

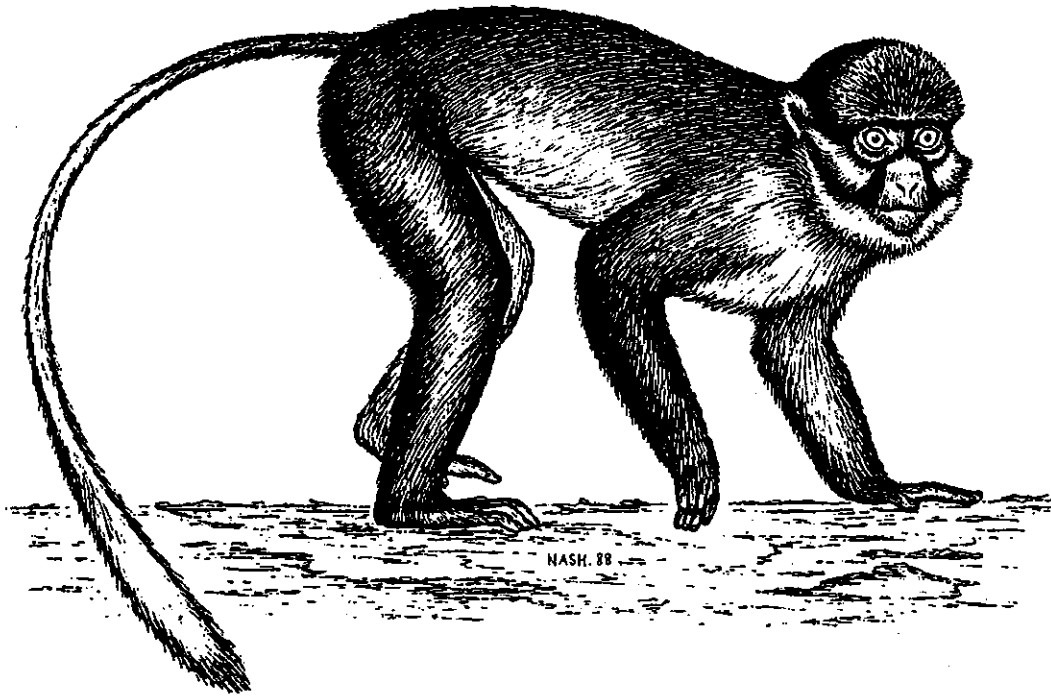
AFRICAN PRIMATES

*The Newsletter of the Africa Section of
the IUCN/SSC Primate Specialist Group*

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PSG Chairman: Russell A. Mittermeier
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EDITORIALS

LETTER FROM THE EDITOR

Welcome to the second issue of *African Primates*. I sincerely hope that you found the first issue interesting, informative and useful in your efforts to conserve Africa's primate fauna.

The first comment I want to make on this issue, and the first thing many of you will notice, is the near absence of articles in French. The majority of Africa's most interesting, unique and endangered primates, and many of the continent's most distinguished primatologists, are in Francophone countries. One goal of *African Primates* is to have at least one-third of its articles and news items in French. Please help us rectify this situation.

You will probably never see a letter from me in which there is not a request for contributions to *African Primates*. This newsletter depends on its readership to provide materials for publication, particularly articles which highlight conservation problems and achievements, and which present the findings of field surveys. Articles are badly needed for the next two issues. When preparing materials for *African Primates*, please follow closely the guide-lines on the inside back cover of each issue. Line drawings of African primates are also needed.

The commercial trade in bush meat, and its links with the logging industry in West and Central Africa, is of growing concern, especially to primate conservationists. For some primates, particularly the great apes, the bush meat trade is now viewed by some as a greater threat than habitat loss. More information on this subject and discussions of this problem will, I hope, appear in future issues of this Newsletter.

Another subject that would be of considerable practical interest to many readers of *African Primates* is the topic of African great ape tourism. Is it really a conservation tool? Is it "good conservation"? Who really benefits? How can its benefits to conservation be enhanced? Do we really know what we are doing? Is it sustainable? What is the scientific basis? What are the roles of economics and politics? What are the risks? Have we evaluated the risks? How can the risks be minimised? How much tourism is enough? Is it an acceptable approach to conserving highly endangered populations? Does this activity raise questions of animal rights and animal welfare?

If you have information, ideas or opinions on the above two subjects, please consider writing them down, submitting them to *African Primates*, and sharing them with the rest of us.

Some of you will be interested to know that this newsletter is now on Primate Info Net (PIN). Go to: <http://www.primate.wisc.edu/pin/newslett.html>.

The Productions Editor for the first issue, Dr Edward Vanden Berghe, has returned to Belgium. Edward deserves much of the credit for launching this newsletter. Ms Lorna Depew has taken over this role. Lorna is a zoologist and editor with many years of experience in Africa, having worked in Ghana, Zimbabwe and now, Kenya.

Thanks to all the contributors to this second *African Primates*, to the Editorial Board, to Ms Veneita Mullins of Zoo Atlanta for compiling the Newsletter's mailing list of over 1,000 names and addresses, and to Mr Stephen Nash for continuing to provide an excellent series of primate drawings for the cover.

Special thanks go, once again, to the National Museums of Kenya for providing this Newsletter with a "home in Africa", and to Zoo Atlanta for meeting the considerable costs of compiling, producing and distributing *African Primates*.

Tom Butynski

ARTICLES

UPDATE ON SCLATER'S GUENON *CERCOPITHECUS SCLATERI* IN SOUTHERN NIGERIA

Abstract

Sclater's guenon *Cercopithecus sclateri* is endemic to southern Nigeria and is one of Africa's most endangered primates. This paper describes two new locations for this species and re-confirms a third site. Recommendations are made for the conservation of this species and for further research.

Introduction

Sclater's guenon *Cercopithecus sclateri* (see cover drawing), endemic to southern Nigeria, east of the Niger River and west of the Cross River, is one of several closely related allopatric species within the superspecies of *C. cephus* (Kingdon, 1980; Lernoold, 1988). This species first became known to science when a young male monkey of unusual appearance was given to the London Zoo in 1902. Recognising this monkey as different from any previously described species, R.I. Pocock named it *Cercopithecus sclateri*. A single specimen in the London Museum of Natural History, collected in

1934, placed Sclater's guenon between the Niger and Cross Rivers (Oates *et al.*, 1992). Since 1987, researchers have pieced together the distribution of this endangered primate, identifying only five small and isolated populations (Utuma, Stubbs Creek, Akpugoeze, Osomari, Lagwa) in the Niger-Cross interfluvium (Oates & Anadu, 1989; Oates *et al.*, 1992). All but two sacred populations remain unprotected, threatened by extensive deforestation and hunting in this heavily populated area (Oates *et al.*, 1992), which is particularly diverse in primates. According to interviews and observations, *C. sclateri* is sympatric over much of its range with *Perodicticus potto*, *Arctocebus calabarensis*, *Cercocebus torquatus*, *Cercopithecus mona* and *Cercopithecus nictitans*.

C. sclateri is now considered one of the highest priority species by the IUCN/SSC Action Plan for African Primate Conservation (Oates, 1986, 1994). There are no current population estimates, but all indications are that *C. sclateri* is on the brink of extinction, hanging on in fragmented, threatened habitat of, in most cases, less than a few square kilometres. Exceptions are Stubbs Creek Forest Reserve, approximately 80 km² of relatively undisturbed core (Gadsby & Jenkins, 1989), and possibly areas of the Niger Delta west of Port Harcourt (B. Powell, pers. comm.). As such, each remaining population is critical to the continued survival of this endangered primate.

This report describes two previously unknown locations (Blue River, Enyong Creek/Ikpa River), and re-confirms a third site (Stubbs Creek) where evidence for *C. sclateri* was based on hunter interviews and a single skin in 1989.

Results

Blue River, Azumini, Abia State

Blue River is deep, clear, and fast, flowing south past Azumini Village through degraded lowland tropical forest, into the Imo River (fig. 1). Small scale tourism exists here in the form of the "Azumini Blue River Beach" organisation. During a recreational excursion to Blue River in early 1994, the author first observed *C. sclateri* on the river bank during mid-morning. This was a great surprise, as observations of primates in southern Nigeria are extremely rare. A follow-up boat survey was conducted and proprietors of the local tourist industry were interviewed.

The boating cooperative and beach business has been operating since 1972 and currently has 16 beaches. During dry season weekends as many as 10–12 beaches may be occupied by tourists (primarily expatriates). Some beaches are leased

for one year by large companies in nearby towns. The interviewees mentioned that there were two types of monkeys on the river; "white monkey" and "black monkey". They mentioned that Igbo inhabitants of Azumini Village hold the monkeys sacred and do not hunt or eat them.

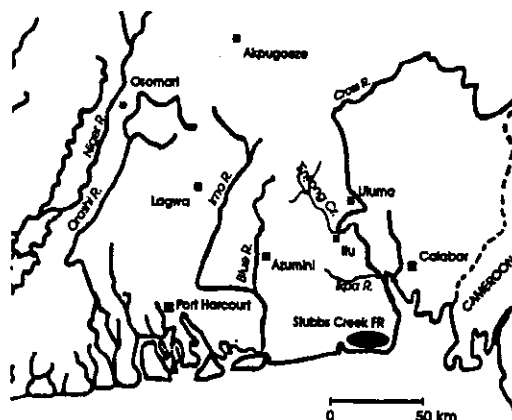


Figure 1. Map of southeast Nigeria indicating the known locations of Sclater's guenon as discussed in this paper.

With two boatmen and a young boy as "spotter", we traversed between 4 and 5 km of river four times, travelling between 2 and 6 km from 1300 to 1730 h. I observed two groups of *C. sclateri*, one group of *C. mona* and heard a fourth, unidentified, group moving through the trees. Both groups of *C. sclateri* were small (estimated ≤ 7). No dependent infants were observed. Swamp forest was thick at the river edge, there were few signs of fishing activity on this section of river, and few other boats were observed.

Enyong Creek and Ikpa River, Uyo, Akwa Ibom State

International consultants for the Enyong Creek Swamps Rice Feasibility Study reported the possible presence of *C. sclateri* in the swamp forests of Enyong Creek and Ikpa River (DHS & Halcrow Consultants, 1994). Located west of the Cross River, southwest of Utuma and north of Stubbs Creek Forest Reserve, in one of the most heavily populated areas of Nigeria (fig. 1), the area supports an estimated human population of more than 260,000 (Enyong Creek 168,000; Ikpa River 98,000)—(DHL & Halcrow Consultants, 1994). There are two main swamp regions, one (46 km²) along and east of the Ikpa River, close to the large city of Uyo, the second (74 km²) along the Inyang and Enyong Creeks north of Itu Village (fig. 1). Fishing, farming and "tapping" (for local gin) are reported to be the primary sources of income. Although there are hunters in every village, income

from other sources is much more important. Hunting is done primarily at night using carbide lamps. Most meat is said to be sold fresh, rather than smoked, to local palm wine bars. Hunting is markedly seasonal, due primarily to the nature of these seasonally flooded swamp forests.

Hunter interviews were conducted at three villages along Ikpa River, Enyong Creek and Igwu River (upper Enyong Creek). These were followed by river surveys using a dugout canoe.

Interviews

Interviews varied in reliability and detail of data collected, and descriptions were often confusing and inconclusive. In addition, within the same language group (in this case Ibibio), descriptions and names of the same species varied according to subtle differences in dialect and perceived importance of various characters, often relative to other species in the area. For example, *C. mona* is often described as "white monkey" because of its extremely white underbelly which contrasts sharply with the black extremities and chestnut back. However, in Mbiakong on the Ikpa River, *C. mona* was referred to, according to its call, as "nyeia monkey" ("ebok nyeia") ("ebok" is the general Ibibio word for monkey). It is therefore difficult to obtain comprehensive and accurate information through interviews alone, and it is essential to confirm this information with field observations.

Two hunters at Ikpa River who hunt northeast and southwest from the village (large swamps along the east of the Ikpa River), described three types of monkeys: "ikpok ebok" (possibly *Cercocebus torquatus*); "ebok nyeia" (*C. mona*; hunters imitated its contact call perfectly); and "anwan ndat ebok" (ndat = red; possibly *C. sclateri*, but descriptions were too vague to be conclusive).

Two hunters at Enyong Creek who hunt south of the village in the rainy season, north in the swamps around the Enyong Creek in the dry season (October–April), described two types of monkeys: "ubet ebok" ("black monkey"; probably *C. sclateri* as they gave perfect imitations of the alarm call) and "ebok okpukpa" ("monkey who eats maize", described as common crop pests; possibly *C. aethiops tantalus*). One interview at Igwu River was incomplete. At the point the interview stopped, two hunters had described two monkeys, *C. nictitans* and *C. mona*, perfectly by voice and appearance.

Surveys

Forty-three km of creeks (31 km along Ikpa Creek and east, and 12 km along Igwu River and Enyong River) were surveyed in early October, 1994, either in the early morning or in the late afternoon/early

evening. Over 14 h were spent in total, using dugout canoes travelling between 2.5 and 7 km/h, depending on water conditions. All creeks were extremely full and fast flowing, requiring some skill to negotiate. Sandy, murky waters flowed in from numerous small tributaries. All were also reported to be negotiable during the dry season although, in some instances, only with the smallest dugout canoes.

C. sclateri were observed on two occasions. We saw a group of *C. sclateri* just east of Mbiakong on the north bank of the East Ikpa River. We first heard loud calls, then entered the swamp and observed a large male. Others were heard moving back into the swamp. At 1730 h we heard a single monkey settling into the trees but we were unable to confirm the species. The second sighting was of a single large *C. sclateri* at the east bank of the Igwu River (upper Enyong Creek) at 1800 h. This individual gave a loud alarm call and fled into bush. We heard a second animal calling far away. No other primates were heard or observed.

The Igwu is a difficult and fast river, passing through impressive primary forest in the first few kilometres. We saw little boat traffic as we passed a few small settlements, with cocoa yam farms at the river edge.

Stubbs Cr ek, Akwa Ibom State

Stubbs Creek Forest Reserve (300 km²) contains the largest intact block of forest (80 km²) remaining in Akwa Ibom State (Oates, 1990) (fig. 1). *C. sclateri* was first identified here in 1989 through hunter interviews, and confirmed several months later by a single skin delivered by an area hunter (Gadsby & Jenkins, 1989). There have been no further zoological surveys and no confirmed sightings. A conservation programme operating in 1992–94 (Oates *et al.*, 1992) provided virtually no protection to the area, and corporate funders are disillusioned with current progress (L. Gadsby, pers. comm.). A short preliminary visit by boat was made in an attempt to gain up-to-date confirmation of *C. sclateri* by sight or sound. An opportunity to evaluate current habitat status was presented by the offer of a brief helicopter overflight of the area.

Leaving Calabar, Cross River State in the early morning by motor boat, we continued by kayak into Stubbs Creek Reserve from Esuk Uyene, travelling approximately 1.5 h up Stubbs Creek. There had been substantial clearing close to the creek, particularly just west of the village, but this became less frequent as one travelled west into Stubbs Creek. A single large *C. sclateri* was observed crossing the creek. The location was a 45 min paddle beyond the village. Sounds of movement indicated that at least two others were present but

no more were observed and none of the group vocalised. Aerial observations were made from 150 m, travelling along Stubbs Creek from west to east (photographs taken with a 135 mm zoom lens). Although there are some substantial clearings, particularly close to the banks of the creek, large blocks of forest still remain.

Conclusions

At Blue River *C. sclateri* is sympatric with *C. mona* at least. This location has possibly the highest density of *C. sclateri* of all three sites, although it is the least promising in terms of available habitat. Despite this, the precarious nature of the future of *C. sclateri*, the taboo against hunting and eating monkeys, and the presence of small-scale tourism, all speak strongly for some intervention to enhance the future of this population. It could potentially become an ideal venue for raising the profile of *C. sclateri*, both locally and internationally (resident expatriates already visit the area). Since there is an active taboo against killing the monkeys, their protection, and the protection and possible regeneration of swamp forest, may be enhanced with relatively little effort, particularly if the monkeys are viewed as a valuable resource which brings more tourist revenue to the area. Large international companies that already lease beaches here may be easily persuaded to participate in enhancing the profile and protection of *C. sclateri*.

Further work is needed at Blue Creek to determine: (1) how many troops of each monkey species live on the banks of the river north and south of Azumini, and if any are reproducing; (2) the extent of the swamp forest; (3) what, and how prevalent, are the beliefs which hold monkeys sacred; (4) possible corporate sponsors (Tooze, 1994).

