

by Gail C. Thomson



The Great Elephant Balancing Act

Recent research emphasized the importance of males in elephant society, findings that are now being used to batter countries in Southern Africa into changing their elephant management policies. This article reviews the scientific evidence and calls for a balanced approach that considers both humans and elephants.

Elephants are amazing creatures. Besides being the largest land animal on our planet, they inhabit relatively complex societies and appear to have individual personalities. Watching elephants in their natural habitat is a joy for those of us who can do so at our leisure, from a safe distance or with a knowledgeable guide. For those who face the real danger of meeting an elephant on foot at night while walking home, elephants can be terrifying.

It is no wonder that the idea of hunting elephants is a sensitive one, and that the people who spend much of their time observing these ponderous, loveable beasts want to do everything in their power to protect them. There is also little wonder that people living with elephants want them to stay away from

by Gail C. Thomson

their crop fields, gardens and homes—or else be “controlled.” As with many things, how you see an elephant is a matter of perspective, and managing this species must take vastly different perspectives into account, along with the relevant science.

The topic of elephant management requires a book (or several) and I am not an elephant expert, so I will leave that task to others. My primary interest is human-wildlife conflict, which is present in every part of the world and involves a dizzying array of species, including elephants. Popular opinions about elephants and the intense disagreement among different interest groups over whether or not they should be hunted make this species a compelling case study.

There are two sides to human-elephant conflict, and both sides have been studied in Botswana and elsewhere. We will dive into some of the science of these two sides first, before considering how these two sides should inform the tricky business of elephant management.

The elephant dimension

Hunting is the most controversial aspect of elephant management, particularly when it is for “sport” or “trophies,” where clients pay large amounts of money to hunt large male elephants. Elephants may also be hunted due to human-elephant conflict—when a particular animal is identified as a “problem” because it causes repeated damage to crops or infrastructure, or because it has killed people. Shooting an older male elephant as “sport” is more controversial than shooting one in response to conflict. Scientific studies of male elephants elicit great public attention and are frequently cited in the debate about hunting them.

A recent study by Allen *et al.*, titled “Importance of old bulls: leaders and followers in collective movements of all-male groups in African savannah elephants,” discovered that mature elephant bulls play a role in leading younger bulls, particularly when travelling to the Boteti River in central Botswana. They found that adolescent males (<20 years old) rarely travelled to the river alone, but preferred accompanying mature males. Furthermore, in groups of males, the older ones were most likely to take the lead. The oldest age class the researchers categorized was 26 years plus, which is really just the age of maturity for elephants rather than an indication of true old age. Wild elephants can live as long as 60 to 65 years.

The study authors concluded that older male elephants are therefore important for determining movement patterns for younger males. (They go further than that, to be discussed later.) Other elephant biologists have noted that older males function as disciplinarians for younger ones, teaching them appropriate behavior within elephant society and even towards other species. The latter observation is supported by the experience 25 years ago in Pilanesberg National Park, South Africa, where male elephants that were orphaned due to culling operations were released into the park without older elephants. These traumatized young males caused havoc by killing rhinos and attacking tourist vehicles. Older males introduced into this population calmed the troublemakers down.

Another line of scientific evidence that emphasizes the importance of male elephants comes from a paternity study in Amboseli National Park, Kenya. This study found that male elephants reach their

by Gail C. Thomson

breeding peak (*i.e.*, father the greatest number of calves) between 45 and 53 years of age and that they can still reproduce in their late 50s, although the numbers of offspring decline sharply by then. The conclusion one can draw from these results is that male elephants ideally should not be hunted before or during their prime reproductive age of around 40 to 50 years. Elephants older than this have already contributed a great deal to the population; their genes will therefore not be lost if they are hunted when they are past their prime. (See also this article on age-related hunting.)

Allen *et al.* also point out that male elephant society differs from female society in a number of important ways. First, males group together or split apart over time, while female breeding herds stay together and do not randomly split up and regroup. Second, the matriarch elephant walks at the back of her herd in order to keep a watchful eye on everyone, thus actively caring for her group. But old males walk at the front of their groups and seem unconcerned about whether or not the younger males follow. Finally, adolescent females do not travel long distances on their own (unless something is seriously wrong), while adolescent males do, even though they prefer the company of older males.

In terms of their function in elephant society, then, it is reasonable to say that older females (matriarchs or soon-to-be matriarchs) are more important than older males, although it is certainly not advisable to remove all older males from the population. The scientific evidence showing that older male elephants have a role to play is important and should be incorporated in elephant management plans—no subpopulation of elephants should be left without mature bulls.

Yet Allen *et al.* do not stick to their scientific findings in the concluding remarks of their paper, where they write: “We argue mature bulls occupy a *similar role* in male elephant society as old female matriarchs in breeding herds and require *equal* protection” [emphasis mine]. They further argue that the hunting quota of 400 male elephants set by Botswana for 2020 “would not be sustainable.” With that, they stepped out of elephant biology and into the human realm of policy.

