



# UNIVERSITY OF CALCUTTA

## Notification No. CSR/ 12 /18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

### List of the subjects

<u>Sl. No.</u>	<u>Subject</u>	<u>Sl. No.</u>	<u>Subject</u>
1	Anthropology (Honours / General)	29	Mathematics (Honours / General)
2	Arabic (Honours / General)	30	Microbiology (Honours / General)
3	Persian (Honours / General)	31	Mol. Biology (General)
4	Bengali (Honours / General /LCC2 /AECC1)	32	Philosophy (Honours / General)
5	Bio-Chemistry (Honours / General)	33	Physical Education (General)
6	Botany (Honours / General)	34	Physics (Honours / General)
7	Chemistry (Honours / General)	35	Physiology (Honours / General)
8	Computer Science (Honours / General)	36	Political Science (Honours / General)
9	Defence Studies (General)	37	Psychology (Honours / General)
10	Economics (Honours / General)	38	Sanskrit (Honours / General)
11	Education (Honours / General)	39	Social Science (General)
12	Electronics (Honours / General)	40	Sociology (Honours / General)
13	English ((Honours / General/ LCC1/ LCC2/AECC1)	41	Statistics (Honours / General)
14	Environmental Science (Honours / General)	42	Urdu (Honours / General /LCC2 /AECC1)
15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies ( General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General /LCC2 /AECC1)	49	Advertising Sales Promotion and Sales Management –ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE  
KOLKATA-700073  
The 4<sup>th</sup> June, 2018

*Paul*  
4/6/18  
(Dr. Santanu Paul)  
Deputy Registrar

# University of Calcutta

## Under Graduate Curriculum under Choice Based Credit System (CBCS)

### Syllabus for Ability Enhancement Compulsory Course-2 (AECC-2) in Environmental Studies

Semester-2

**Total Marks-100(Credit -2)**

(50 Theory-MCQ type + 30 Project + 10 Internal Assessment + 10 Attendance)

[Marks obtained in this course will be taken to calculate SGPA & CGPA]

#### Theory

<b>Unit 1 Introduction to environmental studies</b>	2 lectures
<ul style="list-style-type: none"><li>•Multidisciplinary nature of environmental studies;</li><li>•Scope and importance; Concept of sustainability and sustainable development.</li></ul>	
<b>Unit 2 Ecology and Ecosystems</b>	6 lectures
<ul style="list-style-type: none"><li>•Concept of ecology and ecosystem, Structure and function of ecosystem; Energy flow in an ecosystem; food chains, food webs; Basic concept of population and community ecology; ecological succession.</li><li>•Characteristic features of the following:<ul style="list-style-type: none"><li>a) Forest ecosystem</li><li>b) Grassland ecosystem</li><li>c) Desert ecosystem</li><li>d) Aquatic ecosystems (ponds, streams, lakes, wetlands, rivers, oceans, estuaries)</li></ul></li></ul>	
<b>Unit 3 Natural Resources</b>	8 lectures
<ul style="list-style-type: none"><li>• Concept of Renewable and Non-renewable resources</li><li>• Land resources and land use change; Land degradation, soil erosion and desertification.</li><li>•Deforestation: Causes, consequences and remedial measures</li><li>•Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international &amp; inter-state).</li><li>•Energy resources: Environmental impacts of energy generation, use of alternative and nonconventional energy sources, growing energy needs.</li></ul>	
<b>Unit 4 Biodiversity and Conservation</b>	8 lectures
<ul style="list-style-type: none"><li>•Levels of biological diversity: genetic, species and ecosystem diversity;</li><li>• Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots</li><li>•India as a mega-biodiversity nation; Endangered and endemic species of India</li><li>•Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions;</li><li>•Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.</li><li>•Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.</li></ul>	
<b>Unit 5 Environmental Pollution</b>	8 lectures
<ul style="list-style-type: none"><li>• Environmental pollution: concepts and types,</li><li>• Air, water, soil, noise and marine pollution- causes, effects and controls</li><li>• Concept of hazardous waste and human health risks</li><li>• Solid waste management: Control measures of Municipal, biomedical and e-waste.</li></ul>	

<b>Unit 6 Environmental Policies and Practices</b>	7 lectures
<ul style="list-style-type: none"> <li>•Climate change, global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture</li> <li>•Environment Laws: Wildlife Protection Act; Forest Conservation Act. Water (Prevention and control of Pollution) Act; Air (Prevention &amp; Control of Pollution) Act; Environment Protection Act; Biodiversity Act.</li> <li>•International agreements: Montreal Protocol, Kyoto protocol and climate negotiations; Convention on Biological Diversity (CBD).</li> <li>•Protected area network, tribal populations and rights, and human wildlife conflicts in Indian context.</li> </ul>	
<b>Unit 7 Human Communities and the Environment</b>	6 lectures
<ul style="list-style-type: none"> <li>•Human population growth: Impacts on environment, human health and welfare.</li> <li>•Case studies on Resettlement and rehabilitation.</li> <li>• Environmental Disaster: Natural Disasters-floods, earthquake, cyclones, tsunami and landslides; Manmade Disaster- Bhopal and Chernobyl.</li> <li>•Environmental movements: Bishnois, Chipko, Silent valley, Big dam movements.</li> <li>•Environmental ethics: Role of gender and cultures in environmental conservation.</li> <li>•Environmental education and public awareness</li> </ul>	
<b>Project/ Field work</b>	Equal to 5 lectures
<ul style="list-style-type: none"> <li>•Visit to an area to document environmental assets: Natural resources/flora/fauna, etc.</li> <li>•Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.</li> <li>•Study of common plants, insects, fish, birds, mammals and basic principles of identification.</li> <li>•Study of ecosystems-pond, river, wetland, forest, estuary and agro ecosystem.</li> </ul>	
<b>Total</b>	<b>50 Lectures</b>

### Suggested Reading:

Asthana, D. K. (2006). *Text Book of Environmental Studies*. S. Chand Publishing.

Basu, M., Xavier, S. (2016). *Fundamentals of Environmental Studies*, Cambridge University Press, India

Basu, R. N., (Ed.) (2000). *Environment*. University of Calcutta, Kolkata

Bharucha, E. (2013). *Textbook of Environmental Studies for Undergraduate Courses*. Universities Press.

De, A.K., (2006). *Environmental Chemistry*, 6th Edition, New Age International, New Delhi.

Mahapatra, R., Jeevan, S.S., Das, S. (Eds) (2017). *Environment Reader for Universities*, Centre for Science and Environment, New Delhi.

Masters, G. M., & Ela, W. P. (1991). *Introduction to environmental engineering and science*. Englewood Cliffs, NJ: Prentice Hall.

Odum, E. P., Odum, H. T., & Andrews, J. (1971). *Fundamentals of ecology*. Philadelphia: Saunders.

Sharma, P. D., & Sharma, P. D. (2005). *Ecology and environment*. Rastogi Publications.

