CHAPTER - 3

NEED FOR PROTECTION OF WILDLIFE IN INDIA
3.1. INTRODUCTION

Wildlife is one of the most important biotic elements of environment and also occupy major portion of biotic elements in ecology apart from plants. Their existence is not only necessary for maintaining the balance in ecology but for survival of other species also including man. This need of wild life was not only elaborately proved by ecologist and scientist also accepted by legislature of almost all nations throughout the world. This need of wildlife has also got the sanction by judicial authorities of different countries. The courts have given judgments always in favor of wild life and environment for the existence of mankind and to make this planet a better place for all. Various international conventions and treaties relating to conservation of wild life and protection of environment have proved the awareness of people regarding need of wild life. This need of conservation of wildlife was turned into a legal right by Parliament of maximum countries. Judiciary took the active role to transform the statutory rights to a social right for public awareness. The need was realized by whole world after the World War II and this necessity got the dimension after Stockholm Conference in 1972. The ruthless killing of wild animals for hunting was also declined rapidly after 1945 because maximum countries in the world passed laws prohibiting hunting. Post-World-War II the easy availability of guns made the hunting of animals very common. On the other side end of the imperialism and restrictions on hunting by democratic government resulted an adverse impact over the nature which generated the widespread killing of wild animals. Many wildlife institutions at the same time were established during those periods. Different conventions and treaties were organized directly about protection of wildlife and ecology in international and regional level. Lots of public support was also got to the various wildlife programs by volunteer organizations. This need was not only realized by the modern people after the development of science and ecology. According to United Nations Environment Program (UNEP) nearly 17, 50,000 species are available in the
earth and more than 90 percent of them are animals and plants.¹ Those species are very much important for our survival in the environment. Being an indispensable element of ecology, those species are chiefly necessary for our life and livelihood in the society and nation also. They are used as food, clothes, shelter, medicine, agriculture, industries and many purposes directly at the same time they maintain a balance in our ecology and indirectly establish our environment a better place for all living creature.

But the importance of wild life was felt by people in ancient time which is depicted in many ancient texts in India. Many religious practice and custom were made for protection of wild life and environment. The protection of wildlife and natural resources got the world wide support from legislature to judiciary. Indian Supreme Court and high courts have given many judgments for the conservation of wildlife in nature. In, State of Bihar v. Murad Ali Khan case², the court observed, “... The state to which the ecological imbalance and consequent environmental damage have reached is so alarming that unless immediate, determined and effective steps were taken, the damage might become irreversible. The preservation of fauna and flora, some species of which are getting extinct at an alarming rate, has been a great and urgent necessity for the survival of humanity and these laws reflect a last-ditch battle.  

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³.2. ENVIRONMENT AND ITS ELEMENTS

Man is not the only living creature on the Earth which is full of other Living and Physical elements. Everything is the put of out “Environment” that originates form French word ‘environner’ means ‘around’ or ‘round about’ and Environment makes life lively. Otherwise life will not exist without environment and where life there is an environment. There is a harmonious unity of life and environment. In plain words, we may define environment as

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¹ Biodiversity and Food Security, S Bala Ravi; YOJANA, August 2006, Pp 69
² AIR 1989 SC 1
the sum of the impact and interaction of inanimate (non living) world with the animate (living) in which all coexist with myriads of other living creatures. All living things, plants and animals are deeply influenced by the environment by such factors as soil, water, heat, light, air and other plants and animals. The environment is a great monitor which determines where a given plant or animal can live and how effectively it will be able to maintain life.

So, Environment means surroundings and human environment is man and its surroundings, including air, soil, water, climate, food supply, forests and other living beings. Each and every element of environment has a close relationship with man. The main two components of Environment are (a) Biotic (living) and (b) Abiotic (Non-living). BIOTIC has generally three groups i.e., Producers, Consumers and Decomposers. Biotic components include all the living organisms which can be also three kinds in an ecosystem. The AUTOTROPHS or producer are the green plants and certain photosynthetic or chemosynthetic bacteria, which can convert the light energy of Sun into potential chemical energy in the form of organic compounds which are needed for their own growth and development. The HETROTROPHS or macro consumers are dependent directly or indirectly upon the autorophs or green plants for their food, so these organisms are also known as consumers because they consume the materials built up by producers. Again this consumer group may be primary and secondary types. Herbivores obtain their food (and energy) directly from plants. They are known as ‘primary consumers’ as they directly feed on plant matter. Some common herbivores or terrestrial ecosystems are deer, rabbit, mouse, squirrel, grasshopper, some beetles, goats, cattle etc. Carnivores ingest or prey upon other animals. Carnivores feed on herbivores, so they are known as second level consumers including lion, tiger, fishes, peacock, owl etc. DECOMPOSER or micro consumers feed on dead bodies and wastes of living organisms. They are micro level heterotrophs including worms, bacteria, fungi, protozoa etc and they are also called reducers as they reduce or remove dead bodies or organisms. ABIOTIC also consists of three spheres like, (a) atmosphere (air) (b) hydrosphere (water) (c) lithosphere
Abiotic components are broadly divided by E.P. Odum into three categories like, INORGANIC COMPONENTS include water, minerals and chemical elements like iron, calcium, sodium, potassium, magnesium and carbon dioxide. These components constitute raw materials for green plants. ORGANIC COMPONENTS in the ecosystem are the carbohydrates, proteins, lipids, fats etc. contained in the deep plants, animals, intermediates and end products of their decomposition (like urea and humans). CLIMATE REGIME is the physical part of the environment. It includes factors like temperature, light, wind, (air currents), humidity, precipitation, water, soil, topography. In the wider amplitude environment may be natural environment which is created by nature itself and artificial environment which is created by human with the help of nature and again another is social environment where human beings are part and parcel of society. Environment generally means natural surroundings water, air; land, mountain, forest, trees, plants and other vegetables, living-beings, birds and beasts are responsible for the conditioning of environment by their close interaction and mutual dependency among each other. Environment has inseparable relation with life, as congenial environment is an indispensable condition for the existence of life.

Geographically the word “environment” indicates land, water and space, but literal meaning of environment is encirclement or wrapping up which encircles or envelops a man from all sides is the environment. Greek and Indian thinkers philosophically considered land, water, fire and space to be the basic elements that support and sustain life. Practically in the natural ecology, man is well-surrounded like a protective shield by land, water, fire, air and space and these elements alone affect him. The interrelation and interaction between lands, mines, mountains, rivers, ponds, seas, waterfalls, forests, trees, bushes, animals, beasts, birds, the sun, the moon, the stars, planets, atmosphere and man create a form resembling a winding sheet that wraps up the earth and is

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3 Environmental Law; Dr.S.R.Myneni; Asia Law House; 2008, Pp 31
known as environment. The study of environment is based on different disciplines of knowledge like environmentology, natural science, ecology, disciplines of pure sciences, oceonology, atmosphere sciences, life and living and cultural back ground of a particular community and many more. The best definition of environment may be generated from each of these disciplines to address the objectives of each subject.

In United Kingdom under Section 1(2) of the Environment Protection Act, environment consists of all or any of the following media, namely, air, water and land; and medium or air includes the air within the buildings and the air within other natural or man-made structures above or below ground. According to Stockholm Declaration in 1972, man is both creature and moulders of his environment which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the to transform his environment in the countless ways and on an unprecedented scale. Both aspects of man’s environment, the natural and the man made, are essential to his well being and to the enjoyment of basic human rights the right to life itself. So this magna carta of human environment has widely interpreted the relationship between man and environment. It is very much clear from the Stockholm Declaration that to enjoy the basic human rights good environment is needed or at the same time the god environment is also a part of basic human rights. In India, legally environment as per Sec. 2 (a) of Environment (Protection) Act 1986, “Environment includes water, air and land and the inter-relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property”.

Environment includes everything which ever part and parcel of nature. Nature is nicely described and it constitutes the environment or ecology of

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4 Principles of Environmental Preservation in Dravya Sangrah; Lal Chand Jain; Ecology & Religion, R.Narayan-J.Kumar, Pp 90
5 Environmental Jurisprudence polluter's liability, Indrajit Dube, LexisNexis, Pp 3
man. Not only the beauty but the very existence of life depends on nature. The famous hymn in the world’s oldest scripture, the Rig Veda, portrays the beauty of the morning (Ushas) and worships its glory. The Indians in the ancient period were the nature worshippers because worship is a form of the greatest admiration for them in nature.\(^6\) So, it should not be exaggeration to say that environment is responsible for the emergence and continuance of life on this land called the earth. While dealing with the environment one very frequently comes across the terms like ecology, ecosystems, food pyramid and food chain which are inextricably connected with environment and also ecological conservation concerned with social matter.

**ECOLOGY**

The success of wildlife conservation depends on the proper awareness and understanding about ecology and its elements. Ecology is a branch of biology dealing with relations of living organisms to their surroundings, their habits, modes of lives etc. All the species of ecology involves an understanding of the way of life and its relationship with its biotic and abiotic environment. Ecology is primarily concerned with the relationship between plants and animals (including man) and the environment in which they live. The total physical environment of any living organization is the biosphere and parts of it which are of direct and immediate importance to the effective environment. The ecology is a subject related with environmental biology and the term ecology is derived from two Greek words one ‘οικός’ means home or habitat and other ‘λογία’ means knowledge or study. So ecology means study about home of all organisms in the environment or the subject that deals with study of habitat of all the component of the environment. The term was first time used by Henry David Thoreau in 1858. But the meaning of ecology was scientifically analyzed in 1868 by famous German biologist Ernest Haeckel.\(^7\) He defined ecology as a body of knowledge concerning the economy of nature i.e. the investigation of the total relations of the animal to its inorganic and organic environment. He


\(^7\) Introduction to Environmental Law; S.Shantakumar, Pp 3
also said ecology as the knowledge of the sum of the relations of organisms to the surrounding outer world, to organic and inorganic conditions of existence. In 1870, Haeckel precisely gave the definition of ecology as; “by ecology we mean the body of knowledge concerning the economy of nature- the investigation of the total relations of the animal both to its organic and environment, including above all, its friendly and inimical relation with those animals and plants with which it comes directly or indirectly into contact- in a word, ecology is the study of all the complex interrelations referred to by Darwin as the conditions of the struggle for existence.” So from the definition of Haeckel it is very much clear that he gave the stress on the interrelation between all the species in the nature.

Ecology is divided into plant ecology and animal ecology. The subject was developed from the development of time and it spread into different wings also. The plant ecology is dealing with vegetational and floristic composition of an area. Animal ecology deals with study with population dynamics, population distribution, animal behavior and the relationships of animals and their environment. In 1885, again another German ecologist H. Reiter analyzed the same term ‘ecology’. However, earlier study of ecology came in different names introduced by several scientists. Previously like the term ‘ethology’ was used by French zoologist’ Isodore Geoffroy st. Hilaire about the study relationship of the organism within the family, society in aggregate and in community. Again about the same subject, an English naturalist George Jackson Milvert introduced the term ‘hexicology’ to make understand the relationship of living organisms in the society. But apart from all those terms, the term ‘ecology’ becomes more famous and more popular through out the world. The seed of concept about ecology was in the book ‘Origin of species by means of natural selection’ written by Charles Darwin in 1859. Similarly the concept of ecology appeared in the writings of Greek philosophers like

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8 Anatomy of Environment and Biodiversity - An exposition in outline for animating environmental awareness; N.C.Dutta; Environmental Awareness and Wildlife Conservation; Pp 27
9 Environmental law; H.N.Tewari; Pp 6
Hippocrates, Aristotle, and Theophrastus etc. Theophrastus is called the first ecologist who first time told about inter-relationships between organisms and their environment. Ecology addresses itself to this interaction of living organisms with their natural, biological, physical and chemical environment to ensure a balance between the available resources of an area and the number of users. According to First report of United States Council on Environmental Quality, 1970, ecology is the science of the intricate web of relationships between living organisms and their living and non living surroundings. These interdependent living and non living parts make up ecosystems. Forests, lakes, and estuaries are examples. Larger ecosystems or combinations of ecosystems, which occur in similar climates and share a similar character and arrangement of vegetation, are biomes. Finally, man’s total environmental system includes not only the biosphere but also his interactions with his natural and man made surroundings. The French ecologist Roger Dajoz in Gouthier Villards Paris (1975) describes Ecology as a science that studies the conditions of existence of living beings and the interactions of all kinds that exist between these living beings on the one hand and between these living beings and their environment on the other hand. So the conditions of existence of living organisms and the mutual relationship between those organisms in the surrounding is the subject of ecology. The problems of the interaction of the society and its natural environment presently have become very acute.

Ecology is a branch of biology or the science of life and biology has three taxonomical divisions as botany, zoology and microbiology. So ecology is a multidisciplinary science which deals with all organisms of environment including plants, animals and microorganisms. But ecology not only includes the life sciences but also extends physics, chemistry, geography, anthropology and also sociology. Ecology is not only related to scientific principles but also

10 Environmental Law; Dr.S.R.Myneni; Pp 9
11 Environmental law and policy in India; Divan and Rosencranz, Pp 4
12 Ecological crisis and Hindu religious thought, Rajdeva Narayan; Ecology & Religion, R.Narayan-J.Kumar; Pp 25
concerned with the relationships and interactions among individuals within a population and between individuals of different populations, all in terms of established laws and theories of physical and biological sciences. In a very famous Sachidanand Pandey case,\textsuperscript{13} Supreme Court said "... we are part of the earth and it is part of us. The perfumed flowers are our sisters; the horse, the great eagle, these are our brothers. The rocky crusts, the juices in the meadows, the body heat of the pony, and man all belong to the same family." In this way Supreme Court of India established the role of ecology in the point of law and also recognized importance wildlife through its judgment. Modern ecology has now focused on the concept of the ecosystem as a functional unit consisting of interacting organism and all aspects of environment in any specific area or within the specific habitat.

**ECOSYSTEM**

The ecosystem is a system to maintain the balance of the ecology. In 1935 the concept of ecosystem was first given by British ecologist A.G. Tansley. According to him ecosystem is a structural and functional unit of biosphere or segment of nature consisting of community of living beings and the physical environment both interacting and exchanging materials between them. He regarded the animals and plants to be in association with each other and with the physical factors of their surroundings, simply as a system. Tansley called this integration of organisms and the physical world they share the ecosystem. As per eminent ecologist E.P. Odum, ecosystem is composed of genes, organs, organism, population and communities. They all produce functional ecosystem. Odum defined ecosystem as unit of all organisms in a given area interacting with physical environment, so that a flow of energy leads to clearly defined trophic structure, biotic diversity and material cycles within the system. As per definition of ‘Convention on Biological Diversity’ 1992, ecosystem means a dynamic complex of plant, animals and micro-organism communities and their non-living environment interacting as a functional unit.

\textsuperscript{13} Sachidanand Pandey v/s State of West Bengal, AIR 1987 SC 1109
Ecosystem is the basic functional unit with which we must deal since it includes both the organism and non-living environment, each influencing the properties of the other and both necessary for the maintenance of life as we have it on earth. Thus, the complex constituting the organism and the environment has now come to be known as the ecosystem. An ecosystem is a dynamic complex of plants, animals and micro-organism communities and their non-living environment interacting as a functional unit in a given area. Thus, the living members of an ecosystem can be largely divided into three categories depending on their role in maintaining the stable eco system i.e., (i) producers (ii) consumers (iii) decomposers. The producers utilize solar energy to produce vegetable biomass and oxygen. The consumers utilize the vegetable biomass and the oxygen produce by the producer. Decomposer breaks down dead and decaying producers and consumers to release the inorganic compounds back to environment.

All ecosystems are connected with other ecosystems around them. An ecosystem can be of any size like as large as ocean or small as aquarium jar. But every ecosystem has two components i.e. biotic or living and abiotic or non-living. The abiotic components include basic organic, inorganic and climatic elements. Organic abiotic components are carbohydrates, aldehydes, proteins, ATP, oils etc and inorganic includes carbon, hydrogen, oxygen, nitrogen, phosphorus etc. The Central theme of ecosystem concept is that all organisms live a continuous exchange of materials between plants, animals in the environment and it should be continued for existence of all. The exchange of materials is going between of various kinds of ecosystems of organisms and habitant conditions such as grassland ecosystem, desert ecosystem, crop ecosystem, fresh water ecosystem, river ecosystem, marine ecosystem etc. This exchange, processing, absorption, production of scientific material is called as ‘cycling of materials’.14 But at the same time if qualitatively or quantitatively any component of ecosystem decreases or increases, the entire system becomes

14 Jainism and Ecology; Ashok Kumar Jain; Ecology & Religion, Deep & Deep Publication, Pp 83
imbalanced. All the living components of an ecosystem are interdependent upon each other and also upon the non-living elements in the environment. As long as the various organisms in an ecosystem do not interrupt this cyclic process by exploitation or overuse of others, the interactions among them go on naturally for their mutual benefit and thus an ecological balance is maintained.\footnote{The Christian Perspective; Fr. Kurien Kalarachal; Ecology & Religion, R.Narayan-J.Kumar;Deep & Deep Publication, Pp102}

Again the biotic components of ecosystem consist of mainly two components and they are Autotrophic components or producer and Heterotrophic components or consumers. AUTOTROPHIC COMPONENTS are chiefly the green plants. These green plants are also known as ‘PRODUCER’ because they produce huge foods for all other living organism in the ecology. Sun is the source of all energy for the life on earth. Green plants use radiant heat of the sun in \textit{photosynthesis} whereby converting gaseous carbon dioxide into oxygen. The leaf of the plant carries on ‘photosynthesis’, i.e. making of carbohydrates in the presence of sunlight. Plants alone can capture sunlight and make food through a process with the help of water and carbon dioxide and the green pigments i.e. chlorophyll of their leaves. This stored energy is used in respiration by all living things. Algae and other hydrophytes of a pond, grasses of a field, and trees of the forest are examples of producers.

HETEROTROPHIC COMPONENTS are living organisms consume the food synthesized by producers, directly or indirectly. They can be categorized in three types like, PRIMARY CONSUMERS: these are purely herbivorous animals and depend on the producers or green plants for their food. Those are insects, rodents, rabbits, deer, cow, goat; buffalo are some of the common herbivores of terrestrial ecosystem; and small crustaceans, mollusks, etc. of aquatic ecosystem. An organism that feeds only on plants is called herbivore or primary consumers. SECONDARY CONSUMERS: these are carnivore or omnivore. Carnivores are purely flesh-eating animals while omnivores are
adapted to consume both plants and herbivores. Examples of secondary consumers include sparrow, crow, fox, wolves, dogs, cats, snakes and others like same. TERTIARY CONSUMERS: these are the top carnivores which prey upon other carnivores, omnivores and herbivores. Lions, tigers, hawks vultures etc. are considered as the top or tertiary consumers. Other than all these three lining organisms there are also fourth group of consumers who feed on decomposed body of plants or animals. They are called decomposer or detritus feeders like bacteria, fungi etc. The detritus decomposers convert organic materials into inorganic substances.

Ecosystems can also be classified into another two types i.e. natural ecosystem and artificial ecosystem. NATURAL ECOSYSTEM is simply nature made ecosystem. It is also divided in terrestrial or land based ecosystem and aquatic ecosystem or water based ecosystem. Terrestrial ecosystem includes an ecosystem in forest land or in any grass land or in any desert land. Aquatic ecosystem means any ecosystem within any ocean or sea or estuary which is known as marine ecosystem and again there may be an ecosystem in fresh water like in pond or river or spring. Apart from natural ecosystem there is also ARTIFICIAL ECOSYSTEM which is known as man made ecosystem. Man made ecosystems depend upon human efforts for protection and improvement of ecological components i.e. in the crop land, aquariums, industrial plants or laboratories etc. Ecosystem is not a closed system, because there is always an interflow of matter and energy between adjacent ecosystems. All components of the ecosystem are divided by E.P.Oдум into six types and they are Inorganic substances, Organic substances, Climatic compositions, Producers, Macro consumers and Micro consumers. So ecosystem in the earth is entire storehouse of life all living species and biodiversity.
FOOD CHAIN AND FOOD WEB

Everything that works needs energy so plant and animals also need energy. All organisms, including man need food, which provides energy for growth, development, maintenance and reproduction. A part of the energy provided by food is used for biological processes and the rest is dissipated to the environment as heat energy by the process of respiration. Human beings use numerous species of animals and plants as food in this planet. The foods or carbohydrates, made by plants through photosynthesis, are the source of energy for all other forms of life. The herbivore animals that feed on plants get their energy from plants and again it is transferred to carnivores which feed on herbivores. This depicts simple food chain, complex food chain, and several inter-connected food chains forming tropic levels of energy transfer in the form of a food pyramid. Early days of human evolution man use to consume raw plants and animals directly from the nature. Today also some indigenous communities continue to practice of consumption of wild species of plants and animals. Undigested food is excreted and enters the detritus path. Organic nutrients are transferred from producers to consumers and decomposers as eat and in turn are eaten by other organisms and this continuation is known as food chain. In grassland, rabbits eat grass and foxes eat rabbits. This is a simple food chain.

