





# Refresher Training on Wildlife Health Management for Veterinary hProfessionals (23rd to 25th February 2021)

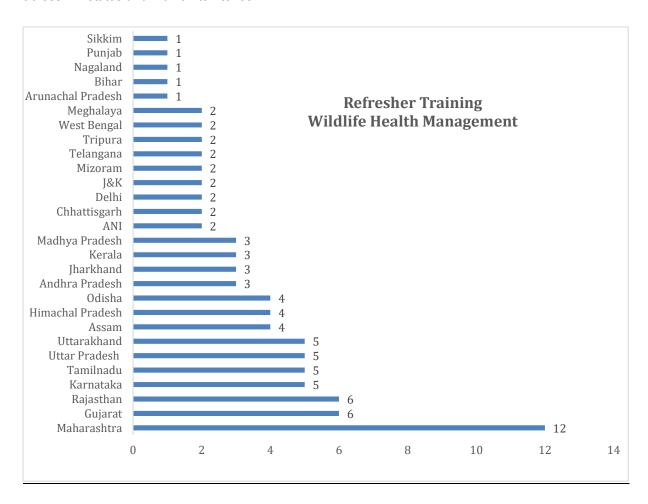
# Report of The Refresher Training Program (virtual) On Wildlife Health Management For Veterinary Health Professionals From 23<sup>rd</sup> To 25<sup>th</sup> February 2021

#### Background

Wildlife conservation is more and more becoming a multidisciplinary team effort. The gulf between veterinarians and wildlife professionals is narrowing rapidly. Veterinarians are invaluable in a team and reciprocally they need to acquire a broad understanding of ecological and on ground conservation issues in order to make meaningful contributions. The breadth and depth of the possible contributions extends far beyond just the diagnosis and treatment of sick animals.

Effective intervention is dependent on a concerted team effort based on knowledge of the species and their biology, preparedness, availability of requisite infrastructure and early response making Wildlife health a complex and technology driven subject. This requires ongoing theoretical and practical training of field veterinary officers

In this regard, a virtual program was organised from 23<sup>rd</sup> to 25<sup>th</sup> January. The workshop content was created aimed at participants from the Animal Husbandry (veterinary) department/State Forest Department and zoos. The Central Zoo Authority hosted the said online training program through its dedicated CISCO Webex platform. The workshop had 101 nominations from field veterinary officers across 27 states and 2 union territories.



# List of States/UTs

SN	State/Uts	Nos of Participants
1	Andhra Pradesh	3
2	ANI	2
3	Arunachal Pradesh	1
4	Assam	5
5	Bihar	2
6	Chhattisgarh	2
7	Delhi	2
8	Goa	1
9	Gujarat	6
10	Himachal Pradesh	4
11	J&K	2
12	Jharkhand	3
13	Karnataka	5
14	Kerala	3
15	Madhya Pradesh	4
16	Maharashtra	15
17	Meghalaya	2
18	Mizoram	2
19	Nagaland	1
20	Odisha	6
21	Punjab	1
22	Rajasthan	6
23	Sikkim	1
24	Tamilnadu	5
25	Telangana	3
26	Tripura	2
27	Uttar Pradesh	5
28	Uttarakhand	5
29	West Bengal	2
	Grand Total	101

#### **Inaugural Function:**

The training was formally inaugurated by Shri Rohit Tiwari, Inspector General (IG), Wildlife on 23<sup>rd</sup> February 2021.

At the outset, Dr Sonali Ghosh, Deputy Inspector General (HQ), Central Zoo Authority, welcomed the dignitaries and the participants. She provided a brief background of the workshop and detailed the concept of the training from the perspective of developing capacities in wildlife and health management.

Subsequently, Shri Rohit Tiwari, Inspector General (IG), Wildlife addressed the participants and emphasised the need for veterinary professionals to play a stronger part in the field of wildlife conservation. This being more relevant today in the face of increasing man-animal interactions, disease pandemics etc. He also highlighted the *One Health Concept* for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals and the environment. He further mentioned that gradually the role of zoos was also expanding from just display to conservation intervention stations. He emphasised that this is the time to be prepared

Dr Devender Kumar, Evaluation and Monitoring Officer, Central Zoo Authority proposed the vote of thanks.

