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Power Takeover Occurred in M Group of the Mahale Mountains, Tanzania, in 2007
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Male chimpanzees compete for high rank, especially, alpha status since it confers the high reproductive success\(^1\).\(^2\). Power takeovers have been recorded, but opportunities to observe such incidents are rare. Social intelligence seems to be exhibited so much in the course of dominance competition that documentation of social interactions is theoretically important\(^3\).\(^4\)\(^5\).\(^6\). I briefly report here some interesting episodes during the recent takeover
of alpha status by a young adult male.

Since 2003, in the M group of Mahale Mountains National Park, Alofu (25 years old, Fig. 1) had kept his alpha status. In 2007, however, the alpha male was changed. The beta male, Pim (19 years old, Fig. 2), challenged Alofu and then succeeded in seizing the alpha status. Back in November 2003, Fanana (alpha male, 25 years old at that time) suddenly disappeared, and Alofu (beta male, 21 years old at that time) advanced his status to alpha. Alofu thus remained in power for three years and six months. However, according to Dr. Michio Nakamura, who stayed at Mahale in June 2007, Pim ceased to pant-grunt to Alofu during that time. It seemed that the dominance relation between them became ambiguous. Subsequently, they seemed to fight each other, scrambling for political power up to August, but the details were unknown between June and August.

I began to study the social relationships among the adult males of M group on August 10 and ended my observations on December 22, 2007. On August 17, 2007, Dr. Toshisada Nishida and I observed Alofu pant-grunting to Pim for the first time, and thus we speculated that Pim had taken over the alpha status around that time, or not long ago. Alofu’s display dragged out for a long time. In contrast, Pim who was young and rough with piercing eyes, often performed short but vigorous charging displays. After the change of political power, other males of the M group behaved with indecisiveness, playing up to Alofu but following Pim as well when he appeared. Alofu was not yet old, and he was still strong enough to retaliate against Pim and regain the alpha status. Nevertheless, Alofu eventually seemed to be satisfied with the beta male position. In fact, the real threat to Pim may have come from the younger rivals who had matured well. Primus (16 years old) was (and is) the principal rival, with a baby face and well-built physique, threatening Pim and Alofu. Cadmus (16 years old) is small in size but a good athlete. We would expect them to be promising candidates for the top position.

Youngsters were active, but a senior, Kalunde (about 44 years old), continued to be strong and influential in political situations. On August 28, 2007, males showed opposition to Pim over a cycling female. Although Pim solicited support from Kalunde more than once, Kalunde switched his allegiance to Alofu as soon as he saw...
Alofu rushing toward Pim, and he also gave chase to Pim (Fig. 3). Pim escaped at full speed, then returned to Kalunde hastily, and finally hugged Kalunde to make up with him. On November 13, when Pim was defeated by the team of Primus-Cadmus, other males were sitting and watching at a distance, and only Kalunde walked to Pim’s side. These incidents did not have an impact on Pim’s status; the power balance among highest-ranking males seemed to depend not only on the attitude of many adult males, but also on Pim’s assertiveness.

There was one male who came back to the central part of the group, as if he had foreseen the change in alpha status. He was Fanana (29 years old, Fig. 4), the last alpha male but one, who had disappeared in 2003 and since then almost always ranged alone within the M group’s territory. In August 2007, Fanana repeated some behavior patterns, such as traveling with members for a few days and then disappearing for another few days. Fanana seemed to adapt himself entirely to the group by September. On November 12, Fanana turned up, after an interval of several days, at the hill where M group members were resting. Fanana came up quietly and sat in the middle of the current power coalition. Alofu, Kalunde, Cadmus and Tarnie (female, estimated 15 years old) had all been grooming in tandem. Seeing Fanana coming, all four chimpanzees turned around and sat immediately surrounding Fanana, and then they began to groom him.

Fanana engaged in vigorous social play, such as wrestling with other males, as if he were compensating for previous lost time. Furthermore, he often traveled with Pim. Although Fanana’s status fell to near the lowest end of the adult males, it seemed that Pim began to rely on Fanana to some extent. Based on these initial findings, I would like to follow the movements of the adult males of M group. I thank T. Kooriyama and M. Nakamura for providing valuable information and video clips; T. Nishida and K. Hosaka for constructive comments. The research was supported by the MEXT Grant-in-Aid for Basic Scientific Research Fund (#19255008 to T. Nishida) and the Global Environment Research Fund (F-061 to T. Nishida) of the Ministry of the Environment, Japan.

