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A DATA BASE FOR PROTECTED AREAS AND PRIMATES IN LATIN AMERICA

The most recent appraisal of the taxonomy of the Neotropical primates lists five genera, 35 species and 55 species and subspecies of marmosets and tamarins (Family Callitrichidae), and 11 genera, 63 species and 147 species and subspecies of the remaining primates (Family Cebidae). This gives a total of 16 genera 98 species and 202 species of Neotropical primates. Of these, 13 taxa of callitrichids and 54 taxa of cebids are considered threatened (Baillie, J. and Groombridge, B. 1996. *1996 IUCN Red List of Threatened Animals*. The World Conservation Union (IUCN), Gland, Switzerland and Cambridge, UK).

Except in some few cases such as the lion tamarins (*Leontopithecus*), where surveys have been carried out and total population estimates are available, the appraisal of the conservation status of these primates depends basically on the consideration of three factors: 1) the degree of fragmentation and threats (current and potential) to the habitats of the species or subspecies; 2) hunting pressure for food (commercial/subsistence) and as pets or biomedical research models; and 3) the number, size and status of protected areas within the species' range.

In collaboration with Conservation International do Brasil, the Neotropical Section of the IUCN/SSC Primate Specialist Group has set up a referenced data base for the occurrence of primates in protected areas in Latin America in order to bring together widely scattered (but abundant) information on the primate communities they contain. Information to be catalogued includes:

- a) the protected area systems for each of the 21 countries containing primates;
- b) a listing of all protected areas in each country and basic data such as size, date of creation, status, principal vegetation types, etc.;
- c) A referenced listing of the research on such as vegetation types, and mammalian and especially primate communities carried out in each protected area.
- d) A referenced listing of the primate species which have been documented to occur in the protected areas or which supposedly (according to the species' distributions) occur in them.

The information will be obtained through the current literature, including unpublished reports, as well as through correspondence and personal contacts, and will permit an evaluation of the existence and extent of protected areas for each primate taxon, as well as the current status of our knowledge of the occurrence of primates in each of them. This project will be carried out in collaboration with the Protected Areas Data Unit (PADU) of the World Conservation Monitoring Center (WCMC), Cambridge. It will be vital for the formulation of action plans for the Neotropical primates, and a better understanding of their status.

Many parks and reserves are well known with regard to their primate communities, but information is extremely limited for the majority - even with regard to the status of the protected area. We are making a special appeal to readers to help in providing information they may have on the occurrence of primate species and subspecies in protected areas in South America, Central America and Mexico, most especially regarding their own observations or by informing us of pertinent projects, or publications and reports, notably those which are obscure or limited in circulation. Your help in making this data base as complete and accurate as possible will be greatly appreciated. Please contact Anthony B. Rylands (address on page 34).

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Articles

PRIMATE TRANSLOCATION IN FRENCH GUIANA - A PRELIMINARY REPORT

Introduction - Objectives

Between January 1994 and July 1995, 370 km² of a primary rain forest were flooded by the filling of the Petit Saut hydroelectric dam built on the Sinnamary river in French Guiana (5°4' N - 53°3' W). A wildlife rescue was organized by Electricité de France, the French company building the dam, with the following main objectives: translocate threatened mammals and reptiles, create a biological bank and database on Guianan wildlife, carry out a post release survey including ecological studies, and raise public awareness on Guianan wildlife conservation (Vié, 1996). It was decided to document the consequences of the translocation through the study of several mammal species, including two primates - red howlers (*Alouatta seniculus*) and white-faced sakis (*Pithecia pithecia*). Red howlers were selected because they are one of the most extensively studied of neotropical mammal species giving us, as such, a basis for comparison. The main interest lies in the fact that we could then compare ecoethological aspects with a study conducted on undisturbed animals in a similar habitat in French Guiana (Julliot, 1992). Information on sakis, on the other hand, is scarce and the opportunity of capturing such animals could allow for an extended ecological study.

Methods

Before the start of the operation, a nearby release area had been chosen following several criteria: a) it should guarantee the trophic requirements of all the rainforest animals susceptible to being captured; b) it should be close to the capture area in order to reduce transportation time and stress, disease transmission risk, and genetic pollution and for logistic reasons; c) it should already be disturbed by human activities (hunting, forest logging) in order to avoid disturbing an intact area; d) it should be efficiently protected against hunting, forest logging and tourism in order to avoid jeopardizing the success of the translocation.

The 150 km² selected area fitted these criteria very well. A small part had been subjected to logging, but the entire zone was heavily hunted, as confirmed by our surveys: red howlers and brown capuchin monkeys (*Cebus apella*) were present at low densities and black spider monkeys (*Ateles paniscus*) had been eradicated. Resident populations of golden-handed tamarins (*Saguinus midas*) and white-faced sakis were present. Effective protection measures against human disturbances have been taken since the beginning of the operation.

Up to 40 people worked on the operation, including vet-

erinarians, biologists, technicians, local workers and students. Collaborative programs were also established with public and scientific institutions.

Three primate species were captured in the flooded forest and translocated: red howlers, golden-handed tamarins and white-faced sakis. Most of the primate groups were captured in one go by isolating and then cutting down the shelter tree. Very few animals could be darted and some tamarins were caught using live traps. After capture, the animals were housed in individual cages and brought to the veterinary facility at the dam site. All the animals were anesthetized and immobilization was carefully documented. Capture location, group composition, sex, weight, body dimensions, and the results of a clinical examination were recorded, and biological samples (blood, parasites, skin biopsies) were collected on a large majority of them. Blood smears, exams for trypanosomiasis or filariasis were performed, and serums were kept at -80°C in our laboratory. Other samples were sent to various institutions for identification (parasites), investigation (for example, retrovirus, leishmaniasis, and genetic studies) or analysis (hematological and biochemical parameters).

Each monkey was tattooed and visually identified with collar or radio-tags. For tamarins, we used plastic medals on ball chain collars; sixteen adult females howlers were radio-collared (Telonics MOD-125) and colored collars, colored wrist or ankle bands, ear tags or a combination of all three were used for others; five sakis were radio-collared (Telonics MOD-080) and one female was ear-tagged.

The day following the capture, the animals were released along a 13 km long dirt track penetrating the release area. Howler and saki groups were transferred from individual boxes to a prerelease enclosure built in the forest. After a few hours of rest, the door was opened and animals could leave at their will with a reduced risk of panic and troop fragmentation. Trails were cut every 400 meters through 15 km² for the post-release monitoring which focused mainly on radio-tagged animals. Various methods were used: triangulation from the roads, approaches on foot and aerial tracking in the case of long movements or when the signal was lost. The sakis were habituated to human presence.

Results

A total of 3278 non-flying mammals (47 species), 799 snakes (68 species) and 1386 tortoises were captured. Four primate species were represented: 124 red howlers (*Alouatta seniculus*) from 29 groups, 98 golden-handed tamarins (*Saguinus midas*) from 22 groups, six white-faced sakis (*Pithecia pithecia*) (one group of three and three solitary animals) and one black spider monkey (*Ateles paniscus*). Five of these monkeys were not captured in the flooded forest: two tamarins were found wounded on the access road, the spider monkey was a juvenile probably kept as a pet and two howlers (mother and newborn) were observed falling down from a tree directly onto the ground;

Table 1 - Collected and preserved biological material on primates.

	<i>A. seniculus</i>	<i>S. midas</i>	<i>P. pithecia</i>	<i>A. paniscus</i>
Serum/Plasma	113	90	6	1
Blood smears	114	90	6	1
DNA samples (skin)	108	84	6	0
DNA samples (organ)	4	1	1	0
Hemolysates	109	87	6	0
Endoparasites	9	5	1	0
Cryopreserved cells	8	6	3	0

the female was found dead and the newborn died a few weeks later. Most of our scientific results have not been analyzed and published yet. We give some preliminary results here.

Response of primate populations to the flooding of the forest. The trees began to die and loose their leaves about three months after the flooding of the ground. Most monkeys left the flooded areas and took refuge at the periphery of the lake particularly spider monkeys, brown (*Cebus apella*) and wedge-capped (*C. olivaceus*) capuchins which were never observed in the flooded forest. Howlers, tamarins and sakis were the only species to be observed and captured in the flooded forest and can still be found on small islands. A red howler troop was observed to temporarily survive in a defoliated area by adapting its diet to epiphytes which represented the major available food remaining (De Thoisy and Richard-Hansen, 1997).

Chemical immobilization. For the four species, we successfully used a combination of medetomidine and ketamine at the respective i.m. dosages of 0.15 and 4 mg/kg reversed by atipamezole (Vié and de Thoisy, 1996). We are not aware of a previous use of this association on neotropical primates. The injection induced a 30 minute anesthesia with short induction time and good myorelaxation. This was very useful when we wanted to keep the animals the shortest possible time in captivity.

Biological material collected. Material available for use by the scientific community is listed in Table 1.

Chromosomes of howlers. Forty-two howlers were karyotyped, and comparisons with other chromosomal data found in the literature indicate that howlers from French Guiana are very similar to *Alouatta seniculus* from the Jari river in Brazil (Vassart *et al.*, 1996).

Overview of translocation results. Released animals were very shy and difficult to observe. Moreover, we could not anticipate their future moves in the large release area. So our survey focused on radio-tagged howlers and sakis. However, visually tagged tamarins were observed on only six occasions between one and 11 months after release and between 500 and 1000 metres from their release site, in association with residents. Radio-tracking proved to be efficient and accurate. However, the occurrence of larvae under the collar identified as the New World screwworm fly (*Cochliomyia hominivorax*) (M. Hall, pers. comm.) lead to the death of two howlers and one saki. One saki transmitter failed and three howler collars snapped leading to the loss of four animals. One howler was found dead with

evidence of trauma and three additional deaths remained unexplained.

Response of red howlers to translocation (Richard-Hansen and Vié, 1996). 1430 localizations were recorded; they were made daily after release and then weekly on foot for group composition determination. The animals dispersed between 400m and 13,000 m (mean 3,800 m) from the release site. The study focused on seven females for which the study lasted between nine and 18 months. They settled down after a period of one day to three months, and the mean value of their established home ranges was about 50 1-ha quadrats, ranging from 18 to almost 100. Three major tendencies were observed: immediate local settlement, quick but farther dispersal and settlement, or prolonged instability before settling down. Most of the troops split-up after release and the animals were observed merging in new associations with members of the resident population. A twin birth was recorded but the infants probably died. The adult and juvenile males were observed carrying one newborn. The home range size of red howlers under undisturbed conditions was very similar to our results, although somewhat smaller, and we think that most of our monitored females may have formed associations with extra-troop animals as described in other studies in fragmented habitats (Rudran, 1979; Crockett, 1984); this may explain their temporary social and spatial instability.

Home ranges of white-faced sakis (Vié and Richard-Hansen, 1996). Sakis are rare and shy animals, impossible to study in a high continuous forest. They do not make any noise when moving, observations are rare and visual contact is lost very quickly. Several studies have been conducted in Brazil and Venezuela, but in fragmented habitats (Oliveira *et al.*, 1981; Setz, 1991; Kinzey and Norconk, 1993) or are based, as in Surinam, on few observations (Buchanan *et al.*, 1981; Mittermeier and van Roosmalen, 1981; Kinzey and Norconk, 1991). Radio-tracking is the only way to study this species at least in a high and non-fragmented forest such as in French Guiana, but they are impossible to capture in their natural habitat; the rescue was a unique opportunity to radio-tag a few individuals. Three animals were habituated and observed during 1013 hours (181 days). Only one group was translocated and split-up after release. We observed that translocated animals formed associations with resident animals. Moreover white-faced sakis have much larger home ranges than previously thought (Buchanan *et al.*, 1981). 150 1-ha quadrats were used by a resident couple with one translocated animal in about three months. Finally they can accomplish long straight moves of up to 10 km within a few days.

Conclusion

Our primate translocation experiment gave encouraging results. As previously demonstrated for other howler species (Horwich *et al.*, 1993; Rodríguez-Luna *et al.*, 1993), this method may be used as a conservation tool for rein-

roduction or population reinforcement, with a fairly good probability of success. The positive results of the translocation, the large amount of original data, and the interest of the international scientific community for our samples, confirm our initial conviction that this operation was worthwhile once the political decision of building the dam had been taken.

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AN EASTERN EXTENSION OF THE GEOGRAPHICAL RANGE OF THE PYGMY MARMOSET, *CEBUELLA PYGMAEA*

Cebuella was proposed by Gray (1866) as a subgenus of *Hapale* (later *Callithrix*), and soon after as a distinct genus (Gray, 1870). Generic recognition was reinforced by Cabrera (1917) on account of dental characteristics, and by Thomas (1922) on certain cranial characters. The type specimen of *Cebuella pygmaea* was collected near Tabatinga, on the north bank of the Rio Solimões by Spix and Martius and described in 1823 (Spix, 1823). The ventral surface of the type specimen is ochraceous. In 1940,

Lönnerberg described a second subspecies, *Cebuella pygmaea niveiventris* from Lago IPIXUNA, south bank of the Rio Solimões, based on its sharply contrasting whitish chest, belly, and inner surface of arms and legs. Cruz Lima (1945) and Napier (1976) also recognized and described the two subspecies. With this taxonomic arrangement, *Cebuella pygmaea pygmaea* Spix, 1823 occurs in the state of Amazonas, Brazil, north of the Rio Solimões and south of the Rio Japurá, southern Colombia north of the Ríos Marañón and Putumayo and south of the Río Caquetá (Japurá), eastern Ecuador, and eastern Peru south of Río Putumayo, north of the Río Marañón and east of the Río Pastaza. *Cebuella pygmaea niveiventris* Lönnerberg, 1940 occurs in eastern Peru south of the Río Marañón and east of the Río Huallaga, and in the state of Amazonas, Brazil, south of the Rio Solimões and west of the Rio Purus. Heltne *et al.* (1976) reported its presence in the Pando region of Bolivia, and Izawa (1979) and Izawa and Bejarano (1981) indicated that it may occur as far south as the Ríos Orthon and Manuripí, northern tributaries of the Río Madre de Dios. Brown and Rumiz (1986), however, confined it to the north of the Río Tahuamanu (see also Cameron *et al.* 1989). As argued by Rylands *et al.* (1993), its presence in northern Bolivia indicates that it should occur in the eastern part of the Brazilian state of Acre, including the upper reaches of the Rio Abunã, a tributary of the Rio Madeira. According to Hershkovitz (1977), the color of the underparts is individually and locally variable and does not justify the subspecific status of *niveiventris*.

In July and August, Van 1996, while searching for a new species of marmoset (Roosmalen *et al.*, in prep.), we sur-

veyed both sides of the lower Rio Madeira, from its mouth with the Rio Amazonas, upriver to beyond the mouth of the Rio Manicoré. Local residents were interviewed and shown photographs of the monkeys to be expected in the region. *Cebuella pygmaea* was said to be common, but ranging only in *terra firme* forest, and as such sharply contrasting with *Cebuella pygmaea pygmaea*, which, at least in the upper Amazon, is found mainly in white-water seasonally inundated (*várzea*) forest (Soini, 1982, 1988) and in very low densities in black-water (*igapó*) creek forest and secondary growth near permanent forest streams (Fess, 1975; Freese, 1975; Hernández-Camacho and Cooper, 1976; Peres, 1991). Most of the east bank of the Rio Madeira is fringed with *várzea* forest and lakes, but in some places *terra firme* forest extends right up to the riverbank. We confirmed the presence of pygmy marmosets, observing them gouging exudate-source trees, in the following places: Democracia, west bank of the Rio Madeira, 15 km south of the town of Manicoré (5°48'S, 61°26'W), Lago Matupiri (Santa Maria, 5°33'15"S, 61°15'47"W), Lago Matupirizinho (Novo Jerusalem, 5°33'28"S, 61°07'20"W), Vencedor (5°20'S, 60°45'W) and Bonfim (opposite the town of Borba) (4°20'S, 59°40'W). All animals observed in the wild, as well as one live specimen obtained in the community of Democracia, showed the typical characters of the *niveiventris* subspecies. We, therefore, follow the Lönnerberg, Cruz Lima, Napier arrangement, and, for the subspecies *Cebuella pygmaea niveiventris*, confirm the extension of its range to the interfluvium of the Rios Purus and Madeira.

Cebuella has not been previously reported from the upper

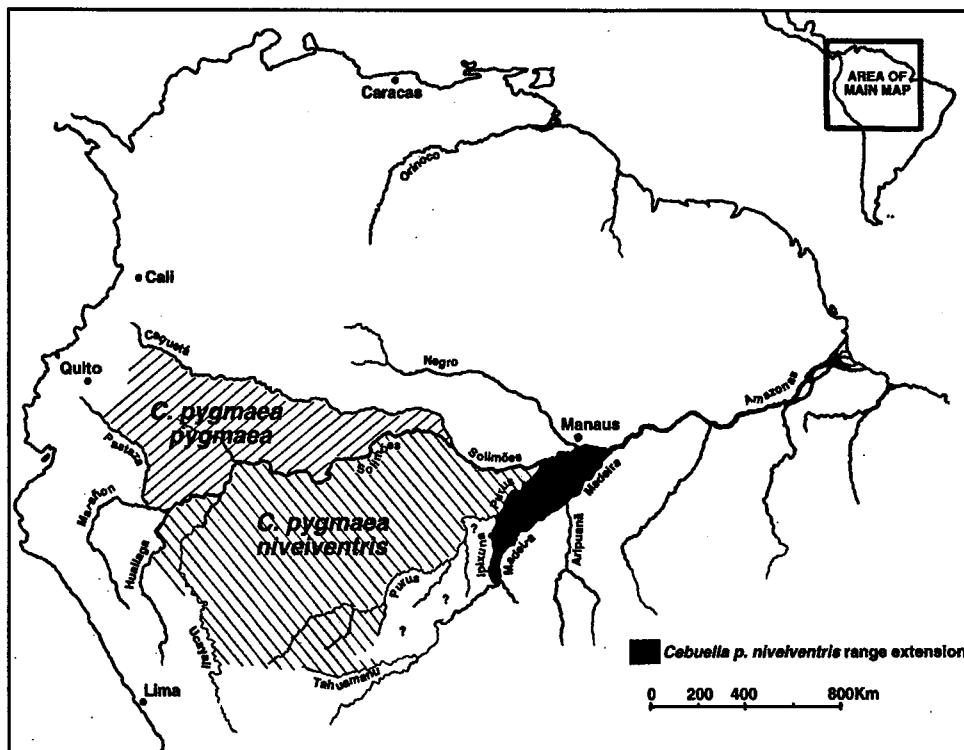


Figure 1. The distributions of the two subspecies of *Cebuella pygmaea*: *C. pygmaea pygmaea* and *C. pygmaea niveiventris*.

