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Publication of the next issue will be June 2003. Deadline for manuscripts is the end of April.

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<FORUM>

Establishing a Long-term Veterinary Project for Free-Ranging Chimpanzees in Tanzania

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Generally speaking, *Pan troglodytes* is not an endangered species. Not as the whole species. There

are still many—probably too many, chimpanzees in captivity. But situation is very different when it comes to the free-ranging communities.

The range of problems jeopardising their existence is wide: bush-meat trade in Central and Western Africa, deforestation all around their natural habitat, finally: antropozoonotic diseases, which so easily cross the inter-species barrier between human researchers, tourists and local inhabitants to the apes in forest.

There are no records of chimpanzee hunting

in Tanzania, but two latter factors combined caused the death of about 25% population of chimpanzees in the Gombe National Park in Tanzania in the last decade. Reports from the Mahale Mountains National Park also indicate recent noticeable decrease in the ape population.

Due to scale of the problem and variety of factors involved, it seems inevitable that people involved in various fields of research, conservation and education join their forces to stop this process. Because diseases, especially the anthroozoonoses, are responsible for the death of many of these animals (in Gombe at least 16 chimpanzees died due to antropozoonotic illnesses in only last 6 years), it seems important that the team includes also the veterinary component.

There are wildlife veterinarians working in Tanzania, who can be invited to collaboration, but in case of great apes some specific knowledge and skills are required comparing to working with other African wildlife.

There are three facts to explain such an opinion. First, unlike most other wildlife veterinarians, an ape doctor works on foot, following his patients around thick forest, carrying all equipment, for many hours in a row. Second, dealing with the animals of such complex behaviour and social life, it is very important to spend lot of time learning to understand their reactions to different situations, including the health disorders. In order to gather this knowledge veterinarian has to spend reasonable time just following his targets and watching them carefully for many hours. Also, especially when darting wild chimpanzees is very difficult, non-invasive sampling is a main part of practice. Again, this requires long-term, regular follows.

Third reason is due to genetical closeness of apes and humans, which means that doctor and patient can possibly share almost all pathogens, which therefore creates considerable risk for both of them. Also, because apes are closer related to people than other animals, working with them often requires close collaboration with human doctors and laboratories rather than these of veterinary medicine.

The possible solution for the problem is to establish the project specialised in working with wild chimpanzees, following the example of Morris Animal Foundation Mountain Gorilla

Veterinary Project working in Virunga National Park in Rwanda, Uganda and Congo-Zaire.

The attempts to establish similar Project for free-ranging chimpanzees have started in Tanzania in October 2001, when the Chimpanzee Health Project has been established within Gombe Stream Research Center JGI in Gombe National Park. After one year of this study, which was the pilot one, conducted without any veterinary facility yet present, lots of valuable information about such project requirements and possibilities were gathered.

The Project work consisted of four main parts:

1. *Everyday monitoring* of the chimpanzee health status, including *observation and sample collection* from both healthy and sick animals.
2. *Autopsy* of every animal—including other species, found dead in the forest.
3. *Investigation* and, in certain cases, *treatment* during general disease outbreaks.
4. *Close collaboration with TANAPA and Researchers* in order to decrease the risk of antropozoonotic and zoonotic diseases within the Park.

It included the regular *social work programs*: teaching (health seminars), vaccination in case of disease risk and general investigation to estimate the health status of the human and non-human primates living in Gombe National Park.

1. Monitoring: Observation and Non-Invasive Sample Collection

As indicated by the pilot study, if there is an ongoing research project at the site, this part of work can and preferably should be done in collaboration with researchers and their assistants.

The credits of such collaboration are substantial and mutual.

Due to the risk of antropozoonotic diseases it is highly advisable to decrease number of people in contact with chimpanzees. Involving researchers in basic veterinary monitoring and sampling seems the best policy allowing to obtain more thorough data without presence of additional veterinary assistants in forest.

Also, because of their everyday presence around animals and good knowledge of chim-

panzee behaviour, researchers of diet and range are able to notice many abnormalities sooner than veterinarian, who lacks this experience. So not only they can be help with the data and sample collection, but also may serve as the teachers for the veterinary team.

If the simple Health Monitoring Sheets are used, the basic information can be recorded on every day base and the data compared within the long period of time. These sheets should be easy to understand by the non-vet assistants and ideally always carried by them during the forest work.

On the other hand, involving veterinarian in behavioural research often helps explain certain abnormalities of behaviour connected with a disease.

Also *post mortem* findings can help understand some unusual behaviour and a vet, following the pattern of injuries and autopsy finding can help understand some facts of predatory and intra- and intercommunity aggression. In addition a material collected for veterinary purpose can be simultaneously used for other research purposes, for example urine collection for regular pregnancy testing or fecal sampling for the paternity study.

Apart from the data collected during observation, in order to obtain the clear picture of community health status, regular, everyday sample collection should also be conducted.

Non-invasive sampling is, due to the risk and difficulty involved in darting of free-ranging chimpanzees, the method of choice for gathering the biological material from this species. Unlike the sampling involving anaesthesia, it provides the regular, even everyday source of material.

Due to the rapid evolution of laboratory techniques it is also the potential basis for wide variety of different tests.

MATERIAL AVAILABLE FOR NON-INVASIVE COLLECTION FROM FREE-RANGING CHIMPANZEES:

- Feces (bacteria, virus, parasites, cytology, hormones, DNA)
- Urine (bacteria, virus, antibodies, chemistry, parasites, cytology, hormones)
- Wadge (bacteria, virus, cytology, DNA)
- Semen (bacteria, virus, DNA)

- Hair (parasites, DNA)
- Discharges: pus, sputum, exudates (bacteria, virus, parasites, cytology, DNA)
- Blood—very small amount obtainable (bacteria, virus, parasites, antibodies, DNA).

