



Guess who's coming to dinner

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*Sam was not the only one excited about the food laid out on the picnic table that sunny Sunday afternoon in Nairobi National Park. We had spent two days waiting for some unsuspecting tourists to come and set up their picnic table; now our patience was to be rewarded, as Sam prepared to work the picnic site... to get someone else's lunch. Sam is a subadult male olive baboon (*Papio**

anubis), and as primatologists, we wanted to find out how Sam, Sunshine and the other members of the Mokoyeti Gorge troop could be so talented at stealing picnics. For the first two days of observations, however, the only 'victims' had been us, and this challenged our abilities to take notes while dealing with the menace. At one point, we were kept out of our car and denied access to

our camera and notebooks. Today we could perform the work we had set out to do, as we observed Sam's tactics to get 'his' share of the food. Sam first scanned the surroundings from behind a bush roughly 50 meters away from the feast. Feeling confident at this distance, he took his time to plan the rest of his attack from that vantage point. Sam had to make it over open

join the party as the greedy, uninvited guest. The coast was clear; we were the only humans nearby—two scientists with clipboards. He was used to us and knew by now that we would not interfere. It did not take long for Sam to decide it was time for his next move. He knew that once he covered the last 15 meters to reach his last bush, he would have no time to lose and should take immediate action. There he went! Holding our breath, we watched him speed towards the bush. He paused a second to look around, then climbed into the small tree right next to the picnic table. Silent and invisible, the picnickers had not noticed his presence! He was only a few feet away. Suddenly, he burst forth from his perch in the small tree, landed on the picnic table and,

contributor to what is known as the “biodiversity crisis”. Scientists recognize four major threats to “nature”: habitat loss, habitat fragmentation, over exploitation of species (for example, the bushmeat trade) and the problems that have resulted from the introduction of exotic species (Wilson 2002). For an increasing number of species, the fastest growing threat comes from conflict over human food. Faced with a dwindling habitat, wild animals still have to find enough to eat. What are the options? Most species cannot adapt to the new situation, so they join others on the threatened and endangered species list, but some species successfully exploit the new opportunities. The crops that humans grow, the livestock that they

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herd, even refuse pits and tourists’ picnics offer new resources for those animals that know how to get to them, and are bold enough to try.

For Sam, it proved a successful foray, rewarded with a nutritious meal. For us, it was just the sort of data we had come to collect. For the visitors, it meant a ruined picnic, and probably a complaint to the Park headquarters.

How did they get to be such awful pests?

Having your lunch stolen by baboons in Nairobi Park is both possible and perhaps necessary because of a series of historical and evolutionary events. A growing body of research explains why baboons will join you for dinner, and ruin your picnic.

It was a familiar experience for many of us who have tried to have lunch in Nairobi National Park.

This vexing encounter is connected to a much bigger problem not just for baboons, but also for many species of primates and for other wildlife. Conflict between humans and wild animals is now a significant

The more recent events involve the impact of tourists and the loss of habitat. At one time, it was thought that Africa had more baboons than people. Even now, baboons are the most widely distributed non-human primates across the continent. The Nairobi Park baboons belong to one of five species of “savannah” ba-

ground into a clump of green in the middle of the picnic site. This was tricky, but his presence went undetected. No harm so far. Sitting near our car—windows closed, food safely inside—we watched Sam scan the surroundings thoroughly from his “ambush”. He seemed a bit nervous but we had no doubt he knew what he was doing. Only one more open space to conquer before he would

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boons that exist in Africa. In fact, this baboon population is famous as one of the first studied systematically by scientists. Those studies, which took place in the 1950s and 1960s, contributed significantly to current views about baboons. However, there was a problem, even then. Tourists (few in number but enthusiastic nonetheless) fed the baboons from their vehicles in order to get them to come closer for photographs. As a result, some troops were removed from the area around the main Park gate. This was necessary because the baboons had lost their natural fear of people, which, until that point, had kept them at a healthy distance. Feeding baboons to get nice photos had the desired effect; unfortunately, it was permanent and had some unpleasant repercussions. The baboons developed very bad habits as they began to associate tourists with free handouts. If the tourists refused to share their food, the male baboons did what was normal for them—they just took it. Their in-

creasingly aggressive tactics scared and upset the tourists, especially when they partially dismantled cars to get at the food inside. Thus, they had to go. Removing a troop, however, is not a permanent solution since other groups move into the space left vacant and in turn are “spoiled” by new tourists. Even in the 1950s, people were the basic cause of the conflict.

