

## **ZOS553- WILDLIFE CONSERVATION AND MANAGEMENT**

**Teaching Hours 10 /Unit**

### **COURSE OUTCOME**

1. The course provides a broad outline on various aspects of 'Biodiversity conservation'
2. It includes, levels of understanding biodiversity in different ecological biomes, methods of population study and documentation.
3. Interaction of the species and their uniqueness, threats and conservations strategies, legal aspects on conservation of biodiversity, special projects and their current status are also included.
4. Threats to our environment and how it is possible to solve these issues scientifically.
5. Students will be visiting the *in-situ* and *ex-situ* conservation and management facilities to learn more about the effective steps taken by the conservation authority in saving the unique /rare/ threatened animals.
6. The theoretical foundation will help the biologist to take part in the effective wildlife conservation and management program with the advanced scientific methods.

### **UNIT I**

Biodiversity concepts- Ecosystem diversity, Genetic diversity, Species diversity, Biodiversity from ecological, taxonomical and evolutionary prospective (Alpha, Beta and Gamma diversity); Biodiversity assessment- Inventorying and Monitoring biodiversity- Sources of information, Data collection and management- Taxon data sheet, Biodiversity indices.

### **UNIT II**

Zoo geographical regions of the world and Ecological subdivisions of India; Biodiversity Hotspots; Biome essays- Tropical and Temperate forests, Tundra forests, Boreal forests, Cave and Mountains, Coastal ecosystems, Mangroves and Estuaries, Coral reefs, Lakes and Rivers.

### **UNIT III**

Unique Indian animals- Diversity and distribution; Endemic species, Species interaction- Concept of niche, territory and home range, Keystone species; Capturing and marking techniques- entrapment, darting, tagging and banding; Population analysis- territory mapping, line transect, capture-recapture, pellet count, pug mark, call track count; Radio telemetry; Still and Video photography.

### **UNIT IV**

Threats to Biodiversity- Habitat destruction, Climate change, Exotic species introduction, Over exploitation; Diseases and their control; Species extinction; IUCN Red list criteria and categories; Biodiversity conservation- *insitu* methods- National parks and Sanctuaries; *ex-situ* methods- Captive breeding program- role of Zoos and Botanical gardens. Gene bank/ seed bank.

### **UNIT V**

Legal aspects- National and International conventions- CITES, TRAFFIC; Wildlife laws- Wildlife (protection) Act-1972; Indian biodiversity laws; Special projects- Project Tiger, Gir

Lion project, Project Elephant, Crocodile breeding project. Biodiversity Act, Earth summit, Ramsar convention.

## REFERENCES

1. Coughley, Graeme and Sinclair, Anthony R.E. (1994) Wildlife ecology and management, Blackwell Scientific pub.
2. Charles, G. Scalet, L.D. Flake and Willis D.W. (1996) Introduction to wildlife and fisheries an integrated approach.
3. Daniel, J.C and Gerrao J.S. (1990) Vegetation types of India in relation to environmental conditions In: conservation in developing countries, problems and prospects eds., Bombay Natural History Society, Bombay
4. Giles, R. H. (1971) Wildlife management techniques, 3<sup>rd</sup> edition, The wildlife Society, Washington DC.
5. Heywood, V.H. and Watson R.T. (1995): Global Biodiversity Assessment published United Nation Environmental Programme, Cambridge University Press.
6. Miller, S.D and Everett D.D, Seidensticker J. (1986) Large Carnivores and consequences of habitat insularization ecology and conservation of tigers in Indonesia and Bangladesh.
7. Mukherjee, A.K. (1982) Endangered animals of India, Zoological Survey of India,
8. Calcutta Nair, S.M. (1992) Endangered animals of India and their Conservation, National Book Trust, India.
9. Negi, S.S. (1993) Biodiversity and its conservation in India, Indus Pub.Co.
10. Primack, R.B. (1999) Essentials of conservation biology, Sunderland, Boston University, Massachusetts U.S.A.
11. Prater, S.H. (1971) The book of Indian animals, Bombay Natural History society.
12. Sagreiya, K.P. (1967) Forests and Forestry, National Book Trust, India.
13. Saharia, V.B. (1982) Wildlife in India, Natray Publishers.
14. Schaller, G.B. (1967) The Deer and the Tiger, University of Chicago press, Chicago.
15. Shaw, J. H. (1975) Introduction to Wildlife Management, McGraw Hill, New York.
16. Sinha, R.K. (1996) Biodiversity Global Concerns, Common Wealth Publishers.