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## <NOTE>

# An Old Female Bonobo Carried a Dead Red-Tailed Monkey for over a Month

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## INTRODUCTION

Carrying infants is one of the most important maternal tasks determining the survival of dependent infants in non-human primates (Nicolson 1987; Ross 2001). Even after the death of their infants, mothers tend to carry the carcasses for several days, and even up to several months (Hosaka *et al.* 2000; Sugiyama *et al.* 2009; Tokuyama *et al.* 2017). Such prolonged carrying can be considered as “maternal persistency” (Sugiyama *et al.* 2009; Biro *et al.* 2010).

Excluding mothers that carry their infants, non-human primates rarely carry objects for a long period, (Ross 2001; Carvalho *et al.* 2012). However, at Wamba in Democratic Republic of the Congo, we observed that an old female bonobo (*Pan paniscus*) carried the carcass of a red-tailed monkey (*Cercopithecus ascanius*) for over a month. We here report occasional observations of her behaviors and conditions of the monkey carcass, and discuss why she had been persistent with the dead body of another primate.

## SITE AND SUBJECT

Observations were made in 2016 at Wamba, Luo Scientific Reserve, Democratic Republic of Congo, which is a long-term field site for the study of wild bonobos (Kano 1992). There are two adjacent groups of bonobos, the eastern group (PE) and the western group (PW), of which all members were fully habituated and identified. We usually followed the PE group from one night's bed sites (around 06:00 h) to the next night's bed sites (around 17:00 h), and occasionally observed the PW group especially during inter-group encounters. The adult female reported in the present study, Chio (estimated to be 45–50 years old), had been identified in the PW group together with her daughter (Chacha: estimated to be 7–8 years old) in September 2012. Since then, Chio had not been observed to have an infant.

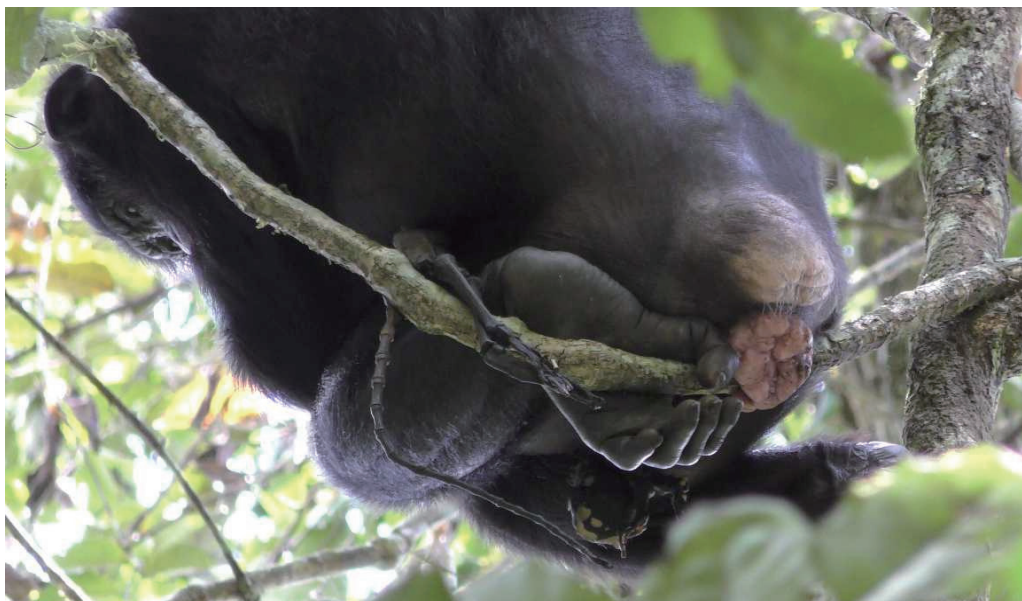


Figure 1. Chio resting on a tree with a mummified red-tailed monkey.

## OBSERVATIONS

On August 18, we found that Chio was carrying the dead body of a red-tailed monkey at 13:47 h. The monkey carcass seemed to be an adult based on size, which was as large as infant bonobos at one or two years of age. It did not have any visible external injury and retained its head, all limbs, tail, and fur. It was suspected to have died several days before the observation because it had already decayed and emitted a decomposing odor to the observers. When Chio rested with the carcass on a tree at 14:00 h, two adult males approached her to watch it but did not try to take it. At 14:34 h, Chio hung it on her neck like a muffler and moved away with it.

On August 25, we found that Chio was with the monkey carcass at 13:40 h, but we could observe her only once on that day.

On August 29, we found that Chio walked on the ground with the carcass hanging on her neck at 12:46 h. The decay of the carcass was proceeding. Little fur remained and it was dried up from the head to the tail, including all the limbs. Chio grasped the carcass in her hand and engaged in genito-genital rubbing with another adult female at 12:48 h, then she moved away hanging it on her neck.

