

# A Note on *Escherichia coli* infection and treatment in Dholes (*Cuon alpinus*) at Indira Gandhi Zoological Park, Visakhapatnam

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The Indian Wild dog or Dhole (*Cuon alpinus*) is a highly social canid which lives in packs of 10-30 individuals. Dholes are susceptible to viral and bacterial infections in captivity and especially diarrhea in dholes could be fatal if not treated with timely intervention. *Escherichia coli* is a gram negative, facultative, anaerobic, non-sporulating, food borne pathogenic bacteria, which can live on a wide variety of substrates. A virulent strain of *E. coli* causes severe abdominal cramps, bloody diarrhoea and kidney failure.

## Observations on Pack behaviour prior to diagnosis:

The captive stock of dholes in the zoo is 11, which are pair of alpha male and female, one non-breeding sub-ordinate adult female and 8 pups (4 males and 4 females) which were 10 months old. On the morning of 07.11.2007 all wild dogs were dull and recumbent. The eyes were sunken and the hindquarters were drooping as the animals tied to walk. Loose whitish and bloody diarrhoea with white scours was observed. No feed was consumed. Four pups were very weak, unable to stand and lay flat out on one side without any movement. Few pups vomited and took shelter in bamboo clumps and bushes. One male pup reclined at the water pool and could not get up. Faint vocal communication was observed among the pack members. All the wild dogs were retrieved into the night kraal. Fecal samples and blood samples from two pups (one male and one female) were collected and sent for parasitic examination and culture.

## Diagnosis:

Lab reports revealed that it was an Enteric infection caused by pathogen *E. coli* Sensitive:

1. Amikacin,
2. Cefoperazone,
3. Ceftriazone,
4. Cefotaxime,
5. Efortaxime,
6. Ceftazidime,

The various blood parameters of two wild dogs are given below:

	Parameter	Wild Dog – Female	Wild Dog - Male
1	HAEMOGLOBIN {Hb %}	10.5 gm/dl	14.0 gm/dl
2	T W B C	8,700 cells/cu. mm	9,200 cells/cu. mm
3	DC: Polymorphs	65 %	47 %
	Lymphocytes	33 %	52 %
	Eosinophils	02 %	01 %
	Monocytes	0 %	0 %
	Basophils	Nil	Nil
4	E S R	20 mm/1 <sup>st</sup> hour	16 mm/1 <sup>st</sup> hour
5	P C V	32 %	42 %
6	SERUM CREATININE	20 mg/dl	2.1 mg/dl
7	BLOOD UREA	135 mg/dl	150 mg/dl
8	S G O T (AST)	85 U/L	171 U/L
9	S G P T (ALT)	120 U/L	125 U/L
10	ALK. PHOSPHATASE	250 U/L	265 U/L
11	SERUM ELECTROLYTES		
	SODIUM	138 mmol/L	141 mmol/L
	POTASSIUM	3.9 mmol/L	3.7 mmol/L
	CHLORIDE	102 mmol/L	104 mmol/L

7. Netilmicin,
8. Tilmicin,
9. Gentamicin
10. Sulbactam

**Resistant:** 1. Lomefloxacin, 2. Sparfloxacin, 3. Ciprofloxacin, 4. Cefadroxil

There is decline in chloride electrolyte level when compared with the reference range for serum chloride levels in African hunting dog, which is 112 to 120 mEq/L (Physiological Reference Values, Apple Valley, Minn, 1999, ISIS). This can be attributed to fact that *E.coli* stimulates adenylcyclase in intestinal cells, which leads to active chloride and water secretion.

## Treatment and Recovery:

Basing on the medical report, 2ml of MIKACIN (Amikacin sulphate injection) 500mg and 2ml of Floxinid vet (Enrofloxacin injection) 10% were administered intramuscularly to each animal via blow pipe for a period of 5 days. Pups formed a huddle by crowding together on approaching in the night cubicle. Weak pups did not move and stayed at a corner in crouched position. To minimize the stress weaklings were isolated and restrained manually by blind folding them. Intravenous fluids RL (Ringer lactate solution) and DNS (Sodium chloride and dextrose

injection) were given. 5ml of Potassium Chloride was given orally and Polybion was mixed in drinking water.

Initially, goat meat was given as feed during treatment, the dogs started feeding on beef later on. All the wild dogs responded well to the antibiotics and recovered in 5 days. They were alert and active. The scat was black and solid with its usual external configuration. All precautionary measures had been taken to avoid such infections. The wild dogs were released into the day kraal and their movements were closely monitored for one week. Deltamethrin 1.25% butox vet was sprayed in the day enclosure as disinfectant.

Successful management of animals in captivity required a thorough understanding of their species specific behaviour in order to meet their housing and breeding requirements (Donna FitzRoy Hardy). The dhole is a threatened species and various issues pertaining to their captive management and husbandry are not yet clearly understood.

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Managing dhole populations in confinement has always been a challenge for zoo managers. Thus over a period of time research and experience gained through such incidents are vital for securing the long term survival and successful captive breeding.

Thompson, and Susan Lumpkin, editors Wild Mammals in Captivity: *Principles and Techniques*. 531-536 pp.

Murray E. Fowler, Eric R. Miller, Zoo and Wild Animal Medicine, 5<sup>th</sup> edition, 2003. 86p.

Schipper I. A, Lecture outline of Preventive Veterinary Medicine for Animal Science students, 6<sup>th</sup> edition, 146-147 pp.

**Literature reviewed:**

Kleiman, Devra G., Mary E. Allen, Katerina V.

**IUCN/SSC Reintroduction Specialist Group (RSG)**

The Reintroduction Specialist Group (RSG) & Lincoln Park Zoo will host the 1st International Wildlife Reintroduction Conference April 15-16, 2008 in Chicago, IL, USA.

The theme of the conference will be Reintroduction programs: Applying science to conservation. The conference website, including information about registration is available at <http://www.reintroduction.org> The deadline for submission of abstracts for spoken presentations and posters is over. Twenty speakers and 40 posters have been selected for presentation in addition to 12 already invited speakers. Registration is limited to 275 participants. More information about the conference theme and topics is available at the website

<http://www.reintroduction.org>



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**Birds of Southern India (Malayalam version)**

by R. Grimmett, T. Inskipp and P.O. Nameer

Bombay Natural History Society (BNHS) in collaboration with the Birdlife International and Indian Bird Conservation Network (IBCN) has brought a series of bird field guides in eight regional languages in India. The bird field guides are meant to popularise the bird watching. The translation and publication has been possible due to sponsorship from The World Bank/Netherlands Partnership Program.

The Malayalam version titled 'Thekkeindiayile Pakshikal' is set to be released on 30<sup>th</sup> January 2008. Shri. BINOY VISWAM, the Honorable Minister for Forests and Wildlife, Govt. of Kerala has kindly consented to release the book.

Padmasree Sugathakumari Teacher, Sri. T.M. Manoharan I.F.S., Principle Chief Conservator of Forests Sri V.S. Varghese I.F.S., Chief Conservator of Forests (Wildlife) and other dignitaries would be present during the function.

Date : 30<sup>th</sup> January 2008  
Time : 5.00 PM  
Venue : Press Club, Thiruvananthapuram (4<sup>th</sup> Estate Hall)

We have immense pleasure in inviting you to grace the occasion with your esteemed presence

Dr. Asad R. Rahmani  
Director  
Bombay Natural History Society

Dr. P.O. Nameer  
co-author of the book and IBCN State coordinator & Asso. Prof. & Head (Wildlife), Kerala Agri. University

