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Chimpanzees in the Ntakata and Kakungu Areas, Tanzania

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Abstract: Surveys were carried out for chimpanzees, *Pan troglodytes schweinfurthii*, in the areas of Ntakata (300 km² between the Mkamba River and the Lubalisi River, 05°45'–06°15' S, 30°00'–30°15' E), and Kakungu (200 km² between the Lubalisi River and the sources of the Rubufu River, 05°55'–06°15' S, 30°00'–30°15' E), Tanzania, during the dry seasons of 2001 and 2003. The predominant vegetation was savanna woodland with forest patches (mainly along watercourses and hillsides). Population information was obtained by sightings and sleeping-nest counts. In the Ntakata area, chimpanzees occur in Ntakata, Mlofwezi, Kapalagulu (05°52' S, 30°02' E), and Mpulumuka (5°58' S, 30°11' E) and in the Ntakata-Kapalagulu Hills (Fig. 1). No evidence was forthcoming for their existence in Ikubulu, Lunfampa, Kakundu, Kabufisa, and Kamafiga, nor the plains of north of Kapalagulu Hill and the entire Lugufu basin. In the Kakungu area, they occur at Kakungu itself (05°58' S, 30°03' E) and Kalobwa in the Kakungu-Kalobwa Hills. With evidently large home ranges, densities were found to be low in the 500-km² area between the Ntakata-Kapalagulu Hills and Kakungu-Kalobwa Hills—everywhere less than 0.05(0.048) individuals/km². Hunting (by immigrant farmers and refugees), besides habitat loss (logging, firewood, and clearing for agriculture) are believed to be causing a steady decline of chimpanzee populations in the region.

Key Words: Chimpanzee, *Pan troglodytes schweinfurthii*, habitat, Kalobwa (Karobwa) area, Ntakata Forest, population density, distribution

Introduction

Chimpanzees (*Pan troglodytes*) are distributed in tropical rain forests and more open and dry savanna woodland areas in Africa (Kortlandt 1983; Teleki 1989). In savanna woodland areas they typically occur in low population densities and have large home ranges (Kano 1972; Moore 1992), when compared to chimpanzees in more forested areas (see, for example, Hashimoto 1995). It is important to study chimpanzees in these different habitats in order to (1) understand the variety and flexibility of chimpanzee adaptation, (2) facilitate and support their management and conservation in these contrasting environments, and (3) clarify models of early hominid behavioral ecology (Suzuki 1969; Kano 1972; Itani 1979; McGrew *et al.* 1981; Baldwin *et al.* 1982; Moore 1992).

The distribution of eastern chimpanzees (*Pan troglodytes schweinfurthii*) in western Tanzania was documented by Kano between 1965–1967 (Kano 1972). Since then, a number of surveys have been conducted outside of Mahale and Gombe National Parks, Tanzania (Itani 1979; Nishida 1989; Mas-

sawe 1992; Ogawa *et al.* 1997; Nakamura and Fukuda 1999). Zamma and colleagues surveyed the chimpanzee population in Ntakata (Ntakatta) and Kakungu later, in 2003 (Zamma *et al.* 2004), and here we report on the results of our surveys in the same areas in 2001 and 2003.

Methods

Study sites

Kano (1972) referred to one area of the chimpanzee's range in western Tanzania as 'the Karobwa area'—900 km² surrounded by the Mkamba River in the north (05°51' S), sources of the Rubufu River in the south (06°10' S), Mt. Kakungu in the west (29°55' E), and Mt. Ipumba in the east (30°31' E). Here, we call the northwestern part of the Karobwa area 'the Ntakata area'—300 km² between the Mkamba River and the Lubalisi River (05°45'–06°15' S, 30°00'–30°15' E)—and the southwestern part 'the Kakungu area'—200 km² between the Lubalisi River and the sources of the Rubufu River (05°55'–06°15' S, 30°00'–30°15' E) (Fig. 1).

