K 125 10.11, Klybeckstrasse 141, CH-4002 Basel, Switzerland.

NEOTROPICAL PRIMATES: SETTING THE AGENDA FOR THE FUTURE - ESSAYS IN HONOR OF WARREN G. KINZEY

A Conference in honor of the renowned New World primatologist Dr Warren G. Kinzey of the City College, City University of New York, was hosted by the Department of Zoological Research of the National Zoological Park, Smithsonian Institution, Washington, D.C., from 26-27 February, 1994. The Conference was sponsored by the Wenner-Gren Foundation for Anthropological Research, the Friends of the National Zoo, the National Zoological Park, the Office of the Assistant Secretary for Research of the Smithsonian Institution, and Kent State University. It was organized by Alfred L. Rosenberger (National Zoological Park) and Marilyn A. Norconk (Kent State University). The following is an extract from the organizers' introduction to the Conference.

"This conference has both a celebratory function (the guest of honor, Dr Warren G. Kinzey, has been a major contributor to the advancement of platyrrhine biology and behavior) and a scientific function. There has been a groundswell of interest and research in the Neotropics with a focus on platyrrhine biology and behavior over the past two decades. At first considered to be the poor cousins of chimpanzees and baboons of the Old World, the platyrrhines are now recognized as extremely diverse in evolutionary biology, behavior, and ecology. There is still a sense of discovery in the New World, indeed four new primate species have been described from Brazil since 1990, and it has become clear that behavioral/ecological/evolutionary models developed from Old World primate species are not necessarily applicable to the platyrrhines. Faced with declining habitats and a wide range of species that have never been studied or are found only in remote areas, there has been great attention focused on the study of as many populations as possible. We feel like we

should take the time to reflect, to evaluate our work, and to determine the most important directions of future research on platyrrhine primates."

Besides a number of panel discussions and a "Conservation Roundtable" led by Dr Richard Thorington (National Museum of Natural History), the following papers were presented:

- *Platyrrhinology: setting the agenda.* Alfred L. Rosenberger, National Zoo, and Marilyn A. Norconk, Kent State University.
- *Comparing primate radiations: diversity and biogeography in two worlds.* John G. Fleagle, SUNY, Stony Brook.
- *Why are there no terrestrial New World primates?* Linda Brown, Graduate Center, CUNY.
- *Inside the pitheciins.* Suzanne Walker, California State University, Sacramento.
- *Nocturnality and diurnality: selection for activity patterns.* Patricia Wright, SUNY, Stony Brook.
- *Rethinking variability in platyrrhine social systems.* Elena Cunningham, Graduate Center, CUNY.
- *A field biologist's view of reproductive physiology.* Karen Strier, University of Wisconsin, Madison.
- *Vocal behavior, social organization, and coordination of troop movement in Saimiri, Cebus, and Leontopithecus.* Sue Boinski, University of Florida, Gainesville.
- *Testing paradigms of animal cognition in a field setting.* Paul Garber and Francine Dolins, University of Illinois, Urbana-Champaign.
- *Quantifying food choice.* Marilyn A. Norconk, Kent State University.
- *The other side of callitrichid gumivory: digestibility and nutritional value.* Michael Power, National Zoological Park.
- *Dietary strategies and lactation patterns.* Olav Oftedal, National Zoological Park.
- *Dental microwear and function in Neotropical primates.* Mark Teaford, Johns Hopkins University.
- *Directions for study of locomotor adaptations.* Susan Ford, Southern Illinois University.
- *Evolution of the Neotropical fieldworker: theory and method.* Ken Glander, Duke University.
- *Lago Guri, laboratory for extinction biology: preliminary observations and speculations.* John Terborgh, Duke University.
- *Issues in primate conservation.* John G. Robinson, NYZS The Wildlife Society.
- *After the year 2000.* Russell A. Mittermeier, Conservation International.

WILDLIFE RESCUE - PETIT SAUT, FRENCH GUIANA

Ninety percent of French Guiana is covered with rain forest. Its major part is presently intact due to low human density and lack of penetrating roads. Approximately 310 km² of forest is currently being flooded (as from January 1994) due to a hydroelectric project. A wildlife rescue operation is underway and will be financed by the public company building the dam. This kind of operation is controversial but we believe strongly that, if well conducted and well documented, it will be very useful and worthwhile. A large amount of scientific information will be obtained.

Mammals, reptiles, amphibian and birds will be captured under the surveillance of wildlife veterinarians. A suitable release area has been selected and will be prepared. Control animals will be followed (radio-tracking and visual check) for at least two to three years. This area is close to the capture area and has been overhunted, so the risk of disturbing populations in balance and of importing diseases is minimal. The area will be protected by law.

An important objective of the operation is public awareness. Local actions are being planned and will be focused on schools. International education will be possible through the media which has shown much interest in the operation. A scientific study based on analyses of biological samples is planned. A biological bank (serum, cells, parasites, for example) will be constituted and accessible to the international scientific community, but there will be no funding for shipment and research. Laboratories are invited to express their interest and submit their proposals. The possibility of adding new projects to the actual plan will be considered if such propositions are formulated.

Several positions will be opened in January and February 1994 for staff veterinarians, biologists and volunteers with interest and experience in wildlife restraint, care and management. Candidates should be in good physical condition in order to work under hard field conditions for seven months. Knowledge of French is highly desirable. Send either scientific proposals or a letter of intent, a curriculum vitae and references to: Dr J.-Christopher Vié, *Opération de Sauvetage de Petit Saut*, EDF/CNEH, Savoie Technolac, 73373 Le Bourget-du-lac cedex, France. Fax: (33) 79-25-30-09.

Universidade Federal do Pará



INFORMAM

INFORMAM é um Sistema de Informação Científica e Tecnológica surgido da necessidade de se conhecer as informações sobre a Amazônia Brasileira de forma rápida e eficiente.

De conformidade com o Acordo entre a Associação de Universidades Amazônicas (UNAMAZ) e a Universidade Federal do Pará (UFPA), o INFORMAM atua como Centro Coordenador Nacional do Sistema de Informação da Amazônia, e tem por objetivo reunir, selecionar, organizar e divulgar informações científicas e tecnológicas sobre a Região Amazônica, colocando-as à disposição dos órgãos governamentais, instituições públicas e particulares, pesquisadores, técnicos e da comunidade em geral.

A base bibliográfica já implantada possui registros de documentos produzidos em Ciência e Tecnologia (C & T) sobre a Amazônia, com enfoque especial a documentos não convencionais, tais como relatórios técnicos, dissertações e teses. Esta base de dados está armazenada em computador de Empresa de Processamento de Dados do Estado do Pará (PRODEPA), com acesso através de terminais localizados na Biblioteca Central da Universidade Federal do Pará (UFPA), e da rede ligada a mesma empresa. A Base Referencial em fase de implantação é constituída de três cadastros interligados: de Instituições em C & T que geram informações sobre a Amazônia; de pesquisas em C & T desenvolvidas ou em desenvolvimento sobre a Amazônia; e de Recursos Humanos que atuam em C & T na Amazônia.

O INFORMAM é um Sistema Cooperativo que conta com uma Unidade Central (UFPA) e atualmente possui as seguintes Unidades Cooperantes: Museu Paraense Emílio Goeldi (MPEG); Fundação Universidade do Amazonas (FUA); Instituto Nacional de Pesquisas da Amazônia (INPA); Fundação Universidade Federal do Acre (UFAC); Fundação Universidade Federal de Rondônia (UNIR); Fundação Universidade Federal do Maranhão (UFMA); Fundação Universidade Federal do Mato Grosso (UFMT); e a Faculdade de Ciências Agrárias do Pará (FCAP).

O Serviço de Divulgação oferece bibliografias, boletins de alertas especializados, calendários de eventos, e posteriormente, cadastros de instituições, pesquisas e recursos humanos que atuam na Região

Amazônica. O proximo passo será tornar o INFORMAM disponível via Rede Nacional de Pesquisa; um projeto coordenado pelo Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) e que tem na UFPA um ponto de presença. Instituições Publicas e Particulares, pessoas físicas devidamente cadastradas, também terão acesso ao Sistema de acordo com normas estabelecidas. Cópias de documentos são fornecidas com o custo corrente de xerox da instituição armazenadora do documento ou através do Programa de Comutação Bibliográfica (COMUT).