Rio Madeira, although Ferrari (1993) argued that it was likely to occur there. Ferrari *et al.* (1996) mentioned that local residents at the Serra dos Três Irmãos Ecological Station, northwestern Rondônia, reported the presence of *Cebuella* on the west bank of the Rio Madeira nearby. Its occurrence between the Río Tahuamanu and Río Acre in Bolivia indicates that it would also occur in the basin of the Rio Abunã, a western tributary of the Rio Madeira. However, until further fieldwork in the region reveals the presence of *Cebuella pygmaea* further south, we assume that, in Brazil, the Rio Ipixuna (or Rio Paranapixuna) forms the southern limit of the monkey between the Rios Purus and Madeira. The northern limit in this basin is formed by the extensive *várzeas* along the Rio Amazonas-Solimões (Fig. 1).

The exudate source trees that were seen to be used by the pygmy marmosets (the trunk being covered with gouge holes from the base to the lowest boughs and branches) were identified as *Enterolobium schomburgkii* (Mimosaceae), *Inga edulis* (Mimosaceae), *Inga ingoides* (Mimosaceae), and *Ficus guianensis* (Moraceae). Of these, the "orelha de macaco" (*Enterolobium schomburgkii*) seemed to be the principal source, being visited on a daily basis.

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HYBRIDIZATION IN FREE-RANGING *CALLITHRIX FLAVICEPS* AND THE TAXONOMY OF THE ATLANTIC FOREST MARMOSETS

Marmosets of the genus *Callithrix* are usually placed in two species groups on the basis of their morphology and distribution: The *Callithrix argentata* and the *Callithrix jacchus* groups. The tufted-ear marmosets, *Callithrix jacchus* group, are found in central and eastern Brazil, represented by the following distinct parapatric forms: *C. jacchus*, *C. aurita*, *C. flaviceps*, *C. geoffroyi*, *C. penicillata* and *C. kuhli*: the taxonomy of which has been the subject of some discussion (Hershkovitz, 1977; Mittermeier and Coimbra-Filho, 1981; Vivo, 1988; Rylands *et al.*, 1993).

The presence or absence of natural hybrids has been a moot point for the discussion of the taxonomy of the *Callithrix jacchus* group (Coimbra-Filho and Mittermeier, 1973; Hershkovitz, 1977; Coimbra-Filho *et al.*, 1993; Marroig, 1995). Unfortunately, much of the debate has been based on museum specimens or captive animals which, in the majority of cases, are not representative of contact zone populations.

In an interesting article discussing the controversy about whether the Atlantic forest and central Brazilian marmosets are species or subspecies, Marroig (1995) proposed that the debate be postponed until new data on hybrid zones arise. He stated that there are few localities where hybrids exist between the species of eastern Brazil, and that records of hybrid zones are absent, beyond that of *C. jacchus* and *C. penicillata* reported by Alonso *et al.* (1987).

Contrary to Marroig's assertions, my field data have indicated that there has always been hybridization in contact zones between species of the *Callithrix jacchus* group (see also Coimbra-Filho *et al.*, 1993). In fact, the only contact zone where I failed to find evidence of natural hybridization was between *C. aurita* and *C. penicillata* in the state of São Paulo. I believe, however, that further fieldwork will probably uncover a hybrid zone there as well.

The buffy-headed marmoset, *C. flaviceps*, inhabits the highlands of the Atlantic Forest of Espírito Santo and eastern Minas Gerais, south of the Rio Doce, and has the smallest geographical range among the forms of *C. jacchus* group (Hershkovitz, 1977; Coimbra-Filho *et al.*, 1981; Ferrari and Mendes, 1991; Mendes, 1993). It is listed as endangered by the World Conservation Union (IUCN) and as threatened in the Brazilian national list (see Bernardes *et al.*, 1990). As in other marmosets, habitat destruction is the major threat, although recent studies have shown that these monkeys are relatively tolerant of habitat disturbance and fragmentation (Ferrari and Mendes, 1991; Diego *et al.*, 1993).

As was pointed out by Rylands *et al.* (1993), the occurrence of typical *C. flaviceps* in the north of the state of Rio de Janeiro is unlikely. I found *C. aurita* as far north as Natividade, and in the extreme north of this state there is probably a hybrid zone between *C. aurita* and *C. flaviceps* (Mendes, 1993). Recent attempts to obtain new information on the geographic distribution of these marmosets have revealed contact zones of *C. flaviceps* with *C. geoffroyi* in the state of Espírito Santo, and with *C. aurita* in the state of Minas Gerais. Hybrids were found in three sites in Espírito Santo in the contact zone between *C. flaviceps* and *C. geoffroyi*, in the municipalities of Santa Teresa and Santa Leopoldina, and in three sites in Minas Gerais, in the contact zone between *C. flaviceps* and *C. aurita*, in the municipality of Carangola and Ipanema (Mendes, 1993).

In the two sites in Santa Teresa, there were mixed groups containing hybrids as well as apparently typical *C. flaviceps* and *C. geoffroyi*. At one of these sites, the Santa Lúcia Biological Station, I saw a group composed only of *C. geoffroyi* about 500 m from the mixed groups. Groups consisting only of hybrids were not observed. In Santa Leopoldina, groups of *C. flaviceps* were found at altitudes between 500 and 650 m asl, while a group of hybrids was seen at 500 m asl. It was not possible, however, to determine whether the latter contained animals other than hybrids. A group consisting only of *C. geoffroyi* was observed at a site approximately 1 km to the southeast of this area.

In many ways, the coloration of the head and ear tufts of the *C. flaviceps* x *C. geoffroyi* hybrids is similar to that of hybrids of *C. flaviceps* x *C. jacchus* and *C. aurita* x *C. kuhli* described by Coimbra-Filho *et al.* (1993). The similarity of these hybrids with *C. penicillata* would account for Ávila-Pires' (1969) identification of a specimen from Santa Teresa as *C. penicillata*, which Hershkovitz (1977) considered to be a *C. flaviceps* x *C. geoffroyi* hybrid. Groups composed of individuals appearing to be *C. flaviceps* x *C. aurita* hybrids were observed at two localities in forest fragments near Carangola. Some of the individuals were similar in coloration to either *C. flaviceps* or *C. aurita*, while the majority exhibited intermediate patterns. A group with similar intermediate color patterns

was observed in Ipanema, about 10 km from the Estação Biológica de Caratinga, where *C. flaviceps* has been studied by Ferrari and Diego (1992).

The formation of reproductive mixed groups and the production of hybrids between *C. geoffroyi* and *C. flaviceps* indicates that reproductive isolation is incomplete. Nonetheless, the presence of apparently non-hybrid groups next to the hybrids suggest that genetic interchange is reduced, indicating a degree of reproductive isolation consistent with the view of these two forms as distinct species. This is reinforced by the aberrant color patterns of the *C. flaviceps* x *C. geoffroyi* hybrids, which possibly resemble an ancestral phenotype. The existence of reproductive groups apparently composed entirely of hybrids of *C. flaviceps* with *C. aurita* with intermediate color patterns suggests that reproductive barriers between these two forms are less well defined than those between *C. flaviceps* and *C. geoffroyi*. The closer phylogenetic proximity between *C. flaviceps* and *C. aurita* in relation to other *C. jacchus* group forms has been pointed out by Hershkovitz (1977) and Natori (1986), supporting Coimbra-Filho's (1990) position that they are forms of the same species and the suggestion of Rylands *et al.* (1993) for a new grouping: the "Aurita group" (*C. aurita* and *C. flaviceps*) and "Jacchus group" (*C. penicillata*, *C. jacchus*, *C. kuhli*, and *C. geoffroyi*). My analyses of the vocalizations of the traditional *C. jacchus* group are consistent with this grouping, but stronger evidence may be required to justify treating the "Aurita group" as a single species and the new "Jacchus group" as four species.

I agree with Marroig (1995) that natural hybridization in itself does not justify classifying the *Callithrix* forms as subspecies. However, the present data demonstrate that there are different degrees of reproductive isolation among neighboring forms of the *C. jacchus* group and across different hybrid zones. Genetic studies on hybrids and neighboring populations are needed. Unfortunately, habitat destruction in eastern Brazil has been a serious problem for the native marmoset population and makes these kinds of studies sometimes extremely difficult to conduct.

Perhaps the controversy about *Callithrix* will persist despite our efforts to understand the phylogeny and taxonomy of these primates. I believe that the debate is, in fact, very useful in that it has stimulated new research in comparative morphology, biogeography, genetics, behavior and ecology, and has been a driving force in the development of our knowledge of these marmosets.

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TERRESTRIAL TRAVEL IN MURIQUIS (*BRACHYTELES ARACHNOIDES*) ACROSS A FOREST CLEARING AT THE ESTAÇÃO BIOLÓGICA DE CARATINGA, MINAS GERAIS, BRAZIL

Muriqui monkeys (*Brachyteles arachnoides*) have been the subjects of systematic studies at the Estação Biológica de Caratinga (EBC) in Minas Gerais, Brazil, since 1983 (Fonseca, 1983; Strier, 1986, 1992; Mendes, 1990, 1995; Odalia Rímoli, 1992; Rímoli, 1994; Nogueira, 1996). As in many other populations, the EBC muriquis are confined to a protected tract of forest isolated from other forest patches by pasture and fields (Strier and Fonseca, in press). Over the years, researchers have occasionally observed members of the main study group descend to the ground to cross gaps in the canopy or to drink or feed within the forest (Valle *et al.*, 1984). Observations of quadrupedal terrestrial travel have increased over the years as the group has become more habituated to the presence of researchers in remote parts of the forest (Strier, 1992). Nevertheless, it is still rare for muriquis to travel more than a few meters on the ground before climbing back into the canopy, where they spend most of their time and where, until recently, all of their long distance travel occurred.

On 18 November 1996, a subgroup of 41 individuals belonging to the 59 member main study group was monitored as it crossed an open clearing in the forest measuring 20 meters in width. Researchers had been accompanying the muriquis in a part of the forest they seldom use. After a long rest period, the muriquis started to travel until they reached the edge of the open clearing. They stopped suddenly at the forest edge, and began to embrace one another while vocalizing in a prolonged display. Their display was typical of their response during tense situations, such as intergroup encounters (Valle *et al.*, 1984; Strier, 1992) or the proximity of potential predators (Printes *et al.*, 1996). Adults of both sexes participated in the display, which persisted for 39 minutes without pause.

At 1220 h, AR, the only adult female in the subgroup without an infant, was identified at the other side of the clearing although she had not been observed to cross it. She emitted a series of long neighs, which were answered by other members of the group from the far side of the clearing. At 1259 h, CL, one of the oldest adult males present, descended to the ground and walked (quadrupedally) across the 20 m clearing. The rest of the subgroup followed after him in a single line. The sequence

of the progression following him was: nine other adult males, then the other 12 adult females with their infants and juveniles, and the last two adult males in the subgroup at the rear. Once the muriquis reached the trees on the far side of the clearing, they resumed traveling in the direction they had originally been heading.

Such a progression is not exceptional, for muriquis at the EBC commonly travel in a single file through the canopy when they are moving rapidly from one part of the forest to another, or when they descend to the ground between adjacent trees. It is also common for older adult females or males to take the lead in group movements, as they did when they crossed the clearing.

Adults are usually active participants during displays toward potential threats. They may have displayed at the clearing in the same way they respond to other threats because they were surprised to discover such an extensive gap in the forest, or because they perceived their vulnerability to predators if they were to cross such an open expanse. Despite their obvious tension, the fact that they ultimately crossed the clearing instead of returning by safer arboreal routes to where they had previously been suggests that foraging needs may have outweighed these other concerns.

The risk of attack from terrestrial predators may be high for muriquis traveling long distances on the ground, particularly in rural areas where semi-feral dogs frequently hunt. The only other report of long distance terrestrial travel we know of for muriquis involved a solitary female from the Rio Casca population, whose only dispersal option from her natal group required her unsuccessful attempt at crossing a pasture to reach a different forest tract (Lemos de Sá, 1988).

Although the EBC muriquis were evidently disturbed when they reached the forest clearing, the fact that this large social unit traversed an expanse of ground may be indicative of their potential to move between forest patches to increase the area of forest available to them. As protected populations such as that at the EBC expand in size (Strier, 1996), such terrestrial movements may permit them to colonize new forests.

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HYBRIDIZATION BETWEEN *CALLITHRIX GEOFFROYI* AND *C. PENICILLATA* IN SOUTHEASTERN MINAS GERAIS, BRAZIL

Callithrix geoffroyi occurs in the south of the state of Bahia, almost the entire state of Espírito Santo, and east of the Serra do Espinhaço in the state of Minas Gerais (Vivo, 1991). Rylands *et al.* (1995), using the Mace-Lande system (see IUCN 1994 for further explanations), recently considered this species threatened in the category "Vulnerable". Another species occurring in Minas Gerais is *Callithrix penicillata*, which is known to hybridize with *C. geoffroyi*. *C. penicillata* has a very wide geographical distribution, occurring in the states of Bahia, Minas Gerais, Goiás, and adjacent areas of Maranhão and São Paulo (De Vivo, 1991). These two species occur in contact in southeastern Minas Gerais, and hybrids were reported at the Peti Development and Environmental Research Reserve (Rylands and Costa, 1988) and the Serra da Piedade (I. B. Santos and C. M. C. Valle, pers. comm.). Here, we report on hybridization between these two species at new localities, with information on group composition, and suggest some possible reasons for this phenomenon.

These observations were made during a faunal survey at the Guilman-Amorim Private Reserve. A hydroelectric dam, under the supervision of Ecodinâmica Ltd., will be established in this area. Belgo Mineira S.A., one of the most important steel companies in Brazil, is the owner of this land, composed of small fragments and areas of gallery forest isolated by an extensive *Eucalyptus* plantation.

During February and April 1996, we conducted a survey in this area using "play back" recordings of marmoset vocalizations. We identified five groups of marmosets along the Córrego Machado, one of the tributaries of the Rio Piracicaba, in the municipality of Antônio Dias (Figure 1). In three of these five groups we observed at least one hybrid (an individual with characteristics of the two species). The pelage characteristics of these individuals are similar to *C. geoffroyi*, although they have a conspicuous white spot on the median forehead, and the rest of the face is grayish-white. Other members of the groups showed pelage characteristics of *C. geoffroyi* individuals following the description of Hershkovitz (1997) and De Vivo (1991).

These groups were found in gallery forests and forest fragments, dense in lianas, characteristic of secondary vegetation. The members of the groups were eating gums of angico (*Anadenanthera peregrina*), arranha-gato (*Acacia paniculata*), ingá (*Inga* sp.), Jacaré (*Piptadenia gonoacantha*) and an unidentified species of Sapindaceae; all abundant at the site.

The original distribution of these species might be limited by the Serra do Espinhaço. Nevertheless, in the south, *C. penicillata* seems to be entering the areas along the Rio Piracicaba and its tributaries, where it meets *C.*

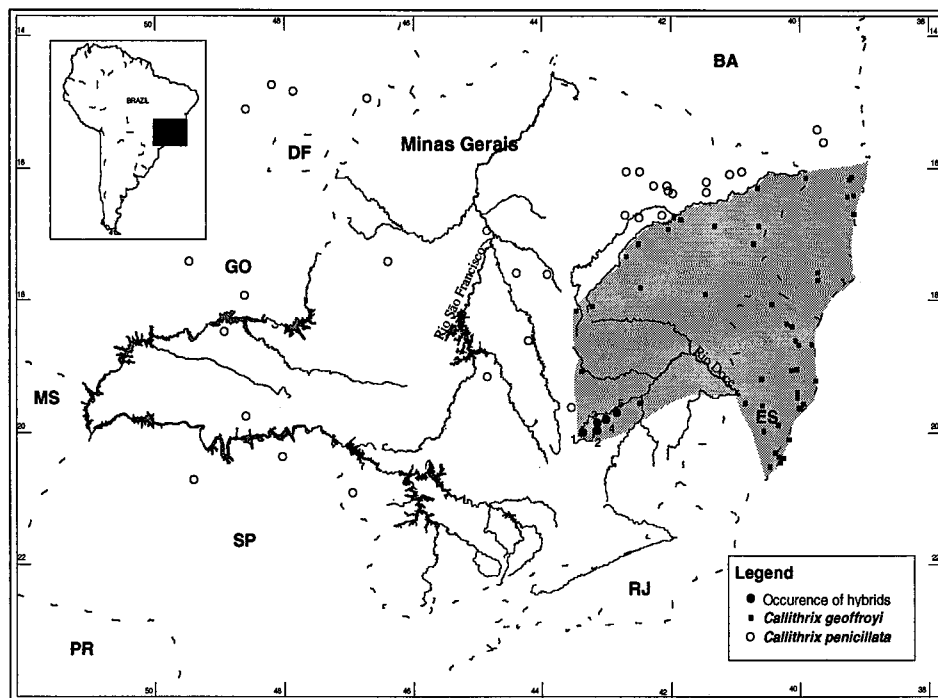


Figure 1. Geographical distribution of *C. geoffroyi* and *C. penicillata* and localities where hybrids were observed (black circles).

geoffroyi, resulting in hybrids. This area was devastated early in this century (see Fonseca, 1985), and the hybridization of these two species is probably a consequence of habitat destruction. According to Coimbra-Filho *et al.* (1993), natural cases of hybridization between *Callithrix* species are sporadic but hybrid zones are to be expected at the limits of the Atlantic forest (domain of *C. geoffroyi*) and the Cerrado (domain of *C. penicillata*) in southeastern Minas Gerais. The Serra da Piedade and the municipality of Santa Bárbara, where hybrids between these two species have been recorded, are also characterized by habitat disturbance (widespread forest cutting). More surveys are required in the contact zones between these species (transition between Atlantic forest and Cerrado) in order to establish their extent, and the possibility that the reason for the occurrence of hybrids lies in the range expansion of *C. penicillata* resulting from forest destruction.

