

**NATURAL  
VEGETATION  
AND WILD LIFE**



The Aryabhata Academy

- **Number Species Details**

- 47,000 - Plant species [10<sup>th</sup> in the World, 4<sup>th</sup> in Asia]
- 15,000 - Flowering plants [6% of the Worlds flowering plants]
- 89,000 - Animal species
- 1,200 - Bird species [13% of worlds total birds]
- 2,500 - fish species [12% of the worlds stock]
- 5% - 6% of amphibians, reptiles & mammals.



# What is virgin vegetation?

- A plant community, which has grown naturally without human aid and has been left undisturbed by humans for a long time is called virgin vegetation.



# What factors are responsible for the huge diversity in flora & fauna kingdom?

- **Relief**
- **1. Land**
- Nature of land influences the type of vegetation
- Fertile level land is generally devoted to agriculture
- Undulating & rough terrain are areas where grassland and woodlands develop & give shelter to a variety of wildlife.
- **2. Soil**
- Different types of soil provide basis for different types of vegetation
- Sandy desert soil support cactus and thorny bushes.
- Wet, marshy, deltaic, soils support mangroves & deltaic vegetation.
- The hill slopes with some depth of soil have coniferous trees

- **Climate**
  - **Temperature**
    - The character & extent of vegetation are mainly determined by temperature along with humidity in the air, precipitation, & soil.
    - On the slopes of the Himalayas and the hills of the peninsula above the height of 915 metres, the fall in temperature affects the types of vegetation and its growth, and changes it from tropical to subtropical temperate and alpine vegetation.

- **Photoperiod**
  - The variation in duration of sunlight at different places is due to differences in latitude, altitude, season and duration of the day.
  - Due to longer duration of sunlight, trees grow faster in summer.

- **Precipitation**

- In India the advancing southwest monsoon and retreating northeast monsoons bring in almost the entire rainfall.

- Areas of heavy rainfall have more dense vegetation as compared to other areas of less rainfall



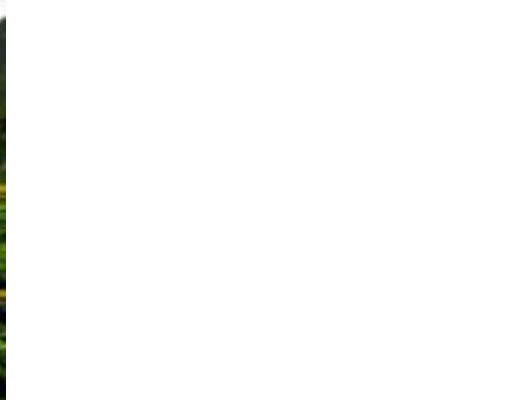
# Why are forests important for human beings?

- They are renewable resources
- Play a major role in enhancing the quality of environment
- Modify local climate
- Control soil erosion
- Regulate stream flow
- Support a variety of industries
- Provide livelihood for many communities
- Offer panoramic or scenic view for recreation
- Controls wind force and temperature and causes rainfall
- Provides humus to the soil
- Provide shelter to the wildlife



# **‘India’s natural vegetation has undergone many changes due to various factors ‘ what are they?’**

- The growing demand for cultivated land
- Development of industries & mining
- Urbanization
- Over-grazing of pastures.



# What is an ecosystem?

- All the plants and animals in a given area are interlinked and interdependent on each other as well as the physical environment, forming an ecosystem.
- Human beings are also an integral part of the ecosystem.

# Difference between Flora and Fauna?

Flora : Plants of a particular region or period, listed by species and considered as a group.

- Fauna : Species of animals of a given area.



# A note on the Indian Flora

- 47,000 plant species – 10<sup>th</sup> in world and 4<sup>th</sup> in Asia.
- 15,000 flowering plants – 6% of world's total.
- India also rich in non flowering plants like ferns, algae and fungi.
- Flora ranges from one found in tropics to the Arctic region, due to the country's varied relief, temperature and rainfall conditions.
- Most of Himalayan and Peninsular regions are covered with indigenous vegetation. These species are found in the North Indian Plains and the Thar Desert.
- Owing to destruction of forests for agricultural and industrial development, several plants are facing extinction.
- The vegetal cover of India, in large parts, is no more 'natural' in a real sense. Except some inaccessible regions like the Thar Desert or the Himalayas, the vegetation has been destroyed in some places or replaced or degraded by human occupancy.

