

BRIEF REPORT

An Intergroup Encounter With Fatal Consequences in Yellow Baboons (*Papio cynocephalus*)

JENNIFER M. SHOPLAND
Department of Biology, University of Chicago

This paper describes the fatal wounding of an infant yellow baboon (*Papio cynocephalus*) and the severe injury of its mother during an encounter between two baboon groups with overlapping home ranges in Amboseli National Park, Kenya. Also, a description is given of the apparent use of the infant as an agonistic buffer by an adult male in fights with other males.

Key words: baboon, intergroup competition, infanticide, agonistic buffering, *Papio cynocephalus*

INTRODUCTION

Interactions between permanent social groups of primates can range from group fusion to mutual avoidance to actual attacks on and even killing of members of one group by those of another. Competitive interactions between groups could be expected in a population in which groups use the same limited resources where their home ranges overlap. Theories of kin selection predict that such competition would be even more likely where intergroup migration is sufficiently low that individuals are more closely related, on the average, to members of their own group than to members of another. However, there is little direct evidence that intergroup competition exists. In populations with documented genealogical and home-range information, there is little evidence of kinship effects in intergroup encounters.

Migration of adult and subadult males occurs among groups of yellow baboons (*Papio cynocephalus*) that inhabit the woodlands and savanna of Amboseli National Park, Kenya [Altmann & Altmann, 1970; Altmann et al, 1977]. However, there is a high degree of group integrity due to the virtual absence of adult female and juvenile migration. The following report describes an unusual event: the fatal wounding of an infant and the severe injury of its mother during an encounter between two of these baboon groups. It also gives an account of the role played by the wounded infant in agonistic interactions between adult males. Members of both groups were individually recognizable, and the reproductive histories of all the adult females involved were known through the accumulation of census and reproductive data [Altmann et al, 1977; Stein, 1981].

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Address reprint requests to Jennifer M. Shopland, Department of Biology, University of Chicago, 1103 East 57th Street, Chicago, IL 60637.

OBSERVATIONS

Two groups, Alto's (containing 46 individuals at the time of this incident) and Hook's (with 33 individuals), had partially overlapping home ranges and, prior to the events of this report, had encountered one another on many occasions without any serious altercations. These encounters had taken several forms: mutual observation at a distance of several hundred meters, avoidance of one group by the other (the avoiding group not consistently Hook's or Alto's), simultaneous use of a sleeping grove [D. Stein, personal communication], and even play bouts between juveniles of each group. In addition, some males of each group had been known to migrate between groups. Toward the end of 1979 and in the first month of 1980, there appeared to be an increase in the frequency and intensity of the interactions between the two groups. It was speculated that this increase may have resulted from an apparent shift by Hook's Group in much of its foraging and sleeping from the eastern woodland to the western woodland where Alto's Group concentrated most of its activities. In previous years there were cases in which adult males of one group were involved in agonistic bouts with adult males of the other [D. Stein, personal communication]. During the period from October, 1979 to early February, 1980, no attacks on a member of one group by a member of the other had been observed, although one or both groups were under nearly continuous observation most days during that period.

On the morning of February 6, 1980, approximately one hour after Alto's Group had descended from the sleeping trees, it met Hook's Group in fairly open *Acacia tortilis* woodland. The adults of each group sat and faced the other group, while a few juveniles from both groups played together in the "middle ground" between them. Upon returning to the baboons after a few minutes' absence, I heard screams and barks and saw members of Alto's Group running in the direction of the retreating Hook's Group. A few minutes later an adult male ran past and then out of view; he was carrying a very young infant in his mouth and was being followed at a run by several members of Alto's Group. I was not able to identify positively either the male or the infant, but the small size and black coat of the infant suggested that it could have been Streaker, of Alto's Group, or Nigel, of Hook's Group, both one-month-old infants.

The question of the infant's identity was resolved by the approach of Striper, a high-ranking primiparous adult female of Alto's Group, from the direction in which the adult male and infant had disappeared. Her infant, Streaker, was riding on her ventrum, and she carried another very young infant under her arm. Streaker was uninjured. The second infant proved to be Nigel, the youngest infant in Hook's Group. Striper dropped Nigel onto the ground, and several members of Alto's Group, including juveniles, approached and bit him. The infant's wounds were severe—two large puncture wounds on his head, possibly made by canines (one on the back and another on the right side), a deep gash on his scalp, and lacerations on his hands. While Nigel was lying on the ground, Kush, the lowest-ranking male of Alto's Group, approached, picked up the infant, carried him to the shade of a bush, and sat with the infant in his ventrum, handling the infant, and lip-smacking to him.

In a clump of bushes nearby, several older juveniles and adult females of Alto's Group were holding down a low-ranking adult female, Nubbin, Nigel's mother. No other animals from Hook's Group were within view. Nubbin was bitten frequently and her coat pulled; her mouth was bloody, her ears torn, and her hand wounded. She attempted to escape several times, but each time she was caught, held down, and bitten. No adult males were seen attacking Nubbin.