As assessed from the creek survey and from aerial photographs, there is substantial, reasonably intact, forest habitat remaining in the swamp forests of Enyong Creek and Ikpa River. *C. sclateri* is present in both the northern and southern blocks of forest. It is sympatric with *C. mona* and, in some areas, possibly also with *C. nictitans* and *C. aethiops tantalus* and/or *C. torquatus*. Although the human population pressure here is great, the swamp forests have persisted when all other forests of Akwa Ibom State have virtually disappeared (with the exception of Stubbs Creek). Any conservation initiative would have to be carefully implemented as the people are suspicious of government projects and fiercely protective of their land. It is encouraging that hunting is not a primary source of income, but further data regarding hunting levels and species taken would be useful in developing any

initiative. An in-depth census through further creek surveys in the area northeast of Nwaniba, and foot surveys in the dry season in both areas, are needed to determine *C. sclateri* distribution and population size. Discussions should be held with state and environmental organisations, and with the local rice growing project, regarding possible educational inputs and protection of key habitat.

Although Stubbs Creek is probably one of the most important remaining sites for *C. sclateri* (eastern Niger Delta possibly harbours the largest population), it risks being abandoned by funders in Nigeria. The funders are disillusioned with the conservation programme, due partly to the complete lack of any kind of protection. Most conservationists, both locally and internationally, believe that it should not be abandoned, but deserves another look. As Oates suggested in 1990, additional information on the reserve should be obtained by conducting research from a dry land camp in the centre of the reserve. This would provide data critical to development of appropriate conservation strategies.

Summary

The presence of *C. sclateri* was confirmed at all three locations. Their presence at both Blue River and Enyong Creek/Ikpa River suggests that there may be additional populations in fragmented forests throughout this region of dense human population. Any undiscovered *C. sclateri* populations are almost certainly small, and probably genetically isolated. The number of primate observations indicates densities are probably extremely low in the two new sites. The swamp forests of Ikpa River probably offer the best habitat for this species. This population, located on the west bank of the Cross River, may prove particularly interesting scientifically as it, together with Stubbs Creek Forest Reserve, represents the eastern limit of this species' distribution. Further studies are recommended in all three areas and funding is currently pending.

Acknowledgements

I would like to thank John Oates and the Wildlife Conservation Society for providing funding for conducting this research, Rob van Romondt and Gerard Pichel of the Enyong Creek Swamps Rice Study team for their hospitality and assistance, and Alex Okochi, regional Federal Environmental Protection Agency field officer, for accompanying me on two field trips. Liza Gadsby advised on hunter interviews and Peter Jenkins generously loaned kayaks for the exploration of Stubbs Creek.

Zena Tooze

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was obtained in Gabon in 1994 confirming its presence. Research is needed to assess the distribution and conservation status of this species in Gabon.

The northwestern part of the Republic of Congo is still poorly known from a zoogeographical point of view, even with regard to the species composition of mammal communities.



Black Colobus *Colobus satanas*,
by Annette Lanjouw

During 1992-1994, a 30-week field study was conducted near the village of Mbandza, on the western limit of the Odzala National Park (ONP) (ECOFAC Project—Congo) (fig. 1). A preliminary inventory of vertebrates was undertaken, together with an ethnozoological enquiry. Information was gathered on the exploitation of game by the Mbandza villagers and their traditional use of animals (Carpaneto, 1994).

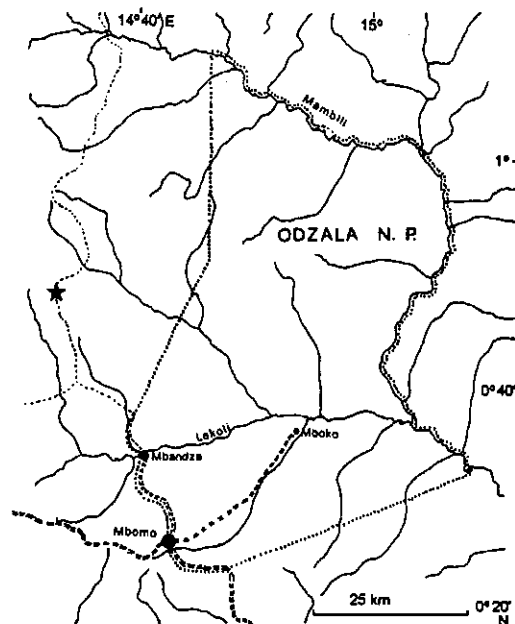


Figure 1. Odzala National Park, Congo. Dotted line = forest trail; double broken line = main road; black star = site where *C. satanas* was shot.

OCCURRENCE OF BLACK COLOBUS *COLOBUS SATANAS* IN NORTHWESTERN CONGO

Abstract

The occurrence of black colobus *Colobus satanas* in the Republic of Congo has been in question since the 1930s. A skin of *C. satanas*

Prior to this, the presence of black colobus *Colobus satanas* in the Congo was in question. The only evidence for *C. satanas* in the area was a skin labelled "Odzala", brought by P.H.G. Powell-Cotton in 1927, and stored in his museum at Birchington (Oates & Trocco, 1983; Napier, 1985). This record was disregarded or questioned by authors outlining the geographical range of the species (Dandelot, 1971; Oates & Trocco, 1983; Lee *et al.*, 1988) and by those compiling lists of mammals for Congo (Hecketsweiler, 1988; Dowsett & Grandjon, 1991).

According to Dandelot (1971), who probably did not see the above mentioned skin, the geographical range of *C. satanas* includes Equatorial Guinea (both Bioko Island and Mbini), southwest Cameroon and "southwestern Gabon apparently not crossing the Ogow to the northeast."

Haltenorth & Diller (1980) listed *C. satanas* as occurring in "part of Congo (Brazzaville)" probably referring to the vague citation by Malbrant & Maclatchy (1949) for the "régions forestières du Moyen-Congo". Oates (1986) included this species in the list of primates occurring in the Congo but did not provide new evidence. More recently, Lee *et al.* (1988) wrote that this species probably occurs in Congo (Brazzaville).

Dowsett & Grandjon (1991), in their preliminary checklist of mammals of Congo, did not obtain further data for this species, and listed it among those species needing confirmation. At present, *C. satanas* does not figure in the laws governing wildlife in the Congo and, thus, is not protected (Dowsett, 1991).

The Mbandza villagers are skilful hunters and know the local primates well, as they are a main source of food. Each of the ten species of diurnal primates in the forest around Mbandza has its own name in the local languages (Mboko, Kota and Mongom). Nevertheless, when questioned about the occurrence of a wholly black monkey with the thumb reduced to a short stump (like the well known *Colobus guereza*), all the villagers answered that they had never seen it. Although the questions were accompanied by colour drawings, they answered in the negative or confused *C. satanas* with the greater white-nosed guenon *Cercopithecus nictitans*.

Towards the end of the ethnozoological enquiry, after examining more than 250 primates killed by local hunters, a skin of *C. satanas* was finally obtained (20 July, 1994) by a Kota villager. The animal was shot about 40 km north of Mbandza, in the old secondary forest regrowth between the ancient villages of Mondomassoko and Endzanza. This is south of the Ikoutou River, at the northwestern limit of the new proposed border of

ONP. The skin is now stored in the Zoological Museum of Rome University.

All the villagers were astonished to see an unknown species of monkey shot so near to Mbandza. I was told that none of them had ever seen such an animal. The ignorance of the local hunters about *C. satanas* can be explained by the fact that, since 1970, after the forced removal of forest dwelling people from the north (their historic range was between Mambili and Lekoli Rivers), they do not usually reach the Ikoutou for hunting. The area where the *C. satanas* was killed is at the northern limit of the present hunting range of the Mbandza villagers. Nevertheless, the sight of the *C. satanas* skin reminded the Kota elders of a vernacular name "ebondji", and of a traditional song whose text has been forgotten. On the contrary, the Mboko don't have a vernacular name for this species, and the Mongom call it "abondji", a name which is clearly derived from the root of the Kota word.

According to the hunter, the victim was a vagrant solitary male and was eaten by the hunter himself notwithstanding its unfamiliar look. All the Mbandza villagers believe that "it moved from Gabon because it is Gabon's monkey" as the Gabon border is only 5 km from the site where the animal was collected.

The possible occurrence and status of *C. satanas* inside the ONP, particularly in the northern unexplored sector, should be investigated carefully because it deals with the sole protected area where this species might occur in Congo. In order to plan effective protection, research should be conducted to verify whether there is a resident population near the protected area or whether the animal collected was indeed a vagrant from Gabon. Attention should also be paid to the laws governing hunting in the Republic of Congo. *C. satanas* should be totally protected.

Giuseppe M. Carpaneto

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GORILLA CONSERVATION PROBLEMS AND ACTIVITIES IN NORTH KIVU, EASTERN ZAIRE (FEBRUARY, 1996)

Abstract

The gorillas *Gorilla gorilla* of North Kivu District, Eastern Zaire, have come under increasing threat since Rwandan refugees fled to this region in July 1994. This paper summarises the conservation problems facing the gorillas of this region and the efforts of the Institut Zairois pour la Conservation de la Nature, with assistance from the International Gorilla Conservation Programme and Dian Fossey Gorilla Fund, to minimise the damage.

Les gorilles *Gorilla gorilla* du Nord Kivu, dans l'est du Zaire sont de plus en plus menacés, depuis l'arrivée de réfugiés Rwandais dans la région en Juillet 1994. Ce document présente un résumé des problèmes de conservation dont doit faire face l'autorité de gestion de la nature,

l'Institut Zairois pour la Conservation de la Nature, pour la conservation des gorilles. L'IZCN travaille avec l'assistance du Programme International de Conservation des Gorilles, et le Dian Fossey Gorilla Fund.



**Dian Fossey
Gorilla Fund**



**INTERNATIONAL GORILLA
CONSERVATION PROGRAMME**

In July 1994, over 700,000 refugees fled Rwanda and the aftermath of war and genocide, to North Kivu District, Eastern Zaire. Despite United Nations High Commission for Refugees' (UNHCR) policy against establishing refugee camps on the borders of protected areas, the extreme exhaustion and high daily mortality of the refugees forced UNHCR to establish camps on the edge of what is Africa's oldest national park, the Parc National des Virunga (PNVi) (fig. 1). This park is also a World Heritage Site. The Rwandan refugees are currently living in camps on the edge of, and sometimes within, the old buffer zone of the park. Poaching in the park, and threats to the habitat from deforestation, have increased dramatically.

The protected area authority in Zaire, the Institut Zairois pour la Conservation de la Nature (IZCN), is faced with the almost impossible task of keeping the people out of the park. It has been supported in these activities by members of the international humanitarian relief community. UNHCR, the German Technical Agency for Development (GTZ), the United Nations World Food Programme (WFP), the United Nations Education, Science and Culture Organisation (UNESCO) and other organisations have all contributed to the effort to mitigate the environmental impact of the refugees in the region.

The International Gorilla Conservation Programme (IGCP) and a World Wide Fund for Nature (WWF) conservation education and reforestation programme, were recently joined by the Dian Fossey Gorilla Fund (DFGF) in efforts to assist IZCN in its gorilla *Gorilla gorilla* conservation activities in North Kivu. Gorillas in this region are threatened as never before. A cooperative and fully collaborative effort between all conservation partners is essential.

In 1996, the DFGF, building on more than 25 years of research experience with gorillas in the Parc National des Volcans in Rwanda (contiguous with the PNVi), appointed Zairian biologist Dr Trinto Mugangu to oversee its Zaire conservation

programme, with input from IGCP. A proposal has been put forward for the development of a centre for conservation, training and research in the PNVi's southern sector to support the efforts of IZCN, IGCP and other conservation partners.

In late 1995, an isolated population of about 18 gorillas on Mount Tshiaberimu, in the northern sector of PNVi, was surveyed by Tom Butynski (Zoo Atlanta), Esteban Sarmiento (American Museum of Natural History), and IZCN (Butynski & Sarmiento, 1995). On the basis of that preliminary survey, DFGF, together with Berggorilla and Regenwald Direkthilfe, will begin a conservation programme to protect this highly threatened population. This population of gorillas (probably eastern lowland gorillas *G. g. graueri*) lies about 80 km north of the Virunga Volcanoes and its population of mountain gorillas *G. g. beringei*.

IGCP is a coalition of three conservation organisations: African Wildlife Foundation (AWF), Fauna and Flora International (FFI) and WWF. IGCP is working together with conservation partners, including DFGF and the IZCN, to protect the mountain gorillas in the Virunga Volcanoes, spanning the borders of Rwanda, Uganda and Zaire. About two-thirds of the gorillas in the Virunga population are found in Zaire. IGCP is also working with Uganda National Parks (UNP) to promote gorilla conservation in the Bwindi-Impenetrable National Park (BINP).

IGCP has been working in Zaire since 1991, as well as in Rwanda and Uganda. In Zaire, IGCP has been supporting IZCN in the management of the southern sector of PNVi, especially the Mikeno sector. IGCP has provided field equipment for the park staff, organised and implemented training programmes for guards and guides, and has also been invited by IZCN to organise a strategic planning meeting with IZCN. This meeting will help IZCN to develop short- and medium-term action plans for the conservation of the PNVi. IGCP has also provided technical advice to IZCN with respect to developing, together with the international relief community, mechanisms for controlling the use of the park's natural resources by the enormous populations of refugees from Rwanda, and developing means to mitigate some of the negative environmental impacts of the refugee camps.

IGCP and DFGF are working together with IZCN to ensure that their activities are complementary and that there is a coordinated approach in helping the protected area authorities effectively manage PNVi and protect its gorillas.

In 1995, four gorillas were killed by poachers in BINP, and an infant was captured. Despite efforts

by IGCP and UNP to track the infant, no trace of it was ever found. Within months, another four gorillas were killed in Zaire, three of them silverback males. A trial was held in Zaire in late 1995 and a number of people were imprisoned for killing the gorillas, but the true motives behind the killings are still unknown. Were the poachers after infants for sale to international buyers, or was it a case of sabotage of an important source of revenue for the Zaire protected area authorities?

Gorilla tourism brings in substantial amounts of foreign revenue to IZCN and these funds are used to manage the protected areas throughout the country. Although revenue generated through tourism has been vastly reduced due to the crisis in the region, it has remained an important funding mechanism for IZCN. All four of the gorillas killed were habituated and had been visited regularly by controlled groups of tourists. In one incident, an infant was stolen from its group, but later found abandoned in a field near the Uganda border. IGCP and IZCN returned the infant to its group, where it was taken by a female and accepted. It is very possible that the infant had been taken to be sold, but that the poachers found it impossible to find a buyer.

Since then, IGCP has helped IZCN in funding and organising 24 h patrols of the habituated gorilla groups. The guards have been provided with essential field equipment and bullet-proof jackets to protect them from poachers. With financial help from GTZ, and with a contribution by DFGF of 50 Motorola radios, IGCP has provided IZCN with a radio-communications network for use in Bwindi-Impenetrable National Park.

The park, lying on the border between Rwanda and Zaire, is considered a high security zone, used by poachers, as well as militias and military crossing and patrolling the international borders. Although certain areas of the park are extremely dangerous, IZCN guards are following the habituated gorillas on a daily basis and camping in the forest nearby to ensure around-the-clock protection. This protection, however, is not absolute. The guards generally have much less sophisticated weaponry than the militias. In addition, ammunition is limited. By rallying the support of the donor community, and providing the guards with both equipment and salary top-ups, IGCP hopes to encourage them in their difficult task.

In another incident between November 1995 and January 1996, one of the habituated gorilla groups, led by the silverback Rugendo, left the forest to feed in cultivated fields up to 3 km from the edge of the park. The gorillas fed primarily in corn fields and banana plantations. Members of both

DFGF and IGCP witnessed this in January and consulted with IZCN to decide on the best course of action to take. In early February, IGCP and IZCN conducted a successful operation to herd the gorillas back into the park. IZCN guards dressed in civilian clothing, surrounded the animals and started banging on pots and pans. In this manner they moved the animals to within 500 m of the park, whereupon the guards stopped the noise so that the animals would not associate the disturbance with the forest. The gorillas returned to the park where they were joined by the same guards, this time dressed in uniform. The gorillas showed no signs of fear or alarm. IGCP has now purchased large bells for IZCN so that whenever the gorillas start leaving the park, the guards can rapidly repeat the exercise. IZCN enlisted the help of local farmers in the herding exercise and by working in collaboration, demonstrated that the local people were partners in conservation efforts and that IZCN was helping the people protect their crops. DFGF and IGCP are working together with the protected area authorities to develop effective community sensitivity and conservation education programmes with IZCN. These programmes will build on the conservation education programme already established (in 1985) by WWF in the PNVi.

The PNVi was created in 1925 in response to a plea to the King of Belgium by the naturalist Carl Akely, specifically to protect the gorillas. In the intervening years, a strong conservation culture has emerged, which is clearly demonstrated in the work of IZCN and in the local attitude of respect for the environment. Vital international support, however, has been transitory, due in part to the political and social instability in the country. By providing technical and logistical support, IGCP and DFGF are working towards the long-term goal of the protection of the Virunga forest habitat and its rare gorilla inhabitants.

