

## **Variable Grooming Behaviours in Wild Chimpanzees**

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### **Key Words**

Chimpanzee • Tradition • Grooming • Kibale • Mahale • Gombe •  
*Pan troglodytes schweinfurthii*

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### **Introduction**

Wild chimpanzees, *Pan troglodytes*, show regional differences in feeding [Boesch and Boesch-Achermann, 2000], tool using [McGrew, 1992], grooming [Nakamura et al., 2000], courtship [Nishida et al., 1999] and vocal communication [Mitani et al., 1992]. Comparisons have revealed at least 39 behavioural differences among chimpanzee populations [Whiten et al., 1999]. Here we add to that list by reporting new observations of locale-specific grooming patterns in two groups of wild chimpanzees.

### **Methods**

We compared the behaviour of chimpanzees who belong to the same subspecies (*Pan troglodytes schweinfurthii*) at Ngogo, Uganda [Mitani et al., 2002] and Mahale, Tanzania [Nishida, 1990]. The Ngogo study site is located in the Kibale National Park. Long-term research has been conducted by D.P.W. and J.C.M., beginning in 1993. The Ngogo unit group comprises approximately 150 individuals. T.N., who is familiar with the Mahale chimpanzees, visited Ngogo for 22 days between 4 and 25 August 2001, and shot video footage of chimpanzee behaviour with a SONY video camera (DCR-TRV20). Not all the female chimpanzees at Ngogo are yet habituated to humans, therefore T.N. focused observations on adult and adolescent males. J.C.M. and D.P.W. provided information on the identities of chimpanzees as well as supplementary behavioural data during T.N.'s visit and in two months in 2002.

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**Fig. 1. a** An adult male ‘strokes’ the back of an adult female at Mahale. **b** An adult male of Ngogo ‘pokes’ the shoulder of another adult male at Ngogo.



**b**

## **Results**

### *Social Scratching*

‘Social scratching’ involves one chimpanzee scratching the body of another. This occurs at Mahale, but not at Gombe (Tanzania), Kanyawara (Uganda), Bossou (Guinea) or Tai (Côte d’Ivoire) [Nakamura et al., 2000]. Social scratching was recorded in 86% (19 of 22) of adult males in the Ngogo unit group. Five of 15 adoles-

cent males and 2 adult females were also observed to scratch socially in 2002. Males that were not confirmed to scratch socially were observed only rarely during the study periods. Thus social scratching appears to be widespread in the Ngogo chimpanzees.

Although males at both Mahale and Ngogo scratch each other, they do so differently. All of the male chimpanzees at Ngogo scratched by using their fingers to 'poke' the body of their grooming partner. They tended to keep their fingers *straight*. This contrasts with chimpanzees at Mahale, who use *flexed* fingers to 'stroke' the body of their partner. Put simply, the length covered by a single movement of social scratching among the male chimpanzees at Ngogo is *short*, while movements by Mahale males are *long* (fig. 1a, b). Moreover, male chimpanzees at Mahale mostly scratch the back of other males, while those of Ngogo do not show such preference. At Mahale, one adult female of group M practiced the 'poking' type of social scratching.

