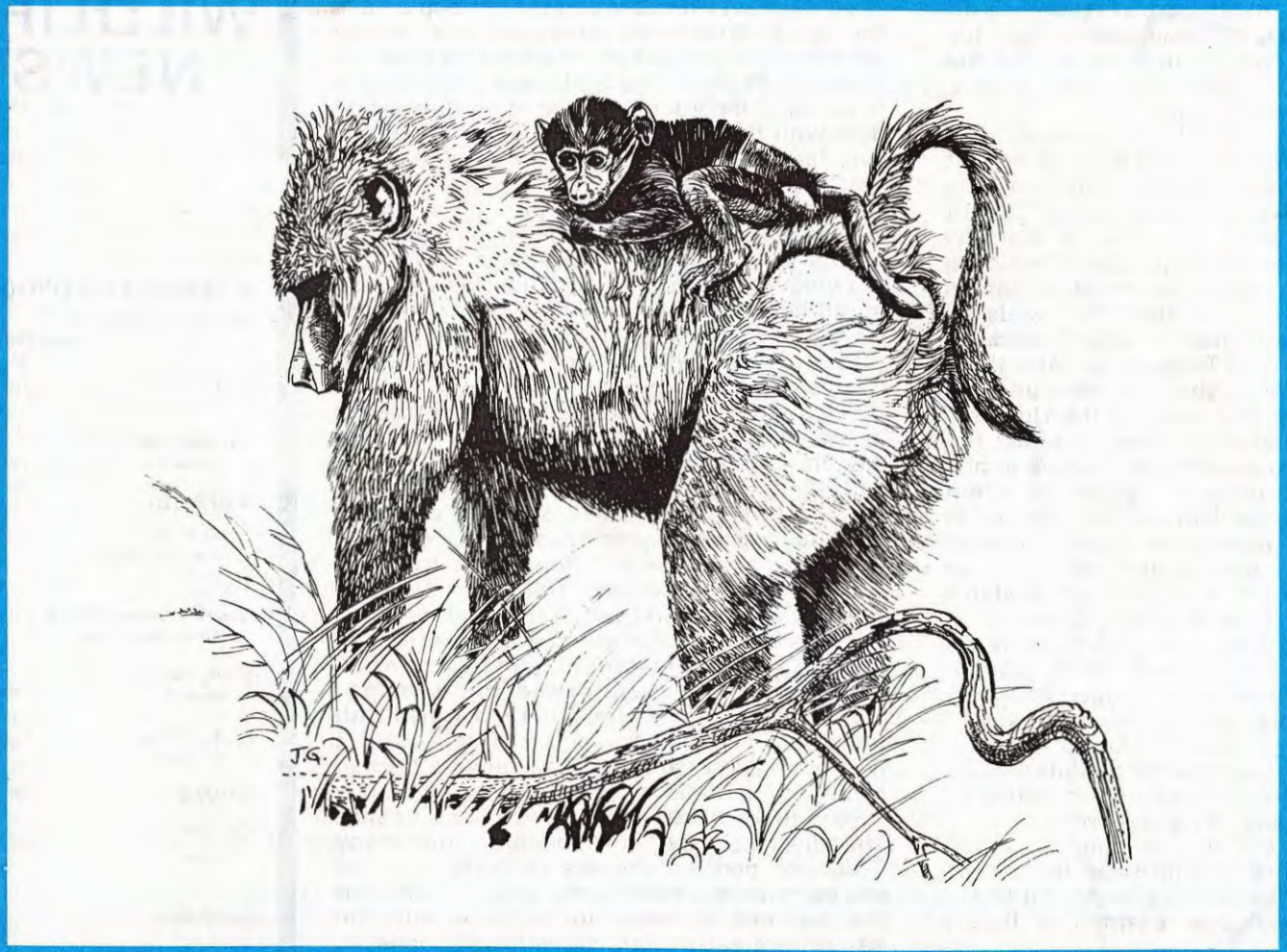
WILDLIFE NEWS



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WILDLIFE NEWS

OVERVIEW

We had enough to worry about already, with deforestation, over-population, land encroachment, lack of public awareness, too little money, poaching for trophies and for the pot, corruption in high and low places, overgrazing, and soil erosion.