2. Autopsy

Simultaneously to being the important source of diagnostic material, autopsy work with chimpanzees creates, much bigger than in case of other species, risk for the humans involved. It is extremely important to provide the safe conditions for this work, including the separate *post mortem* room and limiting number of people who have the contact with potentially highly infectious material.

Because of many pathogens shared by different primates, and even non-primate species in forest, it is important that any animal found dead in a forest should be carefully examined and samples collected for the future laboratory testing.

3. Disease Investigation and Treatment

As in case of everyday health monitoring, investigation during disease outbreaks should also be based on non-invasive sampling. Darting should be restricted to the cases when it is absolutely necessary and no other method of work can be used instead. Apart from the risks involved and the fact that a free ranging chimpanzee would probably let himself to be darted only once in a lifetime, in some cases it has been proved that the action had led to result no different than what would anyway happen in natural way. Therefore it should always be individually considered if the risk involved in the action does not create the bigger risk than the injury itself. In case it is undertaken, the carefully calculated combination of the oral and injectable drugs should be used to minimize the danger. There are, of course, situations when anesthesia is the method of choice: for example when animal is found still kept by the snare or darting can be undertaken before the necrosis of tissue appeared.

In case when disease makes an animal very weak or unconscious, it is often possible to dart, or inject directly with the therapeutic drug (anti-

biotic, steroid, etc) without administration of anaesthetic.

Unlike in the work with gorillas, in veterinary of free-ranging chimpanzees bases mainly on the oral medicine administration, which is easier, less risky and usually not less effective.

Still this method can be used only in habituated animals and in case when they are still strong enough to be interested in food bites.

While the single case of disease in habituated chimpanzee is considerably easy to treat, it becomes much more difficult in a situation of general outbreak. It is extremely hard to monitor and administrate medicine to a big number of free-ranging animals and there is a big risk of loosing many—sometimes up to 50% of community members. Therefore it is essential to prevent such outbreaks through the policy of rules for all the people in contact with chimpanzees.

This policy includes the vaccination programs, hygiene control and education and the rules for researchers, tourists and all the people living in the forest.

List of Diseases Considered as Most Jeopardising for the Free-Ranging Apes

BACTERIAL INFECTIONS:

Shigella, *Salmonella*, *Campylobacter*, *Mycobacterium* (tuberculosis and bovis, possibly also avium), *Streptococcus pneumoniae*, very probably also *Neisseria meningitidis* and *Haemophilus influenzae*.

VIRAL INFECTIONS:

Herpes simplex, Chicken pox, Measles, Mumps, Polyo, Rota, Hepatitis A and B, Influenza viruses, Parainfluenza type 3, Resp. Syncytial virus.

PARASITE INFECTIONS:

Entamoeba histolytica, *Giardia lamblia*, *Balantidium coli*, *Sarcoptes scabiei*.

(Ott-Joslin, Zoo and wild animal medicine, Jones et al. 1984, Speare 97, Brack 87).

Of which the humans working and living within the chimp habitat should be vaccinated or tested for: Hepatitis A and B, Yellow fever,

Meningococcus, Polyo, Measles, Mumps, Rubella, and actual (at most one year old) tuberculosis test.

Apart from vaccination programs, there are certain attributes of forest work, which can be changed in order to minimize the risk of antropozoonotic infection.

As the forest animals frequently visit camp, it is extremely important that the area is clean, houses well-protected and number of human inhabitants decreased only to the necessary minimum. All residents of Park should be regularly examined in the local hospital. Examination should include the fecal and blood test in each case and additional diagnostic method suggested during the general clinical check up. Also the general vaccination program should be carefully considered.

It is also essential that during their work in forest researchers and tourist guides follow the list of rules describing quarantine, distances and time spent with animals. Only the good will and close collaboration between TANAPA and researchers can make the situation better.

4. Social work.

During the pilot study the veterinary project in Gombe has also been involved in wide variety of social work, including:

- Open health seminars for research assistants and TANAPA employees working and living inside the park. These seminars were prepared and presented together with TANAPA nurse and covered the subjects of general biology, anatomy and hygiene.
- Collaboration with TANAPA in order to create the list of animal safety rules for people working and leaving in Gombe, as well as visiting researchers and tourists. Since such list is ready, the work is concentrated on practical aspect of rules being followed.
- Collaboration in work of *GOMBE HEALTH COMMITTEE*, formed together with TANAPA directory of the Park.

It proved very beneficial for the general understanding of health issues among the people living and working in Park and seems a highly advisable component for the Chimpanzee Veterinary Project work.

Conclusions After 14 Months of Project Work

1. Chimpanzee Veterinary Project in Tanzania should be extended to *cover also other areas* where these animals live. There is about 1000 chimps in the country: Gombe—100, Mahale—700, Rubondo—40, plus chimps still living in non-protected areas, and about 90% of them are not included in the Veterinary Program.
2. The *location* of Project should be carefully considered. For the everyday work Project requires small veterinary facility, including post mortem room and basic laboratory. Because Gombe is the smallest (about 40 km²) and most crowded (about 150 people living within the Park boundaries), it does not seem the good idea to bring any more people or building there. As most of Tanzanian chimpanzees live in the Mahale Mountains NP, which is also the biggest chimpanzee habitat in the country, with the good communication (Lake Tanganyika) with Gombe, it seems to be much better place for location of Vet. Project for chimpanzees in Tanzania.
3. Collaboration. If possible, few other organisations, such as TANAPA, TAWIRI and GRASP should collaborate closely within the Project, including also a long-term co-operation with other Ape Veterinary Projects abroad, as Mountain Gorilla Veterinary Project in Rwanda and Uganda and vets working with wild and sanctuary chimps in other countries. Working together would be a great help during emergency, like general disease outbreak. Also unifying policy of work and data sheets used in different sites would allow data to be more general and comparable between the sites.
4. There should be two veterinarians, including at least one Tanzanian, to carry on the work and it also seems important for Project to be involved in wildlife veterinary education in the country.

