

[Print](#)

**Government of India
Wildlife Institute of India, Dehradun
Wildlife Institute of India,
Chandrabani, Subhash Nagar, Dehradun, Uttarakhand**

Dated: 01/06/2022

To

Ms. Sangeeta Dogra
Eros Sampooranam H1 1001
Sector 2 Noida Extension
201307

Registration Number : WLIOI/R/E/22/00019

Dear Sir/Madam

I am to refer to your Request for Information under RTI Act 2005, received vide letter dated 05/04/2022 and to say that *the reply has been sent by email dated 01 June 2022 due to the big size of the attachment.*

In case, you want to go for an appeal in connection with the information provided, you may appeal to the Appellate Authority indicated below within ***thirty days*** from the date of receipt of this letter.

Dean, FWS

FAA & Dean

Address: Wildlife Institute of India Chandrabani Dehradun

Phone No.: 01352646202

Yours faithfully

(Rajiv Mehta)
CPIO & Deputy Registrar
Phone No.: 9286140979
Email : dyregistrar@wii.gov.in



No. WII/RTI/CPIO/2022-23 (Qtr-I)/05

Date: 01 June 2022

To,

Ms. Sangeeta Dogra
Eros Sampooranam Tower H1 1001,
Sector 2 Noida Extension,
Uttar Pradesh, Pin: 201307
Email: aradiya.bisht@gmail.com

Sub.: Information under RTI Act, 2005-reg.

Ref.: Your Online RTI No. WLIOI/R/E/22/00019 dated 05/04/2022

Madam,

Please refer to your application cited above under RTI Act, 2005. In this context, point-wise response to your queries is given below:

Information Sought under RTI	Reply
1. Response to information sought under serial No. 2A, 2B, 2C & 2D.	See the attached Annexure-1 containing 39 pages from page No. 1 to 39.
2. Response to information sought under serial No. 2E.	No information is available at Wildlife Institute of India.

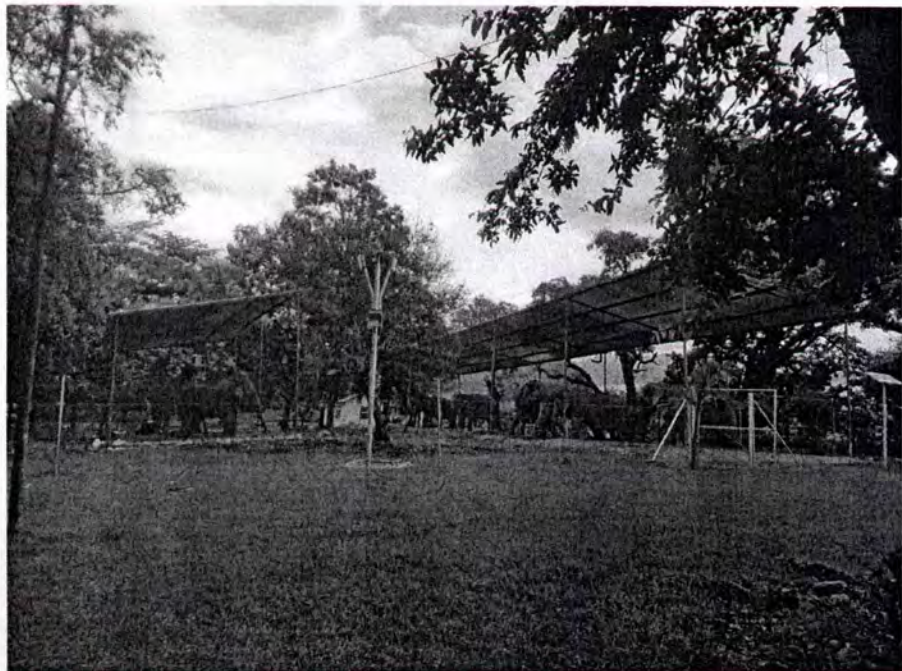
If you are not satisfied with the above reply, you may appeal to the Appellate Authority of Wildlife Institute of India, Dehradun.

Thanking you,

Yours faithfully,


(Rajiv Mehta)
CPIO

**EVALUATION REPORT:
UPKEEP AND CARE OF SEIZED
ELEPHANTS MAINTAINED AT AMDANDA
VAN NIGAM DEPOT, RAMNAGAR FOREST
DIVISION, RAMNAGAR, U.K.**



ATTESTED
Sajiv Mehta
GPIC, Wild Life Institute of India, Dehradun

September 2018

**INFORMATION PROVIDED
UNDER RTI**

10

**Evaluation Report: Upkeep and Care of Seized
Elephants Maintained at Amdanda Van Nigam
Depot, Ramnagar Forest Division, Ramnagar, U.K.**
(Reference PCCF (WL) & CWLW, Govt of Uttarakhand
Office order No. 663/29-1 dated 12th September 2018)

September 2018

Submitted By:

Dr. A.K. Sharma

In-charge, Centre of Wildlife Conservation, Management and Disease Surveillance,
Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P.

Dr. Parag Nigam

Scientist F

Dept. of Wildlife Health Management
Wildlife Institute of India, Dehradun, U.K

Dr. Ayush Uniyal

Veterinary Officer
Western Circle, Haldwani

Dr Dushyant Sharma

Senior Veterinary Officer
Corbett Tiger Reserve, Ramnagar

INFORMATION PROVIDED
UNDER RTI

EVALUATION REPORT: UPKEEP AND CARE OF SEIZED ELEPHANTS MAINTAINED AT AMDANDA VAN NIGAM DEPOT, RAMNAGAR FOREST DIVISION, RAMNAGAR, U.K.

Background

Further to the directives of the Hon'ble High Court, Uttarakhand, eight captive elephants maintained by private owners were seized by Ramnagar Forest Division on 9th August 2018 (7) and by Almora Forest Division on 12th August 2018 (1) and brought to Amdanda Van Nigam Depot (AVND), Kosi Range, Ramnagar on 12th August 2018. The animals were kept at Bijrani Gate, Corbett Tiger Reserve for initial two days following seizures. Assessment of the health of the identified elephants for seizure was carried out by Dr. Dushyant Sharma, Senior Veterinary Officer, Corbett Tiger Reserve, Ramnagar, Dr. Ayush Uniyal, Veterinary Officer, Western Circle, Haldwani and Dr. Yogesh Aggarwal, Senior Veterinary Officer, Govt. Veterinary Hospital, Ramnagar, on 5th August 2018 and the inspection report was submitted to all concerned (**Annexure I**). The animals had varying degree of insults and were provided treatment since 5th August 2018.

Further to the instructions of the Chief Wildlife warden, Govt. of Uttarakhand, the animals were planned to be kept at the AVND campus for a period of one-month prior to sending them to Corbett Tiger Reserve. Detailed health inspection of the animals was carried out by Dr. Dushyant Sharma, Dr. Ayush Uniyal and Dr. Vimal Raj. The general health condition of the animal at the time of seizure varied from poor to good with few individuals showing marked foot problem, lameness, pressure sores as well as injuries.



Plate I: (a) Poor body condition, (b) pressure sores, (c) Infected wound (d) cracked sole soon after seizure

12

Necessary veterinary interventions were carried out and the summary of treatment given to the animals since 10th August 2018 is provided below

S.No.	Name of the Elephant	Finding	Treatment
01	Phoolmala	Cut wound was present at the base of the tail	Antiseptic dressing (5% povidone iodine), topical application of Loraxane Inj. Tribivet 40 ml IM*3days
02	Hema	Vertical toe nail crack, overgrown cuticle	Trimming of overgrown cuticles done. Mahout were instructed clean foot regularly and apply paraffin to avoid further injury
03	Rani	Animal suffering from pododermatitis with several patches of dermal mycosis on planter surface, Open abscess on foot could be appreciated On 12/08/18 animal inflicted serious injury over the left eye.	Antiseptic dressing with 5% povidone iodine and metronidazole & topical application of antiseptic (Loraxane). Eye was cleaned with hypertonic saline solution and antiseptic dressing done regularly. Following local anaesthesia surgical intervention were carried on 18/08/18 <i>Treatment:</i> Topical application of Cloxacillin, Colistine sulphate ointment, Inj. Intamox 27gm IV, Inj Gentamicin 12gm IV, Inj. Tribivet 50ml IV. for two weeks Good healing following intervention
04	Kalina	Wound on right thigh and two punctured wound at the base of the ear	Antiseptic dressing with 5% povidone iodine, topical application of Loraxane, <i>Treatment:</i> Inj. Tribivet 40 ml im*3days, Inj. Intamox@10mg/kg IM*5days
05	Laxmi-2	Abscess on right temporal region resulting from pressure sores	Antiseptic dressing with 5% povidone iodine, topical application of Loraxane <i>Treatment:</i> Inj. Tribivet 40 ml im*3days, Inj. Intamox@10mg/kg IM*5days, Inj. Enrofloxacin@2mg/kg*5days
06	Gulabkali	Cracked sole and overgrown cuticles	Nail trimming done Mahout were instructed clean foot regularly and apply paraffin to avoid further injury.
07	Laxmi-1	Overgrown nail & cuticle, foot pad dry and overgrown, Necrosis of the toe nail of hind limb	Antiseptic dressing with 5% povidone iodine, topical application of Loraxane <i>Treatment:</i> Inj. Tribivet 40 ml im*5-days Inj. Intamox@10mg/kg IM*5days
08	Pawankali	Abscess was present on both the thigh with pus oozing out from left thigh Result of pressure sores On 25/08/2018 animal developed discomfort and colic	Antiseptic dressing with 5% Povidone iodine, topical application of Loraxane For colic management Fluid therapy Inf.RL-50L-IV, Inj.tribivet-50ml IV, Inj. Maxxitol@1mg/kg iv, Pow.Himalayan batisa 200gm BID PO Pow. Jeera, Asofatida, black salt, mustard oil. BID PO for three days

INFORMATION PROVIDED
UNDER RTI

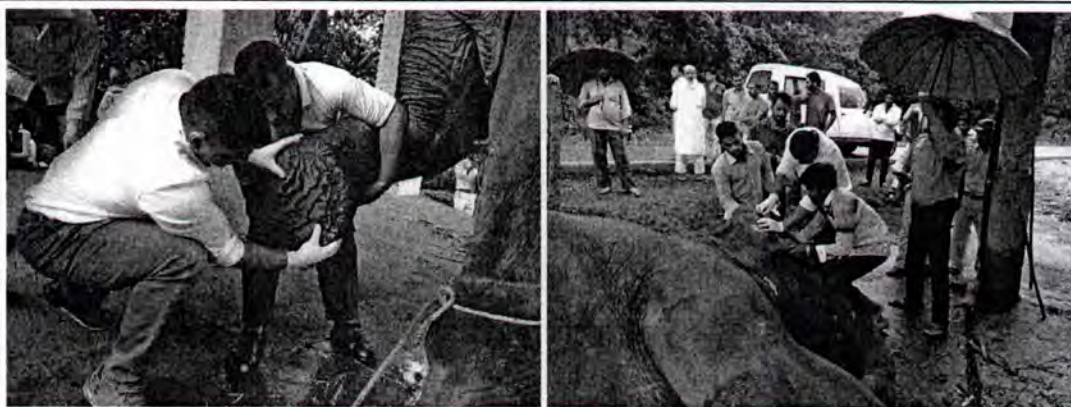


Plate 2: Veterinary Interventions being carried out

The animals were maintained on rations that were based on feeding practices followed for camp elephants at Corbett Tiger Reserve. Nutritional supplementation of mineral mixture and vitamins were done based on recommendations of the Veterinary Officer.

As a part of the health screening, biological samples of all the eight animals were collected and submitted to the Wild Animal Disease Diagnostic laboratory (WADDL), Bannerghatta Biological Park (Institute of Animal Health and Veterinary Biologicals, Karnataka Veterinary, Animal and Fisheries Science University (KVAFSU), Karnataka on 16th August 2018. The laboratory examination was aimed at screening for Tuberculosis including *Mycobacterium tuberculosis* and *M. bovis* (Trunk wash), *Leptospira* (EDTA Blood samples) and Elephant endotheliotropic herpesviruses (EEHV)/ Elephantid herpesvirus 1 (Trunk wash), Salmonellosis (Dung), Hemoprotozoa & Microfilaria (Blood).

The reports from Karnataka were received vide WADDL report No. WADDL/BBP/ 18-19 dated 28th August 2018, 30th August 2018 and 3rd September 2018 (Available as **Annexure II**) and summary of results are provided below:

Sr. No.	Sample details	Test done	Findings
1	Trunk wash	PCR Test using established primers specific for <i>Mycobacterium tuberculosis</i> and <i>M. bovis</i>	Two of the eight Samples specifically for Pawankali and Lakshmi II were positive for <i>M. bovis</i>
2	Trunk wash	PCR test using established primers specific for Elephant endotheliotropic herpesviruses (EEHV)/ Elephantid herpesvirus 1	All samples negative
3	EDTA Blood samples	PCR Test using established primers specific for <i>Leptospira</i> spp	All samples negative
4	Dung	PCR test using established primers specific for <i>Salmonella</i> spp and Culture of <i>Salmonella</i> differential agar	All samples negative
5	Blood	Haemoprotozoa/ Microfilaria	All samples negative

Simultaneously, the Hon'ble High Court, Uttarakhand passed strictures on 23rd August 2018 to shift these animals to Corbett Tiger Reserve. The animals were moved on 28th August 2018 to Laldhang, however the animals were shifted back to AVND based on the report of WADDL **indicating positivity for *Mycobacterium bovis*** in trunk wash samples of Pawankali and Lakshmi II and further to directives of the CWLW, Govt. of Uttarakhand vide letter no.585/6-18 dated 1st September 2018 (**Annexure III**). A make shift arrangement for holding the animals was made at AVND and included a solar fenced area with three sheds of different sizes to house the animals.

