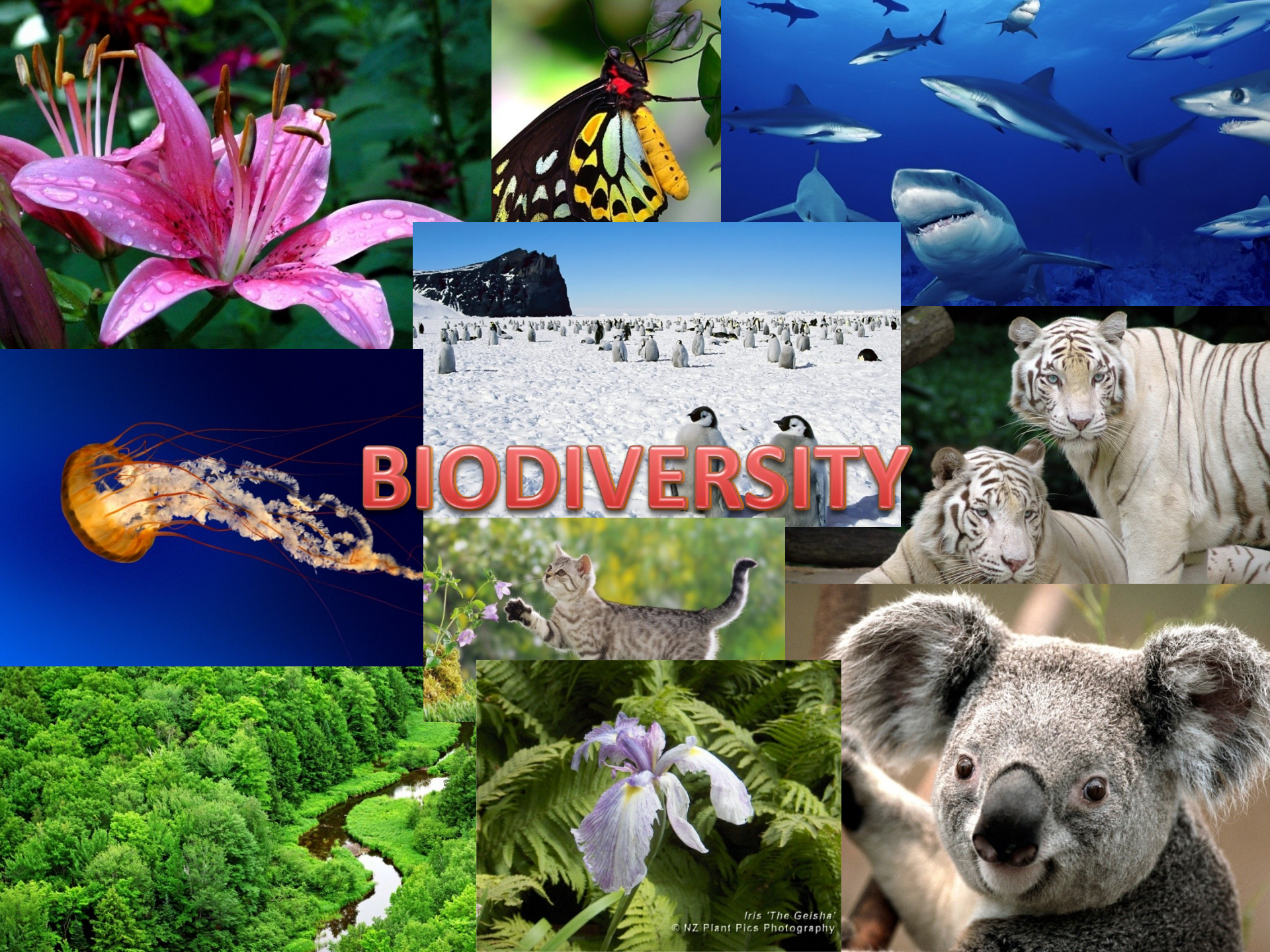

BIODIVERSITY
Iris 'The Geisha'
© NZ Plant Pics Photography



TO
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INTRODUCTION

The term Biodiversity was first coined by Walter G. Rosen in 1986.