# **SCOTTISH CHURCH COLLEGE**

**DEPARTMENT OF ENGLISH**

**ASSIGNMENT ON ENVS**

A Study on : **WILDLIFE CONSERVATION**

College Roll No. - A111

CU Registration No. - **223 - 1241 - 0324 - 17**

3rd Year (1+1+1 system)

# INDEX

<u>S.no.</u>	<u>Content</u>	<u>Page no.</u>
1.	<i>Introduction</i>	1-2
2.	<i>Threats to Wildlife</i>	3-5
3.	<i>Endangered and Endemic Species of India</i>	6-7
4.	<i>Conservation of Wildlife</i>	8-12
5.	<i>Efforts made by Indian Government for Wildlife Conservation</i>	13-14
6.	<i>Conclusion</i>	15

## **Introduction :**

The Earth, like the Sun, the water, the air, belongs to every living organism that exist and again it belongs to no one. The diverse variety of living species, co-existently, forms a part of nature.

'Biological Diversity' or biodiversity, hence, is that part of nature which includes the differences in genes among the individuals of a species, the variety and richness of all the plant and animal species at different scales in space, locally, in a region, in the country and the world, and various types of ecosystems, both terrestrial and aquatic, within a defined area.

Human beings, being one of the existent species, has begun to overuse or misuse most of the natural ecosystem. Due to this 'unsustainable' resource-use, once productive forestes and grasslands have been turned into deserts and wasteland have increased all over the world. Major threats to wildlife include habitat destruction, degradation,

fragmentation, overexploitation, poaching, pollution and climate change.

The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife.

**Wildlife conservation**, thus, refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems.



## **Threats to Wildlife :**

**Habitat Destruction** decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization.

**Overexploitation** is the harvesting of animals and plants at a rate that's faster than the species's ability to recover. While often associated with overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover.

**Poaching** for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros traded for their tusk, skins, and horns respectively.



**Culling** is the deliberate and selective killing of wildlife by governments for various purposes. An example of this is shark culling, in which "shark control" programs in Queensland and New South Wales (in Australia) have killed thousands of sharks, as well as turtles, dolphins, whales, and other marine life. The Queensland "shark control" program alone has killed about 50,000 sharks - it has also killed more than 84,000 marine animals. There are also examples of population culling in the United States, such as bison in Montana and swans, geese, and deer in New York and other places.

## **Pollution**

A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.

•**Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems.

•**Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.

•**Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides.

**Climate Change-** Human activities can be held responsible for present day climate change that is currently changing Earth's environmental conditions. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges.

## **Endangered and Endemic Species of India :**

An endangered species is a species that is likely to become extinct in the near future, either worldwide or in a particular country. Few names of the critically endangered species in India is listed below-

### **Critically Endangered Mammals of India-**

- *Pygmy Hog* (*Porcula salvania*)
- *Andaman White-toothed Shrew* (*Crocidura andamanensis*)
- *Jenkin's Andaman Spiny Shrew* (*Crocidura Jenkinsi*)
- *Kondana Rat* (*Millardia kondana*)
- *Sumatran Rhinoceros* (*Dicerorhinus sumatrensis*)

### **Critically Endangered Birds of India-**

- Migratory Wetland Species - *Baer's Pochard* (*Aythya baeri*), *Siberian Crane* (*Leucogeranus leucogeranus*)
- Non-Migratory Wetland Species-  
*White-bellied Heron* (*Ardea insignis*)
- Grassland Species- *Bengal Florican* (*Houbaropsis bengalensis*), *Great Indian Bustard* (*Ardeotis nigriceps*)
- Forest Species- *Forest Owlet* (*Heteroglaux blewitti*)
- Scavengers- *Indian Vulture* (*Gyps Indicus*), *Red-headed Vulture* (*Sarcogyps calvus*)
- Practically Extinct- *Himalayan Quail* (*Ophrysia superciliosa*), *Pink-headed Duck* (*Rhodonessa caryophyllacea*)

### **Critically Endangered Reptiles of India-**

- *Gharial* (*Gavialis gangeticus*)
- *Hawksbill Turtle* (*Eretmochelys imbricata*)
- *Leatherback Turtle* (*Dermochelys coriacea*)
- *Sispara day gecko* (*Cnemaspis sisparensis*)

### **Critically Endangered Amphibians of India-**

- *Gundia Indian Frog* (*Indirana gundia*)
- *Kerala Indian Frog* (*Indirana phrynoderma*)
- *Griet Bush Frog* (*Raorchestes griet*)
- *Mark's Bush Frog* (*Raorchestes marki*)
- *Small Bush Frog* (*Raorchestes chotta*)

### **Critically Endangered Fishes of India -**

- *Pondicherry Shark* (*Carcharhinus hemiodon*)
- *Ganges Shark* (*Glyphis gangeticus*)
- *Knife-tooth Sawfish* (*Anoxypristis cuspidata*)
- *Large-tooth Sawfish* (*Pristis microdon*)
- *Long-comb Sawfish* (*Pristis zijsron*)

### **Critically Endangered Corals of India -**

- *Fire Corals* (*Millepora boschmai*)

### **Critically Endangered Spiders of India-**

- *Rameshwaram Ornamental or Rameshwaram Parachute Spider* (*Poecilotheria hanumavilasumica*)
- *Gooty Tarantula, Metallic Tarantula or Peacock Tarantula* (*Poecilotheria metallica*)

## **Conservation of Wildlife :**

### **• In-situ Conservation**

Biodiversity at all its levels, genetic species and as intact ecosystems, can be best preserved in-situ by setting aside an adequate representation of wilderness as "*Protected Areas*". These should consist of a network of *National Parks and Wildlife Sanctuaries* with each distinctive ecosystem included in the network. Such a network would preserve the total diversity of life of a region.

In the past, National Parks and Sanctuaries in India were notified to preserve major wildlife species such as tigers, lions, elephants and deer. The objective of these areas should be expanded to the preservation of relatively intact natural ecosystems, where biological diversity - from microscopic unicellular plants and animals, to the giant trees and major mammals - all can be preserved.

**Wildlife Sanctuaries and National Parks of India-** There are 589 Protected Areas in India of which 89 are National Parks and 500 are

Wildlife Sanctuaries. They include a variety of ecosystems and habitats. Some have been created in order to protect highly endangered species of wild plants and animals found nowhere else in the world.

**The Great Himalayan National Park** is the largest sanctuary in this ecosystem and is one of the last homes of the beautiful snow leopard. **Dichigam Sanctuary** is the only place where the rare Hangul or Kashmir stag is found. There are several Sanctuaries in the Terai region, **Kaziranga National Park** is the most famous which has elephant, wild buffalo, gaur, wild boar, swamp deer and hog deer, in large numbers, as well as tiger and leopard. Its bird life is extremely rich and includes ducks, geese, pelicans and storks. The Manas Sanctuary, in addition to the above Terai species, also includes the rare golden langur and the very rare pygmy hog, the smallest wild boar in the world. The florican is found only in a few undisturbed grasslands in the Terai sanctuaries.

**Kanha** offers a wonderful opportunity to observe wild tigers from elephant back.

**Bharatpur** is one of the most famous water bird sanctuaries in the world. Thousands of ducks, geese, herons, and other wading birds can be seen here. This is the only home of the very rare Siberian cranes which migrates to India every winter.

