# *Pan* Africa News

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

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Instructions to Authors:

Pan Africa News publishes articles, notes, reviews, forums, news, essays, book reviews, letters to editor, and classified ads on any aspect of conservation and research regarding chimpanzees and bilias. Contributors are requested to write in English and the papers except forums, reviews and essays should usually be 1,000 words or less. Manuscripts should be submitted by e-mail to:

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Photos and figures, however, should be sent by air mail to: T. Nishida, Japan Monkey Centre, 26 Kanrin, Inuyama, Japan.

Publication of the next issue will be December 2004. Deadline for manuscripts is the end of October.

## Contents



## Editor's Greetings:

Dear Colleagues,

I retired from Kyoto University after 16 years' service (in addition to 18 years' service at the University of Tokyo), and since the April 1st 2004, I have been working as the Executive Director of the Japan Monkey Centre, Inuyama. I will still continue to study the behavior of wild chimpanzees at Mahale and elsewhere.

As the editor of PAN, I ask all of you to submit interesting pieces of information for publication to PAN in order to prove the cultural status of chimpanzees and bonobos in the natural habitat.

**<ESSAY>**

# Lack of "Group Play" in Wild Chimpanzees

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For the function of animal play, I adopt the hypothesis that play is practice for serious behavior that will be useful in the future, as was proposed by Groos (1). Animal play behavior is usually classified into "locomotor play," "object play," and "social play" (2). The M group chimpanzees of Mahale engage in play that is not so simple. I would add three more categories, namely, social locomotor play, social object play, and social locomotor object play.

Social locomotor play includes a youngster climbing a tree followed by one or more youngsters, hanging and/or brachiating, and falling or leaping down to the ground. They may also "hang-wrestle" (hanging from a branch with one hand and grappling with the rival with the other hand) before climbing down to the ground. They repeat the entire sequence again and again. As social locomotor play, the youngsters of Mahale often engage in "circling." Two chimpanzees chase each other, moving around in a circle again and again. They sometimes change direction, and one or both of the participants often somersault in a particular spot in every round of circling. They may mix circling with wrestling or play-fighting.

Chimpanzee youngsters occasionally incorporate stones, twigs, and human artifacts such as broken clay pots as toys in social play. Not only do they use them as tools for the solicitation of play ("play start"), but they also mock-compete for the possession of the item. This may be called social object play. Furthermore, when youngsters bring rocks to a tree and hang-wrestle with each other, while competing for the rock, this may be called social locomotor object play. As such, the play patterns of chimpanzees are multifold and complex, but one key factor found among human beings is completely lacking: "group play." I mean by group play two groups of people competing or mock-fighting for victory. Chimpanzees do engage in play-fight, and sometimes three or more youngsters may grapple with one another. However, I have never seen a team of two or more chimpanzees play-fight against another team of a similar number of chimpanzees.

**Figure 1. Two chimpanzee youngsters of Mahale chase each other and "hang-circle" around a tree.**

I have searched for records of group play in animals. I have never found any account of social animals splitting into two groups and competing or play-fighting against each other. "Animal Play Behavior," (3) the most conclusive review of animal play published so far, did not contain any examples of group play among animals.

By contrast, human beings greatly enjoy group play. People are excited to engage in baseball, soccer, rugby, basketball, volleyball, tug-of-war, boat races, etc. Even in card games, there is "Napoleon," in which two coalitions fight against each other. If local games are included, we can find many more examples. For example, in Japan, three schoolboys make a "warfare cart" and another boy rides on them. The boys above

the cart fight each other with extended arms, and the winner is the one who removes the cap of the rival. Such group play may be one of the human universals, although the most thorough review of human universals (4) does not include it as such. If the hypothesis that play's function is the practice of behavior useful in future adult life is correct, what is the function of group play in human beings? I would suggest that the function of group play is the practice of war, or an organized battle between two groups.