The biosphere comprises of a complex collections of innumerable organisms, known as the Biodiversity, which constitute the vital life support for survival of human race.

Biological diversity, abbreviated as biodiversity, represent the sum total of various life forms such as unicellular fungi, protozoa, bacteria, and multi cellular organisms such as plants, fishes, and mammals at various biological levels including gens, habitats, and ecosystem .

Biodiversity

What does "Bio" means?

Bio = Life

Biodiversity

What does "Diversity" means?

Diversity = Variety

CONCEPT AND TYPES OF BIODIVERSITY

- Biodiversity is the variety of life forms on earth and the essential interdependence of all living things.
- As defined in convention on Biological diversity singed at Rio De Jenerio (Brazil) in 1992 by 154 countries, the Biodiversity defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic eco-systems and the ecological complexes of which the area part- this include diversity with in species, between species and of ecosystem."
- According to IUCN in 1998, "the variety and variability of species of their population, the variety of species of their life forms, the diversity of the complex association with species with their interaction and their ecological process which influences perform."

There are three types of biodiversity

- Diversity of Species





- Diversity of Ecosystem





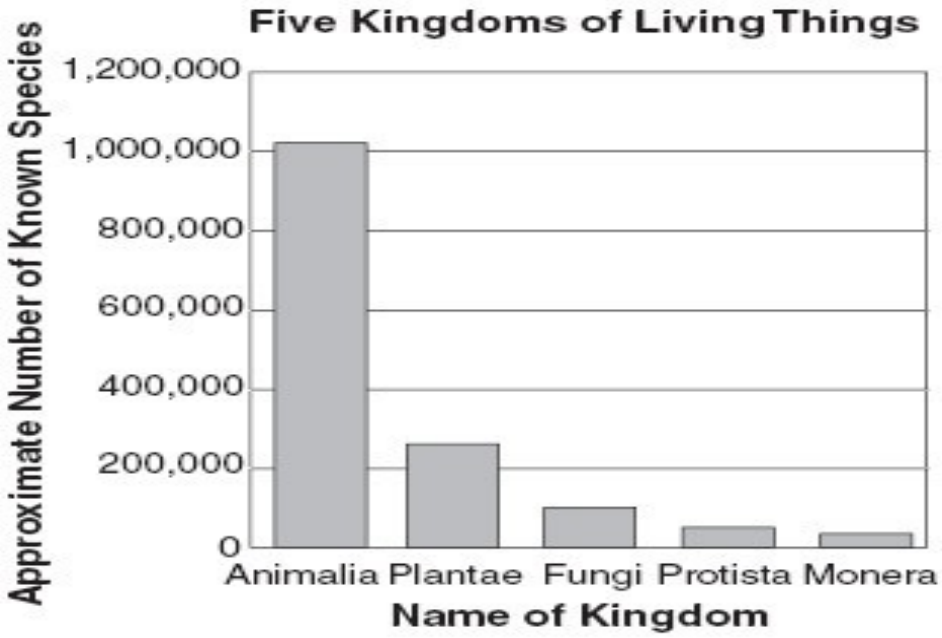
- Diversity of Genes



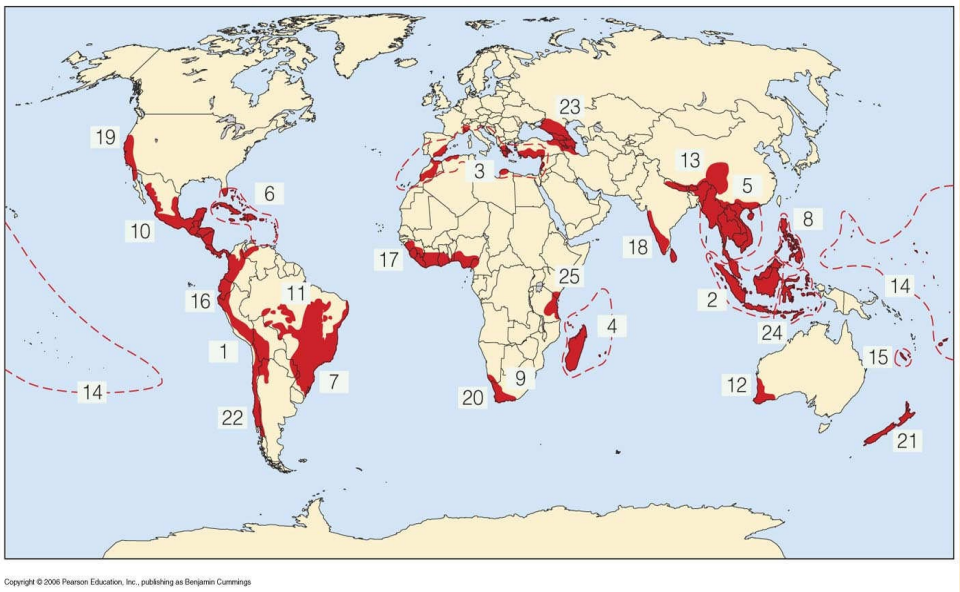


