

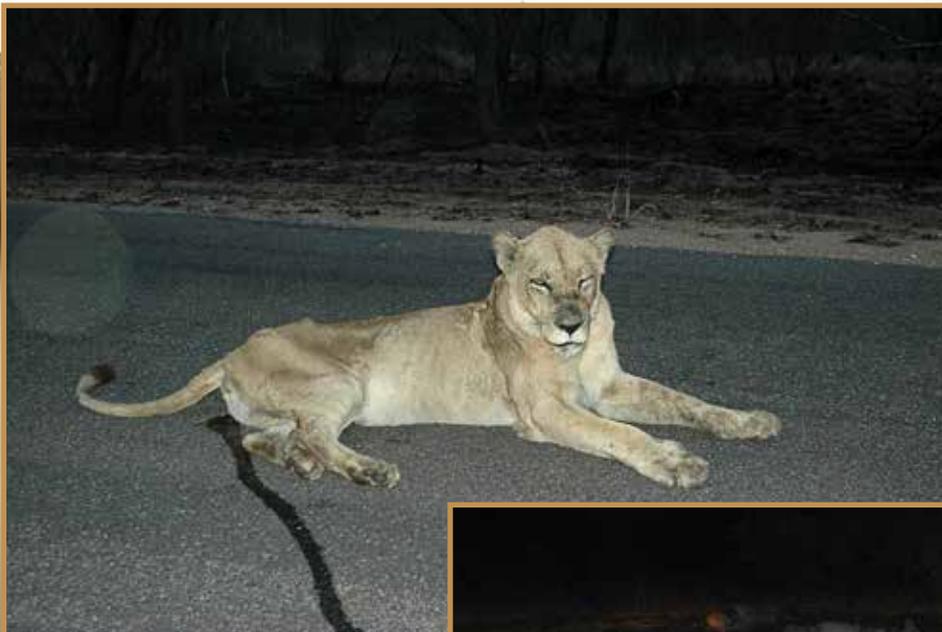
TUBERCULOSIS IN FREE-RANGING AFRICAN LIONS

A CASE REPORT FROM KRUGER NATIONAL PARK, SOUTH AFRICA

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Lions are top predators in Africa and the presence of disease in a population can upset this ecological balance. For example, canine distemper outbreaks have occurred in lions in East Africa. Lions in Kruger National Park, South Africa are currently facing a new challenge, bovine tuberculosis. It is believed that this disease was introduced from domestic cattle to African buffalo, one of the key prey species for lions, in the 1950's. Through the subsequent decades, it has become established in the park's lion prides. Infected lions can develop chronic lung disease, skeletal infections, non-healing skin wounds, and eventually become too emaciated and weak to hunt. Research is currently underway to assess the role that this disease plays in pride structure and dynamics.



Lioness with Tuberculosis.



Seven immobilized lions. August 2012. Satara, South Africa.

Our research focus has been to evaluate diagnostic tests for the field. Lions are assessed using a variety of techniques to determine their health status, including biochemical panels using the ABAXIS Comprehensive Diagnostic Profile rotor. One of the goals is to use this information to create a database that will facilitate disease detection in lions.

Preliminary work has shown that lions may not show clinical signs of infection until disease is advanced. Therefore, the availability of field tests to provide rapid assessment of health status is critical to decision-making. Using a battery of tests, over 150 lions have been evaluated to date. Some of these lions have been confirmed to be infected based on positive cultures for bovine tuberculosis. In advanced cases, the biochemistry profiles show significant abnormalities in infected lions. One case is used to illustrate these changes. The chemistry results from a confirmed chronically infected lioness is shown below compared to those of a young healthy lioness from another reserve free of TB.



Dr. Michele Miller bleeding a lion. Satara.

The significant changes in biochemical values, along with clinical signs, and specific diagnostic tests being developed for TB in lions provide valuable information that can be used to assess the stage of disease. Creating databases such as biochemical values add to the larger picture at the pride and population level to address the question of disease impact of disease on these magnificent animals.

VetScan Results

	TB - Infected Lioness	Healthy Lioness
ALB (g/dL)	<1.0	2.9
ALP (U/L)	9	46
ALT (U/L)	24	32
AMY (U/L)	291	412
TBIL (mg/dL)	0.3	0.3
BUN (mg/dL)	52	31
Ca (mg/dL)	6.6	11.5
PHOS (mg/dL)	4.1	8.1
GLU (mg/dL)	32	132
Na (mmol/L)	132	145
K (mmol/L)	4.0	5.0
TP (g/dL)	6.5	7.5
GLOB (g/dL)	N/A	4.6



Processing lions.

