

National Referral Centre for Wildlife Diseases

Concept Note

Submitted

to

Central Zoo Authority, New Delhi



Submitted

by



**Centre for Wildlife Conservation,
Management and Disease Surveillance
INDIAN VETERINARY RESEARCH INSTITUTE
BAREILLY (U.P.) - 243 122**



Goal

To provide diagnostic and consultancy services pertaining to therapeutic and preventive, measures against important infectious and non-infectious diseases of captive wild animals.

Mandate

- To organize disease based researches/ studies on animal health care in zoo related issues
- To conduct training of the in service zoo vets to update their knowledge about modern diagnostic and therapeutic methods.
- To provide expertise and specialized facilities / services of the institute in emergent situation

Background

Important diseases of wild animals in India have been listed in this Institute with the Sponsorship of CZA. The bench mark work suggests that the diseases of captive wild animals are diverse in nature. In natural condition disease act as a density depend population regulation measure and as such cause no threat. However, due to ever-increasing human population and consequently more contact with man and animal has cause emergence of newer disease and has caused endemic/ epidemic problem to both man and animals. The situation is even worse in Zoo animals, primarily because they are completely dependent upon man and secondarily due to introduction of exotic species within the same compound with indigenous species. Further, the stress of the captivity predisposes the animals to different kind of diseases.

Most of the animals in captivity are vaccinated against important viral diseases like FMD, rabies, canine distemper, feline pan leucopenia, feline rhinotrachitis and parvovirus. Nevertheless, out break of FMD in ungulates and diseases like Feline Panleukopaenia in carnivores do occur and causes mortality in captive animals. Occurrence of such diseases could be attributed to development of numerous new strains of the virus and also due to faulty or improper vaccination. Research on viral disease of man and domestic animals are taking care of different aspects of disease management, including development of vaccine using recombinant DNA technology. However, such research involving wildlife is scarce. So, it is necessary to study those diseases which are particular to wildlife, or wildlife play a significant role in the emergence and spread of the disease.

There are number of bacterial diseases which affect Zoo animals. There is regular vaccination schedule for anthrax, HS, BQ and tetanus. However, it is surprising that most of the ungulates and primates are very highly susceptible to an old disease like tuberculosis. With the emergency of MDR-TB, more and more captive animals are under its threat. Similarly, other bacteria which cause disease to man and domestic animals (Leptospirosis, brucellosis, listeriosis) may also develop newer strain and may cause newer disease not known earlier. This project has a long term vision in tackling such issues.

Parasitic disease like tapeworm, round worm and flat worm are known since long. Their control apparently is easier. However, with time most of the anthelmintic drugs are not responding well, because the parasites develop drug resistance. Dermatitis and mange still continue to be one of the major diseases in wildlife, particular in larger cats.

Clinical problems like acidosis, peritonitis, pericarditis and dystocia, are common in ungulates. The treatment of many of these diseases is known. However an early and accurate diagnosis is prerequisite for success in treatment. In most of the zoos Vets are not well equipped for early and accurate diagnosis. Thus, treatment schedule they follow is empirical and symptomatic. Such a method of treatment results in complications in prognosis and even mortality in critically endangered species. As the premiere Institute, Indian Veterinary Research Institute is well equipped to diagnose most of the disease conditions ever recorded in man and animals.

Strength: The Indian Veterinary Research Institute and its manpower

Founded in 1889, the Indian Veterinary Research Institute (IVRI) is one of the premier research institutions in South-East Asia, dedicated to livestock development through research, education training, technology development and transfer. The institute was established as Imperial Bacteriology Laboratory at Pune on December 9, 1889. Later in the year 1893, the laboratory was shifted to Mukteswar. The campus at Izatnagar came into existence in the year 1913. The institute presently has 4 campuses, 3 regional stations and functions through 22 research divisions besides sections and supporting central facilities. The institute has currently 254 scientists, 475 technical, 404 administrative, 1388 auxiliary and supporting staff. The institute with deemed university status plays a major role in imparting post-graduate veterinary education and training and has the distinction of having rendered over 100 years of educational services to the country. This premier scientific organization today has earned the status of a national institute in the country. In it's 115 years of eventful journey, the institute has been the torchbearer for pioneering research contributions and quality post graduate education in veterinary and animal sciences.

IVRI is one of the leading veterinary institutions in the country having a full-fledged Center for Wildlife Conservation, Management and Disease surveillance (CWL), which was established in 1984 using its own infrastructure and financial support. The work of Center is well supported by the subject specialized Divisions Viz, Medicine, Surgery, Pathology, Bacteriology, Virology and Parasitology and CADRAD. The center was designated by CZA as regional referral center under its scheme for strengthening of wildlife disease diagnosis facilities. The center not only provide expert veterinary consultancy but also organizes a nine month regular National Diploma Course on Wildlife Health for veterinarians. Besides it has also organized two ICAR sponsored Summer Schools and a CZA sponsored short term training programme for Zoo Vets.