# What are biomes? What is the basis of their grouping?

- A very large ecosystem on land having distinct types of vegetation and animal life is called a biome.
- Plant formations are used as basis of their groupings or identification.

# The five principle Biomes of the world

Listed in order of availability of soil, water and heat,

the five principal biomes of the world are :

- Forests.
- Savanna.
- Grassland.
- Desert.
- Tundra.

# Tropical rainforest

- Require rainfall above 200 cms with short dry season.
- Found in the rainy parts (western slopes) of Western Ghats and island groups of Lakshadweep and Andaman and Nicobar Islands upper parts of Assam, Tamilnadu coast.
- Trees reach great heights, up to 60 mts. Or even more.
- Since the region is warm and wet throughout the year, it has luxuriant vegetation of all kinds – trees, shrubs and creepers giving it a multi layered structure.
- Evergreen forests – as there is no definite time for trees to shed their leaves, these forests appear green all the year round.
- Commercially important trees are ebony, mahogany and rosewood rubber & cinchona.
- Common animals found – elephants, monkey lemur & deer. One horned rhinoceros – found in the jungles of Assam & West Bengal
- Others – plenty of birds, bats, sloth, scorpions & snails are found.





**Stratification a Tropical Forest**





Tropical ever green forests

# Tropical deciduous forests

- Require rainfall between 70 cms and 200 cms.
- Called monsoon forests and are the most widespread forests of India.
- Trees shed their leaves for about six to eight weeks in summer. On the basis of availability of water, these forests are further divided into moist and dry deciduous forests.[Ref: Distinguish between]
- Common animals found – lion, tiger, pig, deer & elephants
- Others – huge variety of birds, lizards, snakes & tortoises are found.