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<NOTE>
Savanna Chimpanzees (Pan troglodytes verus) Prey on Patas Monkeys (Erythrocebus patas) at Fongoli, Senegal

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INTRODUCTION
Chimpanzees across Africa include some meat in their diet\textsuperscript{1}. In most communities where chimpanzees have been studied over the long term, primate prey is apparently preferred over other animal prey, with red colobus monkeys (Piliocolobus badius) comprising the most common monkey species eaten\textsuperscript{2}. At Fongoli,
Senegal, it is likely that chimpanzees have never had access to red colobus monkeys at this hot, dry and open site, although the range of red colobus monkeys (P. b. temminckii) in Senegal and adjacent countries in West Africa has diminished. Fongoli chimpanzees are currently not sympatric with red colobus, although they eat vertebrate prey of various types, including a number of primate species.

We previously reported two of the three primate species as preyed upon by chimpanzees at Fongoli (Chlorocebus aethiops, Galago senegalensis). Fongoli chimpanzees use modified sticks as jabbing tools to obtain bushbabies. We have since observed Fongoli chimpanzees hunting banded mongoose (Mungos mungo) and baboons (Papio hamadryas papio) and feeding on bushbuck (Tragelaphus scriptus) and as well (Pruetz, unpublished data). Here, we report on the inclusion of a fourth primate species eaten by chimpanzees at Fongoli, the patas monkey (Erythrocebus patas). This is the first recorded incident of predation on patas monkeys by chimpanzees. Fongoli is the only site where habituated chimpanzees are sympatric with this monkey species.

STUDY SITE

Chimpanzees in Senegal inhabit the area known as the Mandingue Plateau, which defines the northern and geographical limits of chimpanzees’ range in West Africa. This region of southeastern Senegal is Sudanian savanna and Guinean woodland. The Fongoli site (12°40’ N, 12°13’ W) is at the junction of the Sudanian and Sudano-Guinean vegetation belts, which can be envisioned as a savanna-woodland mosaic. Rainfall averages less than 800 mm annually (Pruetz, unpublished data). In southeastern Senegal, the rainy season is from June through September. Other animal species at the site include those associated with open environments, such as patas monkeys and oribi (Oribi oribi), as well as species that typically use closed habitats more extensively, such as green monkeys and bushbucks. Humans that live in the area include the Bedik, Bassari, Diakanke and Malinke.

The Fongoli chimpanzee community has been studied since April 2001, and systematic behavioral data collection began after habituation of adult males in 2005. The community size ranges between 31–34 individuals annually, with approximately 10–11 adult males, 7–8 adult females and varying numbers of immature chimpanzees comprising the community, based on records collected since all individuals were identified in January 2006 (Pruetz, unpublished data). The Fongoli chimpanzee home range is estimated, minimally, to be 63 km² and is predominantly open woodland and grassland, with small patches of gallery forest and seasonally cultivated fields.

OBSERVATIONS

Few encounters have thus far been observed between patas monkeys and chimpanzees at Fongoli in the four years following habituation, likely because both chimpanzees and humans are predators of patas in this area (Pruetz, personal observation). In the first encounter recorded between patas monkeys and chimpanzees, during the 2008 dry season, the latter gave wraa calls at two male patas (one adult, one subadult) that had been drinking at the permanent water source near a resting chimpanzee party. Both patas monkeys fled quickly and one adolescent male chimpanzee gave chase, although he appeared not to run at full speed. He did not gain on the monkeys at any point, but the chase ended out of sight of the observer. The monkeys did not vocalize in any way during this encounter.