Now, we have soldiers. Sara Cameron, who worked for two years on the IUCN Elephant Survey with Dr. Iain Douglas-Hamilton, has written a very informative article called "Caught in the Crossfire" about the effect of wars on Africa's wildlife, in the April issue of *Africana* Magazine. Take Uganda, for example. Idi Amin's retreating soldiers decimated thousands of animals as they marched through Uganda to escape the advancing Tanzanians. And then, the Tanzanian soldiers shot still more animals for their own pots and those of the Ugandan villagers they met along the way. Nor have the problems disappeared with the restoration of a degree of law and order in Uganda. In recent months, Sudanese soldiers, without any war to fight, are coming across the border to shoot elephants in Uganda's northern Kidepo National Park, which is adjacent to Sudan's southern border. They are also shooting at people flying overhead, as experienced by Dr. Douglas-Hamilton and Chief Park Warden Augustino Bendabule who dodged machine gun fire recently, during an aerial survey of Kidepo's remaining wildlife. Until Douglas-Hamilton's new armour-plated aircraft arrives, they take what comfort they can from sitting on flak jackets when they do aerial work.

Are the soldiers killing wildlife for meat, profit, or for fun? Probably all these. In the case of the Sudanese soldiers, it is likely that they are being paid by local businessmen, a theory corroborated by the fact that most of the killing is done on weekends when these people have the time to drive to the army camp from nearby towns or villages and pay the soldiers to do the shooting for them. The Sudanese army camp is based on the border with Uganda, ostensibly to deal with the problem of cattle raiding, and is very far from any source of authority.

Many conservationists are writing letters to the highest placed people in Sudan's government. There is reason to hope that these efforts will eventually have some effect by drawing attention to a situation which could surely be alleviated by orders from on high. And clearly, more attention needs to be paid to raising awareness among this previously neglected interest group—the army.

Similar threats to wildlife from soldiers exist in many other African countries, including Zambia, Zimbabwe, Mocambique, Namibia, Angola, Chad, Zaire and the Central African Republic. In some cases soldiers could be dissauded from trigger-happy destruction of wildlife in response to intervention from the governments concerned. This, provided that they are indeed being paid their wages on time, and cannot claim starvation. But soldiers, alas, become less than decent human beings when they are almost totally removed from a chain of command, poorly trained, and then armed with unlimited ammunition and guns so powerful that a single person can mow down a herd of elephants in a matter of seconds.

To withdraw financial aid from countries with offending soldiers is to penalize the many dedicated people who are working in those places trying to conserve the wildlife. Better for the moment, perhaps, to continue with the written entreaties until something is done, in the knowledge that, as someone said, Evil will triumph when good men do nothing.

Sandra Price

PURPOSE OF THIS FOUNDATION
(Established 1961)

In the belief that the survival of African wildlife lies in a working knowledge of the relationship between man, his economics and his environment, the objective of this Foundation is to provide the chance for education in management of wildlife to the men in whose hands its destiny has been placed
ARTHUR W. ARUNDEL, Trustee

Cover illustrations
by Jeremy Grimsdell

The feature article in this issue of the Wildlife News *concerns one of the most misunderstood of Africa's animals—the baboon. Many people find baboons repulsive and not a little frightening. However, one walk with the author of our article,* **Dr. Shirley Strum,** *and the baboons she studies, is all it takes to become enchanted and fascinated by these complex creatures. Shirley Strum, an Assistant Professor of Anthropology at the University of California, San Diego, has been studying the baboons on a ranch near Gilgil, Kenya since 1972. Her work has been supported by the National Science Foundation, the L.S.B. Leakey Foundation, the Wenner-Gren Foundation, the University of California, the National Institutes of Mental Health, and most recently the New York Zoological Society. Dr. Strum is a Director of the Gilgil Baboon Project.*

The second article is a report by **Diana McMeekin,** *AWLF's Deputy Director in Washington, on the recent safari that some of the Foundation's trustees and supporters made to Africa. The trip included the celebrations of the 60th Anniversary of Ngorongoro and Serengeti in Tanzania and a visit to the mountain gorillas of Rwanda.*

The final feature article is by **Dr. Robert Malpas,** *the WWF/IUCN representative in Uganda. Malpas, who studied elephants in Uganda from 1972 to 1976 for his Ph.D work, returned to Uganda last year to conduct surveys on the status of wildlife in the Parks and Reserves on behalf of several conservation organizations including AWLF. His article for this issue presents an up-to-date picture of the Uganda wildlife situation and an assessment of the conservation needs for that country.*

Lost in the wilds of the Southern Sudan where he is an ecological consultant on the Jonglei Canal Project, our regular contributor, **Steve Cobb,** *was unable to get his Focus column to us by forked stick. However, he promises one for the next issue and a future feature article on the Sudan as well.*

THE EDITOR

BABOONS:

social strategists par excellence

by SHIRLEY C. STRUM

drawings by Jeremy Grimsdell

Ask a group of tourists which animals they saw during their last visit to X National Park and they will name, with excitement, any or all of the Big Five. But in the next breath they will also tell you about the baboons that were there, not just how many there were or how big or what color but the details of their "antics", their behavior. Emotions of both admiration and repulsion underlay these sometimes accurate and sometimes fanciful descriptions of baboon society. Yet regardless of the overall balance of feelings, no one ever forgets an encounter with a troop of baboons.