In cases where some organisms eat a variety of other organisms, food chain become more complex, such complicated network of food chain is called a food web. Each ecosystem many food chains are possible and those are interwined with one another to form a community, is called ‘food web’. A food chain is generally composed of many food chains and each food web represents a single path way up to the food web. As a variety of organisms lived in the ecosystem and there is competition for food among them, food webs become very complex.16 Man being an omnivore is also a component of food chain and man utilizes this energy through natural food chain. It means that man has a fixed position in a food chain for obtaining the energy which is continuously

16 Introduction to Environmental Law; S.Shantakumar, Second Edition, Pp 5
flowing from various elements of environment in an ecosystem. At the same
time each living organism has a fixed position in a food chain.

**ECOLOGICAL PYRAMID**

An ecological pyramid is a graphical representation about relationships
between various trophic levels of any community in the ecosystem. At each
step in the food chain, a portion of potential is lost as heat and lesser energy
passes on to the top trophic level. Each group of organisms occupies a trophic
or a specific feeding level. All green plants and other producers in the
ecosystem occupy the first trophic level. Herbivores, which feed on plants,
occupy the second trophic level. Carnivores that eat herbivores are at the third
trophic level. The different levels are not equal in terms of energy available, as
only a fraction of energy is transferred from lower to higher level. The trophic
levels may be represented in the form of a pyramid called the ecological
pyramid.

An understanding of the interrelationship between the different species
of plants and animals living in an ecosystem is very much essential for
maintaining an ecological balance in the biosphere. Owing to improper
planning, human activities such as agriculture, forestry, commercial grazing,
fishing and hunting have disturbed this balance leading to extinction of certain
species. Clearing of forest for mining, construction of dams for irrigation,
draining of swamps for urban growth etc., have a long term impact on the
ecosystem. Similarly changes in the circulation in atmosphere and hydrosphere
also affect the functioning of the ecosystem by modifying the energy and
nutrient movement through the organisms in the biosphere. The ecological
relationship among plants, animals, and environment must be maintained for
smooth functioning and survival of the biosphere, maintenance of the
atmosphere, hydrosphere and lithosphere. India is very rich and powerful in
biological diversity and maximum faunal resources are located in various
ecosystems of our nature, like, forests, wetlands, fresh waters, marine waters,
grasslands, estuaries and coasts, deserts and mountains.

17 ibid
SOCIAL ECOLOGY

Ecology is the most popular word in the biology and also very much related with the advanced branch of biology i.e. conservation biology. But now the various problems of ecology not only related to natural science like zoology, botany, chemistry or geography but also related with many branches of social sciences like sociology, political science and of course with law. Then Social ecology rests on the awareness of the interdependence of the biophysical and socio cultural domains and also developing the ecological infrastructure to the economy, polity, social structure and culture. The present day’s problems with ecology and environment have been caused through a lack of appreciation of the multidisciplinary perspective. US anarchist writer Murray Bookchin mainly developed the concept of social ecology. This philosophy widens the word ‘ecology’ in a much looser sense than the scientific term. He emphasized the link between environmental degradation and the exploitation of human beings and suggested better treatment for the environment which would come with the abolition of oppressive hierarchies in human society. According to Kendeigh, Sociology is also akin to ecology which encompasses the ecology and ethology of mankind. By their own merits both ethology and sociology are now developed as distinct disciplines. Again, American ecologist Fredrick Clements considered ecology as the science of the community. Another famous British ecologist Charles Elton defined ecology as a scientific natural history concerned with the sociology and economics of the animals. Then ecology is not confined with biological problem but very much related with social problems also. The investigation in the matter of environmental pollution and ecological degradation will reveal lots of social problems like deforestation due to urbanization and urbanization due to population growth and also some related problems like industrial and technological development and agricultural

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18 Literary Theory and Criticism, Patricia Waugh (International Student Edition), Oxford; Pp 536
19 Anatomy of Environment and Biodiversity - An exposition in outline for animating environmental awareness; N.C.Dutta; Environmental Awareness and Wildlife Conservation; Pp 27
20 Introduction to Environmental Law; S.Shantakumar, Second Edition, Pp 4
development. But main root of social problem is poverty. So main cause of ecological degradation and loss of wildlife habitats are related to sociology more rather than biology. So cause of social problems should be known to know the ecological problems.

Wildlife in ecology not only deals with scientific importance but also deal with societal importance among the human being. Ecology, therefore, also viewed socially, is the science that studies the interaction of the society and its physical environment in different fields and associated not only with the biological sciences. Ecology has its focus is on the interrelationship and interdependence of society and nature. There is a great bearing of ecosystem on the economy and welfare of human society. In balanced condition the ecosystem happens to be a self-sufficient and self-regulated functional system. Ecology as a subject within the social sciences is concerned with four main problems, environmental pollution, depletion of natural resources, population growth and the destruction of the survival economy by the market economy. So ecology is not only the matter of biologists who deal with living elements of the environment but also subject of sociologists who deals with societal structure of human being one of the most important living elements of environment.

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21 Man and Ecology in Marx and Gandhi, Tapan Kumar Chattopadhyay, MITRAM; Pp 83
3.3. CONCEPT OF WILDLIFE

In our environment there are several living and non-living elements are available. Their existence is very much needed for maintaining of balance in ecology or equilibrium of nature. Out of all natural resources, wildlife constitutes renewable natural resources in the ecology. Wildlife is an important component in the biodiversity of our nature. It is wild and undomesticated animals living in their natural habitat like forests, wetlands, grassland etc. Scientifically wildlife means the game or fur-bearing vertebrates and to the plants, and lesser animals which interact directly with the game species. In wider sense wildlife means any or all the non-cultivated and non-domesticated life. In General concept wildlife means those biotic creatures in the environment which are living in wilderness and are not domestic or can not be domesticated. Now ecologists include naturally born animals or fauna as well as plants or flora both in wildlife. Then Wildlife actually includes all the living elements in the ecology like all plants, animals and micro-organisms living in their natural habitat in wild state other than the cultivated plants and domestic animals. The aquatic and terrestrial animals living in the jungle or water like lions, tigers, elephants, leopards, bears, rhinoceros, whales, birds etc. They all are living in the earth within their own habitats and have a great role in the ecosystem.

Hindu religious scripture has given the concept of wildlife in ancient India. *Atharva Veda* classifies animals in two groups: (i) Gramya-pasu or tame animals and (ii) Aranya-pasu or wild animals. The five tame animals are: horse, cow, goat, sheep and man himself. The five cattles belonging to the human society are dedicated to the Lord of Cattle (11.2.9). Man is also an animal, of course, the paradhya-pasu (highest animal) while others are anu-pasu i.e. those who follow him. Existence of man is not independent of his surrounding. Other than those five other animals are wild animals or the animals of forests.

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22 Studies in Botany, Mitra, Guha, Choudhury, Volume Two; Pp 646
Legally wildlife has the more or less same definition like scientific meaning. Wildlife means wild animals collectively\(^24\) or literally animals, birds, insects, etc that are wild and live in a natural environment.\(^25\) Wild animal is an animal that is naturally untameable, unpredictable, dangerous or mischievous or any animal which is not statutorily designated as a domestic animal.\(^26\) According to Halsbury's Laws of England (2\(^{nd}\) Edition, 1931) animals are two types i.e. Domestic or tame and Wild. Wild animals include not only lions, tigers, eagles and other animals of an undoubtedly savage nature but also all not classed as domestic or tame such as deer, foxes, hares, rabbits, game of all kinds, rooks, pigeon, wild fowl and the like and all fishes, reptiles and insects.\(^27\) The term 'animal' according to Halsbury's Laws of India (1999) includes all living creatures other than human beings. It also includes amphibians, birds, mammals, reptiles and other young ones and in the case of birds and reptiles their eggs also.\(^28\)

In India, the first consolidated and appropriate statutory definition of 'Wildlife' is given in the Wildlife (Protection) Act, 1972. Wildlife includes, as per Section 2(37) of the Act, any animal, aquatic or land vegetation which form part of any habitat and Section 2(36) specified the concept of Wild Animal only those are mentioned in the Schedule I to IV of the said Act and found wild in nature. Animal includes, as per Section 2(1) of the Act, mammals, birds, reptiles, amphibians, fish, other chordates and invertebrates and also includes their young and eggs. Section 47 of the Indian Penal Code, 1860 and Section 2 (a) of the Prevention of Cruelty to Animals Act, 1960 both law have given the wider definition of animal which means any living creature other than a human being. Wild animals consist of mammals, amphibians, reptiles, fishes, birds, crustacean, insects, coelenterates, mollusca, echinodermata etc as listed in the First FOUR schedules of this Act and out of those they are mainly classified into Rare and Endangered species, Big Game species and Small

\(^{24}\) Illustrated Oxford Dictionary, First Indian Edition (2006); Pp 954  
\(^{26}\) BLACK'S LAW DICTIONARY, Eight Edition (2004); Pp 96  
\(^{27}\) Halsbury's Laws of England; 2\(^{nd}\) Edition, 1931, Volume 1; Pp 531  
\(^{28}\) Halsbury's Laws of India; 1999, Volume 2, Butterworths India
Game species. In Schedule I all the animals are classified in various parts like, PART- I Mammals, PART-II Amphibians & Reptiles, PART-IIA Fishes PART-III Birds PART- IV Crustacea & Insects, PART- IVA Coelenterates, PART-IVB Mollusca and PART-IVC Echinodermata. Again Schedule II is divided into two parts. Then Schedule V is a list of 'Vermin' originally consisting 7 animals and presently 4 animals. Schedule VI is the latest development relating to 'Wild Plant' consisting 6 items which were inserted through amendment of 1991.

**Classification of Animals under Wildlife (Protection) Act, 1972**

<table>
<thead>
<tr>
<th>Animals</th>
<th>Live Stock</th>
<th>Wild Animals</th>
<th>Vermin</th>
<th>Specified Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>No protection</td>
<td>Schedules</td>
<td>Schedule</td>
<td>Schedule</td>
<td></td>
</tr>
<tr>
<td>under the Act</td>
<td>I to IV</td>
<td>V</td>
<td>VI</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4**

Again another new statute ‘the Schedule Tribes and other Traditional Forest Dwellers Act, 2006’ has widen the concept of wild animals and said any species of animal found wild in nature apart from those specified in 1972’s Act will be treated as wildlife in India. Newly passed statute ‘the Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009’ has also widen the concept of animal and as per Section 2(a) this law "animal" means, (i) cattle, buffalo, sheep, goat, yak, mithun; (ii) dog, cat, pig, horse, camel, ass, mule, poultry, bees; and (iii) any other animal or bird as the Central Government may, by notification, specify. So the Government may time to time specify any species as animal.

But if it is analysed from the history of human evolution, the concept of wildlife was wider in primitive society than present situation. Earlier at the time of civilization or when men started to dominate nature for their development then they domesticated various animals of the nature for cultivation, irrigation or other house hold purposes. So classification made by natural science or social science or law is modern one where as in the
beginning of human civilization all the animals in the nature were wild. It was the man himself who classified animals according to there own use.

WILD PLANTS
Wildlife includes wild plants also as those are part and parcel of our nature and any aquatic and land vegetation of any wild habitat are known as wild plants. Wild plants are very useful natural resources in human life for nutritional, medicinal, industrial and many other purposes. Various industrial materials like fats, oils, waxes, latexes, resins, gums and other exudates, vegetable dyes and tannins, lignin, cellulose, starch, hydrocarbons and biochemical compounds are derived from wild plants in their natural habitats. Wild species of plants have provided many of our medicines in the traditional medical practices like Ayurveda & Unani. But due to pollution and over population these wild plants are also becoming very rare. A large number of species of wild plants are loosing their habitat and going to extinct in the future. Plants have become rare due to over-collecting and their habitat has been either reduced or destroyed. Some exotic plants have become rare due to their heavy consumption and species like ‘African Violets’ are more common in Europe than their natural habitat in Africa for commercial cultivation. Another species, Crocuses are easy to buy in garden centers but those are collected in bulbs from the wild in Turkey. In 1988, Turkey exported 22 million wild crocus bulbs to the Netherlands. Heavy extract from nature for trade has caused destruction of their normal growth and development. Some orchids are rarest species and they can grow naturally in their original countries. So those are needed to grow in carefully controlled conditions in their native land.

Plant means as per ‘Plant Protection Agreement for South East and Pacific Region’ of 1956, all species of plants or parts thereof, whether living or dead including stems, branches, tubers, bulbs, corms, stocks, budwood, cuttings, layers, slips, suckers, roots, leaves, flowers, fruits, seeds and any other part of plants. In a survey of medicinal plant use in 17 countries in East and Southern Africa, more than 100 indigenous plant species were identified as
conservation or management priorities on a national basis. After realizing all the important facts regarding the necessity of wild plants, Indian parliament introduced a new chapter in Wildlife (Protection) Act, 1972 for the protection of specified plants. After the 1991 Amendment of Wildlife (Protection) Act, 1972 some specified plants as mentioned in the Schedule VI are also coming under definition of ‘wildlife’ as per provision of said statute. No person shall willfully pick, uproot, damage, destroy, acquire or collect any specified plants from any forest or any areas as specified by government by notification. According to this law no person shall possess and also can not purchase or sell the specified plants as mentioned in the statute itself.

The concept of wildlife and wild animals came before Supreme Court in M/s J.P. Samuel & Co v/s Union of India case where petitioner got permission of Assistant Director of Marine Products Export Development Authority to export ‘sea fans’ as ‘sea fans’ are not covered by the expression ‘wild animals’ and their export is not prohibited. However, when he placed his papers for approval for second consignment for export, authorities decided ‘sea fans’ are part of wildlife and their export cannot be allowed under the Exim policy of the Government of India. The Supreme Court examined the definition of ‘wild animal’ and ‘wild life’ as given Section 2(36) and Section 2(37) of Wildlife (Protection) Act, 1972. It was also held that ‘sea fan’ is coral and part of the animal kingdom so they cannot be allowed for export. Their protection is needed in the interest of wildlife and environment as those are precious part of aquatic life and marine ecosystem.

29 Global Environment Outlook 3, UNEP, Pp 130 (http://www.unep.org/GEO/geo3/)
30 AIR 2002 Mad. 14
Indian Legislations Relating to Direct and Indirect Protection of Plants

Wildlife (Protection) Act, 1972,  
[after 1991 Amendment]

Geographical Indication of Goods  
(Registration & Protection), Act 1999

Biological Diversity Act, 2002

Plants

Traditional Knowledge Bill

Protection of Plant Varieties & Farmers Rights Act, 2001

Figure 5

So protections of wild plants are very much needed for better future of human being and ecology of our environment. So CITES took some initiatives for such protection and listed some rare ‘Orchids’ in the Appendix I for preventing illegal trade. In 1994 as per report of IUCN, trade of Wildlife is one of the main causes for destruction of population of wild animals and plants and it leads the species towards threatened, endangered and finally to extinction.

3.4. POSITION OF WILDLIFE IN ECOLOGY

In ecology wildlife consists of major part among the biotic elements. They are part and parcel of the environment and without them the structure of living creature will not exist. They are very much needed for the society. Over the centuries this rich wildlife has played an important role in our economy; as a source of food for the masses, as material for trade, as in musk, and for use in war. The purpose of conservation of wildlife is to manage the human use of the biosphere in such an way that present generation will get maximum benefit but at the same time future generation will also able to fulfill their need. The concept of conservation of wildlife was not only developed by biologist or naturalist but the idea got its importance in legal arena also.

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31 Ecological Journeys, Madhav Gadgil; permanent black; Pp 46
The need of wildlife was very well understood by Indian judiciary also. They observed wildlife as an asset and heritage of the nation and that should be protected for future generation carefully. Wildlife populations and habitats have degraded to a great extent under the pressure of human activities and according to Delhi High Court in *M/s Ivory Traders and Manufacturers Association*\(^\text{32}\) case, We can no more afford to kill wild animals for the sake of pleasure of a few persons, thus disrupting life forms and linkages vital for the preservation of bio-diversity. The status of wildlife in a region is an accurate index of ecological resources in the nature and wildlife is a vital link for well being of human. The ecological elements are the web of life and the presence of predators indicates that the prey base is sound and again it will indicate the vegetative cover is also healthy. In the same case Delhi high court very lucidly described ecology and needs of wildlife for better ecosystem. Court said, “... apart from the beliefs which are personal to a person or society or people or section of people, it is now scientifically established that animals, trees, flora, fauna, insects, birds and human beings are linked with each other for their survival. Each species is indispensable for the preservation of ecology which is necessary for our existence. Even a lowly earth worm in the soil has also a function to perform to help us survive. It makes the soil fertile which gives us our food and nourishment. The trees were venerated in the past and are still being venerated by some as being sacred. This is not without reason. The trees take carbon dioxide from the atmosphere and replace it by giving oxygen..”\(^\text{33}\)

About half of all the plants and animal species on earth are found at forest. Scientifically Forest plays a crucial role in protection of wildlife as well as the maintenance of global ecological balance through the operation of biogeochemical cycles of the biospheres like, Carbon, Nitrogen, Oxygen, and Water which are very important for all living creatures on earth. Forests absorb the deadly cosmic rays; absorb the green-house and harmful gasses; intercepts dusts; serve against the noise pollution and neutralize the massive solar

\(^{32}\) *M/s Ivory Traders and Manufacturers Association v/s Union of India*  
AIR 1997 Delhi 273 FB (Para 17)  
\(^{33}\) ibid
radiation. Once forest floor is cleared land loses its fertility very soon. The Indian wildlife possesses a rich and diverse fauna and is unique in having immense natural beauty in its different ecosystems.

Again Water is an indispensable component for functioning of ecosystems and is an integral part of human activity for social and economic use. The decline in the quantity and quality of water flow may reduce the productivity of terrestrial, aquatic, and coastal zone ecosystems and led to loss of biodiversity. Water also helps for production of crops and fish, medicines and provides water treatment and waterway transport. Terrestrial ecosystems help balance rainwater infiltration, ground water recharge and river flows.

The Tiger is now mostly endangered species and is an index species whose existence testifies to the health of the forest. Each will perish without the other. When we lose the tiger, we lose the forest, our rainfall, agriculture and everything. Conversely, when we protect the tiger, its habitats regenerate, providing free water, oxygen and climate control.\(^\text{34}\) Tiger being a top predator is an ‘Umbrella Species’. So to save the tiger can save various species in the ecosystem. Then through the protection of this endangered species number of other species may be conserved or protected directly and indirectly.

The large herbivorous Elephants have considerable effect on the ecosystem and they prevent open forest glades from forming canopies and tall grasslands which maintains an ecosystem in which smaller herbivores can thrive. As per World Development Report, after the removal of the elephant population centuries ago from ‘Hulhuwe Game Reserve’ Three species of antelopes have become extinct in South Africa.\(^\text{35}\) So Elephants are called the king of grass land.

