M. Sc., WILDLIFE AND MANAGEMENTand Course Outcome.

Program Specific Outcomes
After successful completion of program, students will be able to:

1. Understand ecological principles governing wildlife populations, communities, and ecosystems.
2. Evaluate threats to biodiversity and ecosystems, including habitat loss, pollution, and climate change.
3. Apply conservation strategies to mitigate threats and promote biodiversity conservation.
4. Acquire proficiency in wildlife monitoring and survey methods.
5. Implement sustainable wildlife management practices balancing conservation with human needs.
6. Apply ecological principles to address conservation challenges and management issues.
7. Advocate for evidence-based policies and legislation prioritizing wildlife conservation.
8. Identify common wildlife diseases and implement disease surveillance and management strategies.
9. Engage with stakeholders and communities in wildlife conservation initiatives.
10. Design and conduct scientific research projects in wildlife ecology and conservation.
11. Analyze field data using statistical and spatial analysis techniques.
12. Adhere to ethical standards and promote professionalism in wildlife management.
13. Foster partnerships and collaborations to address conservation challenges.
14. Promote environmental education and awareness for conservation stewardship.
15. Respect cultural values and indigenous rights in conservation efforts.

Semester I Paper Title- HC-1.1: SYSTEMATICS AND FORESTRY

Student Learning Course Outcomes
After successful completion of this course, students will be able to: -

1. Understand the historical development and key concepts of biogeography, including continental drift, dispersal mechanisms, and biogeo-graphical realms and provinces.
2. Explain the theory of island biogeography and its relevance to ecological studies, including the role of corridors and dispersal barriers.
3. Identify the differences between plant and animal geography and discuss the origin of Indian flora and fauna.
4. Classify plants using various systematic approaches such as Bentham and Hooker, Engler and Prantle, and Hutchinson systems.
5. Apply herbarium techniques and botanical nomenclature principles in plant identification and taxonomy.

6. Analyze the floral diversity and botanical regions of India, considering conservation issues and strategies.
7. Describe the major vegetation types in India and understand the principles of vegetation classification and plant succession.
8. Classify animals using Linnean and modern taxonomic systems, including invertebrates and vertebrates up to orders.
9. Explain the principles and techniques of forestry, including production forestry, wood technology, and forest utilization.
10. Apply forest mensuration methods for measuring tree attributes, understand forest management principles, and implement silviculture techniques for natural and artificial regeneration of forests.

Semester I Paper Title- HC 1.2: WILDLIFE ECOLOGY

Student Learning Course Outcomes
After successful completion of this course, students will be able to: -

1. Explain the fundamental concepts of ecology, including the structure of ecosystems, biotic and abiotic components, and ecological functions such as energy flow and biogeochemical cycles.
2. Analyze the behaviors of wildlife species using concepts from behavioral ecology, including instinctive behavior, learning, social organization, communication, and plant-animal interactions.
3. Understand the importance of population ecology in wildlife studies, including population attributes, life tables, growth rates, population regulation, and monitoring techniques.
4. Interpret population dynamics and genetics, including concepts of density-dependent and density-independent regulation, predator-prey models, carrying capacity, and population dispersal.
5. Describe the characteristics, compositions, and structures of communities in wildlife ecosystems, including qualitative and quantitative measures of community organization.
6. Analyze species interactions within communities, including competition, mutualism, commensalism, parasitism, and predation, and their implications for community dynamics.
7. Evaluate factors influencing species diversity, including niche differentiation, resource partitioning, and competitive exclusion, using quantitative measures such as species richness, diversity, and evenness.
8. Discuss community stability and resilience, including the role of guilds, trophic interactions, and the evolutionary processes shaping community structure.

9. Apply ecological models and theories, such as null models and competition models, to understand species interactions and community dynamics.
10. Interpret the implications of energy flow, productivity, and food webs for species diversity and ecosystem functioning in wildlife habitats.