Scientists are human too

While the practice of science—creating and testing hypotheses, gathering and analyzing data, drawing conclusions and suggesting real-world applications, and finally submitting it all for peer review—is designed to reduce our inherent bias as much as possible, the fact remains that scientists are humans too. People who study animals, particularly animal behavior (which requires many hours of watching them) naturally become attached to their study species. Indeed, they probably had a natural affinity for those species before they even started their studies, which was why they became biologists in the first place.

I can empathize with this. I chose to study carnivore conservation biology because I have always loved cats of every kind. But I have a concern with the conclusions reached in this old-bulls paper. First, deciding that male elephants and matriarchs should have equal protection is an over-reach—the paper itself describes how older males are less important to younger males than matriarchs are to younger females.

Second, the mature elephants they are concerned about (>26 years old) represent 19% of the males in

by Gail C. Thomson

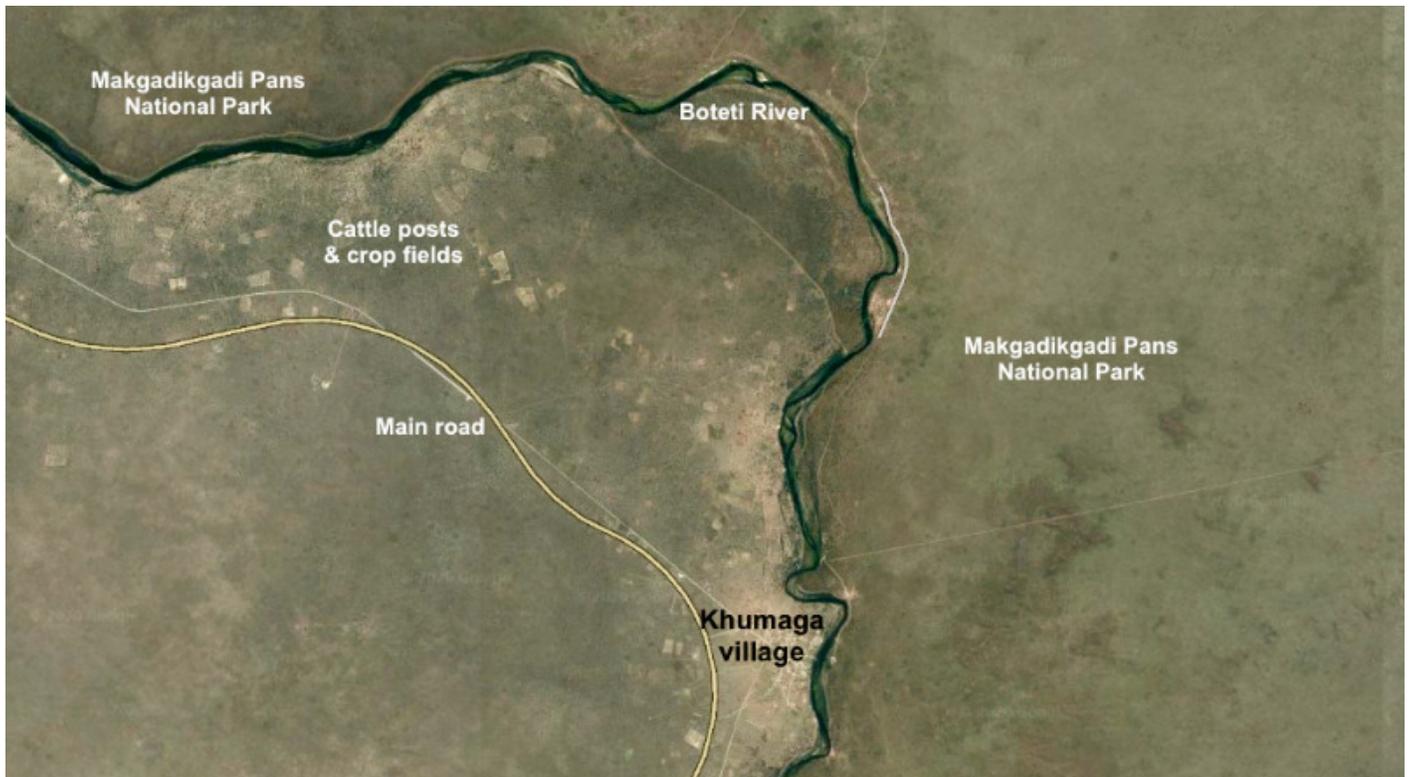
their sample of 1,097 individuals. If we consider that there are 130,000 elephants in Botswana and half (65,000) are male, then we have roughly 12,000 mature males in the country. (This estimate is based only on their reported demographics and assumes a 50:50 sex ratio; in reality, setting off-take quotas is much more complicated than this.) Botswana's hunting quota of 400 adult male elephants per year is thus about 3% of the available males. (Note also that 400 is the maximum allowed; the actual number hunted is likely to be less.)