In the second encounter observed between chimpanzees and patas monkeys, in July 2008, two older, adult male chimpanzees attempted to hunt at least two patas monkeys. The older and lowest ranking of the two males was successful in capturing a one-year old (juvenile) monkey. The behavior of these two, older adult male chimpanzees suggested a coordinated attempt at patas monkey predation. During foraging-related travel, one male stopped immediately after the first, and both males remained silent and attentive until the same moment when they raced to the trees in the woodland habitat in which the patas monkeys were ultimately found. While this may be explained as coincidental, the silent communication between the adult males, including the exchange of gaze, indicated that such behavior was not characteristic of one or the other’s selfish motivation or desire to reach the monkeys first. Observers waited approximately 10 seconds before following the subjects so as to refrain from alerting the monkeys prematurely, so were able to only observe the second attempt on a second juvenile patas monkey (one or two years of age). The older male had already begun eating the juvenile patas he caught while outside of observers’ view. The other adult male was observed to jump into the tree containing the second juvenile patas monkey and climb quickly toward it. The patas monkey almost immediately leapt from the tree (at a height of less than 10 meters) to the ground and began running. The adult male chimpanzee immediately stopped chasing the monkey once it landed on the ground and returned to the other chimpanzee’s kill. The monkey was shared extensively between the two adult males and was consumed entirely save for its bones and tail. At no time did patas monkeys elicit alarm calls or other vocalizations before or after the predation event.

In the third encounter between chimpanzees and patas monkeys, in July 2009, observers followed an adult male and an older adolescent male. The two chimpanzees were observed to travel cautiously, apparently listening to sounds made by patas monkeys. Both chimpanzees gave chase to what turned out to be a patas monkey, but they were lost from view during the hunt and capture. Approximately eight minutes later, the adolescent male was observed feeding on a young patas monkey, not sharing with the adult male until 197 minutes later.
DISCUSSION
Fongoli chimpanzees have now been observed to feed on each of the non-human primates sympatric with them in their hot, dry and open environment. Patas monkeys are known to be the fastest terrestrial primate\^6. Although the speed of these monkeys was long thought to be a trait selected for anti-predation in this species, a recent study in Laikipia, Kenya recorded a variety of anti-predator strategies in this species, and fleeing from predators accounted for less than half of all responses\^7.

As seen in the observed predation attempt by an older male chimpanzee on a young patas monkey, escape into the trees did not deter pursuit but escape via running on the ground appeared to deter pursuit. Notably, monkeys did not elicit alarm calls in any observed encounters. Chimpanzees‘ ability to pursue their prey in trees precludes the ability of monkeys to escape safely into trees as with other terrestrial predators, so that patas monkeys in the Fongoli region appear to use crypticity as an initial anti-predation strategy when faced with a chimpanzee predator.

ACKNOWLEDGEMENTS
Research at Fongoli is carried out with the kind permission of the Republic of Senegal and the Department du Eaux et Forêts and the Arrondissement du Bandafassi. Funding has been provided by the National Geographic Society, Iowa State University, Leakey Foundation, Wenner-Gren Foundation for Anthropological Research, National Science Foundation, U.S. Fish & Wildlife Great Ape Conservation Grant, Primate Conservation Inc., and American Society of Primatologists. Assistance is provided in the field by Dondo Kante, Mboule Camara, Michel Sahdjaro, and Wally Camara.

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<NOTE>
Aesthete in the Forest?
A Female Chimpanzee at Mahale Collected and Carried Guineafowl Feathers

Michio Nakamura
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INTRODUCTION
We humans sometimes collect objects that we consider beautiful and carry them home. For example, we may collect beautifully colored stones or shells when we walk on the beach or may pick up beautiful flowers or leaves in the forest to press in a book. We collect such items not because they have practical use—we do not eat them, we do not sell them, nor do we use them as tools or medicines—but simply to keep them on a shelf.

One item that attracts those who walk in the forest of Mahale, Tanzania, is the beautiful blue-spotted black feathers from the crested guineafowl Guttera pucherani that are often found on the forest floor (Fig. 1).

It is not surprising that chimpanzees (Pan troglodytes) collect and carry things that are directly beneficial to them, such as food. For example, chimpanzees at Mahale sometimes collect five or six lemons from a tree, carrying one in the mouth, one in each hand and foot, and perhaps one more in the groin pocket. So burdened, they cannot walk very far, but may just climb out of the tree and eat the fruit nearby. They

Fig. 1. Feathers of crested guineafowls collected by the author at Mahale.
also carry various food items between their lips, in a hand or foot, on the back or head, or in the groin or neck pocket, or drag food with one hand when they have to catch up with other chimpanzees. Another example of collecting and carrying at Mahale has to do with fishing tools: chimpanzees sometimes prepare these tools at some distance from an ant nest and carry them for up to 70 meters.

