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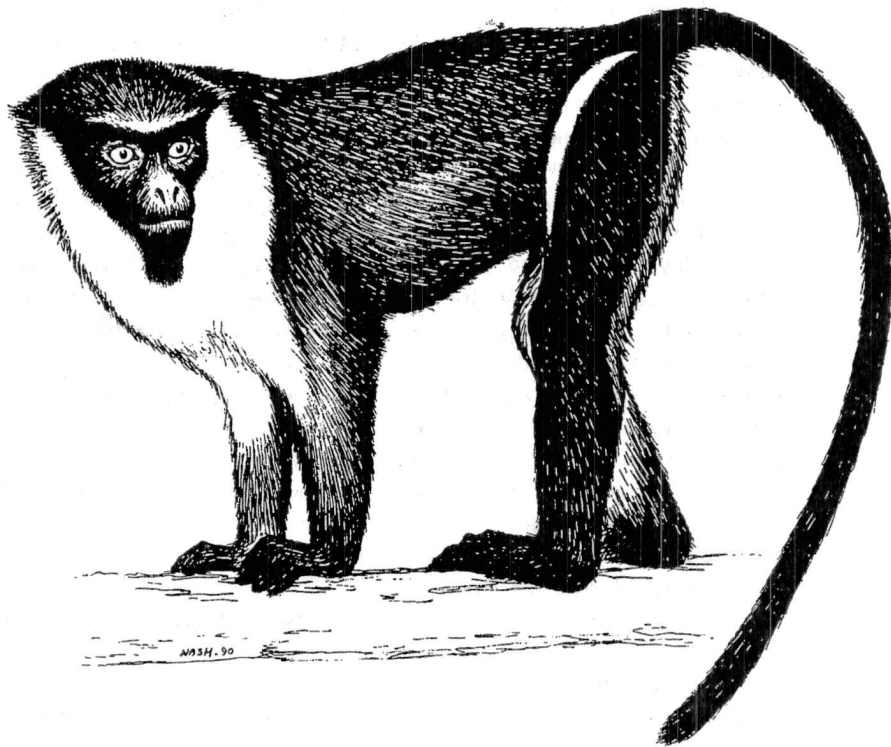
PRIMATES

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

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PSG Chairman: Russell A. Mittermeier
PSG Deputy Chairman: William R. Konstant



EDITORIALS

LETTER FROM THE CHAIRMAN OF THE PRIMATE SPECIALIST GROUP

Mainland Africa, with 20 genera and 64 species of primates, is one of the four major regions on earth for non-human primate diversity, along with the Neotropical region, southern and south-eastern Asia, and the island of Madagascar. Since 1977, we have had an Africa Regional Section of the Primate Specialist Group. This region produced the first ever SSC Action Plan back in 1986, thanks in large part to the outstanding efforts of Dr John F. Oates, one of the charter members of the PSG's modern era. And, of course, mainland sub-Saharan Africa has been the site of some of the most important and longest running field research efforts on non-human primates, most notably those on chimpanzees, gorillas, and savannah baboons.

Nonetheless, in spite of long interest in African primates and outstanding research and conservation efforts by relatively small, dedicated groups, our knowledge of the vast majority of African primates, especially those of the rain forest regions of the continent, lags behind that of the other three major regions where primates occur. Indeed, this is the only region where it is impossible to develop a comprehensive list of primate taxa below the species level (and even for species), something which is largely complete for the Neotropics and Madagascar, and reasonably well-advanced for Asia. How many valid taxa exist, for example, within the *Cercopithecus mitis*, the *Cercopithecus aethiops*, and the *Colobus guereza* groups, and how many species/subspecies are there of red colobus? Even our taxonomy of the much studied apes remains unresolved. This region also has far fewer primate conservationists working on key issues. Of particular concern is the small number of African nationals involved with primate research and conservation.

Along with this, we have the problem that the number of endangered primate taxa (four species and a dozen or so subspecies) is almost certainly underestimated. Surely, part of this underestimate stems from the difficulty of determining how many discrete taxa we are dealing with, but it is also a reflection of the relatively low level of conservation-focused research on a large number of rain forest species. Clearly, much remains to be done to ensure the conservation of Africa's extremely important primate fauna.

It is with great pleasure, therefore, that we launch this new newsletter entitled *African*

Primates, the main purpose of which is to enhance communication among those people interested in the conservation of Africa's primate fauna, and, in so doing, to increase efforts on their behalf. When the PSG was reorganised and decentralised back in 1992, we were able to find volunteers to organise the sections for the Neotropics (Vice-Chairmen Anthony B. Rylands and Ernesto Rodriguez Luna) and Asia (Ardith Eudey) and to publish newsletters for these two regions, and also an editor (Roderic Mast) for the newsletter of the Madagascar Section (see also page 29). However, for a variety of reasons, we were unable to find an individual to take responsibility for the Africa Section until 1994, at which time Tom Butynski, who runs Zoo Atlanta's Africa Biodiversity Conservation Program and is based in Nairobi, agreed to take on this important responsibility.

Since taking over as Vice-Chairman for Africa in April 1994, Tom has revised and reorganised the membership and is now publishing this first issue of *African Primates*. We urge all of you to contribute materials to this important new bilingual publication, in English or in French, and to help Tom in his efforts. Any questions about this new publication or about the Africa Section of the PSG should be directed to Tom. Any questions or input on the PSG in general can be directed to me at the address given below. For copies of the newsletters for the Neotropical, Asian, or Madagascar regions, or for our journal, *Primate Conservation*, please contact me as well. Please join me in congratulating Tom for the first issue of this important piece of primatological literature.

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LETTER FROM THE EDITOR

Welcome to the first issue of *African Primates*. This newsletter is produced in the interest of promoting and supporting primate conservation in Africa.

There are at least 64 extant species of primates on the African continent—the place where higher primates, including man, probably evolved. Our knowledge of the ecology, behaviour, distribution and conservation status of these species continues to increase. This information proves vital to the development of conservation priorities, the implementation of conservation activities, and the drawing of public support to the conservation of

this important and interesting group of animals. Unfortunately, however, the populations of most species of African primates continue to decline, largely due to the increased resource needs of a rapidly expanding human population.

During the past three years, the IUCN/SSC Primate Specialist Group has decentralised to allow for greater efficiency and interaction among its members. As part of this process, newsletters are now established for all four of the principal regions where wild populations of primates occur: *Asian Primates*, *Neotropical Primates*, *Lemur News* (with primate news from Madagascar) and *African Primates*.

African Primates is produced by the IUCN/SSC Primate Specialist Group in collaboration with Zoo Atlanta, Conservation International, and two institutions of the National Museums of Kenya: the Institute of Primate Research and the Centre for Biodiversity. Zoo Atlanta is publishing and distributing this newsletter.

The success of *African Primates* depends primarily upon materials for publication which its readership provides. Contributions for the second issue, which is scheduled for publication in November 1995, should be received by the end of September. Please consider making a submission. The guidelines for contributors are given on the inside back cover.

African Primates needs good quality photographs and, particularly, line drawings of primates. Please consider submitting yours for possible publication in this newsletter.

The format of this inaugural issue of *African Primates* will be followed in future issues, with only minor changes expected. Future issues will also have a similar content and scope, although my hope is that they will contain more "action alerts" and healthy debates on controversial, if not sensitive, matters concerning the conservation of primates in Africa. *African Primates* may be just the forum in which to air your views and present your facts. If you have some unexpressed ideas or knowledge important to the conservation of primates in Africa, please consider sharing them with the rest of us through *African Primates*.

Special thanks go to all the contributors to this first *African Primates*, to the Editorial Board, and to Russ Mittermeier, Edward Vanden Berghe, Jan Kalina, Terry Maple, Dietrich Schaaf, Stephen Nash, Ella Outlaw, Lorna Depew, Margaret Omoto, Patrick Kobai, Pius Namachanja and Caleb Orwa for their valuable and varied assistance.

Thomas M. Butynski
Editor

ARTICLES

STATUS AND CONSERVATION OF THE CHIMPANZEE *PAN TROGLODYTES VERUS* IN GUINEA-BISSAU

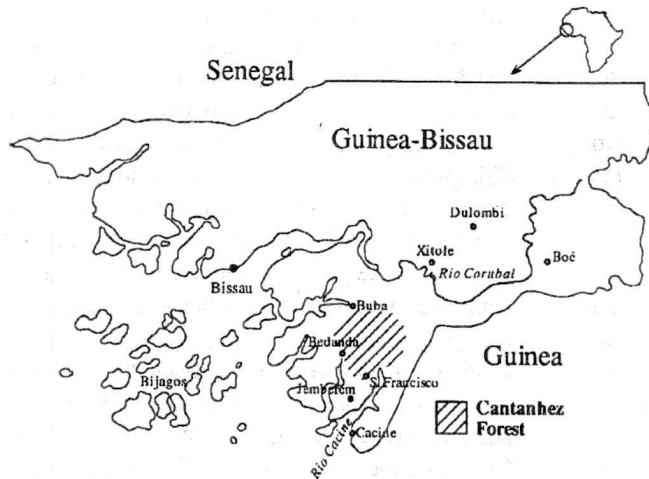
Guinea-Bissau is a small West African country in which few biological investigations have been carried out. Monard (1940) was the first to give scientific information on the presence of chimpanzees *Pan troglodytes* in Guinea-Bissau. He collected five chimpanzees at Madina-Boé and found that the species was common in the hilly area lying between the Corubal River and the border of the former French Guinea (Boé Region). Chimpanzees were also reported to be present at Buba, Chitoli (now Xitole) and Cassini (now Cacine). Monard found the species absent from the Casamance Region and concluded that south-eastern Guinea-Bissau represented the western limit of the chimpanzee's distribution in Africa. In 1946 another specimen was collected by Frade at Madina-Boé (presently Boé) and the species was cited as present along the road between Buba and Cacine (Frade & Silva, 1980). The investigation carried out by Koortland in the early 1960s apparently failed to confirm the presence of chimpanzees in Guinea-Bissau (Lee *et al.*, 1988), although Koortland's map (1983, p. 234) correctly shows south-eastern Guinea-Bissau as part of the species' range. Since then the chimpanzee has been considered extinct in the country although, according to Teleki (1989), suitable habitat for 100 animals still remains.

Given the alarming conservation status of the western chimpanzee (only an estimated 17,000 individuals survive) and the results of recent investigations indicating an unexpectedly large genetic distance between *Pan troglodytes verus* and the other two recognised subspecies (Morin *et al.*, 1994), surveys throughout the subspecies' range are urgently needed to develop appropriate conservation strategies for this highly distinctive taxon.

The present paper is the result of a ten-day primate survey in the Cantanhez Forest in February 1994. This study was prompted by the results of a nation-wide wildlife census carried out by the Director Générale des Forêts et de la Chasse (DGFC) of Guinea-Bissau in collaboration with the Centre Canadien d'Etudes et de Coopération International (CECI) and the IUCN Office in Bissau (DGFC/CECI/IUCN, 1989).

Both studies confirm that chimpanzees still occur in Guinea-Bissau. Although it is not possible to estimate the size of this population precisely, its

status must be considered satisfactory at the moment. The chimpanzees' range appears to have suffered only a limited contraction since the time of Monard's mission, the species still being present in the south-east (Boé Sector) and in the south-west (Tombali and Quinara Sectors). The DGFC/CECI/IUCN report emphasises that chimpanzees are common in the hilly woodland of Boé. The census team observed 26 chimpanzees in three groups and 33 nests in February-June 1989. Unfortunately, the exact localities of the



observations are not provided. More recently, three or four solitary chimpanzees were observed along the Corubal River in the area of the proposed Dulombi National Park (Thibault, 1993).

We were forced by the lack of transport to restrict our survey to the area adjoining Fazenda, São Francisco da Floresta (11° 20' N, 15° 00' W) in the south of the Cantanhez Forest (Tombali Sector). This area is characterised by a savannah-forest mosaic with primary and secondary sub-humid forests. According to the data gathered in the Fazenda during the last five years, the wet season lasts from May to October, rainfall ranging from 1,400 to 2,000 mm/year. The Cantanhez Forest has apparently not been the subject of any detailed faunistic or botanical investigations.

We remained at the Fazenda for ten days. During this time, the clearest signs of the presence of chimpanzees were their nests. Almost all the nests observed were located on the oil palm *Eleais guineensis*, a behaviour never observed with similar intensity in any other chimpanzee population. Palms used as nests are severely damaged and this causes a decrease in the production of fruits. We suppose that this kind of nest is more durable than the typical nest and possibly can be re-used by chimpanzees. We observed numerous nests not only all around the Fazenda, but, more encouraging, also along both sides of the Dideregabi River, a

tributary of the Cacine River which we surveyed by boat.

Vocalisations were the other common evidence of chimpanzee presence. During one day we heard the calls of three different subgroups at a range of 3 km around the Fazenda. According to our host, seven subgroups of chimpanzees were living in the area adjoining the Fazenda. Other signs included faeces, left-over fruits, and paths (which were photographed). We heard chimpanzee calls also along the road to Jemberem, a village about 15 km south of Fazenda São Francisco. Chimpanzees are said to be common east of Jemberem and around Bedanda. Although we cannot give quantitative data on the density of chimpanzees in the Cantanhez Forest, we presume it to be higher than the 0.1/km² supposed by Teleki (1989); this figure would be more appropriate for the more arid Boé Region.

Only once did we see chimpanzees directly. This occurred at 1100 h during the boat survey of Dideregabi River. Two individuals were sitting on a branch on the other side of the river. On another occasion, while walking along a trail, we heard fear calls emitted by an adult chimpanzee located in the crown of a tree. The other members of the group escaped into the woods and were followed by the animal that gave the alarm.