In the Thar desert, the wildlife is protected in the **Desert National Park**. Here large numbers of black buck, neelgai and chinkara can be seen. The Great Indian Bustard lives in these arid lands.

**The Great and the Little Rann of Kutch** have been made into sanctuaries to protect the very rare wild ass, the flamingo, the star tortoise and the desert fox.

In Gujarat, the **Gir Sanctuary** protects the last population of the majestic Asiatic lion. This thorn and deciduous forest is also the home of large herds of chital, sambhar and neelgai.

In the Nilgiri Hills, the rich forest Sanctuaries protect some of the last pockets of the Indian elephant in South India. Examples

include, **Bandipur, Madhumalai, Wynad and Bhadra.**

Two important sanctuaries meant for preservation of coastal ecosystems are the **Chilka Lake** and **Point Calimere**. The Sunderbans protect the largest mangrove delta in India. **The Marine National Park** in Gujarat protects shallow areas in the sea, islands, coral reefs and extensive mudflats.

**The need for an Integrated Protected Area System (IPAS) :** Protected Areas, to be effective, must be established in every biogeographic region. A relatively larger representation must be included of highly fragile ecosystems, areas of high species diversity or high endemism. Protected Areas must also be integrated with each other by establishing corridors between adjacent areas wherever possible so that wildlife can move between them.

A carefully designed management plan which incorporates an "**ecodevelopment**" component aimed at providing a source of fuel wood, fodder and alternate income generation for local people, is an important aspect of PA management.



## •**Ex-situ conservation**

There are situations in which an endangered species is so close to extinction that unless alternate methods of in-situ conservation are instituted, the species may get rapidly driven to extinction. This strategy is known as ex-situ conservation, i.e. outside its natural habitat in a carefully controlled situation such as botanical garden for plants or a zoological park for animals, where there is expertise to multiply the species under artificially managed conditions. These breeding programs for rare plants and animals are however more expensive than managing Protecting Area.

### **Conservation of cultivars and livestock**

**breeds:** There were an estimated thirty thousand varieties of rice grown in India, till about 50 years ago. Now only few varieties of these are still grown. Several varieties have been preserved in gene banks. At present, gene bank collections have over 34 thousand cereals and 22 thousand pulses. Traditional agroplasts in India have selectively bred livestock for 2 to 3 thousand years. India has 27 breeds of cattle, 40 breeds of sheep, 22 breeds of goat and 8 breeds of buffaloes.

## **Efforts made by Indian Government for Wildlife Conservation :**

The following are the efforts made by the Indian Government for wildlife conservation:

### **•Project Tiger**

It is a centrally sponsored scheme launched in 1973 for the conservation of Indian Tiger which is endangered. The Tiger population has been reduced from many last decades.

For this, the National Tiger Conservation Authority is constituted. The program started with 9 Tiger reserve, and presently it is approximately 20. Tiger census has occurred in every four years.

### **•Project Elephant**

- It is also a centrally sponsored scheme and launched in 1992. It is implemented in 13 states. Under this, 88 Elephants corridors were set up.

- Haathi Mere Saathi scheme was also launched by the Ministry of Environment, Forest and Climate Change in partnership with wildlife trust of India.

### **•Sea Turtle Project**

It was launched by Ministry of Environment, Forest and Climate Change in collaboration with UNDP in 1999. The Olive Ridley Turtle visits India during Winter.

The implementing agency of this project is the Wildlife Institute of India. It is in the Vulnerable in IUCN list.

- ***Crocodile Conservation Project***

The main aim of this project is to protect the remaining population of crocodiles in their natural habitat.

“Ghariyal” is listed as Critically Endangered in IUCN list.

- ***Project Dolphin***

- Ministry of Environment, Forest and Climate Change has notified Ganges River Dolphin as National Aquatic animal. It was listed in Schedule I of Wildlife Protection Act 1972.

- Major threat: river water pollution, poaching and siltation.

- ***India Adopts Sawen***

The acronym of *SAWEN* is *South Asia Wildlife Enforcement Network*. It is an intergovernmental wildlife enforcement support body. It is launched in Paro, Bhutan in 2011.

It was established for mutual collaboration for harmonizing as well as enforcing the wildlife protection.

The SAWEN constitutes Afghanistan, India, Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka and the Maldives.

- ***Caprive Breeding Program***

Captive breeding can be described as the selection of wild species and bred in the artificial condition under experts. It may represent the last chance to preserve a species in the wild.

## **Conclusion :**

We need wildlife conservation projects:

To conserve wildlife

To conserve habitats

To work for the welfare of individual wild animals

To protect biodiversity

To sustain agricultural activities

To assist eco-tourism

To protect ecological stability

To benefit from the medicinal value of plants

To promote pollination

To preserve heritage and culture and

To protect livelihood and knowledge of indigenous tribes

It can be concluded that the conservation of wildlife is important to maintain stability in the ecosystem. The expansion of human activities into the habitats of these species has led to considerable damage in the environment. The implementation of wildlife laws has to be more strict.

An attempt has been made through the projects like **Project Snow Leopard, Project Tiger, Project Elephant, Project Hangul, Crocodile Conservation Project**, for mitigating the harm caused and to prevent future disruptions. The human being as the most intelligent species on the earth has to take care that our actions and omissions do not harm the wildlife.

The extinction of wildlife can pose extreme dangers to the entire planet. When one crucial part of the ecosystem is eliminated, the entire planet suffers.

## **Bibliography**

I would like to thank my respected professors of Scottish Church College, to provide me with the golden opportunity to enhance my knowledge on ENVS by assigning me with the topic Wildlife Conservation. It is because of their help and guidance that I could complete my project without any hassle.

### ***References :***

1. Text Book for Environmental Studies by Erach Bharucha
2. Wikipedia

## SEMESTER-2 PROJECT (AECC)

- **Name:** Soumya Bhattacharjya
- **CU Reg. No:** 223 - 1111 - 0129 - 20
- **CU Roll No:** 202223 - 21- 0033
- **College Roll No:** ENGA20M342
- **Semester :** 2nd Sem.
- **Topic :** Wildlife Conservation.

**:Wildlife Conservation:**

- **Introduction** : Wildlife conservation is a reaction to the increasing loss of species the rate of which has accelerated dramatically this century. Species loss has been highlighted by some notable cases of extinction and near extinction in recent centuries, such as the Dodo and the American Buffalo. In this century, large mammals and predatory birds have tended to be a focus for popular attention with non-governmental organisations (NGOs) trying to protect whales, lions, tigers, pandas and eagles. However, this has tended to treat wildlife conservation from a narrow vertebrate species perspective which risks neglecting the growing concern over ecosystem structure. Given the underlying concern for preserving life in a wild state, restricting attention to large readily identifiable species will clearly be inadequate, but is a result of a consequentialist tendency. That is reference to the preferences of the general public for guidance on how wildlife conservation is to proceed tends to lead to the neglect of plants, reptiles, insects and micro-organisms. The conservation of such wild, untamed life requires the recognition of the interdependence of plant and animal species mix in determining the ecological resilience of wildlife. Thus, wildlife conservation has moved from the idea that key species could be preserved in zoos to the protection of ecosystems, while NGOs involved in the area have transformed from passive clubs for the study of natural history to active lobby groups for the environment and the maintenance of biodiversity.