If only 3% of the older males are removed from the population, will male elephant society break down such that younger males start behaving badly, like those in Pilanesberg? Will young males have no older males to follow to the river, as they did in this study? Hardly. These numbers indicate that the researchers' conclusions stem from an understandable desire to protect the elephants that they have spent so much time studying, rather than their study data. In order to conclude that a hunting quota is unsustainable, one needs data on the population structure and growth rate with and without hunting, yet this study focused only on elephant behavior, not on populations.

Consider other stakeholders

While the results of good biological research, such as those summarized above, must be incorporated into animal management, the personal views of the researchers must be considered alongside the views of other interested parties too. Furthermore, biology is not the only scientific discipline that should inform animal management policies. After reading Allen *et al.* on male elephants near the Boteti River, to get the other side of the story I looked for a study concerning people living near the same river. Interestingly, both papers included an author (a different person, in each case) from Elephants for Africa, an NGO that is working to reduce human-elephant conflict there and that understands both the elephant and human dimensions of this situation.

by Gail C. Thomson



Khumaga Village, in north-central Botswana, lies on the Boteti River, the western boundary of Makgadikgadi Pans National Park. Google Earth

The people-based study, by Mayberry *et al.*, is titled “Well-being Impacts of Human-Elephant Conflict in Khumaga, Botswana: Exploring Visible and Hidden Dimensions.” Khumaga is a village on the Boteti River that is associated with several smaller farming settlements also along the river. The Boteti is the boundary between farm areas and Makgadikgadi Pans National Park, which supports more than 2,000 elephants (most of them male, for as-yet unknown reasons). At the time of this study, the boundary fence of the park was in disrepair, which let the elephants cross the river back and forth between the farming areas and the park.

Mayberry *et al.* wanted to know how the presence of elephants affected the people living along the river. They went deeper than the usual tallying up of elephant damage (such as destroying crops or breaking fences) and also asked their 61 respondents about the impact of elephants on their personal security and freedom, physical and mental health, and relations with their families and the government.

They found that 72% of their respondents felt unsafe around elephants and that the mere possibility of encountering elephants limited their freedom of movement, especially at night. Even more worrying was that 90% reported that the crop damage caused by elephants threatened their food security. In Botswana, food is expensive relative to the earning power of rural people, so a low yield from their

by Gail C. Thomson

crops means that these subsistence farmers may not have enough to eat, as their sources of cash are limited.

Nearly two-thirds (63%) of interviewees said that their access to water also was hampered by the presence of elephants at the river. Furthermore, while limiting their access to food and water was a clear physical health concern, a quarter of the interviewees also reported an intense fear of elephants, an impact on their mental health.



Crossing the Boteti River near Khumaga. Author's photo

Balance: a matter of management

Unsurprisingly, the people living near the Boteti are frustrated; their main request of the government was that the fence be reinforced—on the park side of the river, so that they can access the water. Yet, as the Allen *et al.* study showed, the Boteti River is critical for elephants, too; desperate to quench their

by Gail C. Thomson

thirst, they will do their best to break down any fence blocking *their* access to the water. The government suggested moving the boundary to put the Boteti inside the park and then erecting a fence to protect the human communities from elephants. But the river is a key source of water for people also, and they were unwilling to give up any land to the park, much less this critical resource.

This highly localized situation gives us an idea of the complexity involved in managing elephants (and all other animal species that conflict with humans). While the area around the Boteti is a hotspot for human-elephant confrontation, it is certainly not the only one in Botswana. If trying to please its citizens while conserving its large elephant population were the only struggle the government had to deal with, that would be enough. But recent media furors over its decision to re-open elephant hunting and some mysterious (now known to be natural) elephant deaths make it clear that Botswana is being watched and judged internationally. Namibia has experienced its share of international scolding over its wildlife management policies, so we can commiserate with our neighbor.

Both countries (along with several others) allow elephants to be hunted—much to the dismay of people who love elephants but don't have to live alongside them or compete with them for food and water. Hunting permits are invariably granted for male elephants, particularly older ones that bear larger tusks. The quota in Botswana is set at 400 adult males. *Yet scientists say that older male elephants are critically important, so we cannot allow this!*, cry the activists from afar. Very rarely does anyone stop to critically assess the differences between what scientists actually found and what they recommend, as I did above.

Studies like the one by Allen *et al.* are used as clubs by some international media and NGOs to batter elephant-range countries into submission. (This particular one was popularized by no less than *The New York Times* and the BBC News, among many others.) Yet the findings of Mayberry *et al.*—that 90% of people living along the Boteti River are food-insecure because of elephants—remain tucked away in an academic journal, to be read only by scientists interested in human-elephant conflict. The next time someone says that elephants should be managed based on science, ask them what science—the science focusing just on the elephant dimension, or all of the science?