Discussion and Recommendations

The main reasons that chimpanzees continue to exist in Guinea-Bissau, despite the small size of the country (36,125 km² including the Bijagos Islands), are:

- a lower human population density in the south of the country (15 persons/km²);
- a widespread belief that chimpanzees (locally known as "Dari") are much too similar to men to be hunted and eaten.

The major threat to chimpanzees is the destruction of the forest. FAO (1988) estimates that 170 km² of broad-leaf forest are lost each year in Guinea-Bissau. We personally observed, in comparison with a visit in 1988, a dramatic reduction in forest. This is especially true for the northern and central parts of the country (where chimpanzees do not occur) but is also increasingly the case in the south where forests are cleared for

small-scale banana plantations, rice cultivation, and timber extraction (IUCN, 1992).

Minor threats come from the hunting of females with young for the local pet trade, from the use of chimpanzee skins in traditional medicine (see also Moore, 1985), and the accidental capture of chimpanzees in snares set for game animals such as duikers and other forest ungulates. In these latter instances, chimpanzees are left to die because people are unable to set them free or because they are severely mutilated (Bielgo, pers. comm.).

According to residents, chimpanzees are very common in the Cantanhez Forest and become rarer to the south. This observation is supported by the floristic map of the region which shows an increase towards the south of mangrove and other coastal vegetation unsuitable for chimpanzees.

In our opinion, there is still ample space for forest and chimpanzee conservation in Guinea-Bissau. This becomes essential in light of the alarming news we received about the decline of forest cover in the neighbouring Guinea-Conacry. It appears that Guinean woodcutting ethnic groups (Fula, Landuma, Nalu) are entering Guinea-Bissau as the result of almost total destruction of forests in the former French Guinea. Action is hence urgently needed before it is too late.

Long-term collaboration between Guinean authorities, foreign governmental agencies and NGO's is needed to support the creation and management of a national system of protected areas. The Cantanhez Forest and the remainder of the Cacine Basin are of primary importance for the conservation of biodiversity in the country (IUCN, 1993) and for the maintenance of viable populations of *P. t. verus*, *Procolobus badius temmincki* and *Colobus polykomos* (Gippoliti & Dell'Omo, in prep.). Involvement of local rural communities in the conservation of the Forest is essential for the success of the project.

Acknowledgements

We wish to express our sincere thanks to the Bishop of Bissau and Vittorio Bilego for their kind hospitality at São Francisco, and to Pierre Campredon of IUCN for useful discussion and comments on a previous draft of this paper. Geza Teleki and Russell Mittermeier encouraged our effort and our families kindly tolerated it.

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THE BIODIVERSITY CRISIS IN SOUTH-WESTERN GHANA

Surveys of wildlife in the three forest national parks (Bia, Ankasa, and Kakum) of south-western Ghana indicate that not only have these forests become increasingly isolated by expanding agriculture, they have been seriously degraded through excessive logging and hunting. Their biodiversity is being simplified through the loss of species adapted to

old-growth, mature forests and the persistence or increase of species that are adapted to secondary or colonising forests.

Among the primates, this trend is evident with the persistence of secondary-forest species such as the spot-nosed guenon *Cercopithecus petaurista*, Campbell's guenon *Cercopithecus campbelli*, and olive colobus *Procolobus verus*. In contrast, primate species dependent on tall, mature forest, and which are particularly susceptible to hunting, are nearing extinction, if not gone already. The three species for which the crisis seems most acute are Miss Waldron's red colobus *Procolobus badius waldroni*, Roloway monkey *Cercopithecus diana roloway* and white-naped mangabey *Cercocebus atys lunulatus*.

Historically, these three primates have only been known from a very restricted area in western Ghana and eastern Côte d'Ivoire. A fourth primate characteristic of this region is the black-and-white colobus *Colobus vellerosus*. It too is endangered, but apparently somewhat less so than the previous three.

This report is prompted by surveys we conducted in Ghana during 1993, sponsored by Conservation International with a USAID grant. In 32 days of field work in Kakum National Park in March, April, August and November we saw no red colobus, Roloway monkeys or mangabeys. Only one group of black-and-white colobus was seen, although calls from other groups were heard. During parts of four days spent in August in the Ankasa Game Production Reserve adjacent to the North-Southern National Park, JFO heard one sequence of calls from an adult male Roloway monkey and also detected Campbell's and spot-nosed guenons; no red colobus, black-and-white colobus or mangabeys were heard or seen.

During five days in the Bia National Park and Game Production Area in November, TTS encountered only spot-nosed and Campbell's guenons. Not only were no red colobus, Roloways or mangabeys detected, but, even more disturbingly, the park guards said they had never seen nor heard any of these three primates. The black-and-white colobus, although said to be present, was considered to be extremely rare. Prior to this visit, it was believed that if these threatened primates still existed, they would most likely be found in Bia, where they were studied in the 1970s. Although the visit to Bia was brief, it was long enough for one or more of these species to have been detected in one of the five areas of the forest visited should they have still been present in densities similar to that of the 1970s.

It would appear that during the past 15 years Miss Waldron's red colobus, Roloway monkey and

white-naped mangabey have greatly declined in numbers throughout south-west Ghana and may be extinct in Bia. Losses of megafauna like this represent a major biodiversity crisis. When large, highly vocal and conspicuous mammals disappear, one cannot help but wonder how many other, less-conspicuous species have gone extinct before them.

As a top priority for the conservation of Ghana's forest biodiversity, we recommend that a thorough survey be undertaken for these three primate species in forests through south-western Ghana. This survey should cover not only the national parks, but the forest reserves and sacred groves as well. The chief objective would be to determine the status of the endemic primates, to identify the immediate threats to their continued existence, and to make recommendations for their protection. In the course of this survey, much valuable information would also be gained about the status of other endangered forest wildlife.

Thomas T. Struhsaker

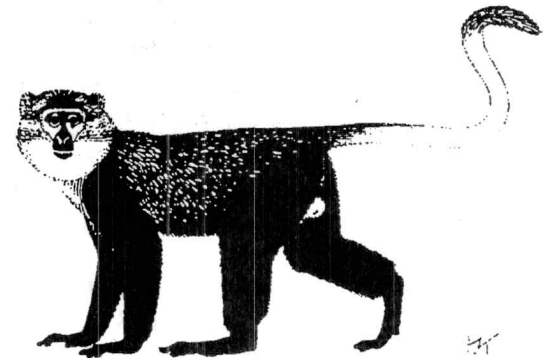
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GOOD NEWS FOR *CERCOPITHECUS SOLATUS*, GABON'S ENDEMIC GUENON

In 1984, whilst visiting the remote Forêt des Abeilles (Forest of the Bees) in Central Gabon, British biologist Mike Harrison encountered a hunter carrying a dead monkey which he was unable to identify. It resembled *Cercopithecus lhoesti* but differed in a number of ways, the most apparent being the bright yellow coloration on the lower half of the tail. Harrison was later able to obtain two skins and skulls, again from animals



Sun-tailed guenon *Cercopithecus solatus* by Jonathan Kingdon. Adapted from *Canopée* 1995, No. 4

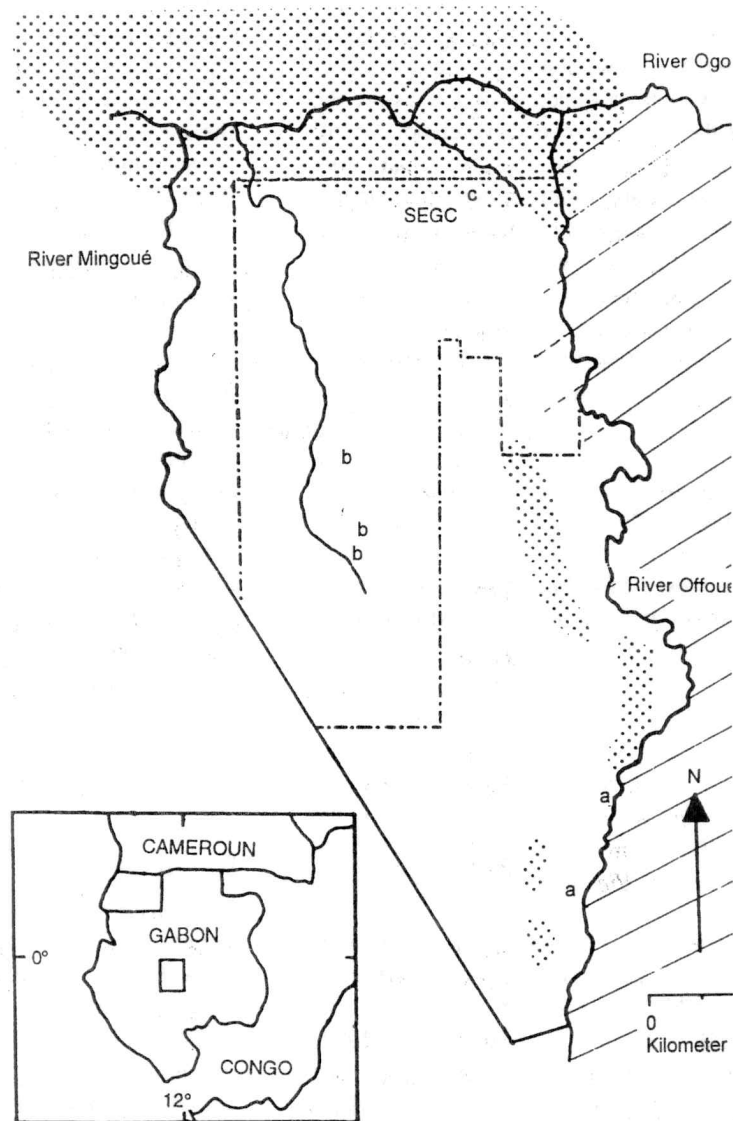


Figure 1. Location of the Lopé Reserve, Gabon, and recent sightings of the sun-tailed guenon *Cercopithecus solatus*. a: Sightings by Chris Wilks; b: Sightings by the authors; dot-dash line: location of the proposed totally protected area; dotted area: forest-savannah mosaic (all other vegetation is lowland rain-forest); hatched area: western limit of previously known range of *C. solatus* (after Gautier *et al.*, 1992)

killed by hunters. He named the new species *Cercopithecus solatus*, the sun-tailed guenon (Harrison, 1988). Surveys by Harrison (1988) and Gautier *et al.* (1992) found that the distribution of *C. solatus* was limited to an area of about 5,000 km² in the Forêt des Abeilles, although it was possible that it crossed the River Offoué into northern parts of the Lopé Reserve (fig. 1).

Since this discovery, the Forêt des Abeilles has been opened up by forest exploitation and *C. solatus* is now threatened by hunting associated with logging. Being a semi-terrestrial species it is particularly sensitive to snares set on the ground, a common form of hunting around logging camps. In response to this threat the Gabonese Government recently declared *C. solatus* a totally protected

species (Decree no. 678, 28 July 1994). In addition, a research project was recently set up by Jean-Pierre Gautier and Annie Gautier-Hion in the Forêt des Abeilles to investigate the biology of this little-known species.

In 1992 a major conservation project funded by the European Community was started in the Lopé Reserve (ECOFAC Gabon - a component of the Programme de Conservation et Utilisation Rationnelle des Ecosystèmes Forestiers d'Afrique Centrale - Projet CCE FED DG VIII). It is directed by Michel Fernandez who, along with Caroline Tutin, has worked on gorillas and chimpanzees in the Reserve since 1983 at the Station d'Etudes des Gorilles et Chimpanzés (SEGC) (*e.g.*, Tutin & Fernandez, 1993). Lopé has been effectively protected from poaching since the construction of a base by the Ministry of Water and Forests in the Reserve in 1982. However, much of the Reserve is scheduled to be logged. In collaboration with the ECOFAC Project the Gabonese Government is in the process of gazetting a totally protected area within the Reserve.

Since the start of the ECOFAC Project, research activities, which were traditionally centred around SEGC, have broadened their scope. In July 1994, Chris Wilks, a British botanist, observed *C. solatus* crossing the Offoué River into southern parts of the Lopé Reserve. We then observed *C. solatus* on three

occasions during explorations of the proposed totally protected area within the Reserve. The two sightings were quite close together and were in the centre of the Lopé Reserve, at 00° 30' 44" S, 11° 32' 34" E, on 18 September (measured using a GPS unit). On both occasions a group of at least four individuals, including juveniles, was observed. In early December a male was seen about 10 km farther north, at 00° 20' 45" S, 11° 29' 36" E, and associated movement suggested the presence of a group.

This discovery of *C. solatus* in the Lopé Reserve is particularly significant since none were known to occur within a protected area. In addition, the recent sightings extend the known range of *C. solatus* at least 30 km to the west. We plan to

undertake further survey work to estimate population numbers within the Lopé Reserve and to assess whether the new sightings are part of a continuous population extending to the Forêt des Abeilles or if they form a second population. White (1994) worked in areas to the south-west and north-east of the most recent sightings between January 1989 and July 1991. He found no evidence of the presence of *C. solatus*, so we are sure that they do not occur in this area. It will be interesting, however, to map the western limit of their range since it is now clear that this extends well beyond the River Offoué (cf. Gautier *et al.*, 1992).

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CENSUS OF KENYA'S ENDANGERED RED COLOBUS AND CRESTED MANGABEY

Introduction

The Tana River red colobus *Colobus badius rufomitratatus* and Tana River crested mangabey *Cercocebus galeritus galeritus* are endemic to gallery forest along the flood-plain of the lower Tana River in eastern Kenya (fig. 1). These are two of Kenya's rarest mammals and they live in one of the most complex, unique and rare habitats in eastern Africa. The IUCN Red Data Book classified both subspecies as "endangered" (Lee *et al.*, 1988).