#### **Technical Session**

The three-day virtual training included theoretical inputs covering various aspects of wildlife health management. The detailed programme is attached at Annexure 1

The theory sessions provided a broad overview of wildlife and conservation issues (Biodiversity conservation challenges in India, biological, behavioural, ecological attributes of select species, wildlife conflict (challenges, identifying conflict individuals using wildlife forensics, options for management); legalities and procedures in addressing mortalities, capture and rescue and rehabilitation of wild animals; scientific data management, emerging wildlife diseases; general field procedure and exposure to wildlife forensics and introduction to One Health and the role of veterinarians in that paradigm.

Teaching inputs were provided by experts from institutions like Wildlife Institute of India, Indian veterinary Research Institute, Centre for Cellular and Molecular Biology /Laboratory for Conservation of Endangered Species, Wildlife Crime Control Bureau and some non-governmental organisations like GIZ, Wildlife Trust of India, Wildlife SOS, Pygmy Hog Conservation Program etc. The core faculty from the Central Zoo Authority included Dr Sonali Ghosh, DIG (HQ), CZA, Mr Lakshminarasimha R, Scientific Officer, CZA and Dr Gowri Mallapur, Veterinary Consultant, Central Zoo Authority. (List of Speakers and topics covered in Annexure 2)

#### Day 1

**Introduction to India's Biodiversity, Its conservation and challenges:** Dr Dhananjai Mohan, Director, Wildlife Institute of India, Dehradun

The crux of Dr Mohan's talk revolved on India being a mega biodiverse country with a stronghold on forests and species and a long and prolific history of conservation initiatives in the country. Policy development and progressive management methodologies have allowed the country to successfully address environmental crises, biotic invasions and pout in place strong conservation strategies for the future. This is evident with the National Wildlife Action Plan 2017-2031, initiation of Project Dolphin and Project Lion in 2020, growth in the number of Tiger reserves. The success is reflected in the species conservation efforts with the growth in the number of Tigers and positive citizen involvement.

**Veterinary interventions in Wildlife Conservation**: Dr Abhijit Pawde, Principal Scientist, Indian Veterinary Research Institute, Bareilly

spoke but the different kind of medical and surgical interventions conducted by a veterinarian working in the field of Wildlife health. He provided a perspective on the need for meticulous management of the cases and sample collection procedures and protocol. He emphasised on attention to detail and the value of a good sound understanding of the basics of veterinary science.

**Collaborative opportunities for capacity building to address Human- Wildlife Conflict:** Dr Neeraj Khera, Team Leader- Human Wildlife Conflict Mitigation Project, GIZ

Dr Khera emphasised that moving to a harmonious co-existence was at the crux of addressing Human-Wildlife Conflict. Conflict mitigation neds a systems approach taking into account competencies based on a holistic understanding. The actions of individuals as well as their contributions within a system act as a reference scale when addressing the multifarious conflict issues in India.

**Recent trends in Wildlife diseases**: Dr A. K. Sharma, Former HoD, Indian Veterinary Research Institute, Bareilly discussed common diseases and causal agents including the related trends for the same. H further focused on diagnostic tools and tests for these and shared invaluable insights based on experience. Dr Sharma touched upon the topic of emerging diseases and spill-over possibilities and the need for closer monitoring and surveillance.

**Diagnosis of wildlife diseases including highly infectious diseases** Dr Karthikeyan Vasudevan, Senior Principal Scientist, Laboratory for the Conservation of Endangered Species (LaCONES)/ Centre for Cellular and Molecular Biology

Dr Karthikeyan covered the poorly discussed amphibian crisis and introduced the veterinarians to the latest trends in sample collection and diagnostics for *Batrachochytrium dendrobatides* which has caused havoc in amphibian populations worldwide. There are strong reports of prevalence even in the Western Ghats. Dr Karthikeyan also covered the recent diagnostic involvement of CCMB in dealing with detection tests for COVID-19 in animals and zoos especially from water samples.