In the animal kingdom, coalitions are mostly formed against individuals. In within-group contests among chimpanzees, a contestant assisted by a third party fights against his rival (5, 6). Gang attack has always been directed to only one or at most two individuals. An exile, or ostracized ex-alpha male, was chased fiercely (7) or severely attacked (8) by a group of chimpanzees. A young adult male who had not greeted his superiors was severely attacked by an alpha male and his seven coalition partners (9). In a possible example of sexual competition, a young low-ranking adult male was killed by many adult males (10). Even in unit group antagonisms among chimpanzees, only one party is an "organized" multi-male party, and the counterpart is usually a lone individual who is victimized (11, 12, 13).

Therefore, Boehm's (14) "macro-coalition," the terminology coined for between-group conflicts, might be a misnomer. An exception is male dolphins. Two or three male dolphins unite forces against another such coalition in competition for fertile females (15). If my theory is correct, dolphins may be the sole animal other than human beings in which group play can be observed. Perhaps Lorenz (16) was close to my theory when he suggested that sports are a good outlet for human aggressive impulses toward war. However, he did not remark that there were no animals engaged in group play, since at that time there was scarcely any detailed study of big-brained animals such as chimpanzees and dolphins. Nor did I suggest that sports provide an outlet for the compulsion to war, although I do assert that sports serve as practice for war.

If my theory is correct, bellicose tribes or nations may encourage group play among youngsters of their kind. This may be corroborated or refuted by the comparison of ethnographic data of tribal wars that Prof. Takeo Funabiki and myself are now pursuing.

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## <NOTE>
# Position and movement of the testes of wild chimpanzees at Mahale

*Masashi Nakai and Koichiro Zamma*
*Kyoto University*

The huge scrotum is one of the most conspicuous features of mature male chimpanzees (Figure 1). In humans, the left testis is hanging lower than the right in 57-80% of cases (1). To the best of our knowledge, however, no such report on chimpanzees has been published, even though their testes are the biggest and heaviest among primates (2).

From September to November, 2002, the first author spent seven weeks in the Mahale Mountains National Park (MMNP), Tanzania. It was his first experience to try to identify wild chimpanzees (*Pan troglodytes schweinfurthii*) in the field. He pursued male chimpanzees of M group with the help of a research assistant. While pursuing them, the huge hanging scrotum of adult males struck him as a great hindrance to walking.

A few weeks passed. Gradually he noticed that every scrotum had individual characteristics and that he could even identify several individuals by their scrotums. For example, the flabbiest scrotum with a greatly dangling left testis belonged to the oldest male, Kalunde; the hairiest scrotum with a fairly dangling right testis indicated Bonobo (Figure 2) in his early twenties; a dark-spotted scrotum with a mildly dangling left testis indicated Darwin in his middle teens. Then he began to recheck all males for both the shape of the scrotum and the movement of the testes.

**Figure 1. Masudi, a 25-year-old male, in 2002. Note his huge scrotum**

Table 1 shows which testis was lower in each individual. The scrotums of the two juveniles were undeveloped and still small; the left and right testes were located at the same horizontal

**Table 1. Testes in the lower level of the crotch among the Mahale chimpanzees, with special reference to hand preference**

| Individual name | Age in years in 2002 (in 2003) | Status in 2002 | Lower testis in 2002 | Hand preference** in 1998-2000 | Testes-hand coincidence |
|---|---|---|---|---|---|
| Kalunde | 39* (40*) | Adult | L | L | ○ |
| Masudi | 25 (26) | Adult | R | R | ○ |
| Fanana | 24* (25*) | Adult | R | L | × |
| Dogura | 21* (22*) | Adult | R | R | ○ |
| Bonobo | 21 (22) | Adult | R | L | × |
| Alofu | 20 (21) | Adult | R | L | × |
| Carter | 17 (18) | Adult | R | R | ○ |
| Pimu | 14 (15) | Young | R | L | × |
| Darwin | 14 (15) | Young | L | L | ○ |
| Primus | 11 (12) | Young | R | L | × |
| Orion | 11 (12) | Young | L | L | ○ |
| Cadmus | 11 (12) | Young | R | R | ○ |
| Christmas | 7 (8) | Juvenile | S | L | ? |
| Michio | 6 (7) | Juvenile | S | | |

R: right; L: left; S: same; *: estimated; **: after Corp & Byrne (2004)

