Pan Africa News

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

JUNE, 2006 *Vol. 13 , No.1*

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 (*Pan troglodytes*) and bilias (*P. paniscus*). Contributors are requested to write in English and the papers except forums, reviews and essays should usually be 1,500 words or less. Manuscripts should be submitted by e-mail to:

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

Photos and figures, however, should be sent by air mail to: T. Nishida, Department of Zoology, Graduate School of Science, Kyoto University, Kitashirakawa Oiwakechou, Sakyo, Kyoto, 606-8502, Japan.

Publication of the next issue will be **December 2006**. Deadline for manuscripts is the **end of November**.

CONTENTS:

<NOTE>

New Evidence of Honey-Stick Use by Chimpanzees in Southeast Cameroon.

Deblauwe Isra

1. Centre for Research and Conservation (CRC), Royal Zoological Society of Antwerp (RZSA)

2. University of Antwerp (UA), Department of Biology

INTRODUCTION

The use of sticks to obtain honey by chimpanzees is widely known[1, 2, 3, 4, 5, 6, 7, 8]. Both arboreal and underground nests of stinging (*Apis* sp.) and stingless bees (Meliponini) are opened to extract the honey, often together with larvae, pupae and adult bees. Chimpanzees can dig for honey with their hands[3], but often use one tool[4, 7, 8] or a tool-set[2, 5, 6]. This tool behaviour varies across sites and within sites across bee species[4, 5, 7, 8]. It is important to continue recording tool-use at new sites, as it will enlarge our knowledge about different tool technologies and cultural variations among chimpanzee populations[8].

The present study reports the first evidence of stick use to obtain honey at the northern periphery of the Dja Biosphere Reserve (DBR) in Southeast Cameroon.

STUDY SITE AND METHODS

The study site ("La Belgique") in Southeast Cameroon, at the northern periphery of the DBR (13,11°-13,17° E and 3,37°-3,45° N) is officially unprotected and situated in the southwest corner of the logging concession 10 047 of the Fip.cam company. Secondary forest covers more than half of the area. The density of chimpanzees is conservatively estimated at 0.9 individuals/km² [9]. They are not habituated to human observers. Indirect data were collected during chimpanzee tracking and other activities from April to July 2002, May to August 2003 and September 2004 to April 2005.

RESULTS

Twice (April 2002 and June 2003) evidence of chimpanzees digging for honey of stingless bees (Meliponini) was found along chimpanzee traces (footprints) in the study site, next to which no tools were found. Probably chimpanzees dug for honey with their hands. Pieces of the bee nest, with honey and chimpanzee hair sticking on them, were lying next to the holes. Both traces were less than one week old.

Four times (December 2004 (2 sticks), February 2005 (2 sticks), April 2005 (5 sticks) and April 2005 (4 sticks)) honey digging sticks were collected at holes in the ground during chimpanzee tracking (Tab. 1). In total 13 sticks were found next to (12 sticks) or still fixed in (1 stick) four underground bee nests. The sticks were less than one week old. They were straight and sturdy and sometimes both stick ends were used. The plant species used as materials were: *Oxyanthus* spp. (23%, *O. unilocularis* and *O. speciosus*), *Rinorea* sp.

Tab. 1. Measurements of the holes, sticks, remaining stalks and discarded top pieces of the honey digging traces (mean ± standard deviations, number and range between brackets).

	Depth/Length (cm)	Diameter (cm)	Distance to hole (m)
Hole (n = 4)	47.3 ± 16.9 (25 – 65)	9.8 ± 6.4 (3 – 18)	
Stick (n = 13)	69.7 ± 13.7 (50.0 – 94.5)	1.41 ± 0.27 (0.95 – 1.82)	
Remaining stalks	92.8 ± 43.4 (55 – 166) (n = 9)		2.2 ± 1.1 (0.1 – 3.0) (n = 11)
Discarded top pieces (n = 9)	124.6 ± 51.0 (85.7 – 264)		2.2 ± 0.8 (1.0 – 3.0)

(15%), *Maesobotrya klaineana* (15%), *Alchornea floribunda* (8%) and unknown species (39%). Seven sticks (54%) had one (5 sticks) or two (2 sticks) brushes. The remaining stalks and/or discarded top pieces of 11 sticks were found back (Table 1). At two sites also a bigger stick was found next to the hole with on one side clumped soil, which seemed to be caused by digging. One stick was very long (2.3 m long and about 4 – 5 cm of diameter) and had a side branch starting in the middle. It was the remaining piece of a small tree (*Maesobotrya klaineana*), cut a long time ago by a tracker with a machete (this honey digging site was found on one of our transects). According to the trackers the chimpanzees used the sharp end of this cut stem to make or enlarge the hole in the ground. The other big stick was also more than 1 m long and about 4 cm in diameter and seemed to be used by the chimpanzees, though the trackers were not sure of this.

Of 138 faecal samples analysed (methodology see 10), only four (3%) contained heads of Meliponini bees. The abundance score was rare (3 faecal samples) or few (1 faecal sample).

DISCUSSION

No evidence was found of feeding on honey of *Apis* sp. or stingless bees in trees, which chimpanzees do at most other sites[4, 5, 6, 7, 8]. Chimpanzees in the periphery of the DBR only seem to use tools to dig for honey from stingless bee nests underground. Still, *Apis mellifera* is present at our study site (pers. obs.). First, the raiding of bee hives in trees could have been overlooked as chimpanzees are not habituated and could not be followed continuously, and the tools might have been left in the tree, which is easy to miss. Second, chimpanzees may take honeycomb pieces from undisturbed beehives in trees with their hands[3], what does not leave many traces. Third, the few heads of stingless bees found in the faecal samples were not identified to genus or species and might be from species nesting in trees. Still, the lack of *Apis* heads in the faecal samples suggests that chimpanzees do not eat honey from *Apis* hives in trees.