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CROSSING THE GREAT BARRIER: *CALLICEBUS CUPREUS DISCOLOR* NORTH OF THE NAPO RIVER

On 30 May, 1996, at approximately 07:00 hrs, we observed a pair of *Callicebus cupreus discolor* foraging while perched on the axil of a *Euterpes edulis* palm in the Sucusari Tributary, off the north bank of the Río Napo (3°15'S; 73°05'W - Fig. 1). The subspecies was easily discernible by the thick, continuous, white eyebrows. As we approached closer the pair fled into the forest followed by three other individuals, at least two of which appeared to be subadult based on their smaller size. There were five people in our party, all of whom saw the monkeys: LPV, DMB, Gaspar Pistango, J. Shannette, and B. Weinberg. Other naturalists working in the area indicated later that they had also seen *C. c. discolor* in the region (Angel Ocmín-Petit and Roldán Hidalgo-Pezo, pers. comm.).

Aquino and Encarnación (1994) indicated that this subspecies occurs south and west of the Río Napo and west of the Río Ucayali. East of the Ucayali, this species is replaced by *C. caligatus* in the northern portion of its range and by *C. cupreus cupreus* in the middle and southern portion of its range. Along the Napo *C. c. discolor* is sympatric with *C. torquatus* as far as the Río Nanay. The Nanay marks the southern distributional limit of *C. torquatus*. Our observations suggest that *C. c. discolor* is also sympatric with *C. torquatus* in at least some regions north of the Napo. The fact that we saw sub-adults within the family group suggests that *C. c. discolor* is breeding north of the Napo and suggests it may be widespread between the Ríos Napo and Putumayo, on the Colombian border. We

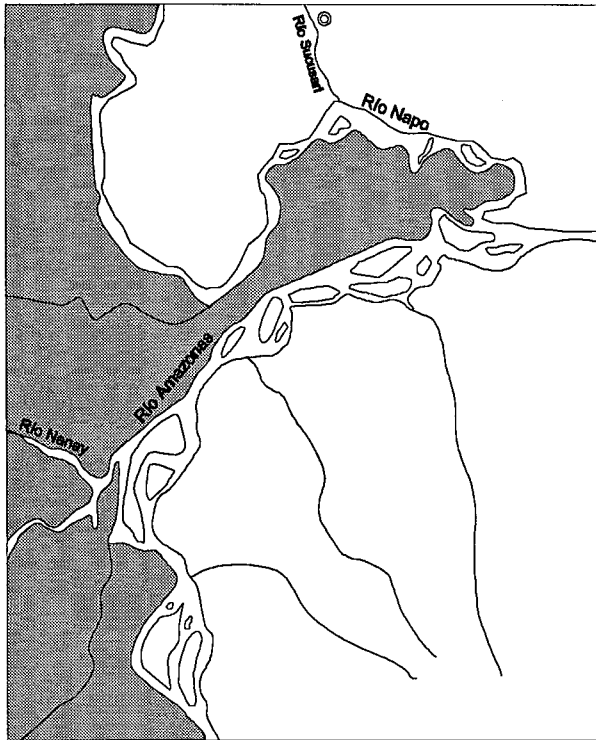


Figure 1. Location of the sighting of *Callicebus cupreus discolor* in northern Peru. Saded area indicates geographic distribution according to Aquino and Encarnación (1994).

would appreciate hearing from others who have also encountered this subspecies north of the Río Napo.

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Reference

Aquino R. and F. Encarnación. 1994. Primates of Peru / Los Primates del Perú. *Primate Report* (40): 1-127.

News

PHILIP HERSHKOVITZ

It is with great sadness that we report on the death of Professor Philip Hershkovitz, Emeritus Curator of Mammals at the Field Museum of Natural History, Chicago, on 15 February, 1997. Professor Hershkovitz was one of the most distinguished mammalogists of this century. His expertise and research extended to all New World mammals, including notably rodents and marsupials, but his contributions to New World Primatology have been enormous. The current taxonomies of the majority of the genera and our knowledge of their distributions are a result of his numerous encyclopedic works, and no one can doubt that he has been, and will be for many years to come, the inspiration and basis for countless studies of platyrrhines, underpinning the great increase in our knowledge of their morphology, taxonomy, distributions, phylogeny, ecology, behavior and conservation.

COMPARATIVE STUDIES ON HANDEDNESS IN MARMOSETS AND TAMARINS

In September 1996, Silke S. Singer completed a Diploma Thesis at the German Primate Center (DPZ), Göttingen, on handedness in *Callithrix*, *Saguinus* and *Leontopithecus*. The research was supervised at the University of Regensburg by Prof. Dr. M. Vater and at the DPZ by Dr. M.H. Schwibbe and Dr. J. U. Ganzhorn. It was supported by the German Primate Center, the University of Regensburg and the Zoological Garden Magdeburg. The following is a summary of the thesis.

Handedness in non-human primates is a disputed and little understood phenomenon. The purpose of the present study was to investigate hand-use in 45 individuals of nine spe-

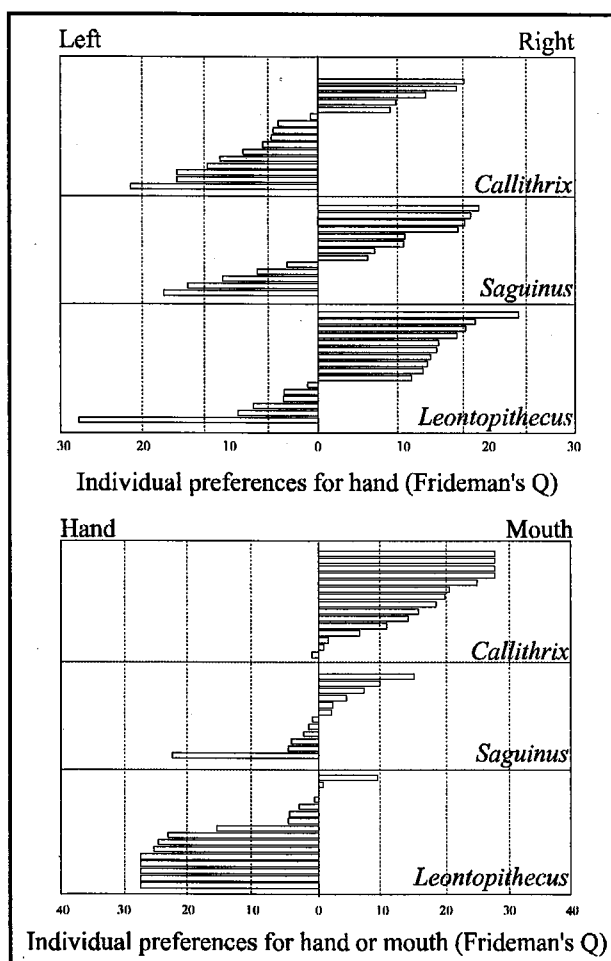
cies and three genera of the Callitrichidae: *Callithrix*, *Saguinus* and *Leontopithecus*. Based on the theory of the postural origin of handedness by Macneilage *et al.* (1987, *Behav. Brain Sci.* 10(2): 247-63) and on the concept of handedness and manual specialization by Fagot and Vauclair (1991, *Psychol. Bull.* 109: 76-89) five experiments were carried out, which differed with regard to sensory modality, postural requirements and task demands. All individuals exhibit hand preferences, which are largely consistent over different types of hand movements as well as over different tasks. *Callithrix* and *Leontopithecus* differ with respect to the preferred hand. *Leontopithecus* shows a greater proportion of right hand preferences, whereas *Callithrix* rather prefers the left hand. *Saguinus* is intermediate between these two genera, with slightly more individuals being right-preferent. Following the theory of Macneilage *et al.* (1987), the differences in hand preference between the three genera can best be explained through distinct postural habits and foraging strategies, characterizing the species in question. Sex and age influence hand preferences. *Leontopithecus* females show a greater preference for the right hand than do males. This sex difference is due to the fact, that nonadult males actually favor the left hand. The high incidence of left hand preferences in nonadult *Leontopithecus* males agrees with Geschwind and Galburda's testosterone-hypothesis (1987, *Cerebral Lateralizations: Biological Mechanisms, Asso-*

ciations and Pathology, MIT Press, Cambridge, Massachusetts). When feeding on freely accessible non-mobile food items, most individuals show a clear preference picking up either with the mouth or with one hand. *Callithrix* take objects predominantly with the mouth, *Leontopithecus* prefers the hand and *Saguinus* favors neither mouth nor hand. These genera differences in mouth-hand-use can be linked to genera differences in manipulative propensities and supporting functions of the callitrichids' hand. The preference for hand or mouth is also influenced by sex and age. In *Leontopithecus* there is a higher proportion of mouth preferences among males and nonadults than among females and adults, respectively. Sex-specific hormonal influences may account for the effects of sex and age on mouth-hand-preference in male and female lion tamarins. The results of this study suggest that the evolution of handedness in marmosets and tamarins corresponds with phylogenetic and ontogenetic models of lateralization in primates and strengthen the significance of ethological factors influencing the expression of handedness in different primate species.

Silke S. Singer and M. H. Schwibbe, Abteilung EDV und Kommunikation, Deutsches Primatenzentrum, Kellnerweg 4, D-37077 Göttingen, Germany.

Reference

Singer, S. S. 1996. Vergleichende Untersuchungen zur Haendigkeit bei Marmosetten und Tamarinen (Platyrrhini: Callitrichidae). Diplomarbeit, Universität Regensburg, Regensburg.



THE FIRST EUROPEAN STUDBOOK FOR THE WHITE-FACED SAKI, *PITHECIA PITHECIA*

Siân Waters, EEP Co-ordinator for the White-faced Saki, has compiled the first studbook for the European populations of this species, the only member of the genus held in captivity in any numbers. Although *Pithecia pithecia* have been kept and bred since the mid-seventies, information on their husbandry is sparse, and the studbook, therefore, includes the results of a husbandry survey of 29 collections carried out by Waters in 1989. A series of Tables provides information on the dimensions, substrates and furnishing of enclosures, mixed-species housing (in nine collections), and diets (vegetables, fruits, nuts and seeds, and dietary additions and supplements). The complete husbandry survey is available on request from the address below. Waters plans to undertake a second similar survey of the European collections in order to formulate husbandry guidelines for the species.

The EEP (European Endangered Species Programme) for this species was begun in 1994, and complements a similar breeding program in the United States, currently coordinated at the Roger Williams Park Zoo, Rhode Island, by Tracy Frampton (see Vecchio and Miller, 1993; Shoemaker, 1995). The Species Committee has nine members:

Jaap Govers (Amsterdam), Warner Jens (Apenheul), David Armitage (Banham), Bengt Holst (Copenhagen), Miranda Stevenson (Edinburgh), Paul Vogt (Krefeld), Douglas Richardson (London), Stewart Muir (Shaldon Wildlife Trust) and Istvan Egyhazi (Szeged).

The studbook covering just the European region, is current up to 31 December 1995, and includes a full historical listing of the captive animals. At this date, the captive population in Europe was 120 (56.61.3), a small increase of six animals from the 1994 survey, in 26 institutions. Adult mortality was considered high in 1995, 11 deaths (2.8.1), four of which were founders originally imported in the early 1980's. There were 19 births (10.8.1) and only 2 (1.1) died. Waters concludes that the population is increasing, but there are still more potential holders than there are animals. Most holders have increased the numbers maintained in the family groups, which Waters (1995a) argues is good husbandry practice because male and female offspring have been observed helping to raise (carrying) younger siblings, and thus gain important breeding experience.

The number of living founders is 21, and, considering the entire founder population, there are a number which are over-represented, and although this signifies a small amount of inbreeding, zoos are understandably unwilling to break up stable family groups. The age pyramid was found to be healthy. The oldest wild caught animals were estimated to be 23 years old, the oldest captive bred 21 years old. A Table provides information on rank order according to genetic importance and sex. The mean kinship for the population is 0.0433, gene diversity 0.9567, and founder genome equivalents, 11.5460. Females have bred successfully at the age of 18-20 years.

The recommendations that arise from the studbook contemplate the difficulty of obtaining unrelated mates for some of the collections, in which case breeding needs to be curbed, and the possibilities are discussed of contraceptive programmes in certain cases. Recommendations are also made concerning the relocation of animals within the European population.

Siân S. Waters, Scientific Officer, Bristol Zoo Gardens, Clifton, Bristol BS8 3HA, England, UK.

References

- Shoemaker, A. 1995. Captive management programs for New World primates. *Neotropical Primates* 3(1): 15-17.
- Vecchio, A. and Miller A. 1993. *1993 North American Regional Studbook* *Pithecia pithecia*. Roger Williams Park Zoo, Providence.
- Waters, S. S. 1995a. A review of social parameters which influence breeding in white-faced saki (*Pithecia pithecia*) in captivity. *Int. Zoo Yb.* 22: 124-127.
- Waters, S. S. 1995b. *European Studbook for the White-faced Saki* (*Pithecia pithecia*), No.1. 65pp. Bristol Zoo Gardens, Bristol.

STUDBOOK FOR THE CENTRAL AMERICAN SPIDER MONKEY, *ATELES GEOFFROYI*

The first edition of the North American Regional Studbook for *Ateles geoffroyi*, organized and compiled by Kathryn Pingry, has been published by the Chicago Zoological Society, Brookfield Zoo. Information and data are current up to December 1995. At that time there were 388 (138.227.23) *A. geoffroyi* in 74 North American institutions. The studbook includes a list of addresses of the participating institutions, analyses of the population size of wild caught, captive born, and animals of unknown origin, and the total population, an analysis of the age structure and age-specific survivorship, Life-Tables for males and females, age-specific fertility for males and females, and analyses of the genetic structure of the population and the assumed and known founders, along with a full historic listing for North America from 1995.

According to the studbook, the New World Primate Regional Collection Plan for North America has identified the management of a nucleus population of *A. geoffroyi* by reducing the numbers to approximately 125-150 animals, while preserving as much genetic diversity as possible. Karyotypes will be obtained for all animals recommended for breeding, and DNA analyses run on all wild-caught animals. In the future it is hoped that Central American Zoos will be included in this studbook. Anyone wanting a copy of the studbook or further information can contact Kathryn Pingry at the address below. Central American Zoos and institutions holding *Ateles geoffroyi* are encouraged to enter into contact.

Kathryn Pingry, Population Manager - *Ateles geoffroyi*, Chicago Zoological Society, 3300 Golf Road, Brookfield, IL 60513, USA, Tel: 708 485 0263 x 408, Fax: 708 485 3532.

Reference

- Pingry, K. 1996. *Ateles geoffroyi Central American Spider Monkey. Issue 1. June 1996*. Chicago Zoological Society, Brookfield. 179pp. Data current through 31 December 1995.

1995 STUDBOOK FOR THE GOLDEN LION TAMARIN

Jonathan D. Ballou of the National Zoo, Washington, D.C., published the 1995 studbook for *Leontopithecus rosalia* in November 1996. The studbook includes information on animal identities, sex, ownership, and genetic relationships. In addition, data are presented on juvenile's parental care experience, proven breeders, hand rearing and evidence for diaphragmatic hernias or other medical conditions. Information (unpublished) concerning causes of death is maintained by the studbook keeper. The 1995 studbook contains a list of all specimens alive on 31 De-

ember 1995, sorted by holding institution, and listings of all births, deaths and transactions which occurred during 1995. The number of living animals was 485, the % growth rate since 1994 was zero, the number of participating institutions 143, the number of founders was 44 with seven still alive, the number of founder genome equivalents was 13.87, the expected heterozygosity retained was calculated at 96.4%, and average mean kinship was 0.0360.

Other reports available through the studbook keeper include the Husbandry Protocol (in English and Portuguese) and a lion tamarin bibliography. Information regarding the Golden Lion Tamarin Conservation Program can now be obtained on the World Wide Web at: <http://www.si.edu/glt>. Additional information on the captive population or the Golden Lion Tamarin Conservation Program can be obtained by contacting the studbook keeper directly.

The management and distribution of the captive golden lion tamarin population is administered by an internationally elected Management Committee with 19 members, chaired by Devra G. Kleiman (acting chair, Jonathan D. Ballou). Zoos holding golden lion tamarins are asked to sign and adhere to the Cooperative Research and Management Agreement, a series of management protocols developed by the committee. Zoos wishing to join the Conservation Program as holders of breeding or non-breeding golden lion tamarins must sign the agreement and be approved by the Management Committee. The golden lion tamarin is also a designated species in the Species Survival Plan (SSP) program of the American Zoo and Aquarium Association (AZA). Institutions that wish to pursue obtaining golden lion tamarins should contact Jonathan Ballou, address below.