Less space, fewer animals, more people

This brings us to the second historical reason for baboons ruining your picnic: the rapid development of areas in and around Nairobi. The baboons in Nairobi Park once ranged north, west and east of the park. Today they are limited by settlement in these directions. The perimeter fence is no deterrent to a baboon, but there are enough risks associated with such a high density of people that, for the most part, the baboons go outside only to the south of the Park. It is safe to say that the Nairobi Park baboons

have had an increasingly harder time making a living as human settlement takes away their habitat.

Agility, dexterity and intelligence: the hallmarks of the order Primates

We now have the “necessary” conditions for the uninvited guests, but why are baboons so adept at snatching our food? Primates have several characteristics that give them an advantage when exploiting a new situation—they have hands and they are intelligent. Hands allow primates to manipulate the world in a new way to open things up and explore. The brains of primates are larger than we would expect in a mammal of that size. Because of this, they are endowed with highly developed vision, which has taken priority over their sense of smell. They see the world in a wide spectrum of colours, and with stereoscopic vision, as do humans. Even within the primate order, evolutionary pressures have resulted in differences in

brain size and intelligence. Monkeys and apes use their brains to keep track of seasonal and widely dispersed foods, and of complex social relationships. Brain size varies with foraging strategies, and the size and complexity of their social group. Primate species that have a varied diet (rather than a specialized one) have larger brains. *We are what we eat.* Life in large heterogeneous social groups also seems to be associated with larger brains.

And, yes, those species that will try new foods, and have complicated social networks, will adapt more easily to changing environments because they will try just about anything.

Given their evolutionary history and current foraging and social styles, baboons are prime candidates for taking advantage of opportunities. Socially and ecologically, they are smart monkeys.

We can see the consequences of this at our picnics but cannot really understand why such skills developed until we look into a wild baboon group. Then you can see baboons navigating their social world of families, friends and complex relationships—of both related and unrelated individuals. Baboon daily interactions involve them in the sort of politics that require insight, foresight and strategic intelligence.

Ironically, in this new world of shrinking habitats and human made opportunities, baboons find themselves pre-adapted (because of their evolutionary history) to the historical situation that developed in Nairobi Park. Plus, their social complexity and intelligence, not to mention their resemblance to humans, is the reason that people are so fascinated with baboons and other primates—and why they feed them to get them to come closer to take photographs! The ‘bribery’ used by people to get them to come closer for longer is what eventually seals their fate.

Discerning palates

Why do baboons find human food so appealing, and worth the

considerable risks involved in stealing it? The final piece of the story comes from elsewhere in Kenya, a study of the development of crop-raiding in a population of baboons at Gilgil, near Lake Elmenteita. Observing how different groups made decisions about whether to raid crops from newly settled *shambas* (gardens) or refuse pits, this study was able to demonstrate that eating human foods is a smart foraging strategy for baboons. Crops, human garbage, or food straight off the table, provide concentrated and high quality meals, compared to the roots, shoots, seeds and fruits that are normally the mainstay of baboon diets. They usually come in sizeable helpings too! The digestible carbohydrates made available by just one maize cob can provide the equivalent eaten in up to two hours of natural foraging. Not only was it worthwhile for baboons to raid, but the time saved by

more, if the baboons could not outsmart the humans, they could at least “out wait” them. Humans eventually go to town, work or into the house.