Semester I Paper Title- HC 1.3: FIELD TECHNIQUES IN WILDLIFE STUDIES

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Understand the various field survey methods and equipment used in wildlife studies, including census techniques, sampling methods, mapping principles, and regulatory permissions.
2. Differentiate between direct and indirect census methods and apply appropriate techniques for population estimation of mammals, amphibians, reptiles, fishes, birds, and invertebrates.
3. Apply transect and quadrat methods effectively in wildlife surveys and understand the principles behind block counts, dung counts, water hole census, and aerial surveys.
4. Utilize advanced techniques such as camera trapping, electro-fishing, mist netting, radio telemetry, and satellite tracking for wildlife monitoring and research.
5. Design sampling schemes for population estimation using distance-based sampling methods and mark-recapture techniques, and interpret demographic parameters and diversity indices.
6. Identify wild animals based on natural markings, back profiles, tail types, and animal coats with natural marks, and understand the ethical considerations in marking animals for research purposes.
7. Apply statistical methods commonly used in wildlife studies, forestry, and field experiments, including measures of central tendency, dispersion, probability, and hypothesis testing.
8. Interpret tabulated data and graphical representations, including frequency distributions, standard deviation, and coefficient of variance.
9. Conduct statistical tests such as t-tests, Mann-Whitney U test, ANOVA, Kruskall Wallis one-way ANOVA, and Chi-square test for analyzing wildlife data.
10. Understand the significance of correlation and regression analysis in wildlife research, including Spearman Rank correlation coefficient and coefficient of determination.

Semester I Paper Title- SC 1.4 (a): AQUATIC ECOLOGY

Student Learning Course Outcomes
After successful completion of this course, students will be able to: -

1. Understand the classification and characteristics of freshwater ecosystems, including lentic and lotic habitats, and the factors influencing their ecology.
2. Identify and describe the various types of freshwater communities, such as lakes, ponds, rivers, and streams, and analyze the importance and threats to their biodiversity.
3. Explain the concept of limnology and the abiotic and biotic factors affecting freshwater ecology, as well as the importance of aquatic bio-monitoring and pollution control in freshwater ecosystems.
4. Define marine ecosystems and identify different types, including salt marshes, mangroves, coral reefs, and estuaries, and analyze the threats to marine ecosystems.
5. Describe estuarine ecosystems, their formation, characteristics, and classification, and evaluate the issues facing Indian estuarine ecosystems, including pollution, habitat loss, and climate change.
6. Discuss the formation, classification, and ecological functions of coral reefs, along with their conservation strategies and distribution in India.
7. Explain the characteristics and adaptation of mangroves, their role in supporting biodiversity, and the threats they face, including exploitation and habitat degradation.
8. Define wetland ecosystems and their characteristics, functions, and types, and analyze India's wetlands and their conservation challenges.
9. Evaluate the hydrology, soil biogeochemistry, vegetation, and fauna of wetland ecosystems, and discuss the impacts of climate change on wetlands.
10. Understand wetland laws and acts, the Ramsar Convention, and criteria for identifying wetlands of national importance, as well as methods for monitoring wetland variables and assessing wetland ecosystem services.

Semester I Paper Title- SC 1.4 (b): TERRESTRIAL ECOLOGY
Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Define and distinguish between different types of tundra ecosystems, including Arctic tundra and Alpine tundra, and describe the distribution and adaptations of flora and fauna found in these regions.
2. Identify and classify various forest ecosystems, including coniferous forests, temperate deciduous forests, tropical rainforests, and Indian forest types, and analyze the causes and effects of deforestation.
3. Understand the characteristics and ecological roles of grassland ecosystems, including different types of grasslands, animal dependency, economic importance, and the impact of grazing and fire.

4. Define desert ecosystems and describe the adaptations of plants and animals to survive in arid regions, with a focus on Indian deserts such as the Thardesert and cold/temperate deserts.