14

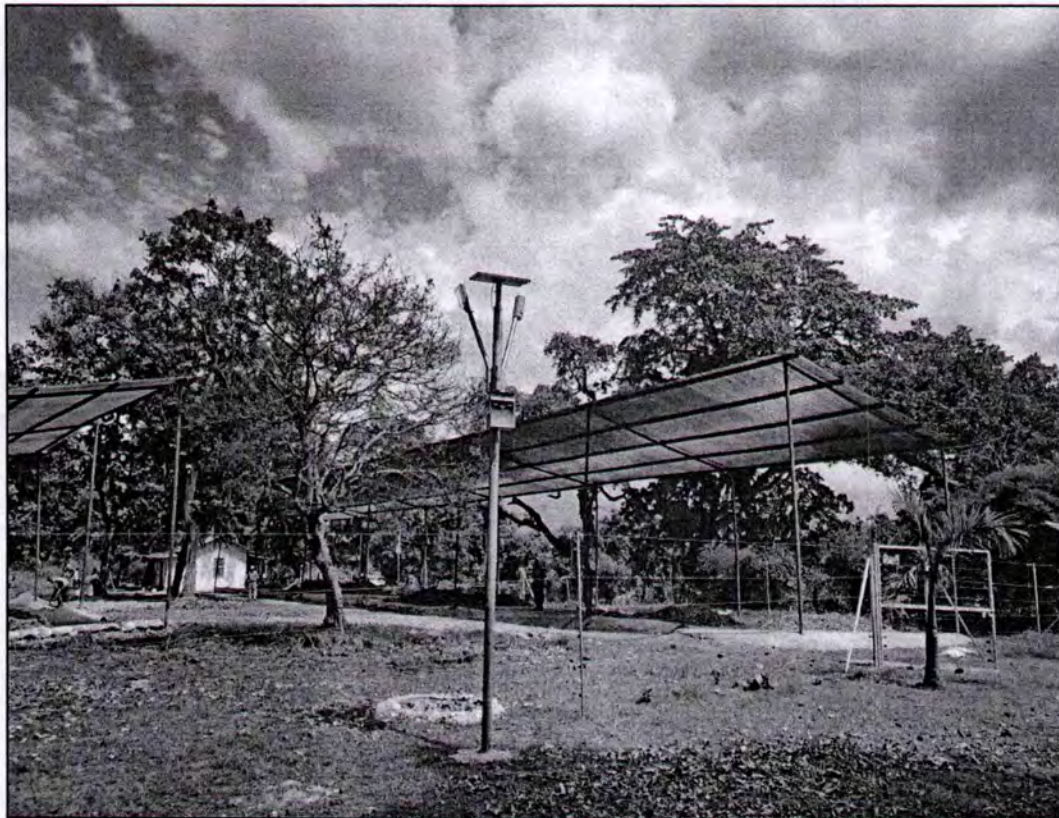
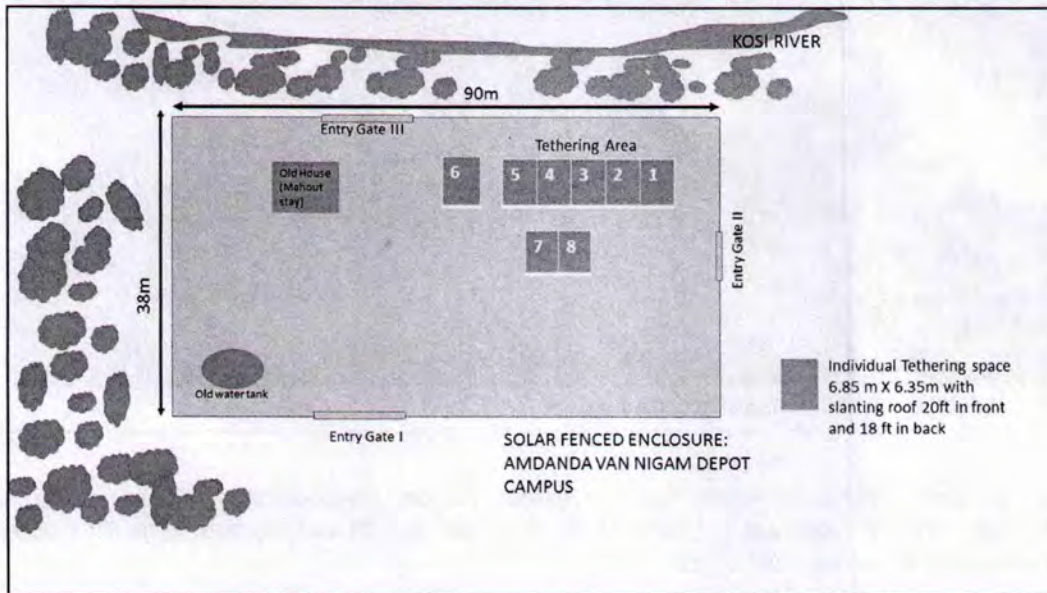


Plate 3: (a) Schematic representation of elephant enclosure at AVND and (b) Site photograph

Biological samples were again collected and sent to Centre for Wildlife Conservation, Management and Disease Surveillance, Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P for confirmation vide DFO Ramnagar letter no. 876/6-1 dated 5th Septemebr2018 and 11th September 2018. The laboratory reports from IVRI were received on 14th September 2018 vide In-charge Centre for Wildlife no. F.2-19/DI/NRC/2018-2019/CWL dated 14.09.18 (**Annexure IV**). Summary of the findings specific to disease screening are provided below

Sr. No.	Sample details	Test done	Findings
1	Blood & Trunk wash	TB-PCR- for <i>Mycobacterium tuberculosis</i> complex	All samples negative including that of Pawankali and Lakshmi II
2	Trunk wash sediments	Acid fast staining	All samples negative including that of Pawankali and Lakshmi II
3	Serum	Wild Tb Alert kit	5 samples negative including that of Pawankali and Lakshmi II
4	Dung	Parasitological examination	All samples negative except for Lakshmi II that was positive for Amphistomes (+).
5.	Serum Biochemical examination	Albumin, Globulin, Total protein, BUN, Creatinine, Total bilirubin, AST, GGT	Individual values provided
6.	Blood EDTA	Haematological examination	Individual values provided

The repeated sample of elephants Lakshmi II and Pawankali received by IVRI on 11th September 2018 were again tested for MTB complex using above mentioned techniques and were found **negative for MTB complex organism (Annexure IV).**

Haematological and biochemical profiling for all the animals **were within the normal range** and showed no significant deviation from the reported values

(Ref: Fowler's Zoo and Wild Animal Medicine, 2nd Edition, Page no. 921 and http://wildpro.twycrosszoo.org/S/00Ref/Biochemistry/Bioch_2_EleMax.htm)

The dung samples were **negative for parasitic ova** except for Lakshmi II that was positive for Amphistomes. Necessary anthelmintic treatment has been provided by the Veterinary officer and the therapy needs to be repeated in next 18-21 days.

PCCF (WL) & CWLW, Govt of Uttarakhand vide order no. 663/29-1 dated 12th September 2018 (**Annexure V**) constituted an expert team comprising following to provide guidance of management of seized elephants including management of animals that were declared positive for tuberculosis.

1. Dr. A.K. Sharma, In-charge, CWCMDs, IVRI, Izatnagar-Chairman
2. Dr J.L. Singh, Dept. of Veterinary Medicine, Pantnagar University, Pantnagar -Member
3. Dr. Parag Nigam, Scientist F, Dept of Wildlife Health Management, WII-Member
4. Dr. Ayush Uniyal, Veterinary Officer, Western Circle, Haldwani -Member
5. Dr Dushyant Sharma, Senior Veterinary Officer, Corbet Tiger Reserve-Member Secretary

The team undertook a task oriented visit to AVND on 21st September 2018. The terms of reference for the expert team included:

1. Providing prescription for isolation of infected animals, quarantine for other animals, design and features for the facilities including precautions to be adopted in managing the animals.
2. Assessment of present status of animals tested positive for Tuberculosis and developing protocols for treatment
3. Protocol for health examination of captive elephants for future
4. Directions for daily nutritional needs, routine work, and any other the important issues

Dr J.L. Singh could not join the team and was granted leave of absence by the Chairman. The team reached AVND campus and carried out site as well as animal inspection in the afternoon along with Mrs, Neha Verma,

DFO, Ramnagar, Sh. Karuna Nidhi Bharti, SDO, Ramnagar and Sh Bhagwat Prasad Pant Range Officer, Kosi. A brief description of the interventions made for the elephants so far were provided by DFO, Ramnagar following which the detailed inspection was carried out. The report provides details of the assessments made and recommendations for future implementation.

Health Assessment: All the animals were physically examined for signs of health and disease and more specifically for the two the animals tested positive for *Mycobacterium bovis*. The animals were active and alert and responded to the commands. The body condition ranged from fair to good. No overt signs of tuberculosis (weight loss, nasal discharge, respiratory distress, exercise intolerance etc.) were obvious based on physical examination. The animals had fairly good appetite and performed activities in normal fashion. The summary of the bodily condition and veterinary inspection is provided below

Name of the elephant	Health assessment (21 st September 2018)
Pawankali	Behavioural attributes: Active & alert with no signs of disease or discomfort Body Condition: Fair condition Appetite: Fairly good appetite Others observations: Pressure sores on both hind limbs were noticed and showed good healing. Need to change tethering area/ Dung characteristic normal
Laxmi-1	Behavioural attributes: Active & alert with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Fair to good body condition. Appetite: Good appetite, Others observations: Exposition of adipose tissue from the 2 nd toe nails cuticles of both the fore limb. There was partial excision of the body of the nail plate from its primary attachment in 3 rd toe nail of left fore foot (Onychostroma). Pain on palpation and animal showed lameness. Cracked 3 rd toe nails of both hind limbs.
Laxmi-2	Behavioural attributes: Appeared lethargic with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Good body condition. Appetite: Good appetite, Others observations: Had considerable healing of wound (previous abscess) on the left temporal. Swelling reduced. Toe nail cracks were noticed in both the hind limbs. Deworming proposed
Hema	Behavioural attributes: Active & alert with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Good body condition. Appetite: Good appetite, Others observations: Apparently healthy at the time of examination. Marked improvement in foot condition
Rani	Behavioural attributes: Active & alert with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Good body condition. Appetite: Good appetite, Others observations: The wound on the eye for which surgical interventions were previously made showed marked healing. The toe nail abscess also healed leaving a scar. Requires foot care.
Gulabkali	Behavioural attributes: Active & alert with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Good body condition. Appetite: Good appetite, Others observations: Apparently healthy at the time of examination. Over grown nails and foot pad cracks required proper foot care.
Phoolmala	Behavioural attributes: Active & alert with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Obese Appetite: Good appetite Others observations: Right eye having congenital microphthalmia with no vision, tail wound healed Requires gradual reduction in diet
Kalina	Behavioural attributes: Active & alert with no signs of disease or discomfort. No sign of respiratory distress seen. Body Condition: Good body condition (towards higher side) Appetite: Good appetite, Others observations: Apparently healthy at the time of examination. Aseptic punctured wound at base of ear and on thigh has shown healing. Diet needs to be reworked based on body weight

INFORMATION PROVIDED
UNDER RTI

Based on information provided by the veterinary officers, mahouts and Chara cutters; there was marked improvement in overall health over the last 40 days.

