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**A Population Density Estimate  
of the Chimpanzee in the  
Haut-Niger National Park,  
Republic of Guinea**

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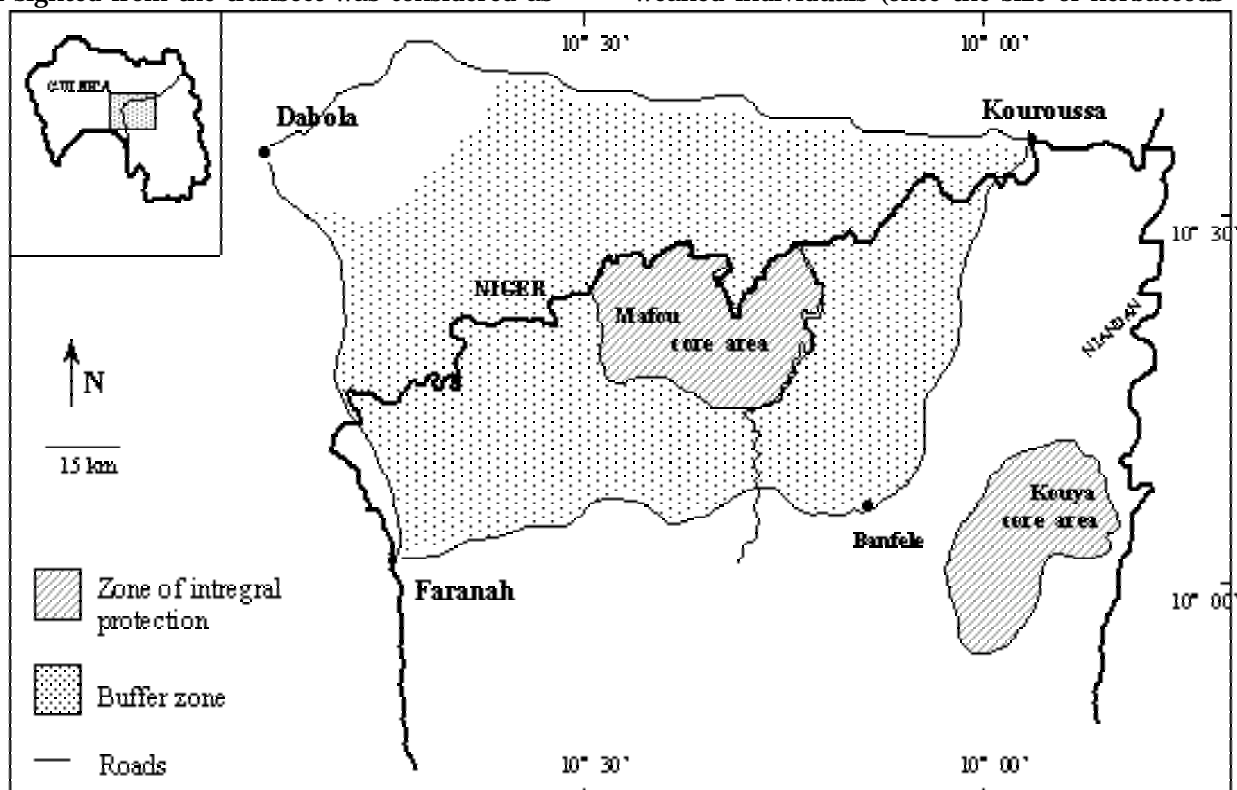
Due to a combination of habitat loss and direct hunting, the Nigerian chimpanzee (*Pan troglodytes vellerosus*) and the Western chimpanzee (*Pan troglodytes verus*) are the most endangered of the four currently recognised subspecies of the chimpanzee. The total population number of the western chimpanzee, which ranges over ten west African countries, has been recently estimated at 24,000 individuals (1). The Republic of Guinea could be the last stronghold of this subspecies since a national population survey carried out 1997 yielded an conservative estimate of 12,000 individuals (2;

see also 3). The status of chimpanzees in Guinea, however, is precarious for several reasons: (i) the country population is highly fragmented in small and isolated sub-populations whose mid-term viability is uncertain; (ii) traditional beliefs that do not authorize the consumption of chimpanzee meat are weakening, (iii) there are an important (though not yet quantified) trade in young chimpanzees as pets and (iv) the country's protected area network is poorly developed and only the Haut-Niger National Park (core areas + buffer zone = 10,000 km<sup>2</sup>) is likely to protect a large population of chimpanzees (due to its small size, the Nimba Integral Reserve probably holds a limited population of chimpanzees).

To assess the significance of the Haut-Niger National Park (Figure 1) as a key area for the conservation of chimpanzees in Guinea, we carried out a survey in the Mafou core area (integral reserve) of the park (4). The main objective was to estimate the population density. We used the method of bed count along transects and a total of 52.7 km was sampled from March 2001 to June 2001. Bed density was estimated with the DISTANCE program. Each bed sighted from the transect was considered as

an independent observation (it was not possible to estimate the density of the bed group because of the overlapping of the bedding sites).

A total of 396 beds was observed from the transects. Abundance of beds varied significantly according to the seven types of vegetation recognised in the study site. While gallery forests covered only 6% of the sampled area, they were found to harbour about 40% of the beds found. Dry forests were also preferentially selected (40% of the beds over 27% of the area). Savannas were scarcely used. Mean density of beds was 143.4 beds/km<sup>2</sup> ranging from 967.3 beds/km<sup>2</sup> in gallery forests to 27.7 beds/km<sup>2</sup> in wooded savannas (no beds in herbaceous savannas). Using a bed decay rate of 221 days (a figure found by 3 in the Fouta-Djallon region), the mean density of bedding chimpanzees was estimated at 0.52 individuals/km<sup>2</sup> (95% confidence interval: 0.33-0.79) ranging from 3.5 ind./km<sup>2</sup> in gallery forests to 0.1 ind./km<sup>2</sup> in wooded savannas. Compared to other sites in the western African savannas, it is a high population density. Given the size of the Mafou core area (557 km<sup>2</sup>), this site could protect a population of about 275 weaned individuals (once the size of herbaceous



**Figure 1.** Sketch map of the Parc National du Haut Niger.

Note that the buffer zone around the Kouya core area is not yet established.

savannahs have been deleted).

Tree species used to build beds seem to be positively selected because we found no correlation between their abundance in the vegetation and their level of use by chimpanzees. Mean bed height was 10.0 m and only four beds were found on the ground. Average diameter at breast height of trees selected to build beds was 31.0 cm. We found a positive correlation between the height of beds and the diameter of trees with beds.

Given these encouraging results, we propose to sample an additional distance of at least 50 km in the Mafou forest in 2002. When known, the result of the monitoring of the bed decay rate initiated in 2001 at the study site should allow to improve the reliability of the population density estimate.

We would like to find funds to carry out a survey in the second core area of the park (Kouya forest, 657 km<sup>2</sup>) and also in the buffer zone (8,700 km<sup>2</sup>) of the park where the impact of anthropogenic activities on chimpanzee populations could be studied. Anyone interested is invited to contact us.

## References

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