Os interessados poderão cadastrar-se através das Unidades Cooperantes ou nos estandes de eventos. O acesso direto será automático via RNP assim que o Sistema estiver incorporado a essa Rede. Para acesso indireto às informações das Bases de Dados - solicitar às Unidades que compõem a Rede de consultas formais por telefone, fax, ou correio. Maiores informações: INFORMAM - Unidade Central, Biblioteca Central, Universidade Federal do Pará, Campus Universitário do Guamá s/n, 66075-900 Belém, Pará, Brasil. Tel: (091) 229-2918, Fax: (091) 229-9677.

A NEW MAMMAL JOURNAL FOR THE NEOTROPICS

A new journal, *Mastozoologia Neotropical*, has been launched by the Argentinian Society for the Study of Mammals (SAREM). Ricardo A. Ojeda is currently President of the Society and editor of the journal. The following is the editorial of the first issue of Volume 1 (January 1994).

"La revista *Mastozoologia Neotropical* constituye un nuevo hito en la vida de la Sociedad Argentina para el Estudio de los Mamíferos. Un desafío que asumimos plenamente con el respaldo profesional y fuerza de nuestros miembros y colegas dedicados al estudio de la fauna de mamíferos. *Mastozoologia Neotropical* busca convertirse en el vehículo donde la comunidad de estudiosos de la teriología neotropical canalice los más variados aspectos de sus investigaciones.

La Sociedad Argentina para el Estudio de los Mamíferos quiso contar, desde su inicio, con una estructura editorial conformada por colegas nacionales y extranjeros que expresaran su interés de velar y participar activamente en el desarrollo y consolidación de la Revista. En este sentido nos consideramos halagados por las palabras de estímulo recibidas. Vayan en estas palabras

nuestro agradecimiento a todos por creer en esta empresa.

Estamos empeñados en conformar una revista con artículos científicos originales, de opinión, ensayos y revisiones que contribuyan a estimular, desarrollar y abrir distintas líneas de investigación. Desde biología molecular y sistemática, a evolución y paleontología. Desde anatomía y fisiología, a ecología, comportamiento y conservación.

Con *Mastozoologia Neotropical* queremos rendir homenaje a los fundadores, viajeros, naturalistas y investigadores que sentaron las bases de los estudios teriológicos en la vasta región neotropical.

Tenemos una región cuya biodiversidad debe ser expresada, investigada y protegida. Queremos que esta experiencia nos pertenezca a todos. Creemos en esta empresa como una tarea conjunta en la elaboración de bases sólidas y estrategias para hacer frente a los desafíos que enfrenta la diversidad biológica neotropical.

Mastozoologia Neotropical busca desarrollarse en una revista sin fronteras, donde nos encontramos e interactuemos, de y para la comunidad internacional de estudiosos de los mamíferos. Si bien nuestro primer número contiene únicamente artículos de colegas de Argentina, confiamos en un acelerado crecimiento y diversidad en las representaciones de los colegas y áreas de investigación.

Este primer número es una idea que iremos trabajando y mejorando entre todos. Tenemos secciones que desarrollar, como la dedicada a Especies de la región y artículos de Opinión, los cuales tendrán su espacio para discutir aspectos, temas y situaciones que estimulen la reflexión crítica y debate.

Somos conscientes que la tarea que iniciamos esta llena de obstáculos, pero también sabemos que tenemos una fuerte comunidad de investigadores de las más variadas disciplinas, y que con su estímulo, dedicación y profesionalidad continuaremos el camino de nuestros fundadores, abriendo, construyendo y consolidando los conocimientos en el estudio de los mamíferos neotropicales."

The first number of the journal includes the following articles: Estudios paleoneurológicos en marsupiales "carnívoros" extinguidos de América del Sur: neuromorfología y encefalización - M.T. Dozo; Conservación de la fauna de tetrápodos

I. Un índice para su evaluación - A.R.Reca *et al.*; Conservación de la fauna de tetrápodos II. Estado de conservación de los mamíferos del Parque y Reserva Nacional Nahuel Huapi - C.A.Úbeda *et al.*; Feeding habits of *Calomys musculus* in the crop fields and its borders - C.M.Dellafiore and J.J.Polop; Nuevos aportes para el conocimiento de la mastofauna del Parque Nacional Calilegua (Provincia de Jujuy, Argentina) - S.Heinonen y A.Bosso; Las homologías en los diseños oclusales de los roedores Caviomorpha: un modelo alternativo - M.G.Vucetich y D.H.Verzi; Patrones reproductivos y alimenticios de dos especies simpátricos del género *Sturnira* (Chiroptera, Phyllostomidae) - A.G.Autino y R.M.Barquez; Camélidos silvestres y mortalidad por tormentos de nieve en la cordillera frontal de la provincia de San Juan, Argentina - J.L.Cajal y R.A.Ojeda; El huemul en peligro de extinción: los resultados de la 1^o Reunión Binacional Argentino-Chileno sobre estrategias de conservación - J.M.Smith-Flueck y W.T.Flueck.

Ricardo A. Ojeda, Instituto Argentino de Investigaciones de Zonas Aridas, C.C. 507, 5500 Mendoza, Argentina.

JOURNAL OF MAMMALIAN EVOLUTION

The official journal of the Society for Study Mammalian Evolution. It focusses on phylogenetic analyses and reconstruction of mammalian evolution, problems of homology, adaptation, function, character transformation, and other features that enhance understanding of evolutionary relationships. Upcoming issues include: the possibility of mammalian pursuit predators in the Tertiary; monophyly and polyphyly of the order Rodentia and; a molecular perspective on the phylogeny of placental mammals. Editors: W.Patrick Luckett and Jean-Louis Hartenberger. Subscription to Volume 1 (1993), 4 issues - Personal Rate US\$45.00 in US/US\$53.00 elsewhere. Contact: Plenum Publishing Corporation, 233 Spring Street, New York, NY 10013-1578, USA.

ENVIRONMENTAL LAW AND POLICY IN LATIN AMERICA - A NEW JOURNAL

The *Journal on Environmental Law and Policy in Latin America and the Caribbean* will launch its first issue in January 1994. It is supported by the United Nations Environment Program (UNEP) and the Fundación Ambiente y Recursos Naturales

(FARN), Buenos Aires. The chief editors are Julio Barberis (FARN) and Raúl Brañes (UNEP/ROLAC). The Journal will address a variety of issues such as hazardous waste, biological diversity, climate change, desertification, industrial siting and management, federal, state, and municipal planning, public participation, mining, oil, gas, fisheries, wildlife, protected areas, air and water pollution, among others. It will be directed to lawyers, public officials and governments, businessmen, students, NGO's, international organizations, and libraries, and will include sections for articles, case law, legislation (both national and international), news and policy documents, and bibliography. The first number contains the following articles: Agenda 21 and Latin America - Guillermo J. Cano; Biological diversity and intellectual property rights - Jorge Cailleux; Free access to environmental information - Ramón Martín Mateo; and Constitutional mechanisms for the protection of the environment in Colombia - German Sarmiento Palacio. For more information contact: Fundación Ambiente y Recursos Naturales (FARN), Monroe 2142, (1428) Buenos Aires, Argentina. Tel. and Fax: +54 1 781-6115/9171.

PROGRAMA DE PÓS-GRADUAÇÃO EM ANIMAIS SILVESTRES

A Universidade Federal Fluminense, na cidade de Niterói, Rio de Janeiro, Brasil, criou recentemente um programa para estudo da fauna silvestre, o *Núcleo de Estudos e Pesquisa em Animais Silvestres (NAS)*, na Pró-Reitoria de Pesquisa e Pós-Graduação. O curso funcionará na Faculdade de Veterinária da Universidade. Os objetivos do NAS são efetuar pesquisas e capacitar pessoal em diferentes níveis, com ênfase na conservação da biodiversidade. Como parte das atividades desse Núcleo, será realizada o primeiro Curso Latinoamericano de Especialização em Animais Silvestres, em meados de 1994. Para maiores informações, favor contactar: Prof. Milton Thiago de Mello, Faculdade de Veterinária, Universidade Federal Fluminense, Rua Vital Brazil Filho 64, Santa Rosa, 24230-340 Niterói, Rio de Janeiro, Brazil. Tel: (021) 714-8454, Fax: (021) 717-4553.

FUNDAÇÃO O BOTICÁRIO DE PROTEÇÃO À NATUREZA

The Brazil-based *Fundação o Boticário de Proteção à Natureza* has been financing conservation projects since 1990, already totalling

192. They include numerous projects directly related to primate conservation and listed below are some of those approved in the second selection for 1993. *Projects financed through resources obtained in conjunction with the John D. and Catherine T. MacArthur Foundation.