<FORUM>

Chimpanzee Viewing and Regulation: Mahale Mountains National Park

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Background

There is one habituated group of chimpanzees in the Mahale Mountains National Park, M group, comprising some 50 upwards individuals.

This group is exploited for various purposes:

- 1) As research subjects for the continued Kyoto University research project, which requires the continuous presence of observers on a daily basis.
- 2) As attractions to an increasing number of tourist visitors, most of whom are hosted by Greystoke camp during the tourist seasons of June–October and December–March.
- 3) As subjects for film documentary makers, who require detailed footage of chimpanzee behaviour over extended periods.

All these “users” are of benefit to the project, park and conservation as a whole in various ways, providing publicity for important conservation issues, advanced primatological and ecological data, and revenue for the park itself—all have a crucial role to play.

However, they all also compose a threat to the chimpanzees and the project. This can be simply described as that of stress and infection.

There is therefore a clear need to begin taking a more pro-active role on the regulation of chimpanzee viewing in the forest so that the risks above can be minimized.

Areas of Regulation

1. The introduction of a minimum viewing distance rule
2. The restriction of numbers of chimpanzee viewers
3. The restriction of hours of chimpanzee viewers
4. Other rules
5. Introduction of code of behavior

These areas of regulation are not revolutionary, and I am not here trying here to assess their value, which I think is fairly well-understood and agreed upon. I have taken this opportunity to examine them carefully, assess whether they are practical, and make further suggestions.

1. Distance Rule

Prior to taking tourists chimp viewing, we now voluntarily supply a chimp briefing. One of the main issues this covers is the need to keep 5 m distance from the chimpanzees to avoid risks of stress and infection. The tourists have been found reasonably willing to accept this and adhere to it, but it is not easy to maintain in situ.

Problems

- 1) Some others viewing the chimpanzees (some other tourist groups, some film crew staff, some researchers, some park guides) do not adhere to the rules, thus invalidating our reasons for it, and therefore, our authority
- 2) The chimpanzees are very mobile, and often approach much closer than this rule allows

Solutions

- 1) A commitment by everyone to keep this rule. The researchers and research team, rangers and trackers particularly (that is, the “experts”) need to set an example to the visitors: the tourists and film crews, and become self-regulating.
- 2) The distance, set originally for gorillas, who are much less active, should be increased. 5 meters distance for a very mobile chimpanzee is actually still very close. Eight meters would be more than adequate for a visitor to still have a quality experience, and would allow the chimps more room for maneuver.
- 3) An acceptance that this distance rule isn't merely set for static viewing, but also for when following chimps on paths—or moving through the forest. The most obvious infringements occur when trackers, researchers, rangers, and tourists walk past the chimps on the path.

2. Restriction of Viewer Numbers

Problems

We now rigidly restrict to maximum six tourists

per group from our camp but frequently meet many, many more people when viewing, whether these are other tourist groups, or those connected with research and park maintenance. Furthermore, we require a park ranger plus a tracker and our own guide, and often, a trainee, swelling our numbers in a group immediately to 10.

Solutions

We should encourage TANAPA to take a firm hand concerning which tourist/film/visitor groups are allowed in the forest, when, and for how long. There still appears to be unrestricted access for all. We currently have to negotiate amongst ourselves to avoid bumping into other visitors. This is not always successful.

Film crews must be regulated somehow, not only on their distance and behavior in the forest, which is generally more intrusive, but when they are permitted to film. As they require full day and general access, should they be restricted to off peak tourist season—or on days when tourists are present should they be required to withdraw during the tourist slots?

Numbers of “professionals” viewing chimps must be regulated. No one should be viewing the chimpanzees who does not have a good reason and purpose. To help us with this, all “staff”, whether guides, researchers, trackers, rangers should be issued with appropriate uniforms and badges. Sponsorship can supply these. Research teams, camps and TANAPA could all agree quotas of how many permits (badges) can be issued and used at any one time.

Efforts should be made on the part of rangers and tourist trackers to follow individuals not being followed by the research. More communication from the researchers on their preferred subjects, where possible, on the day would help the rangers/trackers identify their “targets” for that day and keep out of the way of the research, and vice versa. Some efforts are made towards this already and it is reasonably successful. A bit more effort on all sides would solve this. Some allowances should be made for the fact that tourists get their most exciting viewing when observing the high-ranking males, more specifically the alpha male.

Long term, high grade TANAPA employees need to be trained as professional trackers/

guides/rangers so that numbers accompanying tourist group can be reduced to one or two at most. This would require language training, forest discipline, chimpanzee behavior, forest navigation, first aid and general guide etiquette. Within our staff, we have already embarked on training our own trackers and guides in the absence of qualified personnel from TANAPA.

Most importantly, if Mahale is to generate good revenues and continue to satisfy visitors to its full potential, a new project needs to be put in place to habituate a new group of chimpanzees to relieve increasing pressures on the one study group. The new group could be reserved exclusively for one or two interest groups.

3. Restriction of Hours of Viewing/Visits Problems

A tourist may have started viewing the chimps then the chimpanzees will move and viewing will stop.