The honey digging sticks found in this study are similar to sticks found in Gabon[5] and Uganda (Bwindi)[7] to get honey from *Meliponula* and/or *Apis* hives in trees, and to those found in Central African Republic (CAR)[8] to get honey from stingless bees underground. At other sites, tools used to dig for honey of stingless bees underground are much shorter[1, 4]. The difference in tool characteristics for underground beehives between the sites is interesting in terms of cultural variation.

Since not all long brush ends were used, they did not seem to be manufactured by the chimpanzees. Still, at all four sites at least one brush end was inserted in the hole, next to compacted ends. Therefore, we cannot exclude the possibility that brush ends might have a special function to absorb honey[5].

The two big sticks found next to the smaller sticks at two honey digging sites are longer but similar in diameter to the stout chisels found in Congo[6] and the large tools from CAR and Congo[4]. Since they were found together with the smaller sticks and were as old, it could be that chimpanzees used them as a tool-set (in the same bout in sequence) to obtain honey. This, together with the possible special function of the brush sticks, would represent the first tool-set (of two or three tools) to dig for honey from underground bee nests. However, more evidence needs to be collected to be able to speak of 1) cultural variation in bee species eaten and in tool-use, and 2) honey tool-set use by chimpanzees at the periphery of the DBR. Still, this small contribution to the available data on honey extraction shows how widespread and complex this behaviour can be.

ACKNOWLEDGMENTS

The author thanks the RZSA, Durell Wildlife Conservation Fund, the logging company FIP.CAM, MINRESI (Ministère de la Recherche Scientifique et de l'Innovation, Cameroon), MINFoF (Ministère de Forêt et de la Faune, Cameroon) and the 'Service de Conservation de la Reserve de Faune du Dja' for supporting this project. Fieldwork was funded by the L.S.B. Leakey Foundation, the King Leopold III fund for Nature Exploration

and Conservation (RBINS), the Flemish Inter-University Council (VLIR), the Father Louis Bruyns Foundation (UA) and the Fund to Promote Scientific Research in Africa (NBG, Meisse). The first author was supported by a grant (BOF) from the UA and the RZSA and thanks the Flemish Government for structural support to the CRC of the RZSA.

REFERENCES

1. Yamagiwa J, Yumoto T, Ndunda M, Maruhashi T. 1988. Evidence of tool-use by chimpanzees (*Pan troglodytes schweinfurthii*) for digging out a bee-nest in the Kahuzi-Biega National Park, Zaïre. *Primates* 29:405-411.
2. Brewer SM, McGrew WC. 1990. Chimpanzee use of a tool set to get honey. *Folia Primatol* 54:100-104.
3. Boesch C, Boesch H. 1990. Tool use and tool making in wild chimpanzees. *Folia Primatol* 54:86-99.
4. Fay JM, Carroll RW. 1994. Chimpanzee tool use for honey and termite extraction in Central Africa. *Am J Primatol* 34:309-317.
5. Tutin CEG, Ham R, Wrogemann D. 1995. Tool-use by chimpanzees (*Pan t. troglodytes*) in the Lopé Reserve, Gabon. *Primates* 36:181-192.
6. Bermejo M, Illera G. 1999. Tool-set for termite fishing and honey extraction by wild chimpanzees in the Lossi Forest, Congo. *Primates* 40:619-627.
7. Stanford CB, Gambaneza C, Nkurunungi JB, Goldsmith ML. 2000. Chimpanzees in Bwindi-Impenetrable National Park, Uganda, use different tools to obtain different types of honey. *Primates* 41:337-341.
8. Hicks TC, Fouts RS, Fouts DH. 2005. Chimpanzee (*Pan troglodytes troglodytes*) tool use in the Ngotto Forest, Central African Republic. *Am J Primatol* 65:221-237.
9. Guislain P, Dupain J. 2005. Sudden great ape die-off in the periphery of the Dja Biosphere Reserve. *Gorilla Journal* 30:28-30.
10. Deblauwe I, Guislain P, Dupain J, Van Elsacker L. *In press*. Use of a tool-set by *Pan troglodytes troglodytes* to obtain termites (*Macrotermes*) in the periphery of the Dja Biosphere Reserve, Southeast Cameroon. *Am J Primatol.*

<NOTE>

Pan paniscus, Sometimes a Linguistic Issue.

Jacky Maniacky
Linguistics Service
Royal Museum for Central Africa, Tervuren, Belgium

The question of how to name *Pan paniscus* is not new. It is indeed the subject of an article in PAN[1], which reminds us how inappropriate the term of "bonobo" is when compared to those used by people living in the areas where *Pan panicus* is found. It also concerns the potential consequences such an incoherence can have on scientific research and on projects to protect the species. With this article, I intend to support the term of "elya" from a pure linguistic point of view.