DISTRIBUTION OF BIODIVERSITY

- Flora and fauna diversity depends on-
  - Climate
  - Altitude
  - Soils
  - Presence of other species
- Most of the biodiversity concentrated in Tropical region.

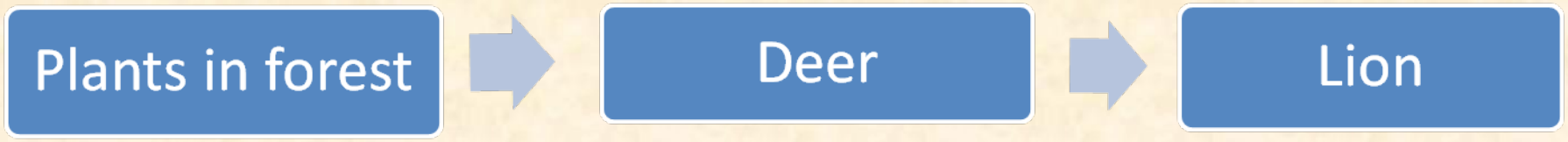


- **BIODIVERSITY HOTSPOTS**:
  - A region with high biodiversity with most of spices being Endemic.
  - India have two Biodiversity Hotspots- East Himalayan Region and Western Ghat.



BIODIVERSITY AND BALANCE OF NATURE

- **Tropic Level**: Elimination of species from tropic level can cause destruction of ecosystem as well as biodiversity.



- **Complex Ecosystem:** In a complicated ecosystem having several tropic levels, loss of one or more spices do not cause any serious problem because the alternative available.
- **Keystone Species:** Loss or addition of species causes detectable changes in ecosystem rates i.e. species make unique contribution to ecosystem functioning.
- **Niche Complementary:** Difference among species in their requirements for different resources will cause complementary interaction so that a species could obtain more resources.

- **Facilitation and Mutualism:** Plants may also benefit from their neighbors through amelioration of the physical and biotic environment.
- **Portfolio Effect:** Species richness increases the temporal stability of the entire community while the biomass is stabilized.
- **Insurance Hypothesis:** Biodiversity buffers ecosystem against environmental changes such as global warming.