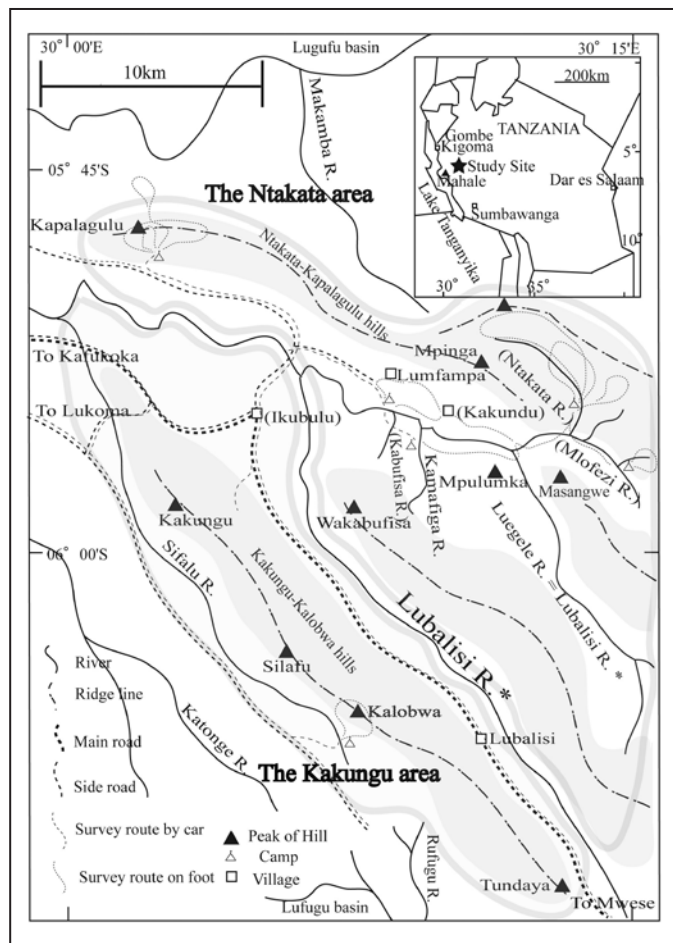


Figure 1. The Ntakata and Kakungu areas. Place names are taken from Series Y742 1:50,000 topographic maps of the region. Local names not shown on the topographic maps are shown in parenthesis. *Both of the tributaries are the Lubalisi Rivers on the topographic maps. In the text of this paper, the south tributary is referred to as the Lubalisi River, because the north tributary is locally called the Luegele River.

The dry season in the region extends from May to October, and the rainy season from November to April. There are a number of vegetation types in the two areas: savanna woodland, forest, bamboo thickets, open grassland, and cultivated fields.

Savanna woodland is comprised of deciduous ‘miombo’ trees scattered over Graminae-dominated grassland. Based on Ogawa’s two 2 km × 4 m line transect vegetation surveys from the ridge of Kapalagulu Hill southward to the plains below (August, 2003), 99.96% of the area was savanna woodland and the rest (0.04%) forest. In the 16,000 m² of the vegetation survey, there were 890 trees of >5cm in diameter at breast height (DBH) of 55 species. The total basal area, $\pi(\text{DBH}/2)^2$, was 16.5 m² (0.10% of the area). The basal areas of the dominant trees were: 3.8 m² (23.2% of the total basal area) for *Brachystegia bussei*, 2.4 m² (14.6%) for *Isoblerlinia angolensis*, 1.5 m² (9.0%) for *Pericopsis angolensis*, 1.1 m² (6.4%) for *Brachystegia manga*, and 0.9 m² (5.6%) for *Brachystegia boehmii*.

Forests were patchily distributed along streams. One of the largest such patches in the area was Ntakata Forest, 18 km²

at 5°55’ S, 30°12’ E in the Ntakata River valley. No systematic vegetation survey was made, but Ntakata Forest was dominated by *Garcinia huillens*, *Albizia glaberrhima*, *Chionanthus africana*, *Julbernardia unijugata*, *Teclea* sp. and mizingati (local name in ki-Bende language). There were also evergreen forests on the of hill plateaus.