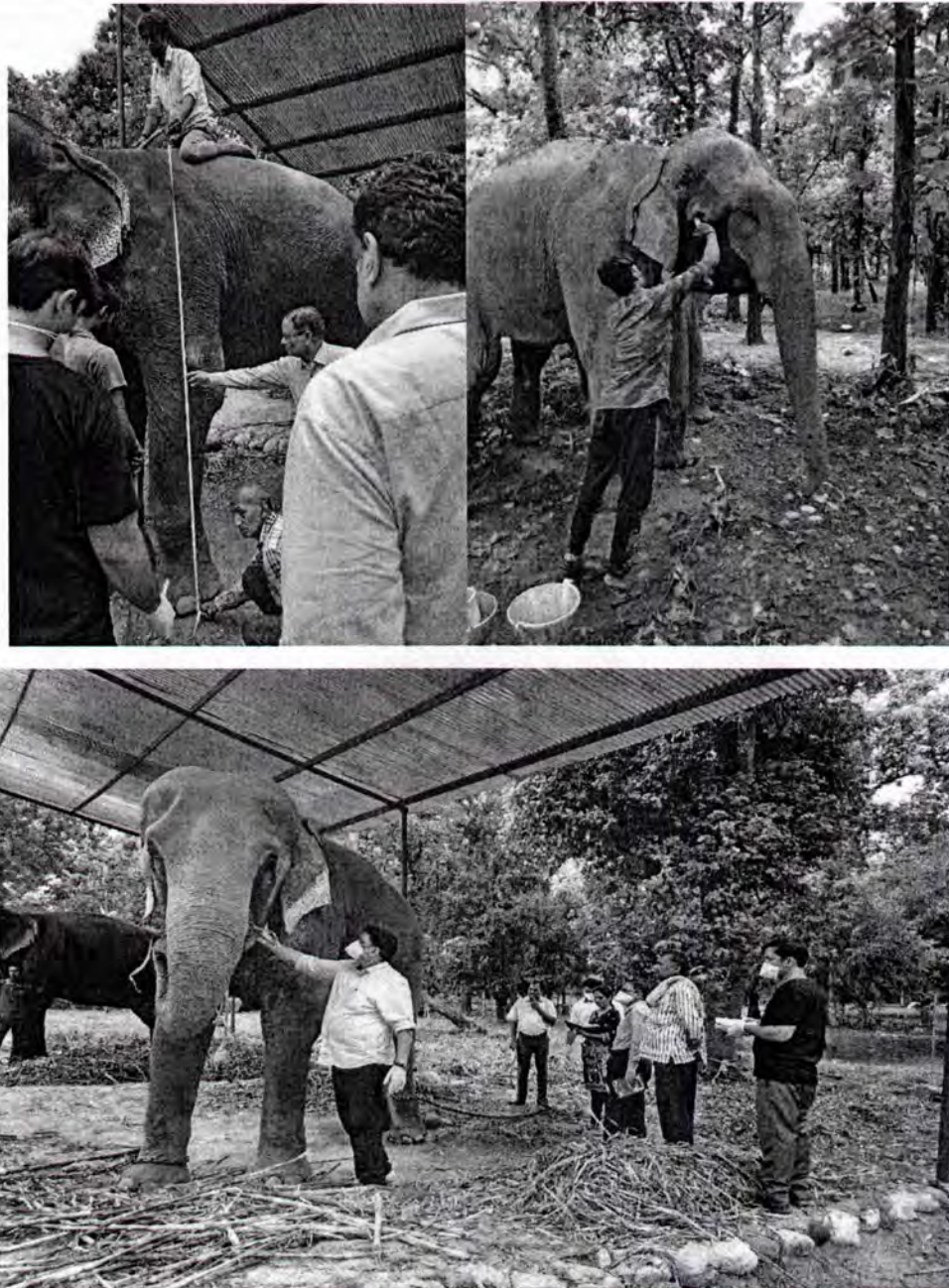


Plate 4: (a) Bodily measurements, (a) veterinary intervention and (c) health monitoring

The laboratory reports provided by the WADDL and IVRI were reviewed. Trunk wash samples of Lakshmi II and Pawankali (2 of the 8 elephants) were tested positive for *Mycobacterium bovis* (PCR) and negative for *M. tuberculosis*. The repeated sample sent twice to IVRI were however negative for *Mycobacterium tuberculosis* complex.

INFORMATION PROVIDED
UNDER RTI

Tuberculosis in Elephants

Tuberculosis (TB) is a common bacterial disease caused by members of the genus *Mycobacterium* that includes more than 150 species that are sometimes grouped as *M. tuberculosis* complex (MTBC) and *Mycobacteria* other than MTBC (MOTT) (www.bacterio.cict.fr). The *M. tuberculosis* complex organisms that cause tuberculosis include *M. tuberculosis*, *M. bovis*, *M. bovis* BCG (vaccine strain), *M. caprae*, *M. africanum*, *M. canetti*, *M. microti*, *M. pinnipedii* and *M. mungi* (Brosch *et al.*, 2002; Alexander *et al.*, 2010) and infects a broad range of species including humans, nonhuman primates, carnivores, artiodactylids and domestic and non-domestic ungulates. Species susceptibility to specific mycobacteria varies (Montali 2001). *Mycobacterium tuberculosis* is the predominant infection-causing agent in elephants although cases caused by *M. bovis* have also been reported (Mikota *et al.*, 2001; Montali, 2001; Mikota and Maslow, 2011). Reports from India, Sri Lanka, and other Asian countries indicate that TB is not an unusual finding on post-mortem examination in captive elephants (Mikota and Maslow, 2011). In a study, sero-diagnosis of tuberculosis in India showed high prevalence of asymptomatic *M. tuberculosis* infection in captive Asian elephants. More recently, tuberculosis was diagnosed in wild Asian elephants of Southern India at necropsy and also by acid fast staining, PCR and molecular typing that confirmed *Mycobacterium tuberculosis* as predominant type. Other *Mycobacteria* reported included *Mycobacterium szulgai*, that was associated with fatal disease in two African elephants (Lacasse, 2007) and *Mycobacterium elephantis*, from a lung abscess of an elephant that died of chronic respiratory disease (Shojaei *et al.*, 2000). *Mycobacterium avium* is commonly isolated from elephants (Payeur, 2002) and is not generally associated with disease although a single case has been reported (Yong, 2011). The close interaction between humans and captive elephants is presumed to be a key risk factor for the interspecies transmission of TB.

TB in elephants may present as a chronic wasting disease with weight loss, exercise intolerance, and occasionally coughing or abnormal discharges. Frequently, clinical signs are lacking until the disease is quite advanced. *M. tuberculosis* has been isolated premortem from respiratory secretions, feces, and vaginal discharges. On post-mortem, some elephants have significant abscess formation and caseation of the lungs, thoracic and abdominal lymph nodes, and liver. Other cases have been diagnosed incidentally at necropsy by identification and culture of small, focal granulomas (Mikota *et al.*, 2001; Mikota, 2008).

Interpretation of chest radiographs is difficult in adult elephants and the intradermal tuberculin test has proven to be unreliable as a screening test. Enzyme Linked Immunosorbent Assay (ELISA) Technique for detecting the presence of serum antibodies to mycobacteria in elephants showed high sensitivity and specificity for detecting infected elephants and monitoring TB in elephants over the time. However, commercial ELISA kit for diagnosing elephant TB is not currently available. Acid fast stains of trunk wash smears or other tissue are not reliable indicators of tuberculosis when used as a sole diagnostic test. A commercial assay based on serologic detection of pooled *M. tuberculosis* complex antigens as a screening assay (TB Rapid Test or Elephant TB STAT PAK assay, ChemBio Inc., Medford, NY) with a confirmatory antigen-specific multi-antigen print immunoassay (MAPIA, ChemBio) has been shown to be accurate and reproducible for elephants. The Stat Pak assay is licensed by the United States Department of Agriculture (USDA) as a screening test of TB in elephants. The sensitivity and specificity of the STAT PAK to diagnose *M. tuberculosis* complex infection is 100% and 95%, respectively (Lyashchenko *et al.*, 2000 & 2006). In India, Wild TB alert kit™ (TRPVB, TANUVAS, Chennai) and MycoPac dual kit™ (Cis GEN, Chennai) has shown high sensitivity and specificity in various wild animals (Veerasami *et al.*, 2018). Nucleic acid amplification to detect mycobacterial DNA in primary specimens obtained by trunk wash has comparable diagnostic capability as for humans. The problem of PCR inhibitors due to contamination with organic material and soil may be minimized by use of modifications employing commercially available specimen decontamination systems (Mikota and Maslow, 2011).

Culture of mycobacteria and its identification by biochemical and molecular tests remains the “gold-standard” for TB diagnosis. However, a positive culture from clinical material like trunk wash is more likely in infected animals shedding the organisms. Hence repeated sampling is needed to rule out the TB in elephants (Mikota and Maslow, 2011).

Recommendation: It is informed that *M bovis* is not frequently encountered in elephants and *M. tuberculosis* is the primary pathogen responsible for the disease. Though, two of the animals were tested positive for *M. bovis* by PCR (WADDL report) and negative by the IVRI subsequently, it would be appropriate to have laboratory reconfirmation and use results of culture and advanced techniques to come to a conclusion. Culture of mycobacteria and its identification by biochemical and molecular tests still remains the “gold-standard” for TB

diagnosis. It is also relevant since the animals have not shown signs of distress/ discomfort (specific to respiratory involvement) during the field inspection.

The procedure would entail collection of biological samples including 3 consecutive trunk wash and subjecting the samples to culture as well as other advanced diagnostic procedures (antibody based/ antigen based). The elephants can be trained for collecting trunk wash and it normally takes about 1-2 weeks' time. The detailed procedures for trunk wash is provided as Annexure VI. Mycobacteria are hardy organisms and culture of these organisms would require about 6-8 week. The results are confirmatory however, absence of growth of *M. tb* complex organisms from trunk wash, feces, tissue or other samples may be attributed to the animal being not infected, not shedding at the time of sample collection, sampling error (culture overgrowth by contaminating organisms, inadequate sample, or laboratory error) or samples improperly handled or transported (as per the Guidelines for the control of Tuberculosis in elephants. United States Animal Health Association, Elephant Tuberculosis Subcommittee, 2010). Specific interventions can be made further to confirmation by the laboratories. The samples may be sent to IVRI, Izatnagar as well as WADDL, Bannerghatta.

The present report however provided details for further management to address the ToR as mentioned in order of PCCF (WL) & CWLW, Govt of Uttarakhand no. 663/29-1 dated 12th September 2018,

Suggestive treatment for TB positive cases

As per current guidelines, (www.usaha.org/committees/TB/DraftTBGuidelines.pdf) antituberculous agents are divided into first and second line agents. First line agents include isoniazid, rifampin, pyrazinamide, ethambutol, and streptomycin. These are agents with the greatest activity with limited side effect. Second line agents include those with less activity and/or greater side effects and include capreomycin, ethionamide, cycloserine, and thiacetazone. The fluoroquinolones (FQ; moxifloxacin, ciprofloxacin, levofloxacin, and enrofloxacin) while not considered as 1st line agents have significant bactericidal activity against *M. tuberculosis*. Linezolid is a newer antibiotic with activity against Gram-positive bacteria and *M. tuberculosis* and has been used for treatment of multi-drug action against *M. tuberculosis*.

Anti TB drugs must be directly administered since mixing drugs with the food do not produce reliable levels of these drugs in the blood. Drugs vary in palatability and acceptance so some experimentation may be required to determine a workable regimen for each individual elephant. Isoniazid and PZA can be given either orally or rectally. Rifampin and ethambutol should only be administered orally (effective blood levels of rifampin cannot be achieved with rectal administration and ethambutol is quickly expelled when given rectally). Below are suggested starting doses, but actual doses may need to be adjusted in order to achieve adequate blood levels and / or reduce effects of toxicity.

Drug	Dosage (mg/kg)	Route	Formulation	Target conc (µg/ml)	Cmax (hr)
Isoniazid	5	Oral or rectal	Premixed suspension	3-5	1-2
Isoniazid	4	Oral	Powder	3-5	0.5-1
Rifampin	10	Oral only	Powder	8-24	2-4
Pyrazinamide	30	Oral or rectal	Powder	20-60	1-2
Ethambutol	30	Oral only	Powder	2-5	1-2

Additionally the parasitic load and health status may be assessed again for all the animals and necessary samples collected and submitted to concerned laboratories.

Other Health Interventions

Nutritive needs: The team carried out bodily measurements including weight estimation as it forms basis for estimating the calorie requirement that would support diet formulation. The present diet provided to the animals is based on the feeding practices at Corbett. It would be appropriate to work out individual animal requirements based on recommendations of Pushkaran, 1987.

Body wt. (kg.)	Dry matter /day (kg)	Digestible Crude Protein (DCP)/Day (kg)	Total Digestible Nutrient (TDN)/day (kg)	Daily Energy (DE) /day (Therm)	Calcium /day (kg)
Nutrients required for maintenance of adult elephants per head/day					
2500	32.62	1.812	17.52	83.956	151
2700	34.55	1.919	18.55	88.932	160
3000	37.27	2.071	20.02	95.938	173
3200	39.12	2.173	21.01	100.692	181
3500	41.73	2.318	22.41	107.419	193
3700	43.50	2.416	23.32	111.950	201
4000	46.08	2.560	24.74	118.595	213
4200	47.70	2.650	25.61	122.765	221
4500	50.17	2.787	26.94	129.131	232
4700	51.81	2.878	27.82	133.357	240
5000	54.13	3.007	29.07	139.334	251
5200	55.77	3.098	29.95	143.559	258
5500	58.00	3.222	31.15	149.286	269
6000	61.15	3.397	32.84	157.404	283

Recommendations

The nutrient requirement provided above may be used for developing dietary regimen for elephants. The acceptability of diet being provided needs to be reworked with supplementation of molasses, sharkoferrol, flax seed oil, choker (wheat bran) in the diet.

Minimum green fodder requirement by captive elephant as per guidelines of Directorate of Project Elephant (ref. no. 9-5/2003-PE dated 8-1-08) and these may be ensured.

Sr. No.	Height of elephant	Green Fodder
1.	Below 1.59 m (weaned calf)	Not less than 100 kg
2.	1.50 m to 1.80 m	Not less than 150 kg
3.	1.81 m to 2.25 m	Not less than 200 kg
4.	Above 2.25 m	Not less than 250 kg (or 5% of its body weight)

Enclosure attributes: The animals are tethered with chains under the temporary shed that has been set up at the AVND. The animals are maintained on hard cemented flooring and are taken to nearby forest for grazing during day time. The animals are chained in the night and briefly during the daytime. The animals are been taken to Kosi river for bathing as well as drinking water.