Jonathan D. Ballou, Studbook Keeper - Golden Lion Tamarin, Department of Zoological Research, National Zoological Park, Washington, D. C. 20008, USA, Tel: 202 673 4815, Fax: 202 673 4686.

Reference

Ballou, J. D. 1996. *1995 International Studbook Golden Lion Tamarin* *Leontopithecus rosalia*. National Zoological Park, Washington, D. C. (update through 31st December 1995).

FOREIGN AID AND CONSERVATION OF TROPICAL FORESTS: AN ACTION PLAN FOR CHANGE

There is currently a widespread and enormous expenditure of foreign aid for development and conservation in the tropics. In addition to the World Bank and the European Community, aid is particularly prominent from Japan, the United States of America, the United Kingdom, France, Germany, Finland, Sweden, Norway, and the Netherlands.

Although more time, effort, and money are being expended

for conservation in the tropics than ever before, the loss of natural resources and areas of conservation value is occurring at an unprecedented rate. Numerous proximate variables contribute to this increasing loss, but ultimately the problem revolves around the issue of ever increasing rates of consumption due to a combination of expanding human populations in most tropical countries, and to excessive consumption tied to policies encouraging economic growth in the so-called developed nations.

In the short and medium term, however, much of the loss in the conservation race can be attributed to inappropriate foreign aid development programs and projects. These foreign aid efforts either threaten conservation areas directly, or are ineffective in their attempts at conservation. This ineffectiveness is often due to excessive administrative costs, poor planning, contracting inappropriate advisors, and lack of accountability in terms of performance. Underlying these flaws is the practice by government aid agencies of subcontracting the administration and implementation of their bilateral aid grants to commercial companies and NGOs who, all too often, have little or no experience in, or deep-seated concern for the countries and problems they are dealing with. In essence, these are some of the problems resulting from collaboration between government bureaucracies, commercial enterprises, and consulting firms.

Many of us who have participated in conservation in the tropics over the past 25 years feel that it is time for a change. Specifically, we feel that government aid agencies have an obligation to both the donor constituency (the tax payers) and the recipient nations to use foreign aid grants in the most effective manner possible.

Biologists working in the tropics are often in a unique position to observe and collect information on foreign aid programs and projects that influence natural resources and conservation areas. How can this information be used effectively to bring about positive change? There is no simple formula that will apply to all cases. However, once the facts are assembled and alternative plans for more effective conservation projects are developed, a lobbying campaign can be implemented. This depends on effective teamwork between field workers and conservation lobbyists who have access to the decision makers and the media.

We are in the early stages of developing a coalition between field biologists working in the tropics and Friends of the Earth (USA), an NGO based in Washington, D.C. that specializes in lobbying for conservation, and has had long experience in influencing domestic and foreign government expenditures.

One of our first objectives is to develop a network of individuals who are prepared to participate in the resolution of problems involving foreign aid and conservation. We are seeking the collaboration of individuals who are in a position to collect information on specific cases of conservation and foreign aid. Initially we will focus our attention on problems of tropical forest conservation. The

immediate goal is to identify and collect information on projects that influence the conservation status of specific forests.

Although most of our efforts will concentrate on projects that either threaten these forests or represent an inappropriate or ineffective approach to conservation, we will also highlight projects that are implementing conservation in an effective and appropriate manner. Understanding the basis of successful conservation projects is as important as identifying and describing the threats and failures.

The kinds of projects we will focus on include a wide range of activities, such as so-called development projects that will destroy tropical forests outright, as well as conservation projects that are inappropriate or ineffective. The specific cases selected for action will depend on the type and amount of information collected by ourselves and our colleagues while in the field. Once sufficient information is collected on a specific project, it will be presented as a case study to FoE in Washington, D.C. Friends of the Earth is committed to examining these reports to determine what the potential and capacity for action are. Actions might include lobbying and publicity efforts that aim to improve the conservation status of the particular area in question, obtaining congressional oversight hearings, etc. The following is a checklist of the types of information needed for each case study.

1) *Present status of area*

- physical description: size, altitude, terrain, etc.
- biological attributes
- legal status and future plans; administrative agency
- current conservation activities
- regional setting, *i.e.*, general status of surrounding area

2) *Details of project being evaluated*

- objectives and activities of project
- project administration and managers
- monitoring plans and current status

3) *Financial details of project*

- total budget and itemized allocations
- donors (sources of funding)
- financial administrators
- overhead costs and an evaluation of effectiveness

4) *Details of the problems*

- direct conflict of interest
- inappropriate or ineffective use of funds
- sources of problem: the perpetrators and beneficiaries

5) *Sources of information, except where confidentiality is imperative.* Includes documents (written contracts, proposals, reports, letters, newspaper articles, etc.), observations, interviews, photographs, etc.

6) *Names and addresses of potential allies with similar concerns*

7) *Recommendations for resolution of problems*

- detailed suggestions for project improvement
- details of agencies or other contacts that might be able to influence the project

Throughout the study of forest conservation problems, the observer must continually think in terms of what information is needed to make a compelling case for action to remedy the problem. The more corroborative information, the better. Detailed notes on all information and sources, as well as copies of relevant documents will help to build a convincing case.

If you are able to prepare a case study, can contribute to the development of such a study, or are simply interested in the problem, please contact Carrie Oren. Please include your e-mail address and areas of interest (professional, geographic, specific projects).

Carrie Oren, Friends of the Earth, Duke/Triangle Initiative, PO Box 3264, Durham, NC 27715-3264, USA, Tel: (919) 419-8418; e-mail: 76601.1273@compuserve.com, and **Thomas T. Struhsaker**, Department of Biological Anthropology and Anatomy, Duke University, Box 90383, Durham, NC 27708-0383, USA, Tel: (919) 490-6286, Fax: (919) 490-5394, e-mail: tomstruh@acpub.duke.edu.

ADELMAR F. COIMBRA-FILHO RECEIVES THE FORD MOTOR COMPANY BRAZILIAN CONSERVATION AWARD FOR LIFETIME ACHIEVEMENT



In 1996, the Ford Motor Company, in partnership with Conservation International, established the "The Ford Motor Company Brazilian Conservation Awards", a scheme which will identify and support a wide range of successful conservation and environmental initiatives, empower new leaders, and reward lifetime achievements in biodiversity conservation and sustainable use in Brazil. The concept draws on the successful experience of the Henry Ford European Conservation Awards, founded in 1984, with positive repercussions among the political, business and cultural elite, as well as achieving widespread media attention. This initiative will fill a vacant niche in the country and is expected, within just a few years, to generate a high level of interest from the media and the public in general. The association with Conservation International, active in 23 countries, and having in Brazil one of its largest programs, will provide the awards with the necessary credibility, furthering Ford's commitment to the preservation of the country's wealth of natural resources.

The award categories were conceived to meet the need to support both individuals as well as organizations and community groups in the field of environmental conservation. Awards will be presented on a yearly basis, each comprising a cash sum of US\$10,000 and an accompanying medal. The categories are: 1) *Lifetime Achievement Award* for individuals who have committed their lives to promoting environmental and biodiversity conservation and who

serve as an example to younger generations; 2) *Young Conservationist Award* for leaders up to the age of 40 who have already achieved some level of recognition in the national arena, and for whom the award can help in furthering their cause; 3) *Conservation Enterprise Award* for individuals, organizations or community groups responsible for outstanding initiatives in conservation, particularly in the design and implementation of businesses and other strategies that promote job creation, alleviation of poverty and the sustainable use of biological resources; 4) *Conservation Science Award* for individuals, organizations or research groups that have excelled in the area of conservation science and technology, especially in the development of low-cost tools that can be widely used throughout Brazil and other developing nations; and 5) *Conservation Achievement of the Year Award* for organizations or community groups, in some cases individuals, responsible for the most outstanding and innovative achievement in the area of environmental and biodiversity conservation during the year preceding the award, emphasizing particularly those that can be replicated throughout Brazil.

The award scheme was officially launched on the occasion of the Conservation International annual board meeting held on the Island of Comandatuba, near Ilhéus, southern Bahia, on 21 February 1997, when the first Lifetime Achievement Award (1997) was presented. The award had been earmarked specifically for those who, during decades, had fought for the conservation of the Brazilian Atlantic forest. Four major figures in the Brazilian conservation arena were contemplated: *José Pedro de Oliveira Costa*, architect with a doctorate in geography, ex-Secretary of the Environment for the state of São Paulo, the moving-force behind the creation of the Atlantic Forest Biosphere Reserve, and one of the leading figures in the defense of the Atlantic forest; *Admiral Ibsen de Gusmão Câmara*, paleontologist and an expert in marine mammals, ex-President of Brazil's oldest conservation NGO, the Brazilian Foundation for the Conservation of Nature in Rio de Janeiro, currently Director and President of the Brazilian Society for Environmental Protection (SOBRAPA), and vice-president of SOS Mata Atlântica, São Paulo, participated actively in the establishment of parks in the Brazilian Amazon in the 1970s and 80's, in the development of a National system for protected areas (SNUC), and notably in the protection and management of the Superagüi National Park, as Chair of the International Committee for the recently discovered black-faced lion tamarin; *Célio Murilo de Carvalho Valle*, biologist, ex-Professor of the Federal University of Minas Gerais and of numerous leading Brazilian conservationists and biologists, the moving-force behind the creation of the Caratinga Biological Station, now one of the most important protected areas for the muriqui, ex-director of Parks and Wildlife at the Brazilian Institute of the Environment (Ibama) during which time numerous significant parks and reserves were created and consolidated, and currently Director of the Minas Gerais State Forestry Institute (IEF); and *Adelmar Faria*

Coimbra-Filho, a renowned scientist and conservationist, member of the Brazilian Academy of Sciences, one of the first to draw attention to the plight of the Atlantic forest and its fauna and flora, and a totally dedicated campaigner throughout his life, internationally famous most of all for his pioneer work on the behavior, ecology, conservation and breeding of lion tamarins and other Atlantic forest primates, for the creation of the Poço das Antas and Una Biological Reserves, for his rediscovery of the black lion tamarin resulting in the protection of its last stronghold, the Morro do Diabo State Park, and for the creation of the internationally-recognized center for breeding and research on callitrichids and other threatened Brazilian primates - the Rio de Janeiro Primate Center (CPRJ/FEEMA), Rio de Janeiro.

It is with great pleasure that we report that a jury, composed of major figures in conservation, academia, government, business and the press, elected Adelmar F. Coimbra-Filho as the first recipient of the Henry Ford Environmental Conservation Lifetime Achievement Award for Brazil, for his pioneer and lifelong dedication to the conservation of the Atlantic forest.

Gustavo A. B. da Fonseca, Director, Conservation International do Brasil, Avenida Antônio Abrahão Caram 820/302, 31275-000 Belo Horizonte, Minas Gerais, Brasil.

FUNDO BRASILEIRO PARA A BIODIVERSIDADE



O Fundo Brasileiro para a Biodiversidade - FUNBIO é um fundo voltado para aportar recursos a projetos de conservação e uso sustentável da biodiversidade no Brasil. Tem sua origem associada a uma doação de recursos do Fundo para o Meio Ambiente Mundial (*Global Environment Facility*) para serem administrados na Fundação Getúlio Vargas (FGV), Rio de Janeiro, visando a constituição de um mecanismo de fomento eficiente, transparente e de longo prazo, capaz de atrair o setor privado como parceiro para o alcance de seus objetivos. A decisão de instalar o FUNBIO em uma fundação de direito privado, sem fins lucrativos, deveu-se à necessidade de se dispor de uma estrutura administrativa flexível, capaz de atuar de maneira independente, transparente e sustentável. Essas características visam a viabilizar a tarefa de atrair o setor privado para investimento conjunto na conservação e no uso sustentável da biodiversidade nacional.

O FUNBIO compõe-se de um Conselho Deliberativo e uma Secretaria Executiva. Ao Conselho Deliberativo cabe, autonomamente, as decisões e a definição de suas políticas gerais e prioridades. O Conselho é formado por lideranças provenientes de diferentes segmentos envolvidos na questão da biodiversidade no Brasil, visando a garantir representatividade e transparência a suas ações. É auxiliado, no exercício de suas atribuições, pela Secretaria Executiva, à qual podem ser delegadas as principais atividades de coordenação, gerência e execução. A Secretaria Executiva é dirigida pelo Diretor Executivo,

responsável por coordenar o funcionamento cotidiano do Fundo, seguindo a orientação do Conselho Deliberativo.

O Conselho Deliberativo é constituído por 16 indivíduos (além dos respectivos suplentes), representando informalmente os interesses: da Fundação Getulio Vargas (2); do Ministério do Meio Ambiente, dos Recursos Hídricos e da Amazônia Legal (2); de organizações não-governamentais sem fins lucrativos (4); de empresas privadas (4); e de instituições acadêmicas (4). Considerações com respeito a representação geográfica e de gênero são levadas em conta na composição do Conselho, embora a principal ênfase seja dada à capacidade de os indivíduos contribuírem significativamente para os objetivos do FUNBIO. Os membros iniciais do Conselho Deliberativo foram selecionados pelo MMA e pela FGV, após consultas a diferentes setores representados (ONG's, acadêmicos, empresários).

Para intensificar sua participação na direção do Fundo, o Conselho Deliberativo organizou-se em Comissões. Foram formadas as Comissões de Planejamento e Estratégia, Fomento, Acompanhamento e Avaliação de Projetos, Captação de Recursos e Finanças.

Atualmente o Conselho Deliberativo do FUNBIO é presidido por Roberto Konder Bornhausen, Presidente do Conselho Administrativo do UNIBANCO, tendo como vice-presidente Gustavo A. Bouchardet da Fonseca, Vice-presidente da Conservation International. O Diretor Executivo do FUNBIO, responsável pela Secretaria Executiva, é Pedro W. Leitão Filho. Armindia Campos é assessora responsável pela área de fomento do FUNBIO.

Cabe ao Conselho Deliberativo definir tanto as principais linhas de atuação quanto às prioridades do FUNBIO. Essas orientações são expressas em editais de convocação de projetos elaborados pela Comissão de Fomento do Conselho Deliberativo com apoio da Secretaria Executiva. Serão publicados periodicamente editais de convocação de projetos voltados para a conservação e o uso sustentável da biodiversidade nacional.

Os editais especificarão a dotação global de recursos disponíveis para cada chamada e, quando possível e desejável, o valor mínimo e máximo admitido para cada projeto. O FUNBIO não estará obrigado a comprometer todos ou nenhum dos recursos disponíveis, se os projetos apresentados não forem considerados adequados ou elegíveis. Os editais serão anunciados em jornais brasileiros de maior circulação nacional e regional; por *mailing list*; e nas conferências e redes voltadas para o meio-ambiente, além de na *homepage* do próprio FUNBIO.

Quem pode pedir apoio ao FUNBIO? Em princípio, podem receber apoio do FUNBIO:

- empresas e entidades públicas federais, estaduais e municipais;
- organizações privadas, com ou sem fins lucrativos (haverá critérios diferenciados para organizações com fins lucrativos)

- cooperativas e associações legalmente constituídas;
- consórcio entre empresas do setor público e do setor privado.

No entanto, a cada edital, agentes específicos poderão ser considerados preferenciais para o seu desenvolvimento, dependendo das características das chamadas de projetos. Nesse caso, tais preferências serão indicadas a cada chamada.

Que projetos podem ser apoiados? Em princípio, o FUNBIO pode apoiar projetos voltados para uma ou mais das seguintes modalidades:

- a conservação da biodiversidade, especialmente iniciativas de longo prazo de gestão da conservação da biodiversidade;
- o uso sustentável da biodiversidade associado a atividades produtivas, envolvendo a participação da comunidade local na concepção e execução do projeto;
- o desenvolvimento de pesquisa aplicada, cujos resultados possam subsidiar a conservação e o uso sustentável da biodiversidade;
- análises ou estudos de políticas e medidas de conservação à biodiversidade e de estímulo a seu uso sustentável.

No entanto, a cada Edital, ênfase e prioridades podem ser atribuídas a uma ou a outra modalidade. Em outras palavras, o FUNBIO não tem o compromisso de convocar projetos para todas essas modalidades a cada Edital.

O *Edital Inaugural 96-97* foi publicado em dezembro de 1996. Neste o FUNBIO convidou as instituições interessadas a apresentarem carta-consulta para projetos nas seguintes modalidades: Manejo Sustentável de Florestas Naturais; Conservação de Ecossistemas Naturais em Propriedades Privadas; Manejo Sustentável de Recursos Pesqueiros; Agricultura e Biodiversidade; e Gestão de Unidades de Conservação. Maiores informações são disponíveis no endereço abaixo.

Pedro W. Leitão Filho, Diretor Executivo, Fundo Brasileiro para a Biodiversidade - FUNBIO, Fundação Getulio Vargas, Praia de Botafogo 184, Sala 101, 22253-900 Rio de Janeiro, Rio de Janeiro, Brasil, Tel/fax: (021) 536 9492.

CURSO - ECOLOGIA DA FLORESTA AMAZÔNICA

Ecologia da Floresta Amazônica, um curso intensivo em nível de pós-graduação, será realizado pela quinta vez nas matas úmidas da Amazônia, próximas a Manaus; 14 de julho a 15 de agosto de 1997. O curso segue o modelo da disciplina de pós-graduação ministrada pela Organização para Estudos Tropicais (OET), "Biologia Tropical: uma Abordagem Ecológica", que com sua forte ênfase na problemática da biodiversidade tropical, além de ser um grande sucesso como iniciação à pesquisa de campo, ajudou a catalisar o mundialmente reconhecido programa de

conservação, em conjunto com ecoturismo, atualmente praticado na Costa Rica. "Ecologia da Floresta Amazônica" será oferecido pela OET - um consórcio de 55 instituições norte-americanas e centro-americanas promovendo cursos de campo em espanhol e em inglês desde 1962 - e os Programas de Ecologia da Universidade Estadual de Campinas (UNICAMP - com dezoito anos de experiência em cursos de campo no Brasil) e do Instituto Nacional de Pesquisas da Amazônia (INPA). Estas instituições contam com a ajuda das infra-estruturas do INPA e do Projeto Dinâmica Biológica de Fragmentos Florestais (PDBFF), da Smithsonian Institution, que administram estações e acampamentos de pesquisa na Floresta Amazônica.