5. Analyze the interactions between plants and animals for survival in desert ecosystems and evaluate the causes, status, and control measures of desertification.

6. Explain the ecological services provided by tundra ecosystems, including their role in climate regulation, carbon sequestration, and biodiversity conservation.

7. Evaluate the ecological functions of forest ecosystems, including carbon storage, soil formation, water regulation, and habitat provision for wildlife.

8. Discuss the economic importance of grassland ecosystems, including their role in agriculture, livestock grazing, and biodiversity conservation.

9. Understand the adaptations of plants and animals in different terrestrial ecosystems, including physiological, morphological, and behavioral adaptations.

10. Apply ecological principles to analyze and propose conservation strategies for terrestrial ecosystems, including habitat restoration, sustainable land management, and biodiversity conservation.

Semester II Paper Title- HC 2.1: REMOTE SENSING, GIS AND ADVANCED TECHNIQUES

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Understand the principles and basic concepts of remote sensing, including the electromagnetic spectrum, energy sources, and interaction with various surfaces such as air, water, soil, rock, and vegetation.

2. Identify different remote sensing data acquisition systems and concepts such as spectral and spatial resolution, and analyze the use of microwave remote sensing.

3. Describe the fundamentals of aerial remote sensing, including aerial photography techniques, geometric characteristics of aerial photographs, and interpretation keys for aerial photographs.

4. Explain Indian remote sensing missions, satellite data products, and the interpretation of satellite data, including visual and digital image processing techniques.

5. Define Geographic Information System (GIS) and its components, data models (Raster and Vector), resolution, orientation, and overlaying techniques, and analyze GIS analysis functions.

6. Apply GIS fundamentals in data management, conceptual design, system integration, and application development.

7. Discuss the applications of remote sensing and GIS in forestry and wildlife monitoring and management, including forest classification, inventory, mapping, and monitoring of forest cover and wildlife habitats.

8. Evaluate the use of remote sensing and GIS in damage detection, assessment, and planning for forest area development and wildlife management.
9. Apply remote sensing and GIS techniques in wildlife habitat evaluation, mapping of corridors, establishment of wildlife reserves, and prediction of forest fires.
10. Demonstrate practical skills in remote sensing and GIS through hands-on exercises, data analysis, and interpretation tasks, and integrate these techniques into real-world conservation and management scenarios.

Semester II Paper Title- HC 2.2: ENTOMOLOGY, HERPETOLOGY AND ICHTHYOLOGY

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Describe the history, evolution, and classification of insects, reptiles, amphibians, and fishes, including their diversity and taxonomy.
2. Identify and classify major insect orders, such as Hymenoptera, Lepidoptera, Coleoptera, Anisoptera, and Zygoptera, and discuss their morphology, mouthparts, development, respiration, and reproduction.
3. Analyze the economic importance and ecological roles of insects, including their adaptation and use as indicators for biodiversity monitoring.
4. Evaluate forest entomology, including the types of forest insects, forest pests, their life cycles, and management strategies for pest control, with specific case studies.
5. Describe the general characteristics of reptiles and amphibians, including their classification up to orders, adaptations, eco-physiological adaptations, and systematics.
6. Discuss the biology and conservation issues of major Indian amphibians, freshwater and marine turtles, crocodilians, lizards, and snakes, including conservation efforts.
7. Classify and discuss the major groups of fishes in India, ichthyogeography, and diversity of freshwater fishes, as well as their food, digestion, nutrition, growth, respiration, and reproduction.
8. Evaluate the ecology and adaptation of fishes in different ecosystems and their economic importance, including sport fishes in India.
9. Analyze threats to fish populations and conservation prospects, including threatened fishes of India and methods to study fish ecology, diversity, abundance, and habitats.
10. Apply knowledge gained in entomology, herpetology, and ichthyology to real-world scenarios, including biodiversity conservation, ecosystem management, and sustainable resource use.