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PRELIMINARY SURVEY OF ARBOREAL PRIMATES IN LOBEKE FOREST RESERVE, SOUTH-EAST CAMEROON

Abstract

Primate censuses were undertaken in the proposed Lobeke Forest Reserve, Cameroon, in 1995. Six species of diurnal primates were found, including *Cercocebus galeritus*. The area has medium primate densities. Commercial logging, and the accompanying hunting, are the major threats to the area.

Introduction

The proposed Lobeke Forest Reserve (c 2000 km²) is located in the southeast part of Cameroon (2°05'–2°30' N, 15°33'–16°11' E). It is bounded to the east by the Sangha River, to the north by the Lobeke and Longue Rivers, to the west by the Djombi River and to the south by the Boulou and Moko Paka Rivers (fig. 1).

The vegetation of the area is dominated by semi-deciduous forest (60%), rich in Meliaceae, Sterculiaceae, Mimosaceae, Sapotaceae and Anonaceae. The undergrowth is rich in herbaceous species from the families Maranthaceae and Zingiberaceae. These vegetation types are interspersed in a mosaic of different successional stages of forests, swamps, marshes and forest clearings.

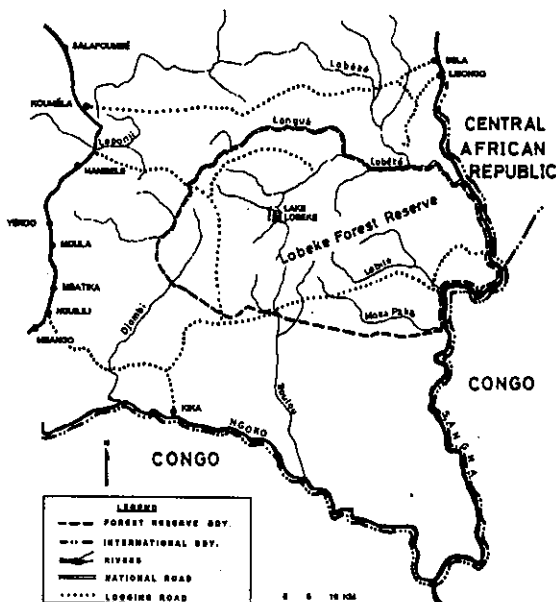


Figure 1. Location of the proposed Lobeke Forest Reserve, southeast Cameroon, and places mentioned in the text.

The Lobeke Forest is believed to contain some of the highest population densities of large mammals found in an African forest. These include large forest antelopes such as the bongo *Tragelaphus euryceros*, sitatunga *Tragelaphus spekii* and the yellow-backed duiker *Cephalophus sylvicultor*. Medium and small *Cephalophus* spp are also common in the area. The elephant *Loxodonta africana* population density, reportedly the highest in the Central African forest region, is estimated at 4–6/km² (Stromayer & Ekobo, 1992; Ekobo, 1993). Estimates of chimpanzee *Pan troglodytes* and gorilla *Gorilla gorilla* densities (Stromayer & Ekobo, 1992) are given as 0.61 and 2.5 nesting individuals/km², respectively. Ekobo (1993) reported healthy populations of various primate species, notably the cercopithecines, in the southeastern region. The primate fauna of southeast Cameroon, however, remains poorly known (Masazumi, 1991).

The Wildlife Conservation Society (WCS) has been active in the Lobeke area since 1989, working towards the development of a long-term conservation programme for the region. The results of our primate studies represent part of a larger research programme aimed at developing a management plan for the proposed Lobeke Forest Reserve.

Census Methods

Primate censuses were conducted from February to April 1995. The standard line transect method (Struhsaker, 1981; Brokelman & Ali, 1987; Skorupa, 1987; Whitesides *et al.*, 1988) was used. Eight 5 km transects were censused at least once. Transects were walked at speeds of 1–1.5 km/h with occasional stops to look and listen for primates. Censuses were conducted by one observer and at least two guides. On encountering a primate group, records were taken of: (i) species and number of individuals; (ii) mode of detection (seen or heard); (iii) location; (iv) species activity when first sighted;

(v) perpendicular distance from transect to the centre of the group.

For loud vocalisations the following were recorded: (i) observer location; (ii) species; (iii) time; (iv) bearing; (v) estimated distance to caller.

Results

Six arboreal primate species were observed in the proposed Lobeke Forest Reserve. Encounter rates are given in table 1. *Cercopithecus nictitans* and *Cercocebus albigena* were the most common species observed. Although *Cercopithecus pogonias* was sighted only once during censusing, there was a significant record of species vocalisation (0.33/km). The much threatened *Cercocebus galeritus* was observed once on a transect when a group of about 50 individuals was encountered. *Cercopithecus neglectus*, reported to be present (Stromayer & Ekobo, 1992), was not detected during our censuses.

The overall group encounter rate (0.98/km) found in this study, when compared to the 0.65 groups/km reported for the Dja Reserve, Cameroon (Williamson & Usongo, 1995) and the 0.29 groups/km² for Bioko Island, Equatorial Guinea (Butynski & Koster, 1994), suggests a healthy primate population for the region. The long-term conservation and maintenance of viable primate populations in the region will depend on the development of sound management strategies.

Threats

As reported in most tropical regions, commercial logging constitutes a major threat to the survival of various primate species (Davies, 1987; Wilkie *et al.*, 1992). About 80% of the proposed reserve area has been logged. Some sections of the immediate forest surrounding the reserve are still exploited by timber companies. Results of a 10 km transect census in parts of the heavily logged forest with high human presence indicated very low primate

Table 1. Arboreal primate species recorded in the proposed Lobeke Forest Reserve, SE Cameroon, and rates of encounter (1995).

Species	Number of encounters	Number of vocalisations	Encounter rates/km	Vocalisation rates/km
<i>Cercopithecus nictitans</i>	12	19	0.30	0.48
<i>Cercopithecus cephus</i>	7	9	0.18	0.23
<i>Cercopithecus pogonias</i>	1	13	0.03	0.33
<i>Cercocebus albigena</i>	11	16	0.28	0.40
<i>Cercocebus galeritus</i>	1	1	0.03	0.03
<i>Colobus guereza</i>	7	1	0.18	0.03
Species unknown	—	—	0.17	0.25

densities. Three species (*C. nictitans*, *C. cephus* and *C. pogonias*) were each observed once on transects. The major problem posed by logging is the opening up of previously inaccessible areas to hunters who, in most cases, are employees of the timber companies. This group constitutes the main bulk of the hunters who own guns and often indulge in primate hunting. There is a shift from subsistence traditional hunting in these localities to organised commercial hunting. This will, in the long term, seriously affect various primate populations and compromise conservation efforts if proper measures are not taken.

Hunting, which in most areas is a serious threat to the primates, is still at a relatively low level in the Lobeke area. Most hunting in the region is by use of snares. Occasionally, the native Bakwelle and Baka pygmies use spears and bows with poisoned arrows for primate hunting. *Colobus guereza* is the most preferred due to its large body size. It is also an easy target owing to its striking coat colour. The high cost of guns and cartridges, and the adherence to traditional hunting methods (for the most part) by Baka pygmies, give hope for primate conservation in the region.

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POSSIBLE INFANTICIDAL BEHAVIOUR BY A TANA RIVER RED COLOBUS *PROCOLOBUS BADIUS RUFOMITRATUS*

Abstract

An aggressive encounter is described between an adult male and a recently parturient female with neonate within a group of Tana River red colobus *Procolobus badius rufomitratatus* in the Tana River Primate National Reserve, Kenya. Although the neonate was not killed, this observation provides further evidence for infanticide among this member of the Colobinae.

Introduction

Infanticide by non-human primates is generally thought to involve the killing of unrelated infants by sexually mature males of the same species. The sexual selection hypothesis (Hrdy, 1974, 1979) has been offered as one explanation for this behaviour. According to the theory, a reproductive male who kills unrelated infants can gain a reproductive advantage. Struhsaker and Leland (1987) credit the sexual selection hypothesis as the most likely explanation for infanticidal males, including the first-ever observation of infanticide in red colobus

Procolobus badius tephrosceles (Struhsaker & Leland, 1985).

Many cases of infanticide, however, have occurred in or near areas of human disturbance, leading some researchers to argue that habitat destruction and the resulting population compression are the main causes of infanticidal behaviour (Curtin & Dolhinow, 1978; Boggess, 1979). No selective advantage is credited toward the infanticidal male in this scenario, and the behaviour is judged to be maladaptive.

Infanticide appears to be widespread among the Colobinae. Infanticide has been observed in four species (*Presbytis senex*, *Presbytis entellus*, *Presbytis cristata*, *P. b. tephrosceles*), and is suspected in several others (Rudran, 1973; Marsh, 1978, 1979 a, b; Struhsaker & Leland, 1987). Most instances of infanticide are attributed to a second male entering a one-male system (Struhsaker & Leland, 1987).

In this report, an unusual aggressive encounter within a group of Tana River red colobus *Procolobus badius rufomitratu*s is described. This observation provides support for the previous strong inference that infanticidal behaviour occurs in this subspecies (Marsh, 1979 a, b). The aggressive encounter occurred during a 500 h study of *P. b. rufomitratu*s feeding ecology in the Tana River Primate National Reserve (TRPNR), Kenya.

Background

The 171 km² TRPNR is located in southeast Kenya (1°50'S, 40°10'E) along the lower Tana River (fig. 1). Forests in this riverine environment are patchy and fragmented due to natural river meander, as well as to human disturbances and encroachment (Marsh, 1976; Decker, 1994). The highly arboreal *P. b. rufomitratu*s lives entirely within forest patches in small groups containing only one or two adult males. Social groups are made up of between 4–25 individuals. Mean group size is 10.8 (Decker & Kinnaird, 1992). *P. b. rufomitratu*s has been studied several times during the past two decades in the 10 ha Mchelelo Forest in TRPNR.

Results

In early October 1992 the Mchelelo *P. b. rufomitratu*s group contained seven individuals: two adult males (one of which possessed an easily identifiable upper lip), three adult females, one large juvenile and one large infant (rufous crown visible, still clinging). Age classification followed

Struhsaker (1975). The male with the deformed upper lip had been in the Mchelelo Forest since at least 1985 as a breeding member of the group (Decker, pers. comm.).

The aggressive encounter was observed on 21 October 1992. At 1730 h, three *P. b. rufomitratu*s were seen sitting in a tree about 20 m from me. The tree contained very few leaves, thereby allowing a clear view of the animals. These three monkeys were identified as the adult male (without the deformed upper lip), an adult female and a very young infant. The infant had dark slick fur, lacked any red hair on the crown of its head, and was clutched tightly by the female. The infant seemed to be unable to cling on its own and was estimated to be only a few days old. The infant had not been previously seen. The male kept in close proximity to the female and infant, following them as they moved to an adjacent tree.

At approximately 1800 h, as darkness was falling and observations were about to be terminated for the day, a fierce aggressive encounter abruptly began between the male and the female when the

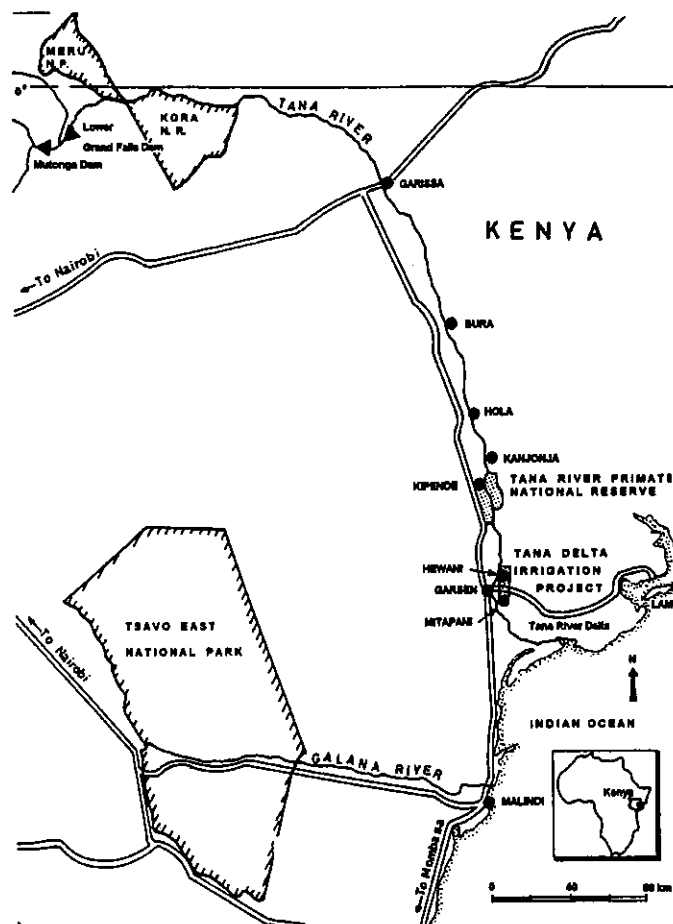


Figure 1. Map of Tana River Region, Kenya, showing the location of the Tana River Primate National Reserve.

male attempted to grab the infant from its mother's arms. The female managed to grab a branch with one arm as she was falling, continuing to clutch the infant with her other arm. The mother dangled by one arm for 10–15 s while the male continued to try to snatch the infant. Both adults produced loud screams (see Struhsaker, 1975). Finally the female dropped down onto a lower branch, still in possession of the infant. The female, carrying the infant, quickly jumped to adjacent trees away from the male and disappeared from sight. The male sat quietly in the original tree.

The other adult male of the group (*i.e.*, deformed upper lip) was seen in close proximity during the episode, yet he did not intervene, nor did any of the other members of the group. The observation was terminated for the day at 1830 h due to darkness. At 0630 h the following morning the group was encountered again. It included both the individuals involved in the attack. No other aggressive interactions were seen.

On subsequent days the female, infant and attacker were all seen together in the same group, although not in close proximity to one another. No other attacks were witnessed. The last observation of the group was on 13 November 1992, at which time the infant was alive and well.

Discussion

This report provides further circumstantial evidence of infanticidal behaviour in *P. b. rufomitratu*s. Although an infant was not actually killed in the account given here, Marsh (1978, 1979 a) described a similar incident in which an infant was killed. Marsh (1979 a) discovered a dead infant on 2 July 1974 in the same forest following a serious fight between an adult male and several females. Marsh's observation of the group prior to the discovery of the dead infant was partially obscured by foliage.

Taken together, these two accounts strongly suggest infanticidal behaviour by *P. b. rufomitratu*s. Contact aggression among these normally docile primates is rare. Marsh (1979 a, b) saw no instances of contact aggression during 1,065 h of observation, other than the one described above. Decker (1994, pers. comm.) only witnessed threats by adult males during her 1,500 h of observation.

The make-up of the group at the time of the attack suggests the possibility of a male take-over or changeover. The distinctive lip of the non-infanticidal male provided a clear and unequivocal identification of his presence within the group as the resident adult male for at least the past seven years. The emergence or appearance of the second

(*i.e.*, potentially infanticidal) male may have posed a threat to the tenure of the original male. The relatedness between the two males is not known. If the infanticidal male was a recent immigrant into the group, the chances of his being related to the attacked infant would be small. This would support the sexual selection hypothesis as an explanation for the infanticidal behaviour. However, if the infanticidal male had grown up within the group, a possibility that exists due to the presence of a large juvenile male in June 1988 (Decker, 1989), then the older male with the deformed lip would most likely be his father and the attacked infant could be a half-sibling. This scenario would weaken the application of the sexual selection hypothesis to the observed attack. In either case, the "infanticidal" male may have been trying to assert his position as the breeding male of the group and, thereby, ensure that offspring were his own.

An alternative explanation is that the attack was the result of the fragmented and disturbed Tana River habitat, which through isolation and compression of *P. b. rufomitratu*s into small forest patches, has led to maladaptive behaviour (Curtin & Dolhinow, 1978; Boggess, 1979).

Without knowing more about the genetic relatedness between individual monkeys, it is difficult to draw conclusions about the reasons for the described aggressive encounter. However, the observation does provide additional evidence for the existence of infanticidal behaviour in *P. b. rufomitratu*s.

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**SOOTY MANGABEYS CERCOCEBUS
TORQUATUS ATYS: A LITTLE KNOWN
PRIMATE SPECIES**

Abstract

Unlike many species of macaque, sooty mangabeys *Cercocebus torquatus atys* do not exhibit a matrilineally-based social structure. This includes affiliative associations (other than infants), dominance rank and aiding patterns. Young individuals begin moving up the dominance hierarchy by the age of three years, with all males eventually ranking over all females. Aggressive interactions are controlled and rarely result in wounding. Post-conflict behaviour occurs following the majority of aggressive interactions, and typically involves the victim returning to the aggressor and either looking at or presenting to it. Females exhibit a swelling 49 days post-conception that is virtually identical to the ovulatory swelling. Only the alpha males seem to discriminate between the two, mounting females during their ovulatory maximum swelling and not during the post-conception maximum swelling. *C. t. atys* males are infanticidal typically in the context of a new alpha male.

