Pan Africa News

The Newsletter of the Committee for the Care and Conservation of Chimpanzees, and the Mahale Wildlife Conservation Society

JULY 2002 *VOL. 9, NO. 1*

Instructions to Authors

Pan Africa News welcomes your contributions. It publishes news, reviewed articles, notes, book reviews, letters to editor, and classified ads (restricted to non-profit organizations) on any aspect of conservation and research regarding chimpanzees and bilias. Contributors are requested to write in English and the papers should usually be 1,000 words or less. Number of references should be less than 10. Manuscripts should be submitted by e-mail to: PAN@jinrui.zool.kyoto-u.ac.jp

Photos and figures, however, should be sent by air mail to: T. Nishida, Dept. of Zoology, Graduate School of Science, Kyoto University, Kitashirakawa-Oiwakecho, Sakyo, Kyoto, Japan.

Publication of the next issue will be December 2002. Deadline for manuscripts is the end of October.

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<NOTE>
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^2) 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^2 ranging from 967.3 beds/km^2 in gallery forests to 27.7 beds/km^2 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^2 (95% confidence interval: 0.33-0.79) ranging from 3.5 ind./km^2 in gallery forests to 0.1 ind./km^2 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^2), this site could protect a population of about 275 weaned individuals (once the size of herbaceous

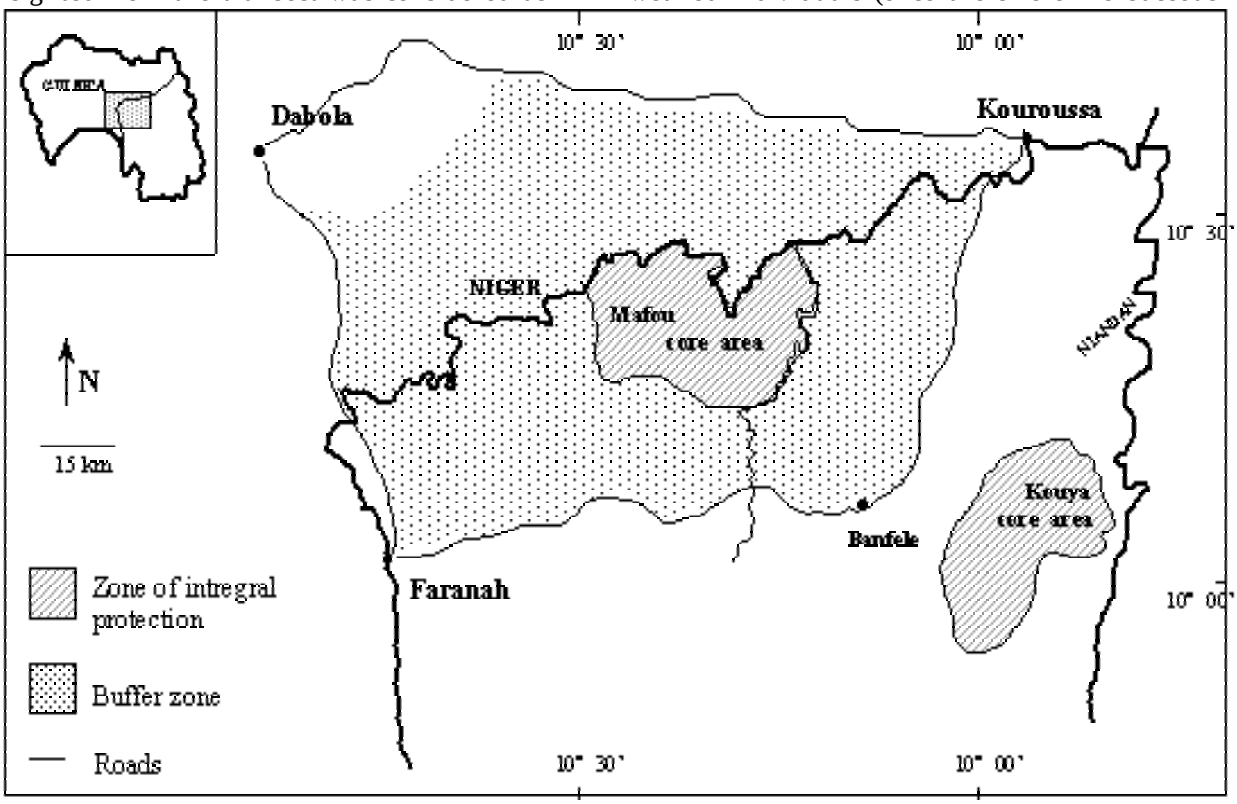

Figure 1. Sketch map of the Parc National du Haut Niger.
Note that the buffer zone around the Kouya core area is not yet established.