Semester II Paper Title- SC 2.3a: BIODIVERSITY AND CONSERVATION OF NATURAL RESOURCES

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Define biodiversity and its various levels, including genetic diversity, species diversity, and ecosystem/community diversity, and understand the measurement of biodiversity using species richness and diversity indices.
2. Analyze the importance of biodiversity in food webs and ecosystem services, including biological, ecological, and social services provided by diverse ecosystems.
3. Describe the natural terrestrial ecosystems of India, including forest, grassland, wetland, and desert biodiversity, and assess the importance of agro-biodiversity and bio-cultural diversity for livelihoods.
4. Identify the climatic zones and biodiversity hotspots in India and discuss the major protected areas and initiatives for biodiversity conservation at governmental, NGO, and community levels.
5. Explain the causes of biodiversity loss, including habitat loss, hunting, exploitation, introduction of exotic species, accidental mortality, and climate change, and discuss modes of biodiversity conservation.
6. Identify major biodiversity areas globally, including mega-diversity countries and biodiversity hotspots, and understand global initiatives such as the Man and Biosphere Programme and Biosphere Reserves.
7. Discuss the concept of natural resources, their classification, extraction, depletion, and the need for protection and management, with a focus on Indian natural resources.
8. Compare conservation and preservation approaches to natural resource management and analyze the socio-economic and political realities of conservation movements in India.
9. Describe the phases of conservation and their impacts on people, identify stakeholders involved in conservation efforts, and assess the roles of international conservation bodies such as IUCN, UNDP, FAO, and WWF.
10. Evaluate the economic reasons for over-exploitation of natural resources, the ecosystem functions and services provided by biodiversity, and the need for integrating environmental and economic considerations in natural resource management.

Semester II Paper Title- SC 2.3b: ENVIRONMENTAL POLLUTION, EIA AND ECOTOXICOLOGYStudent Learning Course Outcomes

After successful completion of this course, students will be able to:

1. Define and understand the components of the biosphere - hydrosphere, atmosphere, and lithosphere, and identify sources, types, and effects of water, air, solid, soil, noise, and radiation pollution.

2. Analyze the sources and effects of various pollutants such as NOx, SOx, SPM, hydrocarbons, acid rain, global warming, photochemical smog, ozone depletion, and their impacts on biota, as well as control measures.

3. Describe the types, sources, collection, transport, treatment, disposal, and recycling methods of solid and hazardous wastes, and identify pollutants and control measures for soil and noise pollution.

4. Understand environment monitoring, including abiotic parameters monitoring for different habitats, the role of keystone and indicator species, and various monitoring techniques and methods.

5. Explain the concept of Environmental Impact Assessment (EIA), its need, Indian policies requiring EIA, the EIA cycle and procedures, components of EIA, and key elements of an initial project description and scoping.

6. Identify the drawbacks and recommendations for EIA in the Indian system and understand the Environmental Supplement Plan (ESP).

7. Introduce the fundamentals and scope of ecotoxicology, including toxicity types, classification of toxins, poison, types of poisoning, mechanism, and factors influencing toxicity.

8. Describe bioassay methods, acute, chronic, and reproductive toxicity, and factors affecting toxicity and dose-response relationships.

9. Analyze the introduction, classification, basic aspects of pesticide toxicity, fertilizer types, and mechanisms of bioaccumulation, biomagnification, bioamplification, bioconcentration, and effects of heavy metals like arsenic, cadmium, lead, and mercury.

10. Discuss natural toxicants, including animal venoms and poisons, toxins produced by fishes, insects, microbial (algal and bacterial), and plant toxins, as well as safety standards and regulatory provisions.

Semester II Paper Title- EL 2.4: WILDLIFE CONSERVATION

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Define wildlife and recognize its values, including ethical, scientific, medicinal, game and recreation, and ecological values, as well as the significance and scope of wildlife conservation.

2. Understand the global distribution of wildlife and identify Indian wild fauna, as well as wildlife byproducts and trade.