Bamboo of the genus (*Oxytenanthera*) occurred in scattered thickets on the plains and hillsides, and some areas along valley bottoms were open *grassland*. There were also places on the hillsides covered by grasses and only scattered trees.

Study periods and study methods

We carried out ecological surveys during the dry seasons of 2001 and 2003. Moore and Kamenya visited the Ntakata area from 17 to 22 July 2001 in conjunction with a film project. Ogawa carried out another survey in the Ntakata and the Kakungu areas from 11 to 31 August 2003. Ogawa recorded the perpendicular distance between a chimpanzee nest and the path, as well as the age of the nests. Population density of chimpanzees over three to four years old was estimated by the assumption that all nests within 35 m of each side of the walking routes were found, and that a nest would disappear in 260 days (as was found in the Ugalla area, Tanzania; Ogawa unpubl. data). Both teams recorded the number of nests in each nest cluster to estimate the size of a sleeping party. A nest cluster we defined as one or more nests, which appeared to have been made on the same day, were located within a circle of 50 m diameter and each of which was not more than 20 m from its neighboring nest.

Results

Sightings

Ogawa saw chimpanzees four times and heard calls on 14 occasions during the 21-day stay in the two areas (Table 1). He heard chimpanzees every day during the six days of his stay at Ntakata Forest (05°55’ S, 30°12’ E). On 16 August 2003, he saw chimpanzees walking on the slope in the savanna woodland close to the Ntakata River. There were two adult males, four adult females (one in estrus and one with a dependant infant on its back), and a juvenile. On 21 August, Ogawa saw an adult male with two adult females at the upper edge of a forest in the valley of the Mlofwezi River (05°58’ S, 30°14’ E). On 25 August, Ogawa’s local assistants saw four adult males (some possibly subadult), and two estrus females at Kalobwa Hill (06°03’ S, 30°08’ E). The average party size of the three groups was 5.3 (7+3+6) individuals over three to four years old. Moore and Kamenya also heard chimpanzees daily at Ntakata, including a meeting of at least three parties, totaling more than 10 calling individuals.

Nest trees and clusters

Ogawa recorded 154 chimpanzee nests in all. The mean size of the nest clusters was 2.52 (n = 61; range, 1–15) and the mean size of the clusters in which all leaves of the nests were

Table 1. Primates and large mammals said to inhabit the Ntakata and Kakungu areas by the local wa-Bende people.

		Evidence of presence ¹	Times encountered ²
Proboscidea			
<i>Loxodonta africana</i>	Elephant	FE, P	
Tubulidentata			
<i>Orycteropus afer</i>	Aardvark	NE, P	
Artiodactyla			
<i>Hippopotamus amphibius</i>	Hippopotamus	P	
<i>Potamochoerus aethiopicus</i>	Warthog	P	
<i>Potamochoerus porcus</i>	Bushpig	P	
<i>Syncerus caffer</i>	Black buffalo	SF, FE, P	
<i>Kobus defassa</i>	Waterbuck	DE, P	2
<i>Hippotragus equinus</i>	Roan antelope	P	
<i>Hippotragus niger</i>	Sable antelope	P	
<i>Alcelaphus lichtensteini</i>	Lichtenstein hartbeest	P ³	2
<i>Tragelaphus scriptus</i>	Bushbuck	DE, SF, P	
<i>Tragelaphus spekei</i>	Sitatunga	P ²	
<i>Oreotragus oreotragus</i>	Klipspringer	SF, P	
<i>Sylvicapra grimmia</i>	Common duiker	P ⁴	
<i>Acepyceros melampus</i>	Impala	P	
<i>Giraffa camelopardalis</i>	Giraffe	P	
Carnivora			
<i>Panthera pardus</i>	Leopard	P	
<i>Crocuta crocuta</i>	Spotted hyaena	P ⁵	
Primates			
<i>Galago senegalensis</i>	Northern esser galago	p	
<i>Otolemur crassicaudatus</i>	Thick-tailed greater galago	P	
<i>Cercopithecus aethiops pygerrhus</i>	Vervet	P	
<i>Cercopithecus mitis</i>	Blue or Sykes's monkey	p	
<i>Cercopithecus ascanius</i>	Black-cheeked red-tailed monkey	DE, P	6
<i>Papio cynocephalus</i>	Yellow baboon	DE, P	3
<i>Procolobus oustaleti</i>	Oustalet's red colobus	DE, P	13
<i>Pan troglodytes schweinfurthii</i>	Eastern chimpanzee	DE, NE, P	4