Approximately one hour after the intergroup conflict began, Kush left the bush under which he had been sitting. He carried Nigel on his ventrum while supporting the infant with his hand. At this time Nigel still exhibited signs of life. Kush approached and presented to Ali, the second-ranking adult male of Alto's Group. Ali did not direct any aggressive behavior toward Kush; however, Kush began to chase Ali, screaming and

carrying the screaming infant. The bout ended with Kush sitting, holding and grooming the infant, lipsmacking, and grunting while Ali fed about six meters away. Three more agonistic bouts between the males followed. During each bout Ali slapped or lunged at Kush. Kush screamed, lipsmacked, and chased Ali with tail raised (all forms of submissive behavior) but also followed Ali and directed exaggerated yawning displays toward him (a form of aggressive behavior) [Hausfater, 1975]. Throughout these agonistic interactions, Kush carried the infant on his ventrum. The infant could not cling well, and Kush supported him when he ran. Several times Kush dropped and then retrieved the infant, who gave the "ikk" distress vocalization [Altmann, 1980] each time he was picked up. Kush often handled the infant roughly as he followed Ali. At the end of the last agonistic bout, Ali walked away from Kush toward the rest of the group, which was leaving the woodland, and Kush climbed a tree, carrying the infant. The infant's mother, Nubbin, apparently escaped or was released prior to this time, as I did not see her subsequently with Alto's Group.

One-half hour later Kush descended from the tree and climbed another while carrying Nigel in his mouth. I could not determine whether the infant was alive at that time, as he did not vocalize or move, but he appeared to be dead one hour later when Kush left this tree and began to feed. Kush continued to move in the direction the rest of the group had taken, carrying the infant's body in his mouth or hand and laying it on the ground when he fed. When Kush was near the rest of the group, several juveniles approached him. Kush stopped feeding and faced the juveniles while holding and grooming the infant's body. He ignored some of the younger animals, most of whom presented their hind-quarters or showed some form of submissive behavior, but he hit some of them. In the midst of these interactions, Teta, the first-ranking adult male, approached Kush and grasped his pelvis. Kush cowered and retained his grip on the infant's body; Teta moved away. Within an hour Kush had begun to feed again, periodically leaving the body on the ground and moving farther and farther away from it. This behavior pattern resembled that of baboon mothers carrying their own dead infants [Altmann, 1980]. Later, the infant's body was picked up and carried by Nazu, an adult female in Alto's Group whose only infant had died after being kidnapped by a juvenile female of her own group three months earlier. Nazu carried the body throughout the afternoon.

A census of Hook's Group on the following morning showed only the infant Nigel missing. His mother Nubbin descended from the sleeping trees after the rest of the group, and she limped noticeably once on the ground. Her most severe wound was a deep puncture on her right hand. There were also wounds and missing hair around her eyes and on her muzzle, forelegs, and tail. Her mouth was still bloody.

When I reached Alto's Group one-half hour later, they had left the sleeping trees and had moved out onto the plains. Kush, however, had remained behind, and Nigel's body lay on the ground beside him. At my approach, Kush picked up the body and walked toward the plains through an area of dense vegetation with the body in his mouth. When he was next seen, Kush was sitting in a dead tree at the edge of the plain and was giving a type of vocalization often given by a dominant male after engaging in an agonistic bout. He no longer had the body with him. I was unable to find the body during a brief search. Kush later rejoined the group.

Subsequent interactions between Alto's and Hook's Groups seemed to become more frequent and to involve more two-phased barking and following or chasing of one group by the other. Ten days after the death of the Hook's Group infant, when the observer was absent, a three-year-old male and a four-month-old infant female disappeared from Alto's Group. The mother of the infant female bore a 10-cm gash on the left side of her ventrum and a long slash on the inner surface of her right leg. The origin of these wounds was unknown. In the following months Kush and Ali engaged in agonistic bouts culminating in Kush being badly wounded by Ali. Nubbin, the dead infant's mother, survived her wounds, began sexual cycling in mid-April, 1980, and became pregnant by November or December of the same year.

DISCUSSION

Although this encounter was a single, very rare event, it is noteworthy, as it involves at least three types of agonistic interactions: (1) between males of the same group, (2) between males of different groups, and (3) between females of different groups.

1. The infant Nigel appeared to be used as an "agonistic buffer" in the same way that has been described for adult males and live infants belonging to the same group [Altmann, 1980; Stein, 1981; see also review of agonistic buffering in other populations and species in Stein, 1981]. This particular case of infant carrying is unusual in that, although the two adult males involved in the fight were of the same group, the infant carried was of another.
2. Although I was not able to determine which individual or individuals inflicted Nigel's fatal wounds, it is possible that the infant's death qualifies as a case of intergroup infanticide. I suspect that the adult male first seen carrying Nigel in his mouth was a member of Alto's Group, as all adult males in Hook's Group at the time were easily recognizable. In any case, members of Alto's Group were seen wounding the infant. Intergroup infanticide as a possible manifestation of male-male competition between groups has been discussed by Hrdy [1979].
3. The attacks on the adult female Nubbin suggest that female-female reproductive competition between groups may have been involved. Hrdy [1976] reviews the potential evidence for reproductive competition through direct interference with reproduction, within groups as well as between them.

Because the events of this encounter form an isolated, unusual case of baboon social interaction, it is impossible to determine which, if any, of the factors suggested above may be involved, or to rule out the possibility that nonadaptive behavior was being observed. Perhaps further reports of such encounters will suggest hypotheses that can be tested to provide possible evidence for intragroup and intergroup competition.

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