3. Identify wildlife categories based on the IUCN Red List criteria, such as extinct, endangered, threatened, vulnerable, and data deficient categories, and analyze the causes

of wildlife depletion, including habitat degradation and destruction, exploitation for commercial purposes, deforestation, agricultural expansion and grazing, urbanization and industrialization, and forest fires.

4. Describe the historical background of wildlife conservation, the need for conservation projects in India, and differentiate between ex-situ and in-situ conservation methods.

5. Identify and analyze various protected areas for wildlife conservation, such as national parks, wildlife sanctuaries, wildlife reserves, and biosphere reserves, with a focus on those in Karnataka.

6. Understand the concepts of umbrella species and flagship species-based conservation programs, and analyze human-wildlife conflicts and mitigation strategies.

7. Discuss the constitutional provisions and legal frameworks for wildlife conservation in India, including the Wildlife Protection Act of 1972, as well as national and international guidelines and protocols.

8. Apply knowledge gained in wildlife conservation to analyze and propose conservation strategies for preserving biodiversity and mitigating human-wildlife conflicts in different ecosystems and regions.

Semester III Paper Title-HC 3.1: WILDLIFE CONSERVATION AND MANAGEMENT

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Understand the importance of wildlife conservation, including its ecological, aesthetic, recreational, scientific, and economic values, and recognize the significance of Indian cultural ethos in wildlife conservation.

2. Identify and categorize wildlife species based on conservation priorities, such as unique species, monotypic species, keystone species, K-selected species, endangered species, and endemic species.

3. Explain the concept of protected area networks and their management, including the role of wildlife corridors in habitat connectivity and conservation practices.

4. Describe international conventions and conservation efforts, including World Heritage Sites, the Convention on Biological Diversity, the Ramsar Convention, the Convention on Migratory Species, CITES, and notable conservation movements such as Chipko&Appiko movements and the Global Tiger Forum.

5. Analyze individual species conservation projects, including Project Tiger, Project Lion, Project Hangul, Project Crocodile, and others, by understanding their aims, objectives, threats, mitigation strategies, and success rates.

6. Recognize the roles and contributions of various organizations in wildlife conservation, such as IUCN, UNEP, UNDP, FAO, WWF, UNESCO, WII, IBWL, ICFRE, TRAFFIC,

WCS, NCS, BSI, ZSI, FRI, and others, as well as initiatives like the Man and Biosphere (MAB) program and Indian Institute of Forest Management.

7. Explain wildlife policies and legislations, including constitutional provisions, the Wildlife (Protection) Act, 1972, the Environmental (Protection) Act, 1986, the National Forest Policy 1988, the Biological Diversity Act 2002, and other relevant regulations and protocols.

8. Analyze human-wildlife conflicts, including their causes, impacts, and reasons behind human-wildlife interactions, and propose preventive and mitigative strategies to reduce conflicts.

9. Examine major animals responsible for human-wildlife conflicts, such as human-elephant conflict, human-tiger conflict, human-leopard conflict, and human-monkey conflict, and discuss conflict zones, impacts, and case studies.

10. Apply knowledge gained in the course to develop comprehensive wildlife conservation and management plans, integrating conservation principles, policies, and practices to address contemporary conservation challenges effectively.

Semester III Paper Title-HC 3.2: ORNITHOLOGY AND MAMMALOGY
Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Classify birds according to avian systematic classification and understand the habitat ecology of Indian birds, including coastal birds, inland water birds, high altitude birds, and desert birds.

2. Analyze the distribution of birds in India, their ecological and economic values, and their feeding ecology, including various feeding strategies such as insectivores, frugivores, nectarivores, granivores, carnivores, and scavengers.

3. Explain the functions of nesting in birds, nest site selection, types of nests, nest materials, and reproduction processes such as breeding seasons, seasonal reproductive cycles, sexual dimorphism, courtship and display, sexual selection, and mating systems.