Along with this dawning recognition of the breadth of trying to conserve wildlife has been a growing concern for the treatment of the wilder side of Earth by humans. As long as the losses driving the conservation movement were infrequent and localised they could be regarded as having limited and estimable consequences for humans. A general lack of concern is then a reflection of the relative weight given to species loss over other goals in human society and the low priority of the resulting loss. Today this has been refined to a high degree in the application by some economists of monetary valuation of the costs and benefits of species extinction. However, an alternative underlying motivation for wildlife conservation has been the protection of animal rights. While conservation of objects for identifiable ends is the central theme in the consequentialist approach, under a rights based system more turns upon the rights of non-human life forms to be wild and have self determination. The relative dominance of these two motivations is particularly relevant to the way in which wildlife conservation develops in the future.

- **Need for Conservation :**

- **Historical concern:** About two millennia ago, the Roman poet Lucretius wrote about the changing world he saw around him and in particular mentioned ideas akin to those of Charles Darwin. That is he recognised features in the species he saw which had allowed them to survive, e.g., the cunning of the fox, the prowess of the lion and the speed of the stag in flight. Some species survived under human protection because of their usefulness to humanity. Others were theorised to have perished. Today this is unremarkable.

However, in the intervening period the dominance of Christian theology meant the suppression of such ideas as extinction. In the story interpreted from biblical texts God had given all creatures to man for his stewardship at the time of the creation and they had all been aboard Noah's Ark. There was an absence of the notion that species might become, or had become, extinct. This perspective became strong in the medieval period.



Despite the Protestant movement weakening the central authority of the Pope little change in the official story occurred. In fact Martin Luther reinforced the line that all animals and fish appeared at once upon the word of God. The date of this creation was estimated a hundred years later by Archbishop James Ussher of Annagh, Ireland, as 4004 BC. This date persisted as a defence of the theory of creation and was employed by the English naturalist Philip Gosse in his book of 1857 on the subject.

However, the repeated discovery of dinosaur bones and skeletons cast doubt on the creation theory from the 18th Century onwards. In the 19th Century the theories of evolutionists such as Darwin took hold. Thus, no longer could the mysterious skeletons be regarded as animals that missed the boat (Noah's Ark) from the antediluvian era. The importance of this change in thinking was that now causes of extinction became a topic for discussion and soon concern.

- **WHOSE LIFE IS TO BE CONSERVED AND ON WHAT GROUNDS? :**
- **Species & Individuals :** Two preliminary distinctions are required. First, between ethics which focus on conservation of a whole species and ethics which attend directly to individual members of that species. The concerns of wildlife conservationists have increasingly centred around entire species, on the basis of the consequences of species extinction -and thus the depletion of global biodiversity -for the planet. The question then arises of whether 'the health of the planet' is taken to matter in and of itself, or because this would adversely affect human quality of life. The second, related, distinction is between the view that extinction of species (or individuals) is bad in itself, no matter what the consequences, and the view that the negativity of such an outcome derives from its consequences, which violate some other ethical principle. The possible consequences and principles will depend on the range of entities which enter into direct moral consideration.

Consider some endangered species of elephant. The extinction of each individual elephant may be held to be of moral concern, or only the extinction of the entire species,

but our answer to this question tends to depend on a prior one -whether the elephants matter only insofar as their survival affects the interests of humans, or whether the interests of the elephants themselves are held to be worth considering. That is: are humans the only morally considerable creatures or are elephants also morally considerable?

- **THE ETHICAL BASIS OF CONSEQUENTIAL CONSERVATION :**

The consequentialist rationale for wildlife conservation is forced to address ethical concerns despite the tendency of economists valuing wildlife to avoid these issues. Similarly, wildlife conservation on the grounds of the scientific value of biodiversity still ultimately rests on how much 'better' a future world in which that value is preserved would be compared to alternative futures. No matter how 'better' is defined, an ethical claim is being made.

A consequentialist view of the value of animals adopts a different account of moral considerability from the rights based approach: it expressly holds that the moral significance of preserving different animals will depend on the consequences of such acts of preservation. Moreover, unlike the animal rights account which necessarily assumes an animal-centred ethic, a consequentialist view of the value of animals may be couched either in terms of the animal-centred ethic, or be limited to a human-centred ethic alone. Put another way, the consequentialist account may consider only those consequences which affect humans (including the adverse effects on human well-being which arise from the implications for animals of some action), or extend to consequences which affect the interests of animals directly, regardless of whether these consequences have any effect on human well-being.

Some of the ethical problems with this approach can be illustrated by the following example. Five survivors are in a lifeboat, which only has the capacity to support four. All weigh approximately the same and would take up approximately the same amount of capacity. Four of the five are normal adult human beings, while the fifth is a dog. If one

must be thrown overboard to prevent all five perishing, whom shall it be? For instance, throwing anyone of the humans overboard will not only fail to satisfy the presumed preference of the individual for continued existence, but cause great suffering to that individual's family and friends. In addition, the argument is made that although both dogs and humans have the capacity to suffer, the total amount of suffering experienced by a human during the course of anything other than an instantaneous death exceeds that of a dog. By contrast, all such consequential considerations are irrelevant if all individuals have the right to life: the non-consequentialist approach to the lifeboat example will be discussed below.

- **MONETARY VALUATION OF WILDLIFE :**

Here the influence of modern market economics is felt, with its emphasis on the sovereignty of the consumer, whose decisions about his or her purchases -or sources of happiness -are to be respected, rather than overruled by the moral philosopher. Thus, in seeking information about the consequences of some potential species extinction for human happiness, policy makers increasingly turn to environmental economists, who in turn refer to individual preference information. As with items of food, clothing, and other commodities, a market for conservation of, say, elephants is envisaged. The extent of consumer demand for elephant conservation in that market is then taken as a proxy measure of how much human happiness is affected. As no such elephant conservation market actually exists consumer preferences are measured in hypothetical markets where monetary valuations are gained on the basis of contingent factors; a process termed the contingent valuation method.

There are many economic criticisms and corresponding refinements in the literature on contingent valuation, and more generally cost-benefit analysis (see Hanley and Spash 1993). Ethical criticisms have been much more fundamental, including claims that: (i) the procedure treats species preservation as a good which is 'consumed' merely for the uses and facilities it provides; (ii) environmental species cannot be itemised as commodities of monetary value; (iii) respondents are neither willing nor able to make trade-offs between

species preservation and monetary alternatives. Environmental economists have largely ignored objections (ii) and (iii). Their response to (i) has been to try to capture 'existence value' in their surveys, meaning the value to an individual of some species quite apart from that associated with any actual or potential use of it by that individual. This derives from the satisfaction of knowing that a particular species simply continues to exist, that is, with a sustainable population in its native habitat.