Group size relieves pressure but multiple groups in the forest becomes hard to coordinate and messy, often affecting the quality of chimpanzee viewing.

Solutions

A tourist group will be given a time slot within which they can view. Ideally this should be the only morning or the only afternoon slot. There should be two slots available per day. Within that slot they will be permitted one–two hours of viewing. If it is continuous viewing, one hour is plenty, if the chimps are particularly mobile this should be extended to two hours and possibly monitored with a stop-watch.

Restrict number of tourist groups per day to two.

A re-evaluation of park fees could encourage visitors to come to Mahale, while restricting chimpanzee access. This could involve payment of a reduced park entry fee, coupled with a specific chimping permit for desired visits to the chimpanzees.

4. Other Regulations

- a) No eating
- b) No smoking
- c) No defecating

In emergency, hole should be dug 50 cm deep. Researcher etc should carry a trowel.

- d) Disinfecting of shoes?
Best choice of non-toxic disinfectant-trays in exit points, disposal effects etc.
- e) No flash photography
- f) No beepers etc on cameras
Cameras and electronic equipment with alarms etc can be noisy—disturbing general level of peace, and probably added chimp stress.

I do not see any great problems here.

5. Regulations and Code of Behavior

General guide to manners in the forest—posted on guides huts, Bandas, research posts, camp tents etc etc—about no shouting, restricted movements etc etc.

No real problems here just dissemination of information which would encourage the visitors to support the rangers keeping regulations.

A Final Problem

The biggest problem I see in implementation of all of these rules, even once they are agreed upon and laid down is that this is not a new project, and old habits die hard. We are looking at some quite serious re-education and commitment to these regulations if they are to have any success at all, particularly amongst the entrenched stakeholders, officials and staff.

<NOTE>

New Record of Algae Feeding and Scooping by *Pan t. troglodytes* at Lokoué Bai in Odzala National Park, Republic of Congo

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Introduction

Odzala National Park is in the north west of the Republic of Congo (0°23'–1°46'N; 14°16'–16°40'E). At 13,600 km², it is one of the largest protected areas in central Africa. The vegetation in the park is a mosaic of savanna and forest islands in the south, and in the north is an evergreen rain forest with large areas of Marantaceae and many natural clearings, commonly called *bais* (1, 2). Primate censuses conducted in 1994–1995 showed the park to contain one of the highest known densities of chimpanzees (*Pan t. troglodytes*) with a mean density of 2.2 individuals/km² as well as a high population density of gorillas (*Gorilla g. gorilla*) which is up to 10.3 individuals/km² (3). Since April 2001, a long-term survey of the gorilla population visiting a *bai* close to the Lokoué River has been done by S.G. and F.L. From November 2001, C.D. has studied the use of the forest surrounding the clearing by the same gorillas. Forest clearings in the Odzala National Park are usually not visited by chimpanzees (2). However, in November 2001, we saw for the first time chimpanzees entering the Lokoué clearing. This note reports their harvesting of algae.

Observations

Observations were made from a hide located at the edge of the forest, using 10×40 binoculars and a 20–60× telescope, at an average distance of 180 m. On 3 November (during the main rainy season), three male chimpanzees entered the clearing at 11.24 hr and quickly walked to a small flood pool. They were clearly identified by distinctive physical characteristics. One of them stood quadrupedally while the two others sat by the water. Two chimpanzees, using their fingers, removed the algae filaments from the pool and ate them by putting their fingers into their mouth. The third chimpanzee, who was sitting uprooted a whole (about 20 cm long) herbaceous plant, a sedge (Cyperaceae) and clipped off the head, using his incisors, leaving the stem. He held the stem between the third and the fourth digit and immersed it into the water, withdrew it, then cautiously put it to his mouth, the stem covered with green algae. When he walked from one pool to another, the chimpanzee carried the tool between his pursed lips. The three chimpanzees spent 71 min at the clearing, and most of

this time was devoted to algae feeding.

The same three individuals were later seen on 4 November (12:57–13:53 hr), and on 6 November (11:38–13:16hr), the tool-using male performing the same scooping behaviour while the two others still feeding using their hand. On 4 November, the tool-using chimpanzee left the clearing with a tool in his mouth.

Discussion

Overall, chimpanzees were seen at the *bai* on 6 out of 442 observation days. This is the first record of algae-feeding and algae-scooping at a forest clearing. Feeding on algae has been seen in chimpanzees at Bossou, Guinea (4) and for one individual at Mahale, Tanzania (5). At Bossou, chimpanzees use tools (twig or grass stem) to scoop algae from a pond surface but they hold it in one hand instead of keeping it between their fingers. Curiously, feeding on algae has never been seen in gorillas despite their recurrent visits to the clearing. However it was seen in black and white colobus (*Colobus guereza occidentalis*).

The use of tools to fish for insects is well known in many populations (6). Chimpanzees of the Lossi sanctuary, 90 km south of Lokoué *bai*, have been repeatedly seen to use complex tool-sets to fish for termites and honey (7). Eating and fishing for algae at Lokoué is probably rare due to the scarcity of pools where algae grow. Moreover, the formation of such pools is restricted to the rainy season. Any new record of the presence of a particular behavioural pattern improves the comparison of behavioural repertoires across the different chimpanzee populations across Africa (8).

We thank the ECOFAC program for support, logistics and permission to work at Odzala National Park, especially JM Froment, L Ndahiliwe, all members of the ECOFAC Composante Congo and the staff of Lokoué *Bai*. The gorilla study is supported by the Institut Français de la Biodiversité, the National Geographic Society, the Université de Rennes-1, AGRECO-GEIE (European Union) and the Institut Royal des Sciences Naturelles de Belgique. We thank A Gautier-Hion, N Ménard and an anonymous referee for their comments and suggestions on earlier versions of the text.

