Wild Tiger Health Centre Information Sheet

Disease threat: Rickettsia spp.

Hazard description: Rickettsial parasites of endothelial cells of smaller blood vessels, transmitted by arthropods (mostly ticks, but some species are transmitted by fleas, lice or mites). Currently 27 valid species described. Geographical distribution linked with arthropod distribution. Two groups exist: spotted-fever group, SFG and typhus group, TG. Most species are in the SFG, with only two species in the TG, namely, *R. typhus* and *R. prowazekki* (Birtles 2012c).

Host species:

- TG: *R. prowazekki* mammalian host humans; *R. typhus* mammalian host wild rodents, mainly *Rattus* species and transmitted by rat flea (*Xenopsylla cheopis*) (Birtles 2012c).
- SFG: mammalian reservoir hosts much less clear – little data. Molecular evidence of infection has been reported from captive lions in Italy (Torina et al. 2007), and serological evidence of exposure has been reported from free-ranging wild felids in Brazil (Reis 2012), including jaguars, *Panthera onca* (Widmer 2009; Widmer et al. 2011).

Pathogenesis: Disease most likely to be seen in accidental hosts (not reservoir hosts), but little is known of host species for SFG. Where disease occurs, it is mostly associated with tropism for endothelial cells – causing increases in vascular permeability, leading to haemorrhage, thrombocytopenia, DIC, and vascular inflammation for example.
R. felis has been associated with sub-clinical disease in domestic cats (Birtles 2012c). No reports of clinical disease in wild felids were found.

Diagnosis: Morphological detection in blood smear. PCR whole blood. Serology as evidence of exposure.

Vaccination: None

Free-ranging tiger occurrence: No reports of disease or infection in free-ranging tigers were found.

Distribution: Species distribution largely governed by arthropod distribution. Assume potential exposure in all tiger range states to differing species. *R. felis* highly likely/or confirmed in Indonesia, Laos, Thailand, Myanmar, Vietnam and Cambodia (Reif & Macaluso 2009).

Assumptions: Assume relatively low pathogenicity in wild felids, based on lack of reports.

Limitations: Limited understanding of host species for SFG.