Thus, eating human food made for an excellent foraging strategy whose benefits were so great that the baboons were highly motivated to raid. The Gilgil study also showed that, if the costs were high enough, they could be dissuaded, especially when they were just learning to raid. Raiding becomes more ‘expensive’ for baboons if it takes up too much time (for instance, if the fields, houses or garbage pits are harder to access because of tighter security). As a result, it once again becomes efficient to search for natural foods. Another counter strategy is to increase the ‘risks’. Chasing, throwing stones or using dogs made raiding more dangerous and often dissuaded the raiders. Even then, baboons were constant-

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eating this easily digestible, nutritious food, meant that they could afford to wait for the right time to raid fields or homes. Cooked food is even more digestible saving more time! Eating human food made them grow faster, to a larger size and weight, and reproduce more quickly. These are all great survival (and evolutionary) benefits. Out of a dire situation—the conversion of their home range into agricultural smallholdings—the baboons forged a solution. It only required outsmarting their human cousins, something that was surprisingly easy to do. They simply did what came naturally: observe, assess the situation, get the timing just right and capture the prize. Further-

ly evaluating the new threats. They reacted less to children or women who chased them than they did to men. The baboons acted as if they perceived an increased risk when the chaser was a man, a group of men or men with dogs. The most serious threat to the baboons was being chased by men with weapons.

Bad table manners

Now the scene is set for the drama at the picnic table...

In our research, we have mostly observed baboon raiders going after crops. To close this gap in our experience, we decided to spend a few days looking at what things transpire in the park that encour-

age baboons to behave badly and eat so well. How it is that tourists set themselves up as targets, and what can be done to prevent these unpleasant interactions?

On four different days in Nairobi Park, we observed baboon and visitor behaviour, and interactions between them. On two of those days, baboons and visitors were present, one day there were no visitors (so we became the 'victims') and on the other day the baboons were absent. Most conflicts occur on the weekends when there are plenty of visitors—or we should say lunches—present.

We found that the baboons at the Mokoyeti picnic site in Nairobi Park are quick and determined lunch raiders. The baboons spent a lot of time on and around the cliffs at the edge of the site. When no

towards the baboons varied from 'indifferent' to 'concern' to 'hostility'. We asked them what they thought could be done about the problem. 'Keep your windows closed', 'do not feed the baboons', 'station rangers at the picnic site' and 'shoot all the animals of the troop' were solutions visitors shared with us when we asked them about this baboon-human conflict. Awareness, however, did not always provide protection. Even when prepared, you can be overwhelmed and surprised by the speed and daring of the large males. One family was attacked when an adult male jumped out of the bushes and snatched a bag full of food from a woman's hand (easily a day's worth of nutrition for a baboon). On a few occasions, visitors threw food at the baboons,

children. Both methods seemed effective but the 'flight distance' from family A was relatively short (about ten feet). The baboons were obviously aware of how long the branches were, and how fast the men could run. They maintained the shortest possible distance between themselves and the picnic table, or the men chasing them.

The catapult was much more effective. Family B expended very little energy keeping the baboons at a distance of about 40 feet. They did not have to use any stones that day; the sight of the catapult was enough to scare the animals away. For our own lunch, just sitting at the table next to Family B's was enough to protect us from the baboons as well; we benefited from having such powerful allies! The results of the Gilgil crop raiding



tourists are around, the baboons eat a variety of natural foods, including grasses, roots, shoots, buds, flowers and ants. In the absence of visitors, they inspect tables, bins and scattered garbage for leftovers. The baboons are alerted to the presence of visitors by the arrival of cars (they monitor the road), the presence of people at the picnic table (they saw us at a table from down at the river, a few hundred meters away) and the noise made by car doors slamming and/or voices.

Many of the visitors seemed familiar with or informed about the potential problems posed by the baboons. The attitude of people

which provoked aggression between the animals. Twice we saw the baboons removing food out of cars; they can see food through the car windows. If the windows are closed, they might sit on the top of the car and threaten the owners if they approach.

One day we shared the picnic site with two families having lunch at the same time, but using different strategies to hang onto their meals. Family A was armed with leafy branches, and boasted two men whose job it was to chase the baboons away. Family B achieved the same outcome with the help of a catapult wielded by one of the

study were echoed at Mokoyeti: the most powerful weapon is the greatest deterrent.

Back to nature

Life for the Mokoyeti Gorge troop is not all crisps, bread and hard-boiled eggs, however. Hours could go by without the animals getting anything from visitors. This is when we saw them eating natural foods at and around the picnic site. On one of our observation days, they never turned up at all. Although we do not know the role that picnic lunches play in their diet, we take this occasional absence to mean that they cannot

fully support themselves on lunches and leftovers every day. They sometimes skip the lunches; so if they can be stopped from eating visitors' food, we do not anticipate they will suffer much from lack of food.