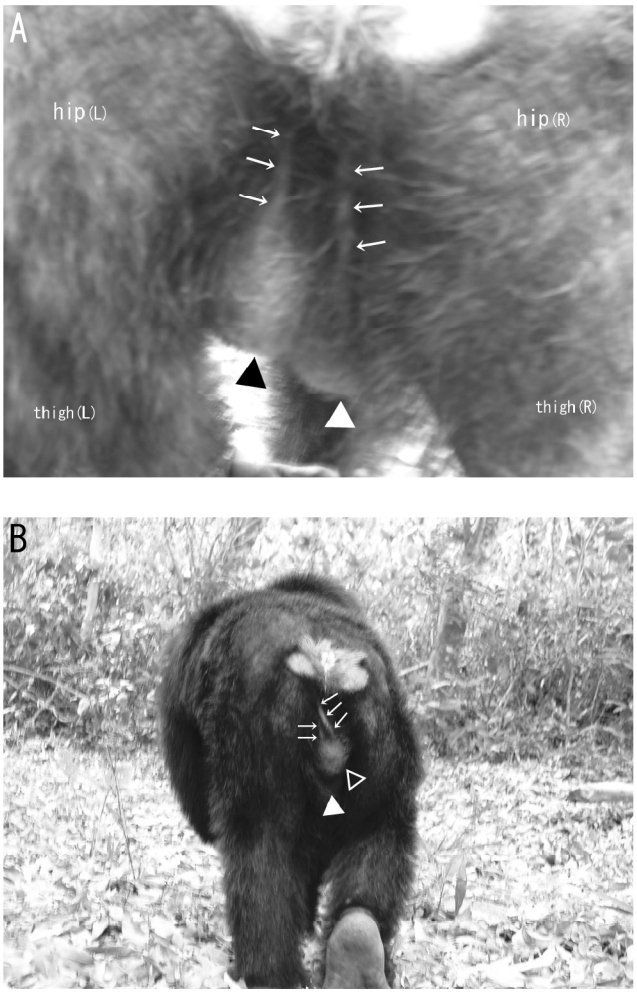


**Figure 2. Bonobo, a 21-year-old male, in 2002.**
**(A)** Testes of Bonobo in static state when he is quadrupedally standing. Note that the right testis ( ) is lower than the left ( ). Arrows indicate the deferent canals. In chimpanzees, testes and deferent canals can be seen through the scrotum.
**(B)** Bonobo's testes in dynamic state while walking. The upper testis sways more widely than the lower. Since the upper testis twists caudally, the lower moves cranially. The swinging motion of the testes corresponds to his steps. Compare figs. 2A and 2B in the relative location of and .

level in their crotch. Among twelve mature males, seven full adults and five young adults, no individual showed fair symmetry in the position of his testes. It is reasonable that the testes of a sexually mature male should be alternatively situated in his crotch. If both of big testes were located at the same level, he might experience difficulty walking due to the maximized width of his scrotum.

After returning to Japan, the first author asked the last author to observe the testes of the Mahale chimpanzees during his research in MMNP in 2003, to examine whether any secular change or inter-observer error can be detected. The last author was asked to record the location of the testes when the chimpanzee is standing and walking. To keep his observations unbiased, he was not disclosed the details of the first author's observations until he finished his work.

In the beginning of August, 2003, the last author departed for Mahale and came back to Japan in the middle of December, 2003. Then he gave to the first author a sequential list of the records taken during August and September. His results were compared with those of the first author and a beautiful similarity between them was found. No secular change has happened, at least not within the last year; the positional difference between the testes in mature males is so evident that little inter-observer error can be found.

The main points revealed by our investigations can be summarized as follows:

1. Mature male chimpanzees at Mahale have big scrotums and testes (Figure 1).
2. Testes and deferent canals can be easily seen through the skin of the scrotum of a living body (Figure 2A).
3. The testes of a mature male are asymmetric in the crotch (Figure 2A). The positional difference is so obvious that little inter-observer error can be found.
4. The upper testis sways more widely than the lower testis. When walking, the upper twists caudally and the lower moves cranially (Figure 2B). The swinging motion of the testes corresponds with walking steps.
5. The relative position of the testes remains unchanged from morning to night. No secular changes occur at least for one year.
6. The positional difference between the testes becomes apparent at about nine to ten years of age (Table 1). The difference in position is relatively small in younger chimpanzees, and it tends to increase gradually with age. However, because the number of individuals examined in this study was very small, further study is needed to verify the accuracy of the above two statements.