Although baboons are not usually considered "wildlife", particularly outside of the national parks (their legal status was changed from vermin to wildlife only last year in Kenya), they are probably the most widely studied large mammal in Africa. Eugene Marais did the first "scientific" study in South Africa in the late 1890's but the real thrust of modern research began in the 1950's in southern and eastern Africa. Originally scientists sought to use baboons as models in reconstructing earlier stages in human evolution. Simplistic models soon proved to be of little value and more recent studies have attempted to determine the ways that evolutionary principles apply to a large ground-living, non-human primate such as a baboon. Regardless of the purpose of the study or the discipline of the researcher (biologists, anthropologists, and psychologists have studied baboons) the more recent information suggests that many old ideas about baboons are not really correct.

I have been observing one population of olive baboons since 1972 near Gilgil in the Central Rift Valley of Kenya. The area is high altitude savannah and until recently it was a privately owned cattle ranch with plentiful wildlife. The addition of cattle to the normal array of plains animals required the removal of lions and cheetahs. But man, leopards and domestic dogs are still major predators on the baboon population which now exceeds 1,000 baboons in 10 distinct troops inhabiting the central 12,000 acres of the 45,000 acre ranch.

I have primarily watched one troop; we call it the Pumphouse Gang, although it is not really a gang at all, but a well organized troop of baboons. I have also watched two other troops intermittently. Many other researchers have also worked at Gilgil, providing the project with continuous information. In the following discussion, I will draw from my own data collected during 4,000 hours of observation over 4 years from 1972 to 1980.

Baboon Basics

There is still some controversy about the classification of baboon species. Baboons range from the tip of South Africa, where they are called chacma baboons, northward into the arid steppes of Ethiopia where both olive and hamadryas baboons can be found, olives giving way to hamadryas in the drier areas. In between are the yellow baboons which inhabit lower altitudes or latitudes than olives. True forest baboons are found in West Africa but any of the savannah species (chacma, yellow or olive) can also be found in forest habitats in the East.

The Pumphouse Gang, like baboons everywhere, are adaptable, opportunistic omnivores. It is often remarked that the list of foods not eaten by baboons would be shorter than the list of foods that they regularly consume. Grasses, seeds, roots, corns, rhyzomes, flowers, buds, bark, sap, fruit, insects, fish, shellfish and meat make up the baboon diet. Detailed foraging studies have been conducted at several sites, including Gilgil, and all suggest that baboons selectively feed on the most nutritious items available.

As one might expect, the size of the group varies with habitat but at any one time groups of differing sizes can be found in the same population. Gilgil baboon groups range in size from 30 to 140 animals. With an upper limit on the size of the group, the smaller groups found in the population are the result of the splitting of a larger group. The merging of two groups is extremely rare; the only documented case occurred in a population of yellow baboons which was rapidly declining in numbers.

The Pumphouse troop contains several fully adult males, two to three times as many adult females, but the majority of the troop consists of immatures. Baboons are sexually dimorphic, that is males and females differ in body size and appearance. Females are roughly two-thirds the size of males and lack both the thick mantle of hair around the shoulders and face and the large canines of adult males. Physical development follows a fixed pattern; however, the duration of the various stages may vary depending on nutritional differences between individuals or habitats. For the Gilgil population, immature males and females grow at the same rate until about 4 years of age when males experience an "adolescent growth spurt." In a relatively short time they achieve nearly adult male size with newly descended, razor sharp canines. The cape of hair grows more slowly and as it is completed there is a slight additional increase in body size. At the same time a male "spurts", a female reaches

sexual maturity and begins to cycle. These early cycles are irregular and adult males show little interest in young females.

Male and female reproductive timetables are strikingly different. Before a male has completed his growth to adult size, a female has already given birth to an infant although she may not be fully grown herself. By contrast, a male may show a lag of 3-5 years between the time he is reproductively competent and reproductively active.

Females normally spend their entire lives in the group in which they were born, but males leave sometime during adolescence to join another troop. This first migration begins a pattern of transfer between troops that continues throughout a male's adult life. A male may immigrate into a troop such as Pumphouse, for a little as one month or as long as 10 years but the usual tenure ranges between 2 and 3 years.