Mangabey species live along the equator in Africa. Sooty mangabeys *Cercocebus torquatus atys* live in the western-most part of the mangabey range, from Liberia to Senegal (Schwartz, 1926; Struhsaker, 1971). There has been no in-depth study of this species in the wild. A captive colony of approximately 160 individuals, descended from an original group of 27 obtained in 1966 (Bernstein, 1971 a, b), lives in four groups at Yerkes Regional Primate Center, and it is here that they have been studied most extensively. Although several aspects of *C. t. atys* behaviour have been studied over the years, this report is not meant to detail them all, rather it is meant to provide an overall understanding of a little known species.

C. t. atys are unlike most of the well-studied cercopithecine species in that their social structure is not organised matrilineally (Ehardt, 1988). Individuals tend to maintain affiliative relationships with all group members, regardless of kinship or dominance rank, through such affiliative behaviours as embracing (Kyes, 1989) and presenting. Moreover, dominance rank in adults is not

influenced by kinship (Gust & Gordon, 1994) and aid to victims of aggression is not given to kin more than non-kin (Gust & Gordon, 1993).

Perhaps the most interesting aspect of *C. t. atys* behaviour is their drive to move up the dominance hierarchy. Male and female *C. t. atys* rank just below their mothers until approximately three years of age. Animals over three years of age typically begin moving up the hierarchy and can end up ranking several positions above their mothers. Maternal sisters do not necessarily move the same number of positions up the hierarchy past their mother. It seems that individual traits and relationships with other animals contribute to the dominance rank they eventually achieve. Once achieved, female dominance rank appears to be relatively stable, at least over several years, as evidenced by the fact that the relative ranks of several adult females assessed in 1982 and again in 1993 were virtually unchanged. Male *C. t. atys* differ from females in that they continue moving up the hierarchy until they rank over all females, usually by the age of five to seven years (Gust & Gordon, 1994).

How are juveniles successful in attaining dominance positions well above those held by their mothers? In contrast to the matrilineal dominance systems in macaques and some other primate species, maternal aid or influence plays no role apart from the infant acquiring the mother's rank. The most frequent method young *C. t. atys* use to increase their rank is a direct challenge to a higher-ranking animal. Typically, the juvenile aggresses against the higher-ranking animal with such confidence that the higher ranking animal either flees or avoids. Less frequently, the higher-ranking animal ignores the juvenile or redirects the threat to another animal. The second pattern is to join with an aggressor against a victim when the victim is higher-ranking than the juvenile. The third pattern is to use higher-ranking animals as a buttress. When grooming or in proximity to an individual, the juvenile enlists aid from that individual against a third animal that is higher-ranking than the juvenile, but lower-ranking than the nearby partner. The nearby partner does not always aggress against the third animal, though the juvenile can continue to aggress. It is unclear whether this aggression toward a higher-ranking individual while in social contact with an even higher-ranking animal is opportunistic or planned. Over time these methods combine to successfully move the juvenile up in rank (Gust, 1995).

The question can be asked, "Why do individuals, typically bigger and older, yield to a challenge from lower-ranking juveniles?" First, the higher-ranking individuals cannot rely on kin to aid

them in a dominance rank challenge, given that aiding is rare and individuals do not aid kin more than non-kin. Second, aggression in this species is typically non-damaging, thus the challenger has an advantage in that the risk of serious injury as a result of the challenge is low (Gust & Gordon, 1993).

Under stable conditions, *C. t. atys* is, as noted above, a relatively non-aggressive species. Contact aggression, including bites, is controlled. By far the most frequent target of bites is the tail in which aggressor grabs the victim's tail and holding it with one or both hands, bites it. Typically the victim remains stationary until the aggressor stops biting and lets go of the tail. Most often, the victim either flees briefly then returns to the aggressor, or simply stays near the aggressor and faces it, or else presents its hindquarters while looking at it. The aggressor looks back at the victim and may mount or touch it, but most often simply walks away. To be conservative, we have not termed this behaviour pattern 'reconciliation'. The behaviour just described appears to represent a submissive attempt by the victim to placate the aggressor and assess whether the aggressive bout is terminated. The *C. t. atys* victim returns to, or stays within, 1 m of the aggressor apparently to reduce the tension associated with the preceding interaction (Gust & Gordon, 1993).

Retaliation is another interesting agonistic behaviour pattern sometimes observed. After an individual has aggressed against another, the victim first flees or avoids the aggressor. But then the victim may turn around and chase the aggressor, typically while screaming, with the result that the aggressor flees or avoids the victim. This does not indicate a rank reversal; rather it appears to be a protest by the victim to the preceding aggression. It is not unusual to see an infant, juvenile or adult female chasing a high ranking adult male while emitting a very high pitched scream (Gust, 1994 a).

It is important to note, however, that serious aggression can occur in *C. t. atys*, though it is restricted to a rank challenge for the alpha male position (Bernstein, 1971 a), infant attacks by a new alpha male (Busse & Gordon, 1983), and rank challenges in the context of newly-formed groups (Gust & Gordon, 1991).

C. t. atys has sexual swellings like *Papio* spp., pigtail macaques *Macaca nemestrina*, chimpanzees *Pan troglodytes* and some other species. Females exhibit a bright pink perineal swelling around the time of ovulation. Males of all ages are attracted to the perineal swelling. Males as young as one year mount swollen females with intromission and elicit from the females the same pattern of sexual vocalisation and darting away as do the adult males.

However, while males of all ages mount females during the oestrus cycle, the alpha male accomplishes most of the mounts at her peak swelling (associated with ovulation) and this is mediated by social inhibition of other males (Gust & Gordon, 1991). Unlike other species with sexual swellings, *C. t. atys* females exhibit maximum tumescence 49 days post-conception that is virtually identical to the ovulatory tumescence (Gordon *et al.*, 1991). This has been reported in the endangered Tana River crested mangabey *Cercocebus galeritus galeritus* (Homewood, 1976), a closely related species. I am unaware of any other genus in which tumescence of the same degree as that at ovulation is observed in all females at a precise time during pregnancy.

Overall, males do not discriminate between ovulatory and post-conception swellings (Gust & Gordon, 1991). However, when only the alpha male is considered, mount frequency directed to females exhibiting a post-conception maximum tumescence is significantly less than to females exhibiting an ovulatory maximum tumescence. This has implications for theories of post-conception sexual behaviour in females. Theories postulate that post-conception sexual behaviour serves to promote additional male investment and to avert male infanticide (Hrdy-Blaffer, 1974). However, if it is possible to discriminate between ovulatory and post-conception swellings, then these theories may not apply. Thus, whether the post-conception swelling is an artefact of pregnancy or serves some role to deter infanticide is still undetermined.

To help explain why the alpha male does not mount females during their post-conception swelling, we collected blood samples to determine if the hormonal milieu was different during post-conception versus ovulatory swelling periods (Gust, 1994b). There were some hormonal differences, but we could not definitely attribute the discriminatory ability of the alpha males to these differences. Further experimental work will be needed to answer this question.

Infanticide has occurred several times over the 26 yr the colony has existed at Yerkes (Busse & Gordon, 1983). It has most commonly occurred shortly after a new alpha male has taken over. According to the sexual selection theory (Hrdy-Blaffer, 1974), since males do not hold the top rank for a long time, the new male starts to impregnate females as soon as possible to have a strong representation of his genes. Infants are typically killed by a bite to the head. In cases where this was observed ($n=3$), the male either stalked the female and tried to grab the infant from her or opportunistically grabbed and killed the infant during a routine capture procedure. In two of the

three cases, observers were able to intervene to save the infant (Busse & Gordon, 1983). In one case of an attack to a new-born infant, presumably a new alpha male because it was not observed, the mother died as well, ostensibly trying to protect the infant (unpubl.). In another case, an alpha male wounded his own infant. This may have been because he was not present during its birth (Gust *et al.*, 1995). Thus, although infanticidal behaviour evolved because it generally does provide the infanticidal male with more of his own offspring according to the sexual selection theory, it is clear that mistakes do occur.

In conclusion, the many fascinating aspects of *C. t. atys* sociality emphasise the diversity of social systems that have evolved among primate species. The non-kin based social structure may explain why serious aggression with wounding is rare. If members of a group maintain affiliative relationships with all other members without regard to kinship, then severe aggression, of the type exhibited often between macaque families, may be expected to be less frequent. On the other hand, it is possible that the non-kin-based social system exists because of the low levels of aggression, given that strong alliances are not necessary for protection from intra-group aggression as is suggested by the relatively low frequency of aid to victims. The very individualistic dominance system exhibited by *C. t. atys*, with its characteristic move up in rank, may also be tied to the non-kin based social system and low aggressiveness, given that juveniles do not risk severe wounding by challenging higher ranking individuals. The unique pattern of female post-conception swelling and its relation, if any, to infanticide awaits further study. Insight into the variant nature of the *C. t. atys* social structure may be gained by a combination of captive and field studies.

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NEWS

LA STATION DE RECHERCHE DE LA MAKANDÉ FORÊT DES ABEILLES, GABON

Summary

The Makandé Field Research Station was established in the Forêt des Abeilles, Central Gabon, in 1993, as a result of an agreement between a research team and a logging company. Details are given on the historical background and on the objectives of this station. This research station provides a base for both theoretical and applied research, as well as for conservation activities. Leroy-Gabon, the logging company, ensures the logistical support of the station, whereas the laboratory for Evolutionary Primate Biology of the University of Rennes is responsible for the management of the station and the coordination of research teams and projects. With the support of Leroy-Gabon, the 50 km² of forest, rich in Okoumé *Aucoumea klaineana*, is protected from any exploitation and poaching.

A preliminary analysis of the results of the research indicate that the fauna has been little affected by logging activities. Soil and vegetation structure have been affected in a manner similar to that reported for Lopé (White, 1992). Improved logging techniques are needed, however, to achieve sustainable use of the forest's resources.

Fruit d'une collaboration entre un laboratoire de recherche associé au CNRS et une société d'exploitation forestière, la Station de Recherche de la Makandé a vu le jour in 1993, au centre du Gabon. Deux axes complémentaires y sont développés: des recherches fondamentales sur l'écosystème forestier tropical de la région et une recherche appliquée sur l'évaluation des impacts environnementaux de l'exploitation forestière de l'okoumé *Aucoumea klaineana*.

Les premiers contacts entre scientifiques et forestiers ont eu lieu en 1992 lorsque le Laboratoire de Primatologie-Biologie Evolutive (LPBE; Dr A. Gautier-Hion) de l'Université de Rennes dépêche au

Gabon une mission pour trouver un site permettant notamment l'étude du singe à queue de soleil *Cercopithecus solatus*. Découvert en 1984 par Harrison (1988), ce singe se rencontre essentiellement en Forêt des Abeilles sur une superficie d'environ 10,000 km² (Gautier *et al.*, 1992). Cette forêt, délimitée par un important réseau de cours d'eau, est restée inhabitée et inaccessible jusqu'au jour où elle fut concédée à des exploitants forestiers.

La société Leroy-Gabon, filiale du groupe Isoroy, y gère plusieurs concessions. Des discussions s'engagèrent entre les représentations de cette société et J.-P. Gautier, représentant du LPBE, avec l'appui du Pr P. Posso, directeur de l'Institut de Recherche en Ecologie Tropicale : l'idée d'un centre d'étude situé au coeur de cette forêt méconnue des scientifiques et dont le symbole serait le "singe soleil" vit le jour.

Un partenariat original s'instaura : Leroy-Gabon assurait l'appui logistique indispensable tandis que le LPBE assurait le fonctionnement de la station et la coordination des équipes de recherche, indépendantes financièrement grâce aux financements accordés dans le cadre de contrats, notamment avec l'Union Européenne. D'une capacité d'accueil de 8-10 chercheurs, la Station est opérationnelle depuis juin 1993. Elle est désormais entourée d'un terrain d'études écologiques quadrillé sur 10 km², situé au coeur d'une zone de 50 km², exploités en 1991 à raison d'1.5 okoumé/ha en moyenne. Avec l'appui de Leroy-Gabon, ces 50 km² sont protégés de toute exploitation et de toute pression de chasse.

Multidisciplinarité est le mot qui caractérise les travaux engagés à la Station. Un premier programme avait pour objectif d'analyser les relations entre la nature du sol, la composition de la végétation et les relations faune-flore. Coordonnées par le LPBE, les études ont été menées en collaboration avec l'IRET (Gabon, Pr Posso), le Laboratoire de Phytosociologie de l'ULB (Bruxelles, Pr Lejoly), le Département des Forêts (Institut Agronomique de Gembloux, Pr Delvingt), et le Laboratoire de Biologie du sol (Université de Rennes, Pr Trehen).

Parallèlement à ces travaux, qui ont nécessité des inventaires botaniques et faunistiques, des études de peuplement plus approfondies et/ou des études écologiques sont conduites sur différents groupes ou espèces. Chez les insectes, c'est le cas des blattes, des grillons, des termites et des abeilles; chez les mammifères, citons les rongeurs, les anomalies et les primates (notamment le singe à queue de soleil et le colobe satan).

Un deuxième projet, destiné à répondre aux interrogations des exploitants forestiers, regroupe un ensemble d'études d'impact de l'exploitation:

- impact immédiat sur la végétation et le sol (emprise totale des dégâts, nombre d'arbres tués par arbre exploité, dommages créés à la canopée, au sol...);
- impact à moyen terme (évolution de la mortalité des arbres; processus de régénération; structure des populations d'okoumé...);
- impact de la modification du milieu sur les populations de mammifères;
- impact de la pression de chasse introduite par le chantier forestier.

Enfin, la Station poursuit des actions de sensibilisation à l'environnement (soutenues par le WWF-France), notamment auprès des élèves d'école du chantier forestier et des populations locales; l'emblème de ces actions est le "singe soleil".

En moins de trois ans d'existence, la station a accueilli une cinquantaine de chercheurs, techniciens et étudiants d'une dizaine de nationalités. Le volume des travaux effectués sur le terrain est significatif; une trentaine de rapports ont été fournis. Leur finalisation par des publications est en cours.

La biodiversité de la Forêt des Abeilles est importante; de nombreuses formes inconnues de la région ont été observées (tel le céphalophe à pattes blanches, Gautier-Hion et Gautier, 1994) tandis que des formes nouvelles sont à décrire dans différents groupes végétaux et animaux (incluant les mammifères). Les études d'impact permettent de faire un premier bilan: la faune semble avoir été peu perturbée y compris les grands singes, régulièrement observés (Brugière, in prep.); les dommages causés à la végétation et au sol (Lasserre & Gautier-Hion, 1995) sont comparables à ceux observés dans la réserve de la Lopé (White, 1992). Bien qu'ils puissent être classés parmi les moins perturbants connus à l'heure actuelle sur les chantiers forestiers mondiaux, de nombreuses améliorations sont nécessaires avant d'atteindre une gestion rationnelle et durable. Des premières propositions ont été faites en ce sens. Par ailleurs, la dynamique résultant du partenariat "scientifiques-forestiers" a conduit la société à s'engager dans la voie d'une certification de ses bois. Enfin, les actions en faveur de *C. solanus* ont amené, dès 1994, les autorités gabonaises à mettre ce singe sur la liste des espèces totalement protégées.

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ACTION PLAN FOR PAN PANISCUS

The *Action Plan for Pan paniscus: Report on Free Ranging Populations and Proposals for their Preservation* is now available. This important document was compiled and written by Nancy Thompson-Handler, Richard Malenky and Gay Reinartz, and published by The Zoological Society of Milwaukee County.

The following is excerpted from the report's Summary (pp. 21-22):

It is apparent that the bonobo is extremely vulnerable in its present state and that urgent actions are necessary to prevent the species from becoming critically endangered or extinct in the near future. Several interrelated factors contribute strongly to its vulnerability:

- The wild population may already number less than 5000;
- Known populations are fragmented and isolated from one another, thereby reducing gene flow;
- Rapid growth of the human population, changing values and politico-economic instability make the species increasingly vulnerable to predation and disease;
- The species is long-lived, matures slowly and produces few offspring in its lifetime, thus causing population growth rates to be easily disturbed by perturbations;
- The habitat is being degraded by agriculture, logging and competition with humans.

