

Department of Wildlife Sciences
Faculty of Life Sciences
AMU Aligarh

Syllabus of M.Phil/ Ph.D. Programme in Wildlife Sciences

SECTION B

Origin and evolution of mammals and birds. Mammalian and, Avian characters, morphological adaptations and their evolutionary and functional significance. Reproductive strategies among mammals and birds, and factors influencing their reproduction and reproductive success. Group living: costs, benefits and optimal group size theory. Flights, contests, sexual conflict and sexual selection. Animal movement and migration. Types of migration and factors governing it. Evolution and theories of migration.

Basic concepts and structure of biological communities. Physical structure of a community; vertical stratification, horizontal heterogeneity, edge and ecotone. Biological attributes of a community; species richness, diversity and dominance. Change in community structure and function; temporal changes, colonization and extinction (theory of Island biogeography). Concepts, characteristics and mechanism of succession.

Population attributes and their analysis. Density dependent and density independent population regulation, predator prey models, concept of carrying capacity, r and k selection theory. Theories of population dispersal, concept of home range and territory. Minimum viable populations, inbreeding and out breeding depression, population vulnerability analysis and its components. Stochastic and deterministic extinction process, demographic, genetic and environmental stochasticities.

Protected area network in India: types of protected areas and concept of zoning. Management issues of protected areas; accidental and intentional fire and its impact on soil, fauna and flora. Fire as a management tool in grassland management. Impact of livestock grazing on wildlife habitat. Weed infestation and its impact on natural vegetation. Importance of Wildlife health studies in population management. Physical examination of live animals and collection of baseline data on health parameters.

Plot and plot-less sampling techniques for estimation of plant abundance, frequency, dominance and importance value index. Techniques for assessment of vegetation cover, vertical structure and horizontal heterogeneity. Methods for assessment of status abundance and distribution of faunal elements. Concept of direct and indirect methods of abundance estimation. Detailed treatment of various abundance estimation techniques for mammals, birds, reptiles and amphibians. Data summarization, analysis and interpretation.

Use of bio-telemetry and satellite-telemetry systems in Wildlife Studies. Collection of field data using bio-telemetry/satellite-telemetry in studying habitat use of various taxa. Field methods to study food and feeding habits of various taxa. Methods for assessment of food availability and food habits of carnivores and herbivores using direct and indirect methods. Principles of Remote Sensing / GIS and its application in wildlife studies.