\(^{34}\) The Sunday Statesman Magazine; 22\textsuperscript{nd} March, 2009
\(^{35}\) Man Environment And Wildlife, B.D. Sharma, Anmol Publications, Pp 37
In G.R.Simon\textsuperscript{36} case Delhi High Court very nicely interpreted the necessity of wildlife specifically jackals and snakes in its judgment and said, "..... Each and every animal plays a role in maintaining the ecological balance and therefore the contention that certain animals have no role to play or are detrimental to human life is completely misconceived. Taking the case of even Jackals, which are referred to by the petitioners as of no utility, these are natural scavengers who feed on offal and dead animals, thereby keeping the environment clean. Snakes which have described by some petitioners as harmful and dangerous to human life feed on rats. The mortality rate of country due to snake bites is less than 0.0005\%, which is very low compared to death and fatalities caused by other diseases and animal bites. Snakes are the natural killers of rats which cause loss of nearly 33 million tones of stored cereals, apart from dreaded diseases such as plague. Rusel Wiper and Rat Snakes are known to have fascination of rate for food..........It is to be recognized that wildlife is an asset and heritage to be preserved for future generations....." Through this judgment court established the need of wildlife like jackals and snakes and wild animals are to be preserved for betterment of ecology for future generations.

The small birds have very important contribution in environment to maintain the ecological balance. Birds are called as 'indicator species' as their existence indicates the health of the ecology the areas. A rich diversity of birds will also make rich diversity of trees, shrubs, insects, invertebrates with frogs and reptiles. According to ecologist Ravi Shankaran of Salim Ali Centre for Ornithology and Natural History (SACON), birds perform critical environmental services and their extinction or declination will disrupt ecosystem process.\textsuperscript{37}

Even the existences of human being will last not more than a couple of month if there is no insect in the environment. The insect plays most indispensable role in the ecology which appeared approximately 400 million years ago in our lives. The disappearance of insects would mean as per

\textsuperscript{36} G.R.Simon v/s Union of India AIR 1997 Del 301(FB)
\textsuperscript{37} Down to Earth, April 15, 2007; Pp 48
Ezequiel Lugo the loss of vital food source without which most reptiles, mammals, amphibious and birds would die. Flowering plants, which cover most of the land surface, would be unable to survive without insects facilitating then reproduction and providing favorable soil conditions. The surface of the earth would be covered with dead vegetation and animals and would sustain only wild pollinated plants and very little animal’s life. Worms, fungi, insects and microbes all are important as they consume dead bodies and fallen branches and some times those organisms also consume dung and odd things. Some bacteria play important role for mankind in making life easier and simple. Many organisms make soil richer and more fertile as most effective fertilizer without any side effect. So, simple insects or worms have an important role in the ecology as well as total biotic environment.

The wildlife is not limited only the snakes and jackals or birds or insects only, each and every living element has an important role in ecology to play. The need of frog in our environment and their importance was very minutely explained by Justice V.R.Krishna Iyer, as vice chairman of Animal Welfare Board of India, in a letter written to Prime minister for banning export of frog’s legs. He said as France has already made the law to protect the frogs from extinction then why till India and Bangladesh are supplying frog legs to the foreign countries. An estimated 70 millions frogs a year are cut in twain and legs shipped abroad from India – in insufferable cruelty on a massive scale inflicted on innocent amphibians which, incidentally, are ecologically invaluable for our country’s economy and national health. Justice Iyer appealed to government to ban the practice in this land of Ahimsa. He has also shown the necessity of frog in the ecology and also quoted, Mr. Whiting, “the large hungry frogs are really the best friends that the peasant farmers have, for they eat closed of their body weight of insects and other crop pests each day, as well as carries of waterborne diseases which afflict the farmers’ cattle. They also control the insects that carry malaria and encephalitis now devastating on

38 Insect Conservation under the Endangered Species Act, Ezequiel Lugo,
The Icfai University Journal of Environmental & Health Law Vol. VIII No.2, April 2009
39 Random Reflection, V.R.Krishna Iyer, Pp 187
"So the need of those amphibians has been proved by science also. For sake of ecological science as well as for morality also law is needed for prevention of cruel killing.

The need of wildlife was very well understood not by biologists only but also by sociologist, politicians and lawyers throughout the world. This need is very much well recognized by legislative or Parliament that was very clearly interpreted by judiciary also. So protection of wildlife is the duty of all human being for their survival. Now it is in the hand of Executive how they will implement it for welfare of humanity. Wildlife constitutes an environmental heritage of a world which once surrounded by our ancestors through many years of evolution. They maintain the living productivity of the ecosystem. We are responsible to the coming generation to leave an inheritance an unspoiled world with intact living beauty and richness. Apart from the aesthetical and ethical reasons, wild animals provide meat for food to a large number of people in the world. Wildlife also includes a diversity of species that contributes in a special way to the beauty of nature. Such beauty enriches life and the enjoyment and increases tourist attraction which is the source of foreign currency for many countries in the world.
3.5. CONSERVATION OF NATURAL RESOURCES

Nature is related with an environment which was most conductive to the production of life and ultimately to the evolution of human life. Natural resources are most important essence for the environment as well as life and soul for all living creature including human being also. These natural resources include a significant amount of material and aesthetic values for the life and livelihood of every man in the nature. Natural resources are mainly three types, like Renewable, Flow and Non-Renewable resources. Renewable Natural Resources include both living resources such as forests, fishes, wildlife etc. and also non-living resources like water, sand, soil etc. Non-Renewable Resources are very important in daily life for all human being in the present society which includes minerals, fossil fuel, metals etc. Flow Resources consist of wind, tide and sunlight.

India is rich with all types of natural resources including renewable and non-renewable both. Non-renewable natural resources are beyond the human control for their reproduction and they can restrict their use only by controlling consumption. But in the case of Renewable resources, human can create an environment for their reproduction in the nature. So a natural atmosphere is needed for their normal grow and development. If Renewable natural resources are used sustainable with care, then only it will remain renewable. The conservation of natural resources should be the paramount objective for India not only to cope with the need of resources but also to maintain the ecological balance and environmental condition of the nation. For time memorable natural environment may be thought of as consisting of two components: (a) physical environment which includes the non living entities consisting of chemical and geological components, and (b) biological environment consisting of leaving organism (plants and animals) as called biosphere. The oceans, lakes, streams, rivers from hydrosphere and the air envelop that surround the earth is called atmosphere. Again Natural resources also include the biological diversity also. Biodiversity means as decided ‘Convention on Biological Diversity’ of 1992, the variability among living organisms from all sources including inter alia,
terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of the ecosystems.

Then conservation of biodiversity means the management of human use of the biosphere so that it may give maximum benefit to the present generation while maintaining its potential to meet the needs and aspirations of the future generations. The ever increasing demands for consumption and pleasure created an attack to the natural resources in this earth. Natural forests are going to vanish and climate is changing day to day. Rainfall is becoming rarer in many areas also. Uncontrolled exploitation of natural resources and rapid industrialization are avoiding environmental protection. The root problem of ecological degradation and destruction of natural resources is the huge population and their quest for more and more convenience and luxuries in life. There is a need to harmonize the developmental activities with environment because development is also a very important aspect of life. Water, air, soil, mineral, forest and wildlife all of these are very precious resources in our nature. In opinion of biologist Odum, natural resources are divided into two categories, one category is renewable resources i.e. natural resources can be restored and replaced such as living resources like forests, plants, animals etc. and another category is non renewable resources like fossil fuel, metals, minerals etc. these resources can not be restored or replaced. According to Simmon, there are another category of natural resources which is called as ‘unalterable resources’ like water deposit, wildlife etc. these resources generally remain unaltered in any ecosystem. The ecological equilibrium must be preserved at any cost if life of the planet earth is to survive. Our problem arises due to disturbed and upset equilibrium of the natural environment either by our own activities or other causes, exerting in turn pressure on the biosphere. The imbalances on the biosphere create structural and functional changes in atmosphere, hydrosphere and lithosphere.

40 Environmental Law; Dr.S.R.Myneni; Asia Law House; 2008; Pp 77
41 Chairman's Page, O.P.Sharma; Indian Bar Review, Vol XXIII(3&4) 1996
42 Studies in Botany, Mitra, Guha, Choudhury (Volume Two), Pp 643
According to J.R.B. Alfred of Zoological Survey of India, the conservation can be made through the protective measures like to prevent the loss of genetic diversity, to save a species from becoming extinct and to protect an ecosystem from damage so as to promote its sustained utilization. So conservation is the planned management of natural resources to retain the natural balance, diversity and evolutionary change in the environment.  

During the period of 1978-1979, the United Nations Environment Program (UNEP) took the initiatives to chalk out a plan for World Conservation Strategy in regard to form a international norm for the conservation of natural resources. This plan finally got the approval by the General Assembly of UNO and the program was launched in 1980 with endorsement form governments and scientists in 34 countries. In 1980, as per the ‘World Conservation Strategy’ three main objectives of resources conservation were;

I. Maintenance of the essential ecological process and life support system

II. Preservation of the genetic diversities

III. Sustainable utilization of the genes, species and the ecosystems.

But that international strategy was silent about the social, political and organizational framework abut how to achieve those objectives for conservation of natural resources. However the World Conservation strategy was mainly based on scientific principles of resources management.

Vast acres of soil in America, Africa and Asia, which were once fertile agricultural land, are now irrevocable deserts or dustbowls. Worldwide deserts have increased by 150 per cent during the past hundred years, so that almost 50 per cent of the earth’s land surface is now desert or semi-desert. In the 1950s life on earth depended on the ecosystem and on its regular functioning. With man’s intervention in the ecosystem with industrial pollution, pesticides, and radioactive wastes and over population, there is strain in the normal working of

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43 Faunal resources and their sustainable utilization; J.R.B.Alfred; Environmental Awareness and Wildlife Conservation; Pp 23
44 Introduction to international law; J.G.Starke; Pp414
45 Faunal resources and their sustainable utilization; J.R.B.Alfred; Environmental Awareness and Wildlife Conservation; ZOOLOGICAL SURVEY OF INDIA.; Pp11
the ecosystem with the result that the existence of the whole of creation is under threat. A ruthless exploitation of natural resources created deserts, droughts and experiments with nuclear weapons has threatened the atmosphere. The denudation of the green cover of mountains, of forests, fields and grasslands eliminates the main forces attracting clouds and their condensation. This leads to decreasing rainfall which is a disaster in any country, particularly agricultural countries like India. The various human actions disturb one or more elements of natural equilibrium like agriculture, deforestation, land development, creation of man made lakes, dams and other activities changing the structure of the earth, changing the composition of the biosphere through extraction of minerals, discharge of various substances into atmosphere and into water bodies and on land.

Conservation of living natural resources or biotic resources is the important agenda for almost every country in the world. India has vast and variety of natural resources. As per Valmik Thaper, in India alone, 13000 species of flowering plants and 65000 species of fauna have recorded, including 2000 fishes, 1200 birds and 340 mammals India has now 560 protected areas, including 80 national parks, but much remains to be done if the natural life of India is to survive human depredation. The North East, with three of every five mammals found in the country, includes species found nowhere else on earth like the Sangai Deer of Manipur and the lovely golden Langur. So conservation of those natural resources is the most important objective for India. Parliament of India has already passed several suitable statutes for conservation of natural resources and protection of environment. Apart from constitutional and statutory provisions the Supreme Court and High courts of India have played a massive powerful for conservation of natural

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46 Ecology and Religion; The Christian Perspective; Fr. Kurien Kalarachal; Ecology & Religion, R.Narayan-J.Kumar; Pp120
48 Land of the Tiger; A Natural History of the Indian Subcontinent, Valmik Thapar as mentioned in Environmental Law and Policy in India, Divan & Rozencranz, Pp 329
recourses. In *Tirupati Intellectual Forum* case, Supreme Court itself defined its role very nicely and said, “The judicial wing of the country more particularly, this court has laid down a plethora of decisions asserting the need for environmental protection and conservation of natural resources. The environmental protection and conservation of natural resources has been given a status of a fundamental right and brought under Article 21 of the constitution of India. This apart, the Directive Principle of State Policy and also fundamental duties enshrined in part IV and IVA of the constitution of India respectively also stresses the need to protect and improve the natural environment including the forests, lakes, rivers and wild life and to have compassion for living creatures.”

### 3.5.1. MEANING OF CONSERVATION

The term ‘conservation’ is derived from two Latin words i.e. ‘Con’ means together and ‘Servare’ means to keep or guard that means ‘to keep together’. The term ‘Conservation’ was first time proposed by Gifford Pinchot. He said that the first duty of the human race on the material side is to control the use of the earth and that therein is. Conservation means the wise use of the earth and its resources for the lasting good of men. Conservation is the foresighted utilization, preservation and renewal of forests, waters, lands and minerals for the greatest good of the greatest number for the longest time. According to his famous and popular definition, conservation means the greatest good to the greatest number for the longest time. So, Conservation, as per Lincon et al, is the planned management of natural resources to retain the natural balance, diversity and evolutionary change in the environment. The real aim of conservation of conservation according to Odum is two fold namely, (a) to insure the preservation of a quality environment that considers esthetic and

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49 *Intelectual Forum*, Tirupati v/s State of A.P., AIR 2006 SC 1350 (Para 77)
51 Faunal resources and their sustainable utilization; J.R.B.Alfred; Environmental Awareness and Wildlife Conservation; Pp 23
recreational as well as product needs and (b) to insure a continuous yield of useful plants, animals, and materials by establishing a balanced cycle of harvest and renewal. The term ‘conservation’ was used by IUCN in its preamble when it was changed from ‘International Union for Protection of Nature’ (IUPN) to ‘International Union for Conservation of Nature and Natural Resources’ (IUCN) in 1956. Its preamble tells “conservation of nature and natural resources involve the preservation and management of the living world, the natural environment of humanity and the earth’s renewable natural resources on which rests the foundation of civilization.” So here conservation concept is based on the process of preservation and management both.

The conservation of living resources including flora and fauna to basic methods are used by ecologists. One is ‘In-situ conservation’ i.e. within the natural habitat and other is ‘Ex-situ conservation’ i.e. out side of the natural habitat. In-Situ Conservation means conservation of plants and animals within their own ecosystem or within their own habitat where they are originally situated. As per United Nations Environment Program (UNEP) in-situ conservation is the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings. Generally in-situ conservation is very much cost effective. Primacy must be accorded to In-Situ Conservation in the case of wildlife conservation. In the case of In-Situ Conservation the living resources are conserved in National Parks, Reserved Forests, Sanctuaries, Game Reserves, Protected Areas, and Biosphere Reserves etc. Almost same concept is given in Convention on Biological Diversity, 1992, where In-Situ Conservation means conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and in the case of domesticated and cultivated species, in the surroundings where they have developed their distinctive properties.

52 Studies in Botany, Mitra, Guha, Choudhury (Volume Two), Pp 643
53 Environmental Law; Dr.S.R.Myneni; Asia Law House; 2008; Pp 78
Ex-Situ Conservation means as per same Convention on Biological Diversity, 1992, conservation of components of biological diversity outside their natural habitats. In the case of Ex-Situ Conservation, the living elements of flora and fauna are managed and protected in an artificial habitat outside their natural habitat. Ex-situ measures in zoological parks and gene banks may supplement this objective, without development scope wild resources. The flora and fauna in the case of Ex-situ are conserved in the Botanical Gardens, Zoos, Deer Parks, Aquarium, Gene Banks, Seed Banks, and Safari Parks etc and in India there are nearly 275 zoos, deer parks, safari parks and aquaria. There are nearly 35 botanical gardens in India. The most successful example of ex-situ conservation programs is the Madras Crocodile Trust bank, where three species of crocodiles have grown from 10 to 8,035 compared to one in the wild.

A strong institutional infrastructure has been set up to cater India's conservation programs and some premier institutions like Zoological Survey of India, Botanical Survey of India, Wild Life Institute of India, Indian Council for Forestry Research and Education, Indira Gandhi National Forest Academy, Salim Ali School of Ornithology and many are established for wildlife education and research in this country. In India, the National Bureau of Plant Genetic Resources, New Delhi is engaged in conservation of plant biodiversity and The National Bureau of Animal Genetic Resources, Karnal has been engaged in conservation of animals.

Law has accepted all most same concept about Conservation according to scientific definitions as established in different international conventions and treaties. To get the legal meaning, Conservation means as per Black's Law Dictionary, the supervision, management, and maintenance of natural resources; the protection, improvement, and use of natural resources in a way that ensures the highest social as well as economic benefits. The main seed about conservation of wildlife and nature was first developed in USA to enhance sense of the public towards their self respect including the necessity of nature. Some very famous American philosophers Henry Thoreau and George

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54 BLACK'S LAW DICTIONARY; Eighth Edition; 2004; Pp 324
Catlin developed the wilderness of environment which was later propagated by conservationists like John Muir and Samuel Bowels.\(^{55}\) The existence of all without disturbing each other is the main aim of conservation which means the management for the benefit of all life including humankind of the biosphere so that it may yield sustainable benefits to present generation while maintaining its potential to meet needs and aspirations of future generations. Where as conservation of resources have three specific objectives, (i) to maintain essential ecological process and life support system; (ii) to preserve biological diversity; and (iii) to ensure that any utilization of species and ecosystem is sustainable. Conservation is one kind of management for the benefit of all life including human being of the biosphere so that it may yield sustainable benefit to the present generation while maintaining its potential to meet the needs and aspirations of the future generations.\(^{56}\)

After interpreting the provision of international document like CITES, conservation means to use a product judiciously and carefully, so that it not depleted; to use organic resources more slowly than they can reproduce.\(^{57}\) In Tirupati intellectual Forum case, Supreme Court referred the view of Prof. Weiss, that “Conservation, however, always takes a back seat in times of economic stress.” All human beings have a fundamental right to a healthy environment, commensurate with their well being, coupled with a corresponding duty of ensuring that resources are conserved and preserved in such a way that present as well as the future generations are aware of them equally.\(^{58}\) Conservation imposes some regulations over access to natural resources but it does not prohibit the rights of some specific group of people to access natural resources. The sustainable use of natural resources is one of the chief features of conservation. There is a need to use the science accurately in the management of protected areas. So in this process conflicts between natural

\(^{55}\) Conflict and Coexistence in a National Park; Ananya Mukherjee; Economic & Political Weekly, June 6, 2009; VOL XLIV NO 23; Pp 52

\(^{56}\) Environmental Law; Dr.S.R.Myneni; Pp 67-68


\(^{58}\) Intellectuals Forum, Tirupati v/s State of A.P., AIR 2006 SC 1350 (Para 75)
resources and human resources are very much common matter. Conservation is a political process where measures are needed within ecological and social contexts. So in the conservation process there are several instances of reflection of political powers at the local, regional or national level.

The conservation procedure has produced positive results in many parts of the world. Governments of Several nations have passed laws and set-aside national parks, sanctuaries and other reserved areas with an effort to save the dwindling wildlife. Such efforts have saved several species from becoming extinct. In spite of such efforts, the future remains uncertain for the world’s wildlife. However, this effort is not for a complete recovery and at least about $\frac{3}{4}$ of the species are till threatened with extinction due to increased human population and destruction of wildlife habitats.