In the sections that follow, we present detailed data derived primarily from fieldwork conducted in Zaire. These data, encompassing the mid-1970's to the present, are meant to help assess the status of *Pan paniscus* in the wild and plan strategies for protecting and managing specific populations and their habitats. Such site-specific information is also intended, by extrapolation, to help guide attempts to locate 'new' populations as well as to coordinate conservation and research efforts between sites and on the national level. While the bulk of this document focuses on known populations and study sites, we also incorporate new field data that have not been widely disseminated. Much of this information provides indirect evidence for the continued existence of bonobos in areas of the Central Basin where information has been scanty (e.g., in the southern and eastern part of the species' range) and where populations of bonobos were thought to be close to extinction or completely absent.

What follows is divided into three main sections: Site Reports, Proposed Conservation Actions, and Population Viability Analysis.

A limited number of complimentary copies of the *Action Plan* is available through Gay Reinartz, Bonobo SSP Coordinator, Zoological Society of Milwaukee County, 10005 West Bluemound Road, Milwaukee, WI 53226, USA, Tel: 414-256-2333, Fax: 414-256-6311.

STUDY FINDS FEWER MOUNTAIN GORILLAS

After comparing the habitat, ecology, behaviour and morphology of the gorillas *Gorilla gorilla* of the Bwindi-Impenetrable Forest National Park and the Virunga Volcanoes, we conclude that the animals in the Impenetrable Forest population are not mountain gorillas *G. g. beringei* (Sarmiento *et al.* in press).

The approximately 300 gorillas in the Impenetrable Forest of southeast Uganda (Butynski & Kalina, 1993) were considered to comprise nearly half of the world's population of roughly 620 mountain gorillas. The other 320 individuals (Sholley, 1990) live 25 km to the south in the Virunga Volcanoes, the area where this gorilla subspecies was first discovered and described. Relative to Virunga gorillas, those in the Impenetrable Forest live at a lower elevation, warmer temperatures, and are much more arboreal, have longer day ranges, larger home ranges and eat much more fruit and pith, and less bamboo and leaves. These differences in habitat, ecology and behaviour are reflected in their morphology.

Impenetrable Forest gorillas have much smaller bodies, relatively longer limbs, hands and feet, shorter thumbs, big toes and cheek tooth rows, and narrower trunks and orbital breadths, than Virunga gorillas.

Considering their close correspondence to behaviour and habitat, these morphological differences are adaptive in nature (reflect selective differences) and indicate that Impenetrable Forest gorillas are not mountain gorillas. Further studies may show whether the gorillas of the Impenetrable Forest are unique, or whether they belong to the eastern lowland gorilla subspecies *G. g. graueri*. This finding effectively reduces the number of mountain gorillas to about 320. Furthermore, it underscores the importance of supporting conservation measures to insure the survival of both populations, at least one of which is unique. Both populations continue to be faced with a variety of threats, most recently by an increase in poaching.

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GABON'S FORESTS ALSO IN JEOPARDY

The article about road building in northern Congo in the most recent issue of *African Wildlife Update* struck a very irritated nerve and compels me to write about the "race" to sell off the remaining unexploited forests of Gabon as logging concessions. These are forests full of wildlife and plants which I have had the privilege to view and upon which local people depend.

Since 1986, when the dramatic drop in the price of oil cut Gabon's national revenue, logging activities and the sale of logging permits have increased to compensate for the loss. Many logging companies formerly operating in West Africa are now based in Gabon.

The last remaining large block of intact forest in the country is located in the northeast along the borders of Cameroon and Congo. Most of this forest is uninhabited, although there are patches of old secondary forest throughout from past occupation by semi-nomadic villagers who are now permanently settled along roads. It is a remote, biologically diverse region which has little okoume (the most marketable tree species in Gabon), but many of the now-unprofitable tropical timber species. Except for a small logging concession already operating 14.5 km west of Makokou, the remainder of this forest has not yet been sold. Current trends indicate that much of this forest block will be sold by the end of 1995. This will affect as much as 39,000 km² of tropical rainforest, excluding the inaccessible swampy and steep terrain. Because many more tree species are now valuable, there will undoubtedly be a considerable increase in the number of trees cut per acre resulting in greater destruction of the forest.

Northeastern Gabon, like parts of northern Congo, was also a major exporter of coffee and cacao, but the lack of technical support and subsequent fall in prices of these crops compelled many farmers to abandon their plantations. Thus, local people would undoubtedly welcome the arrival of logging companies which would provide employment, but they remain unaware of the consequences. These include the possible establishment of well-organised commercial hunting using logging roads and the impoverishment of local floral and faunal populations upon which residents greatly depend.

This is compounded by the lack of close professional supervision of logging activities in Gabon. In addition, legislation concerning timber exploitation needs to be reviewed and changed to require minimisation of destruction while building roads, and during tree felling and extraction. A recent study in central Gabon revealed that 10% of the canopy was destroyed and 49.2% seriously disturbed during logging operations.

Our knowledge of the impact of logging on the complex processes and dynamics of tropical forest ecosystems in general is poor. I have done wildlife surveys in many parts of Gabon and frequently found logging roads of varying ages far in the forest. It is only in the northeast where one can walk for days or weeks where no bulldozers or trucks have been. Development is indeed important,

but so are rational utilisation and preservation of a nation's heritage.

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[from *African Wildlife Update*, Vol. 4, No. 5]

CONCERNS RAISED ABOUT ROAD PROPOSAL IN CONGO

The Government of Congo is reportedly considering a controversial road improvement project that could have serious effects on the ecology of the northern part of the country, according to informed sources in the region.

The improvement of the road itself, from Makoua to Ouessou, would not cause the damage of greatest concern. But in a deal reminiscent of the building of the railroads in the American West during the 1860s, the government may finance the improvement by offering access to natural resources in a wide strip of land on both sides of the road.

Some details of the complex negotiations (which involve numerous Congolese Ministries) were announced in Brazzaville on 6 July 1995.

Improvement of the road was begun in the 1980's by a French company, Ducler, but construction was halted about halfway through when funding ran out. Now, a Chinese consortium is considering putting up hundreds of millions of dollars to finish the road in return for rights to exploit natural resources (most likely timber and minerals) for more than 1.6 km on each side of the road.

Up to 750 km² of primary forest could be clearcut under the proposal. The resulting swath of degraded land, approximately 4 km wide and 200 km in length, would effectively divide the forests of northern Congo into two separate blocks with potentially serious ecological consequences for the region's rich fauna and flora. Despite heavy hunting along the road corridor to supply the Makoua and Ouessou meat markets, recent travellers have reported sightings of many species, including gorilla, elephant, bongo, leopard and duiker.

Congo's Director General of the Environment, Marius Issanga, told *African Wildlife Update* on 19 July that there is no firm proposal yet, but "when there is, an environmental impact assessment (EIA) will be done." There has been concern among observers that the Ministry of Environment might waive the need for an EIA, which is required under 1986 legislation.

The government says the road improvement would further two of its policies: 1) opening up northern Congo to development; and 2) increasing timber exports through its own ports instead of Cameroon's, but conservationists question whether either policy would be furthered by the road building. With respect to development, until the 1970s the region was an exporter of coffee and cacao, a trade which collapsed in large part because of the overvalued CFA and falling prices on the world market. Also, access to markets in southern Congo has always been possible via the Sangha River. Since all three factors remain in effect today, it is far from certain that an improved road would have any significant long-term impact on the local economy.

On the issue of increasing exports, timber companies have reportedly stopped exporting wood from northern Congo via Brazzaville because of delays on the railroad between Brazzaville and Pointe Noire, not because of the difficulty of getting wood to Brazzaville from the north.

Negotiations appear to have bogged down over a number of issues. The Chinese consortium reportedly wants to bring in 1,500-2,000 labourers to work on the road instead of hiring Congolese employees, a condition the Congolese government apparently rejects. Also, there is a growing lobby within the Congolese government to grant the Chinese a regular logging concession that would have to be exploited according to normal rules and regulations. While that would pose a new set of risks for the northern forests, the Ministry of Water and Forests is said to find it a more acceptable alternative than the original proposal granting rights to forest along a single narrow corridor.

[from *African Wildlife Update*, Vol. 4, No. 4]

LOGGING MAJOR IMPACT ON FOREST LOSS

Recent research by WWF analysed the status of 233 priority sites of global significance for the conservation of plant species, using information collected under the IUCN/WWF *Centres of Plant Diversity* report. Over 85 % are currently vulnerable or under threat and a fifth are already severely threatened. The research covers all types of habitat, and not just forests. Yet logging was identified as a key threat to over half of the sites investigated, suggesting that it is by far the most important cause of loss in forest ecosystems. The report is available from Alan Hamilton, WWF-UK, Panda House, Weyside Park, Catteshall Lane, Godalming, Surrey, GU7 1XR, UK, Tel: 44-1483-426-444.

LOGGING BOOST IN CAMEROON

High demand for tropical hardwoods in Asia, linked with devaluation of the CFA, has created a surge in timber exports from Cameroon. Logging, primarily carried out by European companies, increased by 400 percent between 1993 and 1994, threatening some of West Africa's richest rainforest areas. Companies operating in Cameroon are based in France, Italy, Germany, Denmark and Lebanon. UK-based consultancy SGS Forestry has a project to monitor and suggest improvements to export controls, to reduce the quantities of illegally exported timber and eventually pave the way for proper controls on trade.

[from *Arborvitae*, 1]

FORESTS BACK ON THE AGENDA

After 3 yrs of delays and reversals, the Convention on Biological Diversity (CBD) has, for the first time, made progress towards addressing forest issues. Until recently there was a serious risk of forest biodiversity being missed from the international conversation process altogether. In 1994, the CBD rejected proposals for a Protocol on forests or any other instrument on forests under the Convention and instead referred issues to the Inter-Governmental Panel on Forests (IPF) of the Commission on Sustainable Development. Yet at its first meeting, in September 1995, the IPF ignored biodiversity.

In the second Conference of the Parties of the CBD (COP2), in Jakarta during November 1995, strong lobbying from WWF and other NGOs helped at least partially to reverse this situation. As a result, a clear message has been sent from the CBD to the IPF, urging the IPF to consider:

- the need to integrate conservation and sustainable biodiversity use into forest plans, programmes and policies;
- the importance of environmental impact assessment for activities in forests;
- the full range of possible values and benefits of forests, including non-consumptive values;
- the need to develop sustainable management systems for forests, addressing economic, social and environmental needs;
- the importance of applying an ecosystem approach to forest management, including as an objective the maintenance of forest quality;
- the application of *in situ* conservation measures, and their inclusion in forest and land-use plans;

- the importance of respecting indigenous peoples' rights regarding decision-making and benefits from forest biodiversity;
- improvements in education, training and capacity-building regarding conservation and sustainable use of forests;
- the possibility that the CBD provide further inputs to the IPF following the former's third COP, in Buenos Aires in November 1996.

Whilst this is certainly encouraging, it is by no means all good news. The CBD, which is legally-binding, is pushing responsibility for forest biodiversity onto the voluntary and non-binding IPF. Some signatory countries remain opposed to the CBD becoming involved in forest issues. The question of funding the CBD again ran into problems, and its implementation is limited by lack of finance from rich countries.

NGOs now have the opportunity to feed into the CBD's preparations for the IPF, which will be taking place from January to August 1996. The COP asked the CBD Secretariat to provide inputs to the IPF on all issues, and the Secretariat is planning some activities from January to August to collect information. This may provide a good vehicle for inputs into the IPF.

Gonzalo Oviedo
Forest Officer, WWF-International.

[from *Arborvitae*, 2]

COLLABORATIVE MANAGEMENT OF FORESTS FOR CONSERVATION AND DEVELOPMENT

A new IUCN/WWF paper in the series *Issues in Conservation* shows that collaborative forest management can:

- improve the chances of establishing and maintaining protected areas;
- increase the social and biodiversity values in forests outside protected areas;
- increase local control over the local environment.

Background

In recent years there has been an increasing recognition that conservation of natural resources cannot take place in isolation from economic development. This is especially true in areas where local people live in close relationships with the

natural environment, and depend upon it for their survival and well-being. In *Caring for the Earth*, published in 1991, the World Conservation Union (IUCN), the United Nations Environment Programme (UNEP) and the World Wide Fund for Nature (WWF) presented a "strategy for sustainable living". Two of the major elements of this strategy were establishing a link between conservation and development, and recognising the importance of "enabling communities to care for their own environments".

Keys to collaboration

Creating collaborative approaches to natural resource management involves a recognition of :

- the need to integrate conservation and development;
- the legitimacy of the rights of local people to secure economic futures; and
- the value of seeking active involvement of local people in environmental care and management.

Protected areas management

One form of collaborative resource management is concerned with the co-management of protected areas. Many protected areas have been established with the intention of completely excluding local people from economic activities within their boundaries. This frequently has devastating effects on the well-being of those excluded and does not always lead to effective conservation. In many countries, co-management of protected areas has emerged in recognition of the need for a different approach.

Collaborative management outside protected areas

Whilst protected areas are of considerable value for conservation purposes, such areas cover only a small proportion of the earth's surface (3 to 5 %). There is therefore also a clear need for conservation measures outside protected areas, as well as inside them, in order to protect a greater proportion of the earth's biodiversity.

Along with the trend towards co-management of protected areas, collaborative approaches to forest management have also emerged in many countries. Initiatives such as community forestry and joint forest management have demonstrated great potential for integrating conservation and development outside protected areas. The basic aim of these approaches is to help forest authorities and local people reach agreements about forest

management. Local people take responsibility for protection and management work, in return they receive access to the forest and its products. In some cases they also benefit from being able to generate income within the forests.

Collaborative forest management has already made significant contributions to conservation efforts in many countries, including India, Nepal and the Philippines. In India for example, one estimate suggests that in 1992 approximately 5000 km² of degraded land was under some form of community protection. Such management has also demonstrated the potential to provide benefits to local people in a way that has sometimes eluded projects operating in protected areas.

Some of the lessons of collaborative forest management may, in turn, be relevant to protected area management. For example, increased harvesting of non-timber forest products (such as honey and medicinal plants) could provide income without threatening biodiversity. Where forests are managed either solely or partly for non-timber forest products, there is a strong incentive to manage forests as biologically diverse systems. Peoples' forestry thus is often more beneficial to conservation than commercial management of forests for industrial cellulose.

As well as externally initiated attempts to establish community-based management, local peoples have often shown great initiative and capacity in their own resource management. New management initiatives have frequently benefited from indigenous knowledge of the environment and local organisation of regulated resource use. Both co-management of protected areas and collaborative forest management attempt to build on such local capacities.

Potential problems in collaborative management

Although collaborative forest management projects have had considerable achievements, they have not always been as successful as had been hoped. A number of factors contribute to this:

- External agencies sometimes continue to make decisions about what is good for local people and what they should do. This often results in policies being unrealistic and even undesirable from the point of view of local people. In other words, local people are not given an adequate role in decision-making.
- Factors such as insecurity about continued access to resources tend to lead to a reluctance on the part of local people to participate seriously in projects.

- In many cases, there are no real incentives to participate. Benefits may be a long time coming, or may not compensate for the costs of reduced access to resources. For example, people may be reluctant to discontinue grazing animals in a protected forest area unless an alternative source of fodder is provided. In these cases the costs of participation are met by the community, but the benefits (such as conservation of biodiversity or profits for the government through timber production) are realised outside the community.
- Forest departments tend to take a blueprint approach to planning. This brings a lack of flexibility in treating differing local situations. In addition, conformity to a preconceived plan limits any changes in approach if the plan does not work. There is a tendency for bureaucratic requirements for reporting and documentation to become more important than achieving the spirit of the programme.

Two elements are needed to address these constraints: genuine benefits and a change in the institutional frameworks within which collaborative management takes place.

Empowering local people

As mentioned above, local people often initiate sustainable development efforts. Institutional changes are needed which concentrate on creating a place for these efforts and on providing technical, administrative or financial support as appropriate. Desirable institutional changes include:

- Changes in legislation and regulations to guarantee security of access to resources and a genuine level of local decision-making and authority. This does not preclude some residual powers remaining with government agencies. It does, however, require the basis of both local and government authority to be specified.
- Reorienting the role of government agencies away from a policing role towards a more supporting one.
- Adoption of approaches to project implementation that concentrate on learning the way through problems rather than taking blueprint approaches to project management.

IUCN and WWF recommend that these principles be applied widely when developing new conservation and forest management initiatives.

by R.J. Fisher
[from *Arborvitae* 1]

CONSERVATION WITH INDIGENOUS PEOPLES

WWF has drawn up a set of principles for conservation with indigenous people. These principles recognise that indigenous people live in most of the remaining tracts of high biodiversity on earth, and that given the frequency with which indigenous peoples' rights and livelihood have been discriminated against, conservation organisations have a responsibility to make special efforts to respect, protect and comply with their basic human rights.

It notes that "Regrettably, sometimes the goals of protecting biodiversity and protecting and securing indigenous culture and livelihoods are perceived as contradictory rather than mutually reinforcing," thus underlying the need for greater cooperation and clear guidelines.