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Kasakela community of Gombe that scratch socially during my short visit in the park. This paper reports new observations and discusses some features of social scratch in Gombe by comparison with the behavior in Mahale.

Observations

I visited Gombe and sampled behavioral data of chimpanzees of the Kasakela community (2) from 27 October to 1 November using a digital video camera. My purpose was to compare chimpanzee behaviors between Mahale and Gombe. The Kasakela community included around 50 individuals when I was there (M. Lukasik and E. Greengrass, pers. comm.). I videotaped chimpanzee behaviors by the *ad lib.* sampling method for 14.1 hrs, during which I recorded grooming for 3.58 hrs as total accumulation of social grooming of each individual. During my observation, field assistants or a researcher identified the individuals for me. A list of names, ages, and family lines of individuals was also made available through the kindness of Dr. S. Kamenya, chief investigator of the Jane Goodall Institute in Gombe. For data analysis, I used the same definition as (1) for a bout of social scratch, in which one bout was defined to be separated from another by other elements of grooming (e.g. stroke or pick). Total grooming hours were calculated by accumulating grooming time in which one individual groomed another. Frequency of social scratch was calculated by dividing the number of social scratch bouts by total grooming hours.

Seventeen individuals were observed to groom socially. Table 1 shows the total grooming hours of 6 individuals who groomed for a relatively long time (more than 0.2 hrs). At least 3 individuals (GL, FN, and an unidentified individual) performed social scratch during these observations. Social scratch was observed only when they were grooming another individual. The response of the recipients to social scratch seemed to be “no-reaction”. The frequencies of social scratch per grooming hour by GL and the unknown individual seemed higher than that of the individual who showed the most frequent social scratch in Mahale. I could not determine whether other individuals also performed this behavior due to the short observation time.

<NOTE>

Social Scratch among the Chimpanzees of Gombe

Masaki Shimada

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Nakamura and others (1) reported that the behavioral pattern of “social scratch” is common among the M group chimpanzees of the Mahale Mountains National Park, Tanzania, but it's not found among the chimpanzees of Gombe National Park, which is located 150 km north of Mahale, despite more than 40 years of the field work. However, I found some chimpanzees in the

Table 1. The List of Individuals Who Groomed Socially More Than 0.2 hrs and One Unknown Individual Who Showed Social Scratch.

	Names	Sex	Year of birth	Total grooming hour (hrs)	Number of social scratch (bouts)	Frequency of social scratch per grooming
Gombe	GL	m	1977	0.64	54	83.83
	TB	m	1977	0.20	0	
	AO	m	1979	0.88	0	
	FE	m	1992	0.28	0	
	FF	f	1958	0.38	0	
	FN	f	1981	0.25	2	
	unknown*	?	?	0.14	4	29.56
Mahale	MJ**	f	1980?	3.32	88	26.54

*: An adult individual, not GL nor FN, whose name and sex was not ascertained.

** : An individual who showed social scratch most frequently in Mahale (1).

Discussion

The context and the reaction of the recipients of social scratch in Gombe seemed to be the same as those in Mahale (1). Each of these observations was made only when chimpanzees were grooming socially, and recipients showed no positive reaction to the received social scratch.

Nakamura and others (1) argued that most adult individuals in Mahale perform social scratch. All of 6 individuals in Gombe that groomed more than 0.2 hrs were older than 10 years. Two of them (GL and FN) performed social scratch, while the rest of them were not observed to do this. This result suggests that not all of the adult individuals of the Kasakela community in Gombe perform social scratch at this time, while it is thought to be very common among the adult individuals of the M group in Mahale. On the other hand, two performers in Gombe (GL and unknown) seemed to scratch socially more frequently than performers in Mahale (Table 1). The performer who socially scratched most frequently in Mahale was MJ, and the frequency was 26.54 social scratches per grooming hour (1). GL and the unknown's frequencies of social scratch (83.83 and 29.56, respectively) were higher than even the highest value in Mahale.

Although McGrew and Marchant (1) investigated hand laterality of Kasakela chimpanzees

from September to December 1992, they never observed social scratch. If no chimpanzee of the Kasakela community performed social scratch or the frequencies were too low to be observed 10 years ago, these three performers (or more) must have somehow acquired the behavioral pattern or their frequencies must have increased significantly over the past 10 years. Two hypotheses can explain the acquisition process (3): 1. The three chimpanzees acquired it independently, thus by individual learning, 2. They acquired it by social learning. Hypothesis 2 can explain this case better than 1, because it is unreasonable to think that they learned their behavior one-by-one independently where the behavior had not existed at all. Some kinds of social learning are thought to promote the propagation of the behavioral pattern in the community. Furthermore, the variation in the social learning may affect the different features of social scratch as discussed above between Gombe and Mahale.

If the above hypothesis 2 is the case, the process of social learning and acquisition of the new behavioral pattern are in progress in the Kasakela community, and it is worth studying the concrete process of the phenomenon because cases of social propagation of cultural behavior are very rare in the animal kingdom (4).

In order to answer the question of whether the pattern of social scratch in Gombe and Mahale

are the same, we have to investigate how many chimpanzees in the community perform social scratch and what kinds of social learning sustain its propagation. Researchers who are interested in the behavior of social scratch in other fields should study the chimpanzees in Gombe.

This study was financially supported by a MEXT Grant-in-Aid for Scientific Research (Basic Research A1, #12375003 to T Nishida). I received many constructive suggestions from M Nakamura.

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<NOTE>

Competition between Baboons and Chimpanzees at Mahale.