3.5.2. CONSERVATION AND PRESERVATION

Though in laws and regulations the words preservation and conservation are used interchangeably but in ideologically there is different opinion about them. The main struggle within the conservation movement from the 1890s to the 1930s was between preservationists who believed the intrinsic value of nature and conservationists who emphasized at the altar of efficiency. A critical division exists between Preservation and Conservation where Preservation focuses on ‘nature’ and Conservation emphasis on ‘society’. Problems relating to preservation of natural resources were same in almost every country in the world. As number of employees are involved in many developmental projects including dam, timber industry, mine and others so environmental and ecology matter were treated as anti-developmental. “Preservationists” have been accused of being “enemies of the people” while environmentalists for their part have often characterized loggers and other forest product workers as “enemies of nature.” Such type of leveling generated a class conflict in the modern society. Later the Conservation approach tried to resolve the conflict and to balance ecology and development.
The Conservation movement emerged in USA with great preservationists as George Perkins Marsh, Fredrick Law Olmsted, John Muir, and Aldo Leopold, along with more business-oriented conservationists such as Gifford Pinchot and Theodore Roosevelt. In USA the conservation movement was divided into two main groups that was conservationist, like Pinchot and Roosevelt who advocated for natural right for the greater good whether other group was preservationist, like John Muir who believed in maintenance of natural environment where development is banned. John Muir and Gifford Pinchot both were related with conservation in America but in 1897 their friendship ended when Pinchot supported sheep grazing in reserve forests. This different philosophy separated conservation movement into two camps those were conservation supported by pinchot and preservation advocated by Muir. As a professional forester Pinchot thought conservation as a means of managing nation’s natural resources for long time use to him forestry was tree farming but Muir treated nature in spiritual means, to him forest or national park was place of peace and prayer. Muir acknowledged the need of forest for timber but concept of Pinchot was far more utilitarian. Preservationist wanted natural resource should be preserved for recreation and scientific study on the other side Conservationist wanted to use the natural property for both private and commercial purpose. In USA, the conservationists and preservationist groups developed difference from very early on the ground for protection of forests and other natural resources. In 1913 American Congress permitted the dam finally on Yosemite's Hetch Hetchy Valley for a reservoir after a long protest from John Muir and other park supporters. Again post-war era brought new pressures on the parks as the nation's energies were directed to dam wilderness canyons in Dinosaur National Monument in Colorado and Utah of USA. But this time the park preservationists won through movements, Congress finally declined to approve the Dinosaur dams.
The debate is still continuing in America where US Forest Service is focusing on sustainable use of forest and National Park Service on the contrary gives priority on recreation only. In United States preservation of natural resources means strict restriction of human interference such as hunting, fishing, etc whereas conservation permits human activity for developmental purpose but up to certain reasonable limit. In conservation movement utilitarian conservationists advocated the construction of dams for electricity and regulated use of natural resources for public purposes rather than strict preservation of natural resources.

The preservation and conservation debate is also continuing in international level. The green lobbies in Australia, United Kingdom, United States, and other developed countries believe that every species can be saved only if there is total protection. Developing countries think that must pay its way to survive. Those states also believe that they have the right to benefit from the species through sustainable use of natural resources. So the rich and developed countries may continue their progress without using the non renewable natural resources through their new scientific and technological development but these are not possible for poor and underdeveloped countries. For their own survival and livelihood, they have to depend on wildlife population. Poor and underdeveloped countries complain that the rich and developed countries always force their version of sustainable development on them. In a meeting of CITES in 1997 Zimbabwe, Namibia and Botswana requested to transfer their elephant from Appendix I to Appendix II and panel of experts also claimed that elephants were not endangered on those countries. Finally, to control wildlife trade and sustainable development, CITES lifted the ban on ivory trade in 1997 and trade was partially allowed. CITES has effectively frozen conservation based community management programs to sustainable use of resources for eradication of poverty.

There is a conflict relating to conservation and preservation in African countries also. In protection of elephants Kenya is a powerful supporter of preservation policy as Kenya has struggled enough for protection of elephants from poachers, corrupt governmental officials etc. But the funds collected from the tourism mainly are used for development of forests and its officials. So here there is a great problem to get the support of local people for preservation of elephants in Kenya. On the other side, among African countries, Zimbabwe is the sustainable user of elephant’s population. They make profits by selling elephant meat to locals and selling hunting licenses. Zimbabwe has raised two important questions, first whether legalized ivory sales encourage poaching and second whether culling is ethical or not. However many conservationists culling is necessary to control the size of elephant population. Zimbabwe has successfully used the conservation method and they are the strong supporter of conservation along with South Africa, Botswana, Namibia and Malawi.\textsuperscript{60} Again culling of elephants from the ‘Murchinson Falls National Park’ in Uganda resulted increase of woody forests.\textsuperscript{61} According to recent meeting of CITES in 2007, there would not be any ivory trade in Africa for the next 9 years. Botswana, Namibia, Zimbabwe and South Africa, however, demanded regular ivory trade because of increasing elephant populations and also for benefit of farmers for whom elephants cause trouble. But Kenya and Mali argued for a complete ban of 20 years, backed by 11 Central and Eastern African countries and animal welfare groups. Many Southern African countries were previously allowed to export ivory, especially to Japan but after a ban on international trade in ivory came in 1989.\textsuperscript{62} So, on the basis of their elephant population the African countries also divided on the concept of conservation and preservation.

\textsuperscript{60} Saving of African Elephant, Leslie A. Burton; Indian Journal of Environmental Law (December,2000), CEERA, National Law School of Indian University (Vol-1,Issue-2)
\textsuperscript{61} People, Parks & Wildlife Towards coexistence; Vasant Saberwal, Mahesh Rangaragan, Ashish Kothari, Pp 59
\textsuperscript{62} Down to Earth , July 15, 2007, Pp 17
African and South American countries have adopted community-based conservation process and few Asian counties including India have also adopted this community-based natural development of environmental resources. The most successful conservation story is Markhor conservation at the Chitral Gol National Park in Pakistan. NWFP Wildlife Department allocated licenses for foreign hunters in different hunting areas like Chitral Gol, Tooshi Shasha, Gehrait, and Kaigah and a cooperative agreement was made between the provincial and federal government with the local village conservation committee relating to allocation of the funds.\(^\text{63}\) In Chitral’s Gol National Park, foreign trophy hunters pay an unbelievable $50,000 plus also to shoot one Markhor, a species of rare wild goat protected by CITES. This is also example of conservation rather than preservation. The hunting began a few years ago with local people and foreign tourists, culling wild boar, and the sport then spread. The idea was to raise the fund for protection of the surviving few hundred Markhor and benefit villagers in the area but there is nothing to stop the hunters and their guides killing more than their single Markhor.\(^\text{64}\) In spite of this neighbouring communities reduced poaching and hunting of Markhor, improved grazing on prime Markhor winter ranges through range management of domestic livestock and decreased conflicts with Markhor.\(^\text{65}\) Markhor populations have increased through this community based trophy hunting program in the areas where this program was implemented.

In the matter of international conventions the concept of preservation and conservation both have some inconsistency regarding its application. Preservation means protection of natural resources from any human or other interference whereas conservation means sustainable use of natural resources for benefit of both nature as well as the human consumption. Preservation has the long term effect and conservation should not compromise the need of present generation. Conservation is generally used in the field of living resources and mainly demanding maintenance of the conditions necessary for

\(^{63}\) http://www.cfc.umt.edu/nwfp/Markhor.html
\(^{64}\) OUTLOOK, December 4, 2006; Pp 34
\(^{65}\) http://www.cfc.umt.edu/nwfp/Markhor.html
continued resource existence. As per Bonn Convention, 1950 conservation includes restoration or to restore satisfactory population levels. The concept of ‘conservation’ in the preamble of IUCN includes the management of natural resources with social and economic considerations. The wise use of resources allows them to remain profitable for human beings but documents of IUCN till describe preservation of biotic community or man’s natural environment including renewable natural resources. The term preservation and management both are used by IUCN. Conservation as per ‘Convention on Fishing and Conservation of Living Resources of the High Seas’ also includes optimum sustainable yield in 1958. In ‘Atlantic Tuna Convention’ the concept ‘maximum sustainable catch’ was used in 1966. Again the ‘African Convention’ of 1968 and ‘Ramsar Convention’ of 1971 both emphasized on the concept of ‘utilisation’ of natural resources whereas in 1973, ‘Convention on Antarctic Seals’ used the concept ‘rational use’ of natural resources including wildlife also. Later the most popular and modern concept of ‘sustainable development’ came into existence in 1980 at ‘World Conservation Strategy’ by IUCN which was developed in Report of Brundtland Commission in 1987. Nairobi Convention developed the concept ‘management’ in 1985 relating to natural resources.

In the international environmental law the principle of preservation is generally used by rich and developed countries whereas the concept of conservation is mainly used by underdeveloped and poor countries. The Article 2 of the ‘African Convention on the Conservation of the Nature and Natural Resources, 1968,’ provides that the contracting states should undertake to adopt measures to ensure conservation, utilization and development of soil, water, flora and fauna. But the provision of the ‘Berne Convention on the Conservation of European Wildlife and Natural Habitats, 1979,’ creates an obligation to preserve and transmit to future generations the natural heritage of wild plant and animal species. Again the ‘Convention on Biological Diversity,

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66 International Legal Protection of Wild fauna and flora, P.Van Heijnsbergen, Pp 46 [http://books.google.co.in]
adopts the measures which should be taken to ensure conservation and sustainable use of biological resources, developing of natural strategies, plans or programs, integrating as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross sectoral plans, programs and policies. So in every international and regional convention protection is the main purpose but it may be in conservation mode or preservation principle.

INDIAN POSITION

In India presently rule of conservation is followed that is the sustainable use of natural resources without depleting their population and habitats. Though in several legislations the phases ‘Conservation’ and ‘Preservation’ and ‘Protection’ are used interchangeably all most in same sense and in the case of Wildlife (Protection) Act, 1972 the word ‘protection’ is used. India has strong wildlife protection laws among the Asian countries and it is also said that conservation practice in India has largely been driven by the preservationist approach. Protection generally means to keep protected form others or maintaining a cover or shield from danger or any attack. The concept of protection came from the status of animals towards the man and society. Previously all the animals were treated as a part of property and always the term either ‘preservation’ or ‘protection’ came before the law makers about animals. In the case of wild animals, it was always treated as the natural resources of states and cattle or other domestic animals were treated as property of individuals. Former laws of India like, the Elephants Preservation Act, 1897, the Bengal Rhinoceros Preservation Act, 1932, the Indian Fisheries Act, 1879 or the Indian Forest Act, 1927 were clear view about wildlife or forest where those were treated as natural resources of states. The concept of ecology was not developed on those periods and wildlife is the part of ecosystem came later nearly 1935 as developed by A.G.Tansley. Even Section 428 and 429 are

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67 Introduction to Environmental Law; S.Shanthakumar, Pp 382
68 Threaten Forests, Forgotten People, Aparajita Dutta; Making Conservation Work, edited by Ghazala Shahabuddin & Mahesh Rangarajan; Pp 165
Mischief to cattle under Indian Penal Code, 1860 which is coming under offence to property. So from IPC or Cattle Trespass Act, 1871 it is very much clear that cattle and animals were treated as property. Much legislation made by state governments even after independence where the term ‘preservation’ was used time to time\textsuperscript{69} by the framers. But public awareness for environment and ecology mainly came during the 1970’s through international conventions various parts of world. The Wildlife (Protection) Act, 1972 perhaps is the first law where term ‘ecological security’ was used by parliament. Then in the Forest (Conservation) Act, 1980 the concept of conservation came into existence. So preservation was used when wildlife used to be treated as natural resources and conservation is relevant when wildlife is treated as a part of ecology and ecosystem of nature.

The enthusiastic parliament took some strict measures and preservationist approach of the Wildlife (Protection) Act, 1972 for conservation wildlife and ecology became somehow problematic for Indian scenario. The exclusion of peoples from their traditional areas has lost local support or public participation for conservation program on the contrary they have become totally hostile towards wildlife and nature for conservation program. This hostility has even extended local support by those neglected poor people for animal and timber poaching. Again the total restriction of human activity like, grazing or fishing has some important to nature also. Such types of protective modes have destructed the interdependency between man and animal.

But in this legislation wildlife is not only minutely protected by shield. Though in this law ‘hunting’ is prohibited but sometime license is given by proper authority for hunting of particular type of animals. Recently The Madhya Pradesh state government wants to sell permits to hunt down “excess” wild animals that raid crops for food as population of some of these wild animals has been destroying annual crop exceeding Rs. 100 crore every year. State government has finalized a license scheme for hunting animals which

\textsuperscript{69} Like, the West Bengal Wildlife Preservation Act, 1959, the Assam Rhinoceros Preservation Act, 1954
damage crops such as cheetals, Black Bucks and wild boars on the lines of
trophy hunting in some African countries.\textsuperscript{70} Section 65 of statute has again
given some relaxation over the hunting right about schedule tribes of Andaman &
Nicobar in India. At the same time in the sanctuary human interference is
illegal but some special purpose permission is given. In the case of declaration
and alteration of boundary of any sanctuary or National Park according to
provision of Wildlife (Protection) Act, 1972 State government shall follow the
recommendation of National Board of Wildlife.\textsuperscript{71} National Board was
established on the basis of Section 5A after 2003 Amendment for betterment of
society, tribal and wildlife where an equal representation exists from maximum
organization of wildlife as well as society. So all of these are example of
sustainable use of wildlife and the term ‘protection’ means here conservation.

Again according to P.Leelakrishnan, declaration of Wildlife sanctuary
and national park is the crux of WLP. The areas are selected on the basis of
‘ecological, faunal, floral, geomorphologic or Zoological significance’. The
area declared can be extended if there is a need.\textsuperscript{72} There is a constant conflict
with preservation of biodiversity and exertion of natural resources and mineral
resources. There are ecological conservation one side and other side
economical development of the nation. In this case judiciary adopted the
international concept of sustainable development which brings economic
growth, without destroying the resource base. Preservation of Bio-diversity is
one of its significant elements.

The Indian Forest Act, 1927, the Wildlife Protection Act, 1972, and the
Forest (Conservation) Act, 1980 all this previous laws based on the
misconception that any human interference in a forest or ecosystem would lead
to its destruction. So that preservationist mode developed public anger over
forests and government officials. But finally the National Forest Policy, 1988
challenged this traditional view about policy statement on national

\textsuperscript{70} MP seeks to legalize trophy hunting, THE TIMES OF INDIA, November 7, 2007
\textsuperscript{71} Section 26A(3) and Section 35(5) of Wildlife (Protection) Act, 1972
\textsuperscript{72} Environmental law in India, P.Leelakrishnan; Third edition; Pp 70
conservation strategies. So the conservation process of government directly came into public domain relating to save the natural elements of our ecology.

The concept of ‘conservation’ or ‘preservation’ both came as matter of national debate in the recent report of TIGER TASK FORCE which was constituted by Prime Minster to control the dwindling population of tiger and forest areas in India. The environmentalists in India are divided on the point of human existence in the protected areas. As per Valmik Thapar, a wildlife expert and also member of Task Force, the report of Task Force was ‘the final nail in the coffin’ for the tiger as it refers about co-existence of human with animals. Tigers and people have never coexisted in India and they never will. Though he agreed that this might not be true all regions and all forests but such coexistence was a myth. A blanket policy will not help; it needs to be considered on a case-to-case basis. He is the strong supporter of Preservationist approach. Again the head of Task Force Sunita Narayan and other members are in favor of people based participatory conservation. The report which suggested coexistence of Tribal and tigers needed exclusive area for breeding and survival. Again this report was also criticized as it referred about relocation of forest dwellers and villagers. But relocation is very difficult task as nearly 80 villages were relocated in last 30 years. So if co-existence is not allowed then as per Sunita Narayan another 1500 villages are to be relocated from the 28 tiger reserves in India and a huge amount of fund is needed for such program. It could cost over Rs. 600 crore to shift villagers currently living in core areas as report estimates 273 villages exist in the core areas of Indian tiger reserves today and above Rs 1,600 crore more to resettle them all. At present, the allocation for the relocation scheme within project to be limited to Rs 10-15 crore for the five years of the Tenth Plan. On the basis of conservation and preservation, the members of Task Force were divided as pro-tribal and pro-tiger groups. The two schools of environmentalists are

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73 FRONTLINE, February 29, 2008; Pp 15
74 In Periyar, poachers protect tigers, THE TIMES OF INDIA; November 11, 2007
75 Tigers and tribals, Sunita Narain, Down to Earth, November 15, 2007; Pp 7
76 Environmentalist vs. Environmentalist, THE TELEGRAPH Calcutta; 14 Aug, 2005
advocating their own theory for tiger conservation without a unified answer to the question.

There are also whispers regarding control of wildlife reserves for monetary and personal reasons. Tribal activists of Dehradun, Avdhash Kaushal criticized that to pose as wildlife expert in our country was easy for personal interests in the name of conservation. They Some wildlife enthusiasts are said to have links with luxury hotels running in the vicinity of parks. According to P.K.Sen, former director of Project Tiger, this report also suggested that where co-existence was not possible, the villagers would be relocated in a time bound manner which meant putting the cart before the bullock. Harmonic coexistence could well be a better solution as Wildlife activists and filmmaker Mike Pandey advocates the middle path. The authorities need to look at each zone on a local basis, plan strategies accordingly, and back it up with solid work at all levels. So treating forests as personal freedoms will not do anyone any good. Conservation is one kind of developmental effort also to meet the need of the under privileged sections of the society. But some strict conservation measures were introduced post-1972 which was not similar to conservation like initiation of Project Tiger and total restriction of forest areas. The Project Tiger was initiated with the view to save the top organism of the food chain for the protection of entire ecosystems. As per provision of the Wildlife (Protection) Act, 1972, there is total elimination of any kind of human interference within protected areas. Though the Supreme Court has established all rights of inhabitants of protected areas but human settlements within national parks or reserved forests or sanctuary must be stopped and existing users will be relocated outside of protected areas. So in the opinion of several tribal rights activists and conservationists, all these legislative and judicial approach of Indian government are very much preservation in nature rather than conservation.

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77 Environmentalist vs. Environmentalist, THE TELEGRAPH Calcutta; 14 Aug, 2005
78 YOJANA, September 2008, Pp 18
79 Environmentalist vs. Environmentalist, THE TELEGRAPH Calcutta; 14 Aug, 2005
3.6. MAJOR THREATS FOR WILDLIFE IN INDIA

Very beginning there was a gross destruction of wildlife population due to human activity and in the modern time such destruction became dangerous due to rapid development of human activity and human aggression. During the period of World War II, jeeps and guns became very useful and new roads and basements were made by increasing land after felling of trees in the reserved forest. Herbivore killing was encouraged to help grow more food. After 1947, city-based hunters were riding jeeps for hunting of wild animals in large scale. This was the scene of maximum advanced countries in the world. As per Lynn White Jr. first ecology was affected when cannons were fired potash, sulphur, iron ore and charcoal with some resulting erosion and deforestation in the early 14th century. He also described that with the population explosion, the carcinoma of plan less urbanism, the new geological deposits of sewage and garbage, surely no creature other than man has ever managed to foul its nest in such short order.80 The destruction of wildlife population has created a serious problem in our country also and the supreme court of India is also very much anxious about it. In its own words Supreme Court said that wildlife in our country had suffered serious depletion on account of population and the consumption oriented approach, regardless of the need to maintain essential bio-diversity and ecological processes, balances and life support systems which are so vital for land productivity, food security and human survival.81 From very beginning of civilization in India, wildlife got the attack of various threats against their existence. Time after time the methods of problem have been changed but survival of wildlife always under threat. This declination of wildlife population has the history of thousand years back. In Stone Age, nearly 10,000 BC, man exterminated the hippopotamus and the baboon of India. Early agricultural colonizers too must have slaughtered wild animals, as is evident from the Mahabharata description of Khandava vana dahanam, in which

80 The Historical Roots of Our Ecological Crisis, Lynn White Jr.
[ as referred in Environmental Justice in India by S.B.Sinha, (2002) 7 SCC (J) ]
81 M/s Ivory Traders and Manufacturers Association v/s Union of India AIR 1997 Delhi 273 FB (Para 17)
Arjuna scrupulously kills every animals emerging from the burning forest. It must have come to equilibrium by the early Christian era after the first great phase of colonization was over, to be drastically disturbed again only the coming of the British Raj. With their modern firearms, the British bloodbath was unprecedented. The Nawab of Junagarh had to pretend that there were only a few lions left in his Gir forest to save them from British viceroys, governors and commanders who, having wiped them out over much of northern India, had begun eyeing the Gir. During the Second World War, forests were destroyed indiscriminately for the war effort, and the introduction of jeep rendered wildlife in the remotest forest areas easy prey for the gun.82 The rapid rate of extinction of many species of animals is an increasing concern. Habitat preservation and enhancement are critical to existence of wildlife in an area. Animals cannot live in an area that does not provide proper food, cover, water and special needs. People's activities alter many habitats, which acts as a detriment to Wildlife. Apart from these, there are some other reasons for the declination of the population of wildlife. Man is an important part of any of the ecosystems because of developed skill and capacity to do any kind of activities. It is mainly due to uncontrolled and unrestricted human activities only that most of the ecosystems of the world either destroyed or under threat. Developed human beings have done many cruel activities which are against the development of wildlife in the ecology.