¹ DE = direct encounter, SF = skeleton and/or fur, FE = feces, NE = nest, P = positive information by local people.

²Times encountered: The number shows the number of direct encounters during the 21 days, from 11 to 13 August 2003. The times we heard only their vocalizations were not included. 1: ³Lichtenstein hartebeests inhabit only Lugufu basin only.

⁴Sitatungas might be confused with bushbucks. 3: Common duikers occur only downstream of this area.

⁵Spotted hyenas at very low density.

still green was 2.0 (n = 7; range, 1–5). The average height of the nests above the ground was 13.9 m (n = 136; range, 4–30), and the average height of the nest trees was 19.0 m (n = 136; range, 4–35). Chimpanzees made 36 (23.4%) nests in *Brachystegia bussei*, 30 (19.5%) in *Combretum molle*, 8 (5.2%) in *Pericopsis angolensis*, 7 (4.5%) in *Maesa lanceolata*, and 5 (3.2%) in *Brachystegia boehmii*. Moore and Kamenya

recorded 28 nests, 18 of which were in one cluster two to three months old in 8–12 m tall 'miombo' trees.

Population density

The density of chimpanzees over three to four years old was estimated at 0.03 individuals/km² in the Ntakata area, based on 87 nests along 144.9 km that we walked. We recorded all nests along 99.7 km in the Ntakata-Kapalagulu Hills, which provided a density estimate there of 0.05 individuals/km². The density in Kakungu-Kalobwa Hills of the Kakungu area was 0.02 individuals/km², based on six nests along 13.5 km. Only two nests were found during a 25.3 km drive from Lukoma to the foot of Kalobwa Hill, in the southwest of the Kakungu-Kalobwa Hills. This yielded an estimate of <0.01(0.004) individuals/km². We believe that this not an underestimate due to the fact that we were driving in a car rather than walking because 13 nests were found on the slope of Kakungu Hill over a distance of 20.0 km. Excluding the Lufubu and Lugufu basins from the core area of chimpanzee habitat, therefore, the density in the 500 km² area between the Ntakata-Kapalagulu Hills and Kakungu-Kalobwa Hills was approximately 0.03(0.032) individuals/km² based on 93 nests along 158.4 km.

Distribution

In the Ntakata area, we found evidence of chimpanzees at Ntakata, Mlofwezi, Kapalagulu (05°52'S, 30°02'E), and Mpu-lumuka (5°58'S, 30°11'E) in the Ntakata-Kapalagulu Hills (Fig. 1). We failed to find any evidence of chimpanzees at Iku-bulu, Lunfampa, Kakundu, Kabufisa, and Kamafiga (Fig. 1), and no trace of them in the plains of north of Kapalagulu Hill. Local people informed us that chimpanzees do not inhabit the Lugufu basin (Fig. 1).

In the Kakungu area, Ogawa found evidence of chimpanzees at Kakungu (05°58'S, 30°03'E) and Kalobwa in the Kakungu-Kalobwa Hills (Fig. 1). Little evidence was found in the plains southwest of these hills, where there were only bamboo thickets, cultivated fields, and savanna woodlands in which trees were no more than 15 m in height. Local people told us that chimpanzees inhabit Mt. Ipumba (05°59'S, 30°28'E), but neither team was able to visit the region.