Locutions such as the debated "dwarf/ pygmy chimpanzee" or "gracile chimpanzee" are used to name *Pan paniscus* other than by a strict, scientific denomination. However, nowadays the most common term is undoubtedly "bonobo", suggested by Tratz & Heck[2]: they wrongly claimed it to be an "indigenous" name. This term is now said to originate from a misspelling of "Bolobo"[3], a village on the bank of Congo river in the Bandundu region (DRC). The first specimens sent to Europe were reportedly found there. In Tiene (Fig. 1), the language spoken in Bolobo, "elya" is the word for chimpanzee[4]. This term, and related ones, are also found in Bolia[5], Ntomba [6] and other languages of the Mongo variety[7].

In Africa in general, and DRC in particular, there is a large diversity of languages. However, *Pan paniscus* can only be found in a few places. Consequently, the expected number of languages which have a specific word for *Pan paniscus* is also limited. The available data is not always mentioned specifically with the meaning '*Pan paniscus*' but most frequently 'chimpanzee'. Nevertheless, it appears from a comparative analysis that there is an obvious correlation between the localisation of the languages using the "elya" form and the distribution map of *Pan*

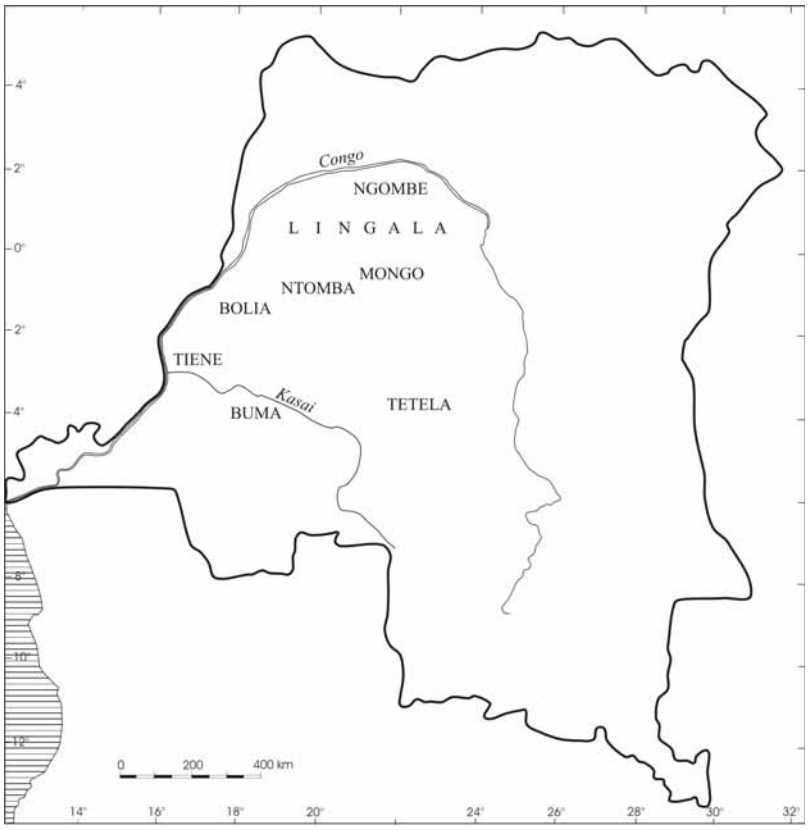

Fig. 1 Some ethnic groups of DRC

paniscus. The link between "elya"-type and "*Pan paniscus*" is also reported in a fieldwork note[8]. I would not forget that another term, "mokomboso"-type, is found to designate "chimpanzee" in that area: in Lingala[9], Buma[10], Ngombe[11] (Fig. 1), etc... In Mongo[7] (Fig. 1), it is clearly indicated as a borrowed word. Finally, Tetela[12] (Fig. 1) has words for 'chimpanzee' completely different from the two main types mentioned above. All these prove that when necessary, there is a linguistic difference between *Pan troglodytes* and *Pan paniscus*. Such an observation relativizes the value of the word "discovery", which scientists have abused when designating African realities.

Some remarks have to be made about the use of the word "elya" for *Pan paniscus*. First, the spelling: "y" is voluntarily used instead of "i" to avoid "diaeresis" as said in linguistics. In other words, there is a distinct pronunciation of vowels "i" and "a"; thus on two syllables, almost the way it would be if the word were "eliya". For what concerns number (singular / plural), the whole languages of the target area belong to the Bantu linguistic group. The plural is done by modifying the prefix (the beginning of a word) accordingly. Thus for "elya", the plural is "bilya". I would prefer the use of the singular form, although I think that a tendency will develop itself naturally in the field and in the texts to show what will be adopted as a plural form in languages such as English. However, the same way latin words usually keep their plural form of origin in English or French, we can reasonably imagine the same for words of Bantu origin.

Finally, I would like to counter those who wish to establish a link between "elya" or "bilya" with words meaning "to eat" or "food" in the languages spoken where *Pan paniscus* can be encountered, and who find therefore the use of "elya" or "bilya" as unsuitable. For a non-experienced ear, the words involved might seem related to each other. Although this might have been the case, neither a zoologist,

Tab. 2 Words for 'chimpanzee' compared to words for 'eat' and 'food'

	'chimpanzee'	'eat'	'food'
Tiene	k e d y ǎ	o l ɛ	?
Bolia	e l y ǎ	l ɛ́	i l ɛ́
			y o m b a e n d ɛ́ i
Ntomba	e l y a	l e	y o m b a
	e y a		
Mongo	e j ǎ	– l ɛ́	t ǒ m a
		– l ǎ	ɛ l ɛ́ w ǎ

an ecologist, nor a linguist should judge it. Without entering a deep, linguistic explanation, it is easy to show the difference between words for *Pan paniscus* on one hand and those for "to eat" or "food" on the other (Tab. 2).