# Moist deciduous forests

The Aryabhata Academy





# Dry Deciduous forests

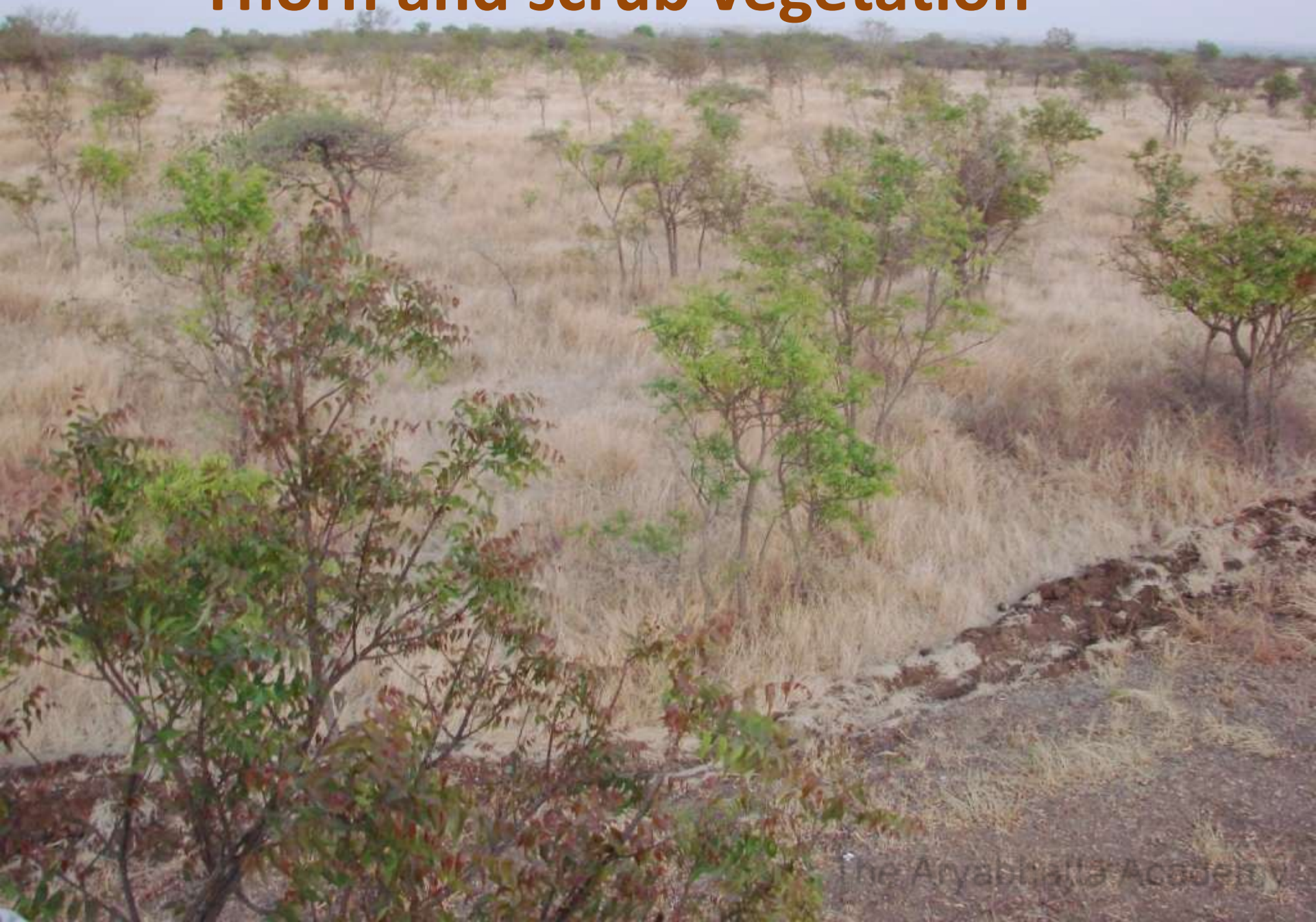
The Aryabhata Academy

# Tropical thorn forests and scrubs

- Require rainfall less than 70 cms.
- Found in semi arid areas of Gujarat, Rajasthan, Madhya Pradesh, Uttar Pradesh, Chhattisgarh and Haryana.
- Vegetation consists of thorny trees and bushes – acacias, cacti, palms and euphorbias.
- Trees are scattered and have long roots penetrating deep into the soil and spreading in a radial pattern to find water.
- Stems are succulent to conserve water.
- **Common animals found** –rats, mice, rabbits, fox, wolf, tiger, lion, wild ass, horses & camals.



# Thorn and scrub vegetation



# Mangrove forests

- Found in areas of coasts influenced by tides
- Mud & silt get accumulated on such coasts.
- Dense mangroves are the common varieties with roots of the plants submerged under water.
- Found in the deltas of Ganga, the Mahanadi, the Krishna, the Godavari And the Kaveri.
- Sundari trees are found in the Ganga –Brahmaputra delta  
– provide durable hard timbe.
- Other plants are Palm, Coconut, Keor, Agar.
- **Famous animal found – Royal Bengal Tiger**
- **Common animals found – Turtles, Crocodiles, Gharials & Snake**