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 he 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^2) and also in the buffer zone (8,700 km^2) of the park where the impact of anthropogenic activities on chimpanzee populations could be studied. Anyone interested is invited to contact us.

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<NOTE>

Evidence of the Leaf-clipping Behavior by a Chimpanzee of an Unhabituated Group at Mahale

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After the extinction of the neighboring K Group to the north in the 1980s (1), no unit group had been confirmed to use extensively the territory of the chimpanzees of M Group, our main study group habituated since the 1970s, except for N Group, which was sometimes seen in the southern periphery of M Group's territory. In the late 1990s, however, some other groups began to invade M Group's territory due probably to the decrease of its group size (2). In the former territory of K Group, unhabituated chimpanzees have recently been observed or heard from time to time as well.

On the 7th March, 2002, accompanied by a Tanzanian research assistant, Hamisi Bunengwa, I tried to see the chimpanzees of the northern unhabituated group. We heard several times chimpanzee pant-hoots and other voice from the area of the upper Mbamba Valley after we reached the ridge between the Mpila and Nkala Valleys from the south at 11:37 (for the study area, see Fig. 1 of ref. (2)). We further proceeded to the north and finally at 13:15 arrived at the ridge between the Mbamba and Kasangazi (shown as Kasangaji in Fig. 1 of ref. 2) valleys where we found quite fresh evidence of the leaf-clipping behavior by a chimpanzee (Figure 1). Although the chimpanzees completely ceased to emit any sound after 12:31 when we were still on the Mpila-Nkala ridge, fresh signs such as their footprints, feces and leftovers of the fruit of *Aframomum* sp. were seen on several spots after we crossed the Nkala Valley.

The pile of leaves (*Psychotria peduncularis* (Salisb.) Steyerm.) in Figure 1 must have been made by a chimpanzee of the unhabituated northern group, since (i) most of the chimpanzees of M Group were observed by our colleague to utilize the area to the south of the Ntale Valley (see Fig. 1 of ref. (2)) on the 7th of March, (ii)

fresh footprints of chimpanzee were also confirmed around the pile and the leaves constituting the pile were concentrated within a diameter of about 25 cm (Figure 1), and (iii) as many as four mid-ribs (mean: 16.0 cm, range: 10.8 - 20.7 cm), from which the leaf-blade had been ripped off, were laid together within the pile (Figure 1). The evidence (ii) and (iii) strongly indicates a good coincidence with the behavior pattern of the leaf-clipping display by a chimpanzee described by Nishida (3).

Figure 1. The pile of leaves (*Psychotria peduncularis*) probably left by a chimpanzee. The four mid-ribs were rearranged laterally for the photographing purpose without altering the circumference of the pile.

The leaf-clipping is regarded as one of the cultural behavior variation among wild chimpanzees; it has never been recorded in some long-term chimpanzee study populations (4). Nishida (3) speculated that the leaf-clipping display may be a signal commonly shared by the local population at Mahale. Tool-use among wild chimpanzees has sometimes been qualified without direct observation of their behavior (e.g., brush-sticks): (5). The present report suggests that indirect evidence may also be useful in order to prove the existence of the leaf-clipping behavior in unhabituated groups of chimpanzees.

The field work was financed by grant-in-aid for COE Research of the Ministry of Education, Science, Technology, Sports and Culture (Monbu-kagakusho), Japan (#10CE2005 to O. Takenaka). The Tanzanian authorities (COSTECH, TAWIRI, TANAPA, MMWRC and MMNP) permitted the research. M. Shimada and Tanzanian research assistants cooperated in the field. To these people and institutions, I make grateful acknowledgement.

