



## Wild Tiger Health Centre Information Sheet

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### **Disease threat:            Feline parvo virus FPV and Canine parvo virus CPV**

**Hazard description:** Feline parvovirus, FPV, (or panleucopenia virus), is a parvo virus closely related to canine parvovirus 2, CPV2 (Decaro & Buonavoglia 2012).

**Host species:** FPV is capable of infecting domestic and wild felids, and other carnivores such as mustelids and procyonids (Decaro & Buonavoglia 2012). Although FPV and CPV groups do appear to be distinct, cross-species transmission is also common (Allison *et al.* 2013). Serological tests do not distinguish between FPV and CPV (of which there are a number of antigenic variants) (Decaro & Buonavoglia 2012). Sources of infection for free-ranging tigers include a range of domestic and free-ranging carnivore species.

**Pathogenesis:** In domestic cats, FPV infection can cause haemorrhagic gastro-enteritis, and pre-natal infection can result in abortion or cerebellar hypoplasia, hydrocephalus and retinal degeneration. However, post-recovery, immunity is likely to be life-long (Decaro & Buonavoglia 2012). Virus is shed in faeces and environmental stability is high (Horzinek *et al.* 2006).

Clinical disease has been reported from several captive wild felids (Steinel *et al.* 2001), and lethal infections have been reported from captive tigers (Duarte *et al.* 2009; Rao *et al.* 1995).

Serological evidence of FPV/CPV infection has been reported in free-ranging wild felid species, including Amur tiger (Goodrich *et al.* 2012; Naidenko *et al.* 2018), Amur leopard (Goodrich *et al.* 2012, Naidenko *et al.* 2018), African lion (Driciru *et al.* 2006) European wild cats (Millán & Rodríguez 2009), Iberian lynx (Roelke *et al.* 2008), and Florida panther (Roelke *et al.* 1993).

Wassmer *et al.* reported a clinical and lethal outbreak in free-ranging bob-cats (Wassmer *et al.* 1988), and Roelke *et al.* (1993) suggested that the virus may be a significant threat to free-ranging Florida panthers although no other specific reports of disease in free-ranging wildlife were found. The study of European wild cats did report an association between seropositivity and poor condition (Millán & Rodríguez 2009).

**Diagnosis:** Serology, and faecal PCR. Serological tests cannot distinguish between CPV2 and FPV (Decaro & Buonavoglia 2012).

**Vaccination:** Live and inactivated vaccines are available.

***Free-ranging tiger occurrence:*** In wild Amur tigers, seroprevalence is high (~ 60 – 70%) and has been found to increase with age (Goodrich *et al.* 2012, Naidenko *et al.* 2018), suggesting endemic infection and persistent immunity. In a survey of tigers in Chitwan National Park, Nepal, 8/11 Bengal tigers sampled between 2011 and 2016 were serologically positive (McCauley *et al.* 2018).

***Distribution:*** Widespread. Assume present in all tiger range states.

***Assumptions:*** None.

***Limitations:*** Gaps in knowledge regarding potential pathogenicity in free-ranging wild carnivores.