Immature chimpanzees sometimes carry objects that are not related to feeding. During play, they often transport objects such as twigs. They may carry twigs, logs, tree bark, colobus skin, and human artifacts as if they were carrying “toys” or “dolls.” Researchers consider such objects “toys” because juvenile chimpanzees often handle them in a playful manner, such as hitting them, tapping them, or putting them on their head, while showing a typical play face. Such “toys” usually do not attract adults, but only infants and juveniles show interest and often play tug-of-war with these objects.

Here, I would like to report a case in which an old female chimpanzee calmly collected several guineafowl feathers and carried them for more than 30 minutes without displaying any emotional expressions, such as a play face.

**OBSERVATIONS**

At 10:36 am on 11 October 2009, when I was observing an adult female called Cynthia, my research assistant noticed that an old female called Wakusi (estimated to be 48 years old at the time of observation) was holding two or three guineafowl feathers in her left hand. As we observed her, she walked a bit with the feathers in her hand and picked up two more feathers that happened to be on the trail we were observing. Now carrying four or five feathers in her hand, she kept walking as the other chimpanzees headed north. We followed her to observe the consequences.

At 10:41, Wakusi copulated with a 9-year-old adolescent male called Emory while holding the feathers in her lips. Then, we lost sight of her briefly while we waited for other chimpanzees sitting on the trail to depart. When we caught up with her at 10:44, she was lying on the trail with five individuals close by. She still had the feathers in her left hand, and Emory looked at them. Cynthia’s 1-year-old infant appeared to become interested in what Wakusi had in her hand. Wakusi gently put the feathers in her groin pocket and continued lying on the trail. The infant went closer to Wakusi to look at her groin area where she had put the feathers. Wakusi took out the feathers with her left hand (Fig. 2) and then returned them to her groin pocket. The infant looked at Wakusi’s belly again and then went to her backside. When the alpha male Pimu began to groom Wakusi, the infant went to Wakusi’s ventral side and took the feathers out of her groin pocket. Although Wakusi moved her hand toward the baby slightly, she did not attempt to retrieve the feathers. The infant sniffed and licked the feathers, but discarded them after a while when its mother was about to depart.

At 10:51, when the alpha male stopped grooming and left, Wakusi was left alone for a while. As she got up, she picked up three feathers one by one with her hand, put them between her lips, and departed into the bush. As she moved through the bush, she again presented to Emory and copulated with him, still holding the feathers in her lips. As she and other chimpanzees moved on in the dense bush, we could not observe her continuously.

Fig. 2. Wakusi lying supine with the guineafowl feathers in her hand. Cynthia’s baby is sitting in front of her facing Wakusi. In the line drawing of Wakusi, the feathers are painted black.
but when we caught up with her, she had the feathers in
her hand, between her lips, or in her groin pocket.

At 11:12 am, Wakusi and some others departed in
some haste, and again we lost sight of her because other
chimpanzees were barring our way. At this time, she still
had the feathers in her mouth. When we reached the trail
where she had just passed, I found one guineafowl
feather on the ground; its proximal end was wet with
saliva (Fig. 3). When we found Wakusi with a party of
chimpanzees feeding on a Ficus tree at 11:35, she no
longer had the feathers.

**DISCUSSION**

Wakusi carried the guineafowl feathers for at least
36 minutes. This may be an idiosyncratic behavior,
although no similar behavior by her had previously been
observed, despite the fact that she has been identified and
observed for more than two decades. Given that she
picked up the feathers from the ground at least twice, it
could be said that she had an intention to collect and keep
them for a while. However, it is difficult to know why she
did so.

It is unlikely that Wakusi assumed that the feathers
represented bird meat. A guineafowl egg was once
observed to be eaten at Mahale, and other terrestrial birds
such as francolins and domestic chickens were also
captured and eaten several times. Therefore, it is possible
that the chimpanzees consider guineafowl as prey.
However, when I observed chimpanzees eating other bird
species, they first discarded the feathers, and none
showed interest in the discarded feathers, although plenty
of feathers were available. Therefore, it is unlikely that
chimpanzees show interest in feathers for this reason. In
addition, Wakusi never sniffed or licked the feathers.

The feathers did not seem to be like “toys,” either,
because Wakusi did not show any attempt to manipulate
them in a playful manner (so, they could have been a “toy” to the baby), Wakusi herself never attempted
to play with them or showed a play face. Consequently, it
is difficult to say that Wakusi considered them toys in the
usual sense.

