Wild Tiger Health Centre Information Sheet

Disease threat: Anaplasma phagocytophilum

Hazard description: A tick-borne rickettsial parasite of neutrophils (also other granulocytes), and the causal agent of tick-borne fever in domesticated ruminants. Competent known vectors are ixodid ticks, most commonly those in the genus *Ixodes*, species of which are largely endemic in temperate areas such as northern Europe (*I. ricinus*), eastwards into China, Korea and Russia (*I. persulcatus*), and north America (*I. pacificus*; *I scapularis*). *A. phagocytophilum* has been isolated from other tick genera such as *Haemaphysalis* and *Dermacentor*, but these are thought to be of little epidemiological significance (Otranto et al. 2015).

Host species*:* Small mammals, deer and ruminant livestock are likely to be the major reservoir hosts (Birtles 2012c), but serological evidence of infection has been reported in captive and free-ranging wild and domestic carnivores. Of note, serological evidence of infection has been reported in free-ranging Eurasian lynx (Ryser-Degiorgis et al. 2005), Iberian lynx (Meli et al. 2009), and clinically healthy captive African lions and Southern African wild cats in Zimbabwe (Kelly et al. 2014) , and molecular detection of *A. phagocytophilum* has been reported from captive African lions in Italy (Torina et al. 2007).

Pathogenesis: Acute febrile illness has been reported in domestic cats (Adaszek et al. 2013; Lappin et al. 2004; Schaarschmidt-Kiener et al. 2009; Tarello 2005; Heikkilä et al. 2010).
No reports were found of clinical disease in free-ranging or captive wild felids. Pathogenicity in wild felids is thus assumed to be relatively low, but the effects of infection on immune function (and thus pathogenicity of other infectious agents), and the possibility of clinical anaplasmosis in association with other immuno-modulating infections, such as FeLV, FIV, or CDV for example should not be ignored.

Diagnosis: Serology. Microscopy of Wright/Giemsa stained blood smear. Molecular techniques e.g. PCR are more sensitive.

Vaccination: None

Free-ranging tiger occurrence: No reports found.
Where geographically present, infection seems possible, but pathogenicity is considered low in the absence of immunosuppression or immunomodulation (possibly in association with co-infections).

Distribution:

A. phagocytophilum reportedly worldwide distribution in the northern hemisphere (Stuen et al. 2013), but likely endemic across the distribution range of *Ixodes* species of ticks, i.e. incorporating range states in the Russian Far East and China.

Detected in 2 ticks from RFE and is well documented in RFE (Rar et al. 2011; Rar et al. 2010; Thomas et al. 2016).

Assumptions: Relatively low pathogenicity in wild felids.

Limitations: Limited understanding of true pathogenicity in wild felids.