BENEFITS OF BIODIVERSITY

Consumptive value:

- Food/Drink
- Fuel
- Medicine
- Batter crop varieties
- Industrial Material

Non-Consumptive Value:

- Recreation
- Education and Research
- Traditional value

Ecological services:

- Balance of nature
- Biological productivity
- Regulation of climate
- Degradation of waste
- Cleaning of air and water
- Cycling of nutrients
- Control of potential pest and disease causing species
- Detoxification of soil and sediments
- Stabilization of land against erosion
- Carbon sequestration and global climate change
- Maintenance of Soil fertility

THREATS TO BIODIVERSITY



Natural causes:

- Narrow geographical area
- Low population
- Low breeding rate
- Natural disasters



Anthropogenic causes:

- Habitat modification
- Overexploitation of selected species
- Innovation by exotic species

- Pollution
- Hunting
- Global warming and climate change
- Agriculture
- Domino effect









RECENT ISSUES ON BIODIVERSITY

- Some 75 per cent of the genetic diversity of crop plants been lost in the past century.
- Some scientists estimate that as many as 3 species per hour are going extinct and 20,000 extinctions occur each year.
- Roughly one-third of the world's coral reef systems have been destroyed or highly degraded.
- About 24 per cent of mammals and 12 per cent of bird species are currently considered to be globally threatened.
- More than 50 per cent of the world's wetlands have been drained, and populations of inland water and wetland species have declined by 50per cent between 1970 and 1999.

CONSERVATION OF BIODIVERSITY

- Biodiversity inventories
- Conserving Biodiversity in protected Habitats-
  - ***In situ*** conservation
  - ***Ex situ*** conservation
- Seed Bank, Gene Bank, Pollen Bank, DNA Bank



