

by Michael Schwartz

Culling To Conserve: A Hard Truth For Lion Conservation

People that don't live in Africa tend to learn about wildlife conservation in easy-to-understand terminology. But safeguarding animal species like lions is often more complex than mainstream media sound bites would have their audiences believe.

The National Post recently reported that management from Zimbabwe's Bulyebe Valley Conservancy was considering a controversial move to cull upwards of 200 lions out of a rough population of 500 in order to ensure the reserve's wildlife biodiversity.

It was also reported that since the growing calls to end trophy hunting, due in large part to the killing of Cecil the lion in Zimbabwe's Hwange National Park last year, conservancies like Bulyebe are no longer seeing the funding necessary to adequately cover conservation costs, which includes fence maintenance, financing local schools and health clinics, and providing meat to local people.

Given the many challenges conservationists face in Africa, coupled with culling and trophy hunting being such contentious issues, I decided to reach out to Dr. Byron du Preez, a Bulyebe Valley Conservancy project leader and member of the Wildlife Conservation Research Unit (WildCRU), in the Department of Zoology at Oxford University.

Specifically, I was hoping for clearer answers regarding the potential paradox that increasing calls for hunting bans in Africa have on existing lion populations, and how that may be playing out within the recent culling conundrum.

Fortunately, Du Preez went one step further by clearing up what was initially reported, clarifying the proposed cull, explaining how culling works, and elaborating on the dangers of promoting single species management. The following is his official statement:

Clarification on the Proposed Lion Cull

I am an independent scientist working on the Bulyebe Valley Conservancy, focused on lion ecology, which actually means just about every aspect of the ecosystem, such as the influence that lions have. I am neither pro- nor anti-hunting. I simply focus on practical conservation solutions that actually work in the real world.

We are hopeful that we will be able to translocate some lions, although all previous attempts to translocate lions out of the Bulyebe Valley Conservancy have been derailed by factors entirely out of our control. However, if the species was in as much trouble as the sensationalist reports like to focus on, one would think that it would be a lot easier to find new homes for these magnificent animals than it actually is. 'There is basically no more space left in Africa for a new viable population of lions.' The fact remains that habitat destruction is their biggest enemy, and there is basically no more space left in

by Michael Schwartz

Africa for a new viable population of lions.

The Science of Culling

A cull is not a once-off fix (neither is translocation, nor contraception), but would be more of an ongoing management operation conducted on an annual basis. When given adequate space, resources, and protection, lion populations can explode, such as they have done on the Buby Valley Conservancy. Reducing numbers to alleviate overpopulation pressure does nothing to permanently solve the problem, nor halts the species' breeding potential; [it] only slows it down for a relatively short time until their population growth returns to the exponential phase once again.

Culling is a management tool that may be used for many species. That includes: elephants, lions, kangaroos, and deer, basically animals that have very little natural control mechanisms other than disease and starvation, and that are now bounded by human settlements and live in smaller areas than they did historically. As responsible wildlife managers who have a whole ecosystem full of animals to conserve (not just lions), we have therefore discussed culling as an option for controlling the lion population, but have agreed that, for now, this is not necessary just yet and we will continue to try and translocate these animals until our hand is forced.

As already mentioned, there is very little space left in Africa that can have lions but doesn't already. Also, where lions do occur, especially in parks and private wildlife areas, they often exist at higher densities than they ever did historically. This is mainly due to augmented surface water supply resulting in greater numbers of non-migratory prey that now no longer limit lion nutrition and energy availability, allowing the lion population to rapidly expand. For example, successful hunting to feed cubs all the way through to adulthood and independence is one of the greatest stresses for a lion, and often results in dead cubs and reduced population growth. In turn, a high density of lions can severely reduce the density of their prey, ultimately leading to the death of the lions via disease and starvation—far more horrific than humane culling operations conducted by professionals.

The Dangers of Single Species Management

Lions are the apex predator wherever they occur, and as such exert a level of top-down control on the rest of the ecosystem. Lions prey on a wide variety of species, and we are starting to see declines in even the more common and robust prey such as zebra and wildebeest—not to mention more sensitive species such as sable, kudu, nyala, warthog, and even buffalo and giraffe.