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<NOTE>
A Self-medicating Attempt to Remove the Sand Flea from a Toe by a Young Chimpanzee

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On September 25, 2001, an 8-year-old female chimpanzee of M group, Ivana, was observed to break a small twig from a shrub, hold its leafy part, and push the sharp edge under the nail of the little toe of her left foot with her right hand (Figure 1). When she failed to insert the probe under the nail, she kept it between her lips, held her left foot with her left hand, and tried to remove something from under the nail with the fingers of her right hand. After she tried to insert the probe several times, she finally threw the probe away after 5 minutes and put her small toe into her mouth, apparently trying to suck something out (Figure 2).

She showed this tool-using behavior after 5 minutes of careful visual inspection of her toe while pushing and scratching it with her right hand, accompanied by the apparent effort to suck something out with her mouth. Although her attention was concentrated on the little toe, at one point she inspected every toe of her left foot. Such visual and manual inspection strongly suggested that she was trying to remove a sand flea (or fleas) from under the nail because such behavior is performed by human beings in the same circumstance. Humans use a safety pin when removing a sand flea. It appears that some chimpanzees of the M group picked up sand fleas when they passed the research camp, which the children of the village occasionally visited. However, I had never observed other chimpanzees applying a probe to their toes, although they inspect and apply fingers to parasitized toes.

An adult male chimpanzee of Mahale regularly pushed a probe into his nostril in order to open up the blocked nasal passage (1). In addition, an adult female who lost her newborn

Figure 1. Ivana tried to insert a probe under the nail of the little toe.

Figure 2. She sucked the little toe.

was observed to suckle her own nipple, probably to decrease the pain caused by the strained breast (2).

Accordingly, this is the third case of an idiosyncratic pattern of self-medication observed among the chimpanzees of M group. However, Ivana failed to remove the sand flea because the branch was too soft and the cutting edge was not sharp enough.

The study was financed by the Monbusho Scientific Research Fund (Basic Research A1, # 12375003 to TN).

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<NOTE>
Use of Leaf-sponge and Leaf-spoon by Juvenile Chimpanzees at Mahale

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Introduction

Use of a leaf-sponge to drink water in a tree-hollow is commonly observed in most long-term study sites of wild chimpanzees (1, 2). Use of a leaf-spoon was sporadically reported at Gombe (3) and Bossou (4, 5). At Mahale, use of drinking tools was rare (6). However, we found several cases of using leaves to drink water at Mahale during a field study from Sept. 2000 to Sept. 2001. All attempts were performed by juveniles. We report details of these observations.

Use of Leaf-sponge

Case 1: On 25 November, Jidda (5 yrs female) came to the site of a tree-hollow at 15:29. At first, she drank water directly by mouth. Then she broke off a large twig of *Grewia sp.*, put it into the hollow, and licked several times. Then she put one drenched leaf of the twig into her mouth, sucked it, and started to use it as a leaf-sponge; she repeated "soak and suck" actions to drink water. At 15:32 Athena (4 yrs female) came and solicited Jidda to play. They left the hollow.

After 2 minutes, Athena returned alone to the hollow and drank water by hand. Then Athena picked up a leaf-sponge from the hollow, which apparently was the same as that used by Jidda, and used it twice to drink water. Then she broke off a twig and drank water with it. She left the site at 15:37.

Case 2 : On 25 January, Jidda came to the site where Xmas (5 yrs male) had drunk water in a tree-hollow directly by mouth at 14:49. Jidda found another tree-hollow 3 m away from Xmas and also drank water by mouth. After 2 minutes, Jidda tore off a vine and drank water with it repeatedly. Xmas left at 14:52. He never used vines or leaves to drink. Jidda kept on drinking by mouth and hand. At 14:53, Jidda picked a nearby leaf of *Saba comorensis*, squeezed it into the hollow, and used it repeatedly as a leaf-sponge to drink (Figure 1). Once, she failed to put the sponge into the hollow and dropped it. She picked another leaf of *Saba* immediately, squeezed it into the hollow, and again used it as a leaf-sponge. After she dropped the sponge again, Jidda drank water by hand for a while and left the hollow at 15:01. She went to the hollow from which Xmas had drunk water, looked into it, and put her hand inside. However, she left there without drinking water.

Case 3 : On 1 February, Athena came to the site where Aqua (2 yrs female) had drunk water in a tree-hollow by hand at 15:27. After a minute Aqua left. Athena picked a vine and drank water with it, but she threw it away at once. She then drank water by hand repeatedly. At 15:31, Athena picked some leaves, squeezed them into the hollow, and used them repeatedly to drink water as a leaf-sponge. At 15:37, Athena picked several other leaves, squeezed them into the hollow, and again used them as a leaf-sponge. From 15:39, Athena used vines to drink water and left the hollow at 15:43.