The main objective of the Tana River Primate National Reserve (TRPNR) is to conserve these two endangered primates and the biodiversity of their unique riverine forest habitat. The conservation of these two subspecies is the top priority for primate conservation in Kenya. As such, since 1972, the Tana River red colobus and crested mangabey have been the focus of several population censuses and detailed ecological/behavioural studies (see references in Marsh, 1986; Decker, 1994; Butynski & Mwangi, 1994).

Of additional concern is the conservation of the Zanzibar galago *Galago zanzibaricus*, a species which the Red Data Book (Lee *et al.*, 1988) lists as "vulnerable", and the Tana Sykes monkey *Cercopithecus mitis albatorquatus*, a subspecies endemic to the region (Kingdon, 1971). Four other non-human primates are found along the lower Tana River. These are the vervet monkey *Cercopithecus aethiops pygerythrus*, yellow baboon *Papio cynocephalus cynocephalus*, Garnett's galago *Otolemur garnettii* and Senegal galago *Galago senegalensis*.

This paper summarises the results of the 1994 census of primates along the lower Tana River.

Background

The TRPNR (fig. 1) was established in 1976 to protect some of the best remaining forest along the Tana River. The total area covered by the 16 distinct evergreen forests within the 171 km² TRPNR is between 9.5 and 17.5 km², depending on the definition used to define evergreen forest. The altitude is about 30 m. The TRPNR extends for about 36 km along the present channel of the Tana River.

The 65 km long lower Tana River is marked by a broad flood-plain which varies from 1 to 6 km in width. The edge of the flood-plain is 3-5 m below the level of the surrounding ground. When not in flood, the river here averages about 60 m in width but is 100 m in width in some places. The flood-plain is largely grass-covered but there are numerous patches of bush, woodland and forest. The total number of "distinct forests" along the lower Tana River is 71 and the total area they cover is roughly 37 km² (Butynski & Mwangi, 1994). These forests range in size from 1 - 1,100 ha.

The Census

The "quadrant census method" was used (Struhsaker, 1981; Butynski & Mwangi, 1994). The census was conducted in February and March 1994 by 10 - 13 biologists and field technicians from the Kenya Wildlife Service, National Museums of

Kenya and Institute of Primate Research. The census itself required a total of 710 "observer man hours" and 560 "security man hours", making it the most comprehensive effort to date to obtain data on the number and distribution of primates along the lower Tana River.

We censused 54 (76%) of the 71 forests found along the lower Tana River. Of the 17 uncensused forests, nine have never been reported to hold red colobus or crested mangabeys and five have not been reported to harbour either species since 1972 or 1975. Only three uncensused forests are known to have colobus or mangabeys as of 1989.

Results

Tana River red colobus have a distributional range which extends for about 60 km along the lower Tana River from Kipende to Mitapani (fig. 1). They were found in 34 (63%) of the forests censused. At least 86 groups occur. The total population is estimated at 1,100 - 1,300 animals. While the population appears to be down somewhat from the estimated 1,200 - 1,800 red colobus in 1975, the data indicate that there are about five times more red colobus than suggested by censuses conducted during the 1980s. The total area of forest occupied by red colobus is considerably less than 13 km².

Tana River crested mangabeys have a distributional range which is similar to that of the red colobus, extending for about 60 km from Nkanjonja to Hewani (fig. 1). Forty-eight groups of mangabeys were found in 27 (50%) of the forests. We estimate the total population size to be 1,000 - 1,200 animals. The population appears to be somewhat below the 1975 estimate of 1,200 - 1,600 individuals. The total area of forest occupied by crested mangabeys is less than 26 km².

While both the red colobus and crested mangabey are more abundant than suggested by other censuses undertaken in the past decade, both appear to have declined roughly 10 - 30% since 1975.

The TRPNR holds about 37% of the colobus groups and 56% of the mangabey groups. This means that a far greater portion of these two populations, and of their habitats, occurs outside of the Reserve than previously estimated. Of the animals outside of TRPNR, about 19% of the colobus groups and 10% of the mangabey groups live in forests under the management of the Tana Delta Irrigation Project (TDIP) while the remainder are on Trust/Government Land. These are not insignificant percentages when

dealing with highly endangered animals and habitats.

Condition of the forests varied greatly. Some forests, even those outside the Reserve, were in excellent condition, little utilised by people and probably expanding in size. Other forests, particularly those outside the Reserve and near villages, were being rapidly degraded, cut for farmland and lost. Due to the lack of security along much of the east bank of the Tana River, most forests on that side of the river are in relatively good condition.

Threats

It appears that the greatest present threat to the forests of the lower Tana River is conversion to farmland. The other immediate important problems facing these forests are fire, felling of large trees for canoes, and pole cutting. Poaching occurs but appears to be at a low level within the forests.

A new near-term threat to these forests may be posed by the construction of the Mutonga and Lower Grand Falls Dams. These dams are scheduled to be completed in about the year 2001.

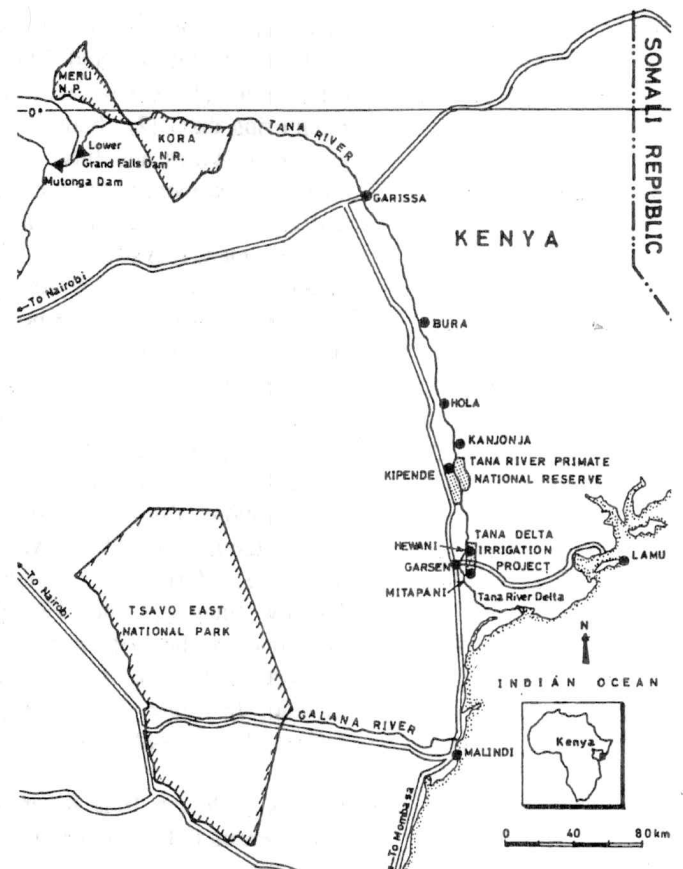


Figure 1. Location of the Tana River Primate National Reserve, the sites for the planned Mutonga and Lower Grand Falls Dams, and other places mentioned in the text.

According to an environmental assessment report by Nippon Koei Co. (1995), the dams will greatly reduce river discharge, silt deposition and the level of groundwater. The expected result is the loss of the riverine forest and the species therein, including the red colobus and crested mangabey. Gene banks and *ex-situ* conservation are two mitigation measures mentioned in the report. For more information on the proposed dams and their predicted impact on the forests of the lower Tana River, please see page 14.

Recommendations

Some of the recommendations arising from this census are as follows:

- Obtain accurate information on the size of Tana River red colobus and crested mangabey groups throughout their range so that more recent, and more representative, data on mean group size are available.
- Obtain accurate data on the size, shape and location of all lower Tana River forests.
- Meet with Tana and Athi Rivers Development Authority (TARDA) and TDIP biologists and officials to: (1) review the TDIP environmental monitoring data, (2) obtain an up-date on TDIP ground activities and future plans, (3) make a current assessment of the impact of past, present and future TDIP activities on red colobus and crested mangabeys living within the TDIP managed area and, if necessary, (4) find additional ways to enhance the long-term survival prospects of the two endangered primates and the forests.
- Given the importance of forests outside of the TRPNR to primate and biodiversity conservation along the lower Tana River, serious thought should be given to reconsidering how the World Bank Global Environment Facility funds to the TRPNR Conservation Project are to be used. It may be most effective to increase the size of the project area so as to include, to some degree, all of the riverine forests of the lower Tana River.
- Census all lower Tana River forests which the 1994 census did not reach and recensus several other forests.
- Examine the impact, feasibility and costs of introducing red colobus to the Greater Wenje Forest in the north-east of the Reserve.

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RECENSEMENT DE GORILLES DANS LE PARC NATIONAL DU KAHUZI-BIEGA AU ZAÏRE

Abstract

In January 1994 an inventory of the large mammals of the eastern Zaire forest zone was initiated. The first phase of the inventory was to survey the distribution of Grauer's gorilla *Gorilla gorilla graueri* and to establish a standard methodology to determine the gorilla's conservation status. The first phase of the study concentrated on the extension of the Kahuzi-Biega National Park (5,400 km²). Preliminary analysis of the results indicates a population of more than 1,000 gorillas. Chimpanzees and forest elephants were also censused. The elephant population was estimated to be 2,000 individuals. Threats to the park and its fauna

include the high densities of Rwandan refugees around the park and its extension. Data will be used to define zoning strategies for the long-term conservation of the park.

Plus de 50% des forêts tropicales humides en Afrique se trouvent au Zaïre. L'est du Zaïre est particulièrement exceptionnel pour sa biodiversité, et ce, pour deux raisons. Il y a à peine 12,000 ans, alors que la quasi totalité de l'Afrique centrale était devenue un désert, la forêt a pu se maintenir sur les montagnes, et de ce fait, préserver les espèces y vivant, disparues dans les zones de basse altitude, en même temps que leur habitat. Par ailleurs, cette région présente une gamme éblouissante d'écosystèmes, entre les glaciers du Ruwenzori, et les forêts de basse altitude, chaque écosystème possédant ses espèces particulières.

C'est dans ce milieu naturel exceptionnel que l'Institut Zaïrois pour la Conservation de la Nature (IZCN) a entrepris en janvier 1994, en collaboration avec le Wildlife Conservation Society (WCS), un inventaire des grands mammifères des forêts de l'est du Zaïre, prévu sur une durée de trois ans.

Le travail préparatif de l'inventaire a débuté en 1991 par une mission préliminaire qui a permis de parcourir une grande partie de l'aire de distribution originelle du gorille de Grauer *Gorilla gorilla graueri*. L'objectif de cette mission était de déterminer la meilleure méthodologie de recensement, permettant de connaître l'actuelle distribution et densité de cette sous espèce de gorille, et évaluer l'état de conservation de la forêt qui constitue son habitat.

Avant de commencer l'inventaire proprement dit en janvier 1994, les participants, venus des quatre continents, organisèrent une séance de travail afin d'affiner les méthodes de recensements sur le terrain. Des méthodes de recensement indirect, telles que observation des nids, crottes et signes d'activité d'alimentation, ont été retenues pour estimer la densité des gorilles, chimpanzés, éléphants de forêt, buffles de forêt, singes et céphalophes. De plus, des botanistes ont parcouru des transects afin de classifier la végétation et de permettre une meilleure compréhension des habitats.

La première phase du projet s'est concentrée sur les 5,400 km² que couvre l'extension du Parc National du Kahuzi-Biega (PNBK), et a donné des résultats encourageants. Bien que les densités des gorilles de Grauer soient variables, certaines zones, par exemple le nord de la zone recensée, présentent des densités aussi importantes qu'inattendues. Une analyse préliminaire des résultats indique que l'extension du parc abrite plus de 1,000 gorilles.

On rapprochera ce chiffre de celui du recensement de 1989, dans la partie originelle du Parc, relevant la présence de 258 individus.

Les chimpanzés présentent une distribution discontinue, abondants dans deux zones, et pratiquement absents dans deux autres. Les éléphants de forêt sont abondants dans les secteurs les plus inaccessibles, une analyse préliminaire indiquant une population approximative de 2,000 éléphants dans l'extension du Parc.

Ces résultats à première vue encourageants sont toutefois tempérés par l'incidence des activités humaines qui révèlent l'utilisation très répandue de pièges pour capture de gibier, et expliquent la découverte récente de carcasses de gorilles et éléphants braconnés. Bien que l'extension ne soit accessible qu'à pied par des sentiers qui traversent souvent des rivières, ruisseaux ou marais, sa proximité relative de Bukavu, un endroit présentant une des plus fortes densités humaines d'Afrique, peut laisser supposer que sa faune a été largement surexploitée. Ce n'est cependant pas clair que ceci est le cas, mais pourrait facilement le devenir si les mesures nécessaires n'étaient pas prises afin de préserver cette zone.

Le défi de conservation relevé par l'IZCN et ses collaborateurs a été considérablement amplifié par l'afflux de 450,000 réfugiés Rwandais dans la région du Kahuzi-Biega. Un camp de 200,000 personnes est installé en vue du quartier général du Parc et du site touristique de visites aux gorilles de Tshivanga.

Un camp regroupant 50,000 personnes est adjacent au corridor reliant les 230 km² du Parc original à l'extension. En plus des dégâts sur l'environnement que peut apporter l'arrivée de 450,000 personnes dans une zone, il est plus que probable que ce camp portera le coup de grâce à la jonction forestière entre les deux secteurs du Parc. Une isolation géographique des gorilles et des autres espèces, créée par la destruction de ce passage forestier, diminuerait fortement leur capacité de reproduction à long terme.

Au cours des deux années qui viennent, des chercheurs zaïrois travaillant dans le cadre du projet, poursuivront le travail de recensement dans les zones forestières éloignées mais importantes. Les données collectées au cours de ces enquêtes seront essentielles pour la planification d'une conservation à long terme. Elles permettront non seulement l'identification de zones prioritaires, mais fourniront aussi des informations écologiques servant de base au suivi environnemental des activités de développement.