Existence value appears to admit the possibility of an animal-centred ethic, albeit one where, by default, the judgements of individuals are relied upon to determine the interests of the animals. Certainly the many definitions of existence value in the literature reflect an attempt to capture a value which goes beyond the direct interests of humans in species preservation. Humans may recognise values which are related to either human interests or those of an extended moral community including animals. Examples involve the language of awe, reverence and respect rather than benefit and cost. They include our wonder at the marvel of a setting sun, or the sense of raw nature in a wilderness area. The danger here is that CVM, in focusing on the narrow consequences for humans of a wildlife conservation proposal, will overlook altogether the broader ways in which we value nature. Bernard Williams concludes: "the human concern for other, non-human and non-animal, effects is misrepresented if one tries to reduce it simply to a kind of human self-concern" (Williams 1995, p. 235).

- **CONCLUSION** : Wildlife has formed a focus for environmental concern with considerable emphasis placed upon protecting specific species of vertebrates, e.g. the lions of 'Born Free'. The arguments for this conservation can be viewed as partially related to the expression of individual human preferences which have seen the rise of conservation organisations such as the World Wildlife Fund (WWF). Economists were quick to recognise the role of these human preferences as an indicator which might be useful for policy purposes. This led to the development of conservation arguments based upon consequentialist reasoning. The most refined example is the use of the contingent valuation method to

estimate the value of endangered species and suggest the extent to which resources should be used to prevent their extinction or reduce their rate of decline, e.g. elephants, whales, the corn crane and other birds. These studies are important in the debate over wildlife conservation because of the way in which they characterise the expression of concern. This consequentialist motive differs from ecological and non-consequentialist ethical motives.

In the latter regard, this economic viewpoint contrasts with an alternative expression of the need to conserve wildlife as found in animal rights. Animal rights also imply a position which falls far less comfortably under the title of conservation. Conservation and consequentialism in essence allow for trade-offs in terms of species' freedoms and allow for individual animals to be treated as expendable. Even when the consequences for all species are to be taken into account a hierarchy of importance is normally imposed so that human welfare comes out on top. The expression of moral considerability under an animal rights perspective tends to deny what is regarded as an inequitable treatment of different species. However, when rights conflict a consequentialist approach may be invoked. Thus, the current concern for the rate of human induced species extinction centres the ethical debate on the conflict between human welfare and other species' needs. The traditional wildlife conservation perspective may also conflict with some of the most deep-rooted concerns for the environment. For many the genesis of nature conservation lies in a desire to preserve a nature which is neither controlled nor fashioned by humans but is simply natural. But wildlife conservation as species preservation already implies an intervention in nature which degrades this ideal. Preserving a 'wilderness' means preserving a definite, delimited wilderness. Most starkly, the disappearance of a species can be a natural process of ecological evolution, and human attempts to counter that process seem to imply unnatural intervention. Rights for ecosystems to evolve and individual species to compete successfully may express the ecological perspective. This returns us to Leopold's land ethic, which seeks to preserve the diversity, integrity, beauty and authenticity of the natural environment, rather than having some form of humanitarian concern with individual animals. Reconciling wildlife conservation in terms

of species preservation with this genuinely ecological approach to nature may be impossible. Of course the immediate and pressing concern is over the rate of species extermination and its moral implications, but the wider meaning of conserving life which is wild also confronts conservationists on a daily basis.

- **REFERENCE :**

Bentham, J (1789) [1996] The Principles of Morals and Legislation. Oxford: Clarendon.

Callicott, J B (1989) In Defense of the Land Ethic: Essays in Environmental Philosophy. Albany, New York: State University of New York Press.

Carson, R (1962) [1987] Silent Spring. Boston: Houghton Mifflin.

Jakobsson, K M and A K Dragun (1996) Contingent Valuation and Endangered Species: Methodological Issues and Applications. Cheltenham: Edward Elgar.

Williams, B (1995) Making Sense of Humanity. Cambridge: Cambridge University Press.

## **AECC 2 Project**

Songborto Biswas, Semester 2

Scottish Church College

College Roll Number: ENGA20M351

CU Roll Number: 202223-21-0054

CU Registration Number: 223-1111-0194-20

**Wildlife Conservation**

## Introduction

'**Wildlife**' is a variable term which was earlier restricted to terrestrial vertebrates comprising only about 2% of the 1.5 million species that have been described on earth. More specifically, it used to refer to the birds and mammals which were hunted for sport also known as 'game'. But gradually it has come to include, in the words of Aldo Wilson, "the little things that run the world" or the small creatures-especially insects who play an important role in maintaining the structure and performance of the ecosystem. **Wildlife conservation** is an activity during which humans make conscious efforts to guard plants and other animal species and their habitats. The decision to conserve requires a justification and associated valuation of that which is to be conserved. Justifications for conservation can be thought of broadly as falling into two categories: The primary category assumes that there are potentially identifiable benefits to be derived through conservation, and therefore the second category is predicated on the thought that organisms have a right to exist because they have already existed for a long time, so that there is a difficult to define though recognizable benefit to be derived by these organisms' mere existence.

The term wildlife conservation is often used in conjunction with the wider term, **wildlife management**. Wildlife management implies stewardship that is the looking after of a population. A population is a group of coexisting individuals of the same species. When stewardship fails, conservation becomes imperative. Under these circumstances, wildlife management shifts to remedial or restoration activities. Wildlife management may be either manipulative or custodial. **Manipulative management** does something to a population, either changing its numbers by direct means or influencing numbers by the indirect means of altering food supply, habitat, density of predators, or prevalence of disease. Manipulative management is appropriate when a population is to be harvested, or when it slides to an unacceptably low density, or when it increases to an unacceptably high level. But **custodial management** is preventative or protective. It is aimed at minimizing external influences on the population and its habitat. It is not aimed necessarily at stabilizing the system but at giving freedom to the ecological processes that determine the dynamics of the system. Such management could also be appropriate during a park where one among the stated goals is to guard ecological processes and it should be appropriate for conservation of a threatened species where the threat is of external origin rather than being intrinsic to the system.

Species richness overall is highest in equatorial regions and the Earth's neotropical zone in Central and South America holds more vertebrate species than any other biogeographic realm. Another biodiversity hotspot can be found in the tiny Himalayan country of Bhutan. For a deeper look into conservation it is essential to understand the inverse relation between human population and biodiversity. Without a doubt, only a fraction of the species on Earth has been described. So, while million species are described, the plausible range for numbers of eukaryotic species on Earth is 5–50 million species, with the simplest guess somewhere around 9 million.



Just as every human dies, every species goes extinct. The big concern is not so much that it will happen, but rather whether the rate of death or extinction is higher than what we would expect from the past. Before implementing conservation measures, therefore, it is essential to study the animal population thoroughly. The conservationist must keep track of the sizes of animal populations over periods of time, and use this data to measure extinction rate, compare extinction rates with the past and understand what factors are affecting the growth or reduction of population size.



*Biodiversity: A Sample*

## Calculating Population Sizes

As mentioned earlier, knowledge of the size or density of a population is often a vital prerequisite to managing it effectively. Is the population too small? Is it too large? Is the size changing and if so in what direction? To answer these questions we may have to count the animals, or we may obtain adequate information by way of an indirect indication of abundance. In any event we want to understand when a census is important and the way it has to be done.

