

WILDLIFE BIOLOGY
(UG DEGREE STANDARD)

SUBJECT CODE: 291

UNIT - I: SCOPE AND IMPORTANCE OF WILDLIFE OF INDIA

Definition of Wildlife: Causes of wildlife depletion; Economic importance of wildlife; need for wildlife conservation; rare, endangered, threatened and endemic species of fishes, amphibians, reptiles, birds and mammals in India- India as a mega wildlife diversity country.

UNIT - II: FORESTRY, SILVICULTURE AND FOREST ENTOMOLOGY

Forest types in India- identification, dendrology; Deforestation & Impacts; Forest Inventory; Natural and artificial regeneration of forests; nursery techniques-seed-technology- Collection, storage, pretreatment and germination, establishment and tendings; Silvicultural systems – Clear felling, uniform, shelter – selection, Coppice and conversion system; Agro forestry systems - Social/Urban Forestry- Joint Forest Management-Indian Forest Act 1927, Forest Conservation Act 1980; Harmful Insects and their role in forest economy: Insect pests of important trees of India -Teak, Sal and Bamboo; Beneficial Insects and their role in forest economy: Scavenger insects- dung beetles; Pollinators, Predatory insects, and parasitic insects on insect pests; control of forest insects.

UNIT - III: BEHAVIOUR OF WILDLIFE

Instinctive behaviour-classical and modern concepts-fixed action pattern and ritualization; Learning-Imprinting-habituation. Analysis of behaviour pattern- taxis, kinesis and reflexes; Biological rhythms and bird migration; Types of animal communications; Courtship, display, sexual selection and parental care in mammals and birds; Social behaviour in animals - Honey bees, Elephants.

UNIT - IV: WILDLIFE MANAGEMENT TECHNIQUES

Vegetative analyses – Point Centered Quadrat, Quadrat, Strip transect; GIS and Remote sensing in wildlife habitat surveys-Habitat manipulation: food, water, shade improvement; impact and removal of invasive alien species; Making observations

and records: field notes, datasheets; Wildlife Photography - Types of cameras, camera traps; Field equipments-altimeter, pedometer, field compass, binoculars; radio collaring; GPS; GIS; Remote sensing in Wildlife management.

UNIT - V: WILDLIFE CENSUS TECHNIQUES

Planning census – Total counts - Sample counts – Basic concepts and applications - Direct count (block count, transect methods, Point counts, visual encounter survey, waterhole survey); Indirect count (Call count, track and signs, pellet count, pugmark, camera trap)-Identifying animals based on indirect signs; Capture-recapture techniques.

UNIT - VI: HUMAN WILDLIFE CONFLICTS

Basic concepts, reasons for conflicts, Identification of damages caused by wild animals and control measures; Case studies – Elephant, gaur, wild boar, monkey, tiger and leopard; Translocation of Wild animals – Principles, Methods and applications.

UNIT - VII: HEALTH CARE OF WILDLIFE

Infectious wildlife diseases: Viral diseases: Rabies-Rinderpest-Foot and Mouth -Viral encephalitis-Yellow fever- Bacterial disease: Anthrax-Brucellosis – Clostridiosis - Listeriosis.

Protozoan disease: Trypanosomiasis -Toxoplasmosis-Babesiosis - Coccidiosis.

Helminth disease: Fasciolopsis – Schistosomiasis – Taeniosis - Hydatidosis

Non-infectious diseases of wild animals: Diseases of the digestive system: Stomatitis-catarrhal, gastroenteritis-haemorrhagic gastroenteritis; Respiratory system: Catarrhal, bronchopneumonia-exudative pleurisy; Excretory system: Paralysis of urinary bladder-urolithiasis;

UNIT - VIII: CONSERVATION OF WILDLIFE

in-situ and *ex-situ* conservation: Wildlife Sanctuaries, National Parks, Tiger Reserves and Biosphere reserves: Definition, formation, management and administration; Wildlife Projects: Tiger, Elephant, Lion and Hangul; Zoos and Zoological Parks:

Definition- Aims of Zoos- Formation and Management of Zoos and Zoological Parks
- Central Zoo Authority of India; Captive breeding: Aims, Principles, methods; Role of Government and Non-Governmental organizations in conservation;

UNIT IX: MODERN CONCEPTS IN WILDLIFE CONSERVATION

Wildlife Crimes: Wildlife forensics and its applications in detecting wildlife crimes;
Wildlife Toxicology: Types of contaminants, methods of toxicity evaluation, bioconcentration- bioaccumulation and biomagnifications; impacts of pesticides and heavy metals on birds and mammals; CAMP and PHVA – Analyses and Reports;
Environmental Impact Assessment (EIA) methods and their role in wildlife conservation.

UNIT - X: WILDLIFE ADMINISTRATION AND LEGISLATION:

Administrative set up - Advisory bodies- National Board for Wildlife –Wildlife (Protection) Act, 1972 and its Amendments; Wildlife trade and regulations; Biodiversity Act 2000; Eco-Development, Eco- Restoration and Ecotourism programmes; Anti poaching operations –Village Forest Council (VFC).