4. Describe the phenomenon of bird migration and identify endangered and threatened bird species.

5. Trace the history of mammalogy and understand the evolution, morphology, and characteristics of mammals, including adaptations such as hibernation, torpor, aestivation, locomotion, and water regulation.

6. Classify mammals up to orders and analyze the adaptations of mammals based on body size variation, metabolic rate, feeding behavior, niche width, and reproduction.

7. Describe the anatomy, morphology, and function of mammalian skin and its derivatives.

8. Understand the behavior and social organization in mammals, including social and mating systems, territories, animal communication, and diet.

9. Analyze the digestive systems of mammals, including anatomy and function, with specific reference to herbivores and carnivores, such as tigers and elephants.

10. Apply knowledge gained in ornithology and mammalogy to identify, classify, and understand the behavior, ecology, and conservation status of bird and mammal species in diverse ecosystems, contributing to wildlife research, management, and conservation efforts.

Semester III Paper Title-SC 3.3a- HUMAN DIMENSIONS IN WILDLIFE MANAGEMENT

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Understand the importance of wildlife in India, including its flora and fauna, and identify key protected areas and wildlife species.
2. Analyze the problems associated with wildlife management in India and explore various methods and conservation strategies adopted in the Indian context.
3. Evaluate the roles and functions of wildlife organizations and institutions at both national and global levels in wildlife conservation and management.
4. Critically review community-based conservation initiatives, examining reasons for both success and failure and extracting lessons learned.
5. Examine the challenges related to conservation-induced displacement and rehabilitation, and assess community survey methods, including participatory tools and techniques.
6. Analyze the costs and benefits of protected areas for local livelihoods, considering factors such as displacement, changes in land tenure, human-wildlife conflicts, and sustainable resource management initiatives.
7. Explore the concept of eco-development, its objectives, and its relevance in wildlife conservation, along with community participation and conservation-development linkages.
8. Conduct livelihood analysis and identify stakeholders in conservation, while also learning conflict management strategies in the context of park-people interface conflicts.
9. Learn about climate change, including its causes, impacts on ecosystems and biodiversity, and India's position and actions on climate change adaptation and mitigation.
10. Explore mitigation strategies for climate change, such as carbon sequestration, carbon sinks, carbon credits, carbon taxes, carbon offsetting, and geo-engineering, and their implications for wildlife management and conservation.

Semester III Paper Title-SC 3.3b: WILDLIFE ECOTOURISM
Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Understand the basic concepts, importance, and scope of wildlife ecotourism, along with the principles of sustainable development in wildlife tourism.
2. Evaluate the positive and negative impacts of wildlife tourism, including habitat disturbance, increased vulnerability of wildlife, and conservation efforts such as habitat restoration and anti-poaching measures.
3. Identify major wildlife tourism spots in India, including wildlife sanctuaries, national parks, and natural reserves, and analyze their significance for wildlife conservation and tourism.
4. Explore wildlife tourism destinations specifically in Karnataka, including tiger reserves, national parks, wildlife sanctuaries, and bird sanctuaries, and understand their unique features and attractions.
5. Develop skills in conservation communication and outreach, including writing popular articles, press releases, and news stories, interacting with media, and presenting information effectively to raise awareness about wildlife conservation and ecotourism planning.

Semester III Paper Title-EL 3.4: ORNITHOLOGY
Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Students will gain an understanding of the habitat ecology of Indian birds, including coastal birds, inland water birds, and those found in high-altitude regions and deserts. They will learn about the distribution patterns of birds in India.
2. Students will explore the diverse feeding habits of birds, including insectivores, frugivores, nectarivores, graminivores, carnivores, and scavengers. They will understand how different bird species have adapted to obtain nutrition from various food sources.
3. Students will learn about territorial behavior in birds, including the functions and types of territoriality, as well as the defense mechanisms and site fidelity associated with territories. They will also study nesting behavior, including nest site selection, colonial nesting, and nest construction.
4. Students will study the reproductive strategies of birds, including breeding seasons, factors influencing breeding seasons, and seasonal reproductive cycles. They will learn about sexual selection, pair bonding, mating systems, and various aspects of reproductive behavior such as courtship, display, and parental care.
5. Students will explore the phenomenon of bird migration, including the timing and patterns of migration, as well as the economic values associated with migratory birds.
6. They will also examine the conservation status of endangered and threatened bird species, gaining insight into the importance of bird conservation efforts.