Although census is strictly the total enumeration of the animals in an area, we use the word in its less restrictive sense of an estimate of population size or density. That estimate may come from a total count, from a sampled count, or by way of an indirect method such as mark-recapture. Closely related to the census is the index, a number that is not itself an estimate of population size or density but which has a proportional relationship to it. The various available methods are listed in more detail below:

### **Total counts:**

The idea of counting every animal of a population, or on a given area, has a beautiful simplicity thereto. It is the method used by farmers to keep track of the size of their flocks. No arithmetic beyond adding is called for and the results are easily interpreted. That is why total counting was once very fashionable in wildlife management and why it's still the foremost method for censusing people. Total counts have two serious drawbacks: they tend to be inaccurate and expensive.

### **Incomplete counts:**

An incomplete count involves counting a part of a population then extrapolating to the whole population. Quadrats may be established in a sample area and an attempt made to count all the individuals in each quadrat. A "deer drive" census, using large sized quadrats, can be an effective way to estimate deer populations on wooded areas. Stationary observers stand along 3 sides of a quadrat and count all deer leaving and entering the area in front of a drive crew walking across the quadrat from the 4th side. The total number of animals is then calculated because the sum of the animals leaving the region before the drive crews plus the animals passing back through the drive line minus the animals entering the quadrat through one of the edges or through the drive line system. As with complete counts, distances between observers and between members of the drive crew are critical for fulfillment.

Strip censuses, roadside counts, flushing counts and booming or drumming ground counts are all incomplete count methods. A strip census can be used to estimate grouse population sizes. An observer walks a transect through a representative section of habitat and records the distances at which birds flush to either side. The population size, P, is estimated to be

$$P = \frac{AZ}{XY}$$

where  $A$  is the area of the habitat censused,  $Z$  is the total number of grouse flushed,  $X$  is the total distance walked and  $Y$  is twice the average distance from the observer to the bird when flushed. The fundamental assumptions of this method are 1) birds vary randomly in distances at which they flush, 2) birds are scattered randomly across the study area and 3) the average flushing distance may be a good estimate of the "true" average. Which of these assumptions are likely to be met? What if some birds will not flush? A Wildlife Monograph has dealt extensively with these types of population size estimates (Burnham et al. 1980).

### **Indirect Counts:**

As it is often impossible to obtain accurate, visual or auditory counts of the animals in a population, wildlife managers use indirect signs of the animals present as indices of relative abundance. An index of population indicates relative size of a population and shows population trends (up, down, stable) but doesn't provide an actual estimate of the amount of animals. Examples of indirect counts include counting numbers of muskrat houses, counting scats (fecal pellets) of deer and rabbits, and counting numbers of nests or den sites of given area. Sometimes counting the quantity of birds heard singing is taken into account an incomplete count and sometimes it's considered an indirect count. Which makes more sense?

One can count fecal pellets of deer or rabbits along transects or in delineated study plots. In either case, the first thing to do after establishing the transects or plots is to remove all old pellets. Then, at a predetermined interval, count all new piles of fecal pellets. This is an index of the number of deer or rabbits in the area: the more animals, the more pellets produced. What assumptions does this index make?

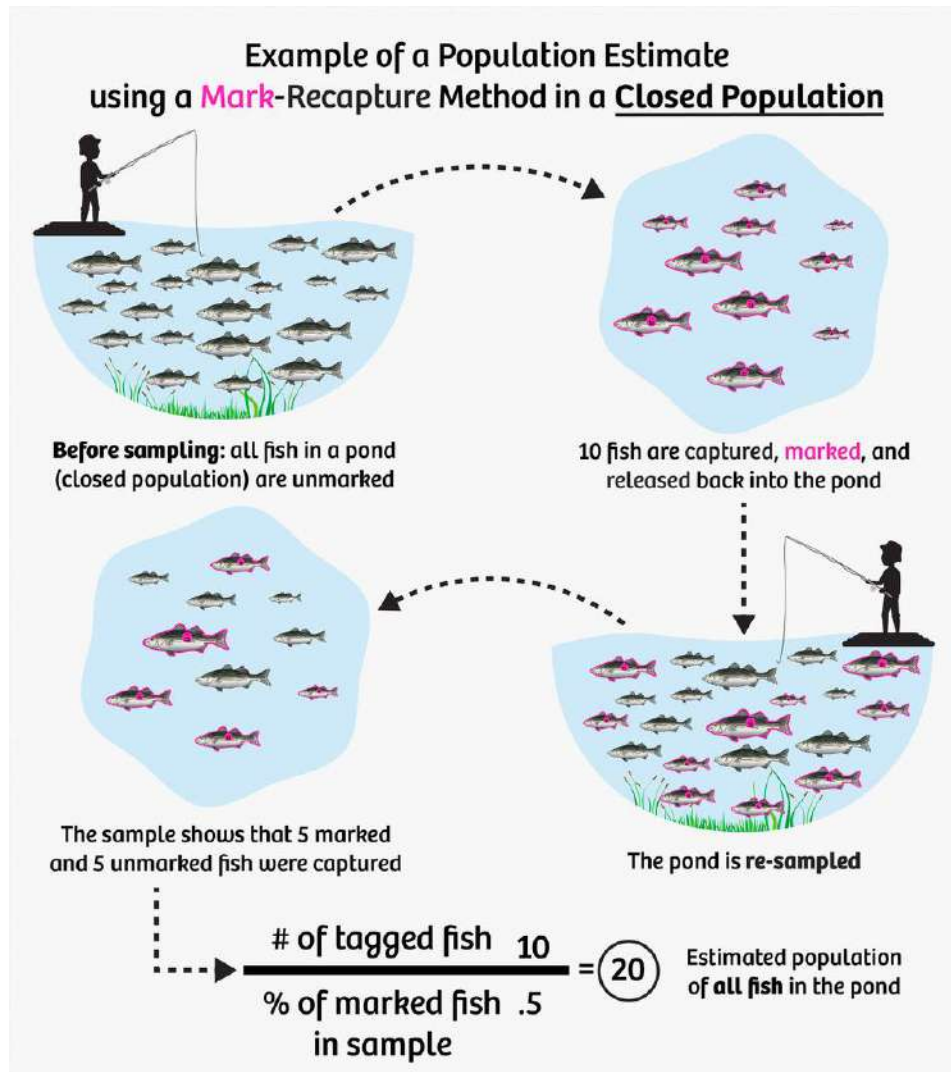
In those areas where muskrats build houses of vegetation in marshes, the number of active, maintained houses in a marsh year to year is an index of the number of muskrats: more muskrats make more houses. If, for a given area, one knows the average number of muskrats living in each house, then the number of houses can be used to estimate the population size. It should be remembered, however, that indirect counts are only indices of population sizes unless other information is known, such as the average number of muskrats living in each house.

### **Mark-Recapture Method:**

These methods are used extensively to estimate populations of fish, game animals, and many non-game animals. The approach was first employed by Petersen (1896) to review European plaice within the Baltic and later proposed by Lincoln (1930) to estimate numbers of ducks. Petersen's and Lincoln's method is often referred to as the Lincoln-Petersen Index, even though it is not an index but a method to estimate actual population sizes. (Should it not be the Petersen-Lincoln Estimate?) Their method involves capturing a number of animals, marking them, releasing them back into the population, and then determining the ratio of marked to unmarked animals in the population. The population ( $P$ ) is estimated by the formula:

$$P = \frac{MC}{R}$$

where  $M$  is the number of animals marked in the first trapping session,  $C$  is the number of animals captured in a second trapping session, and  $R$  is the number of marked animals recaptured in the second trapping session.