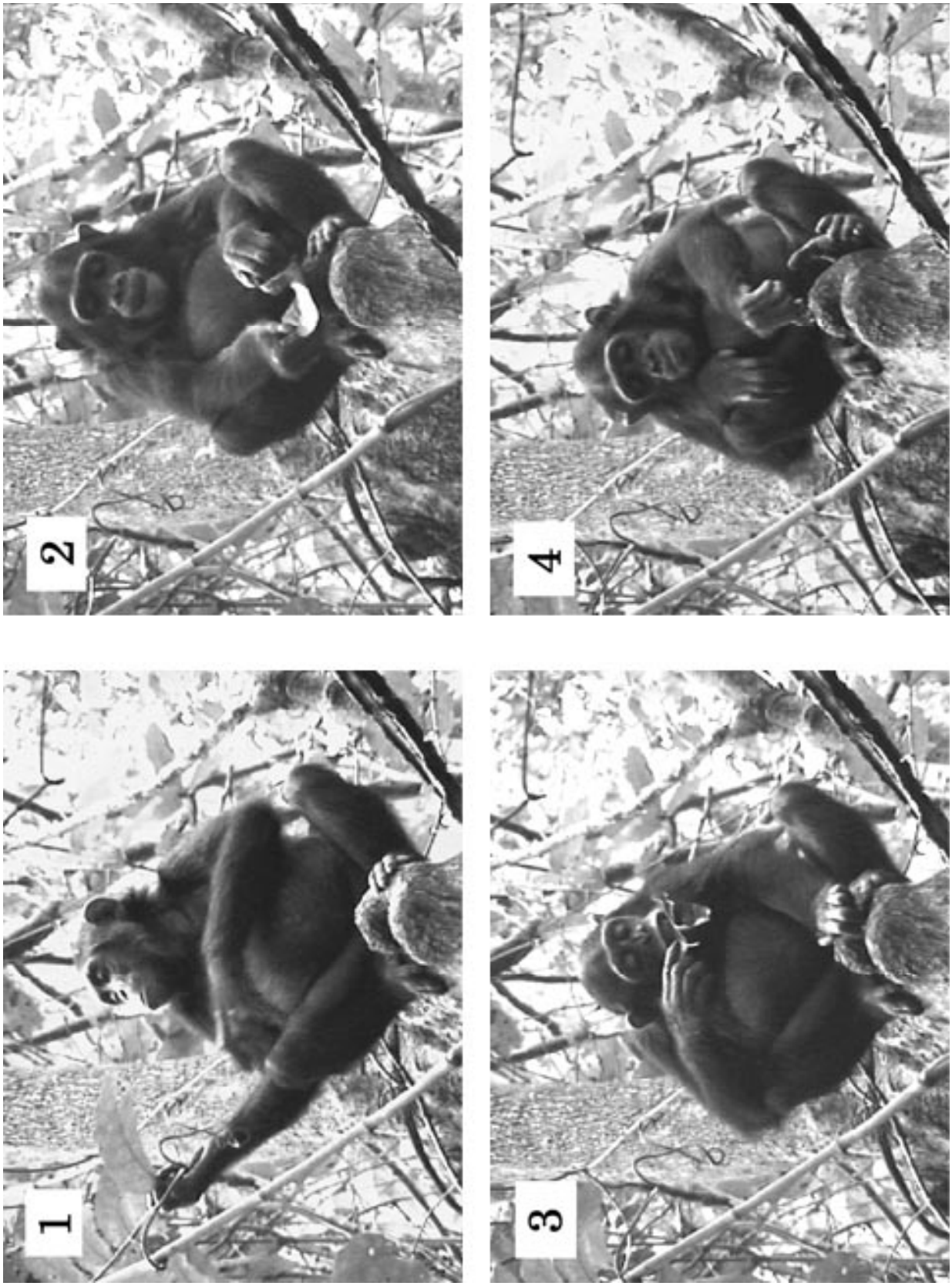

Figure 1. Typical sequence of drinking water with leaf-sponge (Jidda on 25 January). (1) Picking a leaf. (In all instances, within 1 m from the hollow.) (2) Squeezing the uncrumpled leaf into the hollow. (3) Picking up the soaked leaf and stuffing it into the mouth and sucking water. (4)Taking the crumpled leaf out of the mouth and again putting it into the hollow. Then repeating "soak and suck" actions.