Toshisada Nishida

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It appears that the yellow baboons of Kasoje have recently increased in number and expanded their ranges enormously at the cost of the M group chimpanzee range (1, 2). The question of why they have expanded their ranges is addressed here. Before the national park was established, there were only two baboon troops at Kasoje, one in the southern region and the other in the northern region. The northern troop's range, which S. Uehara and I had studied in 1973–74, was very narrow and limited to the open areas

along the shoreline of Lake Tanganyika (Fig. 1) (3). Kasiha Village was at the northern limit of the troop range, and since villagers were antagonistic to crop-raiders, baboons did not penetrate more deeply into the Kasoje area at that time.

After the resident people moved out of the park area in 1975, baboons did not face any obstacles to expanding their ranges. Moreover, fruit trees such as oil palms, mango trees and guava trees, formerly protected by the villagers, suddenly fell into their possession. In particular, oil palm fruit, which is highly nutritious, became their favorite food item. Now, five to six, instead of two, baboon troops reside within the M group study area (5). They also began to invade the interior forested areas, which they had never used before (Fig. 1). In the early 1990s, I noticed food remnants such as chewed stalks of elephant grass along the path from Kasiha Village to Kansyana Camp, 1 km inland from the lake. In April, 1992, baboons came to the Kansyana Camp and stole dried fish from the camp kitchen (Uehara, unpublished). In 1995, baboons first fed on the fruits of the *Pseudospondias* tree, which had been used only by chimpanzees before (2). In October 2002, they reached as far as the G4-1 point (* in Fig.1) and began to eat *Garcinia* fruits, which were the M group chimpanzees' major food resource in the late dry–early rainy season.

One possible consequence of the baboon invasion is more frequent use of the higher part of the range by M group chimpanzees. Although the long-term changes in the range use pattern of chimpanzees has not been systematically studied, the drastic decrease in some food plants such as *Harungana madagascariensis* has already been noticed in 1992 (Uehara, unpublished) (4). Therefore, both baboon invasion and vegetation changes would be responsible for the more extensive use of the higher part by chimpanzees. In 1994, we had to cut a new trail, Route 7, known as the "Skyway", above Route 6, then the highest trail, in order to follow chimpanzees. From May to July 1994, it was impossible for us to study chimpanzees without this new trail.

It is likely that baboons are winning the competition with chimpanzees. First, baboons have a wider food repertoire than do chimpanzees. Baboons eat almost all of the major foods of the

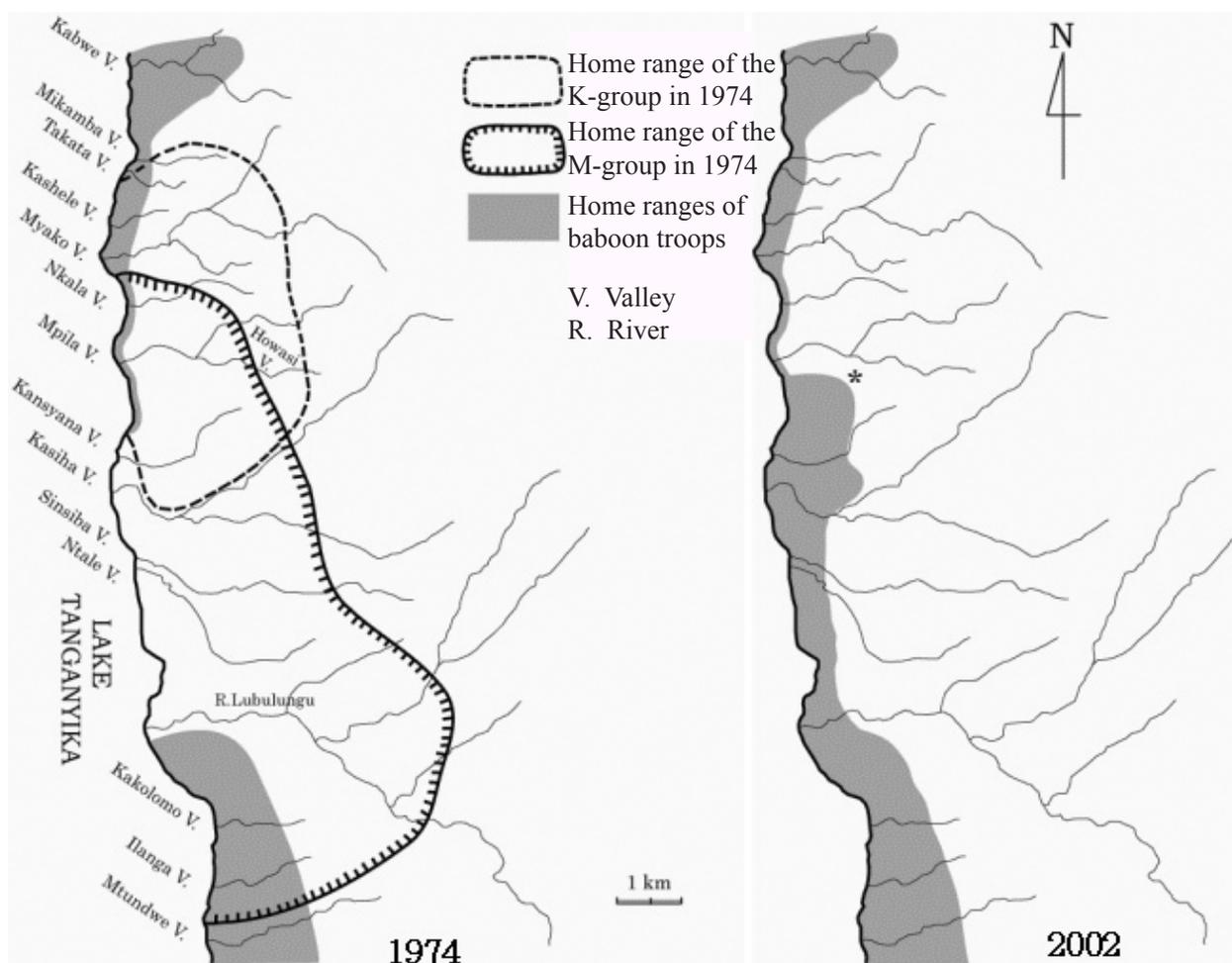


Figure 1 Expansion of the range used by baboons 1974–2002 (Estimate)