Objetivos: O curso tem como objetivos gerais prover os seguintes tópicos: (1) a biodiversidade excepcional dos organismos da Floresta Amazônica, (2) a heterogeneidade de habitats dentro das florestas úmidas incluindo as de *terra firme*, várzea e igapó, (3) a gama de metodologias empregadas para conduzir pesquisas ecológicas no ambiente tropical úmido, e (4) a aplicação dos métodos e princípios científicos em situações em que o conhecimento prévio e apoio logístico são mínimos. Além disso, a interação dos participantes com pesquisadores experientes da região e de outros centros internacionais promove, além da contribuição pedagógica, sua integração em redes científicas internacionais e nacionais, e abre as possibilidades de colaboração a longo prazo durante suas carreiras profissionais.

Organização: O curso é realizado inteiramente no campo. Possui pesquisas diárias, com etapas de planejamento, coleta e análise de dados, e apresentação vespertina dos resultados. As noites são aproveitadas para seminários, excursões noturnas e a redação de relatórios científicos. Os alunos compartilham condições simples e rústicas nas bases principais do INPA (Reserva Ducke, Estação Experimental de Silvicultura Tropical, e os barcos) e do PDBFF (os fragmentos florestais e a mata contínua no km 41 da estrada ZF-3), onde interagem com pesquisadores renomados. O curso culmina com um projeto individual de pesquisa de oito dias em que cada aluno planeja e implementa um estudo sob a supervisão do corpo docente.

Inscrição: Candidatos ao curso de qualquer país devem apresentar até 1 de abril de 1997 (data de selo do correio) os seguintes itens: 1) Ficha de Pré-Inscrição Padrão preenchida, 2) Carta de Exposição de Motivos, descrevendo seus interesses e os motivos para participar da disciplina, 3) Currículo atualizado, 4) Histórico Escolar de graduação (e pós-graduação, se tiver), 5) cópia do Diploma do Curso de Graduação, 6) duas Cartas de Recomendação de professores ou profissionais de sua área de interesse (uma deve ser do orientador de tese, se tiver), 7) esboços curtos de dois projetos alternativos para desenvolver num prazo de 8 dias (com introdução e justificativa, hipóteses a serem avaliadas, metodologia, referências, e lista de materiais necessários, indicando aqueles que podem ser fornecidos pelo próprio aluno).

Seleção: O curso tem 20 vagas. Preferência é dada para alunos com pelo menos um ano de pós-graduação em ecologia ou numa área relacionada de trabalho nos neotrópicos. Um comitê de seleção formado por um dos coordenadores e dois outros cientistas de outras instituições visa maximizar a diversidade dos alunos tanto nos interesses e disciplinas quanto nos países e instituições. Os alunos aceitos poderão se matricular como alunos especiais no Curso de Pós-Graduação do INPA e receber 8 créditos ou da UNICAMP e receber 5 créditos (= 225 horas de atividades) acadêmicos. O curso será realizado em português, conseqüentemente os candidatos de países de língua espanhola precisam entender o português, mesmo que falem espanhol. Esperamos várias palestras dos convidados em línguas estrangeiras, principalmente o inglês e o espanhol.

Corpo Docente: Em 1977, os coordenadores são Dra. Rita Mesquita, pesquisadora em Ecologia Vegetal, e Dr. Carlos Lima, pesquisador em Biologia Aquática, ambos do INPA. Vários professores convidados participarão por períodos variáveis.

Custo: O curso fornece alimentação, redes de dormir, alojamento e transporte local enquanto no campo. O curso também tenta providenciar a cada participante dos países neotropicais uma passagem aérea de ida e volta da cidade da instituição à qual o aluno está vinculado até Manaus, classe turística. Durante os deslocamentos entre localidades, gastos com alimentação e demais despesas serão de responsabilidade de cada aluno. Cada participante deve levar consigo itens de uso pessoal, equipamentos e bibliografia especializados referentes a sua pesquisa individual e dinheiro para gastos pessoais (US\$ 100,00 devem ser suficientes). No caso de alunos matriculando-se para créditos, a UNICAMP fornece, mediante pagamento de uma taxa nominal, um Histórico Escolar-Certificado após a conclusão da disciplina.

Coleções Biológicas: Durante a disciplina, não será permitida a coleta de material biológico para terceiros. No caso de precisar coletar grupos específicos para fins de pesquisa, o aluno deve indicar o(s) de interesse e a natureza da pesquisa na correspondência de inscrição. Em qualquer caso, o aluno deve obter todas as autorizações exigidas pelo IBAMA para as coletas pretendidas. Nas reservas do INPA e do PDBFF é necessária também a permissão destas instituições.

Prazos: Existem prazos para a inscrição e para a divulgação dos resultados da seleção do curso "Ecologia da Floresta Amazônica". As inscrições devem ser postadas até o dia 1 de abril de 1997. As divulgação do resultado da seleção ocorrerá até o dia 15 de maio de 1996.

Endereço para correspondência: Dr. Claude Gascon, PDBFF/INPA, Coordenação de Pesquisas em Ecologia, Instituto Nacional de Pesquisas da Amazônia (INPA), Caixa Postal 478, 69011-970 Manaus, Amazonas, Brasil. Tel: (092) 642-1148, Fax: (092) 642-2050, e-mail: pdbff@cr-am.rnp.br.

PROJETO DINÂMICA BIOLÓGICA DE FRAGMENTOS FLORESTAIS - CHAMADO PARA PROPOSTAS

Introdução: Trabalhando com 11 fragmentos perto de Manaus, Brasil, o PDBFF começou em 1979 com objetivo de estudar os efeitos ecológicos da fragmentação do habitat de floresta tropical contínua. Complementando esses estudos existem pesquisas relacionadas com a biologia de extinção, os efeitos de bordas de florestas, os processos de regeneração de florestas, e a genética de espécies tropicais em relação a fragmentação. Existe também, um programa de treinamento intensivo de alunos de pós-graduação e de difusão de informações para a área de conservação tanto dentro do Brasil como no cenário internacional. Os resultados da pesquisa têm implicações importantes para o manejo de reservas de floresta que permanecem em áreas desmatadas para a manutenção da maior diversidade de espécies possível e das funções ecológicas da floresta. Mais informações sobre o funcionamento do ecossistema intacto são obtidas através de comparações de floresta perturbada com áreas de controle não perturbadas. O processo de fragmentação de florestas tem, por definição, criado extensas bordas de florestas e grandes áreas de derrubadas, pastagens e capoeiras. Muitas das pastagens ao redor das reservas isoladas de floresta têm sido abandonadas depois de vários tratamentos que vão de derrubada simples (sem queima ou implantação subsequente de pastagem) até derrubada com uso contínuo para gado, e a maioria dos estágios intermediários entre estes. Fortuitamente, isto tem proporcionado uma excelente oportunidade para estudar a regeneração das florestas.

Fragmentos Florestais: O entendimento do impacto relativo dos processos de fragmentação de florestas requer como base de dados inventários detalhados, conhecimento da biologia de espécie, e um entendimento do ambiente abiótico existente dentro da floresta contínua. A floresta contínua no local de estudo, localizado em quatro diferentes fazendas ao norte de Manaus, é relativamente não-perturbada, contendo grandes predadores como a onça (*Panthera onca*), o puma (*Felis concolor*), a árpia (*Harpia*) e o gavião (*Morphnus guianensis*). O desenho experimental original do PDBFF foi de ter o maior número de replicatas de fragmentos de floresta de diferentes tamanhos como fosse logisticamente possível. A seguinte tabela indica o número e os tamanhos de fragmentos isolados originalmente planejados, aqueles que estão sendo estudados nas condições de pré e pós-isolamento, e o número de fragmentos isolados na atualidade.

Reconhecendo a importância da manipulação experimental além daquela que é prevista pelo isolamento de uma

série replicada de reservas de floresta, várias reservas (três de 10 ha e uma de 1 ha) têm sido designadas como "experimentais". Esta não é uma autorização *carte blanche* para remover ou introduzir organismos nas reservas, mas implica que tais propostas serão consideradas e avaliadas de acordo com seus efeitos potenciais na pesquisa em andamento nestas reservas.

Propostas: Propostas devem encaixar-se dentro de um dos objetivos seguintes: 1) estudos dos efeitos da fragmentação da floresta sobre espécies, comunidades, processos ecológicos, interações, micro-clima, recursos, ou estrutura genética de espécies; 2) estudos sobre o processo de regeneração florestal; 3) estudos de grupos taxonômicos pouco conhecido e/ou com alta diversidade; 4) estudos de ecologia tropical básica que pode servir para estudos futuros dos efeitos da fragmentação da floresta; 5) estudos de recuperação de áreas degradadas. Somente propostas de pesquisadores qualificados (com Ph.D.) serão aceitas. *Caso o projeto represente o trabalho de pós-graduação de um aluno, a proposta deve ser acompanhada de uma carta do pesquisador principal (orientador) indicando o progresso do aluno naquele programa de pós-graduação.* O PDBFF oferece apoio financeiro para pesquisa na forma de apoio logística (transporte, rancho, técnico), material de consumo, e equipamento. Propostas acompanhadas de CVs atualizados, devem ser enviadas até o dia 15 de maio de 1997, impreterivelmente, para o seguinte endereço: Dr. Claude Gascon, Coordenador Científico, PDBFF, INPA Ecologia, C.P. 478, 69011-970 Manaus AM, Brasil, Tel: (092) 642-1148, Fax: (092) 642-2050. Propostas recebidas em qualquer outra época serão avaliadas, mas existe pouca possibilidade de obter recursos financeiros. O Diretor distribuirá as propostas para revisão. Todas as propostas serão avaliadas pelo Comitê Científico Consultor e aprovadas pelo Comitê de Manejo do projeto. A decisão final será dada pelo Comitê de Manejo no final de setembro. Novos projetos que requeiram financiamento pelo PDBFF terão início em outubro. Os pesquisadores estrangeiros devem organizar-se para trabalhar com uma contra-partida brasileira e devem planejar utilizar estudantes brasileiros como estagiários de campo, se a ajuda de campo for necessária. Os investigadores não familiarizados com a infra-estrutura ou com a informação de base disponível sobre o PDBFF devem contactar o Coordenador Científico em Manaus (Claude Gascon). Os pesquisadores devem submeter 6 cópias de cada proposta junto com os CV's de cada participantes. A proposta deve seguir o padrão abaixo (*não serão aceitas propostas fora desse padrão*).

Página 1: 1a) *Pesquisador Principal* - Endereços, Afiliação Institucional, 1b) *Colaborador Brasileiro* (caso o Pesquisador Principal seja estrangeiro), 1c) *Alunos de Pós-Graduação* - Nome e programa de estudo, 2) *Título do Projeto*. Páginas 2-3: 3a) *Resumo* do trabalho já feito (caso projeto em andamento); 3b) *Problema e Objetivos* - Incluir uma declaração da relevância do estudo proposto com os objetivos globais do PDBFF. A bibliografia relevante deve

Tamanho do fragmento de floresta (ha.)

	1	10	100	1000	(Controle)
# de Fragmentos	8	9	5	2	1
Em estudo	8	8	5	2	1
Isolado	5	4	2	0	0

ser citada. Páginas 4-5: 4) *Métodos* - Discutir as técnicas de coleta de dados e os planos de análise. Seja tão específico quanto possível sobre as técnicas, o equipamento requerido e o desenho experimental; 5) *Cronograma* - Indicar as datas a serem passadas no campo e o cronograma proposto para a análise e a produção das publicações resultantes. Página 6: 6) *Orçamento* - Passagens aéreas, apoio técnico (dias no campo) (os pedidos de apoio técnico sem justificativa não serão aceitos), apoio logístico (dias de trabalhadores no campo), material de consumo e equipamento (discriminar incluindo o preço estimado de cada item). Um máximo de US\$1000 será considerado para projetos que representam teses de mestrado e US\$2000 para teses de doutorado (max. 1 página). Página 7: 7) *Fontes Alternativas de Financiamento* - Favor procurar apoio externo e indicar as iniciativas que tiver tomado. Pagina 8: 8) *Bibliografia* (máx. 1 página).

Procedimento de amostragem, dados e material coletado: Cada colaborador é cientificamente e editorialmente independente, porém, os dados devem ser coletados para que possam ser adaptados a um formato comum de computador e compatíveis com outros estudos em progresso. Os pesquisadores deverão deixar cópias dos dados em planilha eletrônica e cópia papel para arquivar no projeto. Os pesquisadores serão encorajados a participar em análises e publicações "inter-subprojeto". Toda publicação resultante de pesquisa dentro do âmbito do PDBFF deverá incluir o endereço institucional do PDBFF como segundo endereço do autor assim como menção do apoio do PDBFF nos agradecimentos e um número da série técnica do PDBFF.

Cada cientista está sujeito aos regulamentos de pesquisa do Brasil e em particular do INPA. Isto inclui os regulamentos sobre a coleta de material e o depósito do mesmo. Todo material coletado pelos participantes do projeto pertence ao INPA. Doações a outras instituições podem ser discutidas, porém pelo menos metade de todo material e todos os holótipos têm que permanecer no Brasil. Os acordos a respeito do depósito no Brasil dos holótipos podem ser negociados individualmente. Solicitações para autorização de coleta dentro das áreas de estudo e arredores imediatos deverão ser analisadas caso a caso pelo Comitê de Manejo do PDBFF.

Estagiários: Pesquisadores doutores podem empregar estagiários na realização dos seus projetos. O PDBFF tem um banco de currículo de candidatos a estágios que pode ser consultado. O uso de um estagiário deve ser justificado dentro da proposta. Será permitido o uso do estagiário somente enquanto o pesquisador principal se encontrar em Manaus.

Financiamento: A Smithsonian Institution depende de contribuições de corporações, fundações, e doadores individuais para prover o financiamento necessário para manter o PDBFF em andamento. A primeira prioridade de financiamento deverá ir para a manutenção de infraestrutura necessária para que os pesquisadores possam

fazer seus estudos. Fora disto, os fundos serão utilizados para apoiar projetos em andamento e novos, com preferência ao apoio de propostas de pesquisa de teses e dissertações de estudantes brasileiros. Todos os pesquisadores que desejem trabalhar no projeto ou utilizar a sua infraestrutura devem submeter propostas, mesmo no caso de não solicitar apoio financeiro direto dos fundos do PDBFF. Não serão pagos salários de pesquisadores.

Nossa capacidade de fornecer suporte financeiro para os estudos dos processos de regeneração da floresta dependerá do grau em que as propostas são diretamente relevantes para os problemas relacionados com as mudanças globais ou provêm informações que são demonstradamente úteis para os responsáveis pelo planejamento do desenvolvimento regional.

Claude Gascon, Coordenador Científico, Projeto Dinâmica Biológica de Fragmentos Florestais (DBFF), Departamento de Ecologia, Instituto Nacional de Pesquisas da Amazônia (INPA), Caixa Postal 478, 69011-970 Manaus, Amazonas, Brasil.

MARENCO BIOLOGICAL RESERVE, COSTA RICA

Marengo Biological Reserve, located in the last area of tropical rainforest on the Pacific side of Central America, is interested in offering its facilities toward developing its potential as a center for scientific studies, education and ecotourism. This biological reserve was created by a Costarrican family who bought the land in 1971 land to protect the forest and a great variety of endangered species including: black garlic (*Anthodiscus chocoensis*), red macaw (*Ara macao*), ocelot (*Felis pardalis*), and primates such as *Cebus capucinus*, *Ateles geoffroyi*, and *Alouatta palliata*. The reserve of 1,200 hectares includes primary rain forest, swamp, mangroves, cloud forest, and a littoral zone. Research carried out there includes observations on the migratory and resident bird communities. There are 20 different species of marine mammals registered at Marengo, and it is a paradise for whale-watching. Marengo also provides a base for visiting the Corcovado National Park and the Caño Island Reserve, well known for their great biodiversity and beautiful settings, and the mangrove swamps of the Sierpe-Terraba River. Facilities include: 25 bungalows with private bath, restaurant, reception (with phone, fax, and e-mail), electric generator, maritime transportation; and a network of well-marked trails that cover the entire reserve. There are also possibilities for universities to establish permanent scientific laboratories. There are no roads to Marengo, and access is by sea, requiring first a flight from San José to Palmar Sur. For further information, please contact Nelson Vega J. at the address below.

Nelson Vega J., Marengo Beach and Rainforest Lodge, P.O. Box 4025-1000, Costa Rica. Toll free numbers: 1-800-2339101 (USA) or 1-305-2339101 (Europe), Tel: (506)

221 1594, Fax: (506) 255 13 46, <http://www.elparaiso.com/cr/marengo.htm>.