Les interactions toujours plus complexes entre les hommes et le milieu naturel dans cette région d'exceptionnelle biodiversité exigent une prise en

compte immédiate des problèmes posés pour sa conservation.

Adapté d'un article paru dans le *African Wildlife Update* et dans *Canopée* 1995, No. 4.

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DU STATUT ET DE L'AVENIR DES PRIMATES AU SÉNÉGAL

Abstract

Senegal is at the north-western limit of distribution of nine species of primates: *Pan troglodytes*, *Cercopithecus aethiops sabaesus*, *Cercopithecus campbelli*, *Erythrocebus patas*, *Papio papio*, *Cercocebus atys*, *Colobus badius*, *Galago senegalensis* and *Galagoides demidovii*. Populations of dense tropical forest species are rapidly declining due to deforestation and even species in drier habitats are suffering.

Le Sénégal est situé à la limite nord-ouest de l'aire de répartition de neuf espèces de primate Africains:

- un anthropoïde: le chimpanzé *Pan troglodytes*;
- sept cercopithécidés se répartissant en trois groupes:
 - trois cercopithèques: le singe vert ou callitriche *Cercopithecus aethiops sabaesus*, la mone de Campbell *Cercopithecus campbelli*, et le patas ou singe rouge *Erythrocebus patas*,
 - deux membres du groupe des babouins et cercocèbes: le babouin de Guinée *Papio papio* et le mangabé enfumé *Cercocebus atys*,
 - un colobe: le colobe bai d'Afrique occidentale *Colobus badius*,
- deux prosimiens: le galago du Sénégal *Galago senegalensis* et le galago de Demidoff *Galagoides demidovii*.

Ecologie et Biogéographie

On ne trouve les espèces forestières (la mone, le mangabé, le colobe bai et le galago de Demidoff)

que dans le domaine guinéen, essentiellement en Casamance. Le Sénégal oriental est le dernier refuge du chimpanzé. En dehors du Ferlo, où seul le patas est capable de survivre, on peut généralement trouver la plupart des autres espèces dans tout le pays, pour peu qu'il subsiste suffisamment de végétation.

Le colobe bai est le seul singe folivore (mangeur de feuilles) du Sénégal. Les autres se nourrissent tous de fruits et d'insectes. Les plus omnivores sont les babouins, les patas et les singes verts. Quand l'occasion se présente, ils consomment aussi de petits vertébrés (lézards, oiseaux, rongeurs). Les mangeurs de fruits se révèlent utiles en disséminant les graines des arbres fruitiers.

Espèces en Danger

Il convient de distinguer le statut des espèces à deux niveaux: le statut officiel au niveau régional de l'Afrique de l'Ouest et la situation propre au Sénégal.

Au niveau régional de l'Afrique de l'Ouest, sont classées par l'UICN:

- "nt", les espèces non menacées dans l'immédiat (cercopithèques, babouin, mangabé, galagos);
- "E", les espèces en danger d'extinction et dont la survie dépend d'une intervention immédiate de l'homme sur les facteurs du déclin (chimpanzé);
- "V", les espèces vulnérables, en voie d'extinction prochaine si l'homme n'intervient pas sur les causes du déclin à court terme;
- "R", les espèces rares, composées de petites populations, qui ne sont dans l'immédiat ni en danger ni vulnérables, mais peuvent le devenir, du fait de leur endémisme, en cas de modification de leur milieu (colobe bai d'Afrique occidentale).

Au Sénégal: A cause de la régression rapide de leur habitat, les espèces inféodées à la forêt tropicale dense humide (Casamance) sont en voie d'extinction rapide. La mone et le galago de Demidoff risquent de disparaître d'ici 15 ans, le colobe bai dans 10 ans, le mangabé avant la fin du siècle.

Il ne reste vraisemblablement pas plus de 200 chimpanzés au Sénégal, préservés grâce au Parc National du Niokolo Koba. Le Sénégal est pourtant l'un des rares pays à avoir su conserver les chimpanzés d'Afrique de l'Ouest, qui constituent

une sous-espèce particulière. Ils ont en effet totalement disparus de Gambie (au début du siècle), du Burkina Faso, du Togo (1978) et du Bénin.

Les colobes bair du Saloum et les singes verts de la Vallée du Fleuve Sénégal méritent une attention particulière. Seule population vivant au nord du fleuve Gambie, les colobes bair du Saloum constituent la plus septentrionale population de colobes bair.

Contrairement à leurs congénères des forêts tropicales denses humides, strictement dépendants des émergents (les grands arbres de plus de 40 m), ils ont su s'adapter à des forêts galeries, ils sont toutefois en train de disparaître rapidement. Dans la forêt de Fathala, Parc National du Delta du Saloum, les deux tiers de ces arbres ont disparu en 15 ans. Si ce rythme se maintient, ces animaux, qui ont su tout changer de leurs habitudes, auront disparu avant que l'on ait pu tirer les leçons de leurs uniques adaptations. Nous ne savons pas maintenir cette espèce vivante en captivité et la conservation de leur habitat reste la seule issue.

La plus septentrionale population de singes verts vit dans la Vallée du Fleuve Sénégal. Ces singes ont dû, eux aussi, considérablement modifier leur comportement pour s'adapter à un milieu extrêmement différent de leur habitat habituel.

Partout en Afrique, les singes de ce groupe vivent dans le domaine soudanien en bandes d'une à deux douzaines d'individus. Dans ce milieu riche, les bandes divisent l'espace en territoires de quelques dizaines d'hectares contenant tout ce dont elles ont besoin au long de l'année. Le milieu étant homogène, toutes les bandes sont également pourvues en disponibilités alimentaires. Les chefs de bandes se contentent, par une parade quotidienne, de rappeler les limites aux voisins.

La vie est plus difficile sous le climat sahélien de la Vallée du Fleuve. Les bandes doivent souvent prospecter une surface de 150 à 200 ha pour rechercher leur nourriture. Elles comprennent parfois près de 200 singes. Les ressources sont rares et dispersées. Pour survivre, les bandes n'ont qu'une seule solution: se les partager. Ici, pas de territoire, la nourriture appartient à tous. Si le verger de jujubiers est suffisamment grand, plusieurs bandes (plusieurs centaines de singes) s'y retrouvent et mangent ensemble. S'il s'agit d'un arbre en fruits isolé, les bandes se scindent en groupes d'une quinzaine qui se succèdent, attendant leur tour, sans conflit.

En fait, c'était il y a quinze ans. Aujourd'hui, dans la forêt classée de Ndioum-Walo, par exemple, 90% des arbres (et 90% des singes) ont disparu au cours des quinze dernières années. Nous n'aurons plus la possibilité d'étudier et de comprendre cet extraordinaire et unique phénomène

d'adaptation. Nous aurions pourtant tant eu à apprendre.

Législations Internationales

Toutes les espèces de primates, même les plus communes, sont soumises aux législations internationales de la Convention Africaine (1969) et de la CITES (1973). Les primates ne peuvent être tués, chassés ou exportés qu'après autorisation spéciale et sous contrôle des autorités compétentes. La capture, la chasse et le commerce sont interdits pour les espèces de la "classe A" de la Convention Africaine et de "l'appendice 1" de la CITES. Le chimpanzé, classé A, est ainsi totalement protégé.

Grâce aux singes, l'homme vit mieux et plus longtemps. En effet, tous les médicaments et la plupart des produits cosmétiques sont testés sur des singes avant d'être utilisés pour l'homme. Conscients de l'importance des primates pour la recherche médicale, le *Groupe pour la Conservation des Ecosystèmes de l'UICN* et l'*Organisation Mondiale de la Santé (OMS)*, se sont concertés et recommandent fermement:

- que les espèces en danger, vulnérables et rares ne soient utilisées pour la recherche médicale qu'à partir de la deuxième génération de groupes de reproduction captifs;
- que les espèces dont le statut n'est pas connu ne soient pas utilisées;
- que les espèces capturées dans la nature soient destinées d'abord à la formation de groupes de reproduction en captivité avant d'être utilisées pour l'expérimentation;
- de ne capturer les espèces, même communes et abondantes en apparence,
 - que si l'on dispose de données démographiques et si des prélèvements expérimentaux sous contrôle ont prouvé la possibilité de prélèvement durable,
 - ou s'il a été démontré qu'elles sont nuisibles aux activités agricoles,
 - ou s'il a été démontré qu'elles vont disparaître suite à la destruction de leur milieu et qu'une déportation n'est pas une alternative viable.

Respectons et faisons respecter ces législations.

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NEWS

REPORT SAYS DAM COULD THREATEN KENYA'S ENDANGERED PRIMATES

The Environmental Assessment Report

Kenya's Tana and Athi Rivers Development Authority (TARDA) and the Japan International Co-operation Agency (JICA) have signed an agreement for JICA to finance the planning and feasibility studies for possible construction of a sixth hydro-electric plant along the Tana River at Mutonga and Grand Falls. Five hydro-power projects are already established along the Tana River together with a number of irrigation projects.

In February 1995, the *Environmental Assessment Report* (EIA) for the feasibility study on Mutonga/Grand Falls Hydro-power Project was produced by Nippon Koei Company (1995) on behalf of JICA and TARDA. The 250 page report attempts to address the Project's impact on human populations, hydrology, production systems and ecological systems along the Tana River. The following information on the assessed environmental impact of the Mutonga/Grand Falls Hydro-power Project on downstream ecological systems, particularly upon the riverine forest and its primates, is taken from this report.

Introduction

The power generating capacities of Kenya's existing power plants cannot meet the present demand in the country. Because of this, the country imports hydro-power and oil for power generation. The Kenya Government's policy is to develop indigenous energy, particularly hydro-power and geothermal energy, to alleviate this drain on foreign exchange. The proposed Mutonga/Grand Falls Hydro-power Project is in line with this policy. Increasing electric power supply is considered necessary for sustainable economic growth and improved social welfare of the people.

Despite the high priority given to the development of hydro-power, its impact on the environment cannot be underestimated. Numerous examples from elsewhere in the world point to the potentially destructive impacts of hydro-power development on the environment and associated economic and production systems. This has prompted an examination of the environmental impacts of the Mutonga/Grand Falls Hydro-power Project with emphasis on resettlement in the

reservoir area and on the downstream ecological and production systems under the different dam options.

The Tana River

The Tana River is the largest and most important river in Kenya (see fig. 1 page 9). Its catchment covers some 95,000 km² (17% of the land area of Kenya). The total river length from source to the Indian Ocean is roughly 1,000 km. The rainfall pattern is bi-annual and during normal rainy seasons flooding occurs in the flood-plain of the lower Tana.

The Tana River has been regulated through construction of a number of storage reservoirs in the upper and middle catchments, with hydro-power being the most important use. Construction of the proposed storage reservoirs at Mutonga and Grand Falls would more than double, or even triple, total reservoir storage capacity in the Tana Basin.

Dam Sites and Construction Period

The study examines the feasibility of development of a number of hydro-power options based on three possible dam sites within the middle catchment of the Tana River. Proposed dam sites are: Mutonga Dam, 2 km downstream from the confluence of the Tana and Mutonga Rivers; and at two Grand Falls Dam sites, 5 and 7 km downstream from the confluence of the Tana and Kathita Rivers.

Pre-feasibility studies have been carried out on the three basic dam possibilities; a fourth possibility is to build at both Mutonga and Low Grand Falls. Some characteristics of the proposed dams are given in table 1.

Realistically it will take at least another year before construction work is initiated. Assuming that there are no major hitches in the construction programme there will be an absolute minimum period of five years in which to plan and implement a settlement programme in and around the dam site, and to plan and develop impact mitigation measures both around the dam site and downstream.

Downstream Riverine Forest

The forests of the lower Tana River are considered to be of exceptionally high conservation importance as they not only contain rare and endemic plant species, but are also home to two endemic and critically endangered subspecies of primates. At least five plant species have so far been identified as rare and a further three species are classified as endangered. However, there has been a gradual reduction of these forests due to increased demand for land from a rapidly expanding human population. Lack of proper project implementation in the Bura and Hola Irrigation Schemes has also

contributed to a significant loss in forest cover. The lower Tana riverine forests have been the subject of detailed research because of their conservation importance. All studies recognise the importance of the river's hydrological regime to the survival of the forests. Forest regeneration is dependent on over-bank flooding, and its growth and phenology are closely related to the rise and fall of the river level.

Tana riverine forests are of national, regional and global importance in that they serve as the only habitat for the endangered Tana River red colobus *Colobus badius rufomitratu*s and Tana River crested mangabey *Cercocebus galeritus galeritus*. (For information on the population status of these two primates see page 8). It must be noted that these endangered primate taxa depend on a number of forest tree species found in these riverine forests, both for food and for maintenance of the structure of their specialised habitat. All the primates prefer interior forest patches and are highly susceptible to any disturbances that reduce forest area. Factors that reduce or degrade flood-plain forest, coupled with the small size of the Tana River Primate National Reserve, jeopardise the long-term preservation of these forests.

Impact Assessment and Mitigation Measures

If a sustained reduction in river discharge is accompanied by a reduction in silt deposition, then the long-term survival of these forests is in doubt. It appears that the forest system is extremely fragile and will experience senescence if there is a significant reduction in groundwater availability. Some assessed impacts are:

- Drop in groundwater leading to senescence of mature trees;
- Decrease in sediment load carried by regular over-bank flooding leading to a decrease in bio-

mass production;

- Decrease or loss of regular seasonal flooding reducing germination and seedling survival rates;
- Loss of habitat and loss of endemic species, in particular the Tana River red colobus and the Tana River crested mangabey;
- Loss of biodiversity.