* G4-1 point

M group chimpanzees (Table 1). According to Matsumoto-Oda and Kasagula (1), during their two-month study period in 1998–99, baboons ate 36 species of plants, while chimpanzees ate only 18 species. Moreover, baboons can ingest even unripe fruits, while chimpanzees mostly eat only ripe fruits. This dietary difference in effect deprives the chimpanzees of several food sources they previously enjoyed. For example, although chimpanzees used to eat mango fruits in the 1980s, they have not been observed to do so for at least the past five years.

Should we assume that this takeover of chimpanzee ranges by baboons is a completely natural process? I do not think so.

First, of course, oil palms and mango trees are not indigenous but were planted by humans. Second, I speculate that the recent invasion of the chimpanzee range by baboons has been facil-

Table 1. Major Food of Chimpanzees Shared by Baboons

FRUITS 6/9 species

Cordia millenii
Ficus sur
Ficus urceolaris
Ficus vallis-choudae
Garcinia huillensis
Saba florida

LEAVES 3/5 species

Baphia capparidifolia
Ficus exaperata
Ficus urceolaris

PITHS 2/2 species

Pennisetum purpureum
Aframomum albviolaceum

Compiled from (6), unpublished data, and (1).

itated partly by the widening of observation paths for the convenience of tourists. The park tourism strategy appears to have provided an opener and dryer environment that is more conducive to baboon survival.

Therefore, I would suggest the following tentative solutions:

1. Cutting down oil palm groves that are likely to lead baboons to the core feeding area of the M group chimpanzees.
2. Keeping the widths of observations paths as narrow as possible (less than 1 m).

Oil palms are most nutritious food of baboons introduced by humans. Since chimpanzees of M group do not eat them, the destruction of oil palms would have little, if any, influence on the nutritional status of the chimpanzees.

I want to point out that baboons influence the ecosystem in another aspect. Chimpanzees eat the pulp of fruits such as *Cordia*, swallow the seeds, and eliminate them in defecation; as a result, some of these seeds germinate after being transported by the walking and digesting chimpanzees (Fig. 2). In contrast, baboons not only eat fruit pulp but also ingest kernels inside the hard seeds of *Cordia* recovered from the feces of chimpanzees (Fig. 3). This can hinder the seed dispersal by chimpanzees and thus deter their contribution to forest-regeneration. For baboons, however, such a transformation would be adaptive to them because it would make the habitat more savanna-like, since *Cordia* is a forest tree. However, the degree of influence this baboon habit has on the

ecosystem cannot be estimated without detailed research.

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Figure 2 Seedlings of *Cordia millenii* which germinated from chimpanzee feces.



Figure 3 Seeds of *Cordia millenii* which were evacuated by chimpanzees and then destroyed by yellow baboons.

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<NEWS>

Human Baby Killed by Gombe Chimpanzee

*Shadrack Kamenya
Gombe National Park*

At Gombe National Park, Tanzania, a tragic incident occurred on the 15th of May, 2002. A human baby, 14 months old, was kidnapped and killed by an adult male chimpanzee.

The mother and her baby were coming into Gombe from their village of Mgaraganza which is outside the National Park. She was accompanied by her niece, aged 16, who was carrying the baby. They were walking on a public footpath which runs through the Park, and about 11:20 am, when they were still about three kilometers away from the research camp at Kasekela, they passed through the forest near the shore at Kahama. They had just crossed a small dry gully, when they came unexpectedly on the alpha male of Kasekela community, Frodo, just 4 metres from the path, where he was feeding on oil-palm fronds on the ground.

The chimpanzee approached the two women, and at that distance they had no time to run and were too weak to do anything to protect their child, so he took the baby from the girl's back, and moved off into the forest. When he was next seen, by one of the researchers, he was in a tree and the baby was dead, but after eating only a

little portion he left the baby on a branch, descended the tree, and moved away, apparently to avoid the observer. Luckily the male was alone with no other chimps around, and so the researchers were later able to retrieve the baby's body.

The fact that members of the public are allowed to use paths through the park, and the fact that some of those people have not remained alert to the danger from chimps, were contributory factors to this incident. We are continuing to enforce the safety rules as well as explaining to staff and to visitors what the risks are and how to avoid them.

Frodo is not scared of people and sometimes includes them in his displays, by hitting or pushing them, but researchers and Park guides can usually tell by the signs that he is going to do this, and help people to avoid him. This aspect of his behaviour is in a way like play, but of a rough sort. However, Frodo's behaviour during this incident seemed more to be part of the natural hunting behaviour of chimpanzees: it seems they can view human babies just as they view the young of other species such as colobus monkeys and baboons, as potential prey. This was not the first case of human babies being taken by chimps in the Gombe area, but it was the first within the Park and the first involving a habituated chimp of the research community. We hope very much it will be the last.