- Revegetation of degraded wetlands in the Poço das Antas Biological Reserve - Jardim Botânico do Rio de Janeiro/Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Ibama), Poço das Antas Biological Reserve, Rio de Janeiro.
- Monitoring of levels of fecal excretion of progesterone and behavioral changes in female golden-lion tamarins, *Leontopithecus rosalia* - University of São Paulo/Federal University of Minas Gerais, Poço das Antas Biological Reserve, Rio de Janeiro.
- Home range and behavior of the muriqui, *Brachyteles arachnoides* (Cebidae, Primates) in the Atlantic forest, Serra de Paranapiacaba, São Paulo - Sociedade de Proteção a Vida Silvestre (SPVS), Fazenda Intervales, Capão Bonito, São Paulo.
- Distribution, biology and conservation status of the black-faced lion tamarin, *Leontopithecus caissara*. Maria Lúcia Lorini, coastal areas of northern Paraná and southern São Paulo.
- Translocation of threatened groups of golden lion tamarins, *Leontopithecus rosalia*. Golden lion tamarin Association, Rio de Janeiro.
- Feeding, habitat use and daily activity patterns of *Alouatta fusca clamitans*. Catholic University of Rio Grande do Sul, Aracuri-Esmeralda Ecological Station, Rio Grande do Sul (reported in *Neotropical Primates*, 1(4):22).

The *Fundação o Boticário de Proteção a Natureza* has recently changed their address. The new address, valid as from January 1994, is given below.

Miguel Serediuk Milano, Diretor Técnico, Fundação o Boticário de Proteção à Natureza, Avenida Rui Barbosa 3450, Afonso Pena, 83065-260 São José dos Pinhais, Paraná, Brazil. Tel: (041) 283-1603, Fax: (041) 283-5632.



FUNDAÇÃO O BOTICÁRIO DE PROTEÇÃO A NATUREZA

SOPHIE DANFORTH CONSERVATION BIOLOGY FUND

This fund was established by the Roger Williams Park Zoo and the Rhode Island Zoological Society to help protect the world's threatened wildlife. Each year grants are awarded of up to US\$1,000 to individuals or institutions working in conservation biology. Projects and programs that enhance the biodiversity and maintain ecosystems receive the highest funding priority. Field studies, environmental education programs, development of techniques that can be used in a natural environment, and captive education programs that stress an integrative and/or multidisciplinary approach to conservation are appropriate. Proposals for single species preservation, initial surveys, or seed money for technique development are not appropriate. Recipients are required to acknowledge the Roger Williams Park Zoo and the Rhode Island Zoological Society in any publications that result from the project. A progress report is required, and a final report one year after funding. Applications: a two-page curriculum vitae and proposal, to be submitted by 1 May 1994. Grants awarded in July 1994. For further information, contact: Dr Anne Savage, Director of Research, Roger Williams Park Zoo, Elmwood Avenue, Providence, Rhode Island 02905, USA. Tel: (401) 785-3510, Fax: (401) 941-3988, e-mail: B1599132@BROWNV.M.BROWN.EDU (From *ASP Bulletin*, 17(4):6, December 1993).

NEW DIRECTOR OF WCMC

Dr. Mark Collins, previously Director of Programmes, was recently appointed Director of the World Conservation Monitoring Centre (WCMC). WCMC, located in Cambridge, England, collates and provides information on the status, security, management, and use of the world's biological diversity to support conservation and sustainable development. Dr. Collins has authored and edited many books, including *The Last Rain Forests*, *The Conservation Atlas of Tropical Forests*, *The IUCN Invertebrate Red Data Book*, and *Threatened Swallowtail Butterflies of the World*. He joined the Centre in 1982 after ten years of research in the rain forests of Malaysia and the savannas of West and East Africa. One of his highest priorities is to align the Centre's activities with the needs of the parties to the Convention on Biological Diversity.

NEW PROGRAM IN BIODIVERSITY

The University of Connecticut seeks outstanding Ph.D. candidates in ecology, evolutionary biology, animal behavior, systematics, and conservation biology to participate in a new program in biodiversity. NSF Graduate Research Training fellowships provide a \$14,000 annual stipend, plus up to \$7,500 as a cost of education allowance. For more information: Biodiversity Graduate Fellowships, Dept. of Ecology & Evolutionary Biology U-43, University of Connecticut, Storrs, CT 06269-3043, USA, or Burma Stelmark, Tel: (203) 486-4323, Fax: (203) 486-6364.

NATUREZA E SOCIEDADE: UM PROGRAMA DE APOIO PARA ALUNOS DE PÓS-GRADUAÇÃO SOBRE CONSERVAÇÃO E MANEJO AMBIENTAL NO BRASIL



Para criar uma massa crítica de pesquisadores qualificados, o WWF (Fundo Mundial para a Natureza) e a Fundação Ford estão apoiando pesquisas de tese de alunos de pós-graduação (mestrado e doutorado) tratando da conservação e manejo de ecossistemas brasileiros. O Programa tem dois grandes enfoques: 1) *Biologia da Conservação* como uma ferramenta para melhorar a aperfeiçoar a informação necessária para conservação da biodiversidade; e 2) A relação *Florestas e Gente* buscando alternativas de uso sustentável de recursos naturais. O apoio será destinada aos custos da execução da pesquisa aprovada, incluindo viagens ao campo, a aquisição de equipamento, e material de consumo, e a outras despesas que viabilizem a execução da pesquisa e a apresentação dos resultados. O valor máximo (teto) é de US\$5.000 (mestrado) e de US\$10.000 (doutorado). São convidados a candidatar-se: alunos regularmente aceitos em programas de pós-graduação do país, em nível de mestrado ou doutorado, e alunos brasileiros, regularmente aceitos em programas de pós-graduação no exterior, que desejam executar pesquisas para a tese no Brasil. As datas-limite para submissão de propostas são: 31 de janeiro (julgamento até 31 de maio) e 31 de julho (julgamento até 30 de novembro). Para maiores informações: Dr Cleber J.R.Alho, WWF-Fundo Mundial para a Natureza, SHIS EQ QL 06/08 Conj.E., 2º Andar, 71620-430 Brasília, D.F., Brasil. Tel: (061) 248-2499, Fax: (061) 248-7176.

THE CONSERVATION MEDIA CENTER: AN ENVIRONMENTAL NEWS AGENCY

The New York-based Rainforest Alliance's Conservation Media Center, based in San José, Costa Rica, generates news coverage of environmental issues in Central America. As conservationists, we have been pushing eco issues in the media for more than 20 years, so we are believers in the power of the press. Here, on the front lines of tropical deforestation, we see firsthand how the effectiveness of conservation programs depends on media coverage.

The Center helps Central American environmental groups to utilize the media, and we help journalists to learn to tap non-governmental organizations for information, opinions and ideas. We offer individual training to Central American journalists who are interested in eco reporting. Researchers and journalists from around the world use the Center as a clearinghouse for environmental information. We give them stories, leads, contacts, facts, photographs, and guidance. The Tropical Conservation Newsbureau, a Media Center Program, distributes articles about Central American conservation issues to more than 1,000 select media outlets in the United States, Latin America, Europe, Africa, and Japan. Many of these stories are written by a growing team of Central American field correspondents. Media are able to reprint Newsbureau stories *verbatim* and free of charge, or simply use them as sources of information, ideas and background. The Newsbureau reminds reporters that ecological issues in Central America are of global importance, and that tropical deforestation, for example, is an urgent, multifaceted issue that affects everybody. (Extracted from *The Canopy*, a publication of The Rainforest Alliance, Fall 1993).

Diane Jukofsky and Chris Wille, Rainforest Alliance Conservation Media Center, Apartado 138-2150, Moravia, San José, Costa Rica. Tel: (506) 36-3073, Fax: (506) 40-2543.

References

- Jukofsky, D. and Wille, C. 1993. Conservation and the media. *The Canopy*, Fall:4-5.
 Jukofsky, D. and Wille, C. 1993. The conservation media center: an environmental news agency. *The Canopy*, Fall:5.
 Jukofsky, D. and Wille, C. 1993. *Difundan su Mensaje: Guia para los Lideres de Grupos Ambientales*. Rainforest Alliance, New York.

