

FOCUS ON LION



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How Many African Lions Are Out There?

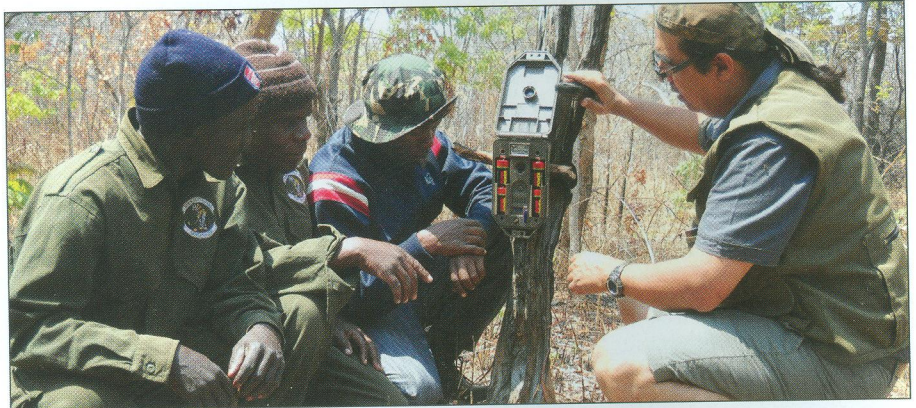
By Arturo Caso

Without the financial and logistical support from hunting organizations and safari companies, research projects such as this one on lion populations in two of Tanzania's hunting concessions would not be possible.

This question has yet to be answered, and there is still much debate on the subject. Although there have been attempts to determine the actual number of lions in Africa, it hasn't been an easy task.

The only method to establish numbers of animals in a population with confidence is by doing *in situ* (in the wild) projects; but this often requires a huge effort and may be too expensive. Hence, most attempts have only used computer and statistical models. However, even to run these models requires *in situ* data, and sometimes the only data available is from national parks or non-hunting areas.

In areas such as the Serengeti and Kruger National Parks, where lions have been studied intensively, their populations should not be extrapolated to other areas because habitat, prey, disease, population dynamics, and human interactions are completely different. Therefore, the need remains to conduct lion research projects in the wild in other areas, including hunting concessions, which is why the support from hunting operators is very important to better estimate Africa's lion population.



The only method to reliably establish lion numbers is by doing costly field research, which requires expensive material such as remote-sensing digital cameras to identify individual lions by their unique body marks, such as scars, manes and spots.

Photo courtesy of African Cats Project/CKWRI

I come from a family of hunters; my father's first safari to Kenya and Mozambique took place in 1963. He spent three months in Africa, and I remember all his stories and dreaming to go one day with him to Africa. He wasn't able to hunt lion during this safari and it wasn't until 1975 when he took a black-manned lion in Zambia. I first travelled to Africa to hunt Botswana's Kalahari Desert and Okavango

Delta when I was 17 years old. That trip completely changed my life, as did reading books such as Capstick's *Death in the Long Grass* and the Owens's *Cry of the Kalahari*, which influenced my decision to become a wildlife scientist.

In 1999, having already been established as a wildlife researcher specializing in felines, I traveled for the first time to Tanzania, accompanying my father on his last safari, when he hunted lion in the Rungwa Game Reserve. Little did I know then, that years later I would start a lion population study in the same area.

Hunters are truly conservationists and hunters have supported most lion studies, even in non-hunting areas. Robin Hurt Safaris has always been open to wildlife research in their hunting concessions. From 2001 to 2003 we conducted a leopard population study in Tanzania's Piti Open Area, where we captured 17 leopards. These were the first leopards to be collared with GPS technology.

In August 2011, supported by the Robin Hurt Wildlife Foundation, we initiated a lion population project in two of their hunting concessions. The objective of this *in situ* project is to study the population density of lions at Rungwa (Inyonga) Game Reserve and Luganzo Game Controlled Area. Our methodology has consisted of the use of call-in stations and remote-sensing cameras – techniques that have been used to estimate lion and other

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carnivore densities in other regions.

For call-in stations we established sites throughout each study area and used a call machine that reproduced the sound of prey in distress. We played the machine at night at each station for about an hour, and any lions (or other carnivores) that showed up at the station were photographed and videotaped for identification. We identified individual lions (male and female) by their unique body marks such as scars, manes, and spots. The call-in stations were located far enough apart to avoid recording the same individuals in the same area. It's calculated that just 50% of the lions that hear the distress sounds will respond to the call, likely because animals that are on a kill or lionesses with cubs will probably not respond. This technique has been used in other regions of Africa and population estimates are considered valid and accurate.

Another field technique we've used consists of using remote-sensing digital cameras. Camera stations were superimposed on a grid pattern over the study area and were set along roads and game trails. With these remote-sensing cameras we were able to identify lions and other carnivores present in the area. Again, lions were identified by their body marks, and photographs with verified identifications were used to determine the number of captures and recaptures of individual animals. All camera data was entered into a computer database to give us population density estimations.

I am currently in the process of analyzing the project's field data. However, to make valid scientific conclusions about the density of lions in both areas, it is necessary to conduct at least one more field session; so I need to return to Tanzania in 2012 to replicate the methodology in the same areas. With the data obtained to date, it appears that lion population results for both hunting concessions are much higher than expected.

One goal of this project is to apply the results of this study to local management. As such, we are in close contact with the Tanzania Wildlife Division, with whom we've shared our field methods. We hope to extend this project to other Tanzanian hunting concessions in the future.

It hasn't been easy to start this lion project: logistics are complicated and it's




The objective of this project is to study the population density of both male and female lions at two hunting concessions managed by Robin Hurt Safaris: Rungwa (Inyonga) Game Reserve and Luganzo Game Controlled Area.

Photo courtesy of African Cats Project/CKWRI

expensive conducting research in Africa. Without the support from hunting organizations and others, this project would not be possible. So I would like to thank the following institutions for their monetary and logistical support: Robin Hurt Wildlife Foundation, Lubbock Safari Club, Houston (Gulf Coast) Safari Club, Caesar Kleberg Wildlife Research Institute, and Wild Cat Conservation, Inc. I would also like to thank the Tanzanian authorities: Tanzania Wildlife Division and the Tanzania Wildlife Research Institute for granting us the research permits.

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