The old female chimpanzee just calmly collected
and carried several bird feathers. It is difficult to guess
whether she found them beautiful, as humans do. She did
not seem to collect the feathers for a particular functional
reason. Consequently, can we say that she collected them
just because she liked them? Many archeologists assume
that art or symbolic representation only appeared in
modern humans about 50,000 years ago. However,
because the underpinning aesthetic mentality cannot be
fossilized, it is possible that similar aesthetic sensibility
had evolved much earlier in the chimpanzee-human
clade.

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**<NOTE>**

The Death of a Newborn
Chimpanzee at Mahale:
Reactions of its Mother and
Other Individuals to the Body

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**INTRODUCTION**

Approximately 50% of infant chimpanzees in
Mahale die before weaning. The causes of preweaning infant death include endemic disease, maternal inexperience, poor nutrition, stillbirth, and infanticide.

Since Jane Goodall and Toshisada Nishida began their long-term research on wild chimpanzees, researchers have known that female chimpanzees often transport the bodies of their dead preweaned infants for a period extending from a couple of days to several months. Matsuzawa observed a mother who was unable to abandon her 2-year-old daughter’s body and speculated that this was because of her maternal affection. Hosaka et al. documented five cases of reactions to dead infants by mothers and other chimpanzees. One case implied that adult males would cannibalise the carcasses of newly deceased infants. Another case described the longest recorded transporting of a dead infant by its mother, at least 3.5 months. A recent report from Mahale noted that seven infant chimpanzees died in a flu-like epidemic in 2006, two of which were then carried by their mothers.

Here I report another case of a chimpanzee mother carrying the body of her dead newborn. I also describe the reactions of other chimpanzees to the body of the newborn. Given the dearth of literature on this topic, this study contributes to researchers’ understanding of the reactions of chimpanzees faced with the death of a conspecific.

STUDY SITE AND CHIMPANZEEES

Chimpanzees of M group in the Mahale Mountains National Park, Tanzania, were studied. I studied Vera and her dead newborn male using the ad libitum observation method. Other chimpanzees that interacted with the pair were two young adult males (Cadmus and Primus), one juvenile male (Teddy), one older adult female (Nkombo), and one juvenile female (Carmen). Carmen was the younger sister of Cadmus and had no younger siblings herself.

OBSERVATIONS

At about 16:50 on 10 October 2008, as the core party of M group reached Kansyana Research Station, Vera appeared after 2 days’ absence carrying the body of her firstborn around her neck. Vera had immigrated into M group in 2006 and had seemed nulliparous. This delivery was likely Vera’s first since joining the group, which is consistent with past data from Mahale that immigrant females usually need 2 years to conceive their first infant. The infant may have been stillborn, because its head seemed constricted at the nose point. At the constriction point, the skin of the mouth was pressed toward the chin. I hypothesised that this constriction was unlikely to have resulted from a normal birth, but rather may have occurred while the infant was passing through the pelvic canal. The infant had a red lesion on its head, but this did not seem fatal. When Vera was found carrying the infant a couple of days after delivering it, the body had not been cannibalised; it smelled rotten but had no visible bite marks. The infant was thought to be male because there was no evidence of the characteristic sexual skin of a female.

At first, Vera walked silently out of sight behind the others with her dead infant. She was discovered by Cadmus, who started making intimidating displays toward her. Primus joined in. Cadmus then mounted Vera, who fled, leaving the body.

At 16:55, Cadmus, Primus, Carmen, and Teddy sat surrounding the body. Cadmus touched the body with his index finger, lifted its leg to sniff the leg, anus, and penis and widened the anus to inspect it. Vera tried several times to retrieve the body but her efforts were in vain because she could not approach Cadmus.

At 16:59, once Cadmus left, Carmen began carrying the body in her mouth, followed by Teddy. After a minute, Carmen climbed up a tree, carrying the body; here she touched and pinched it around the anus. After 30 s, she climbed down and continued to carry the body, again followed by Teddy. While Carmen was carrying the body, Cadmus was nearby, watching the body.

At 17:03, when Carmen passed Cadmus with the body, Cadmus started running to follow her. Carmen soon stopped, at which point Cadmus caught up with her and sniffed the body. With Cadmus beside her, Carmen started touching and pinching the skin and mouth of the body and inspecting the anus, as Cadmus had done. She also stepped several times. Cadmus left Carmen and the body again.

