



# FORESTRY



**APPSC**  
ANDHRA PRADESH



**STATE FOREST SERVICE**

**2024 - 25**

Detailed  
Syllabus Based  
study material

+

Linkage of  
Concepts with  
PYQs

+

Infused with  
Infographics &  
Maps

## Module – 6.2

- ◆ Animal Diseases
- ◆ Birds (Updates)

- ◆ Snakes of India (Updated)
- ◆ Human Diseases

# Congratulations

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Bhuvnesh Chouhan

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Naman Jain

Comprehensive  
Forestry Course

8  
Rank



Devanshu Sharma

Comprehensive  
Forestry Course

08 Out of 13 Total  
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वन परियोजना क्षेत्रपाल 2021



# ANIMAL DISEASES

## SYLLABUS

### ◆ Animal ailments and Treatments.

#### 4.1 INFECTIOUS DISEASES

##### ▶ VIRAL DISEASES

▶ **Canine distemper** : a serious viral disease that primarily affects **Dogs** but can also infect other carnivorous animals, including **Lions**. It is caused by the **Canine Distemper Virus** (CDV), a **para-Myxo-Virus** (SS RNA).

- **Transmission** : through direct contact with infected animals, primarily through respiratory secretions (coughing, sneezing).
- **Symptoms** : Initial symptoms often include fever, lethargy, loss of appetite, and respiratory issues. The virus can then spread throughout the body, affecting the digestive system, kidneys, and most significantly, the central nervous system. Neurological signs include seizures, tremors, and changes in behaviour.
- **Impact on Lions** : As mentioned in the news, canine distemper tragically led to the deaths of 27 lions, highlighting the devastating impact this disease can have on wildlife populations.
- **Prevention** : Vaccination is the most effective way to prevent canine distemper in dogs. Keeping dogs away from infected animals and maintaining good hygiene practices can also help reduce the risk of transmission.

▶ **Foot-and-Mouth Disease (FMD)** is a highly contagious viral disease that affects **cloven-hoofed animals**, including Cattle, pigs, sheep, Goats, etc. It

**GIR LIONS - THE DEATH TRAIL IN 2018**

**THE DEATH TRAIL IN 2018**

Infection claims **23** lions in 20 days from Sept 12 to Oct 1

**4 LIONS** died of canine distemper disease

**17 LIONS** died of babesiosis infection spread by ticks

**WHAT IS CANINE DISTEMPER DISEASE?**

Canine distemper is a virus that affects a dog's gastrointestinal, respiratory and central nervous systems as well as the conjunctival membranes of the eye

**SYMPTOMS**

Clinical signs include fever, eye inflammation, discharge from the eyes and nose, diarrhoea, hardening of the nose and footpads, neurological signs and frequently death

**WHAT IS BABESIOSIS?**

Caused by Babesia, an apicomplexan parasite that infects red blood cells, transmitted by ticks

**SYMPTOMS**

Dullness Weakness Inappetence

Lethargy Mild paresis of hindquarters

There are four main types of influenza viruses : **A, B, C, and D.**

Influenza A is the most prevalent in humans, further categorized into subtypes based on **Hemagglutinin (H)** and **Neuraminidase (N)** proteins on the virus surface, such as **H<sub>1</sub>N<sub>1</sub>** (Swine flu, 2009) **H<sub>5</sub>N<sub>1</sub>**, and **H<sub>7</sub>N<sub>9</sub>**. This type is notorious for causing pandemics. Influenza B also infects humans and contributes to seasonal epidemics, though it mutates less frequently than type A. Influenza C typically causes mild illness and rarely leads to widespread outbreaks. Lastly, influenza D primarily affects cattle and pigs, with minimal impact on human health.