INFORMATION PROVIDED
UNDER RTI

Recommendations:

It would be appropriate to have a watering facility built within the bigger enclosure with separate units for diseased/ aggressive animals. Elephants often urinate and, more particularly, defaecate in water in which they bathe. As they also drink at the same time, it is essential that the mahout encourages elephant to drink before bathing. This would lessen the chances of elephant contracting water borne diseases. Alternatively, elephants need to be watered at a site and bathed at different site preferably downstream so as to avoid chances of the animal consuming dirty water. Elephants should not be allowed to drink immediately after activity as the animal's body temperature may be high and drinking at this time may lead to cold and even colic. The animals need to be trained to drink from these watering facilities as the water would be cleaner and can be tested for contaminants.

It would be appropriate to increase the size of the enclosure based on the Standards/ Norms of recognition of Elephant rehabilitation /Rescue centers under section 42 of the Wildlife Protection Act, 1972 issued by the IG (Forests) (Project Elephant) vide letter no. 2-5/20-06-PE (VolIII) dated 29th September 2017. The minimum area required is 0.2 ha/ elephant.

Minimum floor area requirement for different age groups of elephants is available in the guidelines of Directorate of Project Elephant (ref. no. 9-5/2003-PE dated 8-1-08 and includes an area of 9m X 6m for adult (height above 2.2 meters) and cow elephants with unweaned calves.

The height of the covered shed at the facility is appropriate however, it would require reinforcement w.r.t. structural features.

The hard cemented flooring of the existing structure should be overlaid with rubber tiles of high density material as used at the Wildlife S.O.S Elephant Care Center, Agra, U.P. Though cemented floors are easy to clean, the chances of animal developing arthritis and foot injuries are more. The hard flooring can further aggravate the existing foot ailment in these animals.

The animals can be maintained in chain free environment with sandy loam substrate. This would require increasing the size of the existing area and providing energized fencing with appropriate watering facility. Behavioural enrichment is important to avoid development of stereotypes, engaging the animals and ensuring welfare. The design for such enrichment may be adopted from facilities that keep elephants.

Since the animals are prone to develop foot ailments owing to skeletal peculiarities, regular foot care for housed animals is essential. The predisposing factors for foot ailments include intrinsic factors (poor nutrition, malnutrition, mineral and vitamin deficiency) and extrinsic factors (inadequate exercise and wear, unsanitary and unhygienic conditions, animal tethered on hard surfaces and contamination due to standing in own excrement). These need to be appropriately addressed.

Treating foot and nail problems requires immediate attention for select individuals. It should necessarily involve inspection of individual foot, proper cleaning and removal of excessive nail/ sole, foreign objects if any, and application of mineral or neem oil. This should be carried out on routine basis.

There is a need for appropriate disposal of waste as well as having a drainage system within the facility since accumulation of dung and urine is unhygienic and predisposes animals to foot ailments and also provides a substrate for build-up of pathogens. Having proper drainage would help prevent dissemination of diseases between individuals, between sheds and spread to and through humans (keepers, visitors etc.). The effort needs to be continuous and concerted. The area needs to be cleaned and disinfected using commercially available disinfectants on daily basis.

Comfort belts may be used to restrain animals that are overtly aggressive or those on which specific veterinary interventions requiring physical handling/ close contact are needed. The animals need to be trained and managed in chain free environments as far as possible.

Several infectious diseases such as tuberculosis, measles, amoebic dysenteric, salmonellosis can be acquired by captive elephants from humans. It is essential that all the personnel involved in care/ management of elephants

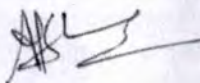
undergo periodic health checkup to minimize the potential for disease transmission. Precautions must be taken for ensuring human safety (such as the use of N-95 masks, gloves, etc.) while handling animals for the time being.

As the animals would require round the clock monitoring and care, it would be appropriate to provide onsite housing facility for the animal handlers (Mahouts and chara cutters). These personnel are presently residing in a tin shed within the enclosure. This would be essential in view of the impending winter season.

The records of daily observations and interventions were checked by the team and found appropriate.

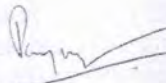
Maintaining elephants in captivity is a complex matter. It requires that those involved in care and management have appropriate experience in care of the species. It is also important that personnel are sensitized on various aspects of health management and exposed to similar facilities elsewhere. One such facility can be the Wildlife S.O.S Elephant Conservation & Care Centre and a visit of all concerned (Manager (DFO, SDO, RO), Veterinary Officers and Mahouts, may be organized at the earliest.

Conclusion: Further to request from the Chief Wildlife Warden, Govt. of Uttarakhand, a field visit to AVND was undertaken on 21st September 2018. A detailed site inspection and health assessment of confiscated elephants was carried out. The animals did not show any signs of distress/ discomfort during the field visit including the two identified as positive for *M. bovis* by WADDL, Bangalore. Since the IVRI laboratory has ruled out tuberculosis in all the animals in subsequent sampling and animals showed improvement in overall health further to management at AVND, it is important that before any further interventions are made, health and disease status of all animals be reassessed with standard sampling and testing protocols. The findings so received would form the basis for any future interventions. Details of the sampling procedures, structural alterations and enrichment, feeding protocols, health-monitoring, record keeping and personnel health management are provided in the report to address the request made by the CWLW, Uttarakhand.



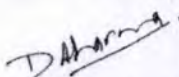
Dr. A.K. Sharma

In-charge, Centre of Wildlife Conservation, Management and Disease Surveillance,
Indian Veterinary Research Institute, Izatnagar, Bareilly, U.P.



Dr. Parag Nigam

Scientist F
Dept. of Wildlife Health Management
Wildlife Institute of India, Dehradun, U.K



Dr. Dushyant Sharma

Chief Veterinary Officer
Corbett Tiger Reserve, Ramnagar



Dr. Ayush Uniyal

Veterinary Officer
Western Circle, Haldwani

**INFORMATION PROVIDED
UNDER RTI**


References

1. Alexander, K.A., Laver, P.N., Michel, A.L., Williams, M., van Helden, P.D., Warren, R.M. and van Pittius, N.C.G., 2010. Novel *Mycobacterium tuberculosis* complex pathogen, *M. mungi*. Emerging infectious diseases, 16(8), p.1296.
2. Brosch, R., Gordon, S.V., Marmiesse, M., Brodin, P., Buchrieser, C., Eiglmeier, K., Garnier, T., Gutierrez, C., Hewinson, G., Kremer, K. and Parsons, L.M., 2002. A new evolutionary scenario for the *Mycobacterium tuberculosis* complex. Proceedings of the national academy of Sciences, 99(6), pp.3684-3689.
3. Lacasse, C., Terio, K., Kinsel, M.J., Farina, L.L., Travis, D.A., Greenwald, R., Lyashchenko, K.P., Miller, M. and Gamble, K.C., 2007. Two cases of atypical mycobacteriosis caused by *Mycobacterium szulgai* associated with mortality in captive African elephants (*Loxodonta africana*). Journal of Zoo and Wildlife Medicine, 38(1), pp.101-107.
4. Lyashchenko, K.P., Greenwald, R., Esfandiari, J., Olsen, J.H., Ball, R., Dumonceaux, G., Dunker, F., Buckley, C., Richard, M., Murray, S. and Payeur, J.B., 2006. Tuberculosis in elephants: antibody responses to defined antigens of *Mycobacterium tuberculosis*, potential for early diagnosis, and monitoring of treatment. Clinical and Vaccine Immunology, 13(7), pp.722-732.
5. Lyashchenko, K.P., Singh, M., Colangeli, R. and Gennaro, M.L., 2000. A multi-antigen print immunoassay for the development of serological diagnosis of infectious diseases. Journal of immunological methods, 242(1-2), pp.91-100.
6. Maslow, J.N., Mikota, S.K., Zhu, M., Isaza, R., Peddie, L.R., Dunker, F., Peddie, J., Riddle, H., and Peloquin, C.A. 2005. Population pharmacokinetics of isoniazid in the treatment of *Mycobacterium tuberculosis* among Asian and African elephants (*Elephas maximus* and *Loxodonta africana*). J Vet Pharmacol Ther. 28(1):1-7
7. Maslow, J.N., Mikota, S.K., Zhu, M., Riddle, H., and Peloquin, C.A. 2005. Pharmacokinetics of ethambutol (EMB) in elephants. J Vet Pharmacol Ther. 28:321-323.
8. Mikota, S.K. and Maslow, J.N., 2011. Tuberculosis at the human-animal interface: An emerging disease of elephants. Tuberculosis, 91(3), pp.208-211.
9. Mikota, S.K., 2008. Review of tuberculosis in captive elephants and implications for wild populations. Gajah, 28, pp.8-18.
10. Mikota, S.K., Peddie, L., Peddie, J., Isaza, R., Dunker, F., West, G., Lindsay, W., Larsen, R.S., Salman, M.D., Chatterjee, D. and Payeur, J., 2001. Epidemiology and diagnosis of *Mycobacterium tuberculosis* in captive Asian elephants (*Elephas maximus*). Journal of Zoo and Wildlife Medicine, pp.1-16.
11. Montali, R.J., Mikota, S.K. and Cheng, L.I., 2001. *Mycobacterium tuberculosis* in zoo and wildlife species. Rev. Sci. Tech. Off. Int. Epizoot. 20: 291-303.
12. Payeur, J.B., Jarnagin, J.L., Marquardt, J.G. and Whipple, D.L., 2002. Mycobacterial isolations in captive elephants in the United States. Annals of the New York Academy of Sciences, 969(1), pp.256-258.
13. Peloquin, C.A. 2003. Clinical pharmacology of the anti-tuberculosis drugs. In Davies, P.D.O. (Editor). Clinical Tuberculosis. London, England. Arnold Publishers, pp. 171-190.
14. Pushkaran, 1987. Package to Practices, Recommendations for livestock, poultry, elephants, rabbit and dogs. Kerala Agricultural University, Mannuthy, Trichur, Kerala.
15. Shojaei, H., Magee, J.G., Freeman, R., Yates, M., Horadagoda, N.U. and Goodfellow, M., 2000. *Mycobacterium elephantis* sp. nov., a rapidly growing non-chromogenic *Mycobacterium* isolated from an elephant. International journal of systematic and evolutionary microbiology, 50(5), pp.1817-1820.
16. Veerasami, M., Venkataraman, K., Karuppannan, C., Shanmugam, A.A., Prudhvi, M.C., Holder, T., Rathnagiri, P., Arunmozhivarman, K., Raj, G.D., Vordermeier, M. and Subramanian, B.M., 2018. Point of Care Tuberculosis Sero-Diagnosis Kit for Wild Animals: Combination of Proteins for Improving the Diagnostic Sensitivity and Specificity. Indian journal of microbiology, 58(1), pp.81-92.
17. Yong, H., Choi, G.E., Lee, B.S., Whang, J. and Shin, S.J., 2011. Disseminated infection due to *Mycobacterium avium* subsp. *avium* in an Asian elephant (*Elephas maximus*). Journal of Zoo and Wildlife Medicine, 42(4), pp.743-746.
18. Zhu, M., Maslow, J.N., Mikota, S.K., Isaza, R., Dunker, F., Riddle, H. and Peloquin, C.A., 2005. Population pharmacokinetics of pyrazinamide in elephants. Journal of veterinary pharmacology and therapeutics, 28(5), pp.403-409.

INFORMATION PROVIDED
UNDER RTI

Clinical Examination Report

S.No.	Name of Elephant	Medical certificate issued	Sample collected	Summary	Comment
01	Phoolmala (Mahout -Sunil, Chara cutter-Sonu)	No record found	Trunk wash, Pus sample, Faecal sample, Blood sample plain and with EDTA	Average body condition was noticed, mucous membrane was light pink in color. On examination of the eyes, it was found that the cataract has developed in the left eye and the right eye appeared to be congenitally microphthalmic leading to complete loss of vision. A large incised wound was present near the base of the tail. The skin was loosely attached. On foot examination, it was found that the animal has total of 18 nails, vertical and horizontal cracks were present in the nails of both the fore foot. The nail cuticles were rough and overgrown. In coordination was observed due to poor visibility. Several patches of dermal mycosis on the planter aspect of the feet were also noticed. The rectal temp. and pulse rate was normal	Unfit for any work
02	Hema (Mahout-Rajveer Singh)	No record found	Trunk wash, Faecal sample, Blood sample plain and with EDTA	The mucous membrane was pink in color. Body condition was good. No abnormality was detected in the eyes and adnexa. Foot pad was good in condition. A vertical toe nail crack was noticed in the left fore-foot. Pulse rate and body temp. was normal. No other visible abnormality was observed.	Apparently healthy
03	Rani (Mahout-Raju yadav, Characutter-	No record found	Trunk wash, pus sample, Faecal sample.	Animal appeared to be of average condition. Normal pink mucous-membrane was observed. Vision was cleared, no abnormality detected in the	Requires rest and podiatric treatment


 Dr. Ayush Uniyal
 Veterinary Officer
 Western Circle, Haridwar


 Senior Veterinary Officer
 Corbett Tiger Reserve
 Ramnagar (Mainital)