On 26 July 1995, representatives from WWF, IUCN and the International Alliance of Tribal-Indigenous Peoples of the Tropical Forests (IAITPF) met at WWF International to discuss the draft statements and also ways in which the three organisations could work more closely together.

WWF will take steps to identify and assess in more depth the situation of indigenous peoples in the areas in which it operates, and to formulate strategies to specifically take into account their rights when developing conservation actions. In the case of unresolved land claims, the principles establish a number of steps to recognise individual peoples' rights. Steps are also to be taken to resolve conflicting claims giving primacy to indigenous peoples. WWF may be prepared to oppose conservation or development initiatives which threaten these rights. The final articles contain provisions for advocacy and lobbying to promote these principles at national and international levels, and a commitment to uphold these principles.

[from *Arborvitae*, 1]

PRIORITIES FOR INDIGENOUS PEOPLES

Indigenous people do not fit easily into the existing frameworks of international organisations. IUCN is no exception and faces difficulties in integrating indigenous people into its conservation work. Nonetheless, recent experience has identified a number of ways in which these issues can be tackled. The following article, based on an essay originally written in Spanish, outlines some alternatives. It provides an interesting counterpoint to the WWF perspective given earlier.

One general problem relating to catering for the needs of small and isolated human societies is that there is a vast range of different groups referred to as "indigenous people". Whilst these groups would all like to represent themselves on the international stage, organisations such as the United Nations are not in a position to accept thousands of new members. The whole concept of centralised representation thus fails to provide a satisfactory forum for the 250–300 million indigenous people dispersed throughout the world.

These problems are repeated, in slightly different form, within IUCN itself. Whilst the organisation's commitment to indigenous people's rights is not open to doubt, unfortunately many of the governments that belong to IUCN have systematically violated the rights of indigenous groups in their own countries. Trying to address this particular problem would be beyond the resources of the organisation, as would attempting to look at other important issues such as land tenure, human rights, health and education. Instead, it is probably better to focus IUCN's attention on its primary goal of influencing societies to improve management and conservation of biodiversity, and to confine discussion about indigenous people to areas where their interests overlap with those of conservationists on this particular point.

Indigenous people possess an enormous body of information about biodiversity. Conservationists have generally failed to make use of this knowledge and have often alienated indigenous groups. Today, IUCN thinks that it is vital to involve indigenous people in conservation initiatives from the very beginning. This will ensure that their rights are respected and that their traditional knowledge of biodiversity and management of natural ecosystems is used to enhance their well-being as well as conservation outcomes. Perhaps one way to move ahead would be to establish a forum for mutual learning.

IUCN has to be clear about its own motives for entering into discussions with indigenous people. The end aim must be more than simply a surface attempt at political correctness, and should instead attempt to draw together a productive discussion which could provide some real lessons for the future.

International fora are seldom the right places to have discussions of this sort and in Latin America they have continued for years, with little to show for the effort. We now want to avoid continuing a process that clearly does not work. This means that IUCN must embark on a long and rigorous set of regional discussions in the appropriate context and with a chance for all actors to express their views, fears and desires. Today, everybody wants to be

present when decisions are taken that will affect their own lives and guaranteeing this is part of the challenge faced by deepening democracy.

IUCN has been developing regional approaches to working with indigenous people in Central America and southern Africa, with varying degrees of success. A broad strategy has emerged which allows participation in regional processes, while at the same time letting people have the space to develop independent discussions. The regional working groups will meet each other at an inter-regional meeting at the 1996 IUCN World Conservation Congress (formerly IUCN's General Assembly) in Montreal. The outcome of this meeting will be submitted as Resolutions and Recommendations to the General Assembly and as directives for global policy.

Based on original text by Eduardo Fernandez.

[from *Arborvitae*, 1]

THE DANGERS OF CONSERVATION BY RURAL DEVELOPMENT—A CASE STUDY FROM THE FORESTS OF NIGERIA

Abstract

The Okomu Forest Reserve in Southwest Nigeria contains a 114 km² wildlife sanctuary that is an important refuge for several threatened species, including the white-throated guenon *Cercopithecus erythrogaster*. A conservation project that started in Okomu in 1987 focused initially on protection, but the emphasis recently shifted to a programme of agricultural development assistance to migrant farmers in the reserve. This approach, which appears to follow the philosophy espoused in IUCN/UNEP/WWF's Caring for the Earth, may hasten rather than prevent the destruction of this remnant tropical forest and its wildlife.

Conclusions

The example of Okomu suggests that a development approach to conservation that places its strongest emphasis on immediate human needs rather than on the protection of nature can promote the destruction, not the conservation, of tropical forest. This approach may reinforce some of the processes that most threaten the forest's survival (in particular, migration and agricultural intensification). Reserves and parks are indeed more likely to be effective if they involve the people living near them; but it is more appropriate

to involve people in protection work, in tourism, in sustained-yield forestry and in research than to encourage their agricultural activity.

In countries like Nigeria, where forests and wildlife populations are becoming reduced to small, highly threatened remnants, protection should be the first priority in a conservation programme. Before money and effort are expended in development projects near protected areas in such places, the rationale for and probable long-term consequences of these projects should be studied carefully and critically.

In particular, closer attention should be paid to relationships between conservation, development and migration. The threat posed to Okomu by migrant farmers is not a unique case; it is an example of a widespread and growing conservation problem in Africa. Economic difficulties and population growth are leading more and more people to seek opportunities at the 'frontier' far from home. Elsewhere in West Africa, large numbers of immigrants from northern Côte d'Ivoire are putting pressure on the Taï National Park, while a 1993 survey of 47 farmers around the Kakum National Park and Assin Attandaso Game Production Reserve in south-central Ghana found that all but one were migrants who had moved there to grow cocoa (R.F.W. Barnes, pers. comm.). By making former economic backwaters more appealing to migrants, development projects associated with protected areas may end up sowing the seeds for the ultimate destruction of these areas.

John F. Oates

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[excerpted from *Oryx*, Vol. 29, No. 2]

AFRICAN FOREST ACTION NETWORK

A new body captioned the "African Forest Action Network" has been created. The network is an informal group of African non-governmental organisations, democratic and dynamic, with a common interest in the field of conservation and sustainable use of forest resources in Africa and world wide, always bearing in mind the needs of the people for sustainable development. The objectives of the Network are as follows:

- to disseminate information and exchange experience among members, with other networks, and other organisations;

- to coordinate lobbying activities in the field of sustainable forest management.

The pioneering members of the Network (made up of about 30 NGOs from West and Central Africa) elected one of its members—International Centre for Environmental and Forestry Studies (ICEFS, an indigenous NGO from Cameroon) to take up the task of the coordination of the Network for the first two years.

Contact: Louis Djomo, African Forest Action Network, ICEFS, P.O. Box 2503, Yaoundé, Cameroon, Tel: 23-722-6485, Fax: 23-7-23-0768, or Wale Adeleke, WWF-International, Avenue du Mont Blanc, CH-1196 Gland, Switzerland, Tel: 41-22-364-9520, Fax: 41-22-364-8219/5829.

FIRST TEST-TUBE GORILLA BORN

The world's first test-tube gorilla *Gorilla gorilla* was born 5 wk premature on 9 October 1995 at the Cincinnati Zoo. The birth was not announced until it was certain the tiny 3.5 lb female would survive the first critical weeks. The embryos were implanted in March of last year. "When captive gorillas are not reproducing naturally, this technology can be used to include them in the gene pool—an important step in preserving any animal species," said Dr. Betsy Dresser, Director of Research at the Cincinnati Zoo. Dresser said there have been about 10 futile attempts at test-tube gorilla births; this was Cincinnati's first try.

[adapted from *USA TODAY*, 1 December, 1995]

LIMBE ZOO—WILDLIFE RESCUE CENTER

The rehabilitation of the Limbe Zoo over the past year is the result of a cooperative effort between the Government of Cameroon's Ministry of Environment and Forests (MINEF) and Pandrillus, an NGO working to protect endangered primates in Nigeria and Cameroon. The Limbe Botanic Garden is the MINEF authority directly supervising the activities at the zoo.

The project is working to rehabilitate the zoo for use as a wildlife rescue centre, particularly for the endangered species of Cameroon's rainforest areas. Cameroon's rainforests and montane forests are valuable centres of biological diversity, both in plants and wildlife, yet are under increasing pressure from human activities—logging, farming, hunting. The project aims to take in and care for animals that have been taken from the wild but

cannot be returned, such as orphaned primates who cannot normally live without their mothers. While caring for them at the zoo, we are exploring long-term solutions, such as release to protected areas. However, we hope to foster a better solution by educating the public about the region's valuable wildlife; only then can real progress be made towards conserving the habitat of these animals and thereby protecting them from extinction.

[adapted from *Limbe Zoo Wildlife Rescue Center Newsletter*, Vol. 1 No. 1]

AZA CONSERVATION & SCIENCE



In 1980, the Board of Directors of the American Zoo and Aquarium Association (AZA) unanimously voted wildlife conservation as the Association's highest priority. Since then, many individuals, committees and cooperative programmes have arisen to help fulfil this goal, including AZA's Species Survival Plans (SSPs), Taxon Advisory Groups (TAGs), Fauna Interest Groups (FIGs) and Scientific Advisory Groups (SAGs) which are designed to help facilitate zoo- and aquarium-based conservation and scientific activities.

The AZA Conservation & Science (C&S) Office provides the critical organisational structure for planning, coordination, facilitation and promotion of these activities on behalf of AZA member institutions. With the number and scope of such cooperative conservation and science programs continuing to expand, the AZA C&S Office is playing an increasingly important role.

Program development and coordination

The C&S Office, in conjunction with the Wildlife Conservation and Management Committee, Field Conservation Committee and AZA Board of Directors, is responsible for formulation and distribution of the various responsibilities, guidelines and protocols essential to participants in the AZA Conservation and Science Program, and for review of individual programme performance.

The C&S Office takes the lead in fostering communication and collaboration between AZA, U.S. Government agencies, other regional zoo and aquarium associations, and national and international conservation organisations. In addition, the C&S Office conducts SSP management group and other committee elections, maintains numerous databases, and provides important materials and information to members on a daily basis.

The science of population management

Expertise in the science of genetic and demographic management is one of the C&S Office's most important features. C&S staff are a valuable resource for all managers of captive populations. In assisting each SSP coordinator and studbook keeper in furthering the efforts of their individual programs, C&S staff frequently conduct analyses of studbook data, lead SSP Master Plan sessions and provide guidance to studbook keepers and SSP management groups on the technical aspects of genetic and demographic management.

Members of the C&S Office staff are also involved in the continuing development of the science of animal management through data analysis and the publication of scholarly research.

Training and technology transfer

Because relatively few individuals have specialised training in the science of genetic and demographic management, the C&S Office has developed and helps coordinate the activities of the AZA Small Population Management Advisory Group. C&S staff assist with the development of training opportunities for SSP coordinators, studbook keepers and others through organisation of workshops, and curriculum development and instruction at AZA schools, such as Conservation Academy, and Zoo and Aquarium Biology School. Furthermore, recognising the importance of cooperation on an international level, the C&S Office assists other regions of the world in their efforts to learn and use new population management and animal husbandry techniques. Recent training workshops in China and Australia have proven successful in exchanging important information and expanding the global zoo and aquarium network. Conservation Academy and workshops at the AZA Annual Conference regularly draw participants from zoos, aquariums, wildlife agencies, and conservation organisations around the world.

Communication

A vast array of individuals, organisations and agencies are involved in the AZA Conservation and Science Program. In order to be successful in their cooperative efforts, these individuals and groups must communicate, work together, and understand new developments in science, technology and planning processes associated with their programs. One of the C&S Office's primary roles is to facilitate communication through a variety of publications, workshops, presentations and correspondence. In short, the C&S Office serves as

a clearinghouse of information for AZA members, regarding relevant conservation and scientific issues.


Working closely with the AZA Department of Public Affairs, the C&S Office recently published a book promoting the SSP programme, has begun a book series on *Zoo and Aquarium Biology and Conservation* with the Smithsonian Institution Press, has a formal relationship with the journal *Zoo Biology*, and regularly provides information to the popular media (newspapers, magazines, television) on zoo and aquarium-based conservation and science issues. The C&S Office staff are also frequently requested to give oral presentations to various groups and organisations throughout North America. Perhaps most importantly, however, members of the C&S Office staff are always available at the AZA Executive Office/Conservation Centre to answer questions, offer advice or provide information to those who need it.

Fund raising and development

The C&S Office has a significant role to play in the fund raising and development arena. The AZA Director of Marketing and Development is assisted by the C&S Office with a variety of development initiatives intended to support the conservation and science activities of AZA member institutions. The C&S Office identifies potential funding sources, conducts grant writing and editing, and solicits proposals for important conservation and research projects in need of support. In addition, the C&S Office helps SSPs, TAGs, FIGs and SAGs establish dedicated funds and Five-year Action Plans, and is responsible for coordination of the AZA Conservation Endowment Fund (CEF) and Ralston Purina Big Cat Survival Fund grant application and review process.

[from *AZA Fact Sheet*, July 1995]

AZA CONSERVATION ENDOWMENT FUND

 The Conservation Endowment Fund (CEF) of the American Zoo and Aquarium Association (AZA) has been in existence since 1984. The CEF's purpose is to "unitise investment proceeds from the Conservation Endowment to provide finances for carefully considered conservation projects." The CEF is charged "to provide funds for staff resources and to develop promotional materials for a national awareness programme with respect to the Species Survival Plan (SSP) and other Association

conservation endeavours." It is a critical part of the AZA's effort to meet its conservation mission.

Initial funding for the CEF came from a US\$ 100,000 transfer from the AZA general fund and from member institutions who pledged "fair-share" contributions. Subsequent funding has been received from generous corporations and individuals. The Endowment's principal is approaching US\$ 2,000,000, but needs to grow dramatically to address the many challenges facing conservation programs. The goal is US\$ 5,000,000.

Over the years, over US\$ 400,000 in grants from the CEF have been used to enhance and initiate programs vital to the entire zoo and aquarium profession. CEF awards have gone towards underwriting the development of the AZA Conservation Academy, supporting members of AZA Small Population Management Advisory Group to attend SSP masterplanning sessions, and for funding the preparation and distribution of contraceptive implants for captive animals. CEF support was also given for reintroducing Bali mynahs to Bali Barat National Park in Indonesia, developing the first international symposium on disease and the conservation of threatened species, and forming a conservation action plan for Sumatran tigers.

To support the campaign for the CEF—"Preparing for the Twenty-first Century"—we must create and carry out programs that implement the following: facilitation of *in situ* programs—regional and international; publication of SSP Husbandry Manuals; and creation of scholarships for curatorial training internships, implementation of education programs for endangered species, and other proactive programs on behalf of the SSP programme and conservation.

Contact: AZA Director of Development and Marketing, AZA Executive Office/Conservation Centre, Bethesda, MD 20814-2493, USA, Tel: 301-907-7777, Fax 301-907-2980.

COMPUTER NETWORK FOR BIODIVERSITY CONSERVATION

If the world's biodiversity is to be listed, monitored, conserved and used in a sustainable way, a means of linking and sharing information is essential. A group of 25 network specialists from 10 countries met at the Base de Dados Tropical, Campinas, Brazil, to discuss cooperative strategies for enhancing global access. This concept has now become a reality.

Building on an earlier UNEP-sponsored workshop, a distribution network has been set up by

a number of experts. Using the worldwide computer network—the Internet, which connects an estimated 2.5 million computers—a system has been set up to link together the rapidly growing amount of biodiversity information. Networking technology has been used to enable easy searching for information around the world.

Using a diversity of access systems, including the World Wide Web, the Biodiversity Information Network 21 (BIN21) makes it possible for people from any part of the world who have links to the Internet to use a common procedure to search and retrieve information. For users unable to access the Internet, a series of regional centres is planned, together with e-mail access for users able to use electronic mail, but without full Internet capability.

A series of nodes around the world carry core information and point to data sources on the Internet. The network is a globally accessible system that uses state-of-the-art technology. The management of the network breaks new ground by reducing administrative infrastructure to a minimum.

Apart from the Secretariat, administrative arrangements are carried out online through computerised mail systems, thus reducing overall costs and allowing the greatest number of people to participate in its development. This is felt to be essential for all groups concerned with biodiversity—from scientists to administrators, from farmers to the world's greatest museums—to be able to use and contribute to the network.

The Biodiversity Information Network supports the aims of the Biodiversity Convention which came into force on 29 December 1993. BIN21 will make a major contribution to the greater understanding and conservation of the biological resources of the planet.