### Change-of-ratio method:

If a population can be divided into two classes, say males and females or juveniles and adults, and one class is significantly reduced or increased by a known number of animals, the size of the population can be estimated from the change in ratio. Kelker(1940, 1944) introduced this method to estimate the size of deer populations manipulated by bucks-only hunting.

### Index:

An index of density is some attribute that changes in a predictable manner with changes in density. It may be the density of bird nests, or the density of tracks of brown bears, or the number of minke whales (*Balaenoptera acutorostrata*) seen per cruising hour. A common index is the pellet or fecal dropping count, often used in studies of deer.

## Threats to Wildlife

The conservation of animals and plant species mainly aims at protecting the endangered species from becoming extinct due to various human and human-induced activities. The wildlife is facing many threats due to the human encroachment and their activities as well as few natural factors which can be enumerated below:

- i. **Habitat loss by destruction, fragmentation and degradation:** Habitat destruction and fragmentation can take place by human activities such as felling of trees, dredging rivers, constructing dams, filling wetlands and mowing fields, use of lands for agriculture, construction of houses and roads etc. Habitat degradation can take place because of the increasing pollution level, invasion of new species and changing ecosystems etc.



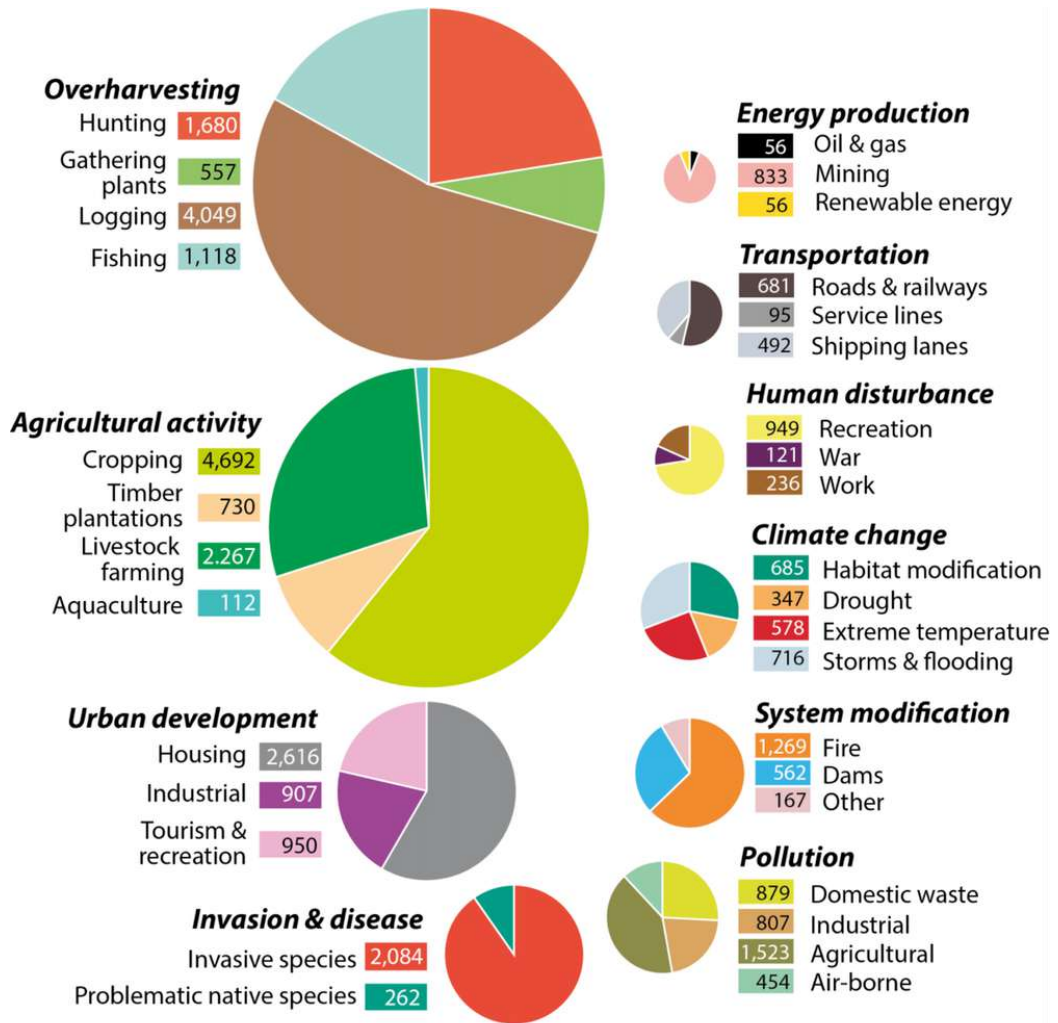
*Habitat Loss on Grand Scale*

- ii. **Illegal Trading, Hunting and poaching of endangered species:** Illegal hunting and poaching has posed a major threat to wildlife which is further fuelled by the lack of proper management and use of resources by the forest officials to curb the menace and save the wildlife



*Ivory, the greatest motivation behind Elephant poaching*

- iii. **Climate change:** Global warming and climate change has also played a major role in posing threat to the wildlife. This is also again due to human induced activities which is done by the burning of fossil fuels etc. which resulted in the changing of the climate globally.
- iv. **Over exploitation of resources:** Exploitation and over exploitation of resources for food and other purposes has resulted in posing a threat to the wildlife, especially to the endangered species. The over use of the wild animals and plants for food, medicines, clothing etc. has badly affected the wildlife populations and thus has become a threat to their existence. The ever increasing pollution level due to human activities and industrial operations has resulted in the release of harmful and toxic pollutants in the air, water and land. Hence, it has affected the wildlife in an adverse manner and ultimately posed a threat to become extinct.



*Common threats to wildlife*

## **Common Practices in Wildlife Conservation**

The problems pertaining to wildlife protection and conservation needs to be addressed strictly adhering to the law and finding some alternative solutions too so that the wildlife could be protected and conserved. To stop the criminal and illegal activities of exploitation of wildlife resources, certain practices are commonly adopted. These practices could involve the creation of natural reserves, creating a comprehensive legal framework for the protection of wildlife, conducting awareness programmes among the public and the officials concerned with wildlife protection and the law enforcement personnel for the implementation of that framework. Some common practices adopted for wildlife conservation are:

### **Awareness among Public and Officials:**

Towards the objective of protecting and conserving wildlife, there is a need to provide awareness among the forest and other government officials who are deputed in the protected areas and reserves. These concerned personnel should be provided with training and research in wildlife conservation measures and the legal provisions available for their protection. There is also a need to involve the local people who live in the surrounding areas of the protected areas by sensitizing them about the importance of wildlife conservation and protection and the relevant laws governing it. The local people should be apprised of all the available provisions of laws in protecting and conserving the wildlife and the threatened species. They should also be informed about the penalty and punishment in case of violation of any laws and harming the wildlife. This will help in an increased awareness among the local people which will further help in providing support to the forest officials who are working in these protected areas as well as the government officials.