INFORMATION PROVIDED
UNDER RTI

	Soni Yadav		Blood sample plain and with EDTA	eyes and adnexa. The pulse rate and body temp. was normal. On examining the feet, Pododermatitis was evident. Several patches of dermal mycosis on the plantar aspect of the feet with generalized overgrowth of the foot pad were noticed. Elongation of nails and dry cuticles were also evident. Vertical toe-nail cracks were present in right fore-foot. Animal was slightly lame.	
14	Kulima (Mabrouk-Imran) Character: Munir Khatun	No record found	Trunk wash. Pus sample. Faecal sample. Blood sample plain and with EDTA	Normal pink mucous membrane was observed, No abnormality detected in the eyes and adnexa. Food pad condition was fair no abnormality was detected in any of the toe-nail. A small sized punctured wound was present on the right thigh region.	Apparently healthy.
15	Kulima-2 (Mabrouk-Imran) Character: Anwar Ali	No record found	Trunk wash. pus sample. Faecal sample. Blood sample plain and with EDTA	Animal appeared to be dull and depressed. Normal pink mucous-membrane was noticed. No abnormality was detected in eyes and adnexa. An abscess was present in the right side of the face. Hyperkeratinization along with some fungal infestation was present near the right elbow. The animal has total of 18 toe-nails. Multiple toe-nail cracks and dry nail cuticles were evident in both the fore and hind legs. Swinging leg lameness of the left fore limb with abnormal confirmation at metacarpal joint and slight stiffness at the level of the left metacarpal joint.	Require Veterinary care
16	Gulab Kati	No record found	Trunk wash. Faecal sample. Blood sample	Normal pink color mucous membrane was noticed. No abnormality detected in the eyes and adnexa.	Not fit for any hard work because of old

डा. अशोक कुमार (सहायक)
सहायक वन प्रशासक
CHILAS, Present/ Absent

Dr. Anish Unigal
Veterinary Officer
Western Circle, Gulab Kati

Senior Veterinary Officer
Corbett Tiger Reserve
Ramnagar (Nainital)

25

			plain and with EDTA	Animal has quite deformed spine. Skin condition was not good (very loose skin). On examination of the foot pad cracks were observed but not sore. Dry and elongated cuticles were also evident. The rectal temperature and pulse rate was normal.	age
07	Laxmi-1 (Infinity Resort) (Mahout- Usman, Chara-cutter- Dildad)	Previously physical health screening certificate was issued by Dr. Naveen Kumar Pandey Veterinary consultant for wildlife conservation and animal welfare, on 29 th august 2017.	Trunk wash, Faecal sample, Blood sample plain and with EDTA	Normal pink color mucous membrane was noticed. No abnormality detected in the eyes and adnexa. Reduced foot flight of all the limb were noticed (slow pace and slight limping). On examination of foot, it was noticed that the animal has 20 (5+5, 5+5) toe-nail. Both the first and second toe-nail of the hind limb was necrosed. Nail cuticles were overgrown and dried. Foot pad of all the limbs were overgrown with presence of grooves and impacted debris. Vertical toe-nail cracks were present in fore-limbs and hind limbs. Pulse rate and temp. was normal.	Apparently unhealthy
08	Pawankali (Mahout- Jogendra Singh, Chara-cutter- Badshah)	No record found	Trunk wash, Faecal sample, Blood sample plain and with EDTA	Normal pink color of the mucous membrane was noticed. No abnormality was detected in toe-nail or in footpad gait was normal. Abscesses present in both the thigh region. Purulent discharge from the left thigh region was also evident. The animal was severely emaciated and the skin condition was very poor.	Unhealthy & emaciated

26



TIN No. : 2916

Phone : 080-2

080-2

Fax : 91-80-2

Email : diriahvb@g

director@ia

Web: www.ia

K.V.A.F.S.U.

INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGI

Hebbal, Bengaluru - 560 024.

Ref. No. :

Date.....

No: WADDL/BBP/Diagnostic/2018-2019/

Date: 30/08/2018

To,
Dr Dhusyanth Sharma
Veterinary Officer
Corbet Tiger reserve,
Uttarkhand,

Sir,

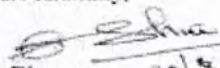
Sub: - Submission of Elephants trunk wash sample reports - reg.

♦ ♦ ♦ ♦

With reference to the above subject, we received 16 elephant trunk wash samples for tuberculosis testing, forwarded to Wild Animals Disease Diagnostic Lab, (IAH&VB) Bannerghatta Biological Park. The following samples are analyzed using molecular markers (PCR), the samples report was prepared and attached to this letter for your further needful action.

Thanking you sir

Yours faithfully,


Director 30/8

INFORMATION PROVIDED
UNDER RTI



INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS

KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY,

WILD ANIMAL DISEASE DIAGNOSTIC LAB BANNERGHATTA BIOLOGICAL PARK,



LABORATORY REPORT

NO/WADDL/BBP/18-19/

Date: 30/08/2018

Specimen: Trunk wash samples

Species: Elephants

Clinician: DR. Dhushyanth Sharma et al.,	Owner & Address: Corbett Tiger Reserve, Uttarkhand
Animals Deatil	RESULTS
Rani, Kalina, Phool Mala, Lakshmi infinity, Hema, Gulab kali, Tunga, Ganga, Asha, Rama, Kenchamma, Bhishma, Karna and Gajraj, Pawan kali and Lakshmi II	The given Trunk wash samples are Negative for <i>Elephant endotheliotropic herpesviruses (EEHV)</i> or <i>Elephantid herpesvirus 1'</i>

Test: PCR Test using Established Primers specific for *Elephant endotheliotropic herpesviruses (EEHV)* or *Elephantid herpesvirus 1'*

RESULTS:

The given Samples are negative for *Elephant endotheliotropic herpesviruses (EEHV)* or *Elephantid herpesvirus 1'* by PCR.

M. S. S. S.
Scientist - I
WADDL

Bannerghatta Biological Park,
Bangalore - 83.
SCIENTIST
Wild Animal Disease Diagnostic Lab
Institute of Animal Health & Vety.
Biologicals B.N.P. Bannerghatta
BANGALORE - 560 083.

INFORMATION PROVIDED
UNDER RTI



INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS
KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY,
WILD ANIMAL DISEASE DIAGNOSTIC LAB BANNERGHATTA BIOLOGICAL PARK,

LABORATORY REPORT

NO/WADDL/BBP/18-19/

Date: 03/09/2018

Specimen: EDTA Blood samples

Species: Elephants

Clinician: DR. Dhushyanth Sharma et al.,	Owner & Address: Corbett Tiger Reserve, Uttarkhand
Animals Deatil	RESULTS
Rani, Kalina, Phool Mala, Lakshmi infinity, Hema, Gulab kali, Tunga, Ganga, Asha, Rama, Kenchamma, Bhishma, Karna and Gajraj, Pawan kali and Lakshmi II	The given EDTA blood samples are Negative for <i>Leptospira</i> spp.

Test: PCR Test using Established Primers specific for. *Leptospira* spp

RESULTS:

The given EDTA Blood Samples are negative for *Leptospira* spp by PCR.

Dhushyanth V
Scientist - 1

WADDL

Bannerghatta Biological Park,
Bangalore - 83.

SCIENTIST

Wild Animal Disease Diagnostic Lab
Institute of Animal Health & Vety,
Biologicals B.N.P. Bannerghatta
BANGALORE - 560083.

INFORMATION PROVIDED
UNDER RTI

30



INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS
KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY,
WILD ANIMAL DISEASE DIAGNOSTIC LAB BANNERGHATTA BIOLOGICAL PARK,

LABORATORY REPORT

NO/WADDL/BBP/18-19/

Date: 28/08/2018

Specimen: Trunk wash samples

Species: Elephants

Clinician: DR. Dhushyanth Sharma et al.,	Owner & Address: Corbett Tiger Reserve, Uttarkhand
Animals Deatil	RESULTS
Rani, Kalina, Phool Mala, Lakshmi infinity, Hema, Gulab kali, Tunga, Ganga, Asha, Rama, Kenchamma, Bhishma, Karna and Gajraj	The given Trunk wash samples are Negative for <i>Mycobacterium tuberculosis</i> and <i>Mycobacterium bovis</i>
Pawan kali and Lakshmi II	The given Trunk wash samples are Positive for <i>Mycobacterium Bovis</i> only and negative for <i>Mycobacterium tuberculosis</i>

Test: PCR Test using Established Primers specific for *Mycobacterium tuberculosis* and *Mycobacterium bovis*

RESULTS:

The Elephants Pawan kali and Lakshmi II trunk wash samples are Positive for *Mycobacterium bovis* by PCR.

M. V.

Scientist - I
WADDL

Bannerghatta Biological Park,
Bangalore - 83.

INFORMATION PROVIDED
UNDER RTI

INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS
KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY,
WILD ANIMAL DISEASE DIAGNOSTIC LAB BANNERGHATTA BIOLOGICAL PARK,

LABORATORY REPORT

NO/WADDL/BBP/18-19/

Date: 30/08/2018

Specimen: Fecal Samples

Species: Elephants

Clinician: DR. Dhushyanth Sharma et al.,	Owner & Address: Corbett Tiger Reserve, Uttarkhand
Animals Deatil	RESULTS
Rani, Kalina, Phool Mala, Lakshmi infinity, Hema, Gulab kali, Tunga, Ganga, Asha, Rama, Kenchamma, Bhishma, Karna and Gajraj, Pawan kali and Lakshmi II	The given Fecal samples are Negative for <i>Salmonella spp</i> bacteria

Test: PCR Test using Established Primers specific for *Salmonella spp* bacteria RESULTS:

The given Samples are negative for *Salmonella spp* bacteria by Culture method using salmonella differential agar and by PCR.

M. S. V.

Scientist - 1
WADDL

Bannerghatta Biological Park,
Bangalore - 83.

INFORMATION PROVIDED
UNDER RTI

GOVERNMENT OF KARNATAKA
INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS, HEBBAL, BANGALORE, 560024.
WILD ANIMAL DISEASE DIAGNOSTIC LABORATORY
BANNERAGHATTA BIOLOGICAL PARK, BANGALORE-83

LABORATORY REPORT

NO.IAH&V8:WADDLBBP/2018-2019/

DATE: 19-08-2018

CLINICIAN : Dr. Dhushanth Sharma

OWNER : Jim Corbet National Park, Uttarkhand

COMPLETE HAEMOGRAM

PARAMETERS	NORMAL VALUES	ELEPHANTS							
		Asha (Fe)	Bhishma (M)	Ganga (Fe)	Gulab ka (Fe)	Gajraj (M)	Hema (Fe)	Kalina (Fe)	Karna (M)
White cell count(WBC)($\times 10^3/\mu\text{l}$)	10.2 - 18.9	9.1	16.4	3.4	12.4	18.6	9.6	5.6	14.3
Red blood cell count($\times 10^6/\mu\text{l}$)	2.3 - 4.6	3.1	2.9	3.4	2.8	3.0	3.0	3.3	2.7
Hemoglobin(g/dl)	10.5 - 14.9	13.6	11.8	14.1	13.8	12.6	13.8	15.5	11.5
Packed cell volume(PCV)%	36 - 54	38.6	35.3	41.7	37.8	38.1	39.5	42.5	34.0
MCV(fl)	114 - 150.6	124.0	121.9	119.9	133.4	127.2	130.8	128.3	126.0
MCH(pg/cell)	40.0 - 45.5	43.5	40.6	40.5	48.5	53.0	46.6	46.6	42.5
MCHC(g/dl)	31.7 - 35.6	35.2	33.4	35.8	36.5	33.6	34.9	36.4	33.6
Differential count(%)									
Granulocytes	28 - 41	22.1	18.2	17.3	16.2	24.1	33.4	14.5	22.8
Lymphocytes	51 - 73	70.9	75.9	75.9	76.3	70.4	57.6	79.7	69.1
Eosinophils	Upto 12	-	-	-	-	-	-	-	-
Monocytes	Upto 40	7.0	5.9	6.8	7.5	5.5	9.0	5.8	8.1
Basophils	<1	-	-	-	-	-	-	-	-
Platelets	2.49 - 4.97	4.35	7.47	1.48	3.46	7.88	4.98	4.35	6.61
Haemoprotozoa/ Microfilaria		Negative							

Mangalika V
Scientist -1

WADDL, BBP, Bangalore-83.

