

# Kruger lions threatened by TB

Humans are not the only species affected by tuberculosis (TB) - two of South Africa's popular 'Big Five' are also threatened by the disease, including the mighty lion.



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## Half the lions infected in southern Kruger

As many as half the lions in the southern regions of the Kruger National Park (KNP) may be infected with a form of animal TB called bovine TB (BTB), according to new research by Stellenbosch University's (SU) Animal TB Research Group.

## Slow-progressing disease

"The prevalence of BTB is estimated to be 54% in the southern KNP lion population, with decreasing numbers in the central areas, based on a new molecular technique that we have developed for detecting infection" says Tashnica Sylvester, a doctoral student at SU's faculty of medicine and health sciences (FMHS). BTB has also been confirmed in lions in other locations in South Africa, including the Hluhluwe-iMfolozi Park in KwaZulu-Natal.

BTB is a slow-progressing disease and the estimated time from infection to death is between two and five years.

“The majority of lions appear healthy. But those with advanced disease may show symptoms like swollen elbows, slow-healing wounds, poor coat condition, weight loss, coughing and difficulty breathing,” says Sylvester, who was part of the research group that developed a diagnostic test to diagnose BTB in lions using a single blood sample.

Previously a lion had to be captured twice in three days to perform a TB skin test, but with the new method (gene expression assay) a lion will only have to be captured once.

## **40% of buffaloes infected**

Lions can be infected with BTB when they eat infected buffaloes and other animals.

“Around 40% of the buffaloes tested in the southern part of the KNP were positive for BTB and they are one of the top prey species for lions. Since animals with the disease may be weaker and lag behind the herd, they may be more susceptible to predation,” says Sylvester.

A recent study by the Animal TB Research Group also suggests that lions may be able to transmit bacteria between themselves through respiratory secretions (droplets transmitted through sneezing or coughing). These findings still have to be confirmed.

## **Impact on ecosystem**

Lions are apex predators which determine the balance of species and therefore impact biodiversity in an ecosystem.

“In a park such as the KNP, which is South Africa’s largest wildlife refuge and a critical biodiversity resource, the loss of lions could have significant effects on the ecosystem,” says Sylvester.

“In 2006, KNP generated approximately R1,5 billion in revenue for the region. Lions are one of the main attractions for visitors and a loss of one of the ‘Big Five’ could have economic consequences.”

Although lions infected with BTB do not pose a direct threat to humans, sick lions may be too weak to hunt their normal prey and may roam closer to areas inhabited by humans and livestock.

“Increased awareness of TB in wildlife is the first step in addressing the ecological, conservation, socioeconomic and public health issues associated with this disease,” Sylvester says. “Since BTB affects a wide diversity of species, including domestic animals, wildlife, and humans, research is crucial to understanding the origin, prevalence and risk factors associated with intra- and interspecies transmission.”

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