Next we propose that the shape of the scrotum, including the asymmetric position of the testes, can be used as a new trait in the individual

identification for mature male chimpanzees. Such a noteworthy trait has at least two advantages. It can easily be checked from behind an individual as seen in Figure 2. This manner may be especially helpful when one is tracking a target. This trait also has a discrete nature, just right or left, that is easy to remember.

Among the twelve mature male chimpanzees of M group, nine have a right dangling testis, and three have a left dangling testis, respectively (Table 1). This ratio seems contrary to the ratio seen in humans (1). However, the number of individuals examined in our investigations is too small to derive any conclusions now.

At least four possibilities might explain why the matured testes are asymmetrical: 1) the asymmetrical distribution of internal organs; 2) the asymmetrical morphology and function of the brain; 3) hand preference; and 4) foot preference. The data on the hand preference of Mahale chimpanzees has already published (3). No relationship can be recognized between the testes and the hands (Table 1). Further studies are needed to learn the cause of the asymmetry of the testes.

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# <NOTE>
# Chimpanzee Attitude toward a Seriously Weakened Adolescent Female at Mahale

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*Mosi Matumula, Mahale Mts. Chimpanzee Research Project*

Ai, a young adult female chimpanzee of the M group, became weak gradually and disappeared after 3 years.

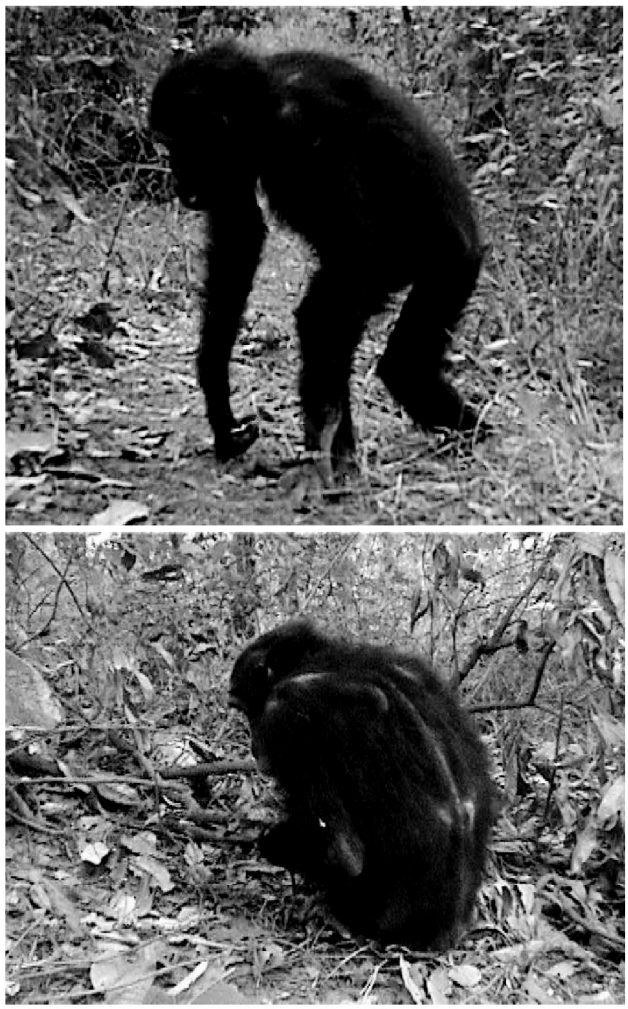

**Figure 1. Ai, walking slowly (upper photo) and Ai's skinny back and limb (lower photo)**

de Waal (1) and Goodall (2) reported that some chimpanzees become "anxious" about seriously wounded or disabled individuals, and that the other chimpanzees were "fearful" of or "antagonistic" to them.

