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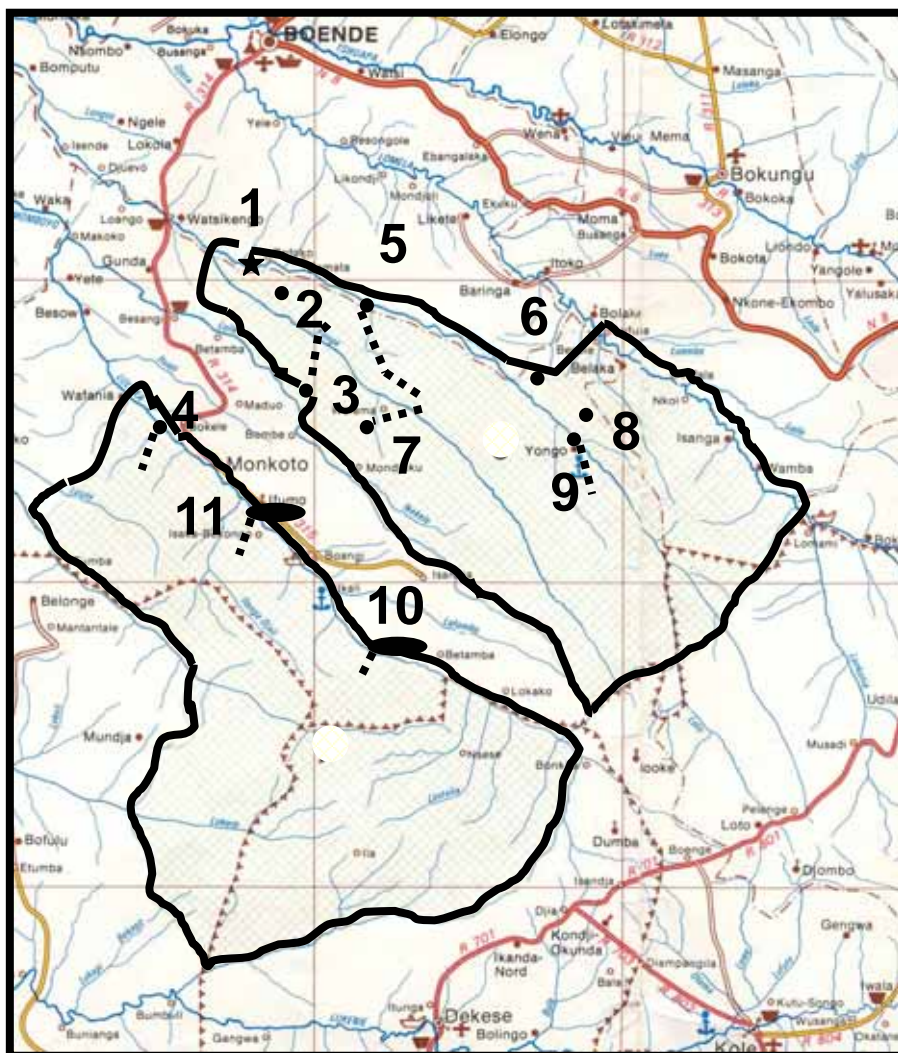
<NOTE>
**Conserving *Pan paniscus* in the
 Salonga National Park,
 Democratic Republic of Congo**

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Among the highest conservation priorities for the bonobo (*Pan paniscus*) are to determine the extent of the species' present range, locate major surviving populations, assess habitat and degree of population fragmentation, and quantify the level of threat. Thus, regional surveys are urgently needed (1, 2), as well as quantitation of habitat characteristics. *The Action Plan for Pan paniscus* (1) identified important potential survey

regions. Among these sites is the Salonga National Park (SNP), Democratic Republic of Congo. Designated as a World Heritage Site in 1984, and covering an area over 36,000 km² (3), the SNP potentially harbors the largest, relatively undisturbed, and legally protected bonobo habitat. At present it is the only federally protected area for *Pan paniscus* (1). The park was created in 1970 to protect the bonobo, but early reports indicate that the bonobo's occurrence may be rare to non-existent (3). In order to fully establish a countrywide conservation strategy for the bonobo, it is critical to understand the population status of the bonobo in the SNP, i.e., whether they exist and to what extent the population may be self-sustaining.

