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# How Many Leopards Are There?

By *Tanith Grant*

*The income generated through trophy hunting in Zimbabwe contributes greatly to its annual revenue of foreign currency. Leopard is one of the industry's most sought-after trophies.*

At the same time, the leopard is ecologically important as a top predator – and often the apex predator in areas where others, such as lion, have been extirpated. The leopard is thus an important species both economically and ecologically. Management considerations must, therefore, incorporate both factors.

At present, the CITES off-take quota is based on a simplistic model generated in the 1980s, which provided a highly criticized and exaggerated population estimate of 30,000 leopards. Twenty-three years later, Problem Animal Control (PAC) is still employed as a solution in livestock farming conflicts, natural habitats have diminished due to human encroachment, and leopard skins are more valuable for illegal trade use as *muti* (medicine) and in traditional regalia. These factors must be

taken into account when calculating the sustainable off-take of leopards each year.

The current quota for Zimbabwe of 500 per year needs to be re-visited. This is being addressed through the National Leopard Management Programme, whose goal is to estimate leopard population densities in different land-use areas of Zimbabwe in order to provide accurate baseline information from which truly sustainable off-take quotas can be set.

As a child, I often accompanied my father (PH Wayne Grant, author of *Into the Thorns*) on hunts in the magnificent Matobo hills of the Marula area of south-west Zimbabwe. These granite hills, made up of balancing boulders, provide ideal habitat for leopards and their prey. As a result of the political instability caused by land reform issues, little interest was invested



*At each of the 20 baited camera sites spaced across the study area, a pole was leaned against the bait tree so that the leopard, like this collared female, would climb it and be perfectly positioned to have its photo taken.*

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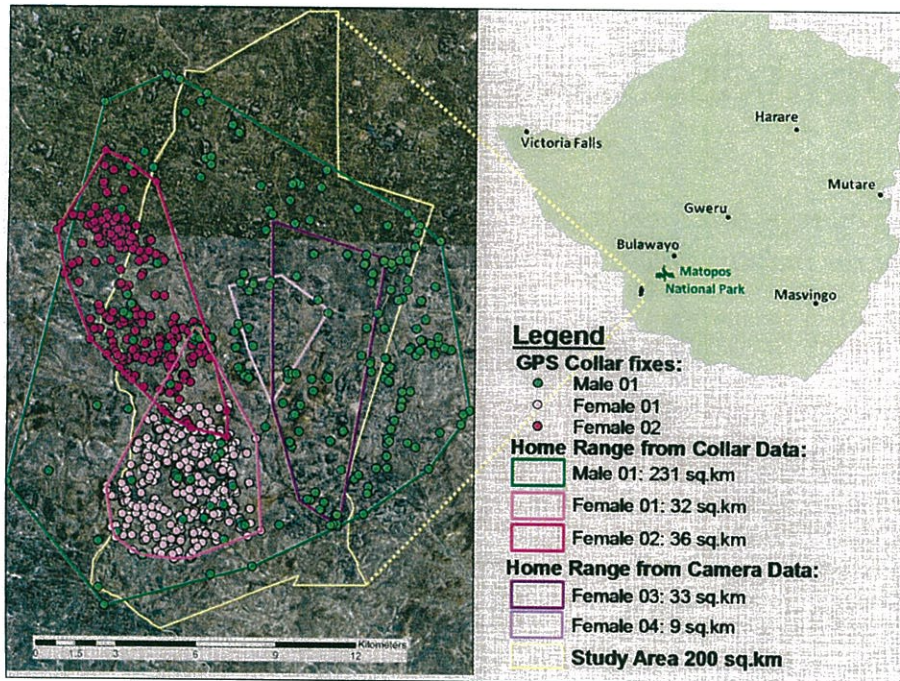
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## Hunters Do Good: Zimbabwe



The map shows the home range of the five GPS/radio-collared leopards: the male covered an area of 231 km<sup>2</sup>; females used areas of 32 and 36 km<sup>2</sup>.

in the management of Zimbabwe's valuable natural resources. It was left to NGOs, private bodies, and academic institutions to become the custodians of Zimbabwe's wildlife. This inspired me to undertake an ambitious research project aimed at estimating leopard population density and home range size in an area heavily impacted by land reform, trophy hunting, poaching, and extensive cattle farming.

Data was collected through two methods. Camera trapping (using remotely triggered trail cameras to identify individual leopards by their distinct rosette patterns) was used to estimate leopard density in a 200-km<sup>2</sup> study area. Twenty camera sites, spaced evenly across the study area, were baited with cattle fetuses. A pole was leaned

against the bait tree so that leopard would climb it and be perfectly positioned for the camera. And GPS tracking was used to determine home range sizes, habitat use, and degree of overlap among selected leopards. For various reasons, collars lasted only three months, but resulted in some interesting spatial information.

Twelve individual leopards were identified from the camera traps: eight females and four males. A statistical analysis model showed a density estimate of five leopards per 100 km<sup>2</sup>. Three of these leopards (one male, two females) were captured and fitted with radio/GPS collars. The map shows that the male covered an area of 231 km<sup>2</sup>; females used areas of 32 and 36 km<sup>2</sup>. Where an individual leopard



Tanith Grant is shown processing an anesthetized female before collaring. For various reasons, collars lasted only three months, but resulted in some interesting spatial information.

was captured at three or more camera sites, connecting these sites created a basic home range; this resulted in home ranges of 33 km<sup>2</sup> and 9 km<sup>2</sup> for two additional females.

Unfortunately, only one mature male was collared in this study; however, the camera traps on the periphery of the collared male's home range captured two other mature males. These data suggest that mature

males defend a large home range with little overlap with other mature males, while encompassing the smaller home ranges of multiple females.

Extrapolation from such data has its drawbacks. However, in the absence of an alternative, applying these results over the Marula area (which is of similar terrain and land-use), using a conservative home range of 100 km<sup>2</sup> for a mature male, result in a total of 35 males for the entire area.

Applying the "sustainable" off-take of 8%, used by Zimbabwe Parks and Wildlife Management Authority (ZPWMA) would mean that a quota of only three leopards per year should be issued for the area where, over the last six years, quotas of 32, 23, 22, 41, 17, and 17 have been issued! With three quotas having been issued for my 200-km<sup>2</sup> study area, this is cause for concern for the future survival of a healthy leopard population, especially the longevity of mature males.

Perhaps future quotas should rather be based on ecological boundaries, where a number of properties can be managed as an entity, instead of the current administrative property boundaries. Based on these and other leopard research data, the annual national quota of 500 leopards surely needs to be re-examined.

Improved management, monitoring and policing of leopard off-take is desperately needed, as does addressing the massive poaching problem, the uncontrolled and unaccounted-for off-take of leopards by farmers, shooting of females and under-aged males as trophy animals, and illegal transfer of off-take quotas from one property to another – a factor which further compounds the issue of a national quota based on an exaggerated population estimate. Further research is planned to try to address these issues.

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