Although tones (marked by an accent on vowels and enough to dissociate words otherwise identical) are the same, one may notice the variation of consonants and vowels from a meaning to another. For a given language, differences at the beginning of the words are not taken into account, as they are structural differentiate nouns from verbs for instance.

I have brought here some linguistic arguments to demonstrate the convenience of the use of 'elya' to designate *Pan paniscus*. Of course, this will not disrupt pure zoological establishments. But taking such issue into account is crucially important for local research and actions, notably for what concerns sustainable development. Besides moral injury, neglecting or misusing local denominations of fauna (or flora and local knowledge in general) can only be detrimental to scientific research. It may lead to a lack of profound knowledge about the distribution of species, their feeding, habitat and behaviour.

REFERENCES

1. Kano T, Nishida T. 1999. Bilia as an authentic vernacular name for *Pan paniscus*. *Pan Africa News* 6: 1-3.
2. Tratz E, Heck H. 1954. Der afrikanische Anthropoide "Bonobo", eine neue Menschenaffengattung. *Saugetierk. Mitt.* 2: 97-101.
3. Kortlandt A. 1993. Pygmy chimpanzee or bonobo?. *Bulletin of the American Society of Primatologists* 17: Letter to the Editor.
4. Ellington JE. 1977. *Aspects of the Tiene Language*. University of Wisconsin, Madison.
5. Mamet M 1960. *Le Langage des Bolia (Lac Léopold II)*. MRAC, Tervuren.
6. Gilliard L. 1928. *Grammaire Synthétique du Lontomba*. Editions de l'Essorial, Bruxelles, Elisabethville.
7. Hulstaert G. 1957. *Dictionnaire Lomongo - Français*. MRAC, Tervuren.
8. Mwanza N, Mulavwa M, Mola I, Yangozene K. 2003. Confirmation of bonobo population around Lac Tumba. *Pan Africa News* 10: 29-31.
9. Van Everbroeck R. 1985. *Dictionnaire Lingala*. Editions l'Epiphanie, Kinshasa.
10. Hochegger H. 1972. *Dictionnaire Buma - Français*. Ceeba, Bandundu.
11. Rood N. 1958. *Ngombe - Nederlands - Frans Woordenboek*. MRAC, Tervuren.
12. Hagendorens J. 1956. *Dictionnaire Français - Otetela*. Tshumbe-Ste-Marie.

<NEWS>

Grooming Hand Clasp by Bonobos of Lui Kotal, Democratic Republic of Congo.

B.I. Fruth[1], G. Hohmann[1], M.M. Beuerlein[2] and W.C. McGrew[2,3]

1. Max Planck Institute for Evolutionary Anthropology

2. Dept. of Anthropology, Miami University

3. Leverhulme Centre for Human Evolutionary Studies and Dept. of Biological Anthropology, University of Cambridge

INTRODUCTION

We report the first detailed sightings of the grooming hand clasp (GHC) for the bonobo, *Pan paniscus*, at Lui Kotal, in the Democratic Republic of Congo. This distinctive variant of social grooming was first described for the chimpanzee, *P. troglodytes*, at Mahale National Park, Tanzania[1], but has not been reported in detail before for any other species (but see 2 & 3).

The field site of Lui Kotal is on the south-western edge of the Salonga National Park (02 45.6' S, 20 22.7' E) in Bandundu Province. Research began in 2002[4] and has continued uninterrupted to the present (May, 2006, as of this writing). The study community of apes has been partly habituated without provisioning and does no crop raiding. They live in mixed evergreen rain forest south of the Lokoro River. Of the community of about 30 individuals, 12 have been visually identified and genotyping is underway.

The grooming hand clasp was the first social custom (in contrast to subsistence activities) to be recognised in wild chimpanzees and has been seen in five populations of *P. troglodytes* across Africa from Ivory Coast to

Uganda[5,6]. Two individuals, usually adults, sit facing one another in symmetric configuration while grooming socially; they simultaneously extend one arm vertically overhead and clasp one another's hand or wrist in a mirror-image, 'A-frame' posture. The other hand grooms the revealed armpit or torso of the grooming partner, and this mutual grooming may alternate between hands and be interspersed with normal grooming. Variation exists both between groups and populations in the fine details of the motor patterns, e.g. palm-to-palm versus wrist-to-wrist clasping[7,8].

The only previously published reports of GHC in bonobos are from Wamba, where GHC is said to be commonly observed, although no details have been published[2]. At Lomoko, Hohmann and Fruth[3] described what might be called proto-GHC, in which one individual lifts the hand of the other overhead during grooming. They distinguished between this and GHC on grounds of lack of simultaneous grooming, unilateral initiation, and lack of ritualisation.

OBSERVATIONS

On 24 March, 2006, MB, BF and WM un-nested a party of bonobos at 05.45 hr. Its composition was of at least 2 adult males, 3 adult females, 1 adolescent female, 1 juvenile female, and 2 ventral infants. At 07.32 hr, after eating nearby *Gambeya lacourtiana* and *Mammea africana* fruits, the party travelled and foraged on the ground, giving us intermittent visual contacts. Shortly after 8.00, they stopped in an open clearing created by a treefall, a thick patch of terrestrial herbaceous vegetation, mostly *Haumania* spp. There, after eating pith, they settled down to rest and groom for almost the next two hours. The first grooming was seen at 08.13 and the last behavioural datum was at 10.03; then they left, unseen. Observation was unobstructed from about 20 m distance, but the thick vegetation obscured their lower bodies as they sat in it, except when they stood up to shift positions. Notes were taken independently by the three observers, and then compared later.