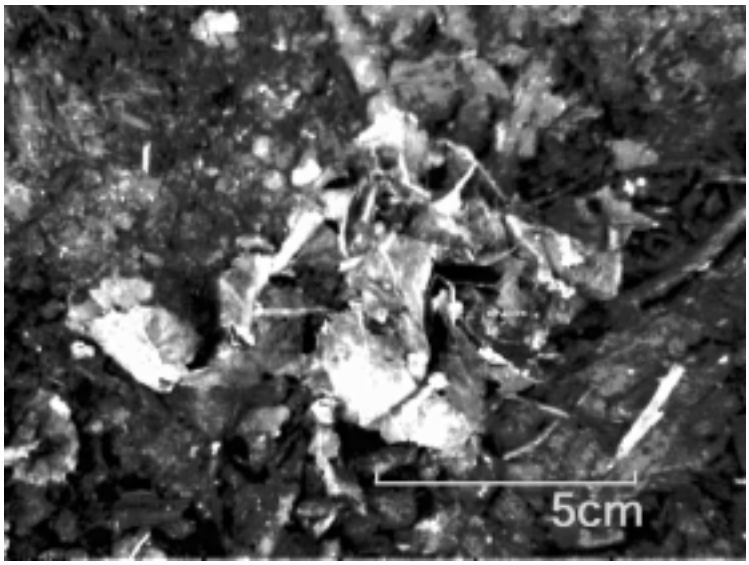

Figure 2. A leaf-sponge used by Jidda on 25 January (*Saba comorensis*).

At 15:49, Jidda came to the hollow, picked leafy-twig, and squeezed it into the hollow. After picking it out, Jidda put one drenched leaf of the twig into her mouth and started to use it as a leaf-sponge. Once, Jidda picked a leaf of *Cordia millenii*, stirred the hollow with its leafstalk, and then picked up the sponge with her hand. It was assumed that she used the leafstalk to pick out the sponge stuck in the hollow. At 16:00, Jidda lay down and it became hard to observe what she did. Jidda departed at 16:07.

Matsusaka recorded all these cases with a digital video camera, and Figure 1 shows a typical sequence of using a leaf-sponge.

Use of Leaf-spoon

On 31 May, Jidda and Xmas started playing by a stream at 8:57. At 9:06, Jidda picked up a leaf (4 cm by 9 cm) from the ground, immersed it into the stream, and brought it to her mouth for pouring water. While drinking, Jidda flicked the leaf several times with her fingers so that she could drink the water drops on it. Also, Jidda repeatedly splashed the water surface of the stream with her fingers and mouth. Xmas observed her behavior and started playing with Jidda again. After 3 minutes, Xmas picked up a dead leaf (7 cm by 14 cm) from the ground and used this as a leaf-spoon to drink water as Jidda did (9:21). Also, Xmas splashed the water surface with his hands. They left at 10:00.

Discussion

Although use of a leaf-sponge is not an established culture of chimpanzees at Mahale, two juveniles used leaf-sponges in a relatively natural way. Moreover, their ways of processing leaves were different from those observed at other study sites; Jidda and Athena first squeezed an uncrumpled leaf into the hollow in most instances; however, at Gombe and Bossou, chimpanzees first stuff leaves into the mouth and make them crumpled before they soak them in water (3, 5). This led us to assume that these techniques may be transmitted by imitation, at least at Gombe and Bossou. A tool-use to pick out a sponge, apparently stuck in a hollow, was also observed once, which indicates high problem-solving skills and innovativeness of the juvenile.

Use of a leaf-spoon was also found. However, we suspect that the main purpose in the present case was not drinking water, since they could easily do this without using a leaf. Rather, it is reasonable to assume that these acts were performed as part of playing.

It is worth noting that behavioral patterns were instantly imitated by juveniles, who have great behavioral flexibility, a factor that may be the fundamental mechanism causing the present cultural diversity among wild chimpanzee study sites (1,2). Considering the rarity of observations of using drinking tools by Mahale chimpanzees previous to this study, it would be valuable to confirm whether the present juveniles continue using drinking tools when they become adults or cease using leaves as they grow up.