Some mitigation measures are:

- Release adequate water to maintain groundwater levels during impounding;
- Establish a controlled system of flood and sediment discharge to replicate natural conditions;

No practical mitigation of loss of unique habitat is possible. The worst case scenario is if High Grand Falls is constructed without a flood release mechanism. In this case, preservation of species would have to rely, at least to some extent, on *ex-situ* conservation.

There is no previous experience of successful conservation of a flood-plain forest under a changed flooding regime. The artificial management of water and nutrients to replicate the natural system would be highly complex and expensive. The *ex-situ* conservation of dependent fauna would be similarly costly and could not be guaranteed to be successful.

Commentary

The above report was presented at the Phase 2 Workshop held in Nairobi from 20-22 March 1995. At this time it appears that the option most likely is

Table 1. Summary of information on the proposed Tana River dams

	Mutonga	Low Grand Falls	High Grand Falls	Low GF + Mutonga
Reservoir surface area (km ²)	11	66	163	77
Economic project cost (\$ millions)	177	306	652	484
Unit energy cost (\$/kWh)	0.457	0.399	0.654	0.420
Start of construction (year)	2005	2000	2000	-
Start of impounding (year)	2009	2005	2006	-
Impounding period (months)	0.4	3.8	16.3	-
Commissioning (year)	2009	2015	2007	-
Displaced households in reservoir area	110	430	1310	540
Displaced households in 3 km buffer zone	1630	1720	4450	3160

a combination of Mutonga and Low Grand Falls Dams. There is the additional (expensive) option of constructing the two reservoirs with structures to release controlled bi-annual floods, replicating, to some degree, the river's natural flood cycle. It appears that TARDA and JICA are now giving serious consideration to this option.

The report states that if the Mutonga and Low Grand Falls Dams are constructed, and no flood release mechanisms are built, there will be a major change in seasonal variations in river flow, and a major reduction in sediment release and alluvial fertility. It goes on to state that, if flood release structures are built, there will be "medium potential" for managed bi-annual floods and less of a reduction in alluvial fertility. Furthermore, the ability to manage the release of fine sediments, an essential component of the fertility and hence productivity of downstream systems, has not been established.

Some authorities view the construction of dams with flood and sediment release structures as necessary for restoring the flood regime and resuscitating the ecosystems of the low Tana River and Tana Delta. They point out that other forms of power generation may be more consumptive and destructive, and that the existing five dams have already had considerable negative effects on downstream ecosystems and traditional agriculture. They claim that a new dam that releases floods and sediment would not only mitigate its own negative impacts but also those of the previous five dams.

The assessment report does not mention the importance of the lower Tana riverine forests for bird conservation. Two bird species listed as rare in the Red Data Book (Collar & Stuart, 1995) are present. These are the east coast akalat *Sheppardia gunningi* and spotted ground-thrush *Turdus fischeri*. At least four other bird species of concern occur. Next to the Arabuko-Sokoke Forest, the riverine forests of the lower Tana River are the most important forests in Kenya for bird conservation (Collar & Stuart, 1988).

As concerns the future of the riverine forests of the lower Tana River and the species found therein, the report presents several possible scenarios. They range from gradual senescence and eventual total loss of the riverine forests to probable reduction in forest extent, productivity and species diversity. While mitigation activities such as gene banks and *ex-situ* conservation are mentioned as means by which the species diversity of the lower Tana River forests might be saved, there is little mention of the costs and practicalities of such activities, or where the knowledge, expertise and funding to support these complicated and expensive activities would come from.

Position of the Kenya Wildlife Service

As the custodian of the flora and fauna of the nation, the Kenya Wildlife Service (KWS) is concerned about the impacts of the proposed project on both the protected and non-protected areas within the Tana River Basin. KWS has reviewed the Environmental Assessment Report and has distributed a *Position Paper on Mutonga/Grand Falls Hydro-power Project* (KWS, 1995).

Presented here are some of the concerns and recommendations of KWS as given in its Position Paper.

Concerns

- The dams will have negative impacts on the biodiversity and on the socio-economic activities of the people who reside along the Tana River.
- The Environmental Assessment Report does not contain adequate data for understanding of the changes in the regime of the river and subsequent effects on the hydrology of the flood-plain.
- No data or empirical evidence are provided to ascertain the reliability and effectiveness of artificial flooding, or on how artificial flooding would be managed. Critical minimum flood levels and frequencies must be defined and attained.
- During the impounding period the project will only release 30% of the average river flow. The report does not give a clear indication of the consequences of these reduced floods and sedimentation levels on the biodiversity downstream nor does it consider the impact on the socio-economic status of the local communities.
- KWS has a programme for increasing the size of the riverine forest patches in the Tana River Primate National Reserve (TRPNR) and increasing the primate carrying capacity of the area. In designing these management programmes it was assumed that the natural flooding and sedimentation regimes of the river would remain. Any changes would render the management plans, which are ear-marked for funding by World Bank GEF, unattainable. The change would further put the viability of the TRPNR at great risk.
- KWS feels that the study has not provided adequate data for reliable flood simulation. The simulation models used in the study have not

been up-dated or validated as required by the main terms of reference for the consultancy.

- The report does not give comprehensive data on animal and plant ecology in the project area or the expected impacts. It is not possible to conduct a full EIA without these data.
- Detailed data on spatial distribution of the human population both upstream and downstream are needed to understand the impacts of the Project. Moving people closer to protected areas will cause human-wildlife conflicts.

Recommendations

- Obtain adequate data for producing a full EIA report.
- Present detailed discussion on the management of flood and sediment release. Provide details on the success or failure and management of similar projects elsewhere.
- Present a complete inventory of the flora and fauna, particularly for the TRPNR and the Tana Delta. Provide expected impacts and mitigation measures of the Project both on plant and animal ecology.
- Clearly define the parameters and mechanisms for reservoir management.
- A cost-benefit analysis of the Project should be undertaken.

KWS states that more time is needed in order to obtain the data required for the production of a proper EIA and that, according to the Hydro-power Generation Master Plan of the Kenya Power and Lighting Company, the construction of the Mutonga/Grand Falls Hydro-power Dams is not of immediate priority. The KWS position paper concludes by stating that "The sustenance of the ecosystem downstream must be guaranteed before the implementation of the Project. There must be practical flood control measures geared towards the achievement of sustainable utilisation of the ecosystem. Sight should not be lost of the fact that Kenya is a signatory to the Biodiversity Convention and the Ramsar Convention. The main objective of the two conventions is to conserve biodiversity. It is, therefore, important that all issues related to biodiversity conservation in this Project be thoroughly examined before the implementation of the Project can be contemplated."

The East African Wild Life Society (EAWLS, 1995) has expressed many of the same concerns as KWS over development activities in the upper Tana River and their potential to negatively impact people and ecosystems downstream. Not surprisingly, the EAWLS found many of the same short-comings in the EIA as had KWS and made similar recommendations for improving the report.

The ideas generated during the Phase 2 Workshop will be incorporated in the study programme for Phase 3. It is in Phase 3 that all issues will be considered to determine whether or not the Project should proceed.

Thomas M. Butynski

IUCN/SSC Primate Specialist Group,
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THE TAI MONKEY PROJECT, IVORY COAST

Between 1977 and 1987, Ivory Coast lost nearly 42% of its forest and woodland, by far the greatest loss of any country in the world (Newton, 1990). By comparison, Brazil lost 4%, while countries bordering Ivory Coast—Ghana and Liberia—lost 8 and 0%, respectively. Ivory Coast's Tai Forest now represents the last large block of primary rain forest in West Africa. Tai National Park, a 4,540 km² sanctuary located in the south-western region of Ivory Coast, is home to a number of threatened or endangered primate species. Based on (1) the number of high priority species, (2) imminence of threat, (3) primate diversity, and (4) number of endemic primates in the area, Oates (1986)

designated Tai National Park the number one priority in African primate conservation.

Clearly, the need for sound, long-term research in this area is great. It is well known that the mere presence of research teams can be a powerful deterrent to poaching and illegal deforestation. Nevertheless, besides the on-going chimpanzee project of the Boesch's (*e.g.*, 1981, 1984, 1989) and a study by Galat and Galat-Luong (1985), little formal work has been carried out on the Tai Forest's primate fauna. In 1989, Ronald Noe and Bettie Sluiter began a pilot study on the cercopithecoïd monkeys near the field station of the Institut d'Ecologie Tropicale of the Ministère de l'Enseignement Supérieur et Recherche Scientifique. The project has since grown to include researchers from the Netherlands, Switzerland, Germany, Japan and the United States.

Seven cercopithecoïd species are studied by members of the Tai team: *Colobus badius* (western red colobus), *Colobus polykomos* (western black-and-white colobus), *Colobus verus* (olive colobus), *Cercopithecus diana* (diana monkey), *Cercopithecus petaurista* (spot-nosed monkey), *Cercopithecus campbelli* (Campbell's monkey) and *Cercocebus atys* (sooty mangabey). In addition a fourth guenon—*Cercopithecus nictitans* (greater spot-nosed monkey)—is known to range in the northern region of the forest. Nine monkey groups, ranging throughout the study area, are either fully or near-fully habituated: two groups each of red colobus and diana monkey, and groups of black-and-white colobus, olive colobus, lesser spot-nosed monkey, Campbell's monkey and sooty mangabey. Further, a number of neighbouring groups of all species are well on their way to becoming fully habituated.

The initial project was an investigation into the behavioural adaptations of the red colobus monkey to predation, particularly predation by co-operatively hunting chimpanzees. Special attention was directed to the frequent associations of red colobus monkeys with diana monkeys, which we believe to be an important component of the red colobus' anti-predatory strategy. Our data suggest that red colobus monkeys associate with diana monkeys because the latter provide added vigilance (*i.e.*, predator detection) without appreciable dietary overlap. Observations over the past year confirm that associations of red colobus monkeys cannot be explained by chance meetings or a common interest in certain food sources. Although it cannot be excluded that another external environmental variable is driving the system, the seasonal pattern of the badius/diana association seems to correspond with the seasonally fluctuating hunting pressure of chimpanzees. Other forms of predation, notably by the crowned eagle

Stephanoaetus coronatus are likely to be important too, and may largely explain the behaviour of diana monkeys. In order to put these anti-predation tactics in a comparative perspective, we also focus on black-and-white colobus. Red colobus and black-and-white colobus have quite divergent life-styles which may offer clues to certain characteristics of the species-specific anti-predation tactics. The investigation of these tactics continues today.

Additional topics of research involving members of the Tai team are diverse. Redouan Bshary (Max-Planck Institute für Verhaltens Physiologie) examines species-specific responses to predators using playbacks of eagles, chimpanzees and leopards. Kauri Adachi (Kyoto University) explores the relationship between dietary overlap and association tendencies in the three *Cercopithecus* monkeys. Klaus Zuberbühler (University of Pennsylvania) studies the vocal repertoire of *Colobus badius* using playback experiments. Scott McGraw (State University of New York at Stony Brook) examines the influence of forest architecture and the association with other species on the positional behaviour and habitat use of all seven cercopithecoïds.

There are opportunities for PhD students and post-docs to work in the project on any of the seven monkey species in our study area. Preference will be given to those proposals that fit in well with our own research. A wealth of information, collected over the last five years by researchers and assistants, is available for use. This includes group sizes and compositions, home range sizes, detailed dietary profiles of each species, climatological data, phenology data, data on poly-specific associations, activity budgets, use of strata, home range use, and day range/day route information. In addition, a detailed study on the distribution and diversity of trees, including an analysis of the major architectural features of the forest, has recently been completed in the study area. There is a fixed contribution of approximately \$325 per month that allows the use of the project's infra-structure (living quarters, equipment, car, support by employees, etc.). For further information contact Ronald Noe.

Scott McGraw

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Ronald Noe

Max-Planck-Institute für Verhaltens Physiologie, (MPIV), Seewiesen, 82319 Starnberg, Germany, Tel: (49)8157-29262, Fax: (49)8157-29209, e-mail: noe@mpi-seewiesen.mpg.de.

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ROAD EXPANSION IN YAKUSHIMA WORLD HERITAGE SITE, JAPAN

The International Primatological Society (IPS) joins the Primate Society of Japan (PSJ) in protesting against a plan to widen and expand a road passing through the Kirishima-Yaku National Park and recently designated UNESCO World Heritage Site on Yakushima Island in southern Japan. PSJ has repeatedly expressed strong reservations about this road to both local and national government authorities in meetings with government officials, in resolutions adopted at the annual meetings of the PSJ, and in petitions submitted to the government.

The road passes through one of the last and largest natural forests remaining in north-east Asia, an important habitat for the endemic subspecies of Japanese monkey *Macaca fuscata vakui* as well as many other species of wildlife. An expanded road would seriously disturb the vertical continuity of the natural forest (0-2000 m) which was a decisive factor in both the National Park and World Heritage designations. Harming the biological values and beauty of the forests, in turn, would diminish the value of the National Park for the people of Yakushima, and ultimately harm their long-term social and economic welfare.

The PSJ is extremely concerned that no explicit legal or policy criteria exist to measure how to "take extreme care" of the environment. The Environment Agency has set forth no clear policy for World Heritage Sites in Japan. The approval of

the road plan is the first clear indication of actual national policy regarding a World Heritage Site. The policy seems to be "business as usual" within Japan's protected areas. Primatologists fear that, once again, a public works project in Japan's nominally protected areas is proceeding without any comprehensive plan for either nature conservation or appropriate visitor accommodations.

The IPS asks the Government of Japan to cease all construction within the Yakushima National Park and World Heritage Site until a comprehensive long-term plan has been formulated with the participation of non-government organisations and academic researchers. The Environment Agency should be given the legal authority and budgets to truly administer the National Park and not passively acquiesce to inappropriate development projects. Other means to promote the welfare of the Island's people should be found besides public works within protected areas.

