

# **Zoonotic Pathogens in Free Ranging Wild Mammals in** Sri Lanka

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# Sri Lanka and it's Wildlife

Sri Lanka is an island with  $65,000 \text{ km}^2$  extent situated in South Asia. It is considered as one of the global biodiversity hot-spots. Over 14% of the land is declared as wildlife protected areas. It has dense human population with many focal points in wildlife-human interface.



□ Further investigations are currently being carried out in order to understand their host parasite relationship, ecology and risks for public health.

**Figure 1 : Wildlife Protected** areas in Sri Lanka (green)

# **INTRODUCTION**

- Zoonotic pathogen refers to pathogens naturally transmitted between animals and humans. Zoonotic diseases can be caused by viruses, bacteria, parasites, and fungi.
- The most important zoonotic diseases that were identified so far  $\bullet$ are Botulism, Bovine cysticercosis, Bovine tuberculosis, Brucellosis, Leishmaniosis, Leptospirosis, Listeriosis, Porcine cysticercosis, Rabies, etc



Figure 2A: A female adult infected with *Mycobacterium bovis* showing treatment being administered. 2B: Lung, severe, multifocal to coalescing granulomas (arrow)



- People in wildlife conservation engage with wild animal health through wildlife disease surveillance, treatment and wild animal rehabilitation.

### **MATERIALS AND METHODS**

- Complete *post-mortem* examinations were performed on the wild animals (n=144) that were included in this study.
- □ The following tests were performed on samples collected for identification and confirmation of parasites and pathogens:
  - □ Histopathology,
  - □ Parasite morphology,
  - Conventional bacteriology, and
  - □ PCR where necessary.

#### **RESULTS, DISCUSSION AND CONCLUSION**

Figure 3A : Severe diffuse hepatomegaly in a Jungle cat (Felis chaus) caused by Calodium hepaticum. 3B: Histology section of the liver of the F. cahus. C. hepaticum eggs in the heaptic paranchyma (arrow). Hematoxylin and Eosin.

# REFERENCES

- 1. Perera, B.V.P., Salgadu, M.A., Gunawardena, G.S.P.De.S., Smith, N.H. and Jinadasa, H.R.N. First confirmed case of fatal Tuberculosis in a wild Sri Lankan elephant. Gajah 41 (2014) 28-31.
- 2. Perera, B.V.P., Rajapakse, R.P.V.J. Presence of *Paragonimus* westermani in free ranging leopards (Panthera pardus kotiya) in Sri Lanka. Proceedings of AAZV Annual Conference 2014, Salt Lake City, Utah, USA.
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□ The important zoonotic agents identified included:

- □ Mycobacterium tuberculosis among free ranging Asian elephant (*Elephas maximus*) [1],
- □ *Paragonimus westermani* in Sri Lankan leopards (*Panthera pardus kotiya*) [2],
- □ *Calodium hepaticum* [3], *Toxocara canis*, *Toxoplasma* gondii, Sarcocystis sp, and Spirometa sp. in jungle cats (Felis chaus) and fishing cats (Prionailurus viverrinus).
- □ To our knowledge tuberculosis in elephants and the above zoonotic infections in free ranging wild cats are the first reported cases in Sri Lanka.

W.R., Himsworth, C.G., Bollinger, T.K., Gunawardena, G.S.P. de S. Calodium hepaticum in Jungle Cats (Felis chaus) in Sri Lanka. Journal of Wildlife Diseases 52 (2016) 971-972.

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