At 08.35, one individual slowly and deliberately raised its arm vertically overhead, and about 2 sec later its grooming partner did the same, and they clasped hands.

At 08.44, an adult female and adolescent female did the second GHC, which lasted for >60 sec. Both right arms were fully extended and vertical, but the participants where visible only from the shoulders upward. The GHC was both preceded and followed by at least 5 min of normal social grooming. The shorter arm of the adolescent grasped the wrist of the longer-armed adult, at the base of her palm; the adult's wrist was fully flexed, hanging limp.

At 09.23, the same individuals did the third GHC, repeating the form of the second, but using their left hands. This bout of GHC lasted about 52 sec. and was visible from only the elbow upwards. It was notable that the clasping adolescent supported the combined weight of both arms.

At 09.28, two individuals did an incipient GHC, in which both arms were extended fully, but were then retracted without making contact. They continued normal social grooming.

At 09.40, another GHC occurred in which only the two hands were seen raised overhead, as the participants had shifted downslope. Again the clasp showed wrist support, and it lasted <30 sec.

DISCUSSION

It is not clear from previous reports from Wamba whether or not the GHC there was idiosyncratic, habitual or customary; more details are needed. At Lui Kotal, GHC is habitual or even customary (Fruth and Hohmann, unpublished data). (Here, we use 'habitual' and 'customary' in the sense of 9.) This ethnographic note is only a starting point, and further detailed data are needed before ethnological comparisons can be made (cf. 6). It remains to be seen for GHC if cross-populational variation exists in bonobos (cf. 3), as it does in chimpanzees[5,6]. Hohmann and Fruth[3] described other cross-site differences in bonobo behaviour, in both social and subsistence domains. Based on our preliminary report, the form and function of GHC in bonobo and chimpanzee seem to

be similar, suggesting a pan-*Pan* behavioural pattern.

ACKNOWLEDGMENTS

This research was supported by the Max-Planck-Gesellschaft (GH), the Federal Ministry of Education and Research (BF), and by Leakey Foundation and National Science Foundation HOMINID funding to WCM. We thank: L.F. Marchant for field assistance and critical reading of the manuscript, ICCN for granting permission to work at SNP, and the people of Lompole village for allowing us access to the forest of their ancestors.

REFERENCES

1. McGrew W C, Tutin CEG. 1978. Evidence for a social custom in chimpanzees? *Man* 13:234-251.
2. Nishida T, Kano T, Goodall J, McGrew WC, Nakamura M. 1999. Ethogram and ethnography of Mahale chimpanzees. *Anthropol Sci* 107:141-188.
3. Hohmann G, Fruth B. 2003. Culture in bonobos? Between-species and within-species variation in behavior. *Curr Anthropol* 44:563-571.
4. Hohmann G, Fruth B. 2003. Lui Kotal—a new site for field research on bonobos in the Salonga National Park. *Pan Africa News* 10:25-27.
5. Nakamura M. 2002. Grooming hand-clasp in Mahale M group chimpanzees: implications for culture in social behaviours. In: *Behavioural Variation in Chimpanzees and Bonobos*, eds. C. Boesch, G. Hohmann, & L.F. Marchant, Cambridge: Cambridge Univ. Press, pp. 71-83.
6. McGrew WC. 2004. *The Cultured Chimpanzee. Reflections on Cultural Primatology*. Cambridge: Cambridge Univ. Press, 248 pp.
7. McGrew WC, Marchant LF, Scott SE and Tutin CEG. 2001. Intergroup differences in a social custom of wild chimpanzees: the grooming hand-clasp of the Mahale Mountains. *Curr Anthropol* 42:148-153.
8. Nakamura M, Uehara S. 2004. Proximate factors of different types of grooming-hand-clasp in Mahale chimpanzees: implications for chimpanzee social customs. *Curr Anthropol* 45:108-114.
9. Whiten A, Goodall J, McGrew WC, Nishida T, Reynolds V, Sugiyama Y, Tutin CEG, Wrangham RW, Boesch C. 2001. Charting cultural variation in chimpanzees. *Behaviour* 138:1481-1516.

<NOTE>

A Louse Egg Left on a Leaf.

Koichiro Zamma

Primate Research Institute, Kyoto University

INTRODUCTION

Chimpanzees are known to squash ectoparasites placed on the forearm[1] (Taï, Côte d'Ivoire), the palm[2] (Bossou, Guinea), leaves[1, 3] (Gombe and Mahale, Tanzania), and to inspect them on leaves[4] (Budongo, Uganda). Although it is difficult to identify ectoparasites due to their small size, an adult louse, which was recovered from a leaf used in leaf-grooming behavior, was identified[3]. I will report an egg of a chimpanzee louse as the second identified ectoparasite left on a leaf used for leaf-grooming. I will also discuss the ectoparasite removal techniques of chimpanzees who use their teeth.

METHODS

Behavioral observation was conducted from August to November, 2003 at the Mahale Mountains National Park, Tanzania. I followed one of nine focal animals each day and recorded grooming behavior on video tape. I also focused on leaf-grooming behavior by investigating whether ectoparasites or something else remained on the leaves used for leaf-grooming.