In this report, we focus on the change in Ai's health condition and whether the types of interactions reported by previous authors were also observed in Ai's case. We discuss the unique features of this interaction, including observations of Ai just before she became lost, based on data sampled by focal animal sampling and ad lib sampling methods.

## Observations

### 1. Changing Condition of Ai and Her Disappearance

We interviewed several researchers and field

assistants who had studied Ai's physical trouble in Mahale. To summarize their reports, Ai began showing inconvenient and awkward movement in both of her legs in June or July 1999, when she was 11 years old (Ai was born in September 1988), without any external wound. Ai was able to walk and climb up trees, even though it seemed hard to move both of her legs. The rest of her body above the waist apparently had no trouble. These symptoms showed no change before her disappearance, and the reason for her trouble was unknown.

Ai had been gradually weakening over the course of three years. However, until February 2002, Ai was observed to slowly follow the other chimpanzees forming large cohesive parties and sometimes even to play with the others.

After she was missing for four months, we encountered Ai again on May 26, 2002 and found that she frequently stumbled over the ground and could barely walk (Figure 1). The last observation of Ai was on June 29, 2002, and she seemed so sick that she could hardly walk straight.

### 2. Observation of Interaction Involving Ai

We observed Ai for 12 days from May 26 to June 29, 2002. We followed her as a target individual for 6 days, totally 25.1 hours. Ai stayed in the open forest in the southern part of the range of the M group for 66.8% of the observation time. We observed 11 events in which Ai and the other individuals associated with each other. Mean party size, including Ai, was 1.8 (SD=1.1).

In the 11 associating events, we observed no individuals behaving "fearfully" to Ai (grin, full embrace, or avoid), while some adult female(s) behaved "antagonistically" (attack) in three events. Ai had her old mother and senior brother, and they and other individuals behaved "anxiously" to Ai (care, pat or share food), except for the cases where females showed aggression toward Ai.

In two out of the three events when female(s) attacked Ai, non-kin individuals intervened against these attacks, consequently stopping them (Table 1).

## Discussion

The females of the M group normally show the first swelling of their sexual skin around 10.7-years-old and then emigrate to the other unit groups around 11.3-years-old (3). It is supposed that Ai was too sick to sexually mature and to emigrate to the other groups. Although we could not confirm her death or observe her dead body directly, it seems obvious that she did not emigrate to another group but died a few days after her disappearance, probably by starvation or predation by wild animals like leopards. In fact, a skull and some long bones that were likely Ai's were later found.

In June 2002, plenty of fallen fruits of *Parinari curatellifolia* were found on the ground in limited parts of the southern open forest. Ai was staying alone under *Parinari* trees and crawled within a small area to feed on the fruits on the ground almost everyday, since it seemed

**Table 1. The cases adult female(s) attacked Ai and the intervention**

| Case No. | Date | Associating Individuals* | Place | Attack | Intervention | Wound on Ai |
|---|---|---|---|---|---|---|
| 1 | 26 May '02 | Zl | Forest | After feeding with Ai on the same tree, Zl chased Ai and hit her on the back | no | no |
| 2 | 14 June '02 | Cy, Ak | Open Forest | Cy and Ak approached Ai, then suddenly Cy charged and bit Ai on the left foot | Ak charged Cy, then Cy chased Ak and Ak escaped screaming | Lacerated wound on left foot |
| 3 | 18 June '02 | ** Op, Rb, OR, Ft | Open Forest | After staying with Op and the others for 40 minutes, a juvenile bit Ai. Rb and Op charged and slapped Ai | OR approached and intruded bipedally between Ai and Op-Rb. Then OR turned his back to Op-Rb. Op and Rb stopped attacking Ai | Lacerated wound on left hand |

* Females have the second letter writen small, while males capital. Names of infants and juveniles are omitted.
** Op, Rb and OR are kin.

already difficult for Ai to walk to another food tree or to climb up trees to feed.

Compared with the cases reported by previous authors (1, 2), the unique features of Ai's case are, first, that females rather than males bullied Ai just before she was lost, and, second, that non-kin individuals rather than kin intervened against these attacks by females.