#### *Sounds Uttered during Grooming*

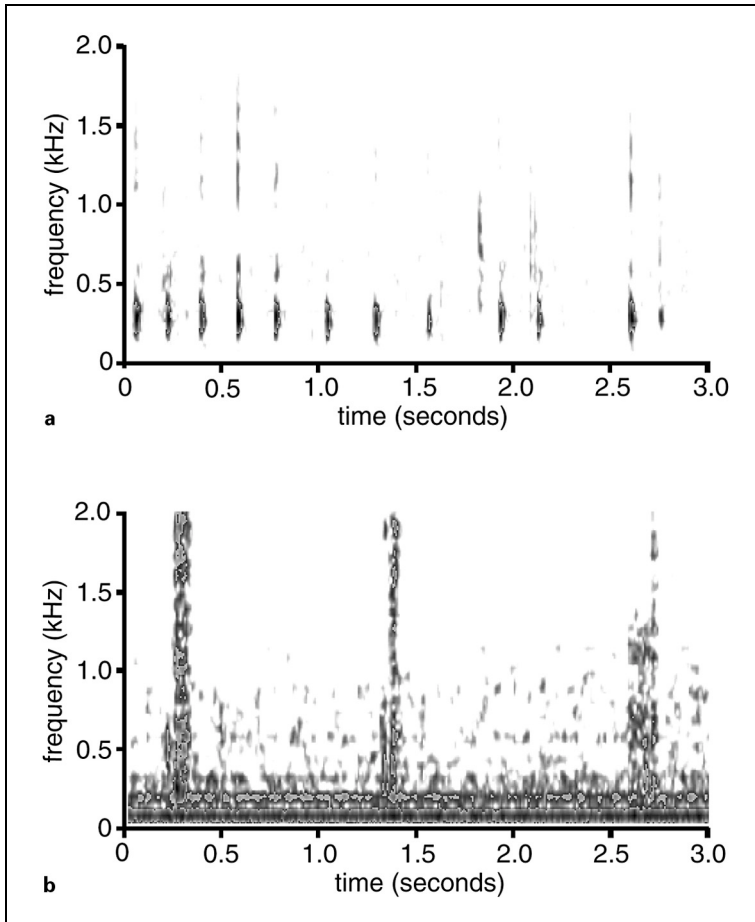
The chimpanzees of Mahale and Gombe utter two distinct sounds, called 'lip smacking' and 'teeth clacking', when grooming other individuals [Nishida et al., 1999]. This sound is accompanied by rhythmic lip movements and is not a species-typical behaviour in chimpanzees [Custance et al., 1995]. During intensive social grooming, chimpanzee groomers may find something interesting, perhaps an ectoparasite such as a louse [Zamma, 2002]. They smack their lips or clack their teeth and immediately bring their mouth to the desired site to remove the targeted object.

Although the chimpanzees of Ngogo sometimes lip smack and teeth clack, they also utter entirely different grooming sounds from those of Mahale (fig. 2), which we call 'sputtering'. While sputtering, they do not show rhythmic lip movements. To D.P.W. this sounds as if the chimpanzees force air through their lips, and to T.N. it sounds as if they forced saliva through their teeth, though the precise means of production is unknown. Recent observations by J.G.M. in 2002 suggest that 'sputtering' may be rank related, with only low-ranking males making the noise. In 2002, 15 adult males, 7 adolescent males, 1 juvenile male and 4 adult females were confirmed to utter 'sputtering' sounds.

## **Discussion**

Social scratching has not been observed among the Kanyawara chimpanzees in Kibale, which live only 10 km northwest of Ngogo [R. Wrangham, pers. commun.]. How can we explain this remarkable difference between two neighbouring groups? One possibility is that social scratching at Ngogo is a newly invented behaviour that is practiced by adult males but not by adult females. Thus, Ngogo females cannot transmit this behaviour to neighbouring groups through dispersal. This hypothesis is unlikely because some Ngogo females have been observed to scratch socially.

Recently, 3 adult chimpanzees in the Kasakela community at Gombe have been reported to scratch each other socially while grooming [Shimada, 2002]. Their motions resembled the poking type that occurs at Ngogo [Shimada, unpubl. data]. These observations suggest that individual chimpanzees can easily 'invent' either



**Fig. 2.** Audiospectrograms of grooming sounds made by male chimpanzees. **a** ‘Lip smacking and teeth clacking’ by a male chimpanzee at Mahale. **b** ‘Sputtering’ by a male chimpanzee at Ngogo. Spectrograms were created using Avisoft-SonographPro, Version 2.7. Calls were sampled at 8 kHz, and spectrograms were made using a 512-point FFT (time resolution = 64 ms; frequency resolution = 16 Hz).

pattern of social scratching behaviour described here. We are still left, however, with the question of how differences in grooming are maintained between populations. In the absence of ecological differences that can explain these differences, we propose that variation in grooming behaviour may represent incipient cultural traditions. To qualify fully as traditions, we require additional observations to ascertain whether grooming patterns are socially transmitted via learning.

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