POACHING FOR ILLEGAL TRADE OF WILD ANIMALS

Wildlife trade is definitely the biggest threat to wildlife for any nation as well as whole ecosystem in the earth. The rampant poaching of Wildlife and its products are primarily driven by demands in the international markets. All kinds of animals are taken for smuggling from frogs to birds and from butterflies to rare mammals. It is widely believed that illegal trade in wildlife is second only to the narcotics trade. This wildlife trade has become globalised business and not depends on local needs only. On other side also, generally the

82 Ecological Journeys, Madhav Gadgil ; Pp 45
developing countries or the poor countries supply the wildlife and its products and the developed or the rich countries consume such products.

COMMERICAL WHALING

Whale began to decline in the past due to heavy killing by human beings. Sperm whale oil is still said to be the best lubricant for automatic gearboxes in cars and minor whale products include ambergris, which is used in the perfume industry and sperm whale teeth used as ornaments. Thirty thousand whales were killed in 1933 and in the 1960s the numbers of rose to a peak.\textsuperscript{83} Even till today killing of Whale is going on and huge declination of whale population happened for hunting of them and some species of Whale is now at the point of extinction. But some initiatives were taken to save the whales when the 14 whaling countries formed the International Whaling Commission (IWC) in 1948. Its members agreed to decide on the ‘quota’ of whales for the year and also agreed that they would all stop killing when the quota had been reached. Iceland, led the way in using a loophole in the IWC regulation which allowed whales to be killed for scientific research. However, in 1989 Iceland announced that it would stop killing for science. Japan and Norway still carry on awaiting the review of the commercial whaling ban.

THE SEAL SLAUGHTER

Seal were killed for their oil and mainly for skins and this trade nearly came to an end when the seals were almost completely wiped out from nature. Baby seals are extremely easy to kill because they lie with their mothers in large groups and the sealers have only to walk up to the helpless babies and kill them by hitting them on the head with a club to avoid making a hole in skin by bullet. Baby seals are still killed for their skins in Norway and in parts of Canada but the skins can’t be imported into the European Community. After worldwide protest, Canadian government has come up with new rules, saying that more humane killing methods will be followed and total catch limit of harp seals for the 2008 will be 2, 75,000.\textsuperscript{84}

\textsuperscript{83} Save our World, Beehive Books, Pp 7
\textsuperscript{84} Down to Earth, April 30, 2008; Pp 14
KILLING FOR FUR

Spotted and striped cats, such as leopards, cheetahs, and even tigers, were killed, and their skins used to make expensive coats. Smaller animals such as mink and beavers were trapped for the same trade. Many of the animals become very rare as a result. Ocelots, chinchillas and jaguars in South America and bears, bobcats and lynx in North America are now scarce because of the fashion for wearing fur.

India is the heartland for poaching of all kinds of wild animals. Though India once had largest number of tigers but these larger populations of tigers also attract more organized wildlife criminals within and outside India. Once tigers are killed, organized criminal like poachers and wildlife traders are collecting tiger parts and smuggling them to the foreign market where those are till very much demanded. Wildlife Preservation Society of India once reported an evidence of a minimum of 430 tigers were poached over the past five years. Again in another survey, in 1994 total 95, in 1995 total 123, in 1996 total 52, in 1997 total 89 and in 1998 total 36 tigers were killed in India. India has powerful organized wildlife criminals and approximately 50 forest guards are killed by poachers and illegal loggers every year in India. The poaching of elephants for the ivory trade is also on the increase and Ivory is traded in a raw or unfinished form either cut pieces or whole tusks or in decorative pieces. In Northeast India, there is evidence of a strong connection between insurgent groups, drugs and arms traders with the illegal traders in Rhino horns. According to recent report by TRAFFIC and IUCN, rhino poaching is still going on worldwide by increasingly sophisticated poachers who now are using veterinary drugs, poison, cross bows and high caliber weapons to kill rhinos. The situation is most serious in Zimbabwe where rhino populations are now declining due to poaching and illicit horn trade has been also increased in South Africa.

85 Conserving India's Tiger, Janet Altman; Indian Journal of Environmental law, December 2000, Vol. 1 Issue 2; CEERA, NLUIU
The illegal trade for musk is also dangerous in India. It is estimated that nearly two hundred musk deer are killed to produce just one kilogram of musk. Not only the tigers or big mammals but birds are also major sufferer of poaching activities through out world. In India as per a report nearly 2, 00,000 birds are poached every year. This rampant poaching of birds is made near the lake areas and water bodies and some times chemicals are used to catch them. This bird poaching is created many species in the endangered lists and some are also extinct. Sloth Bears are used for performance over the years in the street and tourist entertainment at a great emotional and physical cost to bears. Every bear on the streets is trapped as a cub by killing its mother. The Mughals started using such entertainment by bears and barbaric modes of capture and cruel methods of training are used to control this wild but shy animal. Five out of 10 cubs die due to trauma of separation from their mother. They are stuffed in gunny bags and wooden box and then they are smuggled.\textsuperscript{86} Bear’s bile from the animal’s gall bladder, is used as an external medication for back and joint pains. For oriental medicine, poaching of bears is now widespread in the Northwest of India.

**HUNTING FOR TROPHY AND LIVELIHOOD**

There was a massive destruction of wild animals due to hunting and the main animals like lions, tigers and cheetahs are almost wiped out from nature. Some other of the world’s existing largest animals are rare now because they have been hunted for sport or because they were treated as worthless. From the ancient Roman period, the hunting for trophy was very much in practice. During the 20\textsuperscript{th} century it became a status for all influential and wealthy people to kill animals for their heads, fur, hides or any body parts. Between about 1880 and 1940, it was fashionable to go big game hunting or shooting large animals for fun. Rhinos, lions, zebras and even giraffes were killed and their bodies carried home as trophies just for showpiece. Ducks, geese, grouse, pheasant, foxes and stags were all hunted and killed in Britain just for fun.

\textsuperscript{86} *In the Bear’s Claws, TIMES OF INDIA, 20 July, 2008*
Shooting of bears and deer was popular in North America. The hunting was spread with the help of improved fire-arms to hunt more accurately. Again after World War II heavy development of guns, rifles and invention of jeeps made the hunting more popular also. Rapid permissions for firearms have also generated hunting practice in many levels of the society.

Hunting was an old sport from time of Kublai Khan and came with Moghuls and Persian rulers in India. Hunting of cheetah and leopards was very famous among the olden times among Indian rulers. During Moughal period people used to hunt eagles or hawks to train them for sports purpose. The kingly sport of Falconry was developed by Mongol emperor like Kublai Khan and Genghis Khan and Indian emperor Shah Jehan was champion of falconry in India. Later all those hunting became popular among the Indian rulers in princely states even after independence also. During the British period the kings of Indian princely states used to invite foreign guests for shooting and killing of rare wild animals. During the Sepoy Mutiny in 1857, George Aucland Smith killed about 300 lions, of which 50 were in Delhi. Tiger had been exterminated by 1870 in many parts of the Indian region. The annual tiger shoots by John Hewitt, Lt. Governor of the United Provinces, claimed the lives of at least 150 tigers in six years. Small songbirds were shot on migration in Mediterranean countries with no controls at all. This rapid hunting has an adverse impact on gene pool of various species of animal. A study done by a researcher of the University of Virginia, shows that due to excessive hunting by human being has caused the reduction of average horn length and body mass of big horn sheep in Alberta in Canada.

Indian Rajas and Maharajas used to practice hunting to maintain their feudalistic status. According to the diary of Sadul Singh, Maharajkumar of Bikaner, in 1936, he shot over nearly 50,000 head of animals and a further

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87 Reminiscences of Indian Wildlife, R.S.Dharmakumarsinhji, Oxford University Press; Pp 23, 41 & 53
88 A Treatise on Wildlife Conservation in India, Chhanda Das, CLASSIQUE BOOKS; Pp 8
89 People, Parks & Wildlife Towards coexistence; Vasant Saberwal, Mahesh Rangaragan, Ashish Kothari, Pp 21
90 Down to Earth, February 16-28, 2009; Pp 42
46,000 game birds including 33 tigers, 30 great Indian bustards, over 21,000 sand grouse and a lone Asiatic lion during his 25 years of hunting life. The Cape buffalo and the black rhino were among the 33 verities of herbivores of the savannah jungle of Africa that ended up as trophies in the Bikaner Palace. Lord Linlithgow shot over 2000 birds in a single day on 6th February, 1937 in Ghana in Bharatpur which became an epitaph of huge number of birds during the visit of Governor Generals.91 A former Raja in Madhya Pradesh probably killed highest number of tigers in the world. In Assam, a military engineer Colonel Pullock, used to shoot a Rhino or a Buffalo for every breakfast almost everyday.92 Over a thousand of the game animals had been exported outside India. By the time Tweeddie wrote his note, over 20,000 animals were being killed for bounties in British India each year.93 In India, due to excessive hunting, the leopard or Asiatic cheetah has become extinct and the last three cheetahs were shot dead in 1947 in Bastar.94 Even after independence some members of those royal families continued the hunting for trophies to show their aristocracy. Till 1961 Ranthambore was a killing field for tigers. Those sport-hunters were the friend to forest and British naturalist E.P.Gee compared the slaying of tigers in India like shooting of stag in Scotland.95 Such hunting for fun and trophies totally declined the wildlife population in India which was killing of wild animals without any cause.

There are some kind hearted people who campaigned to stop blood sports, such as fox and stag hunting, hare coursing and animal baiting in several countries. The legendary hunter Jim Corbett shot his first man-eating tiger and panther during 1905 to 1907 and continued to shoot till the end of his days. But in the early 1930s, trophies became less glorious for him and turned his attention to watching creatures of the wild and finally he became a wildlife conservationist in India.

91 The Oxford Anthology of Indian Wildlife, edited by Mahesh Rangarajan, Volume II; Pp 123
92 Concepts in wildlife management, B.B.Hosetti, Daya Publication; Pp 2
93 India's Wildlife History AN INTRODUCTION; Mahesh Rangarajan; permanent black, Pp 37 & 28
94 Man Environment And Wildlife, B.D.Sharma, Anmol Publications; Pp33
95 The Oxford Anthology of Indian Wildlife, edited by Mahesh Rangarajan, Volume II; Pp 1 & 4
But this hunting is not always for trophy some times some indigenous group of people for their life and livelihoods consume wildlife and animal product from the nature. Such type of hunting has also caused harm for the ecology also. So never hunting can be allowed as a matter of right or livelihood. Government has to take initiatives for alternative mode of livelihood and food for those poor people who totally dependent on forests and wildlife. In matter of hunting the Delhi High Court said, environmentalists’ conception of the ecological balance in nature is based on the fundamental concept that nature is “a series of complex biotic communities of which a man is an interdependent part” and that it should not be given to a part to trespass and diminish the whole. The largest single factor in the depletion of the wealth of animal life in the nature has been the “civilized man” operating directly through excessive commercial hunting or, more disastrously, indirectly through invading or destroying natural habitats. 96 Now Indian reserve forests and Sanctuaries are not free from hunting. As per recent news deer population in Garhwal Forest Division is very dangerous. Heavy hunting has created the destruction of deer population which has disturbed the prey-predator relationship. So there is a common incident of leopard attacks on human habitation. 97 Several awareness programs have been organised throughout India but hunting is not prevented till among some parts of the society in India. Although there is an increasing presence of conservation organizations in the Northeast and funding from international agencies, wildlife law has failed to stop hunting to work in this region, especially in Arunachal Pradesh, because of the fundamental differences of tribal societies here from the rest of India. Even tribal officers in the government including in the Forest Department often hunt in contravention of wildlife laws where many are unaware that it is illegal. 98

96 M/s Ivory Traders and Manufacturers Association v/s Union of India AIR 1997 Delhi 273 FB
97 Down to Earth, Sep16-30, 2008; Pp15
98 Threatened Forests, Forgotten People, Aparajita Datta; Making Conservation Work, edited by Ghazala Shahabuddin & Mahesh Rangarajan, permanent black; Pp 167
COMMERCIAL FISHING AND OVERFISHING

Fish is an excellent and heavily used food and it is also an important source of protein. Although there are about 22,000 different species of fish, only about 9,000 are eaten and only 22 are fished in great quantities. Fish supplies about 6 per cent of all the protein people eat, but in some countries it is much more. But this huge consumption has caused depletion of the fish population. A decline in fish harvest points to biological overfishing which is the most important economic species and controversial debate.\textsuperscript{99} One-third of the catch is taken by Japan and the Soviet Union who had the largest fishing fleets. The activities of commercial fishermen off the coast of Norway have damaged seals in another way. Fish stocks in the North Sea have fallen sharply in recent years, probably because of overfishing. Every year thousands of harp seals use to come closer than usual to the shore for their food. They find themselves trapped in the fishermen’s nets, where they drown.

Recently Hilsa fish is one of the examples of worst impact of overfishing. So conservation of this fish is very much important for its huge demands for its unique taste. Recently the National Bureau of Fish Genetic Resources is trying to conserve the fish by gene banking and also taking initiatives to include fishes in the Wildlife (Protection) Act, 1972. Again the Indian Council of Agricultural Research (ICAR) had asked each state to adopt a fish just as a state fish. So Bengal would help in Hilsa conservation as now it is a state fish and in the same way Pabda is state fish for Tripura, Chital for Uttar Pradesh, Kalbasu for Haryana etc.\textsuperscript{100} Already in West Bengal state government fixed the size of Hilsa fish and fishing or selling of Hilsa fish below the size of 500 grams was banned by rule.\textsuperscript{101} Though state government has imposed several strict measures for conservation of this fish but overfishing is till going on. Due to overfishing and illegal fishing are creating dangers for the Gharials in Indian water bodies and reverse. There are several instances of Gharials deaths are happening in Chambal’s water due to the over

\textsuperscript{99} Introduction, Social Ecology, ed. by Ramachandra Guha, Oxford; Pp 6
\textsuperscript{100} Hilsa gets state fish status, HINDUSTAN TIMES OF INDIA; September 16, 2007
\textsuperscript{101} ANANDA BAZAR PATRIKA [Bengali Newspaper]; June 6, 2007
fishing. Scientists have examined that extensive fishing has reduced the food and prey level for the Gharials which has created such type of destruction of this species. Recently there was an incident of death of 100 Gharials in the Chambal River in the Uttar Pradesh-Madhya Pradesh border. Tilapia, an invasive fish has created danger for the Gharials according to some scientists. The heavy toxin in the tilapia fish damaged their kidney and caused death for them. Water and fish samples from the Chambal showed high levels of lead for the first time recently and Conservationists also say high levels of lead in Gharials could be from eating contaminated fish.

TIGER PARTS FOR TRADITIONAL CHINESE MEDICINE
A deep rooted belief in the healing powers of tiger bones in China, Taiwan, South Korea and Japan has accelerated the trade in tiger bones in those countries. Tiger bones are smuggled into Tibet for their traditional use and bones and skins of tiger are also smuggled overland into Nepal, Bhutan, Bangladesh and Myanmar. Since 1970s India made some though laws for conservation of wildlife and their habitat in spite of that India could not prevent tiger poaching till today. The major threat to Indian tiger is the huge demand of tiger bones and other parts in the china for their Traditional Chinese Medicine (TCM). Due to the heavy demand for tiger parts finally in 1989, China wiped out the last of its native tigers and began looking to South Asia and Siberia to feed its growing market for tiger parts. But heavy demand for Chinese medicine is a great threat for Indian wild tigers in the protected area also. The poachers are till selling the carcass and body parts of tiger at meager price to traders who export them across the border to countries such as China, Tibet and West Asian countries for higher prices. These cross border trades are flourishing despite the ban on such trade under the CITES. The mode of collection of the precious body parts of these animals is after killing them by lethal injection or by adding poison in their food etc.

\[102\] Down to Earth, February 29, 2008; Pp 10
\[103\] Down to Earth Feb 29, 2008; Pp 9
The China is the great supporter of tiger farming to solve this matter and to remain continues the traditional medicine from tiger parts through out their country. As legalizing of tiger farming will decrease poaching and will also boost local livelihood. The growing popularity of TCM has created the demand for tiger farming though the World Federation of Chinese Medicine Societies has declared that tiger parts are not necessary in traditional medicines. Over a decade China set up tiger breeding and in public-private initiatives and nearly 4000 tigers are now in captivity. China is also trying to adopt re-wilding techniques at a tiger valley in South Africa through public private partnership.¹⁰⁴ In the International Conferences the supporter of commercial farming is advocating for such type of farming as an alternative remedy against tiger poaching. But some conservationists have rejected this plea due to its impracticality and not as an alternative way for protection of tiger. The global community led by India has rejected proposals for tiger firming as illegal and it will be extremely difficult and expensive. In the case of African elephant, CITES lifted the ban on Ivory trade in 1997 as Zimbabwe, Namibia and Botswana requested to transfer their elephant from Appendix I to Appendix II. But before the voting, poachers in Zimbabwe killed 100 elephants in 5 months and after the lifting of Ban, in Ghana first case of poaching was reported within 8 years again in Kenya many elephants were poached after the permission of Ivory trade.¹⁰⁵ So lifting the ban on tiger parts will again increase the demand of tiger which will lead the poaching of more tigers.

Though crocodile farming is a very successfully industry in man parts of the world and it has also reduced illegal trade and poaching. But according to some experts this method will not be applicable in case of tiger.¹⁰⁶ On the contrary China’s 14-year old tiger trade ban & Russia’s anti-poaching efforts have stabilized tiger populations. Though the Chinese proposal for tiger farming faced severe opposition from countries such as India, Indonesia, Malaysia and

¹⁰⁴ Burning Bright, Barun Mitra; INDIA TODAY; July 17, 2006; Pp 75
¹⁰⁵ Saving of African Elephant, Leslie A. Burton; Indian Journal of Environmental Law (December, 2000), (Vol-1,Issue-2); Pp 74
¹⁰⁶ Down to Earth, May 15, 2007; Pp 34
Singapore and animal rights activists around the globe, the medicinal value of tiger body parts is demanding day by day. China is continuously demanding about lifting of ban on trade in tiger parts. Beijing had told CITES it would allow trade in parts of captive bred tigers if a scientific review proved it would reduce poaching and help tigers worldwide. Their biggest argument is money can be made legally used to breed tigers in captivity. According to Liu Dan, chief engineer of the Hengadaohezi Feline Breeding Center in China’s Heilongijiang province, world’s largest breeding base for Siberian tigers and ban on trade in tiger parts to be lifted so that he can raise funds for the park. China has about 5,000 tigers in farmers and only about 30 in the wild.\(^{107}\) The ban on tiger parts, as per Zhang Wei, a professor at the Northeast Forestry University, has wiped production of all thousand-year-old tiger bone based medicines in China.\(^{108}\) CITES banned international trade in Tigers in 1975 and China outlawed domestic sale of tiger parts in 1993. Though since 1993 china has strong laws to restrict wildlife crimes within the country but there are increasing demands of tiger bones and body parts have made the need of wild tigers. So unless and until the use of tiger parts is not banned, the demand of tiger will continue which will lead towards illegal poaching.

\(^{107}\) China not to reopen tiger trade, THE TIMES OF INDIA; June14, 2007

\(^{108}\) China wants tiger trade ban lifted, THE TIMES OF INDIA; April 30, 2007
KILLING OF ELEPHANTS FOR IVORY

Both male and female Elephants have modified incisor teeth called “tusks” either straight or curved and may continue to grow throughout their lives. Dealers buy the tusks from the poachers and the haul then passes through traders in ports to be smuggled abroad. As many as a dozen big-time dealers might be involved. Most African ivory is taken to Japan and Hong Kong, where it is carved into ornaments and exported all over the world. In the case of the India, there is a huge reduction and nearly complete elimination of tusks in the elephants on the due to increased poaching for Ivory. History provides the close nexus between the growth of human civilizations and elephant habitats in and around river valleys in India. This flagship species nurtures and protects the health and vitality of our forests and share heritage in the earth.

