CHAPTER - I

GENERAL INTRODUCTION
Homo sapiens, variation technologicus attained this stage some 50,000 years ago, when he achieved mastery over fire. Soon after, the challenge of fashioning the face of earth to his own liking set in. Having been, until that time, almost as much a part of nature as any other organism, he took this first step to set himself apart from nature.

Using the Promethean power of fire, man began to hunt animals with greater success than he had ever known with crude spears and traps. Virtually overnight, he became maestro hunter. Man after learning to devise agricultural implements with the crop-growing insights, turned to be a cultivator about 10,000 years ago. This revolutionary development generated an impact that has left its mark on at least four million square miles of croplands, or one fifteenth of earth's total land surface.

Moreover, agricultural man learned to domesticate a number of animals, which in turn required pastureland and other foraging zones, an area that in total gradually increased to that of twice the extent of cropland. Today man share the planet with at least three billion heads of livestock, and at the rate that cattle, sheep and goats are increasing their numbers, the end of the century may see
almost as many domesticated creatures as human beings. Moreover, these multitudes of grazers are responsible, due to overuse of grasslands, for desertification at a rate as high as 104,000 square kilometres a year.

Industrial revolution further aggravated the worsening condition of earth's atmosphere and natural resources. With increasing strides for minerals, petroleum and conventional sources of energy. In addition to this, human population is increasing at an accelerated rates which in turn requires food, shelter and other basic needs. As is well known, the great bulk of the population growth now occurs in third world countries. In 1950, the global total of about 2.5 billion consisted of some 0.8 billion people in developed countries, and the rest in developing countries. Today, developed countries have expanded to only 1.2 billion whereas developing countries have expanded to 3.4 billion. By the year 2000, developed countries are projected to expand hardly at all, to 1.3 billion, while developing countries are projected to swell up to 4.8 billion.

It is the developing countries that harbour the most diverse and rich natural resources, the tropical forests. Obviously, the degradation and disruption of these habitats is faster as compared to the others. So is
the case with environmental problems which are really social and begin with people as the cause, and end with people as victims.

Tropical forests cover only seven per cent of earth's land surface, yet they consist between 40 to 50 per cent of all animal and plant species. Equally to the point as highlighted before, these forests are being disrupted and degraded if not destroyed outright, more rapidly than any other ecological zone. If the present over population persists, many tropical forest habitats are not likely to survive except in severely disrupted form by the end of the century, and their remnants will have poor prospects for long term survival.

Unlike temperate-forest species, which are far less abundant, tropical forest species have specialized ecological requirements. They may be limited to habitats totalling a few hundred square miles. These attributes make them usually susceptible to summary extinction when their habitats are invaded by modern man with his disruptive activity.

International Union for conservation of nature and natural resources (IUCN) has recently drawn attention to the 25,000 or one in ten, of earth's plants that are
threatened. The IUCN list of 1000 life forms threatened with extinction is almost made up of mammals and birds that are most popular and most readily recognised. However, animal forms that have been documented and recognised as threatened, now amounts to even more than that. Whereas these 1000 life forms are probably disappearing at a rate of about one per year, overall species (5-10 million) are perhaps disappearing at a rate of at least one per day.

The situation is grave as it is a greater biological debacle, in terms of its magnitude and compressed time scale, than any extinction spasm since the advent of life. When the dinosaurs and their kin, underwent extinction 65 million years ago, it appeared as long and swift. Geologists refer to it as the 'great dying'. Yet these species disappeared at a rate of no more than one every 1000 years at most.

The first wave of present day extinction is already occurring in south-east Asia rain forest as they represent a commercial gold mine to timber harvesters. If tropical forests alone contain between 2 to 4 million species, and other tropical ecosystems as many again, it has been envisaged that by the year 2000, the demise of one million species will not be an exaggeration.
Conference on Human Environment organised by United Nations Environmental Programme (UNEPO) in London during 1982 clearly indicated that the problems are severe and require urgent attention. As a consequence, various international organisations have focused their attention to the tropical ecosystems in view to conserve the wildlife.

In India, the environmental awareness set in about two decades ago and more effective measures have been adopted with the formulation of Wildlife Protection Act, 1972. With the receding forest cover from 16.89% of the total geographical area in 1972, to 14.10% in 1982 (National Remote Sensing Agency, 1983), a gradual disappearance of wild animals and plants species was experienced. List of threatened animal species includes 66 species of mammals, 36 species of birds and 18 species of amphibians and reptiles (Saharia, 1982). Special projects have been launched for some of the endangered species. For conservation of habitat as such, areas with high diversity and species richness, have been recognised as National Parks and sanctuaries. At present, 57 National Parks and 233 Sanctuaries are there in India (Ranjit Sinh, 1986). Under the guidance of World Heritage Trust, Biosphere reserves are being declared for conservation of ecosystems in totality.
Wildlife management has been signified as an art of changing the characteristics and interactions of habitats, wild animal population and man in order to achieve specific goals by means of the wildlife resources (Giles, 1971). The theoretical approaches of Lotka (1925) and Volterra (1926) to the dynamics of population led to experimental approaches. The studies by Andrewartha and Birch (1954), Lack (1954), Schaller (1967), Bell (1974) and Berwick (1974) importantly contributed to the scientific knowledge of regulation of animal populations. These studies again suggested the importance of niche, and concept earlier given by plant ecologists (Grinnell, 1917; Elton, 1927; Gleason, 1928).

Looking into the extent and importance of problems, there appears a lack of scientific knowledge and researches. Further, variations in habitat compositions and corresponding behaviour and need of wild animals, each and every area requires an intensive ecological study of animal-habitat relationships for proper and more effective management.

In view of the above, the present study was undertaken in Fench forests in Madhya Pradesh which is comprised of Fench Wildlife Sanctuary, National park and a reserve forest. The aim of the study was to work out the
wild ungulate - habitat relationship. Since the area, hitherto remained untouched, the study also offers an ecological data base for effective understanding of management practices.

The objectives of the present study included:

1. Study of distribution and population of wild ungulates in the study area.
2. Qualitative and quantitative analyses of forest and grassland vegetations in different seasons.
3. Study of plant biomass and productivity.
4. To classify different habitats of wild animals and their habitat preferences.
5. Grouping pattern and population structure of some selected wild ungulates.
6. Biomass estimation of wild animals and domestic livestock and impact of grazing by the latter.
7. Habitat utilization patterns of selected wild ungulates.

Out of six selected wild ungulates viz. Cheetal, Sambar, Barking deer, Chinkara, Gaur and Nilgai, an attempt has been made to work out the above aspects in some details for gaur and nilgai as earlier workers from different parts of world and in India focused a little attention to them.