

LIMPOPO LEOPARD PROJECT



The Panthera camera-traps are triggered by a passive infrared sensor, which detects changes in temperature when an animal or vehicle passes in front of the camera. The camera-traps emit a bright flash at night, which produces a clear and sharp image – without this impressive flash our research would not be possible.

INTRODUCTION

During your visit to Welgevonden you may come across a number of camera-traps set up across the reserve. These cameras form part of a province-wide project run by Panthera, in partnership with the Limpopo Department of Economic Development, Environment and Tourism (LEDET) and the University of KwaZulu-Natal, to monitor leopard populations in Limpopo. Although leopards are widespread, their status is by no means secure and large numbers are killed every year. To ensure effective conservation, it is important to know where leopards are, how many there are, and most critically, how populations change over time. However, monitoring leopards is challenging due to their secretive nature and wide-ranging behaviour, and we rely on modern technology and powerful statistics to reliably estimate leopard numbers. In addition to Welgevonden, we are conducting surveys in Makalali, Venetia-Limpopo and Timbavati Game Reserves, as well as Atherstone and Wonderkop provincial Nature Reserves.



Amazing photos: we often arrive at camera-trap stations to find them destroyed by elephants but on this lucky occasion we checked the photos to find a leopard mother carrying her cub past the camera in the early hours of the morning. This photo featured on Panthera's international website soon after. (www.panthera.org)

METHODS

We set up ±50 camera-trap stations within each reserve, spread roughly equally throughout the area. Each station comprises two cameras, enabling us to photograph both flanks of a leopard as it walks by. We distinguish individual leopards by the unique spot patterns on their coats, and use statistical models (known as capture-recapture models) to assess how often an individual is photographed (or captured) compared to other individuals. These data are combined with information on where leopards were photographed to generate a robust estimate of leopard population density for each survey site.

Results of camera-trap surveys conducted throughout Limpopo province in 2013. Note: only three of the six study sites were surveyed during 2013 due to time constraints.

SURVEILLANCE SITE	NO. OF CAMERA-TRAP STATIONS	AREA COVERED BY CAMERA-TRAP STATIONS (KM ²)	SAMPLING EFFORT (NO. OF TRAP DAYS)	NO. OF LEOPARD CAPTURES	NO. OF INDIVIDUAL LEOPARD CAPTURES	DENSITY/100 KM ² (± SD)
Welgevonden Private Game Reserve	51	164	2694	169	21	3.2 ± 0.6
Wonderkop Nature Reserve	52	217	2652	54	17	3.6 ± 0.9
Atherstone Nature Reserve	50	173	2600	141	20	6.2 ± 1.4

RESULTS

We photographed 21 leopards of 169 occasions during our 50 day survey in Welgevonden during 2013. Of these, 8 were males and 13 were females. The survey in Welgevonden covered an area of 164 km². The population density of leopards as estimated by the capture-recapture models was 3.2 ± 0.6 leopard/km², suggesting that roughly >13 leopards occupy Welgevonden at any one time (some of the leopard we photographed have home ranges that extend beyond the borders of the reserve).

DISCUSSION

The leopard population in Welgevonden appears healthy comprising many mature individuals. The presence of a well-established resident adult age class is also indicative of a stable population. Our camera-trap surveys will be repeated annually, in Welgevonden and at our other sites, allowing us to track leopard population trends across the province to better inform management decisions. For example, LEDET desperately require these data to allow them to determine their annual leopard trophy hunting quota and to facilitate sound management decisions with regard to damage-causing leopards.



Aside from photographing leopards, camera-traps capture many other non-target species that are vital to the ecosystem. Data from these surveys can be used for a lot more than just leopard research!