In 1981, more than 480,000 were present elephants in East Africa. Today, because of ivory trade, the number is down to very poor number and the elephant population is till falling. In Kenya elephant poachers work in gangs of up to fifteen men, half of them armed with automatic weapons and the rest acting as carriers. The ill-paid and unequipped forest guards on the other side are very much insufficient to prevent them. Poachers use to travel on foot or in Land-Rovers, venturing into the national parks where hunting is illegal. Often whole elephant families, numbering a dozen or more, are gunned down and their tusks hacked from them with axes or chainsaws.

In 1989, CITES introduced African elephants to the Appendix I, killing of which is strictly prohibited and took major steps to complete ban on ivory due to the rampant poaching of elephants. The meeting of CITES recently held at The Hague, decided that there would be no ivory trade in Africa for the next 9 years. African countries have reached the first-ever consensus at the conference of parties to the UN convention on wild life. It will help to check those countries that have dwindling population of the African elephant. According to Steve Itela, Director of Youth for Conservation, a Nairobi-based wildlife conservation group, Ivory trade will fuel illegal poaching. It has severe impacts on tourism, which supports our economy. So they will protect it at any
The Hague also decided to set up an ‘African Elephant Action Plan’ to strengthen elephant management across the continent.

**FIRING ON ELEPHANTS IN NEPAL BORDER**

The attack on elephants across the Mechi River in Nepal border is a continuous problem for Indian wild animals. Elephants from Indian forests started damaging crops and houses across the Mechi and people of Nepal including army and police started firing on them. The frequent firing on elephant herds crossing the international border will also intensify the man-elephant conflict. This conflict started since 1987-88 when after malaria eradication program was undertaken in the Terai region. After then forests were cleared, people started living and cultivating in that area and leaving little space for elephants. One side human encroachment on their habitat and other side inhumane torture are leading elephant population in danger. Elephants are also being electrocuted or sustained several bullet injuries by villagers and Nepal police. Elephants are global and have no nationality. Elephants do not confine themselves to specific geographical or political territories and they move from one forest to another as natural course of their life style. But people of Nepal are aggressive with sophisticated guns to combat the jumbos. Though an initiative had taken to erect an electric fence along the Mechi river bank to prevent elephants form entering Nepal but people engaged in smuggling have damaged the fence. The government level talks between the two countries have not solved the situation. This problem has become a pan-Indian phenomenon. If the practice is not stopped then situation will be dangerous in future. Both the governments should take the matter seriously to save lives of men and elephants and ecology above all.
LOSS OF NATURAL HABITAT OF WILDLIFE

The continuous pressures of the human population over the population of wildlife are creating the condition miserably for ecosystem of nature. According to the 1993 census conducted by IUCN, India’s human population increased by more than 300 million (nearly 50 %) and livestock herds increased by over pressures of human population growth are manifested both in the direct competition between tigers and humans for subsistence, and in the drive for economic development that is more drastically appropriating tiger habitat.\(^\text{112}\)

Almost each and every species of wildlife is now facing the same ecological threats as all other component of biodiversity. Scientists agree that human activities have led to an increased rate of extinction world wide. Some biologists believe we are currently experiencing a mass extinction that will lead to the disappearance of most organism world wide. Most of earth’s history, extinction has been a generally slow process, proceeding at a pace of one species per million each year. Human actively has increased the role of extinction exponentially. There was a dramatic decrease in the American Bison population from 25 million to just 86 on the late 1980s only due to human interference in the wildlife habitat. Expansion and settlement on to the Great Plains encroached on the Bison’s native habitat and brought domestic live stock that competed with the Bison for posture. Bison were used to hunt for food, sport and also to meet increased demand for leather machine belts made from bison hide.\(^\text{113}\) The near-extinction of Bison was again followed by threats to migratory birds, bears, bald eagles and any other species. As human being spread from Africa to Middle East, it faced new organisms able to resist its expansion, with the result that humanity drove many native species to extinction. This trend continues today with habitat destruction invasive species, pollution, and population growth and over harvesting as the main human forces driving extinction.

\(^{112}\) Conserving India’s Tiger, Janet Altman; Indian Journal of Environmental Law, December 2000, Vol.1 Issue 2; CEERA, NLUU

\(^{113}\) Insect Conservation under the Endangered Species Act, Ezequiel Lugo, The ICFAI University Journal of Environmental & Health Law Vol. VIII No.2, April 2009
In the case of depletion of tiger population, all tiger researchers agreed that the main causes for tiger vanishing are extreme isolation of tiger populations and increase of human intervention. The most critical threat tiger's face in India is loss of habitat. If poaching can be stopped, tigers will breed and population may grow again, but loss of habitat could easily drive tigers towards extinction. According to forest department officials, a tiger needs around 40-45 sq km of space to move around freely within their habitat. Forest officials need another 40 sq km of additional area to prevent missing of any wild animals and to restrict animals within the protected areas.

The very shy and wild sloth bears are also suffering from critical problem of habitat loss and for survival they are leaving their original land. Deforestation and lack of sufficient water have forced bears to raid villages. The incident of Bear attacks have increased as per Chief Wildlife Warden of Orissa, B.K.Patnaik mainly habitat loss for Bears and increasing pressure of human population near forests. The birds are also suffering from habitat loss in India and birds like Great Indian Bustards and Blackbuck has been lost mainly for vanishing of their natural habitats. Rich grasslands were habitat for many wildlife and Bustards used to lay one egg in grassland which took more than two years to mature. Destruction of grasslands, killing, trapping and collection of eggs made these birds rare in our environment.

Grazing of Livestock in Protected Areas
The heavy grazing is the serious pressures in large parts of the landscape and not helpful for natural habitat of wildlife. Overgrazing by livestock reduces the amount of forage available for wild herbivores and also causes adverse changes to soil properties through trampling. The natural structure like tree seedlings, grasses, and herbs are destroyed for overgrazing which may result erosion very severely.

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114 Down to Earth, January 15;2008; Pp 20
115 In the Bear's Claws, TIMES OF INDIA, 20 July, 2008
116 Reminiscences of Indian Wildlife, R.S.Dharmakumarsinhji, Oxford University Press; Pp 99
Heavy grazing can devastate a flora or invade the unpalatable grasses and woody species as has been documented in the Galapagos Islands and the intermountain American West from the history. The livestock management within protected areas is an important part of conservation process. According to many Indian conservationists Grazing is a key threat towards biodiversity in India. There are several instances where cattle have finished all the vegetation, lowered grass productivity, reduced timber regeneration and generated the soil erosions.

But this grazing is sometimes helpful for forests as well as wildlife also. In Great Himalayan National Park, Himachal Pradesh, grazing was banned for protection of Himalayan Caprids as heavy consumption by domestic cattle. But there was no increase in the number of Caprids population. On the other hand there was a declination on plant varieties after the banning of grazing in the valley of Flowers National Park in Uttar Pradesh.117 In Keoladeo Sanctuary a ban on grazing inside the protected area led violent clash between people and park authorities. Again this ban also developed uncontrolled growth of vegetation which reduced the waterfowls. A study by BNHS revealed that ban on cattle grazing led to weeds proliferation to block water channel.118 Recently in India under the Forest Rights Act of 2007, it is illegal to deny nomadic tribes access to their traditional grazing land without ascertaining their rights. If they have the proof of traditional use of that land then on the contrary it will bring a strong case against the forest department also. So grazing has been established by law in India as a traditional right for those indigenous people.

117 People, Parks & Wildlife Towards coexistence; Vasant Saberwal, Mahesh Rangaragan, Ashish Kothari, Pp 51
118 Down to Earth April 15, 2007, Pp 49
DESTRUCTION OF FORESTS

Most major cause for depletion of wildlife population is the destruction forests which are the habitat of maximum number of species. The effect of this destruction on the climate and the land itself is very serious and permanent but the effect on the wildlife is devastating. Heavy rains wash away the topsoil and takes on the appearance of a wasteland vanishing all plants and animals. Forest also protects the soil from the intense heat of the sun and the torrential downpours and also absorbs carbon dioxide and produce oxygen. The plants provide medicines, and raw materials. They are also home for many native peoples who have lived in the forest for centuries.

Primate levels suffer much due to the deforestation which may cause destruction to the whole ecological structure. The archaeological study of earlier civilization reveals that the massive environmental degradation caused the declination of those developed society in the world. The Mayan civilizations in lowlands of Guatemala around 800 A.D. and Harappan civilization in India during the early times were demolished mainly for deforestation and soil erosion. According to Russell A Mittermeier, Chairman, IUCN-species survival commission, the tropical forest destruction is the main caused for the declination of primate levels. From the history it is very much clear that civilization of human being was totally based on natural environment and destruction of environment has created a destruction of all the mankind of powerful civilization also. Britain had emerged as the world leader in deforestation by devastating its own woods and the forest of Ireland around 1860 and destruction of forest was used by the British to symbolize political victory. Permanent supply of durable timber was required for the Royal Navy as ‘the safety of the empire depended on its wooden walls’ almost vanished oak forests in England. In USA numerous species from the northern Spotted Owl to Snake River salmon were endangered due to deforestation of

120 Down to Earth, Sep 1-15, 2008, Pp 45
121 This Fissured Land, Madhav Gadgil & Ramchandra Guha; Pp 118
world’s oldest and tallest trees of coniferous forest at a record rate in the country. So the deforestation may cause the total destruction of a civilization as history shows. Wildlife has been one of the worst sufferers of habitat loss due to deforestation. In India huge numbers of forestland were treated as vast reserves of timber by British and those were extensively exploited for railway sleepers and ship building purposes by the British rulers.

The Asiatic lions which occupied a larger territory in the western and northern parts of India have now been confined to a small area at the Gir Forest of Gujarat. Not only animals several other species and plants have also become either rare or endangered and their distributions are limited to smaller areas. India is the also sufferer of deforestation and forest lands were always used in different projects.

**Various Reasons of Deforestation in India**

<table>
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<th>From 1981 – 2007</th>
<th>Area (Sq. km.)</th>
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<td>Defence</td>
<td>1208.72</td>
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<tr>
<td>Forest village conservation</td>
<td>409.87</td>
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<td>Hydel</td>
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<td>Irrigation</td>
<td>1082.91</td>
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<tr>
<td>Mining</td>
<td>1116.33</td>
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<td>Rehabilitation</td>
<td>170.58</td>
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<td>Road</td>
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<td>Thermal</td>
<td>43.09</td>
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<tr>
<td>Transmission line</td>
<td>259.99</td>
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<tr>
<td>Wind power</td>
<td>13.80</td>
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</tbody>
</table>

**Table 2**

A hundred years ago India’s forest cover was estimated to be about 50 per cent of the total land area of 33 lakh sq. kms. This came down to 30 per cent in 1950 and according to the State of the Forest Report 2005, it is just 20.6 per cent out of which ‘dense forest’ is barely 11.8 percent. Bamboo forests are totally destroyed by paper industries mainly in India. So always the need of forest lands were overlooked and ecological matter was never taken into

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122 The Vulnerable Planet, John Bellamy Foster; Pp 8
124 Union Ministry of Environment and Forests, [as mentioned in Down to Earth, March 15, 2008; Pp 10]
125 Live and let live, P.K.Ghosh, THE TIMES OF INDIA; June 20, 2009
consideration. The Forest Survey of India usually does not analyze forest cover based on their legal status or ownership. The need of forests beautifully quoted by V.R. Krishna Iyer; Forests are ‘lungs’ or oxygen factories which sustain life. But the great forests of all continents are vanishing at a dangerous pace and the deforestation-desertification syndrome is a terrible menace to human progress.\textsuperscript{126} Forests control the local ecosystem of any area including water bodies, wetlands and habitat of birds and wild animals. Timber extraction and clearance for commercial plantation have also caused harm to increasing human numbers and development because non-timber forest products like rattan, bamboo, resins, waxes, nuts, honey, spices and medicinal plants provide a livelihood for indigenous people.

\textbf{URBANISATION RELATING TO OVERPOPULATION}

The growth of population is the major cause for destruction of environment and danger in ecology. The extra more people occupied the area of wildlife and at the same time those people started to consume the small wild animals and nature in great extent. The political economists in very early introduced the classic debate on the relations between overpopulation, poverty, and environmental degradation. According to renowned environmental economist Herman Daly has written, "\textit{The Marxian and Malthusian traditions represent the major competing explanations of poverty in Western thought without which modern environmental problems cannot be addressed.}"\textsuperscript{127} In 1798 the classical economist Thomas Robert Malthus argued that all animals including human beings had the capacity to increase geometrically (1, 2, 4, 8, 16, and so on). As the population of an area grows, more food, timber and water has to be produced to feed the extra people and finally the environment becomes so disrupted that it cannot support the population. This human population, if unchecked, would thus be expected to increase double itself every twenty-five years may face extreme poverty.

\textsuperscript{126} \textit{Wounded Nature vs Human Future; V.R. Krishna Iyer, Pp 236}
\textsuperscript{127} \textit{The Vulnerable Planet, John Bellamy Foster, Pp 52}
Cotton manufacture led to urbanization in the British city of Manchester with hundreds of five-and six-storied factories and towering chimney by its side which used to exhale black coal vapour. Between 1760 and 1830, the population of the city became 180,000, from 17,000 which was more than tenfold.\textsuperscript{128} The world’s Deserts expanded by about 120 million hectares\textsuperscript{129} between 1970 and 1990 mainly for heavy civilization and more cultivation. Later the environment becomes so disrupted that it cannot support those populations. During the period of 1984 and 1985, nearly 15 million people world-wide had to leave their homes; 10 millions were in Africa. Farmland is not allowed to rest and recover its fertility, and it becomes steadily poorer. Forests are cut down for fuel faster then new trees can grow. When that happens people are faced with starvation. In order to survive, many move to the towns in search of work, and the population problem spreads to urban areas.

\textbf{TOURISTS INTERFERENCE}

Frequent human involvement and pollution of modern transport system have invaded the peaceful homelands of the wildlife throughout the world. These tourist activities have adversely affected both the flora and the fauna and particularly the large carnivore animals that require peaceful and clean environment for feeding and reproduction. Fauna and Flora of Himalayan region in India has been very much affected by tourists, mountain expedition and scientific exploration. At the same time extinction of wildlife is happening rapidly in Himalayan region. Rampant of tourism businesses has created another kind of problem for the wildlife within there own habitat according to report by one Bangalore based NGO, nearly 150 wild animals are killed on the Mysore-Ooty road during the tourist season between April and June every year.\textsuperscript{130} In a recent study conducted by the Union Ministry of Tourism on Corbet National Park has revealed 70% of resorts around the protected area are venues for weddings, rain dances, parties, bike races and zorbing rather than

\begin{itemize}
\item \textsuperscript{128} The Vulnerable Planet, John Bellamy Foster, Cornerstone Publication, Pp 55
\item \textsuperscript{129} ibid, Pp 8
\item \textsuperscript{130} Down to Earth, Aug 16-31, 2008; Pp 23
\end{itemize}
for interested in wildlife. Apart from parties, resorts use to keep bright light all the night and vehicles are plying within the tiger reserves causing disturbance to wildlife. As per some wildlife experts resorts have mushroomed due to lack of service of forest department within the protected area.

COMMERCIAL FORESTY

Commercial forestation is not a solution for wildlife habitat on the contrary it leads to deforestation, desertification and erosion processes that decimate the ecosystems that tigers depend upon. As per practical research reveals that after completion of project the logging of commercial forest leaves roads through which poachers and hunters use to come easily. The use of Eucalyptus by government from Australian origin for commercial purpose generated dissatisfaction among the environmentalists in India. In Tamil Nadu, the forest department is earning huge revenue from Eucalyptus plantation in Anamalai Sanctuary but it did not prevent timber exploitation and also failed the objectives of national park movement in India. The Forest Department has never backed large scale plantation program and in 1960s and 1970s they made a serious error in chopping good natural forest to raise monocultures of eucalyptus species. A large scale Government plantation of tropical pine, eucalyptus, made to feed paper mills on subsidized rates not for ecological purpose.

There is no balance between the forest and development, as per ex-head of Project Tiger P.K.Sen, and plantation is not the answer. They can never be the same as a forest. If you want to spend money on afforestation, just call it a welfare scheme to meet fuel wood needs. Many of the plantations in the high rainfall zone have been wiped out by a fungal disease called pink disease which will lead to serious ecological damage to the land and to the water cycle. So

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131 Party animals flock to Corbet, THE TIMES OF INDIA, KOLKATA; January 12, 2010
132 Conserving India's Tiger, Janet Altman; Indian Journal of Environmental law, December 2000, Vol.1 Issue 2; CEERA, NLUIU
133 The Oxford Anthology of Indian Wildlife, edited by Mahesh Rangarajan, Volume II; Pp 254
134 Wooden Feet, Down to Earth, Nov -15, 2008, Pp 32
135 Ecological Journey, Madhav Gadgil, permanent black; Pp 197
commercial forestry or plantation has not solved the ecological problem but generated various threats for wildlife in nature.

MINING AND OTHER DEVELOPMENT PROJECTS
With the discovery of iron and other metals, the human civilization got the new speed and dimension as Minerals are of great importance to all of us. Many of the minerals found in the rocks of the earth’s crust are valuable and useful metals, including gold, silver, iron, bauxite, and tin. In our modern life the effect of these minerals can not be avoided. But this development has taken a better ecology for our future generation also. The process of open cast mining is dangerous for landscape and destroys microbial communities of ecosystems. The long term open-cast mining reduces forest productivity, damages aquatic and atmospheric ecosystems. Thousands of square kilometers of tiger and wildlife habitat have been changed to large development projects like mining and hydroelectric dams in India. In tiger habitat used for marble or bauxite mining will never hold tigers again. Recently elephants are suffering from their habitat loss due to illegal mining in the various part of the India. 20 elephants migrated 2002 from Karnataka to Maharashtra and both the State Governments were facing problem for such type of roaming wild elephants. Maharashtra forest officials blame illegal mining and infrastructure within Karnataka had destroyed the natural habitat of elephant and forced them to move to south Maharashtra.136 Wildlife enthusiasts and tribal activists both fight with other environmentalists over India’s forests tree cover which has gone down more than half by mining projects and threatening rest of national parks and wildlife sanctuaries in India.

According to documentary filmmaker Krishnendu Bose, the bigger danger to tigers comes from multinationals and state laws that allow rampant destruction of habitat in the name of development.137 Extracting these minerals from the earth can cause great damage to the environment. So acquiring of

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136 Down to Earth, Feb 16-28, 2009; Pp 9
137 In Periyar, poachers protect tigers, THE TIMES OF INDIA; November 11, 2007
forests or water bodies or any wildlife habitat is a great threat for ecology. Forest and Wildlife Ministry should take special care for wildlife conservation as well as for forest management also for this purpose. It is especially essential to provide “Corridors” in the protected areas to maintain genetic continuity wildlife.

**EXPANTION OF ROADS AND HIGHWAYS**

Though roads and highways are integral for developmental purpose for communication and transport but expansion of existing roads and construction of new roads are receding the forests cover which are main habitat of wildlife. In India one of the latest example is the Tadoba Sanctuary in Maharastra where road building inside the 625.4 sq. km of the Sanctuary has created a danger over the wildlife population. The road is being constructed for the tourist attraction but according to wildlife expert this road building and tourist activities inside the protected areas will generate problem for the tigers and other wildlife and also reduce their prey level. The inmates of Rajaji National Park are facing the problem due to the expansion and construction of new Road inside the protected area. The road construction is destroying the habitat of deer and other carnivores and causing decrease in the number of wild animals.

**DEATH OF ANIMAL IN RAILWAY TRACK**

The accident took place when the scavenger birds were at rest on the railway tracks after feasting over a carcass. In spite of widespread use of anti-inflammatory drug diclofenac, according to conservationists scavenger birds also die in large numbers in accidents, either on the road or railway tracks everyday. In a recent incident a flock of 30 rare white-backed vultures was crushed by the Durg Express in Maharajganj district in Uttar Pradesh.

