# Wild Tiger Health Centre Information Sheet

---

## Disease threat: Babesia spp.

***Hazard description***: Tick-borne piroplasms of erythrocytes. Continually developing molecular diagnostic techniques mean that the nomenclature of *Babesia* spp. is complex, since early speciation was based on morphology alone. *Babesia* spp. are regularly isolated from several wild carnivore species. Tick vectors unknown.

***Host species:*** A number of *Babesia* species have been isolated from wild felids, both free-ranging and in captivity. The most common named isolates are *B. leo* and *B. felis*; reports of infection with each of these parasites were found in wild free-ranging felids only from southern Africa, although a similar species was isolated from captive wild felids in a Brazilian zoo (Andre *et al.* 2011). A species, named *B. pantherae* was isolated in 1965 from a Kenyan leopard and described in (Dennig & Brocklesby 1972).

***Pathogenesis:*** In domestic cats, severe disease is commonly reported from south Africa, with clinical signs of anorexia and lethargy, secondary to the haemolytic anaemia arising from erythrocyte infection (Hartmann *et al.* 2013). Other *Babesia* species infecting domestic cats are usually considered less pathogenic.
*Babesia* infections in wild animals are usually subclinical, but the role of co-infection with other immumodulating agents, or the effects of stress on immune responses may be a significant factor in determining potential pathogenesis. For example, habitat degradation, climate change and conflict with humans all have the potential to affect immune responses (Munson *et al.* 2008). In lions in the 1994 Serengeti CDV epidemic, there was a very high prevalence of infection with *Babesia*, the significance of which is still unclear (Munson *et al.* 2008).

Clinical babesiosis has been reported in a wild caracal in Durban, south Africa (Penzhorn *et al.* 2001).
Clinical babesiosis (non-specific clinical signs and detection of *Babesia* sp. in blood smears) has also been reported in captive tigers in India (Sinha *et al.* 2000; Mishra *et al.* 2008) and Brazil, and in several captive leopards in Indian zoos (Upadhye & Dhoot 2000; Baviskar *et al.* 2007; Shortt 1940).

***Diagnosis:*** Visual examination of blood smear. Molecular diagnostics – PCR on whole blood.

***Vaccination:*** None.

***Free-ranging tiger occurrence:*** No reports of *Babesia* infection or disease in free-ranging tigers were found, but note potential for pathogenicity.

***Distribution:*** The *Babesia* species that have had detailed molecular characterisation are *B. felis* and *B. leo*, both of which appear to be restricted to the African continent, although a species similar to *B. leo* has been isolated in South America. However, given the widespread distribution of all *Babesia* spp. and the difficulties in nomenclature it seems prudent to assume that *Babesia* infection in free-ranging tigers is possible in all range states. Pathogenic effects however are far more difficult to predict.

***Assumptions***: None.

***Limitations***: Limited understanding of *Babesia* prevalence or diversity, or the pathogenicity of *Babesia* spp. in wild felids.