The Government of Japan has a duty to explain and justify its policies for the World Heritage Site to the world community. As the stewards of the World Heritage Program, Japan now bears the responsibility to promote comprehensive planning and enlightened management of her World Heritage Sites.

Please write and express your concern to:

The Honourable Tomiichi Murayama, Prime Minister of Japan, Office of the Prime Minister, 2-3-1 Nagatacho, Chiyodaku, Tokyo, 100 Japan.

For further information write to: Tamaki Maruhashi, Conservation Committee, Primate Society of Japan, c/o Kyoto University, Primate Research Institute, Kanrin, Inuyama 484, Japan.

RWANDA GORILLA UPDATE: JANUARY 1995

Karisoke Research Center is functioning with 25 rangers. The gorillas are tracked each day but conditions at the Center are not good. Karisoke was raided recently for supplies. No one was hurt.

Thousands of land mines are thought to be seeded in and around the Volcanoes National Park, posing a serious threat to the gorillas, anti-poaching rangers, park guards and tourists. Security, economic development and conservation needs plague the beleaguered Rwanda Government.

Rumours continue to circulate about the death of at least one mountain gorilla, although Karisoke anti-poaching rangers have found no evidence.

Refugee camps in Zaire surround the Volcanoes Park; the largest camp is near the gorilla habitat.

Twenty thousand people enter the forest each day to collect wood, which is sold on the black market by profiteers. Since July, 410 metric tons of wood have been gathered daily. Medical waste from refugee camps is rotting in the forest, increasing the risk of transfer of human disease to wild animal populations, including the gorillas.

The UN has expressed interest in using satellite data, collected by NASA for the Dian Fossey Gorilla Fund (DFGF), to chart the destruction of the Zairean rain forest. The Zairean Sector of the Park is a designated World Heritage Site. IUCN is considering adding the Park to its list of most endangered environments.

The DFGF has been asked to help overhaul the Zairean park management system. The Fund's involvement is likely to include the establishment of a field centre in the Zairean gorilla habitat, training of park rangers, and the assignment of expatriate researchers to the Zaire operations.

Although four babies have been born in recent months and several female gorillas are pregnant, the gorillas and the infrastructure that protects them are under serious threat.

Adapted from a flyer by the Dian Fossey Gorilla Fund, 110 Gloucester Avenue, London NW1 8JA, UK.

CLOSE ENCOUNTERS BETWEEN PEOPLE AND GORILLAS

In April 1994, an article appeared in *Getaway* magazine which describes gorilla tourism in the Bwindi-Impenetrable Forest National Park, Uganda, as well as in Zaire's Virunga National Park. This article prompts us to readdress the dangers of close human-gorilla contact.

The author of the article describes a close (1 m) encounter with a gorilla in the Bwindi-Impenetrable Forest. The photographs in the article show a tourist in Zaire surrounded by gorillas that are within arms reach. Physical contact was later made. The photographs suggest that the photographer was also within 1-2 m of the gorillas. According to the many tourists to the Zaire gorillas whom we have interviewed over the years, this is not an unusual encounter.

Close human-gorilla contact is a long-standing concern. We encourage those governments and conservation organisations who are managing, supporting and advising on gorilla tourism, to do more to ensure that the "5 m distance regulation" is strictly enforced.

There is general agreement that gorillas and tourists must stay far apart to avoid the possibilities

of over-habituation of gorillas, harm to tourists and guides, and the transmission of diseases, particularly the many viruses and bacteria which humans carry and to which gorillas are highly susceptible. These include such killers as tuberculosis, measles and pneumonia. A disease epidemic in either of the two populations of mountain gorilla could be catastrophic for this critically endangered subspecies. The agreed upon minimum viewing distance of 5 m should be strictly adhered to. If a distance of at least 5 m cannot be maintained then perhaps a 10 m viewing distance needs to be adopted.

In 1983, at a mountain gorilla conservation meeting in Gisenyi, the Rwanda Government voiced concerns about such close contact between researchers and gorillas. Additionally, the regularity of close proximity of researchers to gorillas raised serious questions as to the normality of the data being collected. It was agreed then that everyone, including researchers, would adhere to the 5 m distance rule. Nonetheless, we have photographic and film evidence that these close encounters continue to occur. Such behaviour is irresponsible, as it further endangers the mountain gorilla, undermines conservation education programmes, and leaves the tourists, guides and rangers confused and suspicious, questioning the motives for adopting the 5 m distance rule.

Jan Kalina & Thomas M. Butynski
Zoo Atlanta, Africa Biodiversity Conservation
Program, P.O. Box 24434, Nairobi, Kenya.

A GLOBAL CONSERVATION STRATEGY FOR ZOOS

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

The Strategy emphasises that there are three major areas in which zoos and aquaria can help to

achieve conservation goals:

- By actively supporting the conservation of populations of endangered species and their natural ecosystems. Co-operative zoo breeding programmes, 300 of which are already operating, are but a start to addressing an anticipated need for over 1,000 such programmes. Many species will only survive if a captive population exists for re-introduction into the wild.
- By offering support and facilities to increase scientific knowledge that will benefit conservation. Effective conservation depends on an understanding of the biology of species and the relationships with their surroundings. The many hundreds of zoologists and veterinarians on the staffs of zoos and aquaria represent a considerable potential contribution to this understanding. Moreover, zoo-acquired knowledge is often crucial to the stimulation of further research in the wild.
- By promoting an increase in public awareness of the need for conservation. This is a task for which zoos and aquaria are pre-eminently suited. Zoo education programmes provide excellent opportunities for this most important of functions.

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

The Strategy very clearly points to the fact that—however powerful a role zoos and aquaria can play in conservation—such conservation should complement, and not substitute, other conservation activities. It, therefore, strongly advocates the integration of zoo conservation efforts with those of other conservation bodies. By endorsing *The Strategy* IUCN (the World Conservation Union) and WWF (The World Wide Fund for Nature) have affirmed their support of this view. Additionally, *The World Zoo Conservation Strategy* is based on IUCN's and WWF's vision of global conservation, as formulated in such documents as *Caring for the Earth* (1991), the successor to the *World Conservation Strategy*, published in 1980.

The World Zoo Conservation Strategy indicates how far zoos and aquaria have already progressed

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

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

Adapted from the official press release on the launching of the publication. See also page 30.

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GLOBAL CAPTIVE ACTION PLANS (GCAPs)

Global Captive Action Plans (GCAPs) are developed out of Conservation Assessment and Management Plan (CAMP) workshops. The GCAPs summarise the captive status and management priorities for taxa recommended by CAMPs for captive populations. This system proposes that captive populations should be treated as an integral part of the meta-populations being managed by conservation strategies and action plans. Viable meta-populations often may need to include captive components. The IUCN Policy Statement on Captive Breeding recommends, in general, that captive propagation programmes be a component of conservation strategies for taxa whose wild populations are below 1,000 individuals. It is proposed that captive and wild populations should and can be intensively and interactively managed with interchanges of animals occurring as needed and, as feasible, after appropriate analysis. There may be problems with such interchanges, including epidemiological risks,

logistic difficulties, financial limitations, etc. But with effort these can be resolved based on limited but growing experience. The bottom line is that strategies and priorities should try to maximise options and minimise regrets.

Captive populations are a support, not a substitute, for wild populations. A primary focus of the GCAPs is on captive propagation programmes that can serve as genetic and demographic reservoirs to support survival and recovery of wild populations in the future. The purpose of these GCAP workshops is to provide strategic guidance for captive programmes at both the global and regional level in terms of captive breeding. The GCAP workshops include consideration of how the various regional programmes for each group of taxa might interact and combine to form truly global efforts. An important aspect will be the establishment of target population size goals (*i.e.*, how many individuals to ultimately try to maintain) on a global basis and in each of the regions. More specifically, GCAPs recommend which taxa are most in need of captive propagation and hence:

- which taxa in captivity should remain there;
- which taxa not yet in captivity should be there;
- which taxa currently in captivity should no longer be maintained there.

There will be multiple genetic and demographic objectives depending on the status and prospects of the taxon in the wild and hence different captive population targets. Some taxa need large populations for a long time; others need small nuclei or reduced gene pools that can be expanded later if needed. Adjustments to current sizes of captive populations will be a result of these recommendations.

The GCAPs provide a strategic framework within which global priorities can be established and the Taxon Advisory Groups in the various organised regions of the zoo and aquarium world can formulate and implement their own Strategic Regional Collection Plans. Eight GCAP workshops, including one on primates, were conducted during the course of the CBSG annual meeting. Miranda Stevenson is the Primate GCAP Leader.

Adapted from a report by Onnie Byers in *CBSG News* 1993, Vol. 4.

AZA IN SITU CONSERVATION COMMITTEE

The Board of Directors of the American Zoo and Aquarium Association (AZA) has established a field conservation committee. The committee,

which was appointed by Stephen R. Wylie, president, includes: William Conway, chairman; Terry Maple, vice-chairman; Kathryn Roberts; Chris Wemmer; Dennis Meritt; C. Dietrich Schaaf; Les Kaufman; David Anderson, Board liaison and Nick Brown. Tony Vecchio, Michael Hutchins and Sydney Butler are staff advisors. Contact: Dr William Conway, General Director, Wildlife Conservation Society, Bronx Park, Bronx, NY 10460, USA, Fax 212-2207114 or Dr Terry Maple, Director, Zoo Atlanta, 800 Cherokee Avenue SE, Atlanta, GA 30315, USA, Fax: 404-6277514.

PRIMATE FIELD STUDIES SUPPLEMENT

Each year the Primate Society of Great Britain publishes *Primate Field Studies Supplement*. This supplement lists current field studies on primates throughout the world. The Supplement includes information on the location, species involved, aims, starting date, duration, and personnel and addresses. It is compiled through the analysis of questionnaires sent to field researchers. The number of field studies listed in the 1994 Supplement was 307. The African Section of the IUCN/SSC Primate Specialist Group views this Supplement as an important document for enhancing communications among primatologists in Africa. If you have a primate field study in Africa, send information about your current field studies for the next issue of the *Supplement*. Note that on-going projects that were included in the 1994 Supplement will not be included in the next unless an updated questionnaire is submitted. Use a photocopy of the questionnaire on page 23. The current *Primate Field Studies Supplement* is available from the PSGB Treasurer (£4.00): Dr Robin Crompton, Department of Human Anatomy and Cell Biology, PO Box 147, Liverpool L69 3BX, UK.

PRIMATE CONSERVATION - THE JOURNAL OF THE IUCN PRIMATE SPECIALIST GROUP

After a long delay, Number 11 (1990) of *Primate Conservation* has been published (58 pp.). With the creation of separate newsletters (*Primate Conservation* started its career as the *Newsletter of the IUCN/SSC Primate Specialist Group* in 1981) for Asia, the Neotropics, Africa and Madagascar, *Primate Conservation* will now take on the role of a yearbook/journal. As pointed out in the editorial by Russell Mittermeier (Chairman of the PSG) and William Konstant (Editor of the issue), this combined format of newsletters and journal is a first for an IUCN/SSC Specialist Group, and will

**CURRENT PRIMATE FIELD STUDIES SUPPLEMENT (1994-1996)
PRIMATE SOCIETY OF GREAT BRITAIN**

Please complete in *Block Capitals* and return as soon as possible to: Julia M. Casperd, Church House, Pump Lane, Churton, Chester, CH3 6LR, UK.

Please also distribute copies of this questionnaire to others in your institution/university/department who are carrying out or planning to undertake primate field studies during the period January 1994-January 1996. The deadline for inclusion of all field studies in the next issue of the CPFSS is January 1996.

Name: _____

Title project: _____

Director of project: _____

Current research team: _____

Correspondence address:

Field site address:

Town/city

Post code

Country

Precise location of field study (please include map coordinates): _____

Habitat: _____

Status: planned : _____ current: _____ completed (after Jan. 1994): _____

Start date of field study/project: month: _____ year: _____ Duration (months): _____

Species (common and Latin names) of primate studied: _____

Aims of project/field work: _____

Financed by: _____

Further information: _____

Thank you

enhance communication among the world's primate conservationists still further. *Primate Conservation* will continue to be circulated, free-of-charge, to all PSG members, and the regional newsletters will go to all members within the region.

As in previous numbers, *Primate Conservation* is divided into "News from the Field" (short articles or notes reporting on issues such as status, distribution, and protected areas), "Articles" (longer reports including conservation and research projects), and "Primate Miscellany". Future numbers will maintain "News from Captivity" for short articles concerning captive breeding and management. Number 11 includes reports from Africa on *Gorilla gorilla beringei* (T.M. Butynski, S.E. Werikhe & J. Kalina), *Pan troglodytes schweinfurthii* (V. Reynolds) and *Pan paniscus* (J. Sabater Pi & J.J. Veal).

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

Russell A. Mittermeier

Conservation International, 1015 Eighteen Street NW, Suite 1000, Washington, DC 20036, USA, Fax: 202-887-0192.

Anthony B. Rylands

Conservation International - Brazil Program, Avenida Antontio Abrahao Caram 820/302, Pampulha, 31275-000 Belo Horizonte, Minas Gerais, Brazil, Fax: +55-31-441-1795.