PROGRAMA DE INTERCAMBIO PARA MANEJADORES DE AREAS PROTEGIDAS DE AMÉRICA LATINA (PIMAPAL)

La falta de personal entrenado ha sido uno de los problemas más significativos en el manejo de las áreas silvestres en el Neotrópico. Con el propósito de suplir esta deficiencia, en 1993 se inició en California, los Estados Unidos; el Programa de Intercambio para Manejadores de Areas Protegidas de América Latina (PIMAPAL). Este programa es auspiciado por el Refugio Nacional de Vida Silvestre Hopper Mountain y por la Sociedad de Vida Silvestre de la Bahía de San Francisco. Cuenta con el apoyo financiero del Programa del Hemisferio Occidental de la Oficina de Asuntos Internacionales del Servicio de Pesca y Vida Silvestre de los Estados Unidos de América.

El programa tiene como propósito enfocar que las comunidades que vivan cerca o dentro de las áreas protegidas, deben estar involucradas en varios aspectos de las operaciones realizadas en dichas áreas. Los temas prioritarios del PIMAPAL incluyen educación ambiental, estrategias de extensión, desarrollo y mantenimiento de programas de voluntariado; y formas para trabajar efectivamente con comunidades locales y usuarios de los recursos. Además, integra aspectos referentes a la administración general de las áreas silvestres, tales como manejo de presupuestos y de personal, y el desarrollo de herramientas necesarias para el manejo apropiado de áreas silvestres.

El participante se integra en forma activa en proyectos relacionados con el manejo de áreas silvestres y recursos naturales que se están efectuando en el sur de California. Los principales sitios de trabajo son: el Refugio Nacional de Vida Silvestre Hopper Mountain, en cual se desarrolla el programa de recuperación del condor californiano; el Refugio Nacional de Vida Silvestre de la Bahía de San Francisco; y el Refugio Nacional de Vida Silvestre Salton Sea. Además, se incluyen visitas a otros lugares como a los Zoológicos de Los Angeles o San Diego; y el Parque Nacional de Channel Islands con el propósito de observar los programas de uso público, administración y educación ambiental.

Este entrenamiento está dirigido a dos grupos de profesionales que trabajen en el área de recursos naturales: a) aquellos que estén involucrados en la enseñanza del manejo de áreas protegidas y que trabajen en los programas de post-grado que apoya el Servicio de Pesca y Vida Silvestre de los Estados Unidos en Argentina, Brasil, Costa Rica e

Venezuela y b) personas que administran áreas protegidas o trabajan en planificación de áreas silvestres en cualquier país de América Latina. Los postulantes deben tener un conocimiento del idioma inglés que les permita el intercambio de ideas con el personal de las áreas a visitar.

El programa cubre los gastos de viaje entre el país de procedencia del participante y los Estados Unidos; así como la alimentación y estadía durante la realización del PIMAPAL. Además, incluye material escrito relacionado con el tema de manejo de áreas silvestres y con los proyectos en que el participante se involucra. El PIMAPAL se realiza dos veces al año (otoño y primavera) y consiste en ocho semanas de entrenamiento. Las fechas límites para recibir aplicaciones son las siguientes: a) 1 de agosto para el programa de otoño y b) 1 de febrero para el programa de primavera. El resultado de la selección se comunicará un mes después de la fecha límite de la presentación de solicitudes. Las fechas de inicio del programa de entrenamiento serán flexibles y se definirán en mutuo acuerdo entre la dirección del programa y el participante seleccionado. La solicitud puede ser enviada en inglés, español o portugués. Contacte a: Marc Weitzel, Project Leader, U.S. Fish and Wildlife Service, Hopper Mountain National Wildlife Refuge, P.O.Box 5839, Ventura, CA 93005, USA. Tel: (805) 644-5185, Fax: (805) 644-1732.

POSTDOCTORAL POSITION IN PRIMATE ENRICHMENT

Applications are invited for a postdoctoral position at the Yerkes Primate Research Center, Emory University, in the area of environmental enrichment and psychological well-being of nonhuman primates. Requirements: Doctoral degree in psychology or related field; knowledge of and experience with nonhuman primate behavior, ideally in both social and individual settings. Responsibilities: Close coordination with veterinary and animal care staffs to participate in implementing the Center's enrichment program for 2600 monkeys and 220 apes; hands-on involvement in cage enrichment activities, behavioral observation, formation of pairs and small groups, detailed record-keeping, and fostering communication among technical, animal care, veterinary, and research staffs to primate enrichment objectives; develop and implement research under general supervision of behavioral scientists at the Center to evaluate the efficacy of existing enrichment efforts and to seek new and

improved ways to achieve enrichment goals. The applicant should be familiar with and contribute to current literature in this field, and seek outside funding support. Candidates with proven organizational ability and strong interpersonal skills will be preferred. Application: Letter of interest and objectives; curriculum vitae; three references to Dr Elizabeth Strobert, Primate Enrichment Search; Yerkes Regional Primate Research Center, Emory University; Atlanta, GA 30322, USA. (Taken from *ASP Bulletin*, 17(4):5, December 1993).

MAMMAL SLIDE LIBRARY

The Mammal Slide Library is a non-profit educational program of the American Society of Mammalogists. The aim is to provide 35 mm color slides of mammals for use in environmental education worldwide. There are 1164 slides in the program, representing more than 80% of the families of mammals from all continents, including Antarctica. There are nearly 100,000 slides in use in approximately 30 countries. Slides have been contributed by 150 photographers from 15 countries. They cost US\$1.25 each (international money order), with a 10% discount on orders of 50 or more. US\$4.00 for postage and packing is charged for institutions outside of the US. All income from sales is used to maintain and expand the program.

Until 1992 slides were distributed only through cash sales. However, because the Mammal Slide Library views environmental education as requiring and deserving international support, grants are now available for institutions which are otherwise unable to purchase the slides for whatever reason. On application, the Slide Library provides a grant request form. Grants are limited to one per institution per year. The initial request cannot exceed 50 slides, and successful applicants are awarded grants on a first-come, first-served basis, with priority to those applying for the first time. The number of grants each year depends on the availability of resources. Grants are only made to institutions, and it is assumed that the slides will be shared by all the staff. Those wishing to donate slides should contact the chairperson of the Slide Library (address below). Slides obtained from the Library can be used only for optical projection for non-profit educational purposes. Other uses depend on permission from the Library and in some cases from the person who contributed the slide.

Slides of New World primates include the

following species: *Callithrix argentata*, *C. jacchus*, *Leontopithecus rosalia*, *Saguinus fuscicollis*, *S. imperator*, *S. oedipus*, *Alouatta caraya*, *A. palliata*, *A. seniculus*, *Aotus trivirgatus*, *Ateles geoffroyi*, *A. paniscus*, *Cacajao calvus*, *Callicebus moloch*, *Cebus capucinus*, *C. olivaceus*, *Chiropotes satanas*, *Lagothrix flavicauda*, *L. lagothricha*, *Pithecia pithecia*, and *Saimiri sciureus*.

For more information, contact: Dr J. Alden Lackey, Chairperson - Mammal Slide Library, Department of Biology, State University of New York, Oswego, New York 13126, USA. Tel: 315-341-4250. Business Office: Dwight W. Moore, Elmer J. Finck, Division of Biological Sciences, Box 50, Emporia State University, Emporia, Kansas 66801, USA. Tel: 316-341-5611 (DWM), 316-341-5623 (EJF).

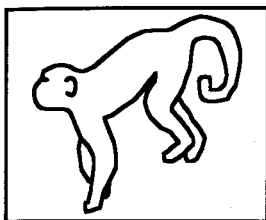
SOFTWARE FOR POPULATION VIABILITY ANALYSES

The Captive Breeding Specialist Group (CBSG) have produced a new *Vortex Version 6.2*, a computer model to evaluate the probabilities of extinction and loss of genetic variation for population viability analyses (PVA). It provides a quantitative summary of the conservation status of populations and permits the evaluation of the effects of different management recommendations on long-term survival. The software, with the second edition of the user's manual, is available for US\$35.00 from CBSG, 12101 Johnny Cake Ridge Road, Apple Valley, MN 55124, USA, Tel: 612-431-9325, Fax: 612-432-2757. Questions and comments regarding the software should be referred directly to Dr Robert Lacy or Dr Kimberly Hughes, Chicago Zoological Park, Brookfield, Illinois 60513, USA, Tel: 1-708-485-0263, Fax: 1-708-485-3532.