The gestation period for baboons is six months; the single birth is followed by an infertile period while the infant is being suckled. The lactation interval and the number of cycles it takes a female to conceive again determine the length of time between successive births, which averages between 18 and 24 months at Gilgil and in most savannah habitats.

Infants are born with black coats which later turn to the adult color. Newborns are totally dependent on their mothers for both sustenance and for transport. In the early months, the infant rides on the mother's belly but later is shifted to the back where it sits "jockey style". A baby playfully imitates its mother's feeding behavior long before it actually incorporates solid foods into its diet. Most infants are weaned from the nipple by one year of age.

How long a baboon lives in the wild is difficult to determine. At Gilgil at least, it seems likely that females live well into their late twenties. But lifespan will vary between populations reflecting differences in nutrition and in factors of mortality.

Baboon Society

The popular literature is filled with references to baboons especially when evolutionary interpretations of human behavior are being made. The popular view of baboons is taken mainly from studies by I. DeVore, S.L. Washburn, and K.R.L. Hall which were done in the 1950's and early 1960's. For these scientists, baboon society was a male-centered affair. The dominance hierarchy of the adult males, was *the* structure of the entire group. Females raised infants and did little else.

All pioneering studies have their limitations and these were no exception. Because only adult males were normally identified as individuals and because the studies were relatively short, life-history information for the group was not available. Furthermore, both the lack of systematic sampling techniques and the fact that the males in some of the troops were fed to elicit the dominance structure could create uncontrolled biases.

The baboon studies that followed included several long-term projects: at Amboseli, Gilgil and Masai Mara in Kenya, at Gombe Stream and Mikumi in Tanzania, and at Okavango in Botswana. These sites have produced a wealth of information during the last 15 years and also a new and different description of baboon society. There are hints of differences between populations but at present it is difficult to separate what may be different interpretations of the same phenomenon from real differences in baboon adaptations in the various populations. Because of this, I will discuss only my own data from Gilgil.

Pumphouse is organized around a core of females and their kin rather than around a stable male dominance hierarchy. Each kin group is headed by a female and these matrilines are ranked in a rigidly linear fashion. The entire matriline has a shared dominance rank vis-a-vis other matrilines so that even the smallest member of one matriline ranks above the largest adult females of the matriline immediately below in rank. Initially, this occurs because the mother or other kin group members intervene on behalf of the smaller individual. However by about 2½ years of age the individual's rank becomes "independent" of such intervention. Within a matriline, the youngest daughter ranks highest with other daughters in descending order according to increasing age. Sons are subordinate to their mothers until adolescence at which time they rise in rank above her and forcibly push their way upward through the female dominance hierarchy. Because sons leave sometime during adolescence, all adult members of a matriline are females.

Many activities attributed to adult males during the earlier studies are, in fact, more often performed for kin by kin. These include policing internal disputes (particularly among females and immatures) and protecting an individual against outside threats. The kin group is the most stable unit in a baboon troop and kin show preferences for each other in grooming, proximity and of course in support during aggressive interactions. A baboon group can be thought of as a series of kin network each providing the main focus of attention for its members. These networks are tied together through other, non-kin, social relationships.

By contrast, Pumphouse males have an unstable and dynamic

series of relationships with each other. Although I can construct a male dominance hierarchy from the interactions between males over a period of time, it is not very useful in predicting the outcome of future interactions since, among any pair of males, winner and loser frequently reverse positions. High dominance rank is also not a good predictor of who gets the resources of most limited availability, such as sexually receptive females or meat (from prey that the baboons have captured). What the dominance rank does reflect is the length of time a male has been a resident in the troop. "Newcomer" males are aggressively dominant to males of longer residency while "resident" males get more than their share of limited resources.

This seems somewhat paradoxical since dominance and aggression are normally tied to resource competition in a positive way. However, aggression is only one form of competition and it may not be the most effective technique under all circumstances. Pumphouse males often use what I have termed "social strategies" of competition as opposed to aggressive methods. For example, only 25% of the cases where one male takes over a female from another male is the result of aggression between the previous and the new consort partner. The majority of these turnovers result from social maneuvers that rely on both social experience and knowledge of the group and on the social relationships or affiliations that a male has established. Several examples may illustrate the point more concretely. Sometimes a consort pair is followed by harassing males. When aggression finally occurs, the female goes, not to the aggressor but to another male who has watched at a comfortable distance and who makes a timely rush to the female while the aggressive males are preoccupied. Even without a male waiting in the wings, fighting to gain access to an estrous female does not guarantee reproductive success (either keeping her or copulating with her). Female cooperation plays an important role in male success among Pumphouse baboons. Females tend to cooperate more with males with whom they have established a social relationship than with ones they have not. An uncooperative female can tire her consort partner, denying him copulations and disrupting his feeding. The male may voluntarily leave the female; she then chooses a new male and begins another consortship. A male is also more successful at keeping a female if she is affiliated with him. When aggression occurs, she stays near him rather than running away, improving his ability to meet the challenge.