Contact: BIN21 Secretariat, Base de Dados Tropical, Fundação Tropical de Pesquisas e Tecnologia “Andre Tosello”, Rua Latino Coelho 1301, Parque Taquaral, 13087-010 Campinas, SP, Brazil, Tel: 55-192-42-7022, Fax: 55-192-42-7827, E-mail: BIN21@ftpt.br

[adapted from: *IUCN Forest Conservation Programme Newsletter* No. 19]

PUTTING PRIMATES IN THE CLASSROOM

The Primates, a four-part slide set that takes full advantage of young people's interest in monkeys, apes, and the environment, is available for teachers to use in their classrooms. Drawing on the library and resources of the Wisconsin Regional Primate

Research Center, this set introduces the topics of primate behaviour, primate conservation, primate taxonomy, and field work. Accurate and accessible, each part contains 72 slides with accompanying annotated script, suggestions for classroom activities, bibliographies and other supporting materials. *The Primates* has been tested in schools and revised at the suggestion of middle and high school teachers. The set is also easily adaptable for use in introductory classes at the undergraduate level, and can be used for staff training in zoological gardens and primate facilities.

The four parts are:

- *Behavior of Social Animals* which examines the social lives of primates (including humans). Topics covered include the interactions of infants with their mothers; the kinds of social groups in which primates live; how primates communicate; friendly and unfriendly behaviour; and how infants become part of a social group. Examples are drawn from more than 20 species of primates.
- *Conservation of Endangered Species* which explores how primates use their habitat, and how threats to the habitat have caused most primate species to become threatened or endangered. Two conservation projects which successfully incorporate education, benefits for the local population, and habitat preservation, are examined in detail.
- *Taxonomic Classification* which introduces the common features that characterise the Order Primates. Included in the set are photos of members of each major group of primates: Prosimians (eight species), New World monkeys (12 species), Old World Monkeys (14 species), and apes (six species). Maps and graphs illustrate the geographic distribution and classification of each group.
- *Field Work—Integrating Research and Conservation* which focuses on selected topics in conservation biology, illustrating the ways in which three primatologists doing field work with lemurs, muriquis, and gorillas integrate their research studies with species conservation needs.

The Primates was developed through a grant from the Center for Biology Education, University of Wisconsin, Madison, and with additional support from the American Society of Primatologists. Due to copyright restrictions, *The Primates* is not currently for sale, but is available on loan from the

Wisconsin Regional Primate Research Center Library Audio-visual Service. Each part is available for a 14-day loan via mail for US\$ 10.00 service fee. *The Primates* may be borrowed at no cost by individuals picking it up on site.

Contact: Ray Hamel, Special Collections Librarian, Wisconsin Regional Primate Research Center, University of Wisconsin, 1220 Capitol Court, Madison, WI 53715-1299, USA, Tel: 608-263-3512, E-mail: hamel@primate.wisc.edu

PROPOSED ESA LEGISLATION THREATENS SPECIES WORLD-WIDE

After months of hearings on the Endangered Species Act (ESA), Congress has proposed several new bills that have the potential to compromise species conservation not only in the United States, but internationally.

The first ESA reform bill to appear was the "Endangered Species Act of 1995" (S. 768), sponsored by Senator Slade Gorton (R-WA), which includes a provision that abandons the ESA's goal of species recovery. The bill authorises the Secretary of the Interior to choose, without benefit of public review and comment, from a menu of "conservation objectives" for each listed species, ranging from recovery to as little as prohibition of direct, intentional capture or injury. In effect, the Secretary would have sole authority to choose which species to save and which to allow to become extinct. This provision of the bill would apply to species newly listed under the Endangered Species Act and species already on the list.

In addition, Gorton's bill would severely weaken ESA protection for habitat. By eliminating habitat destruction from the ESA's definition of "harm", the bill would overturn June's U.S. Supreme Court decision in *Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon*, considered an important conservation victory.

In September, Congressman Richard Pombo (R-CA) and Chairman Don Young (R-AK) introduced the "Endangered Species Conservation and Management Act of 1995" (H.R. 2275). This bill is similar to S. 768 in many of its key provisions, including those described above. In addition, the Pombo-Young bill includes "takings" language, creating a costly new entitlement for landowners who claim that regulation under ESA has reduced the value of their property by at least 20 percent. It also would weaken the Act's protection for endangered species in other countries. "The Pombo-Young bill undermines U.S. leadership in international species conservation by severely

limiting the ability of the U.S. to control trade in endangered and threatened species, and hindering compliance with the requirements of the Convention on International Trade in Endangered Species," says WWF Senior Vice President James P. Leape. "The bill would undermine the authority of the United States to act under its own laws to protect imperilled wildlife, such as tigers and rhinos, from the ravages of uncontrolled and illegal trade."

[excerpt from *WWF Focus*, Vol. 17, No. 5]

FREE ENVIRONMENTAL INFORMATION!

If you are engaged in environmental research, policy making, planning or management, International Environmental and Natural Resource Information Service (INTERAISE) may be able to help you locate and acquire environmental information about your country.

The INTERAISE documentation collection contains natural resource assessments and environmental profiles, including TFAP Reviews, UNCED National Reports, and biodiversity profiles. The INTERAISE Information Service, located at IIED, provides copies of these documents free wherever possible to bona fide requests from developing countries.

The Directory of Country Environmental Studies details the documents held by INTERAISE for each country or region of the world.

For a free copy, or for a listing of the information held on your country, contact: INTERAISE Information Service, IIED, 3 Endsleigh Street, London WC1H 0DD, UK, Tel: 44-71-388-2117, Fax: 44-71-388-2826.

MORE ON THE DESTRUCTION OF THE US ENDANGERED SPECIES ACT

The "Endangered Species Conservation and Management Act of 1995" (H.R. 2275) proposes that the US lower its conservation efforts in other countries rather than encouraging other countries to raise their efforts to those of the US. It also allows people to harm or kill threatened or endangered species as long as it is not done on purpose, and is done during legal activities such as commercial fishing.

In the US Senate, a similar bill has been proposed by Senator Kempthorne. This bill is entitled the "Endangered Species Conservation Act of 1995: (S. 1364). This bill requires that only

minimal protection should be afforded to endangered species when conservation efforts conflict with human use of the habitat. This bill also requires the federal government to compensate property owners for any damage caused due to conservation efforts. For example, taxpayers would be forced to pay shrimpers money for the amount of shrimp that they estimate they lost due to the presence of turtle excluder devices in their shrimp trawls.

If you are opposed to any weakening of the Endangered Species Act, contact: The Honourable _____, United States House of Representatives (United States Senate), Washington, DC 20510, USA; President Clinton: President@whitehouse.gov; Vice President Gore: vise.president@whitehouse.gov; White House Comment Line, Tel: 202-456-1111. To reach the office of a particular senator or representative, telephone US Capitol Switchboard: 202-224-3121.

If you have any questions or comments, contact: Paula Phaneuf, ppha9648@uriacc.uri.edu

MAMMAL SLIDE LIBRARY

The mammal Slide Library (MSL) is a non-profit education service of The American Society of Mammalogists with the goal of providing 35 mm slides of mammals for educational purposes worldwide. The present collection consists of 1,200 slides depicting 750 species, 440 genera, 100 families, and 19 orders. More than 100,000 slides are now in use at 3,000 institutions in about 40 countries. In addition to optical projection for non-profit instruction, many of the slides can be employed (with permission) for other purposes, including commercial uses. To obtain a catalogue that describes the slides and gives other information, send US \$4 (US \$5 outside USA) to: Elmer J. Finck, Division of Biological Sciences, Box 50, Emporia, State University, Emporia, KS 66801, USA, Tel: 316-341-5623. A simple listing of slides can be obtained free from the same address. For permission to use slides for purposes other than non-profit optical projection, contact J. Alden Lackey, Department of Biology, State University of New York, Oswego, NY 13126, USA, Tel: 315-341-4250.

The MSL continually seeks new slides for the collection and urges anyone having slides to contribute them. For information about contributing slides, contact the committee chair: Carol J. Kirkland, Pennsylvania State University, Mont Alto, PA 17237, USA, Tel: 717-749-6207.

In 1992, the MSL instituted a program whereby grants in the form of MSL slides can be obtained by educational institutions in developing countries. About 40 grants to applicants from 20 countries have been awarded thus far. Institutions can select up to 50 slides of their choice and can reapply annually. Contact: John O. Whitaker, Jr. Department of Life Sciences, Indiana State University, Terre Haute, IN 47809, USA.

MEETINGS

Primate Society of Japan. The 12th annual meeting of the PSJ will be held 27-29 June, 1996, Osaka University Convention Centre, Suita City, Osaka, Japan.

Contact PSJ Annual Meeting Organising Committee, Tel: 81-6-879-8045, Fax: 81-6-879-8010, E-mail: naka@hus.osaka-u.ac.jp or machida@hus.osaka-u.ac.jp

IPS/ASP '96 Congress. The 16th International Primatological Society/19th American Society of Primatologists Joint Congress will be held August 11-16, 1996. All paper sessions, symposia, posters, exhibits and business meetings will be held at the Memorial Union and adjacent buildings at the University of Wisconsin—Madison. The joint Congress is hosted by the Wisconsin Regional Primate Research Center. The objective is a high quality, low cost Congress that facilitates and promotes good science, discussion, and participation of as many primatologists and students as possible.

Venue: The Memorial Union at the University of Wisconsin—Madison is a centre for faculty and student activities and is located on the shore of Lake Mendota. You may wish to spend some time before or after the conference vacationing in Madison or outlying areas. There are many things to see and do in the Madison area. Information will be available before the meeting and at registration.

Registration: Registration fees are \$ 200.00 for regular members, \$130.00 for student members, \$250.00 for non-members and \$130.00 for guests (social events). Registration includes the opening and closing receptions as well as the programme and abstract booklets.

If you are not a member of IPS or ASP, please consider joining now. If you wish to join the American Society of Primatologists, contact Jeffrey French, Treasurer of ASP, Department of Psychology, University of Nebraska, Omaha, NE

68182, USA, or e-mail Beth MacDonald at epscor@unomaha.edu

To join the International Primatological Society contact Reinhold Hutz, Treasurer of IPS, Department of Biological Sciences, P.O. Box 413, University of Wisconsin-Milwaukee, 3201 N. Maryland Avenue, Milwaukee, WI 53201-0413, USA, E-mail: rjhutz@csd.uwm.edu

If you are not a member of the IPS or the ASP, and would like to be added to our mailing list to receive a registration/abstract packet, please contact Edi Chan, Wisconsin Regional Primate Research Center, 1220 Capitol Court, Madison, WI 53715-1299, USA, Tel: 608-263-3500, Fax: 608-263-4031, E-mail: ipsasp-info@primate.wisc.edu

Hotels: Hotel rooms and other room accommodations ranging from \$58/d up to \$105/d (US dollars) have been reserved. For all inquiries regarding hotel accommodation, contact the hotel directly. Inform the hotel that you are part of the IPS/ASP group. Please make reservations early. Reservations are on a first come, first served basis. Reservations must be made by 15 June or 10 July, depending on the hotel.

Student dorms: A single air-conditioned room for one person with breakfast is provisionally \$40/d. A double air-conditioned room with breakfast is \$27/person/d. Restroom facilities are shared. Reservations must be made by 10 July 1996.

Financial: There will be no financial support to individuals from the conference. We have set registration fees as low as possible to encourage wide participation from international visitors and students. There is no flexibility in this budget to subsidise any travel or other costs.

Travel: Airlines discounts have been arranged with United Airlines for the IPS/ASP '96 Congress. United Airlines is the official airline of the IPS/ASP Congress, for US travel only. If you or your travel agent call United's toll-free number (1-800-521-4041) to book your reservations, you will receive an additional 5% discount of the lowest applicable fare, including First Class, or a 10% discount off mid-week coach fares, purchased 7 d in advance. Discounts also apply on Shuttle by United and United Express. Call United's Specialised Meeting Reservations Center at 1-800-521-4041 to obtain the best fares and schedule information. Make sure you refer to Meeting ID Code #561ZL. Reservations can be made 7 d a week from 0700-2200 h EST.

Social Program: All participants and registered guests are invited to attend the Opening Ceremony on 11 August. This is followed by a reception for participants. There is live music and a dinner on 13 August.

Current information about the IPS/ASP '96 Congress is available to those with Internet access through Primate Info Net (PIN). WWW users can reach PIN at: <http://www.primate.wisc.edu/pin>. Gopher users can reach PIN at: [night.primate.wisc.edu](gopher://night.primate.wisc.edu)

Third Annual Conference of the Wildlife Society. 1-6 October 1996, Cincinnati, Ohio, USA.

Contact: The Wildlife Society, 5410 Grosvenor Lane, Bethesda, MD 20814, USA, Tel: 1-301-897-9770, Fax: 1-301-530-2471, E-mail: twswildlife.org

IUCN World Conservation Congress. 14-23 October 1996, Montreal Conference Centre, Montreal, Canada.

Contact: John Burke, Director of Communications, IUCN The World Conservation Union, rue Mauverney 28, 1196 Gland, Switzerland, Tel: 41 22 999 0123, Fax: 4122-9990002.

Australian Primate Society Annual Meeting. 6-8 December 1996, Wellington Zoo, Wellington, New Zealand.

Contact: Graeme Crook, CSIRO Division of Human Nutrition, Animal Services, Majors Road, O'Halloran Hill, South Australia 5158, Tel: +6182980336, Fax: +6183770004, E-mail: graemec@dhh.csiro.au

Third Gorilla Workshop. 2-6 April 1997, Sponsored by Pittsburgh Zoo. Sheraton Station Square, Pittsburgh, PA, USA.

Contact: Debbie McGuire or Roseann Gianbro, Pittsburgh Zoo, One Hill Road, Pittsburgh, PA 15206-1178, USA, Tel: 1-412-665-3794, Fax: 1-412-665-3661.

FUNDING AND TRAINING

THE WHITLEY AWARD FOR ANIMAL CONSERVATION

The Whitley Animal Protection Trust and the Royal Geographical Society have joined forces to establish an annual award that will make a substantial contribution to field projects directly concerned with *in situ* protection and conservation. The aim of the award is to provide an annual prize for the best

animal conservation project submitted to the Trust each year.

Applications are open to conservationists from any nation working in conjunction with the host country. One prize is awarded each year up to a value of £15,000. This should cover the major costs of the winning project, enabling it to proceed without having to wait to secure other funds. The main criterion is that the project's objectives should make a practical, lasting and substantial contribution to the protection and conservation of animals in their habitat.

Applicants will be asked to explain the origination of the project, provide detailed costing, evidence of support from the host government or local non-governmental organisations, and a statement on how the project is going to make a practical contribution to animal conservation.

Applicants should note that they could apply for The Whitley Award either by a single visit to the host country or by living there for a longer period. Close involvement of the host country and links with local institutions are essential.

The Whitley Award supports multi-disciplinary teams rather than individuals, so that one-person ventures are rarely eligible. The applicant may be from any nation and must be at least 25 yr old. Multi-national teams of any age group are encouraged. Teams must demonstrate that they have done sufficient planning and allowed enough time in the field to achieve their objectives safely and efficiently. Applicants will not be restricted to qualified scientists, but the Award Winner must be able to compile a written report to describe and qualify the success of their work with appropriate references. Undergraduate expeditions are not eligible, but may apply separately to the Royal Geographical Society's expedition grant scheme, if the majority of the team are British.

An itemised budget detailing income and expenditure is required. The project's budget should be realistic and demonstrate whether these moneys are to be spent in the home or host country. Salaries for scientists will not normally be included.

All applications must be made on the forms obtainable from the Whitley Award Office at the Royal Geographical Society. Forms and supporting documents should be submitted by the 19th January for projects planning to be in the field after 1st April in the same or subsequent year. A short list of applicants will be called for interview in early February and the Award Winner will be notified by the end of February.


Contact: The Whitley Award, Royal Geographical Society, 1 Kensington Gore, London SW7 2AR, UK.

BP CONSERVATION EXPEDITION AWARDS—STUDENT EXPEDITIONS

Birdlife International and Fauna and Flora International, with support from British Petroleum, hold an annual competition for conservation exploration projects, "The BP Conservation Expedition Awards". The competition has been opened up to all nations, rather than just Europeans, as was previously the case. Projects entered in the competition are judged especially on the level of host country involvement and the global importance of the conservation issues on which the project is focused. Projects must involve local students or counterparts and must have clearance from the host government. The project must fall within one of the following categories: Tropical rain forest, wetlands, oceanic islands and marine, globally threatened species. Red Data Book species might be the focus. The expedition should consist of young people, preferably undergraduate students, although it is recommended that at least one postgraduate in life sciences should be included. Proposals for 1997 Expeditions must be entered by no later than 31 December 1996. Entrants will be informed of the results by the end of February.

Contact: Michael K. Poulson. Birdlife International, Wellbrook Court, Girton Road, CB3 0NA, UK, Tel: 44-223-277318, Fax: 44-223-277200.