In October 1997, following recommendations made by the *Action Plan*, the Zoological Society of



- 1 = Etate:
 01°03.259S; 020°48.295E
- 2 = Lotulo:
 01°08.815S; 020°48.006E
- 3 = Ikolo:
 01°17.336S; 020°49.221E
- 4 = Lokofa:
 01°41.500S; 020°34.454E
- 5 = Isanga:
 01°13.351S; 021°16.051E
- 6 = Biondo-Biondo
 01°22.915S; 021°38.445E
- 7 = Bonima:
 01°24.210S; 021°07.180E
- 8 = Kinki:
 01°29.728S; 021°46.446E
- 9 = Yongo:
 01°32.104S; 021°48.270E
- 10 = Beminyo:
 02°24.658S; 021°13.607E
- 11 = Isaka- Bekongo
 01°54.790S; 020°51.183E

--- = route
 — = park border

Figure 1 Salonga National Park: ZSM survey sites.

Milwaukee (ZSM), formed a partnership with Institut Congolais pour la Conservation de la Nature (ICCN: Ministry of the Environment, Water, and Forest) and in collaboration with the Royal Zoological Society of Antwerp, launched an exploratory mission to the SNP. A research team, led by Ellen Van Krunklesven and Inogwabini Bila Isia, traveled to the northern sector of Salonga. The team scouted a small portion of the northeastern tip of the northern sector and sampled four sites in this region of the park. They found consistent evidence of bonobos at each site (4). This was the first scientific mission to document bonobos living in this section of the park (although guards had reported sightings) (5). In addition, the team encountered a high frequency of poaching; e.g., they found 43 hunting camps in a portion of their small survey. They witnessed that Salonga existed primarily as a park on paper.

Shortly afterwards, civil war broke out (August 1998) before a larger survey could get underway. ZSM could not return until October 2000 when a second mission took place, this time to assess the wartime conditions of the park and to continue site evaluations of the bonobo population (6). The study found that the war had not ravaged the Salonga as it had in the eastern parks of Congo, but conditions for the local inhabitants had become extreme as river traffic was halted and commerce was completely disabled. Bushmeat hunting and fishing had become the only source of income. Moreover, the park was understaffed. The existing guards were poorly paid, unequipped, and untrained, and most were near or exceeding retirement age. With fewer than 40 arms for 130 men, the guards were powerless to deter well-equipped elephant poachers armed with automatic weapons. The many river systems that border and traverse the Salonga allowed easy access to hunters.

Continuing immediately after the war, the research and conservation objectives of ZSM were to (a) assess the population status of bonobos in the Salonga; (b) study the ecological and human factors related to bonobo distribution and abundance; and (c) link research to emergency park support. To date, ZSM-ICCN teams have surveyed 11 sites (Figure 1) and have systematically sampled nine of the sites using

line transects to estimate relative bonobo density. The proportion of forest types and the intensity of hunting were also analyzed. In addition, we measured the forest structure characteristics and the encounter rates of signs (no. signs/km of transect) of other large mammal species (e.g., foot prints, dung, food remains) including human signs (e.g., snares, paths, camps). ICCN field staff and park guards were trained and engaged in all aspects of the work. Bonobo signs were observed in all but two sites explored but at varying frequencies, and bed site occurrence was not uniform across all geographic locations studied. In brief, the bonobo population studied (as indicated solely by the presence of bed sites) had a patchy distribution determined largely by the proportion of mixed mature semi-deciduous forests with a Marantaceae understory. The density estimated for this forest type was approximately 1.5 bed builders/km², and this was the most commonly encountered forest type in our sample (36.8%). Our findings indicated that bonobo distribution and abundance in Salonga was negatively affected by human hunting (present and historical). Snares were the most frequent human signs encountered. In one location (with low bonobo density) there were 71 metallic snares over 9 km of transects. We observed locations close to large human settlements and/or pathways connecting settlements that were nearly devoid of most mammal species. To estimate the total bonobo population size for all of SNP further studies must refine estimates of the proportion of park covered by preferred forest types and determine the current and past levels of hunting activity.

From 2000 to the present, the ZSM has supplemented park guard salaries and delivered motivational salary increases awarded to the SNP by the United Nations Foundation and UNESCO (7). In areas where higher densities of bonobos have been found, ZSM financially supports additional guard patrols and 17 supplementary guards to protect these areas. In December 2003, ZSM provided the financing for guard training in paramilitary law enforcement. At a site called Etate (in the northeastern tip of the northern sector), ICCN took over a large poaching camp, and ZSM aided the park conservateur to convert this camp into a research

and patrol station. Etate is notable for its resident bonobo population and the frequency of ground beds observed at this site (in contrast to other locations). Etate has been equipped with buildings, a radio, an outboard motor, and research/forestry supplies, and plans are underway for ZSM to increase infrastructure support to this site.

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