What do we wish to achieve?

As we look to science to guide management, we also need to ask a critical (but often overlooked) question: What is the ultimate management objective in this particular area? The answer to this then guides how the science should be used. The objectives for national parks are usually to conserve plant and animal species, although they may also include generating income for the parks and the country. Yet on the edges of parks and often well outside them, in buffer zones or farmlands, the objectives may be very different. People's needs must be addressed too—ignoring them is both a violation of human rights and a recipe for disaster among both humans and animals.

by Gail C. Thomson



This is a mock charge, but conflict with elephants—and other wildlife—is a critical conservation issue across Southern Africa. Author's photo

Around the world, in nearly every human-wildlife conflict situation, whenever people feel that the authorities tasked with managing wildlife are ignoring them or trampling their rights, conflict intensifies. Anger and frustration can reveal itself in a multitude of ways, including public protests, more poaching, and a distrust of conservation officials and even conservation generally. More often than not, the animals become pawns in a greater conflict between different groups of people, with sometimes devastating results.

I hope we can all agree that no one wants human-wildlife conflict to escalate to a point of no return. Some compromises must be reached. Within strictly protected national parks, elephants and other animals should be allowed to continue their lives as unimpeded by human activity as possible. Tourism can and does cause problems, but these should be minimized by managing the humans, not the animals.

Outside the parks, we have to be more flexible. The existence of wildlife in farmlands depends directly on the level of tolerance farmers have for it. Our efforts should therefore focus on maximizing tolerance, which is achieved primarily through listening carefully to the concerns of the affected people and making genuine efforts to address them. As a rule of thumb, we should aim to reduce the costs that

by Gail C. Thomson

people experience and to increase the benefits they derive from the presence of wildlife.

Achieving either or both of these goals may require the sacrifice of a few animals. For example, killing or translocating particular individuals that habitually cause conflict (to reduce the cost of tolerating wild animals) or allowing a few older males to be hunted, thereby earning income and meat for the community (to increase the benefit of tolerating wild animals). There is much scope for further research into the long-term impacts of removing individual elephants on human-elephant conflict, and we hope to address some of these questions in a future article.

The management toolbox

This is not to say that non-lethal efforts should not be attempted; they are needed just as much as ever. At the Boteti River, education on how to behave around elephants will reduce fear, better fencing will reduce crop damage and piping water to settlements can reduce direct competition for the river. Elephants for Africa, the NGO, is heavily involved in helping this community live with elephants via an array of non-lethal methods. These are laudable efforts. Furthermore, finding sources of revenue—to incentivize tolerance for elephants—that do not rely on foreigners with cameras or guns would increase the resilience of African conservation.

The various actions one can take to reduce human-wildlife conflict are tools, each needed for a different task and under different circumstances. Banning lethal methods reduces the toolbox and may even render the non-lethal tools less effective. If people ask for a particular elephant to be removed for good reason and conservation authorities instead deliver an educational talk on the importance of elephants without trying to understand their viewpoint, the effort may be seen as a waste of time and the response patronizing—at best.

To “manage” elephants (by removing individual problem animals and/or setting hunting quotas) government conservation policies must include the needs and perspectives of the citizens who live alongside elephants.

Striking the balance

Elephant behavior and elephant society are complicated things that will forever attract the attention and fascination of science. Yet understanding and mitigating human-elephant conflict is more complicated still. Countries seeking the delicate balance between the rights of their citizens and their responsibility to conserve biodiversity should be publicly supported, not attacked. Scientists must continue to provide sound evidence on both the elephant and human dimensions of the problem, while realizing that their perspectives on elephants are not the only ones that matter. Constructive engagement between policymakers, affected communities and scientists cannot happen if we ignore each other’s perspectives and real concerns.

While one-sided stories in the media are partly to blame for making this difficult situation worse, each party to the elephant controversy can choose: Stoke the fires of conflict? Or douse the flames by trying to understand the other side’s point of view? Perhaps the proverbial question should not be, “How do

by Gail C. Thomson

you eat an elephant,” but “How do you see an elephant?”

Gail (Potgieter) Thomson is a frequent contributor to Conservation Frontlines; her most recent previous article was “How Many Leopards Are in Namibia” in July. She is a carnivore conservationist who has worked in South Africa, Namibia and Botswana on human-carnivore conflict, community conservation and wildlife monitoring. She says this article benefited greatly from the input of four elephant conservation experts (and the urging of Conservation Frontlines staff). It also appears as a blog post on Conservation Namibia.

Banner photo: elephants at sunset. Author’s photo

Read Time 15 MINS