<EDITORIAL>

A Request for Conservation NGO/NPOs: For the Great Apes' "World Heritage Status"

Dear Madame/Sir:

Prof. Toshisada Nishida, the former President of the International Primatological Society, in collaboration with others, has launched a project to award the great apes "World Heritage Status" in order to prevent their extinction. For more detailed information on the project, please see *PAN* **8 (1)** and **8(2)**.

In order to obtain World Heritage Status for the great apes, we are collecting information on

NGOs/NPOs who are working to conserve any of the great apes and their habitats. Compiling information on NGOs/NPOs is important to negotiations with UNESCO because we will be able to show them how many people and organizations are actually involved in the effort to conserve the great apes. Therefore, we would be very happy if you could answer the questionnaire below about your conservation NGO/NPO and send it to the PAN editorial office at your earliest convenience.

The information you give us will be used only for the above purpose. We will send you news of our progress in the near future and also ask for your input when making the preamble of the World Heritage Species Status.

Answering the questionnaire does not necessarily mean that you positively or wholly support this project (though of course we would be happy if you do so). In other words, we are not asking you to make a quick decision on whether you are for or against this project, but simply we need the basic information on your NGO/NPO to demonstrate the breadth of interest in the fate of the great apes; we do not purport to speak on behalf of any other group or individual.

We would also appreciate it if you could provide us information on other NGOs/NPOs that are working for the preservation of the great apes in order to compile a comprehensive list. You do not have to resend your reply if you have already sent it to Dr. Michio Nakamura by e-mail.

Thank you for your cooperation and any assistance you can provide.

Yours sincerely,
PAN Editors

Your answer should be sent either by e-mail to:

PAN@jinrui.zool.kyoto-u.ac.jp

or by snail mail to:

PAN Editorial Office, c/o T. Nishida, Dept. of
Zoology, Kyoto Univ., Kyoto, 606-8502, Japan

[QUESTIONNAIRE]

- a) Name of organization:
- b) Nationality of organization:
- c) Name of representative person:
- d) Name of contact person for correspondence if different from c):

- e) Mailing address:
- f) E-mail address:
- g) Web site if available:
- h) Name of periodical publication if available:
- i) Number of members:
- j) Country(s) of activity:
- k) Area(s) of activity:
- l) Focus of conservation (within 4 great apes):
- m) Recent activities:

[EXAMPLE]

- a) Name of organization: Mahale Wildlife Conservation Society
- b) Nationality of organization: Tanzania
- c) Name of the representative person: Hosea Y. Kayumbo & Toshisada Nishida
- d) Name of contact person for correspondence if different from c): Toshisada Nishida
- e) Mailing Address: c/o T Nishida, Dept. of Zoology, Kyoto Univ., Kyoto, 606-8502, Japan
- f) E-mail address: PAN@jinrui.zool.kyoto-u.ac.jp
- g) Web site: <http://jinrui.zool.kyoto-u.ac.jp/PAN/>
- h) Periodical publications: Pan Africa News
- i) Number of members: ca. 100
- j) Country(s) of Activity: Tanzania
- k) Area(s) of Activity: Mahale and western Tanzania
- l) Focus of conservation (within 4 great apes): Chimpanzee (*P t schweinfurthii*)
- m) Recent Activities: Elimination of alien plants, Environmental education, Community conservation, Assistance to local researchers.

<LETTER TO EDITOR> Orphanage of Great Ape Babies

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Background

The forests of eastern Democratic Republic of Congo are home to 96% of the world's eastern lowland gorillas (*Gorilla gorilla graueri*) and large populations of chimpanzees (*Pan*

trogodytes schweinfurthi); however instability resulting from the war in the eastern Congo (former Zaire), has led to a slaughter of a large number of these great apes. In the montane sector of Kahuzi-Biega National Park, a recent gorilla census done in 2000 (Omari, Wildlife Conservation Society, unpub. data) revealed half of the population was killed for meat. Only 130 gorillas have survived from the 258 individuals counted in 1996 (Inogwabini et al., *African J. of Ecology* **38**:269–276, 2000). In addition, poachers illegally bring many gorillas and chimpanzees babies to cities in the region such as Bukavu. Kahuzi-Biega Park staff in collaboration with the Centre de Recherche en Sciences Naturelles (Lwiro) has launched a campaign to search and confiscate ape babies brought by the poachers to Bukavu and has created an orphanage at the CRSN (Lwiro) station. The orphanage project has already received six chimpanzee babies. The poachers have been seriously punished and brought before the courts to be judged and jailed.

Aim of the Orphanage Project

In confiscating those animals from the hands of poachers and bringing them before the courts where they pay high amends, we hope to discourage poaching activity of these endangered species at the brink of extinction in the great lake region. This is a conservation effort seen as a part of a systematic approach at regional and local scale. The Orphanage Project is another part of this approach. The goal of the Project is to keep the confiscated ape babies in a protected, but healthy environment until they are old enough to live freely in the forest without special care. The park accepted this plan to reintroduce them into Kahuzi-Biega. However, we will need assistance from other specialists to achieve this task.

Funding Support Required

We have been receiving some assistance (\$50 US per month) from the park to launch the project, but this is not enough to support the daily living cost of the six animals we now have in the orphanage. In addition, this support from the park will stop at the end of July 2002 and renewal is not guaranteed. We are now looking for an additional financial support for our Orphanage Project. Our hope is that the inter-

national community, which focuses on animal conservation and especially great apes, might support our effort to bring back hope to these threatened animals. We urgently need approximately \$5,900(US). This support would be used for rehabilitation of the housing and much needed equipment (\$1,400 US); an education campaign (\$900 US) and daily living costs (\$3,600 US), including food, care and medicines for eighteen months.

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Baby Chimpanzees in the Orphanage at Lwiro
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