Emerging Diseases in Wild animal Health care Rabies, CDV, Babesiosis, Feline virus, COVID-19, etc.: Dr Karikalan M, Scientist, Indian Veterinary Research Institute, Bareilly

Dr Karikalan touched upon diseases of significance like Rabies, Rickettsia infections, and current trends in Viral pathologies like CDV and also diseases of significance from the trans-boundary perspective. He also enlisted the role of IVRI in diagnosis during the COVD-19 pandemic.

Wildlife welfare measures during rescue and rehabilitation: Dr NVK Ashraf, Director Wild Rescue, Wildlife Trust of India

Dr Ashraf spoke in detail about the need of placing animal welfare concerns at the forefront of any rescue operation. He elaborated the specific roles veterinarians play in these circumstances and how the basic definition of welfare is dynamic and based on the situation the animal is found and placed in. Animal welfare is to be considered in conjunction with the rules and guidelines already in place.

**Advancements in Wild Animal Immobilization & Restraint.:** Dr Parag Nigam, Scientist F, Head, Dept of Wildlife Health Management, Wildlife Institute of India

Dr Nigam shared his vast experience by showcasing case studies., He elaborated on the need for veterinarians to stay current with the developing trends in drugs and medicaments used in immobilisation and further treatment (should the need arise) conditions. He emphasised on the need for a realistic assessment of needs at the local level and skill development. He also encouraged veterinarians to take a more proactive role in assisting management in devising best practices for wild animal care an management.

**Managing Mega herbivores- Rhino, Elephant, Wild Buffaloes, Gaur:** Dr Kushal Konwar Sarma, HOD Veterinary Surgery and Radiology, College of Veterinary Science, Khanapara

Dr Sarma, showcased several field situations for immobilisation of mega herbivores and how to deal with field emergency situations. He specifically focused on cases for elephants and Rhino and talked about basic precautions while immobilising and then movement and transport of these animals.

**Managing Carnivores- Big Cats, Wolf, Bear, etc.**-Dr Jacob Alexander, Sr. Veterinary Officer, Zoological Garden, Thiruvananthpuram

Dr Jacob started the presentation with an overview of "Carnivora" and then systematically addressed issues of nutrition, housing, reproduction and also enrichment and welfare. He also presented a few case that the participants found interesting and relevant to management and practice of medicine in carnivores.

**Managing Exotics and Reptiles:** Dr Gowri Mallapur, Veterinary Consultant, Central Zoo Authority The talk revolved around a few key points. Management of exotics and reptiles, mainly from a captive facility perspective revolves around 1) Accurate species identifications 2) identifying any special needs eg thermoregulation in all reptiles 3) provision of appropriate space, nutrition and enrichment.

A special session was conducted for experience sharing by participant and relevant field experts. Session was moderated by Dr A K Sharma, Former HoD, Indian Veterinary Research Institute, Bareilly.

Name	Designation	Zoo/PA	Topic
Dr Aditi Sharma	Senior veterinary Officer	Rajaji Tiger Reserve	Monitoring wild animals in Rajaji Tiger Reserve
Dr Nikhil Bangar	Wildlife veterinary Officer	Manikdoh Leopard Rescue Centre	General Housekeeping rules.
Dr Shailesh Pethe	Veterinary Officer	Sanjay Gandhi National Park	HWC and mitigation in urban situations
Dr Shamshul Ali	Senior veterinary Officer cum Manager	Centre for Wildlife Rehabilitation and	Triage and RR- Kaziranga

		Conservation, Kaziranga Tiger Reserve	
Dr Komal Powar Raul	Veterinary Officer	Veermata Jijabai Bhosale Udyan and Zoo	Challenges and success during transition from old to new
Dr M. Sudhagar, IFS	Director	Mahendra Choudhury Zoological Park	Role of a Veterinarian- Zoo Managers perspective
Dr Nandani Salaria, IFS	Curator	Indira Gandhi Zoological Park	Role of a Veterinarian- Wildlife Manager's perspective
Shri R K Singh, IFS (retd)	Former PCCF and HoFF, Chattisgarh		Forest -Veterinary department linkages and Policy perspective

#### Day 3

**Wildlife Forensics- latest developments** Dr A B Shrivastav, Former Director School of Wildlife Forensics and Health. Nanaji Deshmukh Veterinary Science University, Jabalpur

With increasing trade, forensic examinations have grown in importance. Even as per the RZR, all PM examinations should determine the cause of death conclusively. He encouraged vets to use their skill and training and keen observation towards providing better and more conclusive post mortem reports.