RESULTS

I recovered a louse egg from a leaf used for leaf-grooming by Orion, a 12-year-old male. At 10:05:22 on August 21, 2003, Orion picked up a leaf with his right hand after he finished grooming Carter, an adult male. Orion transferred a small object from his lower lip to the leaf and folded the leaf using his right

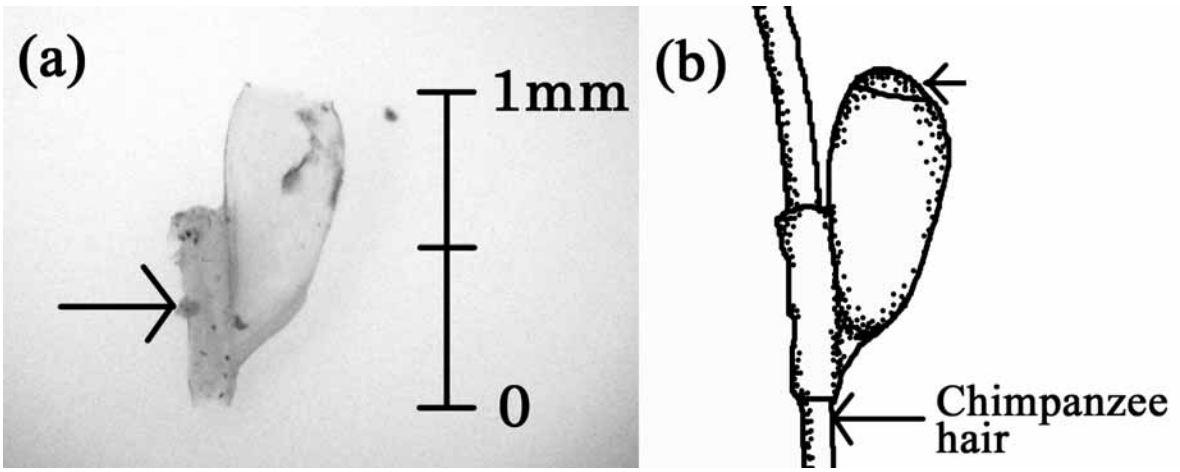

Fig. 1. Egg of a chimpanzee louse. (a) Louse egg left on a leaf used for leaf-grooming by Orion. (b) Unhatched louse egg glued to chimpanzee hair. Tip of unhatched louse egg (upper arrow) is different from the hatched one (a).

hand and lower lip. He pressed the folded side of the leaf with the thumb of his left hand, opened the leaf, and returned the object to his lower lip. After transferring the object from his lower lip to the leaf again, he accidentally dropped the leaf. He picked up the leaf again and tried to return the object to his lower lip. After that he dropped the leaf and went away. I recovered the leaf and found a louse egg left on it (Fig. 1a).

The louse egg measured 1.0 x 0.4 mm (Fig. 1a). The louse egg had already hatched, and the inside of the eggshell was empty. There were no dents on the eggshell, although it had been pressed between a folded leaf when Orion leaf-groomed. The adhesive cement of the louse egg (indicated by arrow in Fig. 1a), which was attached to the chimpanzee hair, had a bead shape. This indicates that the cement was not broken but was pulled through the hair.

Orion started grooming Carter's back at 10:04:33, 49 seconds before the leaf-grooming described above. Orion stroked Carter's hair 37 times with his hands and lips and touched Carter's back with his lips. At 10:05:09, Orion pinched and pulled Carter's hair between his upper and lower teeth. It seemed that he removed a louse egg stuck to a hair from Carter's back. Then Orion stroked the hair twice more with his left hand and stopped grooming at 10:05:15. After that he turned around, brought his hand to his mouth, and extracted something from it. It looked as if he pulled a hair with his hand and removed the louse egg that was pinched between the upper and lower teeth. Then he started leaf-grooming (as described above).

DISCUSSION

It has been suggested that chimpanzees remove ectoparasites such as lice and ticks[5]. An adult louse, which was removed during grooming and handled during leaf-grooming, was identified[3]. This study clarifies that chimpanzees also have the skill to remove louse eggs as well as adult lice. Japanese macaques are known to have techniques for handling louse eggs using the thumb and finger[6], but it has not been confirmed whether monkeys or apes can really remove ectoparasites using the mouth and teeth. This study also revealed that chimpanzees can use their teeth to remove louse eggs.

The good shape of the eggshell refutes the idea that the middle of the egg was pushed out when the chimpanzee squashed it in the folded leaf. Therefore, the egg probably hatched before Orion removed it. It is unnecessary to remove hatched eggs from the viewpoint of the hygienic functions of grooming. Chimpanzees may be incapable of discriminating between hatched and unhatched eggs (Fig. 1b). In my case, I could not judge whether the egg had hatched without a microscope.

Why did Orion squash the louse egg in the folded leaf? If the louse was in the adult stage, squashing and/or killing is a reasonable way to prevent it from parasitizing again. However, the louse egg was not likely to return to the host again even if it was not crushed. I do not know the reason. Orion might leaf-groom as ritualized behavior following removing movements.

ACKNOWLEDEGMENTS

This study was supported by a MEXT Grant-in-Aid for JSPS Fellows.