# Tidal forests or mangrove forests

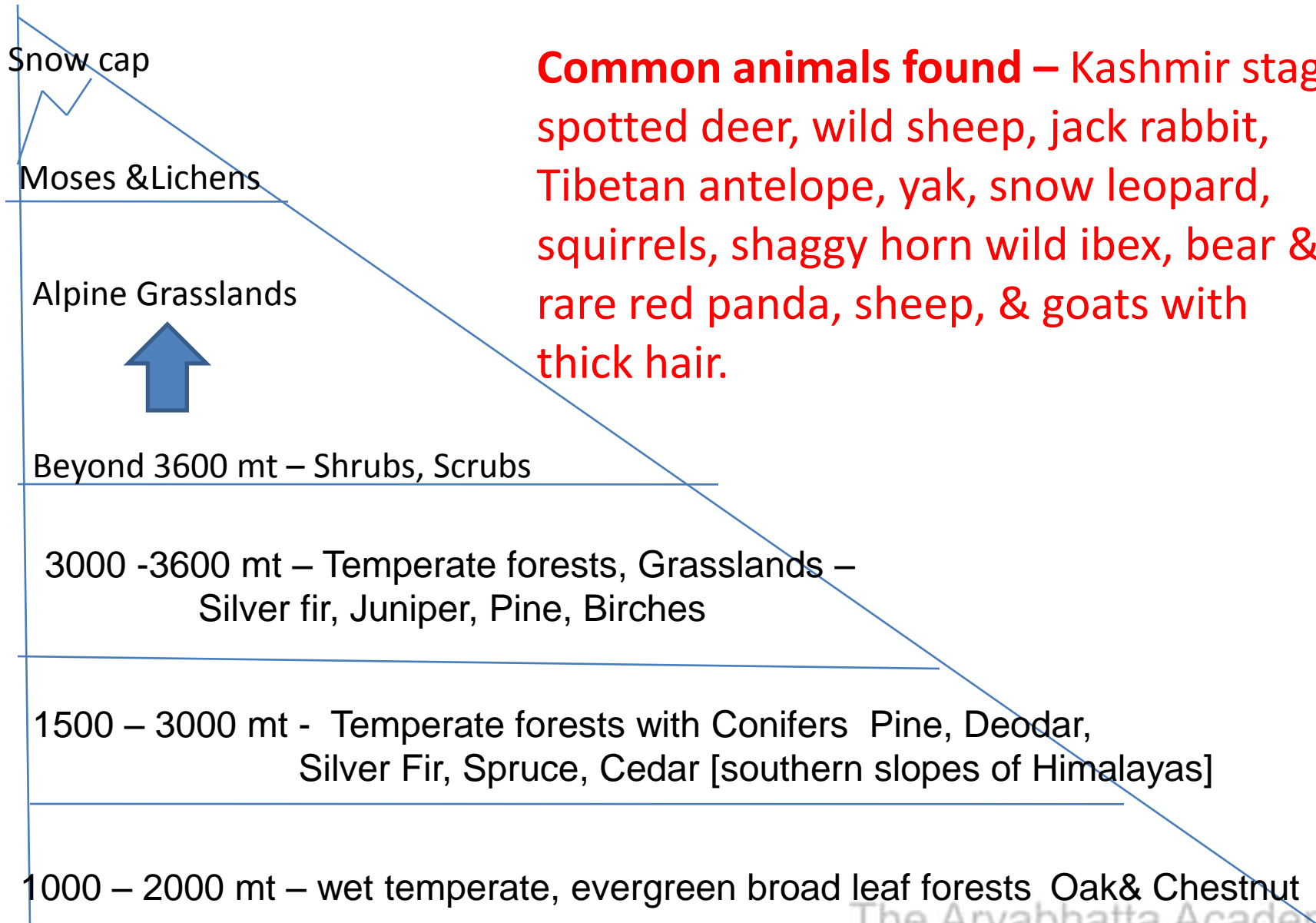








# Montane forests





The Aryabhata Academy





The Aryabhata Academy

# **Name the tribes that use the Alpine grasslands for extensive grazing.**

- The Gujjars &
- The Bakarwals



The Gujjars



The Bakarwals



# What are endangered species?

- A large number of birds and animals are in the danger of getting extinct. These are called endangered species.

# What are migratory birds? Which ones visit India?

- Birds that migrate from one region to another, traveling in thousands to build nests and raise their young ones and go back later are termed 'migratory' birds.
- The ones that visit India are the Siberian Crane and the Flamingo.



# Siberian Crane





**Flamingo** The Aryabhata Academy





# Flamingo

# **Mention the wild life found in Ladakh.**

- Yak, Shaggy horned wild Ox, Tibetan Antelope, the Bharal, Wild Sheep & Kiang.
- The Ibex, Bears, Snow Leopards & Red Panda in certain pockets

Yak







The Bharal



# Kiang



# Shaggy horned wild Ox





# Tibetan Antelope





# Wild Sheep



Ibex







Himalayan Black Bear © Shunya.net



# Snow leopard





Red panda





# Distinguish between moist and dry deciduous forests?

## Moist deciduous

- Found in areas with rainfall between 100 and 200 cm.
- Found in N.En states, along foothills of Himalayas, Jharkhand, West Orissa, Chhattisgarh and eastern slopes of Western Ghats.
- Important species – Teak, bamboo, sal shisham, khair, kusum, arjun, mulberry sandalwood

## Dry deciduous

- Found in areas with rainfall between 75 and 100 cm.
- Found in rainier parts of peninsular plateau and the plains of Bihar and Uttar Pradesh.
- There are open stretches in which teak, sal, peepal, neem and other trees grow.
- A large part of this vegetation has been cleared for cultivation and some parts are used for grazing.