Human activity

Some of the region's farmers immigrated into this area through the rural colonization program (*ujamaa vijijini*) of the Tanzania government in the 1960–70's. Since then, an increasing number of immigrant farmers have been cultivating fields in the low-lying areas as a result the agricultural reform policies and economic liberalization of the 1980's. Trees are cut down for commercial timber, for firewood, and to clear land for agriculture. There has been mineral prospecting in the area since at least 2001. While mining itself currently has minimal impact on wildlife, the potential threat is clearly great if the resulting development fails to consider conservation needs.

The wa-Benbe people in Congo have moved to this area (even though the shore of Lake Tanganyika was patrolled

to prevent invasion) and there are Burundi refugees at the Mishamo settlement, who hunt, using snares—more than 20 snares were counted along a 200 m path in Ntakata Forest. Most traps are aimed at bushbuck (*Tragelaphus scriptus*) and the common duiker (*Sylvicapra grimmia*), and some are also set for buffaloes (*Syncerus caffer*) and leopards (*Panthera pardus*). Moore and Kamenya did not encounter snares, but found the remains of a young elephant that had been butchered just outside Ntakata Forest in 2001. Ogawa was told that chimpanzees were hunted on the northeast slope of Kakungu-Kolobwa Hills in 2003.

Discussion

We encountered chimpanzees frequently between Ntakata and Mlofwezi. They evidently foraged in the forested areas around the Ntakata River and other streams. Because we heard vocalizations from four different directions at a time, and the mean party size was 5.3 chimpanzees, and because the size of the largest nest cluster was 18, at least one group (community) was evidently made up of more than 20 individuals. If our density estimate is correct (0.05 individuals/km²), their home range should be about 400 km². If this unit group occupied the entire area between the Lubalisi River and Ntakata-Kapalagulu Hills, the range would almost certainly exceed 30 km along a northwest-southeast axis. In addition, if all chimpanzees in the three parties observed from 16 to 25 August belonged to the same unit group, their home range would be more than 400 km² and including both the Ntakata and Kakungu areas. However, the six chimpanzees observed on 25 August in the Kakungu-Kalobwa Hills might belong to another group. Because the traffic on the Mpanda-Mwese-Lukoma Road was heavy in the dry season, it may well have been a barrier between the Ntakata area and the Kakungu area, although the Lubalisi River and the Luegele River were neither wide nor deep in the dry season.

Like chimpanzees in other savanna woodland areas, those in this area had a large home range and low population density, compared to those in tropical rain forests (Kano, 1972; Moore 1992; Hashimoto 1995). The low population density might be due to sparse and widely distributed foods, but may also result from recent human activities in this area. Kano (1972) estimated that 8–9 unit groups inhabited the 900 km² of the Karobwa area in 1960's: 320–360 chimpanzees, indicating a density of 0.38 individuals/km² (assuming the average size of one unit group was 40 individuals as in Kasakati, Tanzania). The density of 0.03 individuals/km² estimated in this study is much lower, although our survey did not include Mt. Ipumba. However, because the census methods were different, they are not directly comparable, and the frequent encounters at Ntakata may indicate that chimpanzees are in fact more abundant. Further studies, especially in the rainy season, are needed to document and understand the ecology of chimpanzees in this area and to confirm whether densities in this area have decreased since the 1960's.

The chimpanzees in this area formed small sleeping parties, perhaps because the risk of predation is low. The chimpanzees encountered at Kalobwa did not flee from Ogawa's local assistants, but instead threatened them. This naive attitude to humans may expose themselves to the danger of poaching. More patrols and management of the Burundi refugee camp at Mishamo are needed to protect the chimpanzees and other wild animals in this area. Besides the depredation of poaching, the habitats and the overall number of chimpanzees have, under any circumstances, been reduced through deforestation for cultivation and logging. Proper land-use planning is needed to conserve the remaining chimpanzee habitat in the Ntakata and Kakungu areas of Tanzania.

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