INFORMATION PROVIDED
UNDER RTI

33

GOVERNMENT OF KARNATAKA
KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY
INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS, HEBBAL
WILD ANIMAL DISEASE DIAGNOSTIC LABORATORY
BANNERAGHATTA BIOLOGICAL PARK, BANGALORE-83, KARNATAKA

LABORATORY REPORT

NO. IAH&VB:WADDL:BBP/2018-2019/

DATE : 19-08-2018

CLINICIAN : Dr. Dhushanth Sharma	OWNER : Jim Corbet National Park, Uttarkhand
----------------------------------	--

SERUM BIOCHEMISTRY

PARAMETERS	NORMAL VALUES	ELEPHANTS							
1. LIVER FUNCTION TESTS		Asha (Fe)	Bhishma (M)	Ganga (Fe)	Gulab kali (Fe)	Gajara (M)	Hema (Fe)	Kalina (Fe)	Karna (M)
Total Protein	6.8-9.2	8.9	8.6	9.3	9.6	8.6	9.7	8.6	8.3
Albumin	2.0-4.0	1.7	1.7	2.5	2.1	2.3	2.5	1.9	1.9
Globulin	4.4-5.8	7.2	6.9	6.8	7.5	6.3	7.2	6.7	6.4
SGOT/ALT	17-23	48.2	77.2	82.9	89.6	74.7	90.3	97.7	54.9
SGPT/AST	8-11	15.9	21.7	21.5	20.8	22.9	20.3	26.8	23.5
Alkaline Phosphates	25-125	68.5	110.0	188.0	43.1	231.9	93.4	17.4	184.6
Bilirubin Total	0.23-0.94	0.19	0.32	0.57	0.67	0.36	0.69	0.79	0.27
Bilirubin Direct	0.07-0.76	0.13	0.15	0.30	0.52	0.22	0.41	0.45	0.15
Bilirubin Indirect	0.0-0.42	0.06	0.17	0.27	0.15	0.14	0.28	0.34	0.12
2. KIDNEY FUNCTION TESTS									
Creatinine	1.0-2.0	1.8	1.3	2.0	2.3	2.0	1.6	2.2	2.2
BUN	8.3-16.3	5.1	7.3	8.6	8.0	12.8	10.5	9.3	16.1
3. LIPID PROFILE									
Total Cholesterol	41-64	62.7	43.0	39.2	64.1	53.3	45.1	56.4	79.8
Triglycerides (mg/dl)									
5. SERUM ELECTROLYTES									
Calcium	7.2-11.6	-	-	-	-	-	-	-	-
Phosphorous	2.9-5.0	-	-	-	-	-	-	-	-
Haemoprotozoa/ Microfilaria		Positive/Negative							

M. Srinivas
Scientist -1
WADDL, BBP, Bangalore-83.

INFORMATION PROVIDED
UNDER RTI

34

GOVERNMENT OF KARNATAKA
INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS, HEBBAL, BANGALORE, 560024.
WILD ANIMAL DISEASE DIAGNOSTIC LABORATORY
BANNERAGHATTA BIOLOGICAL PARK, BANGALORE-83

LABORATORY REPORT

NO.IAH&VB:WADDLBBP/2018-2019/

DATE: 19-08-2018

CLINICIAN : Dr. Dhushanth Sharma

OWNER : Jim Corbet National Park, Uttarkhand

COMPLETE HAEMOGRAM

PARAMETERS	NORMAL VALUES	ELEPHANTS							
		Kenchamma (Fe)	Laxmi 2 nd (Fe)	Laxmi infinity (Fe)	Pawan kali (M)	Phool mala (F)	Rani (Fe)	Rama (M)	Tunga (Fe)
White cell count(WBC)(x10 ³ /μl)	10.2 - 18.9	22.4	10.9	16.2	6.6	12.1	17.0	7.9	11.5
Red blood cell count(x10 ⁶ /μl)	2.3 - 4.6	2.7	2.7	3.6	3.0	3.1	3.5	2.9	2.4
Hemoglobin(g/dl)	10.5 - 14.9	12.6	12.9	16.2	13.9	14.4	16.7	11.8	11.5
Packed cell volume(PCV)%	36 - 54	34.5	36.0	46.3	39.5	40.1	46.1	35.1	31.4
MCV(fl)	114 - 150.6	124.4	130.5	110.8	128.8	128.2	130.8	120.1	130.3
MCH(pg/cell)	40.0 - 45.5	45.3	46.7	41.8	45.2	46.0	47.3	40.2	47.7
MCHC(g/dl)	31.7 - 35.6	36.5	35.8	34.9	36.1	35.9	36.2	33.6	36.6
Differential count(%)									
Granulocytes	28 - 41	27.8	16.6	22.2	20.9	19.6	24.5	20.6	16.3
Lymphocytes	51 - 73	65.4	74.1	69.1	73.6	73.0	69.4	70.6	76.9
Eosinophils	Upto 13	-	-	-	-	-	-	-	-
Monocytes	Upto 40	6.8	7.3	8.7	5.5	7.4	6.1	8.8	8.8
Basophils	<1	-	-	-	-	-	-	-	-
Platelets	2.49 - 4.97	8.07	4.41	6.35	3.88	5.60	5.64	6.53	5.62
Haemoprotozoa/ Microfilaria		Negative							

M. V.
Scientist-1

WADDL, BBP, Bangalore-83.

INFORMATION PROVIDED
UNDER RTI

35

GOVERNMENT OF KARNATAKA
KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY
INSTITUTE OF ANIMAL HEALTH AND VETERINARY BIOLOGICALS, HEBBAL
WILD ANIMAL DISEASE DIAGNOSTIC LABORATORY
BANNERAGHATTA BIOLOGICAL PARK, BANGALORE-83, KARNATAKA

LABORATORY REPORT

NO.IAH&VB:WADDL:BBP/2018-2019/

DATE :19-08-2018

CLINICIAN : Dr. Dhushanth Sharma

OWNER : Jim Corbet National Park, Uttarkhand

SERUM BIOCHEMISTRY.

PARAMETERS	NORMAL VALUES	ELEPHANTS							
1. LIVER FUNTION TESTS		Kencha mma (Fe)	Laxmi 2 nd (Fe)	Laxmi infinitly (Fe)	Pawan kali(M)	Phool mala(F)	Rani (Fe)	Rama (M)	Tunga (Fe)
Total Protein	6.8-9.2	8.3	8.8	9.1	9.2	10.0	10.3	8.4	9.7
Albumin	2.0-4.0	2.6	1.7	1.9	2.1	1.7	2.0	2.2	1.3
Globulin	4.4-5.8	5.7	7.1	7.2	7.1	8.3	8.3	6.2	8.4
SGOT/ALT	17-23	44.2	32.0	23.3	89.2	40.8	46.8	46.5	33.2
SGPT/AST	8-11	23.3	23.6	22.1	29.1	22.6	24.5	24.4	17.5
Alkaline Phosphates	25-125	146.8	282.2	86.2	10.7	85.4	128.2	107.0	95.9
Bilirubin Total	0.23-0.94	0.16	0.23	0.35	0.74	0.43	0.54	0.15	0.16
Bilirubin Direct	0.07-0.76	0.10	0.11	0.21	0.49	0.22	0.29	0.08	0.09
Bilirubin Indirect	0.0-0.42	0.06	0.12	0.14	0.25	0.21	0.25	0.07	0.07
2. KIDNEY FUNTION TESTS									
Creatinine	1.0-2.0	1.5	1.7	1.9	2.4	1.8	1.9	1.5	1.3
BUN	8.3-16.3	12.8	9.6	7.8	11.0	13.2	11.0	15.2	18.4
3. LIPID PROFILE									
Total Cholesterol	41-64	45.7	51.4	51.5	47.6	57.8	42.1	70.3	51.6
Triglycerides(mg/dl)									
4. SERUM ELECTROLYTES									
Calcium	7.2-11.6	-	-	-	-	-	-	-	-
Phosphorous	2.9-5.0	-	-	-	-	-	-	-	-
Haemoprotozoa/ Microfilaria		Negative							

M. S. S. V.
 Scientist -1

WADDL, BBP, Bangalore-83.

**INFORMATION PROVIDED
 UNDER RTI**



कार्यालय प्रमुख वन संरक्षक (वन्यजीव) / मुख्य वन्यजीव प्रतिपालक, उत्तराखण्ड

85 राजपुर रोड, देहरादून, फोन नं० 0135-2742884 फैक्स नं० 0135-2745691 ईमेल-cwlwua@yahoo.co.in

पत्रांक 585/6-18 देहरादून

दिनांक 01 सितम्बर 2018

कार्यालय आदेश

मा० उच्च न्यायालय नैनीताल, उत्तराखण्ड, नैनीताल में विचाराधीन पी०आई०एल० संख्या 06/2012 में पारित आदेश दिनांक 23.08.2018 के पैरा-18(सी) में निम्न निर्देश दिये गये हैं :-

"The Principal Chief Conservator of Forest is directed to relocate the rescued elephants either to Kalagarh or Dhikala in batches within 3 days from today."

मा० उच्च न्यायालय के उक्त आदेश के समादर में इस कार्यालय के पत्रांक 509/29-1/6-18 दिनांक 24.08.2018 द्वारा रामनगर वन प्रभाग, रामनगर के कोसी रेंज के अन्तर्गत आमखंडा में रखे गये 08 अधिग्रहीत पालतू हाथियों को एलीफेंट कैम्प, कालागढ़ में स्थानान्तरित करने के निर्देश निर्गत किये गये थे। निदेशक, कॉर्बेट टाइगर रिजर्व द्वारा अपने कार्यालय पत्रांक 536/6-37 दिनांक 31.08.2018 से अवगत कराया गया है कि दिनांक 28.08.2018 को वरिष्ठ पशुचिकित्साधिकारी, कॉर्बेट टाइगर रिजर्व द्वारा दी गयी स्वास्थ्य परीक्षण रिपोर्ट के अनुसार "हाथियों के रक्त नमूने, ट्रंकवास, पस के नमूने व गोबर के नमूने लिये गये थे जिन्हें कि जाँच हेतु Wild Animal Disease Diagnostic Lab, Institute of Animal Health and Veterinary Biologicals, Bannerghatta Biological Park, Karnataka भेजा गया था, अभी तक जो जांच रिपोर्ट प्राप्त हुई है उसके अनुसार दो हाथी पवनकली एवं लक्ष्मी-2 T.B. से ग्रसित पायी गयी हैं। अन्य रिपोर्टों के आने में अभी एक सप्ताह और लग सकता है।..... साथ ही अन्य हाथी भी किसी तरह के संक्रमण से ग्रस्त न हों, यह सुनिश्चित हो जाने के उपरान्त ही इन्हें टाइगर रिजर्व ले जाना उचित होगा। उससे पहले सभी हाथियों को Quarantine/Isolation में ही रखने की आवश्यकता है।"

निदेशक एवं वन महानिरीक्षक, हाथी परियोजना, पर्यावरण एवं वन मंत्रालय, भारत सरकार द्वारा जारी की गई Guidelines for Care and Management of Captive Elephants, Ministry of Environment & Forests, Project Elephant No. 9-5/2003-PE dated 08-01-2008 में Transportation of Elephants हेतु इस संदर्भ में निम्न प्रावधान विहित किये गये हैं :-

- 1- For transportation of elephants, necessary permission from CWLW or any officer authorized by the government in this behalf shall be obtained as per section 48 A of the WP Act 1972.

R

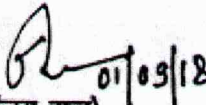
INFORMATION PROVIDED
UNDER RTI

- 2- A valid health certificate from a veterinary doctor to the effect that the elephant is fit to travel by road or rail, as the case may be and is not showing any sign of infectious or contagious disease shall be obtained.
- 3- In the absence of such certificate, CWLW shall not give permission for transport.

उक्त वर्णित परिस्थितियों में वरिष्ठ पशु चिकित्साधिकारी द्वारा दी गई आख्या एवं Guidelines for Care and Management of Captive Elephants, Ministry of Environment & Forests, Project Elephant No. 9-5/2003-PE dated 08-01-2008 में दिये गये प्रावधानों के अनुसार, हाथियों के कल्याण (Welfare) एवं उनके उचित उपचार/रख-रखावको ध्यान में रखते हुये इस कार्यालय के पत्रांक 509/29-1/6-18 दिनांक 24.08.2018 द्वारा दिये गये निर्देशों को निम्नानुसार संशोधित किया जाता है :-

1. रामनगर वन प्रभाग, रामनगर द्वारा अधिग्रहित किये गये 08 पालतू हाथियों को पूर्ववत् रामनगर के कोसी रेंज के अन्तर्गत आमडंडा में ही रखा जायेगा।
2. उक्त सभी हाथियों का उपचार प्रभागीय वनाधिकारी, रामनगर वन प्रभाग के निर्देशन में श्री दुष्यन्त शर्मा, वरिष्ठ पशु चिकित्साधिकारी, कॉर्बेट टाइगर रिजर्व की देख-रेख में किया जायेगा।
3. उक्त सभी हाथियों के समुचित उपचार हेतु Quarantine एवं Isolation हेतु समस्त प्रोटोकॉल का नियमानुसार पालन किया जायेगा एवं इसकी साप्ताहिक रिपोर्ट अधोहस्ताक्षरी को अवलोकनार्थ प्रेषित की जायेगी।
4. भारतीय वन्य जीव संस्थान, देहरादून के प्रतिनिधियों को भी उक्त स्थल पर आमंत्रित कर हाथियों का परीक्षण करवाकर उनसे प्राप्त सुझावों को कार्यान्वित किया जायेगा।
5. उक्त वर्णित परिस्थितियों से माननीय उच्च न्यायालय को अगली सुनवायी में अवगत कराया जायेगा एवं माननीय उच्च न्यायालय से प्राप्त अग्रिम निर्देशों के अनुसार कार्यवाही की जायेगी।

संलग्नक:- उपरोक्तानुसार।

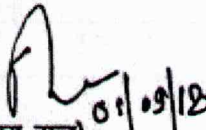

(जय राज)

प्रमुख वन संरक्षक, वन्यजीव/
मुख्य वन्य जीव प्रतिपालक,
उत्तराखण्ड, देहरादून।

पत्रांक 585/6-18 तददिनांकित।

प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-

1. अपर मुख्य सचिव, वन एवं पर्यावरण अनुभाग-1, उत्तराखण्ड शासन।
2. प्रमुख वन संरक्षक (HoFF), उत्तराखण्ड, देहरादून।
3. मुख्य वन संरक्षक, कुमाऊँ, उत्तराखण्ड, नैनीताल।
4. वन संरक्षक, पश्चिमी वृत्त, उत्तराखण्ड, हल्द्वानी।
5. वन संरक्षक, उत्तरी कुमाऊँ वृत्त, उत्तराखण्ड, अल्मोड़ा।
6. निदेशक, कॉर्बेट टाइगर रिजर्व, रामनगर।
7. प्रभागीय वनाधिकारी, रामनगर वन प्रभाग, रामनगर।
8. प्रभागीय वनाधिकारी, अल्मोड़ा वन प्रभाग, अल्मोड़ा।


(जय राज)

प्रमुख वन संरक्षक, वन्यजीव/
मुख्य वन्य जीव प्रतिपालक,
उत्तराखण्ड, देहरादून।

INFORMATION PROVIDED
UNDER RTI

38



Center For Wildlife Conservation, Management and
Disease Surveillance
Indian Veterinary Research Institute
Izatnagar – 243 122, Bareilly, U.P., India



Phone +91-581-2309751(O), 2586292(R), Fax 00915812303284 Email: akshamaivri@rediffmail.com, 00412689277(M)

No. F. 2-19/DINRC/2018-2019/CWL

Date: 14-09-18

To,

Divisional Forest Officer
Ramnagar Forest Division
Ramnagar, Uttarakhand

Sub: Submission of laboratory examination reports of elephants-reg.