Resource persons**Peers**

- : Director IVRI
- : Joint Director (Research) IVRI

Core Team

- Principal Investigator** : Officer-In-Charge, CWL IVRI
- Co- Investigator** : Dr. M. Saini, Sr Scientist, CWL IVRI
- Co- Investigator** : Dr. A. Das, Sr Scientist, CWL IVRI

Associates (Subject matter specialists)

- : Dr. A. K. Sharma, Principal Scientist (Pathology)
- : Dr. A. K. Sharma, I, Senior Scientist (Surgery)
- : Dr. P.K. Gupta, Senior Scientist (Biotechnology)
- : Dr. A.G. Telang CADRAD
- : Scientists to be nominated by Head Parasitology
- : Scientists to be nominated by Head Virology
- : Scientists to be nominated by Head Bacteriology

Perspective

The proposed center will undertake following activities:

Wildlife Health Management: On demand consultancy pertaining to diagnosis and therapeutic measures for infectious and non-infectious diseases.

Wildlife Clinical Nutrition: Consultancy pertaining to nutritional imbalances and deficiencies in diet schedule of different zoos and would render help in management and control of important diseases nutritional disorders like metabolic bone disorders, feline lower urinary tract diseases, diabetes, obesity and food related cardiac diseases

Biotechnological tools for wildlife disease diagnosis and forensics

Training: IVRI will conduct short term training programmes for Zoo Vets in every alternate year. The training programme will cover recent advances in wildlife health and management.

Justification

1. Most of the zoo animals are susceptible to large number of diseases and infections much different from domestic animals. Prompt and accurate diagnosis is the most important step in the management of such diseases. Unfortunately, most of the zoos are not well equipped to conduct diagnostic tests. As a result, disease management suffers leading to loss of critically endangered species. Indian Veterinary Research Institute being the premier institute of Veterinary Sciences is having laboratory facilities and very highly qualified resource persons in various disciplines such as Virology,

Bacteriology, Parasitology, Pathology, Medicine, Surgery, Biotechnology and specialized multidisciplinary setup like Centre for Animal Disease Research and Diagnosis (CADRAD) and Centre for Wildlife Conservation, Management and Disease Surveillance (CWL) which can address many of the disease diagnosis and treatment problems prevalent in Indian zoos. As a Zonal Referral Centre CWL, IVRI has rendered consultancy services to various beneficiaries like zoos, Nation Parks and Forest departments of various states. In general, IVRI is capable of providing prompt and accurate diagnosis of wildlife diseases.

2. Treatment and care of zoo animals require specialized knowledge and skill. Unfortunately, zoo vets in general in the country may not have such specialized qualification. Thus, the approach to treatment is largely based on the experience and clinical entity. Generally vets do commendable job. However, sometimes complications do occur due to non exposure to the latest development in recent advances in zoo medicine. IVRI is having a very qualified faculty to train the Zoo vets. Very recently one such training programme was organized, which was appreciated by the trainees and would benefit them immensely in management of wildlife disease.
3. IVRI has got the most qualified faculty members and resource persons to cope up with any unforeseen eventuality. In such a case IVRI will be able to send a team of experts to the spot to suggest the damage control measures.

Requirement**Manpower:** One RA and one office assistance on contractual basis**Budget Requirement:**

A. Recurring expenditure (Annual) *	
Pay and allowances	
RA (total 1 post) @ Rs 11500/- p.m.(fixed)+HRA (total Rs 13225/-)	Rs. 1.60 lakhs ✓
Office assistance on Contractual basis @ 5000/- per month	Rs 0.60 lakhs ✓
Traveling allowance	Rs 2.00 lakhs ✓
Stationery, Publication other miscellaneous expenses	Rs 2.00 lakhs ✓
Training to zoo keepers/ supervisors/ zoo officials	Rs10.00 lakhs ✓
Consumables	
• Chemicals	Rs 3.00 lakhs
• Glassware	Rs 3.00 lakhs
• Diagnostics	Rs 5.60 lakhs
Sub Total (A)	27.80 lakhs
B. Non-recurring (one time grant) **	
Equipment	
UV-VIS Spectrophotometer	Rs 6.00 lakhs ✓
Digital balance	Rs 1.00 lakhs ✓
Inverted microscope	Rs 2.00 lakhs ✓
Refrigerated centrifuge	Rs 5.00 lakhs ✓
ELISA reader	Rs 3.00 lakhs ✓
Still camera	Rs 1.00 lakhs ✓
Table top centrifuge	Rs 0.30 lakhs ✓
Deep freeze	Rs 0.50 lakhs ✓
Kjelatech – N estimation assembly	Rs 5.00 lakhs ✓
Refrigerator (2 nos)	Rs 0.50 lakhs ✓
Deep freeze	Rs 0.60 lakhs ✓
Top pan balance	Rs 0.25 lakhs ✓
Water bath	Rs 0.25 lakhs ✓
Muffle furnace	Rs 0.25 lakhs ✓
CO ₂ incubator	Rs 1.00 lakhs ✓
Ballistic Bomb calorimeter	Rs 1.00 lakhs ✓
Lap top computer	Rs 0.50 lakhs ✓
Furniture	Rs 1.00 lakhs ✓
Sub total(B)	Rs29.15 lakhs ✓
Total A+B	Rs 56.95 lakhs
Institutional charges @10%	Rs 5.70 lakhs ✓
Total	Rs 62.65 lakhs

* For one year

**One time catch up grant