One Health approach and role for wildlife health professionals: Dr Sindura Ganapathi, Visiting PSA Fellow, Govt of India

The talk on one health and the approaches and the role of wildlife health professionals was an eye opener. The One health paradigm is all encompassing but has to be result orientated and have relevant on ground implementable solutions and practices. The talk by Dr Sindura Ganapathi and his perspective on the One health conversation will give the veterinary community a lot of think about.

**Handling Human Wildlife Conflict situation- Leopard, Monkeys, Elephant, Bear-** Dr A Sha Arun, Director – Research and Veterinary Operations Wildlife SOS

Dr Arun took the participants on an all too familiar journey of conflict situation and mitigation attempts. It was a valuable refresher and provided information on technique changes and advancements/. The vets will benefit from this perspective and try and resolve situations keeping animal welfare at the core of each operation.

**Biosecurity planning for Endangered species**: Dr Parag Deka, Pygmy Hog Conservation Program Dr Deka recounted his experience with the African Swine Fever Outbreak in Assam and how it affected the way routine practices were conducted at the Pygmy Hog Conservation program. He spoke in details bout the biosecurity measures put in place and the constant upkeep and maintenance of the same. The hio-security perspective is timely and valuable to veterinarians engaged in zoos and Protected areas especially considering the possibility of spill-overs and transboundary transmissions.

CITES and animals in captivity: Shri Prasenjeet Navgire, CITES Cell, Wildlife Division MoEFCC

Enlisted the provisions of CITES and their relevance to veterinarians in their places of work. With growing wildlife trade, it is important for veterinarians to keep the understanding of the CITES agreement updated and at the forefront of any conservation conversation.

**Scientific data management for captive animals:** Lakshminarasimha R, Scientific Officer, Central Zoo Authority elaborated information on data collection for scientific management of animals and also illustrated on the need for analysis of the said data and on ground implementation of the results. He detailed the variety of resources available to support good data gathering and management and sharing that data in the context of species conservation.

**Animal welfare as part of captive health management** Shri Upamanyu Basu, Joint Secretary Department of Animal Husbandry and Dairying

Shri Basu discussed the diverse collections and situations involving veterinarians and the significant role they play in advancement of policies and implementation of modalities of animal healthcare and management. He insisted that the veterinarians are an integral part of the system and encouraged engagement and networking for the growth of the profession.

Wildlife Crime- Call for Action Special Address: Ms. Tilottama Varma, Addl Director Wildlife Crime Control Bureau

The presentation along with case studies depicting wildlife trade was truly a call to action for veterinarians. It emphasized the need for more on ground action by the veterinarians and interdisciplinary engagement for animal welfare and conservation.

The three- day workshop concluded with a special address by Dr Sanjay Kumar, Director General of Forest and Special Secretary, MoEFCC

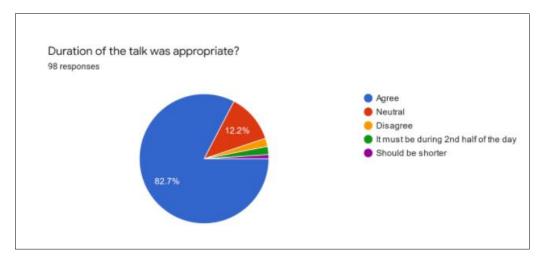
He spoke about the prominent role veterinarians play in the Human Wildlife Conflict mitigation strategies and the place veterinarians have in the changing demographic of humans, wildlife communities and people living in and around wildlife spaces. He also spoke about possible inroads veterinarians can pursue in the marine ecosystem space especially with the Marine stranding policy. He touched upon the need for a National Referral Centre which the MoEFCC is considering as the way forward for surveillance and animal health management including the one health approach.