It is known that among female chimpanzees the frequency of aggressive interaction is very low and that bullying seldom occurs (2, 4). Nevertheless, attacks against Ai happened at least three times over 12 days, and Ai suffered wounds twice by the attackers. Because Ai did not suffer attacks by females when she was comparatively healthier, some females became "antagonistic" to Ai only after she had become seriously weakened.

Two cases of intervention by non-kin individuals were newly observed. They took high risks to support Ai: In case 2, Cy's rank was higher than Ak's, and in case 3, OR intruded alone against two attackers, Op (OR's mother) and Rb (OR's sister). OR intervened "neutrally" in a non-aggressive way by turning his back to the attackers (Table 1). As a result, he succeeded in stopping the attack without suffering any attack by his mother or sister. This may be a good example of chimpanzees' high cognitive capacity for solving social problems.

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# <NOTE> On the Chimpanzees of Kakungu, Karobwa and Ntakata

*Koichiro Zamma, Eiji Inoue, Mtunda Mwami, Bunde Haluna, Silindila Athumani & Shaka Huseni*
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*Mahale Mountains National Park*

The distribution of chimpanzees on the eastern shore of Lake Tanganyika was investigated by Kano (1) from 1965 to 1967. Since then, there has been little information from this area except for the Kasoje forest, where chimpanzees have been studied for a long time.

We visited Kakungu, Karobwa and Ntakata to the north of the Mahale Mountains and made a brief survey of chimpanzees in October 2003. In the past, Kano observed beds of chimpanzees at Kakungu and saw chimpanzees at Karobwa. We heard the vocalization of chimpanzees at Kakungu and observed a chimpanzee at Karobwa. We also observed beds and feces of chimpanzees at Kakungu and Karobwa; however, we could not obtain evidence of chimpanzees at Ntakata.

**Figure 1. The overview of Ntaka forest**

## Methods

We traveled on foot between October 12 and 17, 2003; from Lukoma to Kakungu on the first day, around Mt.Kakungu on the second day, from

Kakungu to Lubalisi via Mt.Karobwa on the third day, from Lubalisi to Ikuburu on the forth day, from Ikuburu to Ntakata on the fifth day, and from Ikuburu to Lukoma on the sixth day (Figure 1). The altitude of this area is from 770 m (Lukoma) to 1,880 m (Mt. Karobwa). This area is mainly covered with woodlands, bamboo bushes, and riverine forests. Most of the grasses under the woodlands and the bamboo bushes were burned. Farmland is spread near villages. We saw more green leaves in the riverine forest than in the other types of vegetation because we surveyed in the early rainy season.

We recorded encounters, vocalization, beds, feces, and food remnants of chimpanzees. We also recorded encounters and vocalizations of other mammals. Five samples of hair remained on the beds, and five feces and two samples of saliva were collected for the DNA analysis.

## RESULTS

***From Lukoma to Kakungu Village***
***(9:49-13:56, Oct. 12)***

No vocalization of chimpanzees. We saw a bush duiker (*Sylvicapra grimmia*) at 11:07.

***At Kakungu Village I (13:56-16:01, Oct. 12)***

We saw two beds of chimpanzees from the village. These were in a *Sterculia quinqueloba* tree in the woodland on the west side of Mt. Kakungu. It took us 14 minutes to go there from the village. One of the beds was reached by climbing to it and the hairs of chimpanzees were collected.

***At Kakungu Village II***
***(17:38-20:27, Oct. 12 and 6:15-7:53, Oct. 13)***

We heard the vocalization of chimpanzees from the riverine forest on the south side of Mt. Kakungu between 18:29 and 18:53, Oct. 12 and at 6:46, Oct. 13. We heard the vocalizations of more than six chimpanzees.

***In the forest of Mt. Kakungu***
***(7:53-16:27, Oct. 13)***

We tracked around the riverine forest on the south side of Mt. Kakungu. The actual time of walking was about three hours. There were some plants that were confirmed as foods of the chimpanzees at Mahale. *Pseudospondias microcarpa*, *Ficus vallis-choudae*, *Ficus congensis* and *Landolphia owariensis* were bearing fruits. *Garcinia huillensis*, however, which was fruited in the Kasoje Forest, did not bear fruits at that time.