This has reference to your letter No: 876/6-1, dt. 05.09.18 and 11.09.18 by which the blood, serum and dung samples of elephants were received for the laboratory investigation. The detailed investigation report is mentioned below

1. Hematological examination

S. no	Elephant	Parameters					
		Hb g%	PCV %	ESR mm/1h	RBC 10 ⁶ /cumm	WBC/cumm	Differential count
1.	Lakshmi I	12.0	36	46	4.3	7200	Neutrophil 36%, Lymphocyte 56%, Monocyte 6%, Eosinophil 2%
2.	Phoolomala	12.5	39	42	4.6	10800	Neutrophil 40%, Lymphocyte 52%, Monocyte 7%, Eosinophil 1%
3.	Kalina	13.0	41	45	5.1	9100	Neutrophil 44%, Lymphocyte 52%, Monocyte 6%, Eosinophil 2%
4.	Hema	12.8	40	40	3.8	11000	Neutrophil 44%, Lymphocyte 48%, Monocyte 5%, Eosinophil 3%
5.	Gulabkali	13.2	42	42	4.0	9400	Neutrophil 40%, Lymphocyte 48%, Monocyte 12%
6.	Rani	12.0	41	43	3.6	12000	Neutrophil 39%, Lymphocyte 58%, Monocyte 3%
7.	Lakshmi II	13.5	38	39	4.7	11200	Neutrophil 41%, Lymphocyte 52%

INFORMATION PROVIDED
UNDER RTI

							Monocyte 6 %, Eosinophil 1%
8.	Pawan kali	10.0	32	42	3.0	8400	Neutrophil 45%, Lymphocyte 51% Monocyte 4 %

2. Tuberculosis examination

S. no	Elephant	TB PCR- Mycobacterium tuberculosis complex organisms		Acid fast staining	Wild Tb Alert kit
		Blood	Trunk Wash	Trunk wash sediments	Serum
1.	Lakshmi I	Negative	Negative	Negative	Negative
2.	Phoolomala	Negative	Negative	Negative	Negative
3.	Kalina	Negative	Negative	Negative	Not done
4.	Hema	Negative	Negative	Negative	Not done
5.	Gulabkali	Negative	Negative	Negative	Not done
6.	Rani	Negative	Negative	Negative	Negative
7.	Lakshmi II	Negative	Negative	Negative	Negative
8.	Pawan Kali	Negative	Negative	Negative	Negative

Note:

1. The blood and trunk wash samples of elephants were initially screened for MTB complex organisms using IS6110 primers by PCR.
2. The blood and trunk samples were repeated for species specific multiplex PCR using 12.7 kb fragment primers.
3. The suspected elephants (Lakshmi II and Pawankali) trunk samples were once again received on 11.09.18 and tested for MTB complex organisms using above mentioned techniques and were found negative.

3. Parasitological examination

S no	Elephant	Samples	
		Blood	Dung
1	Lakshmi I	Negative for hemoparasites	Negative for common GI parasites
2	Phoolomala	Negative for hemoparasites	Negative for common GI parasites
3	Kalina	Negative for hemoparasites	Negative for common GI parasites
4	Hema	Negative for hemoparasites	Negative for common GI parasites
5	Gulabkali	Negative for hemoparasites	Negative for common GI parasites
6	Rani	Negative for hemoparasites	Negative for common GI parasites
7	Lakshmi II	Negative for hemoparasites	Positive for <i>Amphistomes</i> (+)

INFORMATION PROVIDED
UNDER RTI

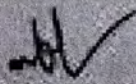
40

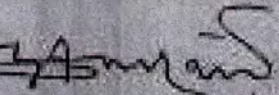
8	Pawan Kali	Negative for hemoparasites	Negative for common GI parasites
---	------------	----------------------------	----------------------------------

4. Serum biochemical examination

S. no	Elephant	Parameters							
		Albumin g/l	Globulin g/l	Total protein mg/dl	BUN mg/dl	Creatinine mg/dl	Total bilirubin mg/dl	AST (U/L)	ALT (U/L)
1	Lakshmi I	1.8	5.7	7.5	6.7	0.0	0.2	25.2	3.5
2	Phoolomala	2.0	6.3	8.3	11.4	1.0	0.6	18.8	2.3
3	Kalina	1.7	5.8	7.5	8.2	1.1	0.05	21.2	5.4
4	Hema	2.0	6.2	8.2	8.8	0.9	0.2	34.7	2.3
5	Gulabkali	1.9	5.9	7.8	7.0	0.9	0.2	34.4	0.4
6	Rahi	1.6	4.7	6.2	7.1	1.1	0.1	30.6	3.1
7	Lakshmi II	1.7	6.5	7.8	10.3	1.1	0.08	23.4	2.0
8	Pawan kali	2.0	5.9	7.4	4.3	0.0	0.6	14.8	0.8

This is for your kind information and necessary action please.


M Karikalan
Scientist, CWL


Incharge
Centre for Wildlife
14/9/18

महोदय/महोदया
मुख्य वैद्य
वन्य जीव
महोदय/महोदया
मुख्य वैद्य
वन्य जीव

INFORMATION PROVIDED
UNDER RTI

कार्यालय प्रमुख वन संरक्षक (वन्यजीव)/मुख्य वन्यजीव प्रतिपालक, उत्तराखण्ड
85-राजपुर रोड, देहरादून (उत्तराखण्ड), फोन नं०-0135-2742884 फैक्स-2745691 ई-मेल- cwlwua@yahoo.co.in

पत्रांक 663 / 29-1 देहरादून

दिनांक 12 सितम्बर, 2018

कार्यालय आदेश

माननीय उच्च न्यायालय, उत्तराखण्ड, नैनीताल में पी0आई0एल0 06 / 2012 दिनांक 03.06.2018 के अनुपालन के क्रम में विधिक कार्यवाही करते हुये 08 पालतू हाथियों को वन विभाग द्वारा अभिग्रहित किया गया है एवं इन हाथियों को रामनगर वन प्रभाग, रामनगर के कोसी रेन्ज के आमडण्डा परिसर में रखा गया है। उक्त 08 हाथियों में से 02 हाथी टी0बी0 ग्रस्त पाये गये हैं। इन हाथियों के देख-रेख, पालन-पोषण व उपचार हेतु एक विशेषज्ञ समिति का गठन निम्न प्रकार किया जाता है, जिसमें विभिन्न संस्थाओं के पशु चिकित्सक/अधिकारी सम्मिलित हैं :-

1.	डा० ए०के० शर्मा, Incharge Wildlife Center, Indian Veterinary Research Institute, Bareilly.	-	अध्यक्ष
2.	डा० जे०एल० सिंह, Department of Veterinary Medicine, Pantnagar University, Pantnagar.	-	सदस्य
3.	डा० पराग निगम, Scientist - E, Wildlife Institute of India, Dehradun.	-	सदस्य
4.	डा० आयुष उनियाल, पशु चिकित्साधिकारी, तराई पूर्वी वन प्रभाग, हल्द्वानी।	-	सदस्य
5.	डा० दुष्यन्त शर्मा, वरिष्ठ पशु चिकित्साधिकारी, कार्बेट टाईगर रिजर्व, रामनगर।	-	सदस्य सचिव

उक्त समिति के विशेषज्ञों के अनुभवों से लाभान्वित होने के लिये उक्त सभी से अनुरोध है कि रामनगर वन प्रभाग, रामनगर में रखे गये 08 हाथियों का स्थल निरीक्षण कर उनकी देख-रेख, पालन-पोषण व उपचार हेतु सुविचारित रिपोर्ट प्रेषित करें, जिनमें निम्न बिन्दुओं की आख्या सम्मिलित हो :-

1. उक्त 08 हाथियों में से 02 टी0बी0 ग्रस्त हाथियों हेतु Isolation Facility एवं 06 हाथियों हेतु संगरोध सुविधा (Quarantine Facility) के Design, आवश्यक विशेषताएं (Features) एवं उनमें बरती जाने वाली सावधानी के सम्बन्ध में।
2. उक्त 02 टी0बी0 ग्रस्त हाथियों के इस संक्रामक रोग की वर्तमान स्थिति का आंकलन एवं इसके उपचार हेतु Protocol तथा उपचार पर व्यय होने वाला अनुमानित बजट।
3. भविष्य में सभी हाथियों की स्वास्थ्य परीक्षण हेतु संलेख (Protocol) के सम्बन्ध में।
4. सभी हाथियों की उच्चतम देखभाल हेतु दैनिक भोजन व्यवस्था, दिनचर्या तथा अन्य आवश्यक दिशा-निर्देश।

प्रकरण की संवेदनशीलता को देखते हुये समिति से अनुरोध किया जाता है कि 10 दिनों के भीतर अपनी रिपोर्ट प्रेषित करने का कष्ट करें।

[Signature]
12.09.2018
(मोनिष मल्लिक)

प्रमुख वन संरक्षक (वन्य जीव)/मुख्य
वन्य जीव प्रतिपालक, उत्तराखण्ड।

INFORMATION PROVIDED
UNDER RTI

42

पत्रांक 663 / 29-1 दिनांकित।

- प्रतिलिपि निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित :-
- 1-प्रमुख वन संरक्षक (HoFF), उत्तराखण्ड, देहरादून।
 - 2-मुख्य वन संरक्षक, कुमाऊँ, नैनीताल।
 - 3-वन संरक्षक, पश्चिमी वृत्त, हल्द्वानी।
 - 4-निदेशक, कार्बेट टाईगर रिजर्व, रामनगर को इस आशय से प्रेषित कि डा0 दुष्यन्त शर्मा, वरिष्ठ पशु चिकित्साधिकारी, कार्बेट टाईगर रिजर्व, रामनगर को तदनुसार निर्देशित करने का कष्ट करें।
 - 5-प्रभागीय वनाधिकारी, रामनगर वन प्रभाग, रामनगर।
 - 6-प्रभागीय वनाधिकारी, तराई पूर्वी वन प्रभाग, हल्द्वानी को इस आशय से प्रेषित कि डा0 आयुष उनियाल, पशु चिकित्साधिकारी, तराई पूर्वी वन प्रभाग, हल्द्वानी को तदनुसार निर्देशित करने का कष्ट करें।
 - 7-निदेशक, Indian Veterinary Research Institute, Bareilly को इस आशय से प्रेषित कि डा0 ए0के0 शर्मा को तदनुसार निर्देशित करने का कष्ट करें।
 - 8-डा0 ए0के0 शर्मा, Incharge Wildlife Center, Indian Veterinary Research Institute, Bareilly को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।
 - 9-Dean, College of Veterinary & Animal Sciences, Pantnagar University, Pantnagar को इस आशय से प्रेषित कि डा0 जे0एल0 सिंह को तदनुसार निर्देशित करने का कष्ट करें।
 - 10-डा0 जे0एल0 सिंह, Department of Veterinary Medicine, Pantnagar University, Pantnagar।
 - 11-निदेशक, Wildlife Institute of India, Dehradun को इस आशय से प्रेषित कि डा0 पराग निगम को तदनुसार निर्देशित करने का कष्ट करें।
 - 12-डा0 पराग निगम, Scientist - E, Wildlife Institute of India, Dehradun।
 - 13-डा0 दुष्यन्त शर्मा, वरिष्ठ पशु चिकित्साधिकारी, कार्बेट टाईगर रिजर्व, रामनगर।
 - 14-डा0 आयुष उनियाल, पशु चिकित्साधिकारी, तराई पूर्वी वन प्रभाग, हल्द्वानी।

(मोनिष मल्लिक)

प्रमुख वन संरक्षक (वन्य जीव)/मुख्य
वन्य जीव प्रतिपालक, उत्तराखण्ड।

INFORMATION PROVIDED
UNDER RTI

कार्यालय प्रभागीय वनाधिकारी, रामनगर वन प्रभाग,
रामनगर (नैनीताल)

dfo_ramnagar@rediffmail.com दूरभाष / फ़ैक्स नं० 05947-251362

पत्रांक:-

129-3(3) दिनांक रामनगर

18 09.2018

सेवा में

- 1- Director
Indian Veterinary Research Institute, Bareilly
- 2- Dean,
College of Veterinary & Animal Sciences,
Pantnagar University, Pantnagar.
- 3- Director
Wildlife Institute of India, Dhradun.