So now what? The best way to avoid this human-baboon conflict is preventing the baboons from experiencing the benefits of human foods. It is harder to control the problem once it starts than to prevent it happening in the first place. Never feed wild animals or leave garbage around for them to find. Raise the costs for them of obtaining food from humans. The higher the risks for them to get the food, the more likely they will turn to natural foods. Chase and scare them away when they want to come anywhere near food (without risking a direct confrontation!). Fences are not effective; they will climb over them without any effort. Baboons are quick studies; once they know the benefits of human foods, they find it relatively easy to outwit most people.

Our most enjoyable moments at the picnic site occurred when there was no food, and the baboons once again became their true selves: sociable, intelligent beings that are fascinating to watch. Being fairly used to us, and realising we had no food, they completely ignored us and went about their normal afternoon routine: sleeping, grooming and playing on the picnic benches and tables while we took photographs and notes. Non-human primates are valuable species for tourism, because under these conditions, watching them really is a lot of fun!

If you think baboons are bad...

Baboons in many places like Nairobi Park are pursuing a sensible and very resourceful strategy by feeding on visitor lunches and garbage. So far, we have learned that the conflicts at picnic sites and other tourist attractions are a 'people problem'. Unfortunately, *controlling people is even harder*

than controlling baboons. Possible solutions to avoid conflicts with habituated baboons are:

1. close your windows and doors when entering a picnic site or coming near a troop of baboons
2. never, *ever* feed the baboons—a point that cannot be overemphasised
3. if, by any chance, they get into your car, leave them alone, until they are ready to get out, close the doors in the mean time to stop more of them getting in
4. take garbage with you when you leave a picnic site or throw it in the baboon proof bin if there is one
5. bring a catapult to show the animals you are prepared (you might not need to use stones, but if so, aim for their hind-quarters)
6. never provoke them
7. do not chase the baboons once they have snatched something; they are faster than you are and they will drop items which do not contain food (so that you can have it back).

The Park management could take the following steps to reduce the problem:

1. inform visitors when they enter the park on appropriate behaviour at picnic sites
2. station a trained ranger at problem picnic sites who can keep the animals at a distance and educate and inform visitors
3. install baboon proof bins at all picnic sites.

Baboon troops in the park seem to be located along the river or near the gates. This is probably because of the availability of sleeping sites and water. If one or two picnic sites were to be situated in the park away from these areas (on the open plains, maybe near just a few trees) there might not be a baboon problem.

The problem with picnics, annoyingly, is not serious compared to the larger scale of the biodiversity crisis. So why do we say they are linked? Because what we understand about baboons and

the picnic site is representative of other, more threatening human-primate conflicts: crop, stock and house raiding; ie, raiding human food resources wherever they coexist. Whether it is out of necessity (because habitat is lost) or choice, when human foods, which are high in nutritional value, are available, the ensuing conflict becomes a serious threat to the future of specific populations and species. Kenya does not have a particularly large or diverse population of primates, but KWS occurrence book revealed that they receive more complaints about primate pests than about any other wildlife species. Because primates are intelligent, they are particularly difficult to deter. The same scenes recur throughout the 'hotspots' of primate biodiversity in the developing world. While it is not possible to solve the problem, we know enough about what to do to make the situation better. The solutions are the same as those that will work on the Nairobi Park baboons. Guard, chase, and—when necessary—be aggressive, but do not provoke a direct confrontation. Be certain to prevent naïve primates from ever tasting human food. That may not only rescue your picnic but it could save some primate species from being forced to the edge of extinction because of conflict.

It was only half an hour later that Sam walked over to his first 'ambush' again, another family had arrived. He was beginning another assault. We knew what was coming and kept our clipboards and binoculars ready. He made it as far as the dense bushes in the middle of the picnic site—things were going as planned. Then, when Sam almost reached the last bush to make his final leap onto the table we saw him, to our surprise, rushing back to his first hiding spot. What happened? A young boy with a catapult in his hand was grinning at us. No harm done to the food or Sam. An enjoyable family outing was completed overlooking the beautiful Mokoyeti Gorge in Nairobi Park.