### How bird flu spreads

Bird flu can spread in several ways:

- **Direct contact with infected birds** : This can occur through handling infected birds, their droppings, or contaminated surfaces.
- **Indirect contact with infected birds** : This can happen through contact with contaminated surfaces, such as cages, feed, or water.
- **Consuming undercooked poultry or eggs from infected birds**

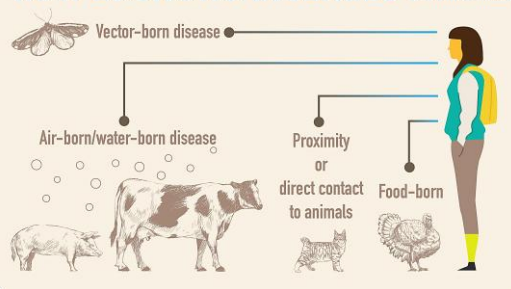
▶ **Dangue (Break-bone fever)** : is a mosquito-borne (*Aedes mosquitoes*) flavivirus that causes dengue fever.

### ▶ BACTERIAL DISEASES

▶ **Bovine tuberculosis (bTB)**, primarily caused by the bacterium *Mycobacterium bovis* (in Humans = *Mycobacterium tuberculosis*), is a significant zoonotic disease affecting various animal species, including wildlife and Humans (both are **Amphixenoses**).

**Transmission and Reservoirs** : Primarily through **Respiratory Secretions**, but it can also spread via the **Faecal-Oral Route** or ingestion of **Contaminated Food**.

## HOW ZOOTIC DISEASES are transmitted



- A disease of animals that can be transmitted to humans is called a **Zoonosis (Zoonotic diseases, Anthro-zoonoses)**.
- Zoonotic diseases transmitted from human beings to the lower vertebrate animals are called **Zoo-Anthroponoses**.
- **Amphixenoses** refers to a type of zoonotic disease where the pathogen can be transmitted in both directions : Animals ⇌ Humans

Example : **Influenza**

1. A disease of animals that can be transmitted to humans is called a \_\_\_\_ [APPSC Forest Section Officers 2019]
  - (a) Veteris
  - (b) Animosis
  - (c) All of the given options
  - (d) **Zoonosis**
2. Zoonotic diseases transmitted from human beings to the lower vertebrate animals are called [APPSC (RFO) General Forestry Paper – II 2018]
  - (a) Anthroponoses
  - (b) **Zooanthroponoses**
  - (c) Amphixenoses
  - (d) Amlinxoses
3. \_\_\_\_\_ is an infectious disease of birds caused by influenza A virus. [APPSC Forest Section Officers 2019]
  - (a) **Avian influenza**
  - (b) Dengue
  - (c) Japanese encephalitis
  - (d) Rabies

# SNAKES OF INDIA

(Updated)

## [General Forestry – II | Unit – IV] Animal management

**Poisonous** and **non-poisonous snakes** of India, symptoms following the snake bite, treatment of snake bite.

## [General Forestry – II | Unit – V] Economic Zoology

Non-poisonous and poisonous snakes of India, Venomous animals.

Snakes are reptiles, belonging to the order *Squamata* (Sub-order *Ophidia*). There are about 3,000 living species of snakes in the world. Of these, around 600-800 species are poisonous.

They slither across diverse habitats including land, freshwater, and saltwater. Some species are even arboreal, meaning they live in trees.

### 5.1 ECONOMIC IMPORTANCE OF SNAKES

- **Rodent control** : feed on rodents like rats, mice and squirrels which are the pests of crops. Russell's viper has a great liking for rats.

Tribals in Mysore in 1951 caught harmless snakes for the value of their skin. Thus, the normal natural control over the rat population at that time could not be applied. Hence the rats created havoc in those areas with the result that legislation had to be introduced by the Government making the catching of snakes an offence.

- **Snake charmers** : Exhibition shows.
- **Snake skin** : leather
- **Religious value** : Nagpanchami (August-September) when snakes particularly cobras are worshipped.
- **Snakes as Food** : as a food. The gallbladder of snakes is utilized for making wine.
- **Medicinal value (Snake fat)** : Viper snake oil was recommended for massage on the knee in gout and arthritis.
- **Snake venom** : It is a mixture of **Protein & Peptides** (90 %), **Cellular Debris, Enzymes, Fatty Matter** and **Salts** such as **calcium, ammonium and magnesium chloride** and **phosphate**. It contains toxic substances like **Haemotoxin, Cytotoxic** and **Neurotoxin** which affect the various functional units of the body resulting in death. All venoms are not of the same variety but they differ in their chemical nature. (Neurotoxin leading to paralysis, haemotoxin causing tissue damage).