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138 *Down to Earth, May 1-15, 2008; Pp 24*

139 *Down to Earth, Sep 16-30, 2008; Pp 15*

140 **30 rare white-backed vultures run over by train in UP, SUNDAY TIMES OF INDIA, KOLKATA; February 21, 2010**
Though wildlife conservationists feel railway authorities and the people in
general should keep railway tracks free of carcasses to avoid such accidents\textsuperscript{141} but least protective measures are taken by railway authority.

In the northern part of West Bengal, the death of elephants in the railway
track is very common incident everyday. Since 2003 when the meter gauge
track connecting New Jaipalguri and New Alipurduar was converted to broad-
gauge, the wildlife sanctuaries of Dooars and Terai have turned into death traps
for animals specially elephant. The high court had then passed an order to form
a special team comprising central forest & environment and railway officials to
probe the matter and the special team had identified four areas as vulnerable –
in Buxa Tiger Reserve Forest, Jaldapara Sanctuary, Chapramari sanctuary and
Mahananda Wildlife Sanctuary.

### Elephants Killed Hit by Trains In Dooars and Terai\textsuperscript{142}

<table>
<thead>
<tr>
<th>Year</th>
<th>Place of accidents</th>
<th>Number</th>
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<tr>
<td>1974</td>
<td>Mahananda Wild Life Sanctuary</td>
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<td>Mahananda Wild Life Sanctuary</td>
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<td>1992</td>
<td>Chapramari Wildlife Sanctuary, Madarihaat</td>
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<td>1993</td>
<td>Gulma (Mahananda), Hasimara</td>
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<td>1999</td>
<td>Gorumara National Park</td>
<td>1</td>
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<td>2000</td>
<td>Jaldapara Wild Life Sanctuary, Chapramari Wildlife</td>
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<td></td>
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<td>2001</td>
<td>Rajbhatkhawa (Buxa Tiger Reserve), Mongpong</td>
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<td>2002</td>
<td>Chapramari Wildlife Sanctuary</td>
<td>4</td>
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<tr>
<td>2004</td>
<td>Gulma (Mahananda)</td>
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<tr>
<td>2006</td>
<td>Damdim, Mongpong</td>
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<td>2007</td>
<td>Rajabhatkhawa, Atiabari, Madarihaat, Gulma</td>
<td>7</td>
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<td></td>
<td>(Mahananda)</td>
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\textbf{Table 3}

\textsuperscript{141} Deadly Track, THE TIMES OF INDIA, KOLKATA; May10, 2008

\textsuperscript{142} Activists raise voice against killer track, TIMES OF INDIA; November 16, 2007
Recently the authorities of Rajaji National Park in Uttarakhand are constructing over past corridors which will bypass a railway track and a busy road passes through the Motichur Elephant corridor. As per direction of Centrally Empowered Committee (CEC), appointed by Supreme Court in 2002 to monitor non forest use, each flyway will be 100 meters wide and 10 meters high. They also approached to IIT, Delhi, to give the natural look and vibration proof of those flyovers. In the ‘Buxa Tiger Reserve’ killing of elephants on railway track is going on and the railways are not following the guidelines set by the special committee in 2002 in accordance with the High Court’s order. Birds are continuously facing problem with flights in their common track. Director General of Civil Aviation (DGCA) of India is going to audit of bird hits airports like Vadodara, Ahmedabad, Kolkata, Delhi, Mumbai and Chennai to some immediate steps. The National Committee of prevention of bird menace at airports is going to be revived after a gap of nearly two decades. This panel has experts from urban management and aviation for clean environment and safe movement of flights. So in railway track or airways, wildlife and birds are being killed for human carelessness in the society.

**AGRICULTURE AND PLANTATION PROJECTS IN FOREST LANDS**

All over the world agriculture and plantation over the forest land has created a menace for wild animals and ecology also. But due to expansion of plantation on the forest land or agriculture in the adjacent land of the forest, wild animals do not move freely or conflict arises. The plantation was developed as a part of colonialism of European countries from very beginning. The demand of sugar in 17th and 18th century generated the plantation business throughout the Spanish and Portuguese colony of Brazil and then British and French colony in the Caribbean and latter in America also. Again for tobacco this plantation business grew up by traders and in 17th century, Virginia’s settlers had cleared

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143 Down to Earth, Sep 1-15, 2008; Pp 12  
144 Train mows down elephant at Buxa, THE TIMES OF INDIA, January 16, 2008  
145 DGCA to revive panel to tackle bird menace, TIMES OF INDIA, January 20, 2009
nearly half million acres of forest land for tobacco plantation\textsuperscript{146} and conversion of forest for coffee plantations in southern Costa Rica had caused disappearance of birds at that area.\textsuperscript{147} The increasing amount of plantation projects has declined in natural forest cover in many countries. As per report of FAO 2000, Indonesia recorded an average annual decrease of 1.3 million ha between 1990 and 2000, one of the highest rates of deforestation recorded globally. Malaysia, Myanmar and Thailand are destroying their forest for plantation purposes.\textsuperscript{148} All the developing countries are facing the same type of problem of plantation in the forest land. Orangutan habitats in Borneo and Sumatra are disappearing due to the deforestation of rainforests to meet the increased demand for palm oil. So African oil palm plantations are responsible for destruction orangutan population as they spend nearly 90\% of their lifetime in trees and their arms are longer than any other ape.\textsuperscript{149} Recently a group of people and ecologists protested in Uganda against the Government decision for sugar cane plantation in Mabira Forest. According to ecologists such type of deforestation of Mabira will create ecological disaster within the country.\textsuperscript{150}

Recently in a village of West Bengal near Sunderban area the local people chopped nearly 2000 mangrove trees and cleared lands were distributed among the farmers for cultivation. As per expert this sudden felling of trees disturbs the movement of tigers and it may lead to straying them.\textsuperscript{151} In Tamil Nadu also, State Government planted casuarinas trees to protect the coastal land from the flood and tsunami. But this plantation was very much against the natural habitat of the Olive Ridley turtles. Casuarinas plantation was made on the high tide line of the coastal area which is also the nesting place of those turtles. Encroachment the area of the natural habitat of Olive Ridley turtles created lots of destruction of their natural habitat as well as those plantations stopped their natural movement on the sand. Finally the World Bank has

\begin{itemize}
  \item \textsuperscript{146} \textit{The Vulnerable Planet}, John Bellamy Foster, Cornerstone Publication, Pp 45 & 46
  \item \textsuperscript{147} \textit{The International Politics of Bird Conservation: biodiversity, regionalism and global governance}; Robert Boardman, Pp 25 [http://books.google.co.in/books]
  \item \textsuperscript{148} Global Environment Outlook 3, UNEP (www.grida.no)
  \item \textsuperscript{149} Disappearing Orangutan, \textit{TIMES OF INDIA}; April 7, 2007
  \item \textsuperscript{150} Down to Earth, May 15, 2007, Pp 8
  \item \textsuperscript{151} Mangroves axed to make way for farmland, \textit{TIMES OF INDIA}; October 26, 2009
\end{itemize}
funded to the Tamil Nadu revenue department to uproot those casuarinas plants to save the nesting area of the endanger Olive Ridley turtles. The plantation and agriculture on the natural habitat of wildlife are reducing their population for ever expanding human demands.

**FILLING OF WETLANDS AND POLLUTION IN WATER BODIES**

Wetlands are neither land nor water but Coastal marshes and river estuaries, mangrove swamps and inland bogs which are all practically worthless to human beings but vital to the plants and animals that make their homes in them. More than two thirds of the world’s vertebrate wildlife depends on wetlands in the any point of their life cycle. Wetlands are heaven for all kinds of waterfowl and migratory birds in nature and birds are natural barometer of the status of wetlands. But Wetlands are now threatened because people drain the water from them to make them useful for agriculture or building. Though in 1971, Ramsar Convention was a great step where Twenty Three countries represented and agreed to save most important wetlands and to help each other to protect them. But there is still a long way to go to save the wetlands in the world.

Wetlands are very much important elements for the ecology as well as main indicator for the development of civilization in the history. India is rich in fresh water wetland resources which is habitat for huge numbers of rare species of birds, animals, insects and plants. But the filling of wetlands and water bodies in the urban as well as in rural areas for construction purposes is creating a menace for ecosystems. Indian policy designates most shallow water bodies as ‘wastelands’ and governmental machinery is geared towards reclaiming these areas for activities deemed more valuable. According to Researcher of International Crane Foundation, K.S.Gopi Sundar, most Indian cities have lost their wetlands entirely resulting in water-logging of erstwhile wetland areas. Declination of water levels are a national concern and loss of

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152 Down to Earth, Oct-16-31, 2008, Pp 14
153 Swan song of the marshes, K S Gopisundar, THE SUNDAY INDIAN, 24Nov-30Nov, 2008; Pp 37
wetlands is significantly important reason for current water problems. Developmental activities and changing lifestyles in rural areas however are now collectively responsible for decline in the quality and quantity of wetlands. The imperiled range of wildlife including six foot tall graceful Sarus Cranes which was very common in wetlands of northern India, is now an endangered species throughout the world.\(^{154}\) The birds that have traditionally nested in India are now thought to fly to West Asian Wetlands and Siberian Crane was last sighted at the Bharatpur Bird Sanctuary in 2002.\(^{155}\) The migratory birds from Northern Eurasia like Caspian region, Siberia, Kazakh, Lake Baikal and remote places of Russia and other neighboring countries visit the brackish water lagoon to escape from severe winter.

In 1999, in a census on Indian Surus crane it was revealed that the main problems for those birds pollution of wetlands due to domestic and industrial waste, fertilizers and pesticides. In a nation wide study on wetlands conducted by Salim Ali Center for Ornithology and Natural History (SACON) it was revealed that fishes in the wetlands had reduced due to heavy metal and pesticides in the water bodies above the level as prescribe by World Health Organisation (WHO).\(^{156}\) In 2002, the last two Siberian cranes of the central flock failed to return to India. Their winter home, Keoladeo National Park, reeled under a drought and there was no water to house the birds. They were not reported from anywhere else in the country. Two more winters passed, and the birds still did not show up. It is now suspected that they are extinct.\(^{157}\)

The Kolkata High Court\(^{158}\) gave a meaningful explanation about water bodies. As per Water Act, pollution includes an act of changing the nature of water. The State Pollution Control Board has power and legality to question the act of filling the water bodies. Recently in West Bengal some initiatives have been taken to protect wetlands of Kolkata as Wetlands are already under

\(^{154}\) Swan song of the marshes, K S Gopisundar, THE SUNDAY INDIAN, 24nov- 30nov, 2008; Pp 37
\(^{155}\) Expert differ on Siberian crane’s return, SUNDAY HINDUSTAN TIMES, February 24, 2008
\(^{156}\) Down to Earth, April 15, 2007; Pp 43
\(^{157}\) official website of The Indian Cranes and Wetlands Working Group . . .
\(^{158}\) Mohan Vaniya Viniyog Private ltd. v/s State of West Bengal, AIR 2007 Cal 190 (NOC)
tremendous pressure due to heavily expansion of urbanization like new housing complex. The East Kolkata wetlands which have already been declared a Ramsar site, one 15-members organization East Kolkata Wetlands Management Authority (EKWMA) headed by the state chief secretary has taken steps to protect all hazards caused by external elements and to preserve heritage. Again in Kolkata, the country’s first wetland-zoo will go in East Kolkata wetlands to save this Ramsar protected ecological site. No constriction will be allowed at the zoo site as per provision of East Kolkata Wetlands (Conservation and Management) Ordinance 2005. Water bodies are habitat of many living nature resources and filling up streams or water bodies is in general an eco-unfriendly act. So filling of water bodies and wetlands are most dangerous threat for conservation of wildlife in India.

**DUMPING AND DISCHARGE OF WASTES IN THE SEA**

Billions of tones of chemicals, oil and other wastes have been dumped into seas which have become world’s dustbin. These wastes included waste from industry, sewage sludge and the dredged from ports and harbors to keep them open. The spoil itself is frequently contaminated because ports are often polluted. The washing of oil tankers and ship borne pollutants are gathered in the seas. In 1984 alone the countries surrounding the North Sea dumped over 100 million tones of wastes from special dump ships. But most dangerous radioactive waste is produced by nuclear reactors are also dumped in the seas. These radioactive wastes create genetic imbalance to the living resources in sea which will also create ecological disaster in the marine ecosystem. Between 1949 and 1983, Britain disposed of its radioactive waste by dumping it in barrels in the sea and Switzerland dumped close to 100,000 tones of waste. The USA dumped at least 75,000 barrels of radioactive waste at dump sites in the pacific and Atlantic.

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159 Signs of threat to wetland, HINDUSTAN TIMES, March 29, 2007
160 Born Free, Again; TIMES OF INDIA, June 27, 2007
Marine pollution was defined in 1970 by ‘Group of Expert on the Scientific Aspects of Marine Pollution’ (GESAMP), as, “introduction by man, directly or indirectly of substances or energy into the marine environment including estuaries resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality or use of the sea water and reduction of amenities.” Discharge of oil and other chemicals has very worst effect on marine environment and very much threat for destruction of wildlife and their habitat. Estuaries are breeding areas of fish and they are extremely susceptible to the oil pollution. Again sea birds are very much affected due to the oil pollution in the marine environment. The depletion of seabirds and waterfowl has an adverse effect on the ecological balance of sea and the nearby areas.\footnote{Marine Oil Pollution; International Control, G.Ajith Kumar, LAW AND ENVIRONMENT}

There are some major sources of marine pollution in the present world:

(a) Discharge of oil and oil related wastes
(b) Discharge of ship-borne pollutants
(c) Disposal of domestic and industrial wastes
(d) Disposal of radio-active wastes from the experiments of nuclear energy
(e) Exploration for marine resources.

India is very much rich in marine resources with long coastline and deep continental shelf. But India is also suffering from marine pollution due to huge coastal population along with industries discharging chemical wastes in the seas.

The Convention on the prevention of Marine Pollution by Dumping of Wastes and other Matter 1972, commonly called the “London Convention” or “LC 72”, is an agreement to control pollution of the sea by dumping and to encourage regional agreements supplementary to the convention.\footnote{Civil Service Chronicle, VOL. XVIII, NO. 3; September 2007; Pp 107} So dumping and ship borne pollutions are main challenges to save the existence of marine animals and coastal wildlife.
CONSTRUCTION OF DAM

Hydro-electro project consists of construction of dam reservoir which also leads construction of power houses, roads and colonies which has great impact on population and ecosystem of the area. Although the benefits of dams can be substantial but negative impacts including significant biodiversity loss, are very common. The World Commission on Dams (WCD 2000) has shown that the environmental, hydrological and economic arguments used to support dam construction are often flawed.\(^\text{163}\) The rehabilitation of the inhabitants from their ancestral place is a very sensitive and sociological issue because of disruption in their normal activities.

In USA, when San Francisco sought to dam Yosemite National Park's Hetch Hetchy Valley for a reservoir as an electricity project, the conservationists and preservationist wings of the environmental movement directly confronted with each other. In spite of opposition from John Muir and other park supporters, American Congress finally permitted the dam in 1913. First time in world Hetch Hetchy Dam highlighted the institutional weakness of the park movement in USA at very beginning. Later the danger of dam was realized by people time to time. In 1971, Aswan High Dam was largest building project in Egypt created a huge reservoir, Lake Nasser, 270 km long, on the River Nile. But before the dam was built, the salts in the Nile were flushed out by yearly flood and lands irrigated by the dam waters are affected by salt. Again loss of the nutrients has also led to a decline in the number of fish in the coastal waters, where the Nile meets the sea.

In reference to Indian position large dam and hydro electric projects cause a huge level of displacement of millions of people from the areas where they have been living for time immemorial. In the past, according to Alok Kumar, when dams were built, the people who occupied land in the submerge areas were often evicted without notice or proper compensation or rehabilitation. This was the case in developed and developing countries. The concept of protecting displaced persons came to the forefront with the

\(^\text{163}\) Global Environment Outlook 3, UNEP (http://www.unep.org/GEO/geo3/)
realization of the severity of problems caused by large scale uprootment of people and destruction of their cultures. Though creating dam is an important for development but on the other side dams create lots of destruction to the wildlife and nature.

**USE OF FERTILIZER, PESTICIDE AND DRUG**

Many pesticides are poisonous to other of life of animals as well as to the insect pests. If a small bird eats beetles that have been poison does not pass out of the bird’s body, but accumulates in its body fat. It contains a strong dose of the poison, enough to kill the predator or to interfere with its breeding. So history shows us there is a huge destruction of birds’ population and other wildlife due to the use of drugs and pesticides.

In 1830s severe crisis of soil fertility in European and North American agriculture developed the study of soil sciences and Chemical fertilizers helped in huge scale to development of fertility of land in the earth. In Britain and afterwards in the other developing capitalist economics concern over the “worn-out soil” led to a phenomenal increase in the demand for fertilizer also in the 1820s and 1830s. In 1840 Justus Von Leibig’s “Organic Chemistry in its application to Agriculture and Physiology” was published where he explained the role of various soil nutrients such as nitrogen, phosphorus and potassium in the growth of plants. Influenced by Leibig’s ideas, in 1843 an English agronomist, John Bennett Lawes finally produced the first agricultural fertilizer ‘Super Phosphate’ and set up a factory for large-scale production of this synthetic fertilizer. After World War I, German chemist Fritz Haber developed a way to make an artificial nitrogen fertilizer. But like every development it had its adverse impact over the ecology also. After the rain all agricultural wastes with fertilizers use to contaminate water resources. So, wild

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164 Tehri Project – An environmental analysis, Alok Kumar, Indian Bar Review, Vol XXIII (3&4)1996
165 Ecology against capitalism, John Bellamy Foster, Cornerstone Publication; Pp 156
166 Man and Ecology in Marx and Gandhi, Tapan Kumar Chattopadhyay, Mitram; Pp 106
167 The Vulnerable Planet, John Bellamy Foster, Cornerstone Publication, Pp 64
animals are affected very much through fertilizers which also makes harm for marine animals also.

The introduction of DDT, the first Organ chlorine insecticide, was tremendous successful during the World War II. The dramatic reduction of malaria cases, due to extensive use of DDT in India and other parts of world, crowned it as the king of pesticides and in 1948, Swiss chemist Paul Hermann Müller was awarded Nobel Prize in Physiology or Medicine for his discovery of insecticidal qualities and use of DDT (dichloro diphenyl trichloroethane) in the control of vector diseases such as malaria and yellow fever. But non-targeted species like frogs, snakes, birds have been very much destroyed by aerial and terrestrial spray of pesticides and developed increased number of resistant insects. Birds were affected badly by insecticides and the presence of DDT in Arctic region was first realized by Penguins there. DDT also liable for extinction of famous Dodo birds in Mauritius.

One of the worst impacts of drug is seen on various species of vulture in India. In the mid 1990s there were nearly 10 million vultures in India, Nepal & Pakistan. But this population started to dwindle mainly due to use of ‘Diclofenac’ on cattle. After the consumption of those cattle, the vultures use to face severe digestive problem and also suffer genetic problem. A study, published in ‘Nature’ (online) of January 28, 2004 gave a new inside that Diclofenac, a most used painkiller for cattle, is the only cost for declination of vulture population in India and is main source for rapid deduction of vulture as this drug leads to gout, kidney failure and finally the death of vultures. Vultures, the scavenger species, have been wiped out due preyed on dead bodies. Scientists have also found that a hormone booster drug like Bovine Growth Hormone (BVG) was pumped into cows and buffaloes to enhance lactation on the process of operation flood through the ‘70s’ ‘80s’ and ‘90s’ caused the mysterious wipeout of vultures.

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168 Down to Earth, October, 16-31, 2008; Pp 45
169 Down to Earth, April 30, 2007; Pp 36
170 Extinction of vultures may cause epidemic, TIMES OF INDIA; February 8, 2006
growth and more production have generated destruction over nature including wildlife.