We observed eighteen beds. We climbed up to four of them and collected hair samples. We also collected two feces and a wadge of *Ficus vallis-choudae*. The seeds of *Canthin* sp. and *Pseudospondias* were included in these feces. We saw a red-tailed monkey (*Cercopithecus ascanius*).

***At Kakungu Village III***
***(16:27-21:00, Oct. 13 and 6:15-7:45, Oct. 14)***

We could not hear the vocalization of chimpanzees.

***From Kakungu Village to Lubalisi via Mt. Karobwa***
***(7:45-18:44, Oct. 14)***

We heard vocalization three times near Mt. Karobwa. At first, when we were passing Mabungu Village, we heard vocalization from the southeast side of Mt. Silafu (10:50-10:55). The second vocalization of about 10 chimpanzees came from the same place at 13:05 when we climbed halfway up Mt. Karobwa.

After we passed Mt. Karobwa, we heard the vocalization of more than two chimpanzees from the southeast side of Mt. Karobwa (16:12-16:19). When we approached the direction of the vocalization, we witnessed a chimpanzee running into bushes (16:22). We also collected three feces. This site was about 5 km away from Mt. Silafu. On the summit of Mt. Karobwa, a bed was observed.

***At Lubalisi***
***(18:44-19:05, Oct. 14 and 6:10-7:19, Oct. 15)***

No vocalization of chimpanzees was heard.

***From Lubalisi to Ikuburu (7:19-12:32, Oct. 15)***

No vocalization of chimpanzees was heard.

***At Ikuburu I***
***(12:32-21:30, Oct. 15 and 6:38-7:45, Oct. 16)***

No vocalization of chimpanzees was heard.

Figure 2. Kakungu Village

*Between Ikuburu and the Ntakata Forest (7:45-19:16, Oct. 16)*

We spent an hour and a half in the Ntakata Forest. No vocalization of chimpanzees was heard. We observed remnants of foods, the fruits of *Ximenia africana*, but could not determine whether they were eaten by chimpanzees or not.

On the way to Ntakata, we heard the vocalization of a baboon (*Papio cynocephalus*) and observed a bush pig (*Potamochoerus larvatus*).

There are some riverine forests between Ikuburu and Ntakata. At Kamafiga Riv., Lwegele Riv., and Mlofesi Riv., we observed some plants that were known as foods of the chimpanzees at Mahale (*Saba comorensis*, *Psychotria peduncularis*, *Ficus urceolaris*, and *Aframomum* sp).

*At Ikuburu II (19:16-21:00, Oct. 16 and 7:01-8:42, Oct. 17)*

No vocalization of chimpanzees was heard.

*From Ikuburu to Lukoma (8:42-12:48, Oct. 17)*

We could not hear the vocalization of chimpanzees. We observed a bushback (*Tragelaphus scriptus*) at 11:07.

## Discussion

Our survey of the three forests was brief, but we would like to discuss the number of groups and the possibilities of studying chimpanzees there.

At Kakungu, we heard the vocalization of chimpanzees and found beds. This shows there is at least one chimpanzee group. At Karobwa, we heard vocalization from two sites that are 5 km apart. This shows that there are at least two groups. At Ntakata, we did not find any trace of chimpanzees during our trip; however, Moore heard vocalization in 2001, and Ogawa saw chimpanzees in 2003 (Moore and Ogawa, personal communication).

If further research is to be conducted, we believe that Kakungu would be the best choice as a site. The Kakungu forests where we heard vocalization and found beds are near Kakungu Village. Therefore, it is not so difficult to observe chimpanzees or traces of chimpanzees. It would be relatively difficult to study chimpanzees around the top of Mt. Karobwa due to the lack of water there. Mt. Silafu is not so far from Mabungu Village, and the place we heard vocalization at Karobwa is not so far from Lubalisi Village. Therefore, it may not be so difficult to conduct research at these sites. However, the environments of chimpanzees are getting worse because of poaching, prospecting for mineral resources, and commercial logging (Moore, personal communication). Ntakata is far from any village, so we would need to establish a camp if we conducted research there. If longer-term research is intended, a car would be necessary to bring food and tents there.

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