FUNDAÇÃO O BOTICÁRIO DE PROTEÇÃO À NATUREZA - PROJETOS 1997



FUNDAÇÃO BOTICÁRIO DE PROTEÇÃO À NATUREZA

Vinte e quatro projetos foram aprovados para financiamento pela Fundação O Boticário de Proteção à Natureza, São José dos Pinhais, Paraná, Brasil, através do Programa de Incentivo à Conservação da Natureza, a partir do mês de janeiro de 1997. Os que promovem atividades de pesquisa e conservação de primatas incluem: "Avaliação das populações selvagens de *Saguinus bicolor bicolor* e proposta de estratégia para sua conservação", Rosana Junqueira Subirá, Manaus, AM; "Reunião Preparatória para o Workshop Ações Prioritárias para a Conservação da Biodiversidade do Bioma Cerrado", Funatura, Brasília, DF; "Floresta Atlântica: Composição Florística, Estrutura e Dinâmica de Regeneração Natural", Associação de Defesa e Educação Ambiental Reserva Volta Velha, Itapoa, SC; "Análise Multitemporal da Ocupação Urbana sobre Ecossistemas Naturais - O Caso de Boa Vista, RR", Fábio Bonatto, Boa Vista, RR.

Miguel Serediuk Milano, Diretor Técnico, Fundação O Boticário de Proteção à Natureza, Avenida Rui Barbosa 3450, 83065-260 São José dos Pinhais, Paraná, Brasil.

POSITION AVAILABLE - FIELD STATION MANAGER IN COSTA RICA

Applications are being sought for the position of Field Station Manager at Cano Palma Biological Station, Tortuguero, Costa Rica. This is not primarily an academic position, but the candidate should possess a biology/environmental studies background. Emphasis will be placed on those who have some or all of the following attributes: Bilingual (Spanish/English); Experience in remote areas, particularly in the tropics; Boating and other outdoors knowledge; Small engine repair knowledge; Construction experience; Book-keeping knowledge; Knowledge of cooking; Ability to get along with visitors and co-workers; Knowledge of Central American flora and fauna; Computer experience. Preference will be given to Canadians. We are seeking a self-motivated individual who is willing to put up with low pay and isolated conditions in exchange for a unique job in a Canadian conservation organization. Interested individuals are asked to send a detailed resume to: Marilyn Cole, Executive Director, Canadian Organization for Tropical Education and Rainforest Conservation (COTERC), Box 335, Pickering, Ontario L1V 2R6, Canada, Fax: (905) 683-5897, e-mail: coterc@interhop.net.

ESTÁGIO EM PRIMATOLOGIA

Júlio César Bicca-Marques, doutorando em Antropologia Biológica na Universidade de Illinois - Urbana, oferece estágio junto ao projeto "Percepção, Cognição e Aprendizagem Associados ao Forrageamento em Primatas Neotropicais Noturnos e Diurnos" para graduandos e recém-formados em Ciências Biológicas, Ecologia ou áreas afins, interessados em ecologia comportamental de primatas. O projeto será desenvolvido no período de agosto/97 a julho/98 no Parque Zoológico da Universidade Federal do Acre, Rio Branco, e envolverá captura, marcação, morfometria e coleta de dados comportamentais das espécies *Saguinus imperator imperator*, *Saguinus fuscicollis weddelli* e *Aotus nigriceps*. O trabalho será em tempo integral. O aluno receberá uma ajuda de custo mensal de US\$200, transporte, hospedagem e alimentação na área de estudo e certificado de estágio. Os interessados devem enviar carta(s) de recomendação, uma carta de propósitos e Curriculum Vitae para o endereço abaixo. Maiores informações e inscrições: Júlio César Bicca-Marques, Department of Anthropology, University of Illinois at Urbana-Champaign, 109 Davenport Hall, 607 S. Mathews Avenue., Urbana, IL 61801, USA, e-mail: jmarques@uiuc.edu.

ANIMAL BEHAVIOR SOCIETY

The Animal Behavior Society was founded in 1964 to promote the study of animal behavior in the broadest sense, including studies using descriptive and experimental methods under natural and controlled conditions. Membership is open to persons engaged in the scientific study of animal behavior, or interested in advancing such study, and includes all sorts: ethologists, naturalists, vegetarians, zoologists, zoo keepers, biologists, psychologists, behavior geneticists, primatologists, etc. Current member's research activities span the invertebrates and vertebrates, both in the field and in the laboratory, and include experimental psychology, behavioral ecology, neuroscience, zoology, biology, applied ethology, and human ethology, as well as many other specialized areas. Advantages of membership include: A subscription to *Animal Behaviour*, an international monthly publication, produced jointly with the Association for the Study of Animal Behavior (ASAB), UK, and a leading journal in the field with over 1,800 pages a year, containing articles, short communications, and book reviews; A quarterly newsletter with information about jobs, fellowships, and research grants in animal behavior, meetings of the ABS and other societies with related interests, and the biennial International Ethological Conference, laboratory exercises for teachers, and animal care guidelines; a regularly updated listing of graduate programs in animal behavior; a directory with names and addresses of all members; a regularly updated list of textbooks and other volumes of interest to members of the ABS; a regularly updated list of films with topics of

interest to members of ABS (nominal charge for postage and handling); a brochure describing careers for individuals interested in animal behavior (on request); and the opportunity to attend and present papers at annual and regional meetings of the ABS at reduced rates. Annual membership fees: Ordinary member - US\$41.00; Student member - US\$20.00; Emeritus member - US\$20.00; and Spouse member (receive newsletter only) - US\$28.00.

B. Diane Chepko-Sade, Membership Chair, Animal Behavior Society, Department of Biology, State University of New York (SUNY) - Oswego, Oswego, New York 13126, USA. Tel: (315) 341-2776.

GRADUATE PROGRAM IN POPULATION BIOLOGY, ECOLOGY, AND EVOLUTION: EMORY UNIVERSITY, ATLANTA, GEORGIA

The Graduate Program in Population Biology, Ecology, and Evolution at Emory University takes advantage of the presence of a large number of faculty at Emory University specifically interested in evolutionary issues. These faculty members have active research programs in the following schools and departments as well as at two internationally renowned institutions in the Atlanta area: Department of Anthropology, Department of Biology, Department of Psychology, School of Medicine, School of Public Health, U. S. Centers for Disease Control and Prevention (CDC), and the Yerkes Regional Primate Research Center (YRPRC).

The program offers an opportunity for students to familiarize themselves with the widest possible range of applications of Darwinian thinking, from the cell level to entire organisms and the social organizations that they develop. Research opportunities are unique in the nation, perhaps the world. The Centers for Disease Control are an immense resource devoted to the understanding of infectious disease. The CDC employs nearly five thousand people in the Atlanta area alone, where its headquarters are based (see <http://www.cdc.gov/cdc.html>). The Yerkes Primate Center is the largest such center in the world, with approximately 3,000 nonhuman primates housed at facilities on the Emory campus as well as on the grounds of a 117-acre field station outside the metropolitan area (see <http://www.cc.emory.edu/WHSC/YERKES/>). Both institutions are well-established: the CDC has existed since 1946, and the Yerkes Primate Center since 1930. Further research opportunities exist outside these two institutions at various Emory departments and the Schools of Medicine and Public Health.

Tailor-made curriculum: PBEE is a truly interdisciplinary program designed to lead to a Ph. D. in population biology, ecology, and evolution, and a career in teaching and research at leading colleges and universities. The program provides students with formal classes and seminars necessary for a solid background in the theoretical and ex-

perimental components of all of the subdisciplines involved. Beyond this common core, each student is encouraged to develop a class curriculum and research program tailored to his or her specific interests.

For further information: Program Secretariat: mfox@grad.gsas.emory.edu (Ms. Meri Fox); Web pages: <http://WWW.EMORY.EDU/PBEE/pbee.html>; Program Director: blevin@biology.emory.edu (Dr. Bruce Levin); Director of Graduate Studies, PBEE: dewaal@rmy.emory.edu (Dr. Frans de Waal).

2ND EUPREN/EMRG WINTER WORKSHOP - ABSTRACTS

The 2nd European Primate Research Network (EUPREN)/European Marmoset Research Group (EMRG) Winter Workshop: "The Implications of Housing and Husbandry for Scientific Quality and Well-Being of Non-Human Primates", was held on 25-27 November 1996, in Rome. The abstracts of this meeting can be viewed on Internet: <http://www.dpz.gwdg.de/eupren/abstrom.htm>. Information supplied by Prof. Dr. M. Schwibbe, e-mail: mschwib2@gwdg.de.

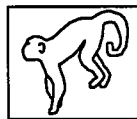
CONSERVATION INTERNATIONAL - CHANGE OF ADDRESS



Conservation International has moved offices. The new address is: 2501 M Street, N.W., Suite 200, Washington D. C. 20037, U.S.A. Telephone and fax numbers remain the same.

Primate Societies

SOCIEDADE BRASILEIRA DE PRIMATOLOGIA



O VIII Congresso Brasileiro de Primatologia se realizará nos dias 10-15 agosto de 1997, em João Pessoa, Paraíba.

A data foi mudada para baratear o custo de passagens (devido ao fato que julho esteja ainda no período da alta estação). A última data para a entrega de resumos é 10 de maio de 1997. Para maiores informações, favor entrem em contato com Carmen Alonso, Presidente da Sociedade Brasileira de Primatologia.

A Sociedade está realizando um levantamento de projetos primatológicos no Brasil. Formulários foram enviados aos sócios mas até agora poucas pessoas responderam. Ficariamos agradecidos se pudesse enviar as informações o mais rápido possível para permitir a conclusão desse levantamento.

A Diretoria da SBPr em reunião ordinária decidiu outorgar

ma ajuda para estudantes carentes sócios (que estejam em dia com a Sociedade) que pleiteiam a participação em eventos nacionais ou internacionais, na condição de apresentador de trabalho científico como primeiro autor. Ficou estabelecido: para eventos nacionais o valor de R\$100,00 e para eventos internacionais R\$200,00. A quota de ajuda dependerá da situação financeira da Sociedade no momento da solicitação e do currículo do estudante. Os estudantes interessados devem enviar à Secretaria da Sociedade o resumo do trabalho e o currículo com 45 dias de antecedência.

Carmen Alonso, Departamento de Sistemática e Ecologia - CCEN, Universidade Federal da Paraíba, 58059-900 João Pessoa, Paraíba, Brasil, Tel: +55 (0)83 216 7471, Fax: +55 (0)83 216 7464, e-mail: sagui@vm.npd.ufpb.br.

PRIMATE SOCIETY OF GREAT BRITAIN NAPIER MEMORIAL MEDAL 1997



The Napier Memorial Medal was instituted by the Primate Society of Great Britain in memory of its founding President, Professor John Napier, following a bequest to the Society. The Medal is awarded every two years to young primatologists in order to provide encouragement through public recognition of their work. The first Napier Memorial Medal (1991) was awarded to Dr Christopher Pryce (Behaviour and Endocrinology of Maternal Behaviour in Callitrichids), the second (1993) to Marta Lahr (The Origins of Modern Humans: A Test of the Multiregional Hypothesis), and the third (1995) was awarded to Carlos Drews in 1995 for his Ph.D. examining psychological warfare and the management of relationships between male baboons.

Nominations for the fourth Napier Memorial Medal (to be awarded at the Winter 1997 meeting and Annual General Meeting) are invited by (or on behalf of) recent post-graduate students. Under the rubric approved by Council, the nominations are considered by a committee of three members appointed by Council (one of whom is always an officer of the Society); the committee will present their final choice to Council for ratification at its meeting in September, 1997.

To be eligible for consideration, candidates must: (1) be either a British subject or a foreign national who was completed a Ph.D. at a U.K. Institution of Higher Education (2) normally be under the age of 30 years on 1 December, 1997 although in exceptional circumstances older applicants will be considered and (3) have submitted their Ph.D. thesis after 1 June 1995.

Candidates should normally be nominated by a *member* of the Society, but may, in cases of difficulty, nominate themselves. A full CV (including an Abstract of the Ph.D. thesis and a full list of publications) and two letters of

reference (one of which should normally be from the external examiner of the Ph.D. thesis) should be forwarded to Dr. Hilary O. Box, President of the Primate Society of Great Britain. Address: Department of Psychology, University of Reading, Reading, RG6 2AL, UK. The closing date for nominations is 1 September, 1997.

Information supplied by Hannah Buchanan-Smith, Hon. Secretary, Primate Society of Great Britain.

OFFICERS OF THE PRIMATE SOCIETY OF GREAT BRITAIN (PSGB)



The following is a listing of the officers of the Primate Society of Great Britain (PSGB), along with the members of the two Working Parties of the Society (Captive Care and Conservation) as from November, 1996.

President: Dr. Hilary O. Box, Department of Psychology, University of Reading, 3 Earley Gate, Whitenights Road, Reading RG6 2AL, Berkshire, UK, Tel.: 01734 316668, Fax: 01734 316604, e-mail: h.box@reading.ac.uk; **Hon. Secretary:** Dr. Hannah Buchanan-Smith, Department of Psychology, University of Stirling, Stirling FK9 4LA, Scotland, UK, Tel.: 01786 467674, Fax: 01786 467641, e-mail: h.m.buchanan-smith@stir.ac.uk; **Hon. Treasurer:** Dr. Geoffrey Hosey, Division of Psychology and Biology, Bolton Institute, Deane Road, Bolton BL3 5AB, Tel.: 01204 528851 ext. 3647, Fax: 01204 399074, e-mail: GH2@bolton.ac.uk; **Membership Secretary:** Dr. Kate Hill, Department of Anthropology, University of Durham, 43, Old Elvet, Durham DH1 3HN, Tel.: 0191 374 7206, Fax: 0191 374 7527, e-mail: c.m.hill@durham.ac.uk; **Editor Primate Eye:** Dr. Bill Sellers, Department of Anatomy, University of Edinburgh, Medical School, Teviot Place, Edinburgh EH8 9AG, Tel.: 0131 650 3110, Fax: 0131 650 6545, e-mail: bill.sellers@ed.ac.uk; **Convener of the Captive Care Working Party:** Dr. Robert Hubrecht, Universities Federation for Animal Welfare (UFAW), 8 Hamilton Close, South Mimms, Hertfordshire EN6 3QD, Tel.: 01707 658202, Fax: 01707 649279; e-mail: hubrecht@ufaw.org.uk; **Convener of the Conservation Working Party:** Dr. Siân S. Waters, Bristol Zoo Gardens, Clifton, Bristol BS8 3HA, UK, Tel.: 0117 970617, Fax: 0117 9734 6814, e-mail: 106130.3335@compuserve.com.

Members of the Captive Care Working Party: Hilary Box (Reading University), David Buist (Huntingdon Research Centre), Nick Ellerton (North of England Zoological Society), Angela Glatston (Rotterdam Zoo), Keith Hobbs (Biosim), Cyril Rosen (International Primate Protection League), Leah Scott (CBDE, Porton Down), Miranda Stevenson (Royal Zoological Society of Scotland), Robert Hubrecht (UFAW), Roger Curtis (Home Office), Udo Gansloßer (Institut für Zoologie der Universität Erlangen-Nürnberg), Mark Matfield (RDS), David Edwards (Syntex Research Center), Sarah Wolfensohn

(Oxford), Anita Patel (Ciba Geigy), Malcolm Welshman (Mediprime), and Siân Waters (Bristol Zoo Gardens).

Members of the Conservation Working Party - Full members: Simon Bearder (Oxford Brookes University); Hilary Box (University of Reading), Adam Britt (North of England Zoological Society); John Buchan (Zoological Society of London), Julia Casperd (Liverpool University), David Chivers (University of Cambridge), Alan Dixson (University of Cambridge), Anna Feistner (Jersey Wildlife Preservation Trust), Caroline Harcourt (Chester), David Hill (University of Sussex), Kate Hill (University of Durham), Paul Honess (Oxford Brookes University), Phyllis Lee (University of Cambridge), Ian Redmond (Bristol), Cyril Rosen (International Primate Protection League), Ernie Thetford (Howletts Zoo Park), and Siân S. Waters (Bristol Zoo Gardens) - *Local Corresponding Members:* Debbie Curtis (Anthropology Institute, Zürich), John Fa (Jersey Wildlife Preservation Trust), Juan-Pedro Gonzalez-Kirchner (Colegio Universitario "Cardenal Cisneros", Madrid), Robert Hubrecht (UFAW), Anne Parton (Bolton Institute), Elizabeth Rogers (University of Edinburgh), and Miranda Stevenson (Royal Zoological Society of Scotland) - *Overseas Corresponding Members:* Russell A. Mittermeier (Conservation International, Washington, D. C.), Anthony B. Rylands (Conservation International do Brasil, Belo Horizonte, Brazil), Caroline Tutin (SEGC, Libreville, Gabon), Malcolm Whitehead (Ardastra Gardens, Nassau, Bahamas), and Elizabeth Williamson (Karisoke Research Center, Ruhengeri, Rwanda).

Information kindly supplied by the PSGB Hon. Secretary, Hannah Buchanan-Smith; the Convenor for the Captive Care Working Party, Robert Hubrecht; and the Convenor for the Conservation Working Party, Siân Waters.

Recent Publications

BOOKS

Libro Rojo de Los Vertebrados de Bolivia, edited by Patricia Ergueta S. y Cecile de Morales, 1996, 346pp. Centro de Datos para la Conservación, La Paz, Bolivia. In Spanish. A Red Data Book for the Bolivian vertebrates following the Mace-Lande system for categorizing threatened species adopted by IUCN/SSC in December 1994. It provides information on 250 species of fishes, amphibians, reptiles, birds and mammals considered threatened in the country. Also information on protected areas, ecological zones, and river basins. PSG member Teresa Tarifa Suarez wrote up the species' descriptions for the mammals. The following primates are included: *Alouatta caraya*, *Pithecia irrorata*, *Ateles paniscus* (*Ateles chamek*), *Saguinus imperator*, and *Alouatta seniculus* (*Alouatta sara*), *Cebuella pygmaea*, *Callithrix argentata* (*Callithrix melanura*), *Saguinus labiatus*, and *Saguinus fuscicollis*. Available from: Centro de los Datos para la Conservación,

20 de Octubre No.2672 esq.Campos, Casilla 11250, La Paz, Bolivia, Tel: (591-2) 432567, Fax: (591-2) 432657.