विषय:- मा० उच्च न्यायालय, उत्तराखण्ड, नैनीताल में पी०आई०एल० 06/2012 दि० 03.6.2018 के क्रम में किये गये अभिग्रहित हाथियों के संबंध में।

सन्दर्भ:- प्रमुख वन संरक्षक (वन्यजीव)/मुख्य वन्यजीव प्रतिपालक, उत्तराखण्ड, देहरादून का पत्र 663/29-1 दि० 12.0.2018।

महोदय,

उपरोक्त संदर्भित पत्र क्रम में आपको अवगत कराना है कि मा० उच्च न्यायालय, उत्तराखण्ड, नैनीताल में पी०आई०एल० 06/2012 दि० 03.8.2018 के अनुपालन के क्रम में विधिक कार्यवाही करते हुए 08 पालतू हाथियों को प्रभाग द्वारा अभिग्रहित कर कोसी रेंज के आमडण्डा परिसर में रखा गया है। इन हाथियों की देख-रेख, पालन-पोषण व उपचार के लिए सुझाव प्राप्त करने हेतु एक प्रमुख वन संरक्षक (वन्यजीव)/मुख्य वन्यजीव प्रतिपालक, उत्तराखण्ड, देहरादून द्वारा एक समिति का गठन किया गया है जिसकी प्रति पत्र के साथ संलग्न है। इस संबंध में आपसे अनुरोध है कि संदर्भित पत्र द्वारा गठित सदस्य जो आपके अधीनस्थ कार्यरत हैं को दि० 21.09.2018 को प्रातः 11:00 बजे रामनगर वन प्रभाग, रामनगर में उपस्थित होने के निर्देश देने का कष्ट करें ताकि इन विशेषज्ञों के अनुभवों से लाभान्वित हुआ जा सके।

संलग्नक:- उपरोक्त संदर्भित पत्र।

भवदीया,

7

(नेहा वर्मा)

प्रभागीय वनाधिकारी
रामनगर वन प्रभाग, रामनगर

INFORMATION PROVIDED
UNDER RTI

पत्रांक- 987 / दिनांकित। (सलग्नक सहित)

- प्रतिलिपि:- प्रमुख वन संरक्षक, (वन्यजीव)/मुख्य वन्यजीव प्रतिपालक, उत्तराखण्ड, देहरादून को उनके संदर्भित पत्र के क्रम में सूचनार्थ प्रेषित।
- प्रतिलिपि:- मुख्य वन संरक्षक, कुमाऊँ, उत्तराखण्ड, नैनीताल को उपरोक्त संदर्भित पत्र के क्रम में सूचनार्थ प्रेषित।
- प्रतिलिपि:- वन संरक्षक, पश्चिमी वृत्त, उत्तराखण्ड, हल्द्वानी को उपरोक्त संदर्भित पत्र के क्रम में सूचनार्थ प्रेषित।
- प्रतिलिपि:- निदेशक, कॉर्बेट टाइगर रिजर्व, रामनगर को उपरोक्त संदर्भित पत्र के क्रम में इस आशय से प्रेषित कि अपने अधीनस्थ डा० दुष्यन्त शर्मा, वरिष्ठ पशु चिकित्साधिकारी, को उक्त बैठक में प्रतिभाग करने हेतु निर्देशित करने का कष्ट करें।
- प्रतिलिपि:- प्रभागीय वनाधिकारी, तराई पूर्वी जग प्रभाग को इस आशय से प्रेषित कि अपने अधीनस्थ डा० आयुष अनियाल, पशु चिकित्साधिकारी, को उक्त बैठक में प्रतिभाग करने हेतु निर्देशित करने का कष्ट करें।
- प्रतिलिपि:- उप प्रभागीय वनाधिकारी, रामनगर को इस आशय से प्रेषित कि उक्त बैठक में समय से उपस्थित होने का कष्ट करें।
- प्रतिलिपि:- वन क्षेत्राधिकारी, कोसी को इस आशय से उक्त बैठक में उपस्थित होना सुनिश्चित करें।

(नेहा वर्मा)

प्रभागीय वनाधिकारी
रामनगर वन प्रभाग, रामनगर

INFORMATION PROVIDED
UNDER RTI

45

United States Animal Health Association. Elephant Tuberculosis Subcommittee (2010). Guidelines for control of Tuberculosis in elephants. Available at www.aphis.usda.gov/animal_welfare/index.shtml
www.elephantcare.org

Elephant TB Guidelines 32

Dr. Joel Maslow, University of Pennsylvania
Dr. Denise Sofranko, USDA (regulatory advisor only)

APPENDIX 3. A TRUNK WASH TECHNIQUE FOR THE DIAGNOSIS OF TUBERCULOSIS IN ELEPHANTS

Ramiro Isaza, DVM, MS and Cornelia Ketz, DVM

Summary

A trunk wash is a practical method of collecting a sample from an elephant's distal respiratory tract for *Mycobacterium* culture and is the technique recommended in the "Guidelines for the Control of Tuberculosis in Elephants" by the National Tuberculosis Working Group for Zoo and Wildlife Species. The procedure, however, is potentially dangerous to the handlers and requires cooperation of the elephant. Because of the limitations of using culture results as a screening test, the trunk wash results should be interpreted with care. A positive culture result identifies an elephant that is shedding tuberculosis organisms whereas a negative result is non-diagnostic.

Introduction

Tuberculosis in Asian elephants (*Elephas maximus*) has been sporadically reported in the literature for many years (1, 2). The isolation of *Mycobacterium tuberculosis* from elephants in the United States has resulted in the development of the "Guidelines for the Control of Tuberculosis in Elephants" by the National Tuberculosis Working Group for Zoo and Wildlife Species (https://www.aphis.usda.gov/aphis/ourfocus/animalwelfare/sa_awa/ct_awa_tuberculosis_in_elephants). Compliance with this policy requires that all elephants have annual mycobacterial cultures. In these guidelines, the trunk wash is recommended as the most practical method of obtaining a culture sample from an elephant. This paper describes the trunk wash technique as the authors are currently using it.

Materials and methods

The trunk wash technique requires that the elephant allow the handlers to restrain and manipulate the tip of trunk. This is difficult in an untrained elephant in that most elephants resent this manipulation, and the trunk is many times stronger than the combined force of several handlers. It is therefore important that the animals be trained to present the trunk, allow gentle manual restraint, and manipulation of the trunk tip during the collection of the sample. The training period varies with the individual elephant, the prior behavioral conditioning of the animal, and the skill of the handlers. In our experience, most animals can be adequately trained for the procedure in 2-4 weeks.

The materials needed for a trunk wash include: Sterile 0.9% saline solution, sterile 60 ml syringe, 1 gallon plastic zip lock type bags (heavy duty), and sterile, 50 ml, screw top, plastic jar or centrifuge tube. As long as attention is given to collecting a clean sample from the distal nasal passages, the materials and techniques for the sample collection can be modified. For example, some clinicians prefer to use a 14-gauge red rubber tube feeding tube inserted into the trunk tip instead of simply flushing the sterile saline into the trunk tip. Another common variation is to use a sterile plastic container to catch the trunk wash fluid instead of a plastic bag.

Procedure

A routine screening of an elephant should consist of a series of three trunk wash samples collected on separate days within a one-week period. Trunk washings should be collected in the morning and prior to water being offered to the animal. These recommendations are made in an attempt to

INFORMATION PROVIDED
UNDER PTI

obtain a representative sample of the nasal flora from the previous night, and to avoid the dilution effect caused by elephants drinking water with their trunks.

The elephant's trunk is manually restrained by the handlers so that the tip is held up. The 60 ml syringe filled with sterile saline is then inserted into one of the nostrils and the saline quickly flushed into the trunk. The handler then lifts the trunk tip as high as possible to help the fluid flow as far into the trunk as possible. The 1 gallon plastic bag is then slipped over the trunk tip and the tip of the trunk is lowered to allow the fluid to drain. If possible, the elephant is allowed to exhale into the bag during this collection phase of the procedure. A good sample should retrieve a significant portion of the saline that was placed into the trunk (about 40 ml). The sample should contain visible mucus from the inside of the trunk and often contains dirt and food particles that are normally found inside the trunk. The collection of moderate amounts of foreign material does not invalidate the sample. If, however, the collector feels the contamination is excessive, a second flush may be attempted.

Once the sample is collected in the plastic bag, it is carefully transferred into a labeled container. Ideally, the sample is refrigerated and sent directly to a laboratory for processing and mycobacterial culture. If the sample cannot be sent directly for culturing, it may be frozen in a regular freezer (-20 to -10 °C) until it can be sent to the laboratory. Often the recommended three daily cultures samples are collected and frozen until all samples are collected and the batch of samples can be sent to the laboratory together.

Discussion

Identification of a *M. tuberculosis* infected animal has significant management implications to both the animal and the collection. Management of the infected animal may require isolation of the exposed herd, potential removal of the animal from exhibit or shows, and if elected, treatment of the animals and exposed herd which can be very expensive. In the worst case, a positive diagnosis may lead to euthanasia of the infected animals. For these reasons, the screening test selected needs to be definitive and have as few false positives as possible. A positive culture of *M. tuberculosis* is, therefore, the only diagnostic test result used as a basis for making decisions in the guidelines.

The trunk wash as a method of collecting a culture sample from elephants was selected by the National Tuberculosis Working Group for Zoo and Wildlife Species because it is a practical method of obtaining a culture sample from a large proportion of the elephant population. The procedure requires no sedation or undue stress to the animal. Additionally, the procedure requires no specialized or expensive equipment.

An important consideration of this procedure is that it can potentially be very dangerous to the handlers. This is particularly true when attempted on an uncooperative elephant, because any attempts to manually restrain the trunk in an uncooperative elephant can lead to injury. The time spent training the elephant to accept this method will greatly increase the efficiency and safety of the procedure. In some cases, with potentially dangerous or unpredictable animals, an increased level of handler safety can be obtained by having the animal lie in sternal or lateral recumbency prior to sample collection. This technique does not guarantee safety or successful sample collection, as it still requires cooperation of the animal and does not replace adequate training. In the case of elephants managed under protective contact, the animal's trunk can be handled through a set of bars. This method still requires that the animal is fully cooperative and, therefore, usually requires extensive training prior to the collection.

INFORMATION PROVIDED
UNDER RTI

A second safety issue is the potential for zoonotic infection. Recently there has been documentation of a zoonotic transmission of tuberculosis between humans and elephants (3). During the collection of the trunk wash sample, there is exposure to aerosolized mucus from the elephant's respiratory tract. The authors, therefore, suggest that the collectors and handlers wear protective gear during the collection process. Minimal precautions would include a well fitted respirator or face mask capable of filtering 0.3 micron particles, disposable gloves, and working in a well-ventilated, sunlit, area.

Mycobacterial culture as the primary method of detecting infected animals has several limitations that are best illustrated by examination of the underlying biological assumptions. The first assumption is that most infected elephants have respiratory infections. Although the literature suggests that most infected elephants have respiratory infection, there have been no comprehensive necropsy studies to confirm these observations. The second assumption is that most infected animals shed mycobacterial organisms into the respiratory tract. There is little data that determines if and when an infected animal will begin shedding organisms. It is unknown what proportion of elephants can carry latent or "walled off" infections that would be missed with culturing techniques. A third assumption is that animals that are shedding will pass mycobacteria organisms at least once in the three-day testing period. Currently it is unknown if shedding animals pass organisms periodically or continuously. Finally, the samples collected from the distal trunk are often contaminated with normal bacterial flora and foreign material. It is assumed that these contaminants do not routinely overgrow or mask the growth of pathogenic mycobacteria, although no studies have tested this assumption. The interpretations of the culture results should, therefore, be limited. A positive culture is strong evidence that the animal is shedding mycobacteria and is infected; negative culture results provide little information as to whether the elephant is infected or not.

Culturing the distal trunks of all the animals in a population will only detect animals shedding tuberculosis through the trunk, and not detect all animals that are infected. However, with time and repeated cultures of all animals in the population, it may be possible to detect and treat most of the elephants shedding infectious organisms. If these animals are then treated properly and shedding of organisms stops, the spread of tuberculosis from elephant to elephant should decrease in the population.

References

1. Mikota, S., Sargent, E.L., Ranglack, G.S. Medical Management of Elephants. West Bloomfield, MI, Indira Publishing House. 1994.
2. Mikota, S.K., Peddie, L., Peddie, J., Isaza, R., Dunker, F., West, G., Lindsay, W., Larsen, R.S., Salman, M.D., Chatterjee, D., Payeur, J., Whipple, D., Thoen, C., Davis, D.S., Sedgwick, C., Montali, R.J., Ziccardi, M., and Maslow, J. Epidemiology and diagnosis of *Mycobacterium tuberculosis* in captive Asian elephants (*Elephas maximus*). J Zoo Wildl Med. 2001 Mar. 32 (1): 1-16.
3. Michalak, K., Austin, C., Diesel, S., Bacon, J.M., Zimmerman, P., and Maslow, J.N. *Mycobacterium tuberculosis* infection as a zoonotic disease: Transmission between humans and elephants. Emerg Infect Dis. 1998. Apr-Jun 4(2): 283-287.

INFORMATION PROVIDED
UNDER RTI