At 17:06, Cadmus made an intimidating display and thus regained the body. He touched and sniffed it, just as he had done before. Carmen sat beside Cadmus with her hand on his shoulder, watching what he was doing. Cadmus paused for a while and then left, leaving the body.

At 17:07, Carmen retrieved the body and began treating it violently, dragging it and hitting it against the ground. She stepped and stomped on it repeatedly. As a result, the surface hair of the body became damaged; it was discoloured a dark green discoloration and gave off a bad smell. Primus, who was nearby, did not touch the body. Teddy followed Carmen and appeared to want a chance to touch the body, but he was not successful. Nkombo approached the body to sniff it but departed soon afterward.

At 17:09, Carmen picked up the body and ran away out of our sight. She reappeared with the others 30 min later, without the body.

DISCUSSION

If my assumption that Vera carried her stillborn infant is true, then this could be the first report on reactions to a stillborn infant by the mother and other chimpanzees. However, it is possible that the partially cannibalised newborn reported in Hosaka et al. could not have been male.
have been stillborn, although the authors presumed that it had been killed by some chimpanzee\(^5\). Roof et al. reported that about 7.5% of the first parity of captive chimpanzees result in stillbirths\(^7\). The rate of stillbirths among Mahale chimpanzees is unknown, but it seems natural that they should also deliver stillborn infants in the wild.

My observations reveal that a female chimpanzee can carry her dead infant even if insufficient time has passed to establish a strong mother-infant relationship. It is likely that Vera had carried the infant for 1 or 2 days before being discovered. She might have continued to carry the infant much longer had she not joined the other chimpanzees, considering that she tried to regain possession of the body several times.

Cadmus recognised the fact that the infant was dead and checked to see whether the body was fresh enough or too rotten to eat. It is possible that he was motivated by cannibalism, because adult male chimps have a well-known tendency to eat dead infants\(^5\). Therefore, the body might have been cannibalised by other chimpanzees such as Cadmus if it had been found on the day of birth. However, it is unclear why Cadmus did not eat it. Possible explanations are putrefaction or some psychological conflict.

Carmen showed similar reactions to the body as her brother Cadmus. However, some of her reactions (e.g., treating the body like a toy, a play partner, or a live infant) can be interpreted as imaginative play. In addition, Carmen showed greater persistence for carrying the body than her brother did, which can be explained by the tendency of adolescent chimpanzees toward alloparental behaviour\(^9\).

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<FORUM>

Foreword

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Recent empirical studies of large carnivores and mammalian prey show their predator-prey relations to be highly malleable. Moreover, much of the uncertainty about the importance of predation by large felines on large-bodied apes stems from the rarity of observed encounters between the two parties. For example, Boesch asserts that most studied populations of chimpanzees experience little or no such pressure, and so are not ‘real’ chimpanzees. Most data on the subject are indirect, so any direct observations are to be prized. The following note was written in 1974 but never published; it is reproduced here with only minor typographical corrections, in order to add to this sparse data-set.

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OBSERVATIONS

An Encounter between a Leopard and a Group of Chimpanzees at Gombe National Park

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INTRODUCTION

There has been considerable speculation concerning the influence of predators on chimpanzee (Pan troglodytes) populations. This paper reports a complete observation of an interaction between a leopard (Panthera pardus) and a mixed group of chimpanzees and summarizes all previous documented responses of chimpanzees during encounters with leopards and lions (Panthera leo). These field observations are currently limited to sites in western Tanzania as follows:

1) In the Kasakati Basin, Izawa and Itami heard a single young chimpanzee (7–8 years, sex uncertain) giving loud calls. When they reached the site an hour later, the chimpanzee was shaking vines and still calling out as a leopard rested in a tree 25 m away. Upon noticing the observers, the chimpanzee ran off.
2) In the Mahali Mountains, Nishida observed an adult male chimpanzee silently throwing down twigs and shaking branches from a tree. The male descended to the ground, and a leopard 40 m away moved into the undergrowth. Other chimpanzees were present in the area.
3) In the Ugalla Hills, Kano found a group of chimpanzees driven up trees by a young adult lion. They were “screaming in a most unusual manner.” The lion charged by and hit Kano, growled, then ran off.
4) van Lawick-Goodall reported two incidents at Gombe National Park. Once a juvenile peered into a ravine and screamed intermittently for 5 min. Its mother, who was carrying a small infant, glanced down, then continued feeding. Subsequent evidence showed that a leopard had been present. On another occasion, a leopard vocalized about 50 m from a group of chimpanzees feeding in trees. They made no apparent response.