This study was financially supported by the Monbusho Scientific Research Fund (Basic Research A1, #12375003 to T. Nishida) and JSPS Research Fellowships for Young Scientists (to NK).

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<NOTE>
A Chimpanzee Trifling with a Squirrel: Pleasure Derived from Teasing?

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This paper reports a rare observation of a chimpanzee (*Pan troglodytes schweinfurthii*) killing a squirrel (*Heliosciurus rufobrachium*) but not eating it. This observation was made at Mahale Mountains National Park, Tanzania.

On June 27, 2000, at 16:35, I observed Nkombo (NK, adult female) walking with three other adult females, Totzy (TZ), Juno, and Xtina, as well as Fanana (adult male), Pipi (adolescent female), Jidda (JD, juvenile female) and Xmas (XM, juvenile male). At 16:38, I heard the cries of a squirrel in a bush. I then observed that NK had already captured a squirrel. I videotaped the behavior of NK starting from 16:39 (Table 1, Figure 1). NK swung and shook the squirrel, dragged it along the ground, pressed on it with the back of the wrist, and bit its hand while grasping its tail. The squirrel sometimes tried to escape from NK but was at the mercy of NK most of the time: It was beaten against roots, woody vines and the ground. NK also liberated the squirrel, chased it, rotated it with the back of her wrist, and swung her lower arm in presentation to the squirrel. When the squirrel tried to counterattack against the presented arm, NK looked for a chance to take its tail between her teeth with a play face (Figure 2). NK sometimes threw the animal by her mouth or by her hand and also hit it with the back of her wrist.

At 16:44, NK pressed on the squirrel with the palm of her left hand against the ground. The squirrel emitted its last loud cry. At 16:44, NK pressed on it with the palms of both hands. The squirrel had a convulsion, which was its last movement.

After the squirrel was killed, NK pressed on its carcass with the palms of both hands again against the ground and bit it. NK also held its body with her left hand and plucked its hairs with her teeth. At 16:45, NK left there holding the body of the carcass with her left hand. At 16:46, NK shook it by holding its tail with her mouth. She pressed on the carcass with the palms of her hands again against the ground and bit it. Then, NK threw the carcass with her mouth, and left there without holding the carcass. This behavior of NK occurred on the ground from start to end.

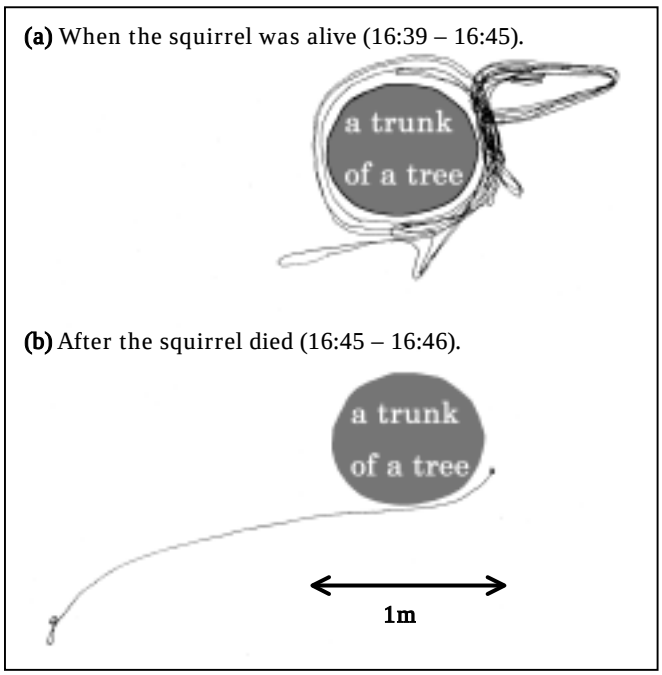

Figure 1. The place used by NK when the squirrel was alive (a) and after the squirrel died.