NEWSLETTERS FOR CHELONIA AND EDENTATES

The first newsletter, *Chelonia Neotropica*, edited by the Study Group for Brazilian Chelonia, was published in January 1994 by the Fundação Biodiversitas, Belo Horizonte. Number 1 of the newsletter of the IUCN/SSC Edentate Specialist Group, *Edentata*, was also published in January 1994. Contact: Conservation International, Rua Antônio Abrahão Caram 820/302, Pampulha, 31270-000 Belo Horizonte, Minas Gerais, Brazil. Fax: (031) 441-2582.

Primate Societies



VI CONGRESSO BRASILEIRO DE PRIMATOLOGIA

O Congresso será realizado durante o XX Congresso Brasileiro de

Zoologia, na Universidade Federal do Rio de Janeiro (UFRJ), 24-29 de julho de 1994, e incluirá a Assembleia Geral da Sociedade Brasileira de Primatologia (SBPr). Conforme combinado com a Diretoria da Sociedade Brasileira de Zoologia (SBZ), a SBPr terá a sua disposição infra-estrutura na UFRJ para a realização de palestras e simpósios, criando um evento relativamente autônomo. Pretendemos também produzir um volume próprio de resumos. Nosso prazo para envio de resumos será de 30 de abril de 1994. Este deverão conter no máximo 300 palavras de texto, acompanhados de título, nome(s), e vínculo(s) do(s) autor(es), e agradecimentos. Não existem exigências quanto ao estilo, pois os mesmos serão editados pelo Comitê Organizador. Poderão ser enviados através de disquete, fax (091-229-9785), ou correio eletrônico (FERRARI@SACI.UFPA.BR). No caso de simpósios, mesas-redondas, e mini-cursos, ainda estão sendo aceitas sugestões. Seguindo as normas do XX Congresso de Zoologia, as inscrições serão de US\$20 (valor do dolar comercial no dia de postagem) para alunos, US\$40 para sócios (SBZ ou SBPr), e US\$60 para não sócios. Cheques cruzados nominais à SBPr deverão ser enviados ao Comitê Organizador. Endereço: VI Congresso Brasileiro de Primatologia, Caixa Postal 8607, 66075-150 Belém, Pará, Brasil. Tel/Fax: (091) 229-9785. (Informação da 1^a Carta Circular sobre o VI Congresso da SBPr, 03 de janeiro de 1994).



AMERICAN SOCIETY OF PRIMATOLOGISTS AWARDS

The ASP Conservation Committee stresses conservation awareness and activities, especially in countries with native primate faunas, by providing recognition and journal awards and small grants. The *Senior Biology and Conservation Award* for 1993 went to Robin Kingston, a British primatologist with a long and distinguished career in primate studies and captive breeding and management. He was a pioneer in setting up and

running primate breeding facilities (especially for callitrichids) first in Europe, and later in Peru (Centro de Reproducción y Conservación de Primates, Iquitos) and Brazil (Centro Nacional de Primatas, Belém) under the auspices of the World Health Organization.

The Committee continued the *Subscription Awards* for two awardees from 1992, four from 1991, and gave four new awards in 1993. All were made Honorary members of the Society. The 1993 *Conservation Award* was given to Eduardo Veado, Director of the Caratinga Biological Station in Minas Gerais (reported in *Neotropical Primates*, 1(3):13-14), and *Conservation Small Grants* were given to Anne Savage (Roger Williams Park Zoo, Rhode Island) and Thad Bartlett (Washington University, St. Louis). An emergency award was given to Patrick Mehlman for a project aimed at preventing premature culling of free-ranging barbary macaques in Morocco.

Nominations for the 1994 ASP awards are now being sought. The *Subscription Award* provides the *American Journal of Primatology* to individuals in source countries who lack access to scientific literature on nonhuman primates. Preference is given to individuals who will make the journal widely available to colleagues, and to those who can justify reapplication every two years to build up their library. A letter of nomination should describe the nominee, his/her primate related activities, and the degree of need for the subscription. The *Conservation Award* (US\$500) provides recognition for students and young investigators from source countries. Past awards have been presented by U.S. Ambassadors or other senior consulate officials, obtaining favorable publicity for ASP, the award, its recipient, and primate conservation in the recipient's country. Nominators should provide the name, title, and full mailing address of their nominees, along with a statement about the nominee's qualifications for the award and his/her contribution to primate conservation. Current students, researchers and educators within five years of graduation are eligible. The *Senior Biology and Conservation Award* (US\$500 Honorarium) is one of ASP's highest honors. It is given to recognize an individual without an advanced degree who has made a substantial contribution to conservation or related aspects of primatology over at least five years. This work could be done with primates in the field, laboratory, or zoo settings, and nominees could be individual caretakers, research technicians, census takers, research facilitators, individuals involved in private enterprises etc.

Nominations should include a letter of support detailing the nominee's qualifications and contributions to primate biology and conservation. *Conservation Small Grant* (US\$500) proposals are solicited for conservation research or other projects, including conservation education. The grants are especially for members working in source countries, and can form part of a larger project. Proposals must be in English, not exceeding 2000 words, with a brief budget on a separate page. A brief progress report must be presented in a form publishable in the *ASP Bulletin*. The Conservation Committee will make its recommendations for awards and grants to the ASP Executive Committee at the annual meeting, to be held in Seattle on 27-30 July 1994. Nominations and grant proposals should be submitted by June 20 1994, to Dr Ramon J. Rhine, Psychology Department, University of California, Riverside, CA 92521, USA.

Finally ASP also presents a *Distinguished Primatologist Award*, decided upon by the Awards and Recognition Committee, chaired by Dr Matt Kessler, Caribbean Primate Research Center, Puerto Rico. The award honors a primatologist who has had an outstanding career and made significant contributions to the field. Previous awards have been given to Dr William Mason and Dr Philip Hershkovitz. The recipient is invited to deliver the "Distinguished Primatologist's Speech" at the annual meeting. Nominations require at least three letters of support. The closing date for the 1994 nominations was 1 February.

Recent Publications

BOOKS

Biological Diversity in Mexico: Origins and Distribution, edited by T.P. Ramamoorthy, R. Bye, A. Lot and J. Fa, Oxford University Press, Oxford, 1993, 852pp. Hdbk £60.00. An important summary of research and a review of the scattered published literature on the biota and biological diversity of Mexico. Contact: Oxford University Press, Walton Street, Oxford OX2 6DP, England, or Oxford University Press, Order Department, 2001 Evans Road, Cary, North Carolina 27513, USA.

1994 IUCN Red List of Threatened Animals, compiled by the World Conservation Monitoring Centre, Cambridge, UK, 1994. This

book lists over 5000 taxa identified as threatened. Each species listing includes the scientific name, English vernacular name, IUCN threatened category, CITES listing, and a brief description of the animal's range. An index to the list follows, based on the Order, Family and generic names, with vernacular names for major groupings. Also included is a guest essay on the process to develop new IUCN categories, prepared by Georgina Mace of the IUCN Species Survival Commission. Contact: IUCN Publications Services Unit, 219c Huntingdon Road, Cambridge CB3 0DL, UK. Tel: +44 223 277894, Fax: 44 223-277175.

Ontogenetic Perspectives on Primate Evolutionary Biology, edited by M.J. Ravosa and A.M. Gomez, 1992, viii+307pp., Academic Press, London. Price £20.00. Reprinted from *Journal of Human Evolution* 23(1-3), 1992. Available from: Academic Press (Harcourt Brace and Co.), 24-28 Oval Road, London NW1 7DX, UK. Fax: (081) 309-0807.

Threatened Plants of the World: The 1994 IUCN Red List, compiled by the World Conservation Monitoring Centre in association with The Nature Conservancy (USA) and Biodiversity Information Network (USA), The Smithsonian Institution (USA), and CSIRO (Australia), 1994, 1200pp. Forthcoming. The first ever world list of over 2,700 threatened vascular plants, approximately 10% of the world's estimated 270,000 taxa, and 14,600 taxa that are not globally threatened but are threatened in one or more countries. Each part is arranged taxonomically and includes for each taxon the following information: plant name, author, data source for name, IUCN Red Data Book category at the world level, presence on CITES appendix, presence in cultivation, geographic distribution by country or sub-country unit, data source for distribution, conservation status within that area, and data source for conservation information. Brief statistical analyses are given at the beginning of each family. A full bibliography of all data sources used in the book, and an index to families and genera, are also included. Contact: Kerry S. Walter or Harry Gillett, World Conservation Monitoring Centre, 219 Huntingdon Road, Cambridge CB3 0DL, UK. Tel: +44 223 277314, Fax: +44 223 277136, Email: plants@wcmc.org.uk.