zoo

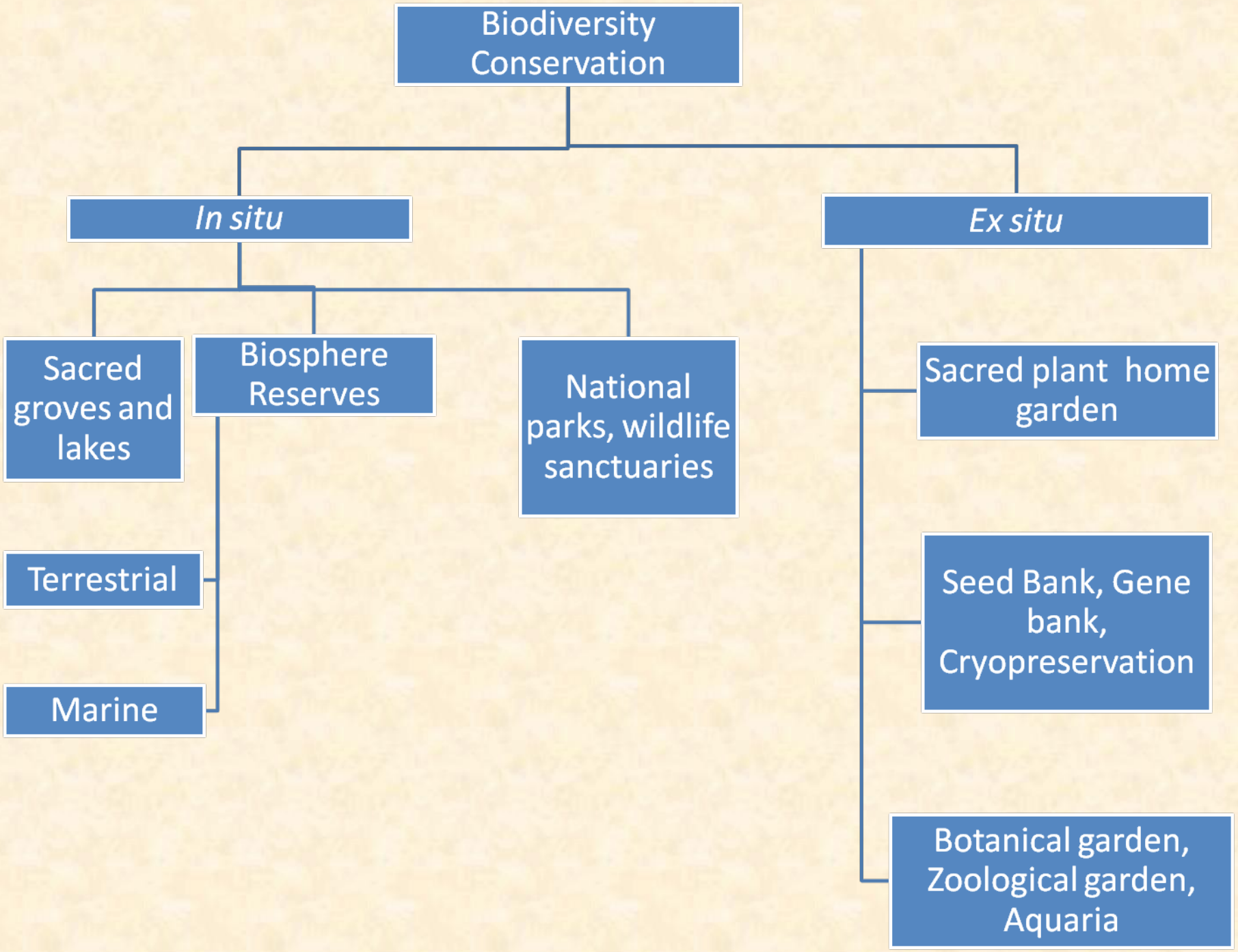


Gene Bank



Bandhavgarh National Park

- Restoration of Biodiversity
- Imparting Environmental Education
- Enacting, strengthening and enforcing Environmental Legislation
- Population Control
- Reviewing the agriculture practice
- Controlling Urbanization
- Conservation through Biotechnology


Biodiversity Conservation
In situ
Ex situ
Sacred groves and lakes
Biosphere Reserves
National parks, wildlife sanctuaries
Terrestrial
Marine
Sacred plant home garden
Seed Bank, Gene bank, Cryopreservation
Botanical garden, Zoological garden, Aquaria

BIODIVERSITY IN INDIA

Categories	No. of Indian Species	% of Indian species Evaluated	Species Threatened In India
Mammals	386	59	41%
Birds	1219	_	7%
Reptiles	495	73	46%
Amphibians	207	79	57%
Freshwater Fish	700	46	70%

Source- Based on Kumar et.al 2000

BIODIVERSITY CONVENSIONS

- The first convention on biodiversity organized at Rio De Janerio, capital of Brazil from June 5 to 16, 1992 named as United Nation Conference On Environment and Development (UNCED), batter known as Rio Summit to maintain ecological balance and enrich biodiversity. The agreement on biodiversity signed by 150 countries including three programmes-
  - To ensure conservation of biodiversity
  - Sustainable use of biodiversity
  - Rational and equitable share of profit to accrue from use of genetic resources.
- The second convention organized at Johannesburg in 2002 called World Summit On Sustainable Development (WSSD) where the Biodiversity and Sustainable Ecosystem Management was the issue.

- The International Conference held on Biodiversity in Relation to Food & Human Security in a warming planet 15-17 February, 2010 in Chennai.
- International Conference on Wildlife & Biodiversity Conservation held on 3 to 5 June, 2010 at Dal lake, Srinagar, Kashmir.
- Indian Biodiversity Congress (IBC) & Indian Biodiversity Expo(IBE) will be held on 27-31 December at Thriuvananthapuram, Kerala.



Biodiversity is life

Biodiversity is our life

CONCLUSION

Biodiversity is our life. If the Biodiversity got lost at this rate then in near future, the survival of human being will be threatened. So, it is our moral duty to conserve Biodiversity as well our Environment. Long-term maintenance of species and their management requires co-operative efforts across entire landscapes. Biodiversity should be dealt with at scale of habitats or ecosystems rather than at species level.



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THANK YOU