The other chimpanzees, except for XM, paid little attention to the squirrel and NK. Kalunde (adult male) and JD just watched the squirrel and NK at a distance of more than 1 m and left there after staying for 4 minutes and 1 minute, respectively. TZ stayed there for 4 minutes, peered and waved her lower arm to the squirrel grasped by NK. XM stayed there and watched the entire period of this behavior by NK. While the squirrel was alive (16:39-16:45), XM spent the most time watching the squirrel and NK at a distance of more than 1 m. XM sometimes approached the squirrel, stamped bipedal, swept fallen leaves with his both hands, peered at the squirrel, and poked it quickly. After the squirrel died, XM swept fallen leaves with his hand and watched NK and the carcass. After NK stopped handling the carcass, XM approached it, peered at it, swept fallen leaves with his hand, and pulled its tail. After NK left there, XM swayed a woody vine near the carcass, and peered at it. At 16:46, XM departed and followed NK.

The weight of the squirrel was 298 g, the length of head and body was 24 cm, and the length of tail was 27 cm. The squirrel had no conspicuous external wound except for its tail, which was peeled while it was still alive.

Neither NK nor XM ate the squirrel, though there have been seven reports that chimpanzees hunted and ate squirrels (e.g. 1, 2) in Mahale. It was unknown why no chimpanzees ate it.

There were movements that seemed to involve hunting and/or play in the behavior of NK: Grabbing, chasing, pulling, throwing, swinging and beating a prey against roots and biting have been observed in hunting; throwing, pulling and rotating objects have been observed in lone play; and biting, chasing, pulling and making a play face have been observed in social play (3).

Swinging her lower arm in presentation to the squirrel was a unique movement that has not been observed so far. NK used her arm as a decoy to distract the attention of the squirrel. While the squirrel tried to jump and bite NK, she watched for a chance to take its tail and succeed in biting

Table 1. The duration of the movements of NK and the behavior of the squirrel.

	body part of the squirrel held by NK	no. of bouts	total duration (s)	behavior of the squirrel *
When the squirrel was alive (16:39-16:45)				
rest	tail	6	47	n, e, b, c
swing it	tail	4	44	n, c
pull it along the ground	tail	12	123	n, e, c
bite or try to bite	no, tail	5	13	n, e, c,
throw	tail	5	6	n, e, c,
stamp	tail	2	3	n, b, c
rotate it with the back of her wrist	no	2	5	n, b, c
swing her lower arm in presentation to it	no	5	25	e, b, c
chase it	no	5	19	e, c
hit it with the back of her wrist.	no	1	4	b, c
press on it with the back of her wrist	tail	1	4	n
press on it with the palms of her hands	no	2	8	c, v
not observed	-	-	36	-
After the squirrel died (16:45-16:46)				
rest with it	body	2	16	n
rest without it	no	1	24	n
press on it with the palms of her hands and bite it	no	2	14	n
pluck its hairs with her teeth	body	1	7	n
move	body	1	6	n
shake	tail	1	1	n
throw	body	1	1	n
not observed	-	-	25	-

* n: nothing, e: try to escape from NK, b: try to bite or jump (counterattack), c: cry, v: convulsion.

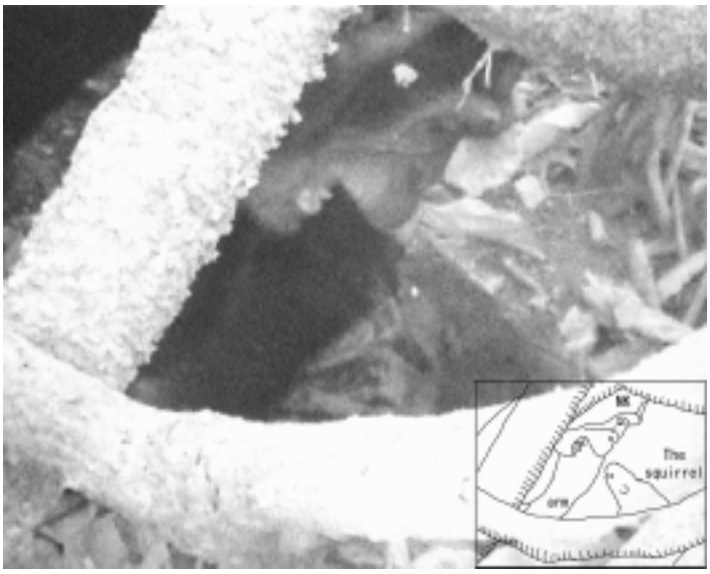

Figure 2. NK was watching the squirrel with a play face.

it. It looked like a bullfight: NK as a matador waved a red cloth (her lower arm) in front of a bull (a squirrel), and stabbed (bit) it. This movement seemed like a kind of social play having the characteristic of teasing because NK allowed the squirrel to counterattack and NK showed a play face. Similarly, when western chimpanzees captured and toyed with a hyrax (*Dendrohyrax dorsalis*) at Bossou, Guinea, swinging the hyrax in the air, beating it against branches, and making a play face were also observed while the object was alive (4). Pleasure derived from teasing a playmate has also been reported. (3, p. 175).