Apart from their prey, lions are aggressively competitive and will go out of their way to kill any leopard, cheetah, wild dog, or hyena that they encounter, and have caused major declines in these species, not just on the Buby Valley Conservancy, but elsewhere in Africa where lion densities are high. According to the International Union for the Conservation of Nature (IUCN), cheetah are listed as vulnerable, and wild dogs are endangered.

It is easy to simply focus on the number of lions remaining in Africa that has fallen steeply over the last century from ~100,000 to ~20,000 today, but which is directly linked to the reduction in available habitat. Simply focusing on increasing the abundance of one species at the cost of another cannot be considered a conservation success—assuming that holistic conservation for the benefit of the entire

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ecosystem is the end goal—no matter how iconic that species is. Luckily, lions kill lions, resulting in more lion mortality than any other species—including man on the Buby Valley Conservancy—and in an ideal world the lion population would level off at a putative carrying capacity where lions control their own numbers (deaths from conflict equal or exceed new births). However, it is possible and probable (man-made water points increase the carrying capacity of — and therefore also the competition and conflict between—all wildlife species) that this would still be at the cost of certain other sensitive species.

Ecosystem stability is related to size (and conversely ecosystem sensitivity is inversely related to size) and smaller areas need to control their lion numbers a lot more carefully than large areas such as the Buby Valley Conservancy, which is over 3,000 square kilometers [1,160 square miles]. In fact, small reserves in South Africa alone culled over 200 lions in total between 2010 and 2012, according to the 2013 report from the Lion Management Forum workshop.

Understanding Carrying Capacity

The Buby Valley Conservancy does not rely on trophy hunting to manage the lion population. I will discuss the economics of hunting in brief. The most recent and robust lion population survey data calculate a current lion population on the Buby Valley Conservancy of between 503 and 552 lions (it is impossible to get a 100 percent accurate count on the exact lion number — which also changes daily with births and deaths).

Carrying capacity is an extremely fluid concept, and changes monthly, seasonally, and annually depending on all sorts of factors including rainfall, disease (both predator and prey), and economics. It is estimated that 500 lions eat more than US\$2.4 m. each year (meat value calculated at very conservative \$3/kg—compare that to the price of steak in a supermarket, and then remember that the Buby Valley Conservancy used to be a cattle-ranching area, and if wildlife becomes unviable, then there is no reason not to convert it back to a cattle ranching area once again).

To give the question of carrying capacity a fair, if necessarily vague, answer, I would personally estimate that the upper carrying capacity of lions on the Buby Valley Conservancy would be around 500 animals—assuming that they are allowed to be hunted and therefore generate the revenue to offset the cost of their predation.

Remember, lion numbers can get out of hand. And if there was no predation, then thousands upon thousands of zebra and wildebeest and impala would need to be culled to prevent them from over grazing the habitat, leading to soil erosion, starvation, and disease. The ecosystem is a very complex machine and whether anyone likes it or not, humans have intervened with cities, roads, dams, pumped water, fences, and livestock. The only way to mitigate that intervention is by further, more focused, and carefully considered intervention, for the sake of the entire ecosystem.

It is important to bear in mind that the wildlife here, and in the majority of other wildlife areas in Africa (hunting areas exceed the total area conserved by Africa's national parks by more than 20 percent), does not exist as our, or anyone else's, luxury.

The Buby Valley Conservancy is a privately owned wildlife area, or to put it another way, it is a

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business. The fact that it is a well-run business is the reason why it is one of the greatest conservation successes in Africa, converting from cattle to wildlife in 1994 (only 22 years ago) and now hosting Zimbabwe's largest contiguous lion population at one of the highest densities in Africa, as well as the third largest black rhino population in the world (after Kruger and Etosha).

This is only possible because it is a business, and is self-sufficient in generating the funds to maintain fences, roads, pay staff, manage the wildlife, pump water, and support the surrounding communities—all extremely necessary factors involved in keeping wildlife alive in Africa.

Michael Schwartz is a freelance journalist and African wildlife conservation researcher. Several of his articles have been published in African Indaba