Guía para la Categorización de Vertebrados Amenazados, by Marco Octavio Ribera, 1996, 105pp. Centro de Datos para la Conservación, La Paz, Bolivia. In Spanish. An excellent and useful compilation of information on CITES, the IUCN/SSC threatened species categories, the elaboration of the Bolivian red data book for vertebrates, the role of IUCN in Bolivia, principal threats to wildlife in the country, and the current pertinent legislation. Appendices include a glossary, a list of Bolivian members of the IUCN/SSC Specialist Groups, Bolivian institutions involved in wildlife conservation and management, a listing of the protected areas, and another of the key species and vegetation types in them. Highly recommended for anyone interested in Bolivian wildlife. Available from: Centro de los Datos para la Conservación, 20 de Octubre No.2672 esq.Campos, Casilla 11250, La Paz, Bolivia, Tel: (591-2) 432567, Fax: (591-2) 432657.

The Tropical Rain Forest, The Late P. W. Richards, 2nd edition, 1996, 594pp. Cambridge University Press, Cambridge. Hardback ISBN 0 521 42054 7. Price: £90.00. Paperback ISBN 0 521 42194 2. Price £32.50. The first edition of this book is firmly established as one of the classics of botanical literature. In this new and completely revised edition, the author provides a personal view of the field, based on over sixty years of involvement in rain forest ecology. Climatic changes and human pressures have a major impact on the rain forests and it is now possible to envisage their complete destruction. This book represents an important record of the rain forest in the 20th Century. Contents: *Part 1. Structure and Physiognomy* - Structure of primary forest; Regeneration; Trees and shrubs (i) Vegetative features; Trees and shrubs (ii) Reproductive biology; The ground herbs and the dependent synusia. *Part 2. The Environment* - Climate (by R. P. D. Walsh); Microclimates and hydrology (by R. P. D. Walsh); Phenology; Soils of the humid tropics (by I. C. Baillie). *Part 3. Floristic composition of climax communities* - Composition of primary rain forests (i); Composition of primary rain forests (ii). *Part 4. Primary successions* - Primary xeroseres and the recolonization of Krakatau; Hydroseres and freshwater swamp forests; Mangroves and other coastal vegetation. *Part 5. Tropical rain forest under limiting conditions* - Rain forest, deciduous forest and savannah; The tropical rain forest at its altitudinal and latitudinal limits. *Part 6. Human impacts and the tropical rain forest* - Secondary and deflected successions; Postscript - the future of the tropical rain forest. Appendix 1. Tree recognition in the field and the use of vernacular names. Appendix 2. Application of numerical methods in rain forest (by P. Grieg-Smith). References. Index of Plant names. General index. Available from: Customer Services Department, Cambridge University Press, Freeport (within the UK), The Edinburgh Building, Cambridge CB2 2RU, England, UK, Tel: +44 (0)1223 325970, Fax: +44 (0)1223

315052. Internet Service Catalogue: <http://www.cup.cam.ac.uk>.

Neotropical Rainforest Mammals: A Field Guide, by Louise H. Emmons and Francois Feer, 1997, 392pp. (estimated), 29 color plates, 7 b&w plates, 9 halftones, 195 maps, 14 line drawings 6 x 9. Second edition. Chicago University Press, Chicago. Cloth ISBN: 0-226-20719-6. Price: US\$80.00. Paper ISBN: 0-226-20721-8. Price: US\$25.95. Shipping and handling US\$3.50. This is the revised edition of the highly successful field guide first printed in 1990. A total of 226 species are treated in full (206 were included in the first edition), all species accounts from the first edition have been updated, 195 maps showing the distribution and geographic range of each species have been revised to reflect the most current information, 29 beautiful color plates illustrate more than 220 species, and seven black-and-white plates contain more than 60 images of individual species. Forthcoming in July 1997. Available from: University of Chicago Press, 11030 South Langley Avenue, Chicago, Illinois 60628, USA.

Tropical Forest Remnants: Ecology, Management, and Conservation of Fragmented Communities, edited by William F. Laurance and Richard O. Bierregaard, Jr., 1997, 504pp. (estimated), 4 color plates, 12 halftones, 33 maps, 93 line drawings, 85 tables 7 x 10. Chicago University Press, Chicago. Clothbound ISBN: 0-226-46898-4. Price: US\$ 105.00. Paperback ISBN: 0-226-46899-2. Price US\$ 38.00. By the year 2000, more than half of all tropical forests will have been cut, causing increased soil erosion, watershed destabilization, climate degradation, and extinction of as many as 600,000 species. *Tropical Forest Remnants* provides the best information available to help us understand, manage, and conserve the remaining fragments. Covering geographic areas from Southeast Asia and Australia to Madagascar and the New World, this volume summarizes what is known about the ecology, management, restoration, socioeconomics, and conservation of fragmented forests. "The field of habitat fragmentation has a variety of intellectual roots. Obvious among them are Charles Darwin's and Alfred Russell Wallace's pioneering studies of islands and Robert MacArthur and E. O. Wilson's elegant models of island biogeography. To these roots has been grafted the intellectual tradition of wildlife biology, which has to a large extent evolved into conservation biology. In particular, wildlife biologists' interest in habitat edges has enriched a field once preoccupied exclusively by habitat area... Clearly, the time has come to assess what we have learned, and we all owe a debt of gratitude to Bill Laurance and Rob Bierregaard for organizing this volume on tropical forest fragments." - Thomas E. Lovejoy, from the foreword. With 70 Contributors. Contents: Foreword; Preface; Section I: The Scale and Economics of Tropical Deforestation; Section II: Physical Processes and Edge Effects; Section III: Tropical Forest Faunas; Section IV: Plants and Plant-Animal Interactions; Section V: Resto-

ration and Management of Fragmented Landscapes; Section VI: Site Selection and Design of Tropical Nature Reserves; Section VII: Summary and New Perspectives. Forthcoming in June 1997. Available from: University of Chicago Press, 11030 South Langley Avenue, Chicago, Illinois 60628, USA.

Biodiversity II: Understanding and Protecting Our Biological Resources, edited by Marjorie L. Reaka-Kudla, Don E. Wilson and Edward O. Wilson. 1997, 551pp. National Academy Press, Washington, D. C. Price: US\$34.95. The follow-up to *Biodiversity*, edited by E. O. Wilson and Frances M. Peter, published in 1988. An Introduction by E. O. Wilson and 35 chapters organized under the following headings. *Part I* - The meaning and value of biodiversity (the first chapter asking what it is, by Thomas E. Lovejoy, and the second why it is important, by Ruth Patrick). *Part II* - Patterns of the biosphere: How much biodiversity is there?. *Part III* - Threats to biodiversity: What have we lost and what might we lose? *Part IV* - Understanding and using biodiversity. *Part V* - Building toward a solution: New directions and applications (includes a chapter by James M. Dietz on conservation of biodiversity in Neotropical primates). *Part VI* - Getting the job done: Institutional, human, and informational infrastructure. *Part VII* - Conclusions. Available from: Joseph Henry Press, 2101 Constitution Avenue N. W., Washington, D. C. 20418, USA.

Metapopulations and Wildlife Conservation, edited by Dale R. McCullough, 1996, 429pp. Island Press, Washington, D. C. Paperback. An understanding of metapopulation theory and analysis is critical to the modern practice of wildlife conservation and management. This volume provides a comprehensive overview of the subject, addressing the needs of an applied professional audience for comprehensible information to integrate into their practices. Leading conservation biologists, ecologists, wildlife managers, and other experts consider the emergence and development of metapopulation theory and explore its applicability and usefulness to real-world conservation programs. Available from: Island Press, Suite 300, 1718 Connecticut Avenue N. W., Washington, D. C. 20009, USA.

Grooming, Gossip, and The Evolution of Language by Robin Dunbar, 1996. Harvard University Press, Cambridge, MA. ISBN: 0-674-36334-5. Price: US\$22.95. Chatting plays the same role for us that grooming plays for monkeys and apes is the theme. A century of intensive research in linguistics, psychology, and speech science have taught us much about how language is produced, how it is structured, and how children learn it. Yet we know almost nothing about why we alone possess this extraordinary ability. Recent developments in evolutionary biology have far-reaching implications for understanding the nature and origins of human language. In this book, Robin Dunbar examines not only what we do with language, but also why we have it, where it came from, what the first languages sounded like, and how long ago

language first appeared. Looking at apes and monkeys, he first shows how like us they are in the intensity of their relationships—with their joys and frustrations, friends and enemies, whining children and exasperated parents. Their grooming is less about hygiene than about cementing bonds, making allies, and influencing others. Our talking, Dunbar argues, is a similar instrument of social order and cohesion. How did we get from grooming to gossip? For early humans, grooming to maintain relationships would have posed a serious problem. Given their large social groups of 150 or so, our earliest ancestors would have had to spend half their time grooming one another - an impossible burden that would interfere with other essential tasks. What Dunbar suggests is that humans developed language to serve the same purpose as grooming, but far more efficiently. He challenges the view that language developed among males during activities such as hunting in order to communicate such complex information as the location of prey. His studies suggest otherwise that language evolved in response to our need to maintain alliances with friends and family. Just as grooming has its limit, it does not work well in large groups, human language has restrictions we cannot overcome. Dunbar explores those restrictions in fascinating discussions of how many people a conversation can include before it falls apart, how large a committee can be before it is rendered ineffective, and the ways new communications technologies, from conference calls to the internet, clash with the limits of language and our inherited need for face-to-face contact. Available from: Harvard University Press, 79 Garden Street, Cambridge, Massachusetts 02138, EUA. Tel: 1-800-448-2242, Fax: 1-617-495-2600.

Canopy Arthropods, edited by Nigel E. Stork (Natural History Museum, London), Joachim Adis (Max-Planck Institute for Limnology, Plön), and R. K. Didham (Imperial College, London University), February 1997, c.500 pp. Chapman and Hall, London. Price c.£69.00. ISBN 0-412-74900-9. In the last twenty years there has been a dramatic increase in interest in the canopy of tropical and temperate trees due to a variety of factors. The role of forests, especially tropical forests, in carbon and water cycles, and hence global climate, is now widely recognized. As forests are cut down, altered, and fragmented the organisms that are associated with them are also affected. Predictions of species extinctions for animals and plants based on forest loss range from 1-10% of all species per decade. Comprising as they do the major part of animal species richness, this inevitably means that exceptionally large numbers of arthropods will become extinct. Studies of canopy arthropods have also been critical in providing new understanding of the total number of species on earth, with the the implication that most species are arthropods in the canopy of tropical forests. Canopy arthropod research has therefore played an important part in elevating biodiversity issues on the political agenda. This volume brings together for the first time the most

up-to-date work on canopy arthropods and includes many of the presentations at a two-day international symposium held in Manchester, UK, as part of the INTECOL Congress of Ecology in August 1994. The book is divided into five parts: *Part One* - Methods of studying arthropods in trees; *Part Two* - Community structure of Coleoptera assemblages; *Part Three* - Community structure of non-coleopteran assemblages; *Part Four* - The biology of canopy arthropods; *Part Five* - The management and conservation of canopy arthropods. Available from: Chapman and Hall, 2-6 Boundary Row, London SE1 8HN, UK, Tel: (0)171 865 0066, Fax: (0)171 522 9623.

I've Been Gone Far Too Long: Field Trip Fiascoes and Expedition Disasters, edited by Monique Borgerhoff Mulder and Wendy Logsdon, 1996, 296pp. RDR Books, Oakland, California. Paperback US\$14.95. An excellent, entertaining, close-to-the-bone for many, nicely presented, little book with 21 tales of mishaps, brief encounters, difficulties and cultural shocks and even love affairs, by field workers, a number of them primatologists. There is a preface by John Heminway, an afterword by Nigel Barley, and five sections which clearly indicate the book's contents. *Section I: Terrible Mistakes*: The Gun by Kelly Stewart; The Great Parrot Hunt by James Serpell; and The Stubborn Snake by Monica Udvardy and Thomas Hakansson. *Section II: Physical Dangers*; Bushmaster in the Bidet by Richard O. Bierregaard, Jr.; The Ghost in the Machine by Phyllis Lee; An East African Survival Course by Herbert H. T. Prins; and Wildlife in Kilgoris Hospital by Pieter van den Hombergh. *Section III: Coping with Adversity*: Paper Trail to the Rain Forest by Lisa Halko and Marc Hauser; My Family, Food, and Fieldwork by A. Magdalena Hurtado; Little Criminals by Truman P. Young; and The Hottest Data in Town by Tim Caro. *Section IV: Clash of Cultures*: A Trip to the Che-Wong by Elizabeth L. Bennett; Social Anthropology at the Emali Hotel by Dorothy L. Cheney; Gitangda Is Great by Monique Borgerhoff Mulder; and Bush-League Medicine by Kate Kipischke. *Section V: Research Communities*: In the Forest Without a Dog by Andrew Grieser Johns; Siete de Enero by Margaret Symington; Jungle Love by John Symington; The Birth and Death of a Very Fine Pit by Ronald E. Cole; Innocents Abroad by Robin Dunbar; and Back Seat Observers by David Bygott and Jeannette Hanby. A final section describes who the unfortunates or lucky people were in all these comic (often only on hindsight) tales. *The author royalties from the book are being donated to the Wildlife Conservation Society and Cultural Survival for their conservation, education, science, and human rights programs.* Highly recommended, especially for those about to embark on field trips. Available from: RDR Books, 4456 Piedmont Avenue, Oakland, California 94611, USA, Tel: (510) 595 0595, Fax: (510) 595 0598, e-mail: rdrbooks@lanminds.com.

Evolution and Environment in Tropical America, edited by Jeremy B. C. Jackson, Ann F. Budd and Anthony G. Coates, 1996. The University of Chicago Press, Chicago. ISBN 0 226 38942 1 (Cloth), ISBN 0 226 38944 8 (Paperback). Contents: Evolution and environment: Introduction and overview - J. B. C. Jackson and A. F. Budd; The geologic evolution of the Central American isthmus - A. G. Coates and J. A. Obando; Graphic correlation of marine deposits from the Central American isthmus: Implications for Late Neogene paleoceanography - H. J. Dowsett and M. A. Cotton; Biotic and oceanographic response to the Pliocene closing of the Central American isthmus - T. M. Cronin and H. J. Dowsett; The oxygen isotopic record of seasonality in Neogene bivalves from the Central American isthmus - J. L. Teranes, D. H. Geary and B. E. Bemis; Environmental changes in Caribbean shallow waters relative to the closing tropical American seaway - L. S. Collins; Plio-Pleistocene turnover and extinctions in the Caribbean reef-coral fauna - A. F. Budd, K. G. Johnson and T. A. Stemmann; Speciation, extinction, and the decline of arborescent growth in Neogene and Quaternary cheilostome Bryozoa of Tropical America - A. H. Cheetham and J. B. C. Jackson; Paciphilia revisited: Transisthmian evolution of the *Strombina* Group (Gastropoda: Columbellidae) - J. B. C. Jackson, P. Jung and H. Fortunato; Diversity of Pliocene-Recent mollusks in the western Atlantic: Extinction, origination, and environmental change - W. D. Allmon, G. Rosenberg, R. W. Portell and K. Schindler; Molecular comparisons of Transisthmian species pairs: Rates and patterns of evolution - T. Collins; Late Cenozoic evolution and the neotropical mammal fauna - S. D. Webb and A. Rancy; Quaternary environmental history and forest diversity in the Neotropics - P. A. Colinvaux. Available from: University of Chicago Press, 11030 South Langley Avenue, Chicago, Illinois 60628, USA.

Social Stratification and Socioeconomic Inequality. Volume 1: A Comparative Biosocial Analysis. Volume 2: Reproductive and Interpersonal Aspects of Dominance and Status, edited by Lee Ellis. Volume 1 - 1993, 256pp. ISBN 0-275-93262-1. Price: US\$59.95. Volume 2 - 1994, 262pp. ISBN 0-275-94526-X. Price: US\$65.00. Forewords by Lionel Tiger (Vol. 1) and Robert D. Retherford (Vol. 2). This two-volume series gives serious consideration to both biological and social environmental influences on social stratification and human inequality. Available from: GPG Greenwood Publishing Group, Inc., 88 Post Road West, P. O. Box 5007, Westport, CT 06881-5007, USA, Tel: (203) 226-3571, Fax: (203) 222-1502.

The Multimedia Guide to The Non-Human Primates, by Professor Frances Burton, University of Toronto, with Matthew Eaton. There are 3 versions including CD-ROM for Macintosh. ISBN: 0-13-210899-2. Available from: Prentice Hall/Simon and Schuster, The Order Processing Center, P. O. Box 11071, Des Moines, IA 50336-1071, USA. Tel: 1-800-947-7700, Fax: 515-284-2607.

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Meetings

1997

XII Congress of the Italian Primatological Association, 16-19 April 1997, Turin, Italy. Focus of main sessions: (1) Molecular biology, cytogenetics and systematics and (2) Ecology and behaviour. Contact: Augusto Vitale, Section of Comparative Psychology, Laboratorio di Fisiopatologia o.s., Istituto Superiore di Sanita, Viale Regina Elena, 299, 00161 Rome, Italy, Tel.: 39-6-49902107, Fax: 39-6-4957821, e-mail: fos@iss.it.