REFERENCES

1. Boesch C. 1995. Innovation in wild chimpanzees (*Pan troglodytes*). *Int J Primatol* 16: 1-16.
2. Nakamura M, Nishida T. 2006. Subtle behavioral variation in wild chimpanzees, with special reference to Imanishi's concept of kaluchua. *Primates* 47: 35-42.
3. Zamma K. 2002. Leaf-grooming by a wild chimpanzee in Mahale. *Primates* 43: 87-90.
4. Assersohn C, Whiten A, Kiwede ZT, Tinka J, Karamagi J. 2004. Use of leaves to inspect ectoparasites in wild chimpanzees: a third cultural variant? *Primates* 45: 255–258.
5. Goodall J. 1968. The behaviour of free living chimpanzees in the Gombe Stream Reserve. *Anim Behav Monogr* 1: 161-311.
6. Tanaka I, Takefushi H. 1993. Elimination of external parasites (lice) is the primary function of grooming in free-ranging Japanese macaques. *Anthropol Sci* 101: 187-193.

<NOTE>

Bossou Chimpanzees Crossed the National Border of Guinea into Liberia.

Gaku Ohashi

Primate Research Institute, Kyoto University

INTRODUCTION

Since 1976, a group of wild chimpanzees has been studied at Bossou, which is located in the southeastern corner of the Republic of Guinea[1]. The core area of the group consists of four small hills that are located about 4 km east from the Nimba Mountains. Due to the small core area and large distance of the Nimba Mountains, the Bossou group is thought to be geographically isolated from others. Secondary forests and abandoned fields cover over the border between Guinea and Liberia. Here I report the first observed case in which Bossou chimpanzees actually crossed the national border into the Liberian forest. Locations were recorded by GPS.

OBSERVATIONS

At 7:23, on February 14th, 2006, eleven chimpanzees, including my focal individual (PE, an adolescent male), were found eating *Myrianthus libericus* fruits (7°38'19.3" N, 8° 30'48.0" W). Next, they rested on the ground for a while. At 8:29, they started to move on the ground. Due to the heavy bush, the local assistants and I lost the chimpanzees at 8:39. At 10:47, we found the focal chimpanzee again (7°38'07.7" N, 8°30' 55.2" W). The party consisted of six chimpanzees: three adult males (TA, FF, and YL), two adult females (Pm and Yo), and one adolescent male (PE). They were resting on the ground, but they soon started to move. At 10:58, the six chimpanzees entered a swamp, and ate *Nephrolepis biserrata* leaves for about 5 minutes (7°38'09.7" N, 8° 30'57.6" W). They moved again and arrived at a pineapple field (7°37'53.9" N, 8°31'11.8" W). The field is located on the western slope of a hill called Zono, which Bossou chimpanzees often visit during consortship periods. For about 10 minutes, they ate pineapple fruit before entering the forest. At 11:46, three chimpanzees (YL, Yo, and Pm) started to eat *Pseudospondias microcarpa* fruit, and the other chimpanzees rested on the ground (7° 37'56.3" N, 8°31'13.1" W). At 12:23, the six chimpanzees climbed the hill, and arrived at another *Pseudospondias microcarpa* tree at 12:52 (7°37'45.0" N, 8°31'27.6" W). They ate fruit and rested in the tree. At 14:14, they stared to move on the ground again. On the way, at 14:43, Yo started to eat *Pennisetum*