🌿 What is the chemical composition of snake venom? [APPSC (RFO) General Forestry Paper - II 2018]

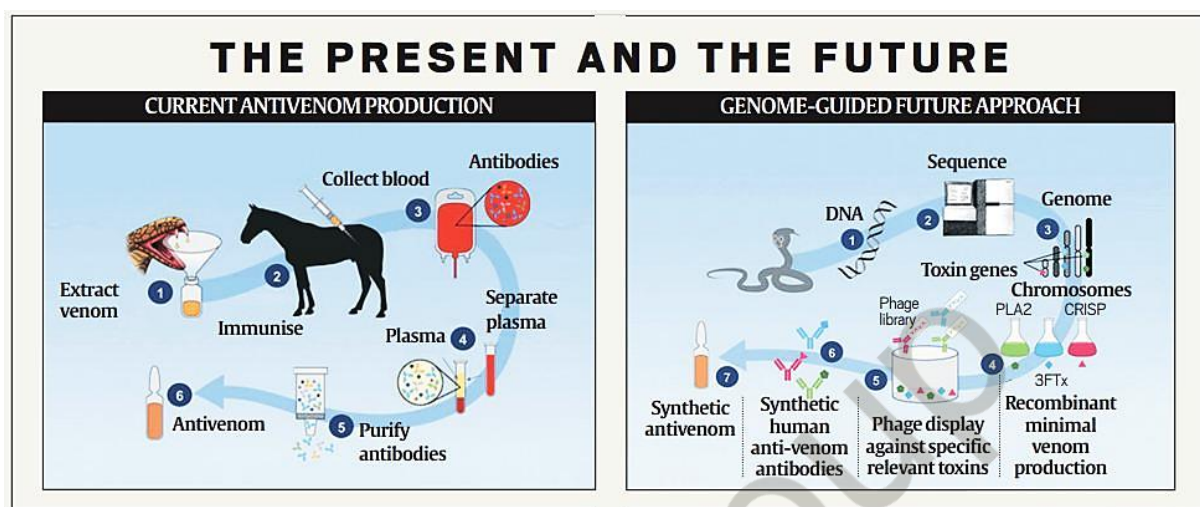
- (a) Lipids
- (b) Carbohydrates
- (c) **Proteins**
- (d) Nucleic acids



Unlike traditional antivenoms, this lab-produced alternative is not species-specific and can be "humanized," making it compatible with the human immune system and reducing the risk of adverse reactions. This development represents a significant step towards safer, more effective snakebite treatments with broader applicability. It also holds the potential to replace outdated horse-derived antivenoms, addressing the many challenges they pose.

Antibodies that are made in the laboratory using genetically modified cells are routinely used in humans to treat cancers and immune disorders. A long-held hope is that the technology used to produce these antibodies can be used to make antivenom and eventually replace traditional antivenoms, thereby solving many of the issues current antivenoms face.

The antibodies in lab-made antivenoms could be "humanised", a process that tricks your immune system into thinking foreign antibodies are your own antibodies.



<https://www.downtoearth.org.in/news/wildlife-biodiversity/snakebite-researchers-purify-commercial-indian-antivenoms-find-them-more-potent-81828>



## ETHNOBOTANY

### MEDICINAL PLANTS USED FOR THE TREATMENT OF SNAKEBITE

8. Which of the following is a list of medicinal plants used for the treatment of snakebite in India? [APPSC (ACF) 2022 General Forestry – II]
- Cedrus deodara, Pinus wallichiana, Abies pinidrow
  - Juniperous communis, Aesculus indica, Celtis australis, Diospyros etc
  - Alnus, Betula, Prunus, Acacia catachuetc
  - Abrus precatorius, Acalypha indica, Butea monosperma, Cassia fistula**