The World Zoo Conservation Strategy: The Role of Zoos and Aquaria of the World in Global Conservation, edited by the World Zoo Organization (IUDZG), and the IUCN/SSC

Captive Breeding Specialist Group (CBSG), and published by the Chicago Zoological Society, September 1993, 76pp. Price US\$10.00. IUDZG and CBSG also published a separate executive summary of the document (12pp), price US\$3.00. Includes 11 chapters: 1. Introduction: zoos in a changing world; 2. The World Conservation Strategy and zoos; 3. The global zoo network; 4. Education; 5. Zoo animal collections and their conservation; 6. *Ex-situ* conservation of animal populations; 7. Capacity: space limitations and choice of species; 8. Artificial reproduction and cryopreservation: biotechnology in support of conservation; 9. Back to nature: zoo animals for reintroduction and restocking; 10. Knowledge and research; and 11. The way forward: towards a new integration. Contact: CBSG, 12101 Johnny Cake Ridge Road, Apple Valley, MN 55124-8199, USA. See page 13.

As Matas de Várzea do Mamirauá: Médio Rio Solimões, by José Márcio Ayres, MCT-CNPq-Programa do Trópico Úmido, Sociedade Civil Mamirauá, 1993, 124pp. An excellently illustrated book on the ecology of Amazonian white-water flooded forest, in particular of the Mamirauá State Ecological Station, and covering such aspects as climate, geomorphology, hydrology, and vegetation, including forest composition and structure, diversity and the spatial distribution of plant species, phenology and correlates of seed dispersal. In the final chapter, the author discusses conservation aspects and makes comparisons with other Amazonian vegetation formations. It is the first volume of a publication series "Estudos do Mamirauá". Contact: Sociedade Civil Mamirauá, Caixa Postal 38, 69470-000 Tefé, Amazonas, Brazil. Fax: (092) 743-2309. See page 12.

Large Scale Ecology and Conservation Biology, edited by P.J. Edwards, R.M. May, and N.R. Webb, 35th Symposium of the British Ecological Society, Blackwell Scientific Publications, Oxford, 1994, 384pp. Price Hdbk £45.00, Pbk £18.50 (+£1.75 postage). Contents: The effects of spatial scale on ecological questions and answers; Three thousand year history of patch dynamics of a hemlock and hardwood forest mosaic in northern Michigan, USA; Animal distributions: patterns and processes; Spatial distribution of marine organisms: patterns and processes; Environmental factors as determinants of past, present and future distribution of species; Metapopulations and conservation; Conserving insect habitats in heathland biotopes: a question of

scale; Declining farmland bird species: modelling geographic patterns of abundance in Britain: Scale and patterns of community structure in Amazonian forests; Harvesting species of different life spans; Blanket bogs in Great Britain: an assessment of large scale patterns and distribution using remote sensing and GIS; Tsetse distribution in Africa: seeing the wood and the trees; Monitoring species performance of common dominant plant species; Definitions and categories for describing the conservation status of species; Turning conservation goals into tangible results: the case of the spotted owl and old-growth forests; The ecological component of economic policy: Translating ecological science into practical policy; Large scale ecology and conservation biology: the ESA priority list of research topics. Contact: Blackwell Scientific Publications, Osney Mead, Oxford OX2 0EL, England, UK. Fax: +44 865 721205.

Biological Values for Selected Mammals, 3rd Edition, AAZK, Inc., Topeka, Kansas, 1993. Prices: AAZK member, US - \$26.50, Canada and overseas - \$32.50; Non-member, US - \$35.00, Canada and overseas - \$45.00, including postage. Checks to "AAZK, Inc.". Contains information on 427 species of mammals, including aspects from geographic range and habitat to circadian rhythms, size/measurements, reproductive data, life expectancy, body temperature, rearing information, and status in the wild, to name a few. About half of the species listings include habitat range maps. Includes a complete bibliography of references used. Contact: BV III, AAZK Administrative Offices, 635 S.W. Gage Blvd., Topeka, KS 66606-2066, USA.

A Systematic Treatment of Fruit Types, by R.W. Spjut, New York Botanical Garden, New York, 1993, 180pp. Price US\$24.95 + postage and handling. Volume 70 of *Memoirs of the New York Botanical Garden*. In this monograph the concept "fruit" and the terminology descriptive of fruit morphology are defined to distinguish the different types. Some of the advantages and disadvantages to previous classifications of fruit types are discussed, and the criteria considered to be the most useful are adopted for a new systematic treatment, which includes 95 fruit types, a systematic review of their names and definitions, and an index to carpological terms. In the key, up to six examples for each kind of fruit are indicated by reference to the family (genus) name. Each fruit is defined in the systematic review, followed by references to the original author and others who applied the accepted term and/or its synonyms, a

discussion of its relationships to other kinds of fruits, and citations of specimens, illustrations, and/or descriptions of the taxa studied. Thirty-seven new names or nomenclatural modifications to previous names for fruit types are made. Names of all fruit types are also listed in the index with reference to the original author, the date and place of publication, and the definition as originally presented by that author for each term; the index also includes other carpological terms and their definitions. This book is evidently a must for all those studying primate feeding behaviour and ecology. Available from: Scientific Publications Department, The New York Botanical Garden, Bronx, New York 10458-5126, USA. Fax: (718) 220-6504. Order number - MEM 70.

A Field Guide to the Families and Genera of Woody Plants of Northwest South America (Colombia, Ecuador, Peru), with Supplementary Notes on Herbaceous Taxa, by Alwyn H. Gentry, illustrations by Rodolfo Vasquez (Proyecto Flora del Perú), Conservation International, Washington, D.C., 1993, 895pp. Contribution No.1 of Conservation International's Conservation Biology Series. Paperback. Price: a modest US\$25.00 (plus US\$5.00 for postage). This extensively illustrated and invaluable field guide is a must for field primatologists working in the Amazon and north-west South America. All families that contain woody, epiphytic, or scandent species (plus some herbaceous genera) are included. Gentry incorporated much of his practical field experience into this book to present a new approach to the identification of tropical plants. Rather than a traditional dichotomous key, the book includes an extensive key to the families that takes the user through the most relevant character states and possible taxonomic outcomes. For most families, each genus is listed with hints for distinguishing it from related genera. Generic listings indicate the number of neotropical species. Includes indices for common and scientific names. It facilitates identification to genus even when only sterile material is available. Contact: Department of Conservation Biology, Conservation International, 1015 18th Street NW, Suite 1000, Washington, D.C. 20036, USA.

¿Espacios sin Habitantes? Parques Nacionales de América del Sur, edited by Stephan and Thora Amend, Nueva Sociedad, Caracas, Venezuela, and IUCN, 1992, 498pp. Spanish. English version will be published early 1994. £12.50, US\$25.00. Describes the current status of the 184 National Parks in South America.

Organised on a country-by-country basis, each chapter opens with an introduction to the protected area system, followed by an analysis of the legal aspects of human occupation and of the use of natural resources in National Parks, and concludes with a set of case studies of management in selected protected areas. Contact: IUCN Publications Services Unit, 219c Huntingdon Road, Cambridge CB3 0DL, UK. Tel: +44 223 277894, Fax: 44 223-277175.

El Extractivismo en América Latina: Conclusiones y Recomendaciones del Taller IUCN-CEE, by Manuel Ruiz Pérez, Jeffrey A. Sayer, and Susanna Cohen-Jehoram, IUCN Publications, Cambridge, forthcoming late 1993, c.80pp. Price £7.50, US\$15.00. Spanish. The result of a joint IUCN-CEE workshop held in Amacayacu, Colombia, in October 1992, to analyse the current situation concerning the extraction of non-timber forest products in Latin America. The book covers: biodiversity and environmental potential and risks, management plans and complementary activities, legal and institutional aspects, community participation, economic values and marketing, and the international context. It includes country case studies, recommendations and guidelines to promote extractive activities in Latin America. Contact: IUCN Publications Services Unit, 219c Huntingdon Road, Cambridge CB3 0DL, UK. Tel: +44 223 277894, Fax: 44 223-277175.