Pumphouse males also use social strategies of defense when faced with the aggression of other males. Aggression can be met with aggression but depending on the circumstances and the actors, a male may choose to use an infant or a female as a "buffer" instead. When a male uses an infant he takes it on his belly in the midst of the interaction and this usually inhibits aggression in the other male or males. This kind of buffering has been observed in all the populations of baboons which have been studied. For Pumphouse males, the choice of infant depends on the prior relationship between the male user and the infant. In general, males use infants with whom they have an affiliative social relationship. When they try to use an unaffiliated infant, their success in turning off the aggression of the other male seriously declines.

The same pattern applies to the use of females. Socially affiliated females are used as buffers to aggression more often and more successfully than unaffiliated ones. For both types of buffering, the cooperation of the individual who is used is critical to the success of the tactic. Deciding whether to use an infant or a female as a buffer seems to depend on the residency

status of both the male user and the male agressor. Because cooperation is tied to the existance of a prior social relationship, newcomer males have fewer options than resident males. When newcomers do use an agonistic buffer, it is most frequently a female since social relationships with females are the first to be established.

Why an infant or female should allow itself to be used in such a manner, or for that matter, why a female should cooperate in a consort with an affiliated male, can really only be explained in terms of the benefits that are received, in other contexts, from the social relationships that have been established. These benefits take the form of male support of the infant or the female in its conflicts with other group members. Although an individual's kin provide the majority of its aggressive support, a male's support can be decisive in interactions with higher ranking matrilines or in interactions where other males are involved. Contrasted to those benefits, the cost of being used (or cooperating) appear minor. In the case of agonistic buffering, the major cost is injury but no infant or female has been injured while being used in this manner.

There are other important social relationships within the Pumphouse troop, such as those between unrelated adult females and those between immatures. Although space does not permit discussion of these, it is clear that the complexity of group organization in this troop of baboons far exceeds that suggested by earlier research.

For Pumphouse baboons, social relationships and intricate social interactions are best understood in terms of an individual's attempts to improve his own reproductive success. However, to the degree that an individual's success depends on social strategies, other group members may play a vitally important role. Whether others will cooperate in such strategies depends on whether it is to their own advantage to do so, although the benefits they receive might occur or have occurred in other contexts. This suggests that most baboon social relationships which are not based on kinship consist of a series of reciprocally altruistic interactions.

If the machinations in Pumphouse society sound familiar, it is because humans are the ultimate social strategists and much of human social interaction is based on reciprocal altruism. As social strategists, both humans and baboons have been under evolutionary pressure for characteristics which include adaptability, opportunism and intelligence.

Baboon Future

The Gilgil baboons are presently in the throes of a new kind of social interaction, one which is, in part, a result of the covergence of abilities just described. Baboons and humans are fighting over crops produced by recently settled agriculturalists. Our current research includes an investigation of the development of crop-raiding by the Gilgil baboon population. We are trying to determine the ecological and social factors which contribute to baboon raiding behavior and we are also testing various experimental techniques to control that behavior.

Just as baboons are not normally considered wildlife, they are not normally considered to be endangered. Until recently, they were the most numerous primate on the African continent. But several factors suggest that the future conservation of baboon population may be an even more difficult problem than those we already face. In the first place, baboon habitats overlap extensively with areas targeted for future agricultural settlement. Not only do baboons compete directly with humans for the land but they also compete directly with them for their crops produced on this land. Secondly, there is pressure on baboon populations from international medical industries who find baboons a useful research subject now that the populations of rhesus monkeys (the baboons of Asia) have virtually been destroyed by such utilization. Even in the national parks, baboons are not safe; many baboon troops have been destroyed or removed because they excelled at exploiting the new opportunities that eager tourists armed with food present.

A central problem in the major conflicts between man and baboon is that both species are intelligent opportunists and baboon ingenuity appears to seriously test human ingenuity. Unfortunately the easiest solution has been to destroy the animals. I jokingly say to my friends, when trying to explain our current crop-raiding project at Gilgil, that my aim is to prove that humans are actually smarter than baboons; but underneath the jovial manner I am quite serious.