PENDING CASES WITHOUT TRIAL
There are tremendous procedural delays in the wildlife and forest related cases and in the courts those cases are given least priority than other numerous cases. The filings of frivolous appeals especially on interim orders are stalling the case at the trial courts. According to conservationist Belinda Wright the problem that needs to be addressed is wildlife crime that has been on the anvil for years which is a huge multi million dollar industry. In Delhi alone nearly 250 cases are pending. People in India don’t really need the skin and bones of these animals, but they are required in large number in china and Tibet. And much of this smuggling and illegal trade goes through Delhi. Recently the amendment of 2006 has put some extra teeth in Wildlife (Protection) Act, 1972 which enhanced the amount of penalty as well as the term of punishment for wildlife crimes in India. But making the laws is not sufficient to curb this crimes proper implementation with completion of trial without delay is most important.

But No court shall as per Section 55 take the Cognizance of any offence of the Wildlife (Protection) Act, 1972 except on the complaint of the Director of Wildlife Preservation, Chief Wildlife Warden or any person who has given the 60 days notice to Central or State Government or those official authorities. So these limitations have made slower the proceedings of wildlife cases in India. Though the 2003 Amendment has included Member-Secretary of Central Zoo Authority and Officer-in-charge of the zoo for complain of offences relating to zoos but those are not sufficient for to cope with numerous offences within the country.

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172 All the (W)right moves? Belinda Wright; THE SUNDAY INDIAN, 8 Oct – 14 Oct, 2007
GLOBAL WARMING AND CLIMATE CHANGE

There is direct threat from global warming and sea level rise to the existence of wildlife. As per experts, the of global warming could be extended a range from $1.8^0C$ to $4^0C$ which will lead to water scarcity and droughts as well as higher rainfall and coastlines will feel the direct impact rising sea levels.\(^{173}\) Due to climate change rivers are getting flooded and nests on the sand bank of many wildlife species are destroyed. These so-called greenhouse gases, such as carbon dioxide, methane and water vapor, have existed naturally for millions of years. The amount of some of these gases is increasing, however, and human-made greenhouse gases, such as chlorofluorocarbons (CFCs), are entering the atmosphere as well. The natural balance has been upset and the earth is getting warmer. Changing climate will impact biodiversity, forests and agriculture and the poor countries will be affected by chiefly. Recently according to a research there would not be any snow in the Africa’s tallest mountain peak Kilimanjaro in 20 years due to global warming and since 2000 the existing ice sheet has shrunk by 26 percent.\(^{174}\)

Birdlife already is under pressure from climate change and migratory birds are suffering very much by the impact of climate change. The migratory birds from the Arctic, Tundra, Central Asia, the Himalayas, the trans-Himalayan region and also Peninsular India fly between 5,000 kilometers and 7,000 kilometers for India. Some of these birds are passage migrants, who stop by only for a few hours or few days before going ahead to their favourite migratory destinations. According to Executive Secretary of ‘Convention on Migratory Species’ (CMS), Robert Helpworth, changes are already taking place in the habits of migrating birds.\(^{175}\) With warmer winters in the north, some birds have stopped migrating altogether, leaving them at risk when the next cold winter strikes. Deserts are expanding and rises in sea levels can swamp wetlands where travelers stop to feed. Birds face starvation when they arrive too early or too late to find their normal diet of Insects and plankton.

\(^{173}\) THE HINDU SURVEY OF THE ENVIRONMENT 2007; Pp 5
\(^{174}\) No snow on Kilimanjaro in 20 years, TIMES OF INDIA; November 3, 2009
\(^{175}\) Climate change takes toll on birds migration, TIMES OF INDIA; May 15, 2007
Birds traveling long distances reach late to the buffet and realized the effect of climate change very much. Unlike the short and medium distance migratory birds, the long distance migratory birds who spend winters in South America can’t understand weather when to leave.\footnote{176 Down to Earth, August 1-15, 2008; Pp 43}

The US Geological Survey has reported two-thirds of The World’s polar bear population could be gone by mid-century if predictions of melting sea ice hold true.\footnote{177 Most polar bears may be lost by ’50, SUNDAY HINDUSTAN TIMES, September 9, 2007} In September 2007 United States Geographical Survey (USGS) said the population of polar bears would decline nearly two-third by 2050 due to melting of ice in the polar area for Global Warming. Though polar bears are protected from traffickers and poachers by Marine Mammal Protection Act 1972 but that is no provision to save them from such type of habitat loss due to Global Warming.\footnote{178 Down to Earth, March 15, 2008; Pp 38} Other marine inmates like zooplanktons, fishes and sea birds are facing acute problem of population declination due to global warming. As per report of WWF, this invisible killer is making severe destruction to some species like, giant panda of Wolong in China, grizzly bears of Yellowstone in America and tigers of Kanha National Park in India. The Tundra forests and Polar areas and their inhabitants are great sufferer of this global warming now.\footnote{179 YOJANA, June 2009; Pp 48}

Tigers of Sunderbans in West Bengal are moving to more hospitable northerly islands where the tides are less daunting and the water has less of brine. Such migration of tigers due to global warming is causing man-wildlife conflict for common food. As per Pranabesh Sanyal, a member of IUCN (cat group), Climate changes triggered by global warming are causing fast meltdown of Arctic ice, resulting in rising sea levels. The impact is being felt in the Sunderbans, where the southerly Islands closer to the estuary are getting submerged and the water quality is being transformed from brackish to saline.\footnote{180 Migrating Stripes, HINDUSTAN TIMES LIVE, Kolkata, Friday, July4, 2008} The tiger habitat in Sunderbans is shrinking fast with rising sea levels and erosion and in the last 35 years twelve islands have been washed away.
According to the director of the Jadavpur University’s School of Oceanographic Studies, Sugata Hazra there would be a tendency of tigers to move at less affected northward areas but it will lead to more man-animal due to dense human habitation. The climate change is a great danger for birds to tigers and whole wildlife at large.

**EVER INCREASING POLLUTION**

The ever increasing pollution of the presence society has generated a destruction of wildlife specially the bird population. According to a report of UNO environment is suffering too much due to human activity and there is 34% rise in the world’s population in the last 20 years, 60% of the rivers have been dammed or diverted, 10% of the large rivers run dry every year before they reach the sea and 1.16 lakh sq km of forest land is lost across the world each year. This heavy habitat loss is caused threat for extinct of 30 per cent of amphibians, 23 per cent of mammals and 12 per cent of birds now. A study conducted by researchers in UK on European starlings, a migratory song bird species, whose population has suffered a 50% decline within past 14 years. India is also suffering from same problem due to the heavy pollution in Air and Water. According a scientist of Jawaharlal Nehru University, Delhi, hormone levels also undergo changes due to air pollution. “The diurnal rhythm of song birds gets disturbed, especially in places where there are more diesel fumes and fewer trees. The egg quality is poor and in less numbers.” So overpopulation and urbanization have increasing pollution and creating a dangerous place for wild animals.

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181 Erosion will trigger more incursions into human habitat, THE TIMES OF INDIA, February 22, 2008
182 Dying planet, THE HINDUSTAN TIMES SUNDAY; October 28, 2007
183 Death Song, Ravleen Kaur, Down to Earth, April 15, 2008; Pp 47
INADEQUATE GOVERNMENT MECHANISM

The Third world countries most dangerous problem is their insufficient forests guardians with traditional tools and machinery. In spite of huge natural resources those poor countries facing wildlife problem for lack of their appropriate machineries and official staffs. India is also facing the same problems. The forest guards are blaming that they do not get the basic amenities even batteries for their torches which is essential for patrolling. On the other side most of the poachers use mobile phones and sophisticated weapons for killing of wild animals. The lack of infrastructure within the protected areas in the most complicated problem in India. The guards need to patrol nearly 20 sq km every day on foot and they are regularly attacked by wild animals. Forest departments sources in the state of Assam said out of 50 home guards, about 15 have left service for less pay. The state government deployed armed home guards to assist the frontline forest staff after the spurt in rhino poaching. The chief wildlife wardens of the southern states, at a recent Seminar in Chennai, admitted they did not have enough trained staff to take on poachers. But sources said the inhospitable working conditions with a constant risk of being attacked by wild animals prompted the home guards to leave. They also suffer psychological problems as they use to stay away for long period from their family. Same incident occurred in Orissa where Forest guards threatened for mass resignation as government failed to provide arms and vehicles to them for protection of the forests. The guards took the decision after the timber mafia attacked five of their colleagues. As per president of the All Orissa Non-gazetted Forest Service Association they were fighting a losing battle against the timber mafia and poachers with limited resources and understaffed department. Maximum protected areas in India have no working plan and units are most inefficient and uncoordinated. The forest departments are highly

184 Down to Earth, April 15, 2008; Pp 39
185 Take a good look....SUNDAY TIMES OF INDIA, August 9, 2009
186 The old guard, TIMES OF INDIA; May 11, 2008
understaffed and existing staffs have to over duty in the long areas. They are maximum ill-paid and extra payment for over time.

In 2003, National Forest Commission was constituted with Retired Chief Justice of India B.N. Kirpal as its head. According to this commission the park managers, having insufficient knowledge about wildlife, are making roads and watch tower which are very much detrimental to conservation of wildlife. Again Commission also recommended sociology training for foresters to realize to needs of the people in and around of the forest.\(^{188}\)

Tiger census of 2001 was carried out using the pug mark method. It had estimated the number of tigers at 3642; around 1, 5000 tigers within protected areas and the rest outside such areas.\(^{189}\) Wildlife experts have very least faith on such type of unscientific method of census. Previously the Comptroller and Auditor-General had also cast doubts over the tiger census figures saying the pugmark method isn’t fool-proof.\(^{190}\) So previous all methods applied by government were very ineffective. Deharadun-based Wildlife Institute of India (WII) laid down norms which were followed for the first time for tiger census. This time pug sketches, droppings and territory markings were taken into consideration during the survey. Though recently in 2008 National Tiger Conservation Authority and the Wildlife Institute of India conducted tiger census very scientifically on the basis of camera trap method but it is too late. The forensic inquiry is another problematic area regarding the trial of wildlife crime. Only the Wildlife Institute of India (WII) has a lab to analyze material to support prosecutors, but it is not legally recognized.

\(^{188}\) Remote Control, Down to Earth, Nov 1-15, 2008, Pp 28
\(^{189}\) Down to Earth, March 15, 2008; Pp 9
\(^{190}\) Tigers vanish from Orissa & Assam, SUNDAY TIMES OF INDIA; July 19, 2009
SMUGGLING THROUGH UNPROTECTED INDIAN BORDERS

The smuggling and illegal sale of tiger and leopard skins are common across India's border with China due to rampant poaching of endangered animals throughout the country. China, which is just across the north-east, is the biggest consumer of tiger parts and India and Myanmar have become major suppliers of tiger parts. Wildlife crime experts have already warned that tiger hunters from north and central India are now operating in the Jungles of east and north-east due to their proximity to international borders. Heavy demand of Indian wild tigers, body parts and bones for Traditional Chinese Medicine (TCM) in China, Taiwan, Tibet, South Korea and Japan has accelerated the poaching of tiger and smuggle them through Indian borders. Tiger bones and skins are also smuggled and Nepal, Bhutan, Bangladesh and Myanmar. Due to demand from international market to for their traditional use rather than domestic market India is loosing all of its tigers only for bad protection in the Indian borders. Kolkata is also being used as tiger smuggling transit according to Pranabesh Sanyal, former STR director and environmentalist.191 Almost all tiger parts ultimately make their way to China and these tigers were killed in the Sunderbans. Tiger poaching has perhaps become more rampant in the mangrove forest.

One kilogram of rhino horn costs nearly Rs.17 to 22 lakh in the black market at the international level. The horn is in high demand in South East Asia for its supposed medicinal properties. Assam is at doorstep of the consumer market. It is easy for poachers to get across the border and then into China, Thailand, and Myanmar. The Kaziranga Park, home of largest population of one horned rhinos in the world, is an obvious target for poachers.

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191 Tiger probe scanner on city, THE TIMES OF INDIA, May 9, 2009
193

Rhinos Killed from 1976-2007 only in Kaziranga, Assam192

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Table 4

The horns are smuggled to Nepal from Kolkata and Siliguri and finally end up in China and the Middle East. Another route is through Moreh in Manipur to Thailand, Vietnam, Singapore and China.193 In the Middle East, the horn is used for carvings and other decorative pieces.

CONFLICT WITH MAN AND WILDLIFE

Increasing man-animal conflict is a crucial wildlife management issue which needs to be addressed through some new approaches by the government. Shrinkage, fragmentation and deterioration of habitats has led the destruction of wildlife and generated animosity against wild animals and protected areas. Large mammals come into conflict with human interests by destroying crops, livestock or property and sometimes by event killing people. The continuous pressures of the human population over the natural habitat of wildlife are generating violence between man and wild animals both. So situation has become so difficult due to access over the common food and habitat. This natural condition is very much problematic for both human and wild animals. Local human populations or the people living in the same habitat have the greatest impact on tiger populations as humans and tigers both compete directly for food. Unfortunately for tigers, humans are entrechats over proficient deer hunters.

192 Call of the Rhino; TIMES OF INDIA, June 29, 2008
193 ibid
In the case of African elephants the problem about man and wildlife conflict is going on as they compete for the same land with not only the human but also with the cattle also. Elephants usually roam in the surrounding lands near of their habitat. According to Cynthia Moss, an elephant expert of African Wildlife Federation, the greatest threat to Africa’s elephant is loss of habitat range by human population growth and expansion to elephant range. Elephants are migratory in nature and consume nearly 300 pounds of food a day including grasses, roots, bark, and young trees. They drink 20 gallons of water a day. So they roam wide distances for searching of food. So when there is a common habitat or food for man and elephant conflict begins.

From very early days regarding the survival of mankind in the society there was a conflict between man and animals. Many people had been killed or wounded by various carnivores and poisonous creatures in India in previous days, so strict rules were applied by previous Indian rulers to prevent such attacks. In the Madras Presidency collectors were paid 25 rupees for each specimen of cheetah. Though cheetah was not a prestigious sporting trophy but it was targeted as vermin. The Maharao of Kotah in Rajasthan introduced a system to award 25 rupees who killed a lion and more than twice for the head of tiger. In the North West provinces, as wolves were a threats to stock and young children so the killers of wolves were paid more than that paid for a panther. The wolf was treated as a pest even after the Independence also. The elephant is very much important and useful to human life. But due to conflict with man it was treated as vermin. Finally elephant was removed from the list of vermin and got the legal protection in southern India first time. Coexistence of man and wildlife always was a part of daily practice. It was not related to tribal or forest dwellers but conflict was common scenario in every society in India. Many upper caste Hindus in northern India like the Rajputs regarded wild boar as a delicate food. Similarly, peacocks were a regular item of diet in north-eastern India and in many tribal areas in other regions.

194 Saving of African Elephant, Leslie A. Burton; Indian Journal of Environmental Law(December,2000), CEERA, National Law School of Indian University (Vol-1,Issue-2)
Wildlife habitats have been shrunk due to over absorption by human habitat and their developmental project. Wild animals use to roam within and outside the Protected Areas in search of food, water and shelter. Deer, pig, elephant and other herbivore are related to destruction of crops in fields adjoining Protected Areas where as cattle lifting by tigers, lions and leopards is common incident. Human deaths and wounds by large mammals such as bears, lions, tigers and elephants is also a menace against the relationship of man and animals. A survey in the mid-eighties indicates a conservative total of 629 including 485 fatalities animal attacks on humans in India during the period 1970 to 1984. Community access to the protect areas continuously has been a conflicting environmental issue in independent India regarding Wildlife Protection Area.

Even vultures are also victim of human anger in many places of India and they both are subject of conflict also. In 2005, about 15 vultures were poisoned to death by villagers in the Mancacher area of Assam’s Dhubri District. The Man-elephant conflict has been going on for generations in in north Bengal area of state of West Bengal which is the encroachment of the 300 km elephant corridor from Naxalbari on the Nepal borders to Sankosh in the east. It is a vicious cycle of elephants straying into villagers, being attacked wounded elephants turn on humans too and then wreaking havoc somewhere else.

195 People, Parks & Wildlife Towards coexistence; Vasant Saberwal, Mahesh Rangaragan, Ashish Kothari, Pp 21
196 Deadly Track, THE TIMES OF INDIA; May 10, 2008
197 Wounded Herd, THE TIMES OF INDIA; July 31, 2007
Humans Killed by Wild Elephants

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Total in 20 Years 901

Table 5

Again the problems of the present laws are that none of them provides for compensation for victim of wildlife attack. It is totally based on government policy of concern state. So decision of the State Government to grant gratuitous relief to victims was a sign of a good democratic Government but providing for such relief would not tantamount to admission of liability by the States for injuries by wild animals. In State of Himachal Pradesh v/s Smt. Halli Devi case, the petitioner claimed compensation in tort for damages for injuries due to attack by ferocious wild animal. Though in this a certain sum of money was paid as compensation under the scheme of preservation of wildlife, but there is no provision under the Wildlife (Protection) Act, 1972 to provide relief for attack by wild animals to any victim.

Limited areas for wildlife and expansion of human locality have intensified conflicts between humans and animals around the protected Areas. Again strict laws had generated one kind of anger among the number of villagers and marginalized people in India. Deprivation of their customary access to forests, several animal attacks and inadequate compensations for their losses had caused a social problem among the forest dwellers and tribes and finally the local people in most of the areas have turned actively hostile to conservation and against the preservation of wildlife. The expansion of the

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198 Wounded Herd, THE TIMES OF INDIA; July 31, 2007
199 AIR 2000 HP 113
animal population in a limited area has led to crop raids by elephants and tiger attacks on villages in the different parts of the India. However in some African Countries Wildlife as well as human being both co-exist in some National Parks and Reserve Forest. Moli Haoussa is one of the villages which are nearly within 15 km of Tamou Wildlife Reserve in Nigar.200

MODERN LIFE STYLE

Now a day’s ultra modern and sophisticated lifestyle of human beings has created another danger for wildlife in the ecology. The main cause of the ecological is not biological but product choice of individual human. They are productive relations and technological imperatives of social system. Use of radioactive materials, skyscraping tall buildings, construction of cell phone towers all has destructed the normal growth and development of nature and its components. The Hanford nuclear facility in the state of Washington in USA was revealed to be one of the world’s worst sources of radioactive contamination. The sparrows and other bird species are most sufferers of such kind of ever increasing lust of man for modern technology. The use of pesticides and insecticides in gardens reduces food for birds. As per B.C.Choudhury of the Wildlife Institute of India (WII), the pre-cleaned food grains for urban people has developed the food scarcity for sparrows and other birds as they mainly feed on left over from cleaning grains.201 Moreover the sparrows use to build their nests on tile houses or bamboo made huts. But due to concrete buildings those birds are not getting proper shelter for their habitats. In Europe sparrow population declined rapidly and now in India the chirps are very less heard.

200 Down to Earth, August, 1-15, 2008, Pp 48
201 Down to Earth, April 15, 2007; Pp 48
3.7. CONCLUSION

Today’s ecological problem consists in the deterioration of man’s environment is based on industrialization and urbanizations with the huge consumption of traditional energy and raw material resources, disturbance of natural ecological equilibrium, elimination of individual species of animals and plants. The effect of urbanization has been server. As countries have urbanized, poverty has urbanized as well. So the root cause of declination of wildlife and destruction of ecology lies on the activity man only and all of these are man created disaster. Then all these natural resources should be preserved for the next generation in the earth. The needs for the forthcoming generations the court held several times that the rivers, forests, mineral and other natural resources are important constitutes of natural wealth and these are not to be exhausted by one generation. Conservation of wildlife does not mean that all wild animals and birds must be saved but the population of wildlife should be managed, as it has a substantive role to play for future generations and in ecological security. The measures should be taken to preserve forest and natural resources for the protection of Wildlife and their habitat, and to manage coastal zones in a sustainable manner to maintain ecology as well as economic development of any nation. Proper management of land and water resources is an important matter not only to maintain the ecological balance but also to develop the economic growth of the country and to keep intact the natural resource structure of the country.