# **What influences the kind of vegetation found in the mountains?**

- The decrease in temperature with increasing altitude leads to the corresponding change in natural vegetation. There is a succession of natural vegetation belts in the same order as we see from the tropical to the tundra region.

# Discuss the steps taken to conserve flora and fauna?

- Periodic surveys and censuses of plants and animals are undertaken to find out the latest status and trends in this direction.
- Project Tiger and Project Rhinoceros were undertaken to save them from getting extinct. There are 16 tiger reserves in the country.
- Wildlife sanctuaries (49), bird sanctuaries and national parks (89), have been set up.



# What are Biosphere reserves?

## Mention their three main objectives.

- Biosphere reserves are multipurpose protected areas, where every plant and animal species will be protected in its natural habitat. The major goal of setting up such reserves is to preserve the genetic diversity in crucial natural ecosystems.
- The major objectives are:
- To conserve and maintain diversity and integrity of the natural heritage in its full form i.e. physical environment, the flora and the fauna.
- To promote research on ecological conservation and other aspects of environmental preservation.
- To provide facilities for education, awareness and training.

# **Name the Biosphere reserves included in the world network of biosphere reserves.**

## **Where are they located?**

- Nilgiri – At the tri-junction of Kerala, Karnataka and TamilNadu.
- Nanda Devi – Uttaranchal.
- Gulf of Mannar – Tamil Nadu.
- Sundarbans – West Bengal

# **Name the Biosphere reserves in India.**

## **Where are they located?**

1. Nilgiri – at the tri-junction of Kerala, Karnataka and Tamil Nadu.
2. Nanda Devi – Uttarakhand.
3. Nokrek – Meghalaya.
4. Great Nicobar – Andaman and Nicobar islands.
5. Gulf of Mannar –Tamil Nadu.
6. Manas – Assam.
7. Sundarbans –West Bengal
8. Simlipal – Orissa.
9. Dibru-Saikhowa – Assam
10. Dihang-Debang – Arunachal Pradesh.
11. Pachmarhi – Madhya Pradesh
12. Khangchendzonga - Sikkim