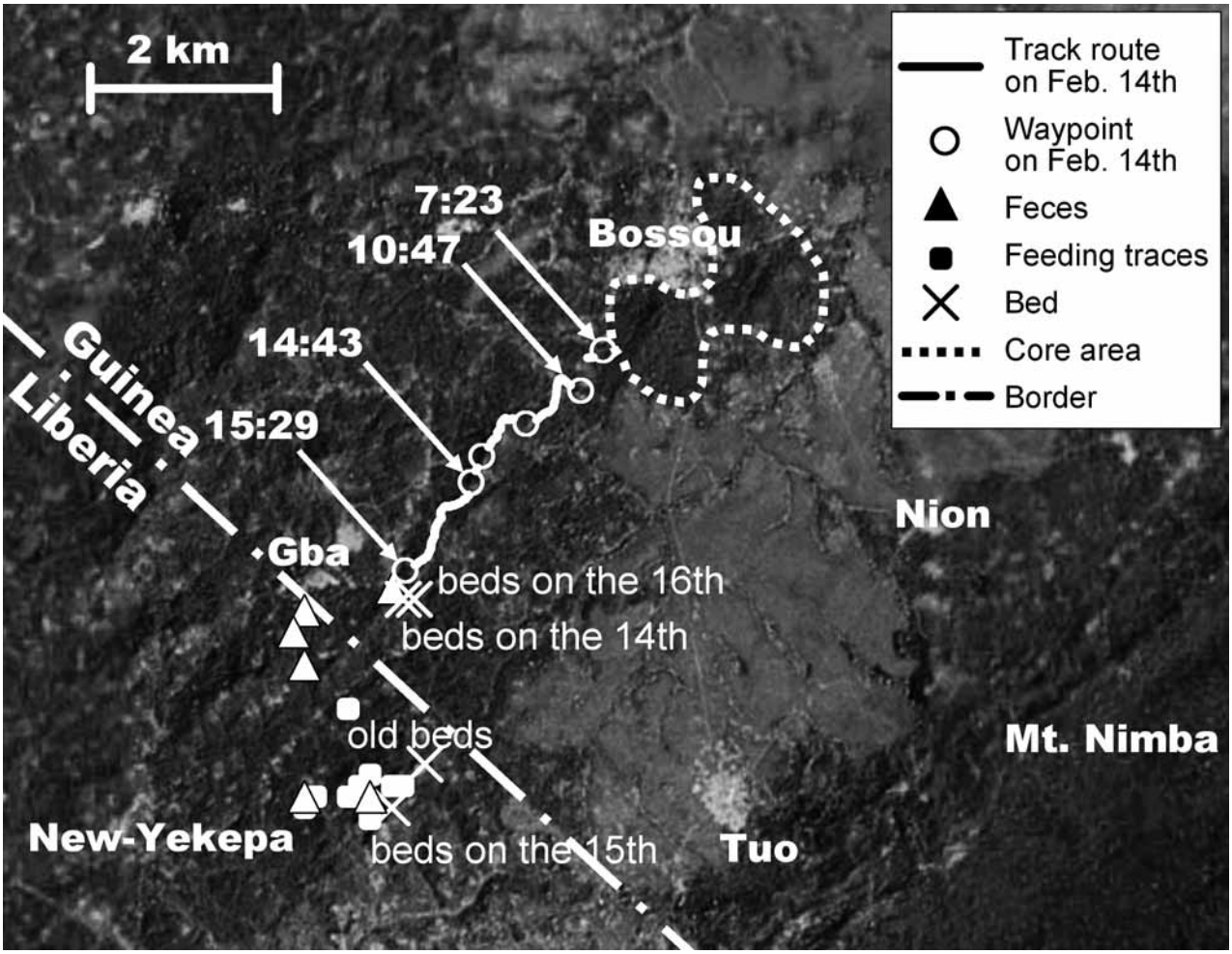

Fig. 1. Survey map of Guinea and Liberia (modified from Google Earth image).

purpureum pith, but the other five chimpanzees continued to travel (7°37'36.7" N, 8°31'30.8" W). The five chimpanzees entered the primary forest at the Gba village, Guinea. Gba is on the border with Liberia. At 15:27, three adult males (TA, FF, and YL) uttered pant-hoot, climbed trees, and traversed a valley. Since the forest over the valley appeared to be a sacred area of the village, we stopped following them at 15:29 (7°37'03.6" N, 8°31'57.3" W).

On February 15th, we looked for the chimpanzees in the Gba village. We found six beds there (7°36'57.0" N, 8°31'56.3" W). Judging from the fresh feces under the beds, they apparently slept there from the evening of the 14th to morning (Fig. 1, beds on the 14th). When we visited the hill near the Liberian border, we found feces at the top (7°36'58.2" N, 8°31'57.3" W), but we could not find any chimpanzees in the Gba village.

On February 16th, six new beds (Fig. 1, beds on the 15th), fresh traces, and feces were found in the forest at New-Yekepa, Liberia (7° 35'45.8" N, 8°31'59.1" W). Judging from the traces, the chimpanzees appeared to have eaten sugar cane pith, *Parkia* fruit, *Landolphia* fruit, *Myrianthus* fruit, pineapple fruit, *Aframomum* pith and fruit, and palm petiole. We also found two old beds (7°36'00.1" N, 8°31'47.3" W. Fig. 1, old beds).

On February 17th, four new beds were confirmed in the Gba forest (7°36'57.3" N, 8° 31'53.4" W. Fig. 1, beds on the 16th). Judging from the beds, the six chimpanzees returned to the Guinean side on the evening of the16th. At 13:23, TA, Pm, and PE were observed eating *Morus mesozygia* fruit at the core area of Bossou (7°38'30.1" N, 8°30'26.7" W). At 14:58, all six chimpanzees were confirmed in the same *Morus* tree.

DISCUSSION

In February, fruits were abundant in

the forest at Bossou[2]. Actually many trees bore their fruits, including *Pseudospondias microcarpa*, *Morus mesozygia*, *Parkia bicolor*, and *Myrianthus libericus*. The chimpanzees apparently did not travel to the peripheral area due to a lack of food. There are many sugar cane plantations in Liberia for distilling alcohol. Possibly their strong preference toward sugar cane tempted the chimpanzees into the Liberian forest.

Old beds were also found in the forest at New-Yekepa, Liberia. It suggests that Bossou chimpanzees had previously visited the forest. In this case, the chimpanzees only stayed in Liberia for two days. Due to the short stay and the difficulty of observation on the peripheral areas, researchers have probably missed traveling patterns.

According to the local people, chimpanzees exist in the northern part of Liberia. However, the distribution of chimpanzees there is almost unknown. Bossou chimpanzees may emigrate from Guinea to Liberia. As well as in Ivory Coast[3], further extensive survey and conservation effort are needed in Liberia.

ACKNOWLEDEGMENTS

This study was financed by a MEXT Grant-in-Aid for Specially Promoted Research (nos.12002009, 16002001 to T. Matsuzawa), and a Grant-in-Aid for JSPS Research Fellow (no. 160896 to G. Ohashi).

REFERENCES

1. Sugiyama Y, Koman J. 1979. Social structure and dynamics of wild chimpanzees at Bossou, Guinea. *Primates* 20: 323-339.
2. Yamakoshi G. 1998. Dietary responses to fruit scarcity of wild chimpanzees at Bossou, Guinea: Possible implications for ecological importance of tool use. *Am J Phys Anthropol* 106: 283-295.
3. Humle T, Matsuzawa T. 2001. Behavioural diversity among the wild chimpanzee

Pan Africa News, Vol. 13, No.1
Published in June, 2006

Address:
Japan Monkey Centre
26 Kanrin
Inuyama, Aichi 484-0081
JAPAN
TEL: (+81)568-61-2327
FAX: (+81)568-62-6823
E-mail: pan_ed@jinrui.zool.kyoto-u.ac.jp