VII Iberoamerican Congress for Biodiversity and Vertebrate Zoology, 22-25 April, 1997, University of Concepción, Concepción, Chile. The objective of the congress is to bring together researchers from Spain, Portugal and Latin America to discuss and exchange information at the highest level on the directions and advances concerning biodiversity, conservation, and zoology of vertebrates. The Congress will cover the following topics: Biology of Development, Biology of Conservation, Decline of Species, Biodiversity, Ecology, Ethology, Evolution, Physiology, Phylogenetics, Genetics, Morphology, Paleontology, Parasitology, Fisheries, Protection and Management of Wildlife, Taxonomy and Zoogeography. The Proceedings will be published in the journals *Gayana* and *Boletín de La Sociedad de Biología de Concepción*. Fees: Students until 30/09/96 = US\$25, until 31/12/96 = US\$35, at the Congress = US\$50; Professionals until 30/09/96 = US\$70, until 31/12/96 = US\$85, at the Congress = US\$100. Payment: 1. Electronic transfer; Bank of America 6550-1-28650. 2. Check made out to the Universidad de Concepción. Electronic information available from the homepage: <http://buho.dpi.udec.cl/~cibiozve/>. Contact: Presidente Comité Organizador: Dr. Juan Carlos Ortiz, VIII Congreso Iberoamericano de Biodiversidad y Zoología de Vertebrados, Departamento de Zoología, Universidad de Concepción, Casilla 2407, Concepción, Chile, Tel: (56) 41 234985 x 2157 or 4152; (56) 41 204672, Fax:(56) 41 243379, e-mail: jortiz@halcon.dpi.udec.cl.

New World Primate Symposium: Improving Captive Environments for Cebids, 18 May 1997, hosted by the Cleveland Metroparks Zoo in conjunction with the American Association of Zoos and Aquariums (AZA) Central Regional Conference. Registration for the one-day symposium is US\$30.00. Participants are invited to speak on a wide variety of topics about cebids. Please contact Lee Nesler, General Curator, Pittsburgh Zoo, Tel: (412) 665-3651, Fax: (412) 665-3925, email: nesler@zoo.pgh.pa.us, to obtain registration information and abstract/poster submission forms. Contact Alan Sironen, Curator of Mammals, Cleveland Metroparks Zoo, 3900 Brookside Park Drive, Cleveland, OH 44109, USA, Tel: (216) 661-6500, Fax: (216) 661 3312, for all other information.

Primer Congreso Latinoamericano de Parques Nacionales y otras Áreas Protegidas, 21-28 del Mayo de 1997, Santa Marta, Colombia. Entre los objetivos más importantes del Congreso, se encuentra el efectuar un análisis de los progresos alcanzados en la región en los últimos cinco años, desde febrero de 1992, y de las experiencias más exitosas de estos años. Así mismo, el evento se propone elaborar un diagnóstico de la situación actual en parques nacionales y otras áreas protegidas y definir las prioridades así como las estrategias para los próximos cinco años, antes del Congreso Mundial de Parques Nacionales que ha de realizarse en África en 2.002. Ministerio del Medio Ambiente, Colombia, Organización de las Naciones Unidas para la Agricultura y la Alimentación (FAO) - Oficina Regional para América Latina y el Caribe, Unión Mundial para la Naturaleza (IUCN) - Comisión Parques Nacionales y Otras Áreas Protegidas, Red Latinoamericana de Cooperación Técnica en Parques Nacionales, Otras Áreas Protegidas, Flora y Fauna Silvestres. Información: Secretaría Técnica Internacional de la Red Latinoamericana de Cooperación Técnica en Parques Nacionales, Otras Áreas Protegidas, Flora y Fauna Silvestres, Kyran D. Thelen, Oficial Regional Forestal, Oficina Regional de la FAO para América Latina y el Caribe, Bandera No. 150, 7 a 10 piso, Casilla 10095, Santiago, Chile, Tel: (562) 699 1005, Fax: (562) 696 1121, (562) 696 1124.

Zoological Society of London Scientific Meeting: Winner Takes All? Social Control of Reproduction in Cooperative Breeders, 10 June 1997, Meeting Rooms, Zoological Society of London, London. Admission free. Contact: The Zoological Society of London, Regent's Park, London NW1 4RY, London, UK. Tel: +44 (0)171 449 6272.

Annual Meeting of the Animal Behavior Society, 21-26 June, 1997, University of Maryland, Maryland, USA. Contact: ABS 1997, Conference and Visitor Services, 0101 Annapolis Hall, College Park, Maryland 20742-9122, USA. Fax: +1 301 314 6693, Web site: WWW: http://www.cisab.indiana.edu/animal_behavior.html.

XX Meeting of the American Society of Primatologists, 27-30 June 1997, Bahia Hotel, San Diego, California. Hosted by California State University at San Marcos. Deadline for abstracts: January 15 1997 postmark. Program and abstracts will be published in the June issue of *Am. J. Primatol.* 42(2). The program will include four invited addresses, a symposium - Cognition in the Wild, five workshops, a pre-conference workshop, 91 oral papers (in 10 sessions), and 71 posters (in two evening sessions). Chair Program Committee, Evan L. Zucker, Department of Psychology, Box 194, Loyola University, New Orleans, LA 70118, USA, Tel: (504) 865 3255, Fax: (504) 834 4085, e-mail: zucker@beta.loyno.edu. For more information, contact: Nancy Caine, Psychology Department, California State University, San Marcos, California 92096,

USA. Tel: (619) 752-4145, Fax: (619) 752-4111, e-mail: nancy_caine@csusm.edu.

ASAB Summer Meeting "Biological Aspects of Learning", 2-4 July, 1997, University of St. Andrews, Scotland, UK. Association for the Study of Animal Behaviour (ASAB). Organized by Peter Slater. It is hoped to include talks on a wide variety of animal groups, and ranging from neurobiological aspects of learning to social learning and imitation. Main lectures will be given by Randolph Menzel (Learning and memory in the honey bee), Meredith West (Social development), Peter Tyack (Vocal learning in cetaceans), and Andrew Whitten (Imitation and social learning in primates). Offers of talks or posters, the latter not necessarily restricted to the main subject of the meeting, will be welcomed, and should be sent to: Professor Peter Slater, School of Biological and Medical Sciences, University of St. Andrews, Bute Medical Building, St. Andrews KY16 9TS, Scotland, UK, Tel: +44 (0)1334 463500, Fax: +44 (0) 1334 463600, e-mail: pjbs@st-andrews.ac.uk.

The Royal Society Meeting, "Evolution of Biological Diversity: From Population Differentiation to Speciation", 9-10 July 1997. A discussion meeting at The Royal Society, Carlton House Terrace, London, UK. Organized by Robert May and Anne Magurran. Contact: The Science Promotion Section, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG, UK, Tel: +44 (0)171 839 5561, Fax: +44 (0)171 930 2170.

Fifth International Congress of Vertebrate Morphology, 12-17 July, 1997, University of Bristol, Bristol, UK. Organized by the International Society for Vertebrate Morphologists. All those interested in vertebrate morphology and related areas are invited to attend. Suitable topics for discussion at the meeting include all aspects of vertebrate morphology, including anatomy, evolution, development, biomechanics and locomotion, vertebrate palaeontology, ecological morphology, morphological aspects of behaviour, cell structure and function, neurobiology and neuroanatomy, and morphometric and other methods. The closing date for submissions is 16 December 1996. Contact: Professor J. M. V. Rayner, School of Biological Sciences, University of Bristol, Woodland Road, Bristol BS8 1UG, UK, Fax: +44 (0)117 925 7374, e-mail: icvm97@bristol.ac.uk, WWW: <http://www.bio.bris.ac.uk/icvm.html>.

VIII Congresso Brasileiro de Primatologia, 10-15 August, 1997, João Pessoa, Paraíba, Brazil. Deadline for submission of abstracts: 10 May 1997. Contact: Carmen Alonso, Sociedade Brasileira de Primatologia, Departamento de Sistemática e Ecologia - CCEN, Universidade Federal da Paraíba, 58059-900 João Pessoa, Paraíba, Brazil, Tel: +55 (0)83 216 7471, Fax: +55 (0)83 216 7464, e-mail: sagui@vm.npd.ufpb.br.

XXV International Ethological Conference, 20-27 Au-

gust, 1997, Vienna, Austria. This meeting will highlight new synthetic approaches to problems in animal behavior, and links between behavior and other disciplines, including neurobiology, sensory physiology, population ecology, conservation biology, and evolution. Deadlines: Submission of abstracts, budget registration, financial aid application - 28 February 1997; Hotel reservation, standard registration - 15 July 1997. For additional information, contact: XXV IEC, Wiener Medizinische Akademie (WMA), Alser Strasse 4, A-1090 Vienna, Austria, Tel: +43 1 405 1383 21, Fax: +43 1 405 1383 23, e-mail: medacad@via.at.

Forum on Wildlife Telemetry: Innovations, Evaluations and Research Needs, 21-23 September, 1997, Snowmass, Colorado, USA. In conjunction with 1997 Annual Conference of the Wildlife Society. Contact: Jane Austin, National Biological Service, Northern Prairie Science Center, Jamestown, North Dakota 58401. Tel.: +1-701 252-5363, Fax: +1-701-252-4217, e-mail: jane_austin@nbs.gov.

Vth Congress of the German Primatological Society, 1-5 October, 1997, Berlin, Germany. A meeting of the Council of the European Federation for Primatology will be held on 5 October. Contact: Prof. Dr. Carsten Niemitz, Freie Universität Berlin, FB 23, WE 5, Fabeckstrasse 15, D-14195 Berlin, Germany. Tel: +49 (0)30-838-2900, Fax: +49 (0) 30-838-6556, e-mail: cniemitz@zedat.fu-berlin.de.

Cold Spring Harbor Symposium on Human Evolution, 4-8 October, 1997, Long Island, New York. Organized by Luigi Cavalli-Sforza and James Watson (President of CSHL). Five sessions will cover human molecular evolution (e.g., mitochondrial DNA, Y chromosomes, genetic markers). Other sessions include paleoanthropology, genetic variation and multifactorial disease, and primate behavior. Frans B. M. de Waal is organizing a session "Primate Behavior and the Reconstruction of Human Social Evolution." Invited speakers include Robin Dunbar, Richard Wrangham, Karen Strier, Anne Pusey and Bill McGrew. There will also be Poster Sessions for which abstracts can be submitted. The official abstract deadline is July 16, 1997. Further information is expected soon at the following WWW site: <http://www.cshl.org/meetings/97evol.htm>.

3rd International Conference on Wildlife Management in Amazonia, 3-7 December, 1997, Santa Cruz, Bolivia. Co-organized by the School of Agricultural Science of the Universidad Autonoma "Gabriel René Moreno", the Natural History Museum "Noel Kempff Mercado", and the Tropical Conservation and Development Program of the University of Florida. This event will be a forum for practitioners, students, researchers and other professionals from all parts of Central and South America to evaluate approaches, share knowledge and exchange ideas about wildlife and fisheries, conservation and management,

biodiversity, the environment, and sustainable development, along with other themes intimately linked with Amazonian wildlife. Since the problems of wildlife and fish of the Amazon basin are similar to those of most Neotropical regions, we invite all those interested in these issues to participate. Sharing experiences throughout the Americas will be beneficial to all aspects of wildlife management, conservation and sustainable development. The Conference will be a forum to review recent research and management programs and discuss how to integrate information on wildlife and fisheries population biology with the socio-economic realities of rural people to insure sustainable use. The conference will host a variety of symposiums and workshops, including several IUCN/SSC Specialist Group Meetings and a workshop to evaluate community-based wildlife management in Amazonia. The Conference builds on the success of the previous meetings on Wildlife Management in Amazonia, which were hosted in Belem, Brazil in 1992 and Iquitos, Peru in 1995. Call for Papers: Persons interested in presenting papers are requested to submit abstracts (maximum 200 words) for review and selection by 1 June 1997. Please send abstracts via e-mail to: tcd@tcd.ufl.edu. Please do not send as attachments. For more information. *National participants and observers*: National Conference Coordinator, Dr. Mario Suárez Riglos, Facultad de Ciencias Agrícolas, Universidad Autónoma "Gabriel René Moreno", Museo de Historia Natural "Noel Kempff Mercado", Casilla 1321, Santa Cruz de la Sierra, Bolivia, Tel/Fax: (591) 336-6574. *International participants and observers*: International Conference Coordinator, Dr. Richard Bodmer, Tropical Conservation and Development Program, University of Florida, P.O. Box 115531, Gainesville, FL. 32611-5531, USA, Tel: (352) 373-3186, Fax: (352) 392-0085, e-mail: tcd@tcd.ufl.edu. For updated information, please visit the conference web site at: <http://www.tcd.ufl.edu/tcd/congres3>.

ASAB Winter Meeting 1997 "Behaviour and Conservation", 4-5 December, 1997, Zoological Society of London, Regent's Park, London, UK. Association for the Study of Animal Behaviour (ASAB). Organized by Morris Gosling and Mark Avery. The organizers aim to use the meeting as the basis for a multi-author book. Current ideas for possible contents include links between mating systems/dispersal and genetic structure of populations; dispersal and other movements in relation to habitat fragmentation and reserve design; individual foraging behaviour and habitat carrying capacity; mate choice, signalling, and manipulation of captive breeding; learning and pre-release training; and practical use of behaviour in conservation (eg., use of songs for censusing). Contacts: Professor Morris Gosling, Institute of Zoology, Zoological Society of London, Regent's Park, London NW1 4RY, UK, Tel: +44 (0)171 449 6600, Fax: +44 (0)171 586 2870, e-mail: suaalmh@ucl.ac.uk, or Dr. Mark Avery, RSPB, The Lodge, Sandy, Beds. SG19 2DL, UK, Tel: +44 (0)1767 680551,

Fax: +44 (0)1767 692365, e-mail: bird@rsps.demon.co.uk.

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VII International Congress of Ecology, New Tasks for Ecologists after Rio 92, 19-25 July 1998, Centro Affari & Palazzo Internazionale Congressi, Florence, Italy. Organized by the International Association for Ecology (INTECOL) in conjunction with the Italian Ecological Society (SItE). Themes include: Perspectives in global ecology; Perspectives for the ecological management of natural resources; Problems and perspectives in Mediterranean ecosystems; Diversity concepts at different scales; Perspectives in ecological theory and modeling; Key issues in aquatic ecosystems; Perspectives in landscape ecology; Perspectives in sustainable land use; Key issues in microbial ecology; Patterns and interactions in populations and communities; Perspectives in environmental chemistry and ecotoxicology; Integrating ecology into economic and social development; Ecological engineering; Progresses in ecological education. Contact: Almo Farina, Vice-President INTECOL, Secretariat VII International Congress of Ecology, Lunigiana Museum of Natural History, Fortezza della Brunella, 54011 Aulla, Italy, Tel: +39 187 400252, Fax: +39 187 420727, e-mail: afarina@tamnet.it, web site: <http://www.tamnet.it/intecol.98>.

Euro-American Mammal Congress, 20-24 July, 1998, University of Santiago de Compostela, Galicia, Spain. Organized under the auspices of the American Society of Mammalogists (ASM), Societas Europea Mammalogica (SEM) and the Sociedad Española para la Conservación y el Estudio de los Mamíferos (SECEM). Also participating: University of Santiago de Compostela (USC) through its Colleges of Sciences and Pharmacy as well as the Consejería de Agricultura, Ganadería, y Montes of the local government (Xunta de Galicia) through the intermediacy of its Dirección General de Montes y Medio Ambiente Natural. The meeting will emphasize the cutting edge and little known aspects of scientific knowledge of mammalian species, and communities and ecosystems of the Holarctic. However, contributions of interest relating to mammals from other regions will also be welcomed. Contributions will be grouped in sessions that will cover general subjects, symposia or workshops. General matters currently projected: Behavioral Ecology, Biogeography, Community Ecology, Conservation, Development, Molecular Systematics, Morphology and Morphometrics, Natural History, Paleontology, Parasites and Diseases, Physiology, Population Dynamics, Population Genetics, Systematics and Evolution, and Wildlife Management. Those interested in organizing a symposium should contact a member of the Steering Committee. Deadlines for proposals: 11 March 1997. The organizers request that electronic mail be used for contact whenever possible. For more information, all queries and requests: [*pinar1.csic.es*. Circulars will also be sent by electronic mail, and distributed through a variety of distribution lists and list servers. Postal address: Euro-American Mammal Congress, Laboratorio de Parasitología, Facultad de Farmacia, Universidad de Santiago de Compostela, 15706 Santiago de Compostela, Spain, Fax: \(34\) 81 593316.](mailto:galemys@</p>
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XVII Congress of the International Primatological Society, 27 September - 2 October, 1998, Antananarivo, Madagascar. Contact: Secretariat XVII IPS Congress, Madame Berthe Rakotosamimanana, Faculté des Sciences, Batement P, Porte 207, BP 906, Antananarivo 101 Madagascar. Tel: 261 (03) 805 70, e-mail: ralaiari@syfed.refer.mg.

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. Manuscripts should be double-spaced and accompanied by the text in diskette for PC compatible text-editors (MS-Word, Wordperfect, Wordstar). Articles, not exceeding six pages, can include small black-and-white photographs, high quality figures, and high quality maps, tables and references, but please keep them to a minimum.

Please send contributions to: **ANTHONY RYLANDS**, c/o Conservation International do Brasil, Avenida Antônio Abrahão Caram 820/302, 31275-000 Belo Horizonte, Minas Gerais, Brazil, Tel/Fax: +55 (31) 441 17 95 or **ERNESTO RODRÍGUEZ-LUNA**, Parque de La Flora y Fauna Silvestre Tropical, Instituto de Neurootología, Universidad Veracruzana, Apartado Postal 566, Xalapa, Veracruz 91000, México, Fax: 52 (28) 12-5748.

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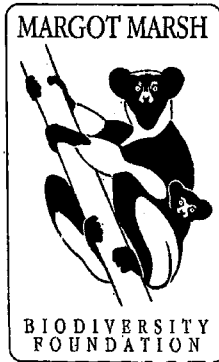
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