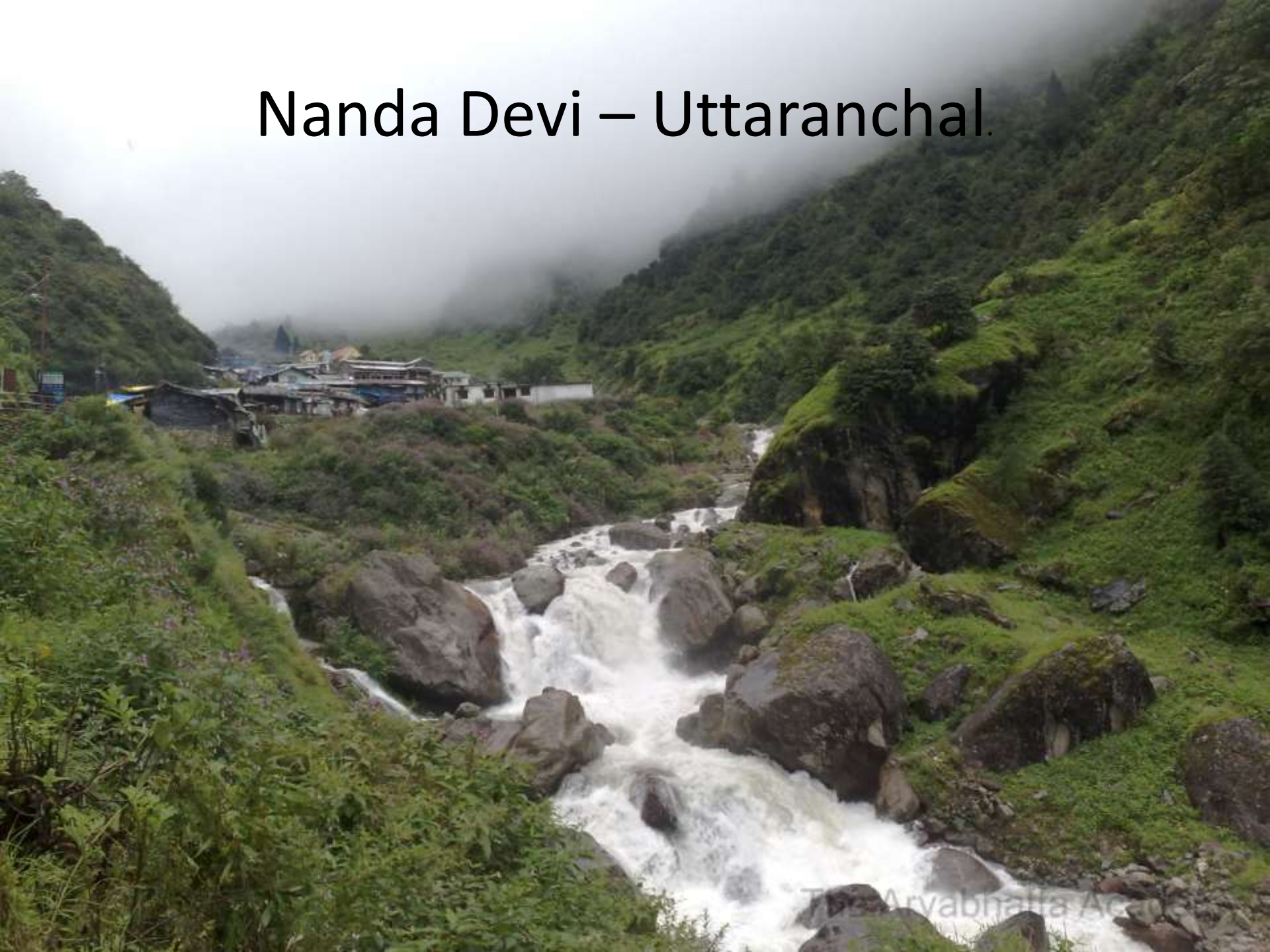




**Nilgiris – at the tri-junction of Kerala,  
Karnataka and Tamil Nadu.**



# Nanda Devi – Uttarakhand.



# Nokrek – Meghalaya





# Great Nicobar – Andaman & Nicobar islands



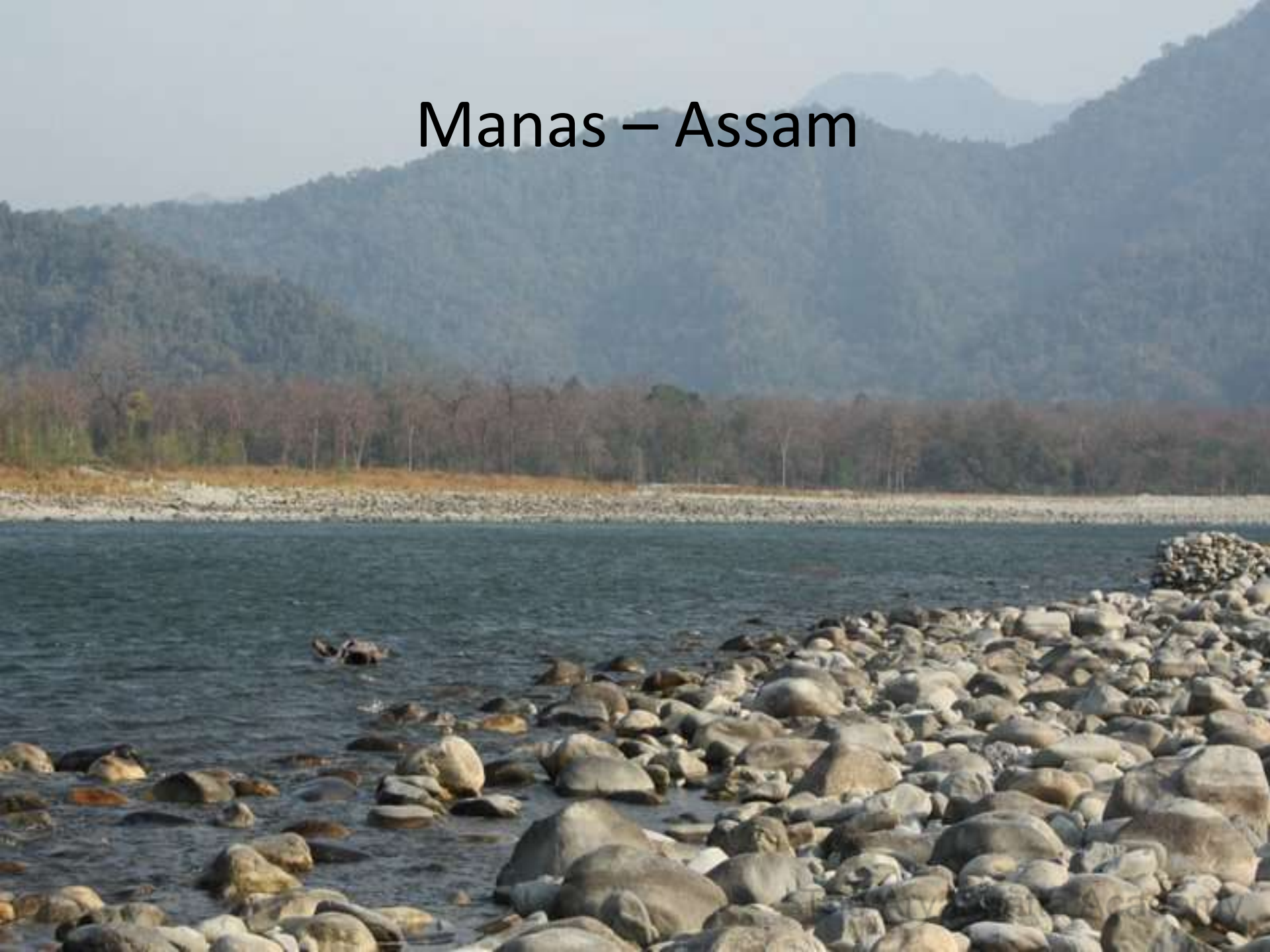


# Gulf of Mannar – Tamil Nadu.





# Manas – Assam







Sundarbans – West Bengal Academy





Similipal – Orissa. Aryabhata Academy



# Dibru-Saikhowa – Assam







Dihang-Debang – Arunachal Pradesh.





Pachmarhi – Madhya Pradesh





Khangchendzonga - Sikkim



# Where are the following animals found?

- **Elephants** : In hot, wet forests of Assam, Karnataka and Kerala.
- **Rhinoceroses** : In swampy and marshy lands of Assam and WestBengal.
- **Lions** : In Gir forest in Gujarat.
- **Tigers** : In the forests of Madhya Pradesh, the Sundarbans of West Bengal and the Himalayan region.
- **Camels** : In the Thar Desert.
- **Wild Ass** : Rann of Kutchch



**Elephants**



# Rhinoceros







**Lion**





**An awe-inspiring and heartwarming educational show featuring extremely rare Golden Tabby and Snow White Bengal tigers**

**Featuring the only display of its type with a variation of colors, featuring the very rare Snow White Tiger, 1 of only 13 alive in the World today, led by World renowned Veterinarian and animal trainer Josip Marcan.**

The Aryabhata Academy





Royal Bengal Tiger



# Camels





*Indian Wild Ass, Little Ram of Kutch*

*Rajneesh Sivarma 2005*

**Wild Ass** The Aryabhata Academy





Peacock The Aryabhata Academy





**Desert fox**

The Anubhava Academy



# Why are species of animals facing a major threat of extinction?

- Hunting by greedy hunters for commercial purposes
- Pollution due to chemical and industrial waste, acid deposits
- Introduction of alien species
- Reckless cutting of forests to bring land under cultivation & inhabitations

# What are the steps taken by the government to protect the flora & fauna of the country?

- **The steps taken are**
- Fourteen biosphere reserves have been set up in the country to protect flora & fauna. Four out of these namely Sunderbans, Nanda Devi, Gulf of Mannar & Nilgiris have been included in the world network of Biosphere reserves.
- Financial & technical assistance is provided to many Botanical Gardens by the Government since 1992
- Project tiger, project Rhino, Project Great Indian Bustard and many other eco developmental projects have been introduced.
- 89 National Parks, 49 Wildlife Sanctuaries and Zoological gardens are set up to take care of Natural heritage