ACCESS: A Directory of Contacts, Environmental Data Bases, and Scientific Infrastructures on 175 Biosphere Reserves in 32 Countries, compiled by EuroMAB, UNESCO, Paris, 250pp. The Directory is a product of international collaboration of the Man and the Biosphere (MAB) Programs of Europe and North America. The information is also available on diskette (Lotus 1-2-3, Microsoft Excel, D-base formats). Important to specify MS-DOS or Macintosh. Available at the minimal cost of reproduction from either: UNESCO MAB Secretariat, 7 place de Fontenoy, 75700 Paris, France, Tel: (33) (1) 4568-4068, Fax: (33) (1) 4065-9535 or CIESIN Customer Services Dept., e-mail: ciesin.info@ciesin.org.

The GEF and Biodiversity Conservation: Lessons to Date and Recommendations for Future Action, by Russell A. Mittermeier and Ian A. Bowles, International Biodiversity Policy Program, Conservation International, Washington

D.C., 1993, 21pp. Based in part on a presentation by Russell A. Mittermeier on biodiversity, its scope, value, and uses to the GEF Participants Meeting in Abidjan, Cote d'Ivoire, in December 1992. Includes: Introduction; Scope, Value and Use of Biodiversity; Setting Priorities; Suggestions for Reform of the GEF Biodiversity Portfolio; and Conclusions. Contact: Legislative Programs, Conservation International, 1015 18th Street NW, Suite 1000, Washington, D.C. 20036, USA.

Mamíferos Brasileiros: Uma Coletânea

Bibliográfica, compiled by Gustavo A.B. da Fonseca, Cláudia M. R. Costa, Ricardo B. Machado, Yuri L. R. Leite and Cristiane Furlani, 1994, 145pp. Fundação Biodiversitas, Belo Horizonte. Price US\$10.00 (incl. postage). This bibliography was prepared and published with the help of Conservation International (CI), The John D. and Catherine T. MacArthur Foundation and the World Wide Fund for Nature (WWF). It lists 1,986 publications and reports concerning Brazilian mammals currently maintained by the *Centro de Dados para a Conservação da Biodiversidade* (CDCB) of the Fundação Biodiversitas. It includes indices for authors, subjects and species. Available from Fundação Biodiversitas, Rua Maria Vaz de Mello 71, Dona Clara, 31260-110 Belo Horizonte, Minas Gerais, Brazil. Fax: 010 55 (031) 441-7037.

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Meetings

1994

SYMPOSIUM ON THE PRIMATE FAMILY CALLITRICHIDAE, 1 May 1994, New World Primate Taxon Advisory Group (TAG), American Association of Zoological Parks and Aquariums (AAZPA), Hershey, Pennsylvania. This meeting will precede the 1994 Northeastern Regional AAZPA meeting. The one-day symposium will focus on topics of husbandry, nutrition, behavior, reproduction, and field research. Poster, video, and oral presentations are invited. Deadline for submission of abstracts is 15 February 1994. Registration fee: US\$25.00. For more information contact: Andrew J.Baker or Beth Bahner, Philadelphia Zoo, 3400 W.Girard Avenue, Philadelphia, Pennsylvania 19104, USA. Tel: (215) 243-1100, Fax: (215) 243-0219.

BIODIVERSITY AND SYSTEMATICS IN TROPICAL ECOSYSTEMS, 2-7 May 1994, Bonn, Germany. Contact: Franx Krapp, Adenauerallee 150-164, 53113 Bonn, Germany.

II SIMPÓSIO SOBRE AS ESPÉCIES DE LEONTOPITHECUS, 24-25 de maio de 1994, Hotel Jardim Atlântico, Ilhéus, Bahia. A Reunião Anual dos Comitês Internacionais para a Recuperação e Manejo das espécies de *Leontopithecus* será realizada em seguida, nos dias 26-27 de maio de 1993. O Simpósio tem por objetivo dar oportunidade a todos os pesquisadores e colaboradores de apresentar informalmente os resultados de seus trabalhos, discutir problemas em

comum e compartilhar experiências. A abertura do Simpósio será precedida do lançamento do selo nacional que contempla o mico-leão-dourado. Acontecerá ainda as inaugurações do Centro Educativo para a Natureza, e Centro de Reabilitação e Resgate de Micos-leões. Inscrição: até 15 de março de 1994. Contato: Rosemary Mamede, Departamento de Vida Silvestre, Diretoria de Ecossistemas, Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Ibama), SAIN L4 Norte, Ed.Sede do Ibama, 70800-000 Brasília, D.F., Brasil. Tel: (061) 316-1165, 225-8150, Fax: (061) 225-8150.

1994 JOINT ANNUAL MEETINGS OF THE SOCIETY FOR CONSERVATION BIOLOGY AND THE ASSOCIATION FOR TROPICAL BIOLOGY, 7-12 June 1994, University of Guadalajara, Jalisco, Mexico. Deadline for submission of papers: early March. Information: Eduardo Santana or Stanley Temple, SCB-ATB Organizing Committee, Department of Wildlife Ecology, University of Wisconsin-Madison, Madison, WI 53706, USA, Fax: (608) 262-6099; Bruce Benz or Enrique Jardel, SCB-ATB Organizing Committee, Laboratório Natural Las Joyas, Universidad de Guadalajara, Apartado Postal 1-3933, Guadalajara, Jalisco, 44100 México, Fax: 52 338 7-27-49.

INTERNATIONAL CONFERENCE ON ECOLOGY AND ENVIRONMENT, 20-24 June 1994, Drake Bay, Peninsula de Osa, Costa Rica. The meeting is being organized by the Foundation for Primary Forest Protection. The main topics include models for development and planning, pacific uses of nuclear energy and environment, sustainable development of forest goods and services, community ecology, ecology and education, native cultures and ecology, and ecological experiences. Deadline for abstracts was 15 January 1994. Contact: Elizabeth Arnaez, Department of Biology, Costa Rica Institute of Technology, Apartado 159, Cartago, Costa Rica, Fax: (506) 51 53 48, e-mail: earnaez@ucrv2, or Guillermo Guzman, e-mail: gguzman@ucrv2 (BITNET) or gguzman@ucrv2.ucr.ac.cr (INTERNET).

7TH MEETING OF THE INTERNATIONAL SOCIETY FOR COMPARATIVE PSYCHOLOGY (ISCP), 4-9 July 1994, Institute of Psychology, University of São Paulo, São Paulo, Brazil. Proposals for lectures, symposia, and posters are welcome. Contact: César Ades, Departamento de Psicologia Experimental, Instituto de Psicologia, Universidade de São Paulo, Av. Professor Mello Moraes 1721, 05508 São Paulo, São Paulo, Brazil, Fax: (001) 813-8895, email: CADES@BRUSP.BITNET; or

Lesley Rogers, Physiology Department, University of New England, Armidale, NSW 2351, Australia, Fax: 001-61-67-732733; email LROGERS@GARA.UNE.OZ.AU.

CHEMICAL SIGNALS IN VERTEBRATES VII, 18-22 July 1994, University of Tübingen, Tübingen, Germany. A symposium on the multidisciplinary study of chemical signals (olfaction and taste) in all vertebrates including humans. Contact: Prof. Dr R. Apfelbach, University of Tübingen, Dept. of Zoology, Auf der Morgenstelle 28, 72076 Tübingen, Germany. Tel: 49-7071-292624, Fax: 49-7071-294634.



JOINT ANNUAL MEETING - ANIMAL BEHAVIOR SOCIETY (ABS) AND AMERICAN SOCIETY OF PRIMATOLOGISTS (ASP), ABS - 23-28 July 1994, ASP - 27-31 July 1994, Regional Primate Research Center, University of

Washington, Seattle. A joint meeting emphasizing primate behavior will be held on 28 July. Abstracts deadline 1 February 1994. Contact: James C. Ha (JCHA@U.WASHINGTON.EDU) or Carolyn Crockett (CROCKET@U.WASHINGTON.EDU), Primate Center SJ-50, University of Washington, Seattle, WA 98195, USA. Tel: (206) 543-1440.