The behavior of NK was different between when the squirrel was alive and after it died. The body part of the squirrel that NK grasped changed from its tail to its body. This seemed to show that NK realized that a counterattack by the squirrel was no longer possible. The place where NK played with the squirrel also changed because she could not play with it in the same way as when it was alive. NK tried to play it more, but it continued only a minute. This case is helpful in understanding the recognition of death by chimpanzees.

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<NEWS>

A Chimpanzee Attacks and Kills a Security Guard in Kigoma

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A sad story in today's Dar es Salaam newspapers: a correspondent in Kigoma sadly reports that "a chimpanzee ambushed and killed a resident of Mtwanga Street in Kigoma town, Adriano Msafiri aged 60". The Kigoma Regional Police Commander, Boniface Mgongolwa, confirmed that the chimpanzee had managed to escape from "Kitwe Game Reserve." The poor animal, apparently, appears to have gone all the way

from this Kitwe Game Reserve to Zungu Beach in Kigoma, where it attacked the unfortunate deceased, Ndugu Adriano Msafiri who was a security guard at the beach. The chimpanzee is alleged by the Regional Police Commander to have gorged the eyes of the late Ndugu Msafiri. Eye witnesses have confirmed that the late Msafiri was attacked and seriously injured by a chimpanzee before being rescued and being rushed to the local District Hospital in Kigoma Township where he later died.

Apparently this appears to be not an isolated incident. Last year, 2001, a game ranger of Kitwe Game Reserve was attacked and seriously injured by a chimpanzee, according to the PST reporter in Kigoma. This unnamed last year's victim was lucky in a way, because after prolonged intensive medical treatment he managed to recover. The PST reporter explains further that Kitwe Game Reserve has only four chimpanzees!

Early this year, 2002, a three year old child was reportedly killed by a chimpanzee at the famous Gombe National Park where renowned Dr. Jane Goodall has worked for the past 42 years.

There is much concern in Kigoma and among some visiting tourists about these apparently nasty encounters between chimps and humans. We need to improve public education on chimpanzee behavior and attitudes towards man. Chimpanzees can be the best of man's friends as it has amply been demonstrated by those who keep them as pets and by researchers at Gombe and Mahale. But when man begins to hunt and capture them for meat and illegal trade they obviously begin to behave differently to say the least.

On further enquiring from Mr. Massawe, the Director of the Mahale Wildlife Research Centre in Kigoma, I have learned that police is continuing their investigation into this unfortunate event in which the poor security guard, Ndugu Adriano Msafiri, lost his life. I have also ascertained that Kitwe is not actually an official protected area in accordance with the law; but rather it is an area of scrub, a piece of land covered by plant community dominated by shrubs and small trees, a thicket covering several hundred hectares. This piece of land was allocated to the Jane Goodall Institute eight years ago to enable Dr. Jane Goodall and her colleagues to use as a sanctuary for orphaned chimpanzees and chimpanzees that had been rescued from poachers or from 'foreigners' involving themselves in trafficking chimpanzees illegally.

Although the area was fenced, it has not been a suitable refuge for the chimpanzees. The five or so young chimpanzees brought to the sanctuary in 1993 and 1994 were not sufficiently restrained and were inadequately provisioned. Some local Government officials were not entirely happy with the way in which the chimpanzees were being let loose and given so much freedom in an area so close to Kigoma Township. The area should have been designed more like a zoo; not simply fenced in! As the chimpanzees grew older they appear to have become bolder, more daring and more adventurous. This is the second incidence of a chimpanzee attacking a man and causing him grievous injury.

There is one intriguing puzzle: the fatal attack took place at night when the chimpanzees should have been asleep in their freshly prepared beds. Furthermore the deceased had his eyes gorged. All this has prompted the police in Kigoma to take keener interest in order to exclude any likely human criminality. We should not forget that the chimpanzee may be innocent after all.

Pan Africa News, Vol. 9, No.1
Published in July, 2002

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