Biological source	Family	Local names	Part used	Method of administration
<b>Abrus precatorius</b>	Fabaceae	Kundumani, Gunj	Seed, leaf, root	2–3 g of fresh leaves or roots with seeds are made into paste and consumed along with cold water or cow's milk.
<b>Acalypha</b>	Euphorbiaceae	Kuppi (Indian acalypha),	Leaf, Whole	Leaf paste applied over the bitten

# BIRDS

(Updated)

## SYLLABUS

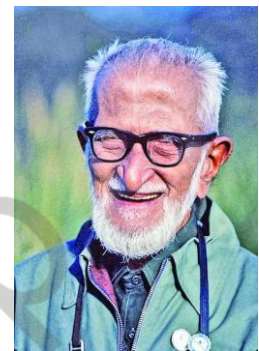
### [General Forestry – II | Unit – IV] ANIMAL MANAGEMENT

◆ **Morphological features** of a birds, ◆ Concept of **migration** in birds, ◆ **Ecological importance** of birds.

#### 6.1 INTRODUCTION

Birds are warm-blooded vertebrates from the class **Aves**, known for their **feathers**, **Toothless beaks**, **Egg-laying**, high metabolism, **Four-Chambered hearts**, and **lightweight skeletons** (**Pneumatic skeleton**). India hosts about 13% of the world's bird species, with 1228 recorded species. Of these, 57 are endemic, three are breeding endemics, and 85 are threatened.

The study of birds in India began with **T.C. Jerdon's** 1862–64 work **The Birds of India**, listing over 1008 species. **Dr. Salim Ali**, a preeminent Indian ornithologist, published over 100 papers on bird behavior and influenced the establishment of several important bird sanctuaries.



**Dr. Salim Ali**  
(Birdman of India)

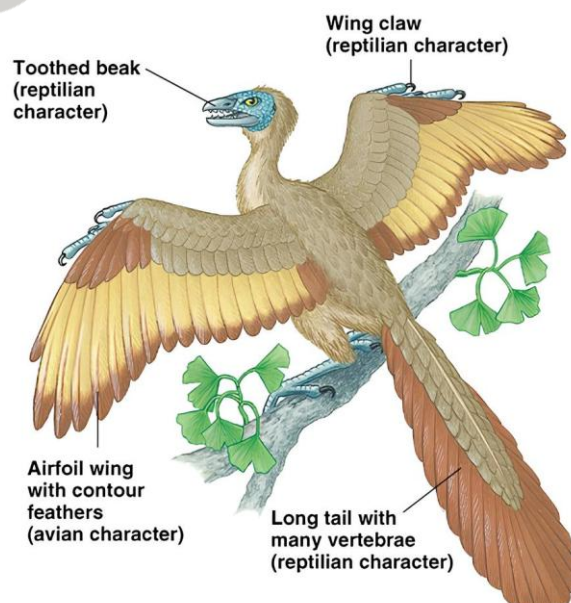
#### ORIGIN

- Birds evolved from **Theropod Dinosaurs** (Reptiles) during the **Jurassic Period** of the **Mesozoic Era**.
- **Archaeopteryx**, considered a **connecting link** between Reptiles and Birds, lived in the Late Jurassic, approximately 150 million years ago.

- **Avis** – Latin = Birds
- **Orni** – Greek = Birds

#### 6.2 MORPHOLOGY OF BIRDS

Bird morphology involves studying the physical structure of birds, including the size and shape of the body, wings, feathers, and other anatomical features. This study is essential for understanding how birds evolved and how they interact with their environment. For instance, a strongly hooked beak, like that of a hawk, is specialized for tearing flesh, whereas a short, conical beak, as seen in finches, is designed to crack hard seeds efficiently.



# Congratulations

To all our successful candidates in

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Course



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Course + Test Series



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AIR

**Preeti Yadav**

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Course



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AIR

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Course





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Course



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Course



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AIR

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Course



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AIR

**Chandra Bhushan**

Forestry Comprehensive  
Course



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**64** Out **147** Total  
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