XX CONGRESSO BRASILEIRO DE ZOOLOGIA, 24-29 de julho de 1994, Universidade Federal do Rio de Janeiro, Rio de Janeiro. A temática a ser abordada esta baseada na questão: "Os Rumos da Zoologia". Neste contexto serão abordados os aspectos referentes a Sistemática, pesquisa básica e aplicada, filosofia e historia de zoologia, coleções, publicações e a ética de zoologia. As políticas referentes as legislações ambientais, áreas de proteção e espécies ameaçadas de extinção, terão espaços em mesas redondas e/ou conferências. Envio de resumos até 30 de novembro de 1993. Informações: Secretaria do XX CBZ, Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Ilha do Fundão, 21949-900 Rio de Janeiro, Rio de Janeiro, Brasil. Tel: (021) 280-7993, 590-9522 r.343 ou 340, Fax: (021) 280-7993.

VI CONGRESSO BRASILEIRO DE PRIMATOLOGIA, 24-29 de julho de 1994, Universidade Federal do Rio de Janeiro, Rio de Janeiro. Será realizado como parte das atividades do XX Congresso Brasileiro de Zoologia. Programação: Horácio Schneider/

Stephen F. Ferrari, Departamento de Genética, Universidade Federal do Pará, Caixa Postal 8607, 66075-150 Belém, Pará, Brasil. Fax: (091) 229-9785, e-mail: ferrari@saci.ufpa.br. Outras informações: Secretaria do XX CBZ, Departamento de Zoologia, Universidade Federal do Rio de Janeiro, Ilha do Fundão, 21949-900 Rio de Janeiro, Rio de Janeiro, Brasil. Veja "Primate Societies".

4TH INTERNATIONAL CONGRESS OF VERTEBRATE MORPHOLOGY, 31 July-4 August 1994, Chicago. Contact: Dr Susan Herring, Chair, ICVM Organizing Committee, Department of Orthodontics SM-46, University of Washington, Seattle, Washington 98195, USA, Tel: (206) 543-3203, Fax: (206) 685-8163, e-mail: HERRING@u.washington.edu.

XVTH CONGRESS OF THE INTERNATIONAL PRIMATOLOGICAL SOCIETY, 3-8 August 1994, Kuta, Bali, Indonesia. Organizers: Directorate General of Forest Protection and Nature Conservation (PHPA), the Indonesian Wildlife Society (IWS) and the International Primatological Society (IPS). The theme of the Congress will be "Biodiversity Conservation to Enrich Life and Option for Progress". Contacts: Secretariat, 15th IPS Congress, c/o M.I.C.E. Division, PT Bayu Buana Gelar Pariwisata, Wisma Bank Dharmala 19th Floor, Jl.Jend.Sudirman, Kav. 28, Jakarta 12910, Indonesia, or Dr Linda Prasetyo, c/o Perth Zoo, 20 Labouchere Road, Western Australia 6151, Australia, Tel: 09 368-1916, Fax: 09 367-3921, or Dr Soegardjito, WWF/US Asia-Pacific Program, 1250 Twenty-fourth Street, N.W., Washington, D.C. 20037, USA, Tel: (202) 861-8300, Fax: (202) 223-6971.

VTH INTERNATIONAL BEHAVIORAL ECOLOGY CONGRESS, 14-20 August 1994, University of Nottingham, England. Contact: ISBE 1994, Conference Nottingham, The Business Information Centre, 309 Haydn Road, Nottingham NG5 1DC, UK.

VITH INTERNATIONAL CONGRESS OF ECOLOGY: ECOLOGICAL PROGRESS TO MEET THE CHALLENGE OF ENVIRONMENTAL CHANGE, 20-26 August 1994, University of Manchester, England. Thematic symposia include: Learning from the Past (org. A.G.Hildrew, R.M.May); Predicting Outside our Experience (org. J.Grace, R.M.May); Managing Change and Uncertainty (org. M.V.Angel, P.J.Grubb). Symposia together with related poster sessions will be organized around the following titles: General Ecology; Applied

Ecology; Geographical Regions and Ecosystems; Ecological Affairs. Deadline for abstracts: 15 September 1993. Registration deadline: 1 May 1994. Contact: The Secretary, VI International Congress of Ecology, The Manchester Conference Centre, U.M.I.S.T., P.O.Box 88, Manchester M60 1QD, England.

1994 ANNUAL MEETING OF THE CAPTIVE BREEDING SPECIALIST GROUP (CBSG), 26-28 August 1994, hosted by the Fundação Parque Zoológico de São Paulo, São Paulo. The meeting will be held in the São Paulo Hilton. Contact: CBSG Conference Coordinator, Marsans International, Rua Sete de Abril 404, 11^o Andar, 01044-000 São Paulo, São Paulo, Brazil. Tel: 55 11 255-5744, Fax: 55 11 255-2478.

RESOURCES AND ENVIRONMENTAL MONITORING, 3-7 October 1994, Niterói, Brazil. Contact: Roberto Pereira da Cunha, INPE, Caixa Postal 12201, São José dos Campos, São Paulo, Brazil.

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, November 1994, Paris. The meeting will include the inaugural workshop of the European Marmoset Research Group (EMRG) which will have as its theme "Fundamental and Applied Aspects of Marmoset Science". It will comprise spoken review papers and specialist spoken posters in six broad fields of fundamental and applied science. All of the speakers will be invited. 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.

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.

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.

Please send contributions to the editors: **Anthony Rylands**, Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, 31270-901 Belo Horizonte, Brazil, Fax: (031) 441-1412, or c/o Conservation International, Avenida Antônio Abrahão Caram 820/302, Pampulha, 31275-000 Belo Horizonte, Minas Gerais, Brazil, Fax: (031)441-2582 or **Ernesto Rodríguez Luna**, Parque de La Flora y Fauna Silvestre Tropical, Universidad Veracruzana, Apartado Postal 566, Xalapa, Veracruz 91000, México, Fax: (281) 8-77-30.

Distribution of *Neotropical Primates*: LUDMILLA AGUIAR, Conservation International - Brazil Program, Belo Horizonte, is responsible for distributing the newsletter. Please keep us informed of any address changes.

Correspondence, messages, and texts can be sent to Anthony Rylands/Ludmilla Aguiar: cibrasil@ax.apc.org
Fundação Biodiversitas: cdbc@ax.apc.org

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O mico-leão-dourado (Mico-leão-de-cara-dourada) é nativo da Mata Atlântica da região sudeste do Brasil, na área entre os rios Jequitinhonha e do Contorno. O desenvolvimento natural regular está levando ao desaparecimento e redução de suas populações e a extinção regional em muitas áreas de plantação e cultivo. A destruição dessas florestas representa uma grande perda para o planeta. Portanto, as autoridades locais devem considerar a proteção da espécie, ligando-se ao projeto de conservação que vem desenvolvendo esforços de resgate e conservação.

A espécie e o comércio de mico-leão-de-cara-dourada e de outras espécies silvestres são crimes internacionais, proibidos no Art. 230 do Estatuto da Polícia Federal, assim como no Art. 230 do Estatuto da Polícia Militar, assim como no Art. 230 do Estatuto da Polícia Civil.

Você pode ajudar a preservar a natureza do mico-leão-dourado. Não deslize o lixo. Não quebre vidro. Não quebre plástico. Não capture, e comercialize, animais silvestres.

Não permita a caça em sua propriedade. Mantenha o campo sempre limpo e a biodiversidade que ele representa. Proteja os córregos e nascentes de sua propriedade. Com a conservação você se está ajudando a salvar o planeta. Com a conservação você se está ajudando a salvar o planeta.

1994

MICO-LEÃO-DE-CARA-DOURADA
Leontopithecus chrysomelas

JANEIRO		FEVEREIRO		MARÇO		ABRIL	
DOM	SEG	TER	QUA	QUI	SEX	SAB	SUN
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16	17	18	19	20	21	22	
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30	31						

MAIO		JUNHO		JULHO		AGOSTO	
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SETEMBRO		OUTUBRO		NOVEMBRO		DEZEMBRO	
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A poster/calendar produced by the Fundação Pau Brasil as part of the environmental education campaign of the "Projeto Mico-Leão Baiano", the golden-headed lion tamarin, *Leontopithecus chrysomelas*, in southern Bahia, Brazil. The poster and campaign is the result of collaboration with Conservation International (CI), the Regional Cocoa Growing Authority (CEPLAC), Wildlife Preservation Trust International (WPTI), the Veracruz Forestry Co., and the Fundação Brasileira para a Conservação da Natureza (FBCN). Contact: Maria Cristina Alves, Fundação Pau Brasil, Km.22 Rodovia Ilhéus-Itabuna, Caixa Postal 7, 45600 Itabuna, Bahia, Brazil.



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Anthony Rylands/Ernesto Luna, Editors
Conservation International
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