# Herbivores, sustainability, and trophy hunting in the Matetsi

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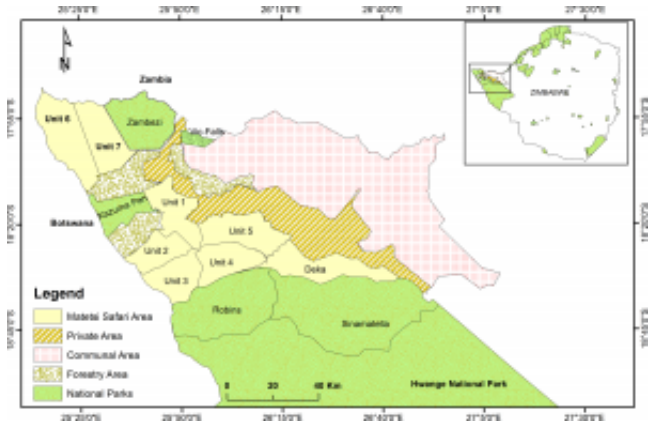


Map showing location of study area, Matetsi Safari Area and the surrounding areas (National Parks, Forestry Areas, Private Areas and Communal Areas in northwest Zimbabwe). Insert: Location of study area (solid rectangle) in Zimbabwe in relation to other protected areas. Credit: Muposhi, Gandiwa

Trophy hunting is the selective hunting and harvesting of wild game for human recreation—with the "trophy" being the portion of the animal that is kept, ranging from the entire animal to the head, skin, pelt, horns, or antlers. Even before more recent controversies related to black rhinos or Cecil the lion, trophy hunting has been a contentious issue. Those for the practice point out the financial benefits to local communities and to conservation efforts, while opponents question the morality of the practice or the motives of the hunters, along with the supposed conservation benefits. Much work has focused on the impacts of trophy

hunting on large predators (1, 2, 3, 4). Victor Muposhi, from The School of Wildlife, Ecology and Conversation at Chinhoui University of Technology in Zimbabwe and his co-authors recently published a study in PLOS One on the temporal dynamics of trophy quality and harvesting patterns of wild herbivores in central Africa.

In their article, Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem, Muposhi and his co-authors focus on wild herbivores, including the Cape buffalo, African elephant, greater kudu, and sable. These species of herbivores were selected as they are among the most commonly hunted species and complete data about trophy size, quota allocations, etc. were available.

The focus area for this study was the Matetsi Safari Area, a 3,000 square kilometer (1,160 squared mile) unfenced protected area that is part of a larger conservation area shared between the countries of Angola, Botswana, Namibia, Zambia, and Zimbabwe. Areas such as typically buffer National Parks and exist for sustainable use.

At the core of this study, the researchers sought to test three hypotheses:

1. Selective harvesting through trophy hunting would reduce the average horn or tusk size and the average age at harvest (i.e. how old the average age of trophy animals taken)
2. Implementation of sustainable management programs might reduce the allocated quota for selected wild herbivores of time commensurate with population and trophy size trends
3. Quota size would be affected by the economic status of a country during the study period (2004-2015)

There are a lot of factors that can affect trophy size and harvest age—the age at which the animal is harvested. A fixed quota system—a set

number of animals to be harvested–may reduce the density of older, larger individuals, thus driving down both harvest age and trophy size. If many of the large individuals have been removed from a population previously, they are simply not there in subsequent years. If there is no consistent age-based harvesting policy–a minimum harvest age for example—younger individuals may be disproportionately affected.

A hunter poses with a cape buffalo.

The environment can also affect trophy size. Degraded ecosystems or habitat quality variation can retard growth and horn development. There is also the uncertainty of the impacts of illegal harvesting that cannot be

factored in as that information is unknown. If it is unclear how many animals are being illegally harvested, that can impact data quality and trend analysis.

In the Matetsi, a total of 807 Cape buffalo were harvested, along with 565 Greater kudu, and 369 sable were harvested between 2004 and 2015. There were also 258 African elephants harvested between 2005 and 2015.

The authors found no significant trends in the trophy size of Cape buffalo, Greater kudu, or sable for the Matetsi area. Alarmingly though, African elephant trophy size decreased precipitously. The age at harvest for all herbivores except the African elephant, also increased over the period of the study, while the age at harvest of African elephants remained flat. While harvested were not on-average younger, they were smaller in trophy size—a possible indication of degraded ecosystems or some other untested variable that impacts vitality. One issue in making comparisons with other studies of African elephants is that much of the published work has been centered on illegal hunting pressure and not trophy hunting. That said, there is of course additional uncertainty as to how much illegal hunting affects the other wild herbivores in this study as well.

While the authors found no change in harvest trophy size for Cape buffalo, Greater kudu, or sable in the Matetsi, they do note that other researchers have seen these declines in South Africa and Tanzania.

While global economic declines during the study period impacted the Zimbabwe Parks and Wildlife Management Authority's ability to do survey and monitoring work, there were no apparent differences in quota size allocations evident for any of the studied species. The authors highlight the complicated issue of parks systems and authorities that have the dual purposes of generating revenue and protecting species—an

operations model that may need to be seriously reevaluated. There are externalities to this problem as well, including outside perceptions:

These embargoes have been worsened by the negative and emotive media framing of trophy hunting in Zimbabwe following the controversial killing of 'Cecil' the lion (Panthera leo) by an American hunting tourist near Hwange National Park . This negative media framing of a country may reduce its attractiveness as a destination, which result in low offtake levels of species thus reducing revenue generation from trophy hunting. —from Muposhi et al. 2016.

The sustainability of trophy hunting requires further investigation, as do management techniques and practices that could promote species conservation while continuing to allow trophy hunting. Variable fee structures or quota development based on more ecologically, rather than economically based principles could be alternatives. Continued or increased monitoring and support are also needed. The sport hunting of any animal, for trophy or not, is likely to remain a contentious issue for many reasons. Careful deliberation of these issues that includes all stakeholders will be paramount to gaining to best results.

**More information:** Victor K. Muposhi et al. Trophy Hunting and Sustainability: Temporal Dynamics in Trophy Quality and Harvesting Patterns of Wild Herbivores in a Tropical Semi-Arid Savanna Ecosystem, *PLOS ONE* (2016). DOI: 10.1371/journal.pone.0164429

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