PRIMATE-TALK ELECTRONIC MAIL FOR PRIMATOLOGY

The Wisconsin Regional Primate Research Centre (WRPRC) at the University of Wisconsin - Madison, hosts an electronic mail list server called PRIMATE-TALK (P-T). It is an open forum for the discussion of primatology and related subjects. This forum is open to electronic mail users world-wide with an interest in non-human primates. Currently, there are over 550 members from 30

countries. Subject matter may include, but is not limited to:

- News items
- Meeting announcements
- Research issues
- Information requests
- Veterinary/husbandry topics
- Job notices
- Animal exchange information
- Book reviews

Some special features on Primate-Talk include the Primate-Talk Meetings Calendar, the Primate-Talk Directory of net members and an archive of P-T messages. People with Internet, BITNET or UUCP addresses can communicate with Primate-Talk. Users of other networks should contact the WRPRC. If you are interested in joining Primate-Talk send a message to: primate-talk@primate.wisc.edu and indicate that you would like to sign on. The WRPRC will send you information about the network and you will be asked to briefly introduce yourself. Once you are on Primate-Talk, you can send messages to: primate-talk@primate.wisc.edu.

To make suggestions or for more information about Primate-Talk, contact: Larry Jacobsen, Head of Library Services, Primate Center Library, Wisconsin Regional Primate Research Center, 1220 Capital Court, Madison, WI 53715-1299, USA, Tel: 608-263-3512, Fax: 608-265-4729, e-mail: library@primate.wisc.edu.

SOFTWARE FOR POPULATION VIABILITY ANALYSES

The Captive Breeding Specialist Group (CBSG) has produced a new *Vortex Version 6.2*, a computer model to evaluate the probabilities of extinction and loss of genetic variation for population viability analyses (PVA). It provides a quantitative summary of the conservation status of populations and permits the evaluation of the effects of different management recommendations on long-term survival.

The software, with the second edition of the user's manual, is available for US\$ 35.00 from: CBSG, 12101 Johnny Cake Ridge Road, Apple Valley, MN 55124, USA, Tel: 612-431-9325, Fax: 612-432-2757. Questions and comments regarding the software should be referred directly to: Dr Robert Lacy or Dr Kimberly Hughes, Chicago Zoological Park, Brookfield, IL 60513, USA, Tel: 1-708-485-0263, Fax: 1-708-485-3532.

OBITUARY: KLAUS-JURGEN SUCKER (1956 - 1994), GORILLA CONSERVATIONIST

On 20 June 1994, Klaus-Jurgen Sucker was found dead at his home in Kisoro, near the base of the Virunga Volcanoes in south-western Uganda. The circumstances surrounding his death continue to be investigated. Klaus was a good friend, respected colleague, and a courageous conservationist.

Born on 12 November 1956 in Minden, Germany, Klaus studied biology and history in Bielefeld. There he became particularly interested in rain forest conservation and, in 1987, he finished his thesis on the social structure of a captive group of gorillas.

Klaus came to Uganda in 1988 to undertake a survey of the destruction of montane forest in the Gorilla Game Reserve (the Uganda portion of the Virunga Volcanoes). In 1989, he returned to Uganda to gradually take charge of a sub-project established at Mgahinga as part of the Impenetrable Forest Conservation Project. Both the Mgahinga Forest and the Impenetrable (Bwindi) Forest were under considerable threat and mismanagement at the time, and Klaus' determination and hard work were badly needed and much appreciated. My strongest impression of Klaus at that time (as now) was of someone who would face the obstacles, dangers and heart-breaks that have come to be synonymous with mountain gorilla conservation efforts.

During the five years that Klaus lead the Gorilla Game Reserve Conservation Project (later the Mgahinga Gorilla National Park Project) the management and protection of Mgahinga Forest improved dramatically. Klaus' accomplishments at Mgahinga are detailed elsewhere (Butynski & Kalina, 1993; Karlowski, 1994). He successfully led efforts to recruit, train and equip rangers, virtually eliminate smuggling, poaching, illegal grazing and the theft of forest products, remove encroachers from a 10 km² area of vital gorilla habitat, gazette Mgahinga as a national park, promote conservation education, and establish a revenue-sharing ecotourism programme. Today, largely to Klaus' credit, Mgahinga's mountain gorillas are far more secure than at any time during this century and the Mgahinga Forest is regaining its conservation values.

Klaus will be remembered first and foremost as a "gorilla conservationist". He would want nothing more!

Thomas M. Butynski
Editor

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NEW ACTION PLAN FOR AFRICAN PRIMATE CONSERVATION

It is now ten years since the original *IUCN/SSC Action Plan for African Primate Conservation: 1986-90* was compiled. As a set of recommendations for future action, that plan is obviously outdated. Many projects listed in the plan have been at least partially implemented, new survey data on threatened taxa have emerged, and taxonomic schemes have changed.

In 1989, members of the Africa Section of the PSG were contacted for their views on the value of producing an update of the plan. Fourteen people responded and their general consensus was that it would be worthwhile to produce some kind of follow-up document. Most respondents felt that a complete revision was unnecessary, but that it would be worthwhile to include a review of the extent to which projects recommended in the original plan had been implemented.

Work on a revision began in 1992, assisted by a grant from the Peter Scott IUCN/SSC Action Plan Fund. This grant enabled CUNY graduate student Laur Robinson to assist me with research into project implementation and with drafting a summary of this information. All or parts of this first draft (which included recommendations for future action) were then mailed to 50 Africa Section members and other specialists in May 1993. Comments on this first draft came back over the next several months.

Based on the comments received, and with assistance from Carolyn Bocian, the draft was revised during 1994 and a revised taxonomy and a new threat-rating system were added. In revising the threat ratings, an attempt was made to bring our ratings closer to the new IUCN categories and criteria. The new IUCN system was not adopted in its entirety, however.

A complete second-draft plan was sent out in November 1994 to about 25 people who had provided substantive comments on earlier mailings. Reactions to this second draft were incorporated into a final revision in early 1995. As of May 1995, the finished document is with Stephen Nash at Stony Brook for lay-out, and for the incorporation of maps and photographs (some of which will be

new). Publication date is not currently known, but will hopefully be before the end of 1995.

John F. Oates

Department of Anthropology, Hunter College, City University of New York, NY 10021, USA.

MEETINGS

Zoos: Committing to Conservation. 13-16 July 1995, Powell, Ohio, USA. Hosted by The Columbus Zoo. The conference will focus on the role of zoos as support infrastructures for *in-situ* conservation with a special emphasis on community based initiatives.

The conference will bring together a varied array of individuals from zoos, NGOs, academia and large conservation organisations in order to promote active conservation on the part of zoos. The goal is to showcase ongoing projects that have proven successful. The role of keepers as initiators and facilitators has a special emphasis concerning grassroots projects.

Contact: Beth Armstrong/Ape House, The Columbus Zoo, P.O. Box 400, Powell, OH 43065-0400, USA, Tel: 614-645-3426, Fax: 614-645-3465.

1995 24th International Ethological Congress. 10-17 August 1995, Honolulu, Hawaii. Sponsored by the University of Hawaii. Contact: Conference Secretariat, 800 NW Loop 410, Suite 150-S, San Antonio, TX 78216-5674, USA, Tel: 210-341-8131, Fax: 210-341-5252, e-mail: icc@zoogae.zoo.hawaii.edu.

The Wildlife Society Second Annual Conference. 12-17 September 1995, Portland, Oregon, USA. Hosted by the Oregon and Washington Chapters, TWS. Featuring symposia, workshops, contributed paper and poster sessions, working group meetings, student activities, members' forum, tours to Mt St Helens, old-growth forest, and Oregon's coast. Plenary session: Long-term research on keystone species: implications for ecosystem management. Contact: The Wildlife Society, Tel: 301-897-9770, Fax: 301-530-2471.

1995 International Conference and Workshop on the Biology and Conservation of Prosimians. 14-16 September 1995, North of England Zoological Society, UK. Sponsors include the University of Liverpool, the European Federation for

Primate Society of Great Britain and the Jersey Wildlife Preservation Trust.

The conference aims to promote conservation of prosimians through exchange of information on their biology, ecology, behaviour, distribution and conservation status in the wild. Workshops will concentrate on applying this information to the development of practical action plans, management projects, skills and strategies. The organisers are soliciting titles, together with 250-word abstracts of papers or posters for the scientific sessions, and details of any proposed presentations relating to the workshops. Contact: Dr Gordon Reid, Curator in Chief, Caughill Road, Upton by Chester, CH2 1LH, UK, Fax: 44244-381352.

4th Congress of the Gesellschaft für Primatologie (GFP). 20-24 September 1995, Kassel, Germany.

The main topic of the Congress will be the interaction between primatological field and laboratory research, for example, the application of laboratory-based physiological, endocrinological and genetic methods in primate field research. Papers and posters on any other primatological topics are welcome.

Contact: Prof. Christian Welker, Zoologie und Vergl. Anatomie, Primatenethologie, Universität Kassel, D-34409 Kassel, Germany, Fax: +49-561-804-4604.

1996 IPS/ASP Joint Meeting. 11-16 August, Madison, Wisconsin, USA. Contact: Ms. Edith Chan, Congress Coordinator, Wisconsin Regional Primate Research Center, 1223 Capitol Court, Madison, WI 53706, USA, Tel: 608-263-3500, Fax: 608-263-4031.

FUNDING AND TRAINING

TRAINING IN THE CONSERVATION OF BIOLOGICAL DIVERSITY

The Field Museum, Chicago Zoological Society and the University of Illinois at Chicago have established a consortium-based programme, funded by the John D. and Catherine T. MacArthur Foundation, to provide intensive training in conservation biology for young faculty or equivalent professionals from developing countries, especially in the tropics.

The programme is designed to provide the participants with the tools necessary for assessing and analysing biological diversity in order that they

will be better equipped to help establish conservation programmes and direct biodiversity policies in their own countries.

The curriculum is designed to provide the participants with a general understanding of the theoretical principles of conservation biology and to illustrate how these principles can be applied in actual conservation programmes. Participants will incorporate what they learn into individual conservation-related projects.

Participants will spend approximately half their time attending lectures and participating in seminars, as well as in discussions of particularly relevant publications. Topics studied will include habitat disturbance and fragmentation, island biogeography, conservation genetics, and design and protection of reserves. Scientific, as well as economic, political, and sociological aspects of conservation biology will be considered. Participants will gain experience writing grant proposals and will be provided with information on funding for biodiversity research and conservation from US and international organisations.

Participants will spend the other half of their time in developing a conservation-related project with their individual advisor at one of the three institutions. Examples of such projects include: analysis of patterns of endemism, population viability analysis, ecology of fragmented populations and communities, and design of national park systems.

Potential participants in the programme include individuals committed to using what they learn to help guide conservation programmes in their own countries. They should have a Master's degree or the equivalent in a field such as biology, ecology, zoology, or botany, but should have had little opportunity to study conservation biology. Participants should also be in such a position in their home country as to allow them to use their knowledge immediately and effectively. Top priority will be given to such persons working in universities, museums, parks, non-governmental conservation organisations, or governmental wildlife offices.

All expenses for travel, food, housing, and some books will be covered by the project and participants will be given a small honorarium.

Scheduled to take place for 1994-1996, this programme will be divided into two sections offering different experiences to match the needs of the participants. The Summer Sessions (eight weeks) will take place in July and August. The Autumn Sessions (four months) will take place mid-August through mid-December. Contact: Dr Wendy Jackson, Program Co-ordinator, c/o Center for Evolutionary and Environmental Biology, The Field

Museum, Roosevelt Road at Lake Shore Drive, Chicago, IL 60605, USA, Tel: 312 922 9410, ext. 432, Fax: 312 922-5421, e-mail: jackson@fmnh.org.

CONSERVATION AND RESEARCH GRANTS FROM THE CHICAGO ZOOLOGICAL SOCIETY

The Chicago Zoological Society, consistent with its mission to enhance appreciation of the earth's biological heritage by providing for the public's enjoyment and education, and to promote the conservation of wildlife and the discovery of biological knowledge, sponsors conservation projects and scientific research addressing all aspects of the preservation and maintenance of both wild and captive animal populations. Activities supported by the Society's Conservation and Research Committee through its SEACON grants include conservation and research projects directed at:

- preservation and restoration of native fauna, including the identification and development of solutions to environmental problems in need of biological management;
- maintenance of small populations of wild and captive animals, including the study of ecology, genetics, demography, behaviour, nutrition, pathology and management;
- development and dissemination of educational, technical and other conservation materials and interaction with governmental and other agencies responsible for conservation.

In order to maximise the potential benefits of the Society's support, applicants are encouraged (but not required) to consider the feasibility of combining conservation and research components in their projects.

Funding for projects is on an annual basis. Grants ordinarily do not exceed \$5,000 and may provide seed money for endeavours requiring participation of other agencies and institutions. Applications requiring immediate or expedited attention will be considered. Researchers from developing countries are encouraged to apply. Contact: Conservation and Research Committee, Dr George B. Rabb, Chicago Zoological Society, Brookfield, IL 60513, USA, Fax: 708-4853532.

NEW YORK ZOOLOGICAL SOCIETY RESEARCH FELLOWSHIP PROGRAM

This programme is designed to support individual research projects that lead directly to conservation of threatened wildlife, communities and ecosystems. Every project must lead to concrete advances in the conservation of wildlife or wild lands, and must incorporate clearly identifiable, specific conservation components.

Any individual is eligible to apply. Awards average under \$20,000. The median grant is \$5,000. Support is not available for conferences, travel to scientific meetings, erection of permanent field stations, institutional salaries or overhead costs. Expensive laboratory analyses also are outside the guidelines. Proposals are evaluated on a competitive basis. Applications are screened by outside reviewers and by staff. Preference is given to proposals by nationals of the country of research, and to projects in six biogeographic regions of special interest, including East African savannahs, and Central and West African forests.

The WCI Conservation Committee meets three times a year. The closing dates for applications are 1 January, 1 July and 1 September. Start-up times for awards are the end of May, November and February, respectively. Contact: Dr John Robinson, NYZS The Wildlife Conservation Society, 185th Street Southern Boulevard, Bronx, NY 10460-1099, USA, Tel: 718 220-5155, Fax: 718 364-4275.

