

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.

### Spartaco Gippoliti

Viale Liegi 48 A, 00198 Rome, Italy.

### Giacomo Dell'Omo

Laboratorio di Fisiopatologia di Organo e Sistema, Istituto Superiore di Sanità, Viale Regina Elena,

299, I-00161 Rome, Italy, Tel: 39-6-49902480, Fax: +39-6-4957821, e-mail: FOS@IRMISS.

### References

- DGFC/CECI/IUCN. 1989. Résultats de l'inventaire faunistique au niveau national et propositions de modification de la loi sur la chasse. DGFC/CECI/IUCN, Bissau.
- FAO. 1988. An interim report on the state of forest resources in the developing countries. FAO, Rome.
- Frade, S. & J.A. Silva. 1980. Mamíferos da Guiné (collecção do Centro de Zoologia). *Garcia de Orta, Sér. Zool.* 9: 1-12.
- IUCN. 1992. Guinea-Bissau. In: *The Conservation Atlas of Tropical Forests-Africa*. J.A. Sayer, C.S. Harcourt & N.M. Collins, eds. MacMillan, London, pp. 200-205.
- IUCN. 1993. Planificação costeira, Guiné-Bissau Relatório Técnico.
- Koortland, A. 1983. Marginal habitats of chimpanzees. *Journal of Human Evolution* 12: 231-278.
- Lee, P.C., J. Thornback & E.L. Bennett. 1988. *Threatened Primates of Africa. The IUCN Red Data Book*. IUCN, Gland, Switzerland.
- Monard, A. 1940. Résultats de la mission scientifique du Dr. Monard en Guinée Portugaise 1937-1938. I. Primates. *Aquivos do Museu Bocage* 9: 121-149.
- Moore, J. 1985. Chimpanzee survey in Mali, West Africa. *Primate Conservation* 6: 59-63.
- Morin, P.A., J.J. Moore, R. Chakraborty, L. Jin, J. Goodall & D.S. Woodruff. 1994. Kin selection, social structure, gene flow, and the evolution of chimpanzees. *Science* 265: 1193-1201.
- Teleki, G. 1989. Population status of wild chimpanzees (*Pan troglodytes*) and threats to survival. In: *Understanding Chimpanzees*, G. Heltne & L. Marquardt, eds., pp. 312-353.
- Thibault, M. 1993. Parc National de Dulombi. Bilan des inventaires des mammifères de 1990 à 1993 et potentiel d'exploitation. CECI, Bafata.

### 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

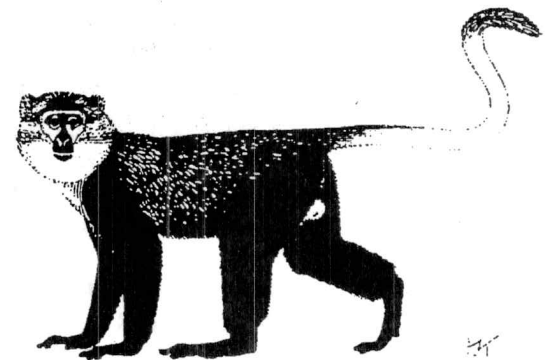
Department of Biological Anthropology, Duke University, Durham, NC 27708, USA.

#### John F. Oates

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

### 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