On Nov. 18, 1974, I was alone observing six chimpanzees from the Kahama Community, which range in the south of Gombe National Park. The group consisted of the following individuals: Charlie (CH), adult male (approximate age, 26 years); Willy Wally (WW), adult male with a partially paralyzed leg (ca. 26 years); Sniff (SF), adult male (ca. 16 years); Madam Bee (MB), old female with a paralyzed arm; mother of LB and HB (ca. 35–40 years); Little Bee (LB), nulliparous female with a “clubbed” foot; full estrous swelling at the time of the observation (ca. 14 years); Honey Bee (HB), adolescent female with a small sexual swelling (10 years).

The chimpanzees left the nest site at sunrise (06.28 hr) and began to walk south through woodland toward Kahama Stream. HB and SF led as the group foraged along the ground. A troop of redtail monkeys (Cercopithecus ascanius), 350 m south of the nest site, was “alarm-chirping” from trees (5 trees, ca. 15 m high) surrounding a dense thicket (10–15 m diameter), in which a full-sized leopard of unknown sex was concealed.

At 06.52 HB climbed into a tree near the redtails, stared at the leopard below, and “wraaahed” (long call indicating danger). MB immediately climbed into the tree near HB and began to wraaah too. LB ascended a nearby tree. WW (who had been in close proximity to LB since sunrise), proceeded southwest around the thicket, stood with hair erect, and peered into the undergrowth. SF glanced back with hair erect at CH, climbed onto a large rock (2 m high, 10 m east of the thicket), and sat down staring toward the thicket. MB and HB wraaahed persistently from the tree above. CH scanned from the rear,
moved with hair erect slowly by the thicket, climbed quickly up the rock, sat down in contact with SF, and faced the concealed leopard.

At 06.54 the leopard rustled in the tangled vegetation and appeared to lunge within the thicket toward SF and CH. The chimpanzees wraaahed and “waa-barked” (loud, single-syllable bark given in threat). The leopard’s movements subsided. CH climbed down the rock, walked with hair erect beside the thicket, and sat down by WW. CH then stood bipedal within 10–15 m of the leopard and peered into the vegetation. SF leapt with hair erect into vines near the females and stared at the leopard below. Violently shaking vines for several seconds, SF wraaahed, charged away from the thicket, and sat down in the fork of a large tree. Following this display, CH climbed silently to the top of a slender tree nearby and the leopard left the thicket headed south through dense ground cover.

HB stared at the leopard as it moved away, broke off a branch, and threw it into the thicket below. She descended to the ground and followed the leopard at a distance of 15–20 m, with WW close behind. WW remained at the base of the tree as HB charged up the trunk, slapping and stamping on the branches above the leopard. HB wraaahed and ran through the trees following the leopard as it returned along the ground. During this pursuit, MB and LB climbed through branches and stared toward the leopard and HB. HB joined her family as the leopard passed beneath them and lay down at the base of the tree.

At 07.00 the family stood close together, persistently stamped on the branches, and wraaahed as the leopard rubbed its forepaw against the ground. The males remained silent and alert.

At 07.05 the leopard stood up and walked with a slight limp toward riverine forest of Kahama Stream. The chimpanzees descended, stood on the ground, stared at the leopard, and gave “hoos” (soft, low-pitched, single-syllable sound often elicited in response to strange stimuli). SF, HB, and MB followed the leopard at a distance of 25 m, as it moved out of sight.

At 07.10 CH directed a charging display at MB. She stepped aside submissively as CH moved ahead. WW and LB followed in the rear of the progression. At 07.12, CH, travelling south with the others in the direction of the leopard, began to forage along the ground.

DISCUSSION

To my knowledge there is no direct evidence from any study that large felines prey upon chimpanzees; however, the behavioral ecology of these predators has not been systematically studied at any site. Furthermore, increasing human activity may have altered the ranging patterns and reduced the number of large felines existing in these areas. For example, leopards were considered common at Gombe National Park only 15 years ago. In the early 1960s, two leopards ranged within Kakombe Valley, later the site of the banana feeding station. With the expansion of the Gombe Stream Research Centre, leopards were no longer observed in the central valleys. In 1967, a small ranger station was built 4 km south of the research centre on the lake. Occasionally a leopard came down to the beach at night (pers. obs. and rangers), and in 1975, a leopard and its offspring were observed in the nearby forest (Swai Saashiha, pers. comm.). A small population of leopards apparently exists in the southern area of the park. Two old male lions once roamed within the reserve (Esilom Mpongo, pers. comm.).