Semester IV Paper Title-HC 4.1: **WILDLIFE HEALTH AND MANAGEMENT**

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Define disease and epizootiology, and understand the determinants of disease transmission in wildlife populations.
2. Analyze the relationship between disease and population dynamics, including the impact of occasional epizootics on population mortality.
3. Evaluate the importance of wildlife health studies in population management, including techniques for assessing animal health and condition through direct observations, physical examinations, and baseline data collection.
4. Explain the concept of quarantine and its significance in wildlife health management, including relevant regulations such as the Quarantine Act.
5. Identify common diseases affecting Indian wildlife, including viral, bacterial, protozoan, fungal, and parasitic diseases, as well as disorders like nutritional diseases, poisoning, stress, and capture myopathy.
6. Describe emerging and re-emerging diseases and their impact on wildlife populations, including zoonoses.
7. Demonstrate knowledge of capture and handling techniques for wild animals, including restraint techniques, capture methods, drug immobilization, and safety measures.
8. Understand the protocols and procedures for drug immobilization, including drug action, dosage, response, side effects, and complications.
9. Explain the management of wildlife-livestock interfaces and conservation, biodiversity loss, climate change impacts on wildlife health, and issues related to introduced/invasive species.
10. Evaluate strategies for wildlife health management, including the management of over-abundant wild animal populations causing damage, animal damage control techniques, and waterhole management for wildlife disease control.

Semester IV Paper Title-HC 4.2: APPLIED WILDLIFE SCIENCE

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Understand the physiology and nutrition of wildlife, including energy content of foods, digestive system, metabolism, thermoregulation, and reproductive biology in birds and mammals.

2. Describe plant physiology, including the biochemistry of plants, plant hormones, photomorphogenesis, photoperiodism, flowering, trophism, nastic movements, plant diseases, and economic applications in food production.

3. Analyze captive wildlife management practices, including zoo and safari management, zoo sanitation, master planning, tourism management, visitor feedback evaluation, interpretative planning, and education methods in zoos.

4. Evaluate wildlife utilization methods, including non-consumptive and consumptive utilization, game ranching, controlled off-take from wild populations, marketing procedures, and wildlife tourism planning and economics.

5. Understand wildlife genetics, including the central dogma of molecular biology, Mendelian genetics, genetic code, molecular markers, PCR, DNA sequencing, genotyping, allelic variation, and its application for wildlife conservation.

6. Describe wildlife forensics protocols for species identification, including molecular markers and DNA analysis, and analyze wildlife crime case studies.

7. Evaluate current issues in wildlife conservation, including the Gadgil Committee and Kasthurirangan Report, human-wildlife conflicts, habitat fragmentation and destruction, wildlife committees in India, use of ICT by illegal wildlife traders, and new conservation projects at national and global levels.

Semester IV Paper Title-H.C. 4.3 Major Project work

Student Learning Course Outcomes
After successful completion of this course, students will be able to:

1. Formulate a scientific question.
2. Develop the ability to apply the tools and techniques of wildlife in conducting independent research.
3. List the objectives and state the hypothesisof the research project.
4. Outline the methodologiesthat will be followed to achieve the listed objectives.
5. Employ the finalized methodology to solve the problem which has been undertaken.
6. Analyze the datawhich has been generated by carrying out fieldwork and experiments.
7. Create document and report on experimental protocols, results, and conclusions.
8. Present and explain their research findings to the audience effectively.