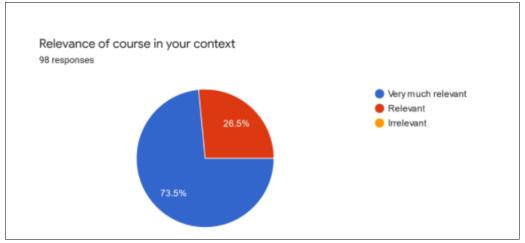
He insisted on the need for a sound knowledge base, supported by on ground practice. Dr Kumar supported the institution of specialised courses at the graduate and postgraduate level. He encouraged CZA and allied and supporting institutes for a roadmap to strength efforts for Wildlife Veterinary Science as a specialised and relevant field.

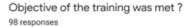
The formal end was with a vote of thanks proposed by Dr Sonali Ghosh DIG (HQ) CZA.

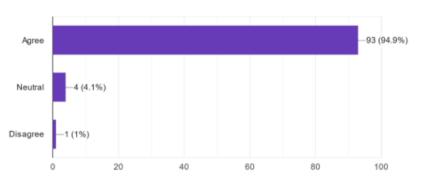
#### **Feedback**

A written feedback form was given to the participants in the training program to understand their perception and get comments on the course content, design, methodology and the quality of inputs by resource faculty. Helpful information or criticism can be used to adjust and improve future courses and their content and delivery.









The workshop was instrumental in providing an insight into the ethical, scientific humane and professional management of wild animals.

#### **WAY FORWARD**

- 1. Formulating comprehensive policy approaches to integrate wildlife health surveillance and integrate the one health approach.
- 2. Conduct a comprehensive workshop with species specialists and of a longer duration to handle topics in greater detail.
- 3. Include a hands-on (practical) component for training.
- 4. Include in-situ training and exposure to field activities.

## Annexure 1

## Agenda

Refresher t 2021)	Refresher training (virtual mode) on wildlife health management for veterinary professionals (23-25 Feb 2021)		
	DAY ONE		
Date	Name	Торіс	
23.02.2021	Dr S P Yadav, Member Secretary Central Zoo Authority	Welcome Address	
23.02.2021	Shri Soumitra Dasgupta, Addl Director General, Wildlife Ministry of Environment, Forests and Climate Change	Special Address	
23.02.2021	Dr Devender Kumar, Evaluation and Monitoring Officer, Central Zoo Authority	Vote of Thanks	
23.02.2021	Dr Sonali Ghosh DIGF, Central Zoo Authority	In-situ and Ex-situ conservation and linkages to wildlife health management	
23.02.2021	Dr Dhananjai Mohan, Director, Wildlife Institute of India, Dehradun	Introduction to India's Biodiversity, Its conservation and challenges	
23.02.2021	Dr Abhijit Pawde, Principal Scientist, Indian Veterinary Research Institute, Bareilly	Veterinary interventions in Wildlife Conservation	
23.02.2021	Dr Neeraj Khera ,Team Leader- Human Wildlife Conflict Mitigation Project, GIZ	Collaborative opportunities for capacity building to address Human- Wildlife Conflict	
23.02.2021	Dr AK Sharma, Former HoD, Indian Veterinary Research Institute, Bareilly	Recent trends in Wildlife diseases	
23.02.2021	Dr Karthikeyan Vasudevan, Senior Principal Scientist Laboratory for the Conservation of Endangered Species (LaCONES)/ Centre for Cellular and Molecular Biology	Diagnosis of wildlife diseases including highly infectious diseases	
23.02.2021	Dr Karikalan M, Scientist, Indian Veterinary Research Institute, Bareilly	Emerging Diseases in Wild animal Health care Rabies, CDV, Babesiosis, Feline virus, COVID-19, etc.	
	DAY TWO		
24.02.2021	Dr NVK Ashraf, Director Wild Rescue, Wildlife Trust of India	Wildlife welfare measures during rescue and rehabilitation	
24.02.2021	Dr Parag Nigam, Scientist F, Head, Dept of Wildlife Health Management, Wildlife Institute of India	Advancements in Wild Animal Immobilization & Restraint.	