There is evidence from a trapping project that a leopard killed an infant chimpanzee in the Idambo region of Zaire in 1966. Rahm reported that her scouts brought a freshly-killed infant male aged about 5 months to camp. His whole lower abdomen had been torn open. The intestines were visible, and the skin of his thighs and right forearm were slashed. The scouts reported that after hearing noises of fighting chimpanzees, they surprised a leopard attacking a female carrying the infant. A large male chimpanzee in the group snatched the infant, carried it aside, then took a stick and attacked the leopard. The men tried to carry the infant away, but it cried and the male hurried back. They dropped the infant and the male returned to assist the female with his stick. A fight had taken place at the described spot when Rahm examined it, but there was no proof that a leopard had attacked the group. She states that the chimpanzee’s wounds were inflicted by claws and not by snares and cables.

The leopard’s activity prior to detection by the adolescent female in the 1974 Gombe encounter is unknown; however, it appears that the leopard attempted to prey upon the group. The following observed responses of the chimpanzees indicate that leopards are regarded as potentially dangerous: vigilance; orientation; movement into close proximity with others; wraaah (alarm) calls, primarily by the family of females; investigation; rock and tree climbing; displays from trees, including branch-shaking, stamping, and branch-throwing; and following the leopard out of sight.

These behavioral patterns may communicate that the leopard is detected and induce it to move elsewhere in search of food (see discussion of alarm signals7,18). The movements of chimpanzees into close proximity with others in potentially dangerous situations may function as a defense tactic, which affords protection to members of the same community, such as related individuals, prospective mating partners and males with whom there are strong personal bonds (see discussion of male–male relationships15).

Although mothers protect their offspring in a variety of circumstances9, chimpanzees are also occasionally observed to respond in a protective manner to individuals other than their own offspring, such as “adoptive” or orphaned sibling20. In 1975, field assistants reported that an adolescent female encountered an unidentified snake, which seemed to chase her. She climbed a tree and sat, watching the snake, until her infant brother toddled along, seemingly unaware of it. Suddenly, as the infant got close to the snake, the adolescent ran with hair erect down the tree, seized her brother, and ran with him to their mother20. In Guinea a prime adult male ran down, picked up, and carried away an immature chimpanzee, who was unknowingly approaching Nissen14.

Field assistants at Gombe National Park reported that immature and adult male chimpanzees carried around an infanticide victim for hours after the fatal attack22. In 1974 a domestic dog charged toward the family described in the
leopard episode and bit MB on the head. As she slapped the dog with her arm, its tail was grabbed by LB and the dog hurled aside and chased into nearby forest. HB stood between them and watched (pers. obs.).

Prior to giving wraaah calls, the adolescent female appeared alert to the alarm-chirps of the redtail monkey troop above the leopard and climbed into a tree. This behavior suggests the possible role of interspecific communication in detection of potential dangers\(^2\). The adolescent also seemed to be the most highly aroused member of the group in the leopard’s presence, which is comparable to the responses of immature langurs (\textit{Presbytis entellus}) in encounters with leopards, a predator of this species in Ceylon (Sri Lanka)\(^3\); the responses of juvenile orang-utans (\textit{Pongo pygmaeus}) to the presence of humans\(^2\); the stick-throwing response of an adolescent female, living with three other adolescent females and one adult male, to a lion’s arrival on the island at Lion Country Safari, California (Patrick McGinnis, pers. comm.); the responses of juvenile Japanese monkeys (\textit{Macaca fuscata}) to novel objects\(^3\).

In Zaire and Guinea investigators have tested the “dehumanization hypothesis” of African ape evolution by exposing large parties of savanna and forest chimpanzees to stuffed leopards. Some of the open country chimpanzees attacked the experimental object with sticks used as clubbing tools\(^2,8,26\). Such behavior has not been observed in western Tanzanian chimpanzees during encounters with leopards in the wild and suggests that chimpanzees may distinguish between and respond differently to live and stuffed leopards.

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