SOPHIE DANFORTH CONSERVATION BIOLOGY FUND

The Sophie Danforth Conservation Biology Fund was established by the Roger Williams Park Zoo and the Rhode Island Zoological Society to help protect the world's threatened wildlife. Each year grants of up to US\$ 1,000 are awarded to individuals or institutions working in conservation biology.

Projects and programmes that enhance biodiversity and maintain ecosystems receive the highest funding priority. Field studies, environmental education programmes, development of techniques that can be used in a natural environment, and captive propagation programmes that stress an integrative and/or multi-disciplinary approach to conservation are also appropriate. Proposals for single species preservation, initial surveys, or seed money for technique development are not appropriate.

Contact: Dr Anne Savage, Director of Research, Roger Williams Park Zoo, Elmwood

Ave, Providence, RI 02905, USA, Tel: 401-785-3510, Fax: 401-941-3988, e-mail: bi599132@brownvm.brown.edu.

IPS CONSERVATION SCHOLARSHIP PROGRAMME

The purpose of this programme, under the supervision of the Conservation Committee of the International Primatological Society, is to train habitat-country primatologists in primate conservation.

A small number of IPS Conservation Scholarships are awarded each year to assist citizens of countries which have indigenous populations of non-human primates to acquire substantial further training. Individual awards do not exceed US\$ 4,000. The IPS Conservation Committee may be able to help successful applicants seek matching funds from other organisations, if necessary.

While attendance at training courses outside the scholar's home country is particularly encouraged, appropriate in-country training may also be considered, as well as attendance at conferences which will provide significant training experience.

The chief criteria used in evaluating applications for scholarships will be evidence of the applicant's ability to make an important contribution to primate conservation, and that the training will significantly further the applicant's ability to make that contribution.

There are two annual deadlines for applications: 1 April and 1 October. Applications received after these deadlines will not be considered until the following one. Applications will be reviewed by the IPS Conservation Committee and ratified by the IPS Council. Results will normally be announced about two months after each deadline. Contact: Dr David J. Chivers, Sub-Department of Veterinary Anatomy, University of Cambridge, Tennis Court Road, Cambridge CB2 1QS, UK, Fax: 44-223-333786.

PRIMATE CONSERVATION INC. GRANTS

Primate Conservation Incorporated (PCI) is a not-for-profit foundation founded to fund field research that supports conservation programmes for wild populations of primates. Priority will be given to projects that study, in their natural habitat, the least known and most endangered species. The involvement of citizens from the country in which the primates are found will be a plus. The intent is to provide support for original research that can be

used to formulate and to implement conservation plans for the species studied.

Primate Conservation Inc. will grant seed moneys or provide matching grants for graduate students, qualified conservationists and primatologists to study rare and endangered primates and their conservation in their natural habitat. Grants have averaged approximately US\$ 2,500, with a maximum grant of US\$ 5,000. We do not support conferences, travel to scientific meetings, legal actions, tuitions or salaries at institutions, and overhead costs.

Proposals are evaluated on competitive basis. Applications are screened by outside reviewers and the Board of Directors of Primate Conservation Inc. All appropriate projects will be considered, but the regions of current interest are Asia and West Africa. Deadlines for grant application materials are 1 March and 20 September. Awards will be given 15 May and 15 December.

Contact: Primate Conservation Inc., 163 Town Lane, East Hampton, NY 11937, USA, Tel: 516 267-6856, Fax: 516 267-2024.

NEW YORK CONSORTIUM IN EVOLUTIONARY PRIMATOLOGY

The NYCEP is a graduate training programme in all aspects of the behavioural and evolutionary biology of primates. This program brings together a diverse faculty of 26 scientists from five universities and research/public education institutions in New York City: City University of New York, Columbia University, New York University, the American Museum of Natural History, and the Wildlife Conservation Society (Bronx Zoo).

NYCEP faculty research focuses on non-human (and human) primates from the perspectives of comparative morphology, palaeontology and systematics, molecular and population genetics, behaviour and ecology, and conservation biology.

Full tuition is provided along with a stipend of US\$ 12,000 annually for 4-5 years. Minority students and women are especially encouraged to apply to New York Consortium in Environmental Primatology, and special funding support may be available to them.

Application is made jointly to New York Consortium in Evolutionary Primatology and to one or more co-operating universities by early January. Contact: Dr Eric Delson, Director of NYCEP, Department of Vertebrate Palaeontology, The American Museum of Natural History, New York, NY 10024, USA, Tel: 212 769-5992, Fax: 212-769-5842.

RECENT LITERATURE

NEWSLETTERS

Asian Primates: The Newsletter of the Asia Section of the IUCN/SSC Primate Specialist Group. Contact: Ardith A. Eudey, Editor, 164 Dayton Street, Upland, CA 91786, USA, Fax: 909-982-9832.

Neotropical Primates: The Newsletter of the Neotropical Section of the IUCN/SSC Primate Specialist Group. Contact: Anthony Rylands, Co-editor, Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, 31270-901 Belo Horizonte, Brazil, Fax: 031-441-1412 or Ernesto Rodriguez Luna, Co-editor, Parque de la Flora y Fauna Silvestre Tropical, Universidad Veracruzana, Apartado Postal 566, Xalapa, Veracruz 91000, Mexico, Fax: 52-28-12-5748.

Lemur News: The Newsletter of the Madagascar Section of the IUCN/SSC Primate Specialist Group. Contact: Roderic B. Mast, Editor, Conservation International, 1015 Eighteen Street NW, Suite 1000, Washington DC 20036, USA, Fax: 202-887-5192.

Sulawesi Primate Newsletter. Contact Nora Bynum, Editor, 1126 John Jones Road, Bahama, NC 27503, USA, Fax: 919-477-5134, e-mail: elb@acpub.duke.edu or Nenny Babo, Indonesian Editor, c/o PIPAS, P.O. Box 1521, J1 Sultan Alauddin, No. 26, Ujung Pandang, Sulsel, Indonesia, Fax: 62-411-862721.

Chinese Primate Research and Conservation News. This is the newsletter of the Chinese Primate Specialist Group. Contact: Mr Quoqiang, 19 Zhongguancun Lu, Institute of Zoology, Academia Sinica, Beijing 100080, China, Fax: 2565689.

Japan Primate Newsletter. This is the newsletter of the Conservation Committee of the Primate Society of Japan. Contact: J. Yamagiwa, Secretary, PSJ Conservation Committee, c/o Kyoto University Primate Research Institute, Inuyama, Aichi 484, Japan.

Canopée. This newsletter was launched in January 1994. *Canopée* is published jointly by two projects working in the field of wildlife conservation in seven countries of Central Africa; the EU-funded ECOFAC programme (Conservation et Utilisation

Rationnelle des Ecosystèmes Forestiers en Afrique Centrale) and the Nouabalé-Ndoki Project (Wildlife Conservation Society). The newsletter aims not only to inform readers of particular activities being undertaken, but also to stimulate an exchange of ideas and experiences relating conservation and rational exploitation of tropical rain forests in general. Topics covered range from reports on wildlife surveys, natural resource exploitation and evaluation of hunting pressure on wildlife populations, to issues relating to general conservation policy such as the participation of local communities in forest resource management. Contact: Conrad Aveling, ECOFAC, B.P. 62, Brazzaville, Fax: 242-934570 or Matthew Hatchwell, Projet Nouabalé-Ndoki, B.P. 14537, Brazzaville, Congo.

BOOKS

The World Zoo Conservation Strategy: The Role of Zoos and Aquaria of the World in Global Conservation. Edited by the World Zoo Organization (IUDZG) and the IUCN/SSC Captive Breeding Specialist Group (CBSG). Published by the Chicago Zoological Society, 1993, 76 pp. Price: US\$ 10.00. IUDZG and CBSG also published a separate executive summary of the document (12 pp). Price US\$ 3.00.

Includes 11 chapters: 1. Introduction: zoos in a changing world; 2. The World Conservation Strategy and zoos; 3. The global zoo network; 4. Education; 5. Zoo animal collections and their conservation; 6. *Ex-situ* conservation of animal populations; 7. Capacity: space limitations and choice of species; 8. Artificial reproduction and cryopreservation: biotechnology in support of conservation; 9. Back to nature: zoo animals for reintroduction and restocking; 10. Knowledge and research; and 11. The way forward; towards a new integration. Available from CBSG, 12101 Johnny Cake Ridge Road, Apple Valley, MN 55124-8199, USA. See page 20.

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

This is the first in the Conservation International Tropical Field Guide Series. It is an invaluable reference for scientist and non-scientist alike. Pocket-sized, it is the most comprehensive book on the five families, 32 species and 50 taxa of lemurs ever published. It includes chapters on lemur origins, their discovery and study, and their

conservation, with a special section on the eight genera and 15 species that have already gone extinct. A major section of the book is also devoted to a review of behaviour, ecology and conservation strategy for all known species and subspecies, together with maps showing their distributions. The *Field Guide* also contains 135 black-and-white postural and behavioural drawings, 35 colour plates depicting all known forms including colour variants, and colour photographs of all major lemur habitats.

To order your copy please send a cheque for US\$ 37.00 (which includes postage and handling), made out to "Conservation International", to: Russell A. Mittermeier, Conservation International, 1015 Eighteen Street NW, Washington DC 20036, USA, Fax: 202-887-0192.

International Directory of Primatology. Compiled by Larry Jacobsen, 2nd Edition, 1994, 354 pp., spiral bound. Wisconsin Regional Primate Research Center, Madison, WI, USA. Price US\$ 15.00 in USA, US\$ 23.00 in other countries (includes postage and packing).

The purpose of the Directory is to enhance communication among organisations and individuals involved in primate research, conservation, and education. It can be used by primatologists as a desktop working tool or by educators, librarians, students, and the general public as a guide to primate programmes and information resources.

The Directory is divided into four sections and five indexes. The sections cover: 1) geographically arranged entries for major primate centres, laboratories, educational programmes, foundations, conservation agencies, and sanctuaries; 2) groups involved with non-human primate population management; 3) professional primate societies, including the membership roster of the International Primatological Society (IPS); and 4) major information resources in the field.

Access to this information is supported by organisational, field site, species, subject, and name indexes. Prepayment is preferred, but electronic and phone orders are welcome. Cheques payable to: Wisconsin Regional Primate Research Center. Available from: Larry Jacobsen, IDP Co-ordinator, Wisconsin Regional Primate Research Center Library, 1220 Capitol Court, Madison, WI 53715-1299, USA, Tel: 608-263-3512, Fax: 608-263-4031, e-mail: library@primate.wisc.edu. See also page 24.

Colobine Monkeys: their Ecology, Behaviour and Evolution. Edited by Glyn Davies & John Oates. Cambridge University Press, 1994, 432 pp. Price: £50 (hardback).

CONSERVATION INTERNATIONAL
TROPICAL FIELD GUIDE SERIES

LEMURS of Madagascar



Russell A. Mittermeier
Ian Tattersall, William R. Konstant,
David M. Meyers & Roderic B. Mast

Illustrated by
Stephen D. Nash



Colobine monkeys have a unique digestive system, analogous to that of ruminants, which allows them to exploit foliage as a food source. This gives them a niche in Old World forests where they are often the only abundant medium-sized arboreal folivorous mammal. From a possible Miocene origin, colobine monkeys have radiated into a wide variety of forms inhabiting a range of tropical woodlands in Africa and Asia. Most of the extant species have been subject to long term field studies, but until this book, no synthesis of work on this group has been available. The central theme is that of adaptive radiation, showing how the special features of colobine anatomy interacted with a range of ecosystems to produce the distinctive species of today. The book also discusses parallels with other mammalian groups.

Contents: Preface; What are the colobines?: John Oates & Glyn Davies; 2. Evolutionary history of the colobines in a paleoenvironmental perspective: Eric Delson; 3. The diversity of living colobines: John Oates, Glyn Davies & Eric Delson; 4. The natural history of African colobines: John Oates; 5. The natural history of Asian colobines: Elizabeth Bennett & Glyn Davies; 6. Functional morphology of colobine teeth: Peter Lucas & Mark Teaford; 7. Functional morphology of the gastrointestinal tract: David Chivers; 8. Digestive physiology: Robin Kay & Glyn Davies; 9. Colobine food preferences and plant chemistry: Peter Waterman & Karen Kool; 10. Colobine populations: Glyn Davies; 11. Colobine monkey society: Paul Newton & Robin Dunbar; 12. Conclusions: past, present and future: John Oates & Glyn Davies; References; Index. Available from: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, UK.

Other Books

- King, B.J. 1994. *The Information Continuum: Evolution of Social Information Transfer in Monkeys, Apes, and Hominids*. Saar Press, Santa Fe.
- Reinartz, G.E. 1994. *Bonobo (Pan paniscus) Species Survival Plan: Master Plan 1994-1996*. Zoological Society of Milwaukee County.

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CONTRIBUTIONS

African Primates publishes information relevant to the conservation of non-human primates and their ecosystems in Africa. Its aim is to facilitate the rapid exchange of information and ideas among primatologists and conservationists working with primates in Africa. It is hoped that this newsletter will enhance the conservation of African primates:

- 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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- Use metric units only.
- Tables, figures and photographs are encouraged. All require complete, concise captions listed on a separate sheet.
- Figures, such as maps and sketches, should be drafted in black ink, lettered clearly to allow for

reduction, and should be 'camera-ready'. The style used in *Primate Conservation* can serve as an excellent guide.

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- 'References' should be an alphabetical list of only those publications cited in the text. They should conform to the format used in *Primate Conservation* and in previous issues of *African Primates*.
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Front cover illustration: the Roloway monkey *Cercopithecus diana roloway* is a highly endangered subspecies which is not effectively protected at this time. By Steven Nash.

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

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