24.02.2021	Widlife health management - Discussion The participants were invited to share experiences		
24.02.2021	Dr Kushal Konwar Sarma, HOD Veterinary Surgery and Radiology, College of Veterinary Science, Khanapara	Managing Mega herbivores- Rhino, Elephant, Wild Buffaloes, Gaur	
24.02.2021	Dr Jacob Alexander, Sr. Veterinary Officer, Zoological Garden, Thiruvananthpuram	Managing Carnivores- Big Cats, Wolf, Bear, etc	
24.02.2021	Dr Gowri Mallapur, Veterinary Consultant, Central Zoo Authority	Managing Exotics and Reptiles	
	DAY THREE		
25.02.2021	Dr A B Shrivastav, Former Director School of Wildlife Forensics and Health. Nanaji Deshmukh Veterinary Science University, Jabalpur	Wildlife Forensics- latest developments	
25.02.2021	Dr Sindura Ganapathi, Visiting PSA fellow, Govt of India	One Health approach and role for wildlife health professionals	
25.02.2021	Dr A Sha Arun, Director – Research and Veterinary Operations Wildlife SOS	Handling Human Wildlife Conflict situation- Leopard, Monkeys, Elephant, Bear	
25.02.2021	Dr Parag Deka, Pygmy Hog Conservation Program	Biosecurity planning for Endangered species	
25.02.2021	Shri Prasenjit Navgire, CITES Cell, Wildlife Division MoEFCC	CITES and animals in captivity	
25.02.2021	Lakshminarasimha R, Scientific Officer, Central Zoo Authority	Scientific data management for captive animals	
25.02.2021	Shri Upamanyu Basu, Joint Secretary Department of Animal Husbandry and Dairying	Animal welfare as part of captive health management	
25.02.2021	Special Address: Ms. Tilottama Varma, Addl Director WCCB	Wildlife Crime- Call for Action	
25.02.2021	Valedictory and key note address -Dr Sanjay Kumar, DGF& SS MOEFCC	Feedback and Online distribution of Certificates	

### Annexure 2

## List of Speakers

SN	Name	Designation
1	Dr Dhananjai Mohan	Director, Wildlife Institute of India, Dehradun
2	Dr Abhijit Pawde	Principal Scientist, Indian Veterinary Research Institute, Bareilly
3	Dr Neeraj Khera	Team Leader- Human Wildlife Conflict Mitigation Project, GIZ
4	Dr A. K Sharma	Former HoD, Indian Veterinary Research Institute, Bareilly
5	Dr Karthikeyan Vasudevan	Senior Principal Scientist, Laboratory for the Conservation of Endangered Species (LaCONES)/Centre for Cellular and Molecular Biology
6	Dr Karikalan M	Scientist, Indian Veterinary Research Institute, Bareilly
7	Dr N.V.K Ashraf	Director Wild Rescue, Wildlife Trust of India
8	Dr Parag Nigam, Scientist F	Head, Dept of Wildlife Health Management, Wildlife Institute of India
9	Dr Kushal Konwar Sarma	HOD Veterinary Surgery and Radiology, College of Veterinary Science, Khanapara
10	Dr Jacob Alexander	Sr. Veterinary Officer, Zoological Garden, Thiruvananthpuram
11	Dr A. B. Shrivastav	Former Director School of Wildlife Forensics and Health. Nanaji Deshmukh Veterinary Science University, Jabalpur
12	Dr Sindura Ganapathi	Visiting PSA fellow, Govt of India
13	Dr A Sha Arun	Director – Research and Veterinary Operations Wildlife SOS
14	Dr Parag Deka	Pygmy Hog Conservation Program
15	Shri Prasenjeet Navgire	CITES Cell, Wildlife Division MoEFCC
16	Shri Upamanyu Basu	Joint Secretary Department of Animal Husbandry and Dairying