On August 31, we found Chio resting on a tree with the carcass hung around her neck at 06:43 h. One infant approached Chio apparently to play with the carcass at 07:13 h and Chio moved the carcass from her neck onto her abdominal region to prevent the infant from touching the carcass. At 07:21 h after the infant left, Chio lifted the head of the carcass to eye level and gazed at it for about five minutes. She groomed it for two minutes at 07:36 h, occasionally flapping flies gathering around it, and moved away with it at 07:40 h.

On September 17, we found that Chio had the mummified monkey at 1649 h, but we only caught a glimpse of her once before members made night beds.

On September 21, we found Chio was still in possession of the carcass at 07:14 h. The monkey carcass was

fully mummified. When she engaged in genito-genital rubbing with another adult female and a juvenile female at 07:34 h, she grasped the mummy in her hand. Then, she rested and held the mummy in her abdominal region at 07:40 h (Figure 1, also see Video 1 available online at [http://mahale.main.jp/PAN/24\\_2/24\(2\)\\_04.html](http://mahale.main.jp/PAN/24_2/24(2)_04.html)). One infant approached her and watched the mummy at 07:56 h. She suddenly grabbed the arm of the infant, and the infant ran away screaming. Chio groomed the mummy with her mouth at 08:49 h, and moved away with it hanging on her neck.

On September 29 and 30, we found that Chio still walked with the mummy hanging around her neck at 11:23h and 13:40h. The mummy was intact until our last observation.

On October 25, we found Chio within members of the PW group at 10:18 h, but she was no longer carrying the monkey carcass.

## DISCUSSION

Chio had carried the dead red-tailed monkey for at least 43 days without a motivation of preying or playing, although we did not observe how she got and released it. She was observed to groom the hair of the monkey carcass, gaze at its body, and defend it from curious juveniles. She seemed to handle the monkey carcass carefully and protectively even during it had been decaying. Her behaviors towards the decaying monkey carcass could be considered similar to the behaviors of mothers carrying their dead infants with great care (Kano 1992; Hosaka *et al.* 2000; Sugiyama *et al.* 2009; Biro *et al.* 2010; Tokuyama *et al.* 2017).

Few observations of non-human primates carrying bodies of other animal species for a long time have been reported until date. In chimpanzees, however, a barren female carried a limb of dead dried red colobus (*Procolobus rufomitratu*) for seven hours at Mahale (Hosaka *et al.* 2000), and an adolescent female carried a dead hyrax (*Dendrohyrax dorsalis*) for fifteen hours, slept with it in her nest, and groomed it at Bossou (Hirata *et al.* 2001).



These observations might indicate that their imagination could make an unusual perception and reaction towards other animal species.

Allomothering, defined as temporary carrying of non-kin infants is performed mostly by non-parous young females, which has been suggested to be a process of acquiring maternal skills in non-human primates (McKenna 1979). However, it is occasionally conducted by adult parous females without their own infants (Nozaki 2009; Tokuyama 2015). Chio's case fits the latter well, because she had not cared her own infants for a long time. The unusual carrying might have been a coincidence induced by the maternal drive for infant caring.

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<https://doi.org/10.1007/s10329-016-0582-7>

## <BOOK REVIEW>

### Cannibalism: A Perfectly Natural History

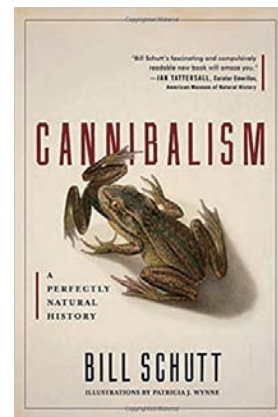
By Bill Schutt

Chapel Hill, NC: Algonquin Books, 332 pp.

ISBN: 978-1-61620-462-4, 2017. \$26.95 (USA), paperback

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Given that chimpanzees have shown more instances of cannibalism than all other species of non-human primates combined, and also that chimpanzees are the most-invoked species for modelling the evolutionary origins of human behaviour, this book seemed worth scrutinising. Furthermore, the sub-title suggests a natural science viewpoint, rather than the more usual social science (*i.e.*, anthropology) viewpoint, as does the author's status as a vertebrate zoologist (on the faculty of Long Island University, USA). For comparative contrast, see what may be the best previous example of tackling the topic, Petrinovich's (2000) *The Cannibal Within*, in which non-human cannibalism gets only 5 pp.

First, the structure and format. Schutt does not do research on cannibalism but instead summarises and synthesises findings on the topic. But he goes beyond reading and analysing published material by travelling to interview researchers *in situ*, with participant observation that entails (*e.g.*) archaeology and anthropophagy. (Yes, he eats human tissue.) About this, he writes accessibly but academically (*e.g.*, providing scientific names for taxa), with a light touch enlivened by humour. Good points are: 28 pages of endnotes by text page number, which provide references to publications; an extensive book list ( $n = 68$ ),