ASP CONSERVATION FUND

 Nominations for Conservation Awards and Grants are now being sought by the American Society of Primatologists (ASP). These awards and grants, funded from the ASP Conservation Fund, are a contribution to the larger conservation picture and a mechanism to recognise deserving colleagues and students, including those from primate habitat countries—countries with native primate fauna—for whom the prestige of an ASP award or grant can be a valuable aid to the recipient's conservation efforts. An award nomination is basically a letter of recommendation.

Subscription Award: This award provides the American Journal of Primatology to worthy individuals in habitat countries who otherwise would have little access to the scientific literature on non-human primates. The Society expects to support several continuing subscription awards. Preference is given to individuals who will make the journal available in a central place for colleagues to use, and to those who can justify brief

reapplication every 2 yr to build up their library of the journal. A nominating letter should describe the nominee's credentials and his/her primate related activities, and should explain why the nominee deserves to receive a high priority.

Conservation Award (\$500): This award provides recognition and financial support for students and young investigators from habitat countries. In the past, arrangements have been made to have the award presented by U.S. Ambassadors or other senior officials, thereby obtaining favourable publicity for the award, its recipient, and primate conservation in the recipient's country. Nominators should provide the name, title and full mailing address of their nominees, along with a statement about the nominee's qualifications for the award, his/her contributions to primate conservation and why the nominee deserves to receive a high priority. Eligible award recipients include students, researchers, and educators for whom no more than 5 yr have elapsed since receipt of their terminal degree. Selection will be based upon the nominee's actual and potential contributions to primate conservation.

Senior Biology and Conservation Award (\$500 Honorarium): This award is one of ASP's highest honours. It is given to recognise an individual without an advanced degree who has made a substantial contribution to conservation or related aspects of primatology over long periods (at least 5 yr, preferably more). Such contributions could arise from work done with free-living or captive primates in field, laboratory or zoo settings. Nominees might work directly with primates, or be engaged in activities supporting those who work with primates. They could be animal caretakers, research technicians, census takers, research assistants or facilitators, individuals involved in private enterprise, *etc.* Nominations should include a letter detailing the nominee's qualifications and contributions to primate biology and conservation. This award is typically presented at public ceremonies by senior officials.

Conservation Small Grants (up to \$1,500, but usually \$500): Grant proposals are solicited for conservation research or other projects, including conservation education. ASP and IPS members working in habitat countries are especially urged to apply or to help someone from a habitat country submit a meaningful project, which can be a portion of a larger effort. Grant proposals must be typed in English, should not exceed 2000 words, and should include a brief budget page. Recipients of grants must agree that a brief progress report, in a form suitable for publication in the ASP Bulletin, will be made within 12 months of the award.

Evaluation and Application Procedure: With the exception of requests for emergency support, which can be considered at any time for immediate action, the Conservation Committee will make its recommendations for awards and grants to the ASP Executive Committee at its annual meeting. Successful nominees and applicants will be informed following the meeting and their names published in the Bulletin. The 1996 deadline for submission of nominations and grant proposals is 30 June.

Send to: Ramon J. Rhine, Psychology Department, University of California, Riverside, CA 93521, USA, Tel: 909-683-4285, Fax: 909-787-3985.

SMALL GRANTS TROPICAL RAINFOREST PROGRAMME

The Dutch government's Tropical Rainforest Policy's central objective is "to encourage the preservation of the tropical rainforest through balanced and sustainable land and forest use, with a view to halting the current rapid deforestation process along with other environmental damage and degradation". The programme supports NGO projects aimed at the conservation and sustainable management of tropical rainforests. Currently around 50 projects are underway in a range of countries, addressing issues as diverse as indigenous property rights, non-timber forest products, timber certification, environmental education, lobbying and policy making.

All projects must contribute to the preservation of tropical rainforests, including evergreen moist lowland, montane and cloud forests, plus tropical mangroves and riverine forests. Projects must also comply with IUCN objectives regarding the conservation of nature and sustainable use of resources. Proposals are invited from environmental NGOs and indigenous peoples' organisations either based in or closely linked with tropical countries. The fund is not available for western consultants. Project proposals must clearly state objectives and activities, provide indicators for evaluation and monitoring and indicate where the activities will take place. Maximum assistance for projects cannot exceed US\$ 75,000. Proposals must address priority conservation areas or themes, take account of the needs and views of the local population including gender aspects, and if possible be linked to existing management structures and programmes.

Projects are invited covering protection and management of tropical rainforests, encouragement of sustainable land use and forestry, reforestation,

marketing of non-timber forest products, networking activities enabling local communities to protect tropical rainforests and participate in policy-making, enhancing political and social support for tropical rainforest protection, and training activities relating to the above.

Contact: Rietje Grit or Willem Ferwerda, Netherlands Committee for IUCN, Plantage Middenlaan 2B, 1018 DD Amsterdam, The Netherlands, Tel: 31-20-626-1732, Fax: 31-20-627-9349, E-mail: iucnethcomm@gn.apc.org

FULBRIGHT SCHOLARSHIPS

One thousand Fulbright Awards will be made for college and university faculty and non-academic professionals to lecture or pursue advanced research and/or related professional activity abroad. These awards are available in every area of the social sciences, arts and humanities, sciences, and many professional fields. For US candidates, grants are available to 140 countries. Non-US candidates must contact the Fulbright Commission or US Embassy in their home country to apply for awards to come to the United States. Activities include undergraduate and graduate teaching, individual research, professional collaboration, and joint research collaboration. Awards range in duration from two months to a full academic year. Most, but not all, teaching assignments are in English. The deadline for the 1997-98 awards is August 1.

Contact: Council for International Exchange of Scholars, 3007 Tilden St, NW, Suite 5M, Box NEWS, Washington, DC, 20008-3009, USA, Tel: 202-686-7877, E-mail: cies1@ciesnet.cies.org

HELP SANCTUARY

HELP (Habitat Ecologique et Liberté des Primates) Sanctuary is a rehabilitation centre under the direction of the Forestry Department in the Conkuoati Forest, Congo, and operated by Aliette Jamart. The Sanctuary takes in chimpanzees which have been orphaned by poaching, confiscated from black market trade or rescued from inadequate zoos in the area. The Sanctuary's goal is rehabilitation and ultimate release into the wild. The Sanctuary was established in 1989 and currently has a population of 48 chimpanzees (aged from 9 months to adult), six mandrills and one guenon monkey. Although no chimpanzees have been released yet, studies are underway to find a suitable area,

especially since the Sanctuary will not be able to accommodate many more animals.

Mme. Jamart funds a large portion of the expenses of the Sanctuary herself. In addition to financial assistance, she is interested in finding volunteers to assist in caretaking of the chimps at the Sanctuary. A great deal of time is spent preparing food for the chimpanzees and working with the infants in the forest. This is a unique opportunity to work with chimpanzees in the wild in a rehabilitation scenario.

Preliminary research has been done to locate possible areas for future release; Caroline Tutin has prepared a report of her preview of the area. Additionally, as this is a "working" Sanctuary, no formal research of the animals' development or behaviour has been undertaken. Independent research opportunities may be available in either of these areas.

Transportation from Pointe Noir to the Sanctuary, and lodging at the Sanctuary are provided. This is a French-speaking area; English is almost non-existent. Correspond with Mme. Jamart (preferably in French).

Becky Wilson, a former volunteer at the sanctuary can be contacted for information and details about the Sanctuary at: 2128 West Bijou Street, Colorado Springs, CO 80904, USA, Tel: 719-633-9907.

LIST OF GRANT SOURCES

A listing of agencies and foundations that grant funds for research on mammals is available from The American Society of Mammalogists. This list comprises a variety of sources for established researchers as well as students and recent graduates. To obtain a copy, send an IBM-compatible, formatted diskette (3.5 or 5.25 inch) and a self-addressed, stamped envelope to: Susan C. Loeb, ASM Education and Graduate Students Committee, Southeastern Forest Experiment Station, Department of Forest Resources, Clemson University, Clemson, SC 29634-1003, USA.

HOWLETTS

Howletts-Port Lympne Estates Ltd offers pre-college training and field work opportunities. The programme is concerned with conservation, zoo technology, reintroduction, hand-rearing and animal behaviour/classification/communication. Howletts' principal research programme is at the Gorilla/Bonobo Orphanage in Brazzaville, Congo. African primates at the Port Lympne Zoo include *Gorilla*

gorilla gorilla (47), *Pan troglodytes* (3), *Cercopithecus neglectus* (4), *Cercopithecus diana* (5), *Cercopithecus mitis albogularis* (5), *Colobus guereza* (11) and *Colobus abyssinicus occidentalis* (5).

Contact: John Aspinall, Director, Port Lympne Zoo, Lympne NR. Hythe, Kent CT21 4PD, England, Tel: 44-303-264647, Fax: 44-303-264944.

WHITE OAK CONSERVATION CENTER

The goal of the White Oak Conservation Center is to contribute to the conservation of wildlife through maintenance of self-sustaining captive populations of threatened species; sponsorship of field conservation projects to preserve rare species and their habitat; and to provide learning/research opportunities for students in animal sciences/zoological medicine.

Contact: John Lukas, Director, White Oak Conservation Center, 726 Owens Road, Yulee, FL 32097-9807, USA, Tel: 904-225-3396, Fax: 904-225-3337.

SMITHSONIAN PRIMATE BIOLOGY PROGRAM

The Smithsonian Primate Biology Program, through the Office of Fellowships and Grants, offers 10-week graduate fellowships, pre-doctoral fellowships, post-doctoral fellowships, and short-term visitor's awards for museum research, principally in the areas of taxonomy, systematics and anatomy. A large museum collection of skins, skeletal material and fluid preserved cadavers is available. There are no living specimens.

Contact: Frank H. Talbot, Acting Director, Department of Vertebrate Zoology, National Museum of Natural History, Smithsonian Institution, 10th Street and Constitution Avenue NW, Washington, DC 20560, USA, Tel: 202-357-2740, Fax: 202-357-4779.

BUDONGO FOREST PROJECT, UGANDA

The Budongo Forest Project in western Uganda is now in its fourth year. The research site is located inside the Budongo Forest. Accommodation is available for a small number of research students and/or senior researchers. Primates in special need of study are black-and-white colobus *Colobus guereza*

and redtail monkeys *Cercopithecus ascanius*, both of which are common around the research site. Further studies could also be made on the local chimpanzee community which numbers 45 recognised individuals. Baboons *Papio anubis* are also present and could be studied.

Contact: Vernon Reynolds, Institute of Biological Anthropology, 58 Banbury Road, Oxford, OX2 6QS, UK, Tel: 44-1865-274-693, Fax: 44-1865-274-699.

RECENT LITERATURE

BOOKS

Chimpanzee Cultures. Edited by R.W. Wrangham, W.C. McGrew, F.B.M. de Waal & P.G. Heltne, with assistance from L.A. Marquardt, 1994, 424 pp. Harvard University Press, Cambridge, MA, USA. Price US\$ 39.95.

Contents: Preface, by P.G. Heltne. Forward, by J. Goodall. The challenge of behavioral diversity, by R.W. Wrangham, F.B.M. de Waal & W.C. McGrew. Study sites in Africa.

Section 1. Ecology. Overview - Ecology, diversity, and culture, by R. W. Wrangham; Tools compared: The material of culture, by W.C. McGrew; Party size in chimpanzees and bonobos: A reevaluation of theory based on two similarly forested sites, by C.A. Chapman, F.J. White & R.W. Wrangham; The significance of terrestrial herbaceous foods for bonobos, chimpanzees, and gorillas, by R.K. Malenky, S. Kuroda, E.O. Vineberg & R.W. Wrangham; Hunting strategies of Gombe and T'ai chimpanzees, by C. Boesch; Comparative locomotor behavior of chimpanzees and bonobos: Species and habitat differences, by D.M. Doran & K.D. Hunt; Comparative analyses of nest-building behavior in bonobos and chimpanzees, by F. Fruth & G. Hohman; Diversity of medicinal plant use by chimpanzees in the wild, by M.A. Huffman & R.W. Wrangham.

Section 2: Social relations. Overview - Diversity in social relations, by W.C. McGrew; Social role and development of non-copulatory sexual behavior of wild bonobos, by C. Hashimoto & T. Furuichi; Grooming relationships in two species of chimpanzees, by Y. Muroyama & Y. Sugiyama; Reproductive success story: Variability among chimpanzees and comparisons with gorillas, by C.E.G. Tutin; Ethological studies of chimpanzee vocal behavior, by J.C. Mitani; Pacifying interventions at Arnhem Zoo and Gombe, by C.

Boehm; Social relationships of female chimpanzees: Diversity between captive social groups, by K.C. Baker & B.B. Smuts; Chimpanzee's adaptive potential: A comparison of social life under captive and wild conditions, by F.B.M. de Waal.

Section 3: Cognition. Overview - Culture and cognition, by F.B.M. de Waal; Understanding chimpanzee understanding, by J.A.R.A.M. van Hooff; What chimpanzees (might) know about the mind, by D.J. Povinelli; The question of chimpanzee culture, by M. Tomasello; Behavioral roots of language: A comparative perspective of chimpanzee, child, and culture, by D.M. Rumbaugh, E.S. Savage-Rumbaugh, & R. A. Sevcik; Individual differences in the cognitive abilities of chimpanzees, by S.T. Boysen; Field experiments on use of stone tools in the wild, by T. Matsuzawa.

Section 4: Afterword and Postscript. Afterword - Review of recent findings on Mahale chimpanzees: Implications and future research directions, by T. Nishida. Postscript - Conservation and the future of chimpanzee and bonobo research in Africa, by J. Goodall.

Lemurs of the Lost World: Exploring the Forests and Crocodile Caves of Madagascar. By Jane Wilson, 2nd Edition, 1996. Profits on sales of this book will continue to be donated to the Jersey Wildlife Preservation Trust to support their conservation work in Madagascar. Available from: P.O. Box 287, Great Falls, VA 22066, USA for \$11.00, and from: 22 Glen Dale, Rowlands Castle, Hants, P09 6EP, UK for £ 5.95 (post free in UK).

Other Books

Corbey, R. & B. Theunissen, eds. 1995. *Ape, Man, Apeman: Changing Views Since 1600*. Leiden University, Leiden, The Netherlands.

Book Reviews

Hutz, R. 1995. *International Directory of Primatology, 2nd Ed.* by L. Jacobsen *et al.*, eds., 1994. Wisconsin Regional Primate Research Center, Madison. *International Journal of Primatology* 16: 683-684.

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"Primate Behaviour: Information, Social Knowledge, and the Evolution of Culture," by D. Quiatt *et al.*, 1993. Cambridge University Press, Cambridge. *American Journal of Primatology* 35: 165-167.

McGrew, W.C. 1995. *The Great Ape Project* by P. Cavalieri *et al.*, eds. 1993. Fourth Estate, London. *American Journal of Primatology* 35: 83-85.

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Van Valen, L.M. 1995. *Primates and Their Relatives in Phylogenetic Perspective.* by R.D.E. MacPhee ed., 1993. Plenum, New York. *International Journal of Primatology* 16: 689-693.

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Baker, K.C. & B.B. Smuts. 1994. Social relationships of female chimpanzees: diversity between captive social groups. In: *Chimpanzee Cultures*, R.W. Wrangham *et al.*, eds. Harvard University Press, Cambridge, MA, pp. 227-242.

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Bercovitch, F.B. 1995. Female cooperation, consortship maintenance, and male mating success in savanna baboons. *Animal Behaviour* 50: 137-149.

Boesch, C. 1994. Hunting strategies of Gombe and

- Täi chimpanzees. In: *Chimpanzee Cultures*, R.W. Wrangham et al., eds. Harvard University Press, Cambridge, MA. pp. 77-92.
- Boesch, C. 1995. Innovation in wild chimpanzees. *International Journal of Primatology* 16: 1-16.
- Boinski, S. & C.A. Chapman. 1995. Predation on primates: Where are we and what's next? *Evolutionary Anthropology* 4: 1-3.
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CONTRIBUTIONS

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- by increasing interest in their survival,
- by alerting people to situations where primate species and populations are under threat, and
- by providing a forum for useful debate on some of the more pressing, controversial, and sensitive issues that impact the conservation of these primates.

The success of this newsletter depends largely upon the willingness of those people involved with primate conservation in Africa to provide relevant information on research findings, field survey results, advances in field and laboratory techniques, field action alerts, book reviews, events, job announcements, funding possibilities and recent publications (including reports and theses). *African Primates* also announces letter-writing campaigns and other activities which might benefit from the support of its readership.

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Front cover illustration: Sclater's monkey, by Steven Nash. *Cercopithecus slateri* is endemic to Nigeria and probably Africa's most endangered species of primate. See article on pages 38-42

Logo: De Brazza's monkey *Cercopithecus neglectus*. By Steven Nash.

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