### **Recognizing and involving NGOs:**

The Non-Governmental Organizations (NGOs) also play an important role in the protection and conservation of wildlife with the help of their initiatives. One such organization is the Wildlife Protection Society of India which works towards providing information and support to the authorities of the government concerned with wildlife protection and conservation so as to fight illegal trade of wildlife and poaching of wild animals thereby saving the environment. Internationally, the World Wildlife Fund plays a significant role in this process.

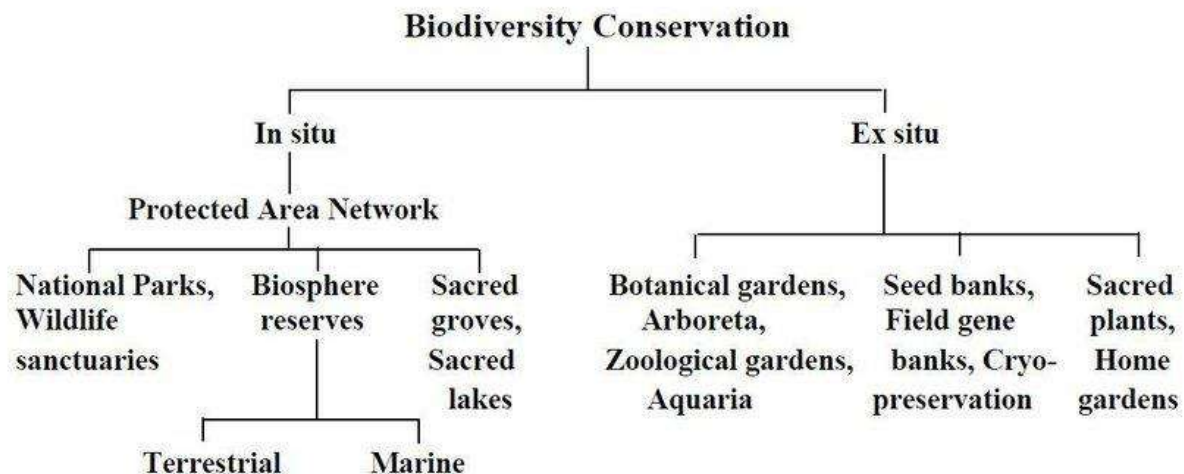




The logo of World Wildlife Fund

### In-situ and Ex-situ Conservation:

In-situ and Ex-situ conservation strategies are one of the important strategies for conservation of wildlife, especially the endangered species of plants and animals. In-situ conservation strategy is carried out in the natural habitat of these species while ex-situ conservation is carried out in a place outside their natural habitat. These conservation strategies are beneficial in the reintroduction and translocation of wildlife thereby protecting the threatened species from the threat of climate change and human activities. These types of conservation of plants and animals includes captive breeding of animals and plants which are threatened by various activities of human and the climate change and are found to be on the verge of extinction. These conservation activities are carried out in protected areas but these strategies also depend on the severity of climate change and its effect on the species.



### **Increasing Resilience of Nature Reserves:**

This strategy includes maintaining natural reserves, creating buffer zones, minimization of human activities such as construction of buildings, roads and transportation activities, minimization of wildlife tourism, minimization of habitat fragmentation, conservation of genetic diversity, protection of biodiversity 'hot spots' thereby preventing extinction and protecting threatened species. Creation of buffer zones around fragmented landscapes is important in maximizing resilience. Areas protected by buffer zones also require restoration for which it focuses on reduction of specific impacts of climate change. There are some ecosystems which have intact landscapes and may have sufficient resilience but the use of land and water by the people residing in these regions needs to be controlled in a manner so as to prevent loss of resilience. Management of vegetation within these reserves also helps in maintaining resilience. Such strategies need to be implemented by the government in areas where the threat to wildlife and endangered species is more. The government also needs to have controlled wildlife tourism in these natural reserves and buffer zones. The wildlife tourism has adverse effect on the breeding and feeding pattern, disturb the nesting sites and thus government is required to have a vigilance on these activities and ensure that the rules and regulations under the relevant Acts and legislations are followed by the forest officials and concerned persons. This strategy, if strictly followed, will prove to be very beneficial towards protection and conservation of wildlife and maintenance of wildlife in their natural habitat.

### **Creation and Management of Biosphere Reserves:**

Biosphere reserve consists of a micro-territory or an outsized area of land which addresses different problems with protection of plants and animal species using different means consistent with their situation. Sometimes these reserves are divided into small units defined by geographical or human factors. Biosphere reserve consists of three zones, viz., core, and buffer and transition zone. Each zone is approached differently, counting on the necessity and objectives of biosphere reserve. Creation and management of several biosphere reserves and other protected areas is a crucial strategy to guard and conserve wildlife. It includes connecting the corridors and habitat matrices which helps in linking fragmented reserves and landscapes by providing dispersal and migration of flora and fauna. In India, there are 18 biosphere reserves at the present. These reserves are found out by the Indian govt. so as to guard and conserve wildlife. The human activities in and around these protected areas have posed various sorts of problems and threats to the wild animals and plants. Thus, the govt. must be alert and watchful about the activities of human, including research activities in these reserves. The Central government also because the state governments should work together in coordination in maintaining these biosphere reserves and oversee that the officials deputed in these reserves are working in consonance with the legal provisions and regulations. The govt. should make stricter provisions of punishment also if the laws are violated and wildlife is harmed.



*Structure of a Model Biosphere Reserve*

## **Conclusion**

In this project, we have discussed certain basic concepts associated with wildlife conservation, listed the various means by which an animal population is calculated, noted the common threats to wildlife population and also certain measures for protecting the wildlife population. Awareness about this issue, at least at this basic level, is essential for people across nations and social strata. Only then will we be able to protect Biodiversity and ensure that the status quo is maintained on our unique and precious planet.

## Bibliography

1. Tidball, Kenneth G, *Wildlife Conservation*, Springer Science+Business Media Dordrecht 2014
2. Mills, L. Scott, *Conservation of Wildlife Populations: Demography, Genetics, and Management*, Wiley-Blackwell, 2013
3. Sinclair, Anthony R.E, Fryxell, John M, Caughley, Graeme, *Wildlife Ecology, Conservation, and Management*, Blackwell Publishing, 2006
4. Soni, Vikas Kumar, *Wildlife Conservation in India: Issues and Challenges*, Journal of Interdisciplinary Cycle Research, 2021

SEMESTER-2

AECC-2  
(ENVS)

ENGLISH HONOURS

NAME:- Arup Barua

COLLEGE ROLL NO:- ENGA20M308

UNIVERSITY REGISTRATION NO:- 223-1113-0013-20

UNIVERSITY ROLL NO:- 202223-21-0071

TOPIC:- WILDLIFE CONSERVATION

WORD COUNT :- 2000

## **ACKNOWLEDGEMENT**

I would like to express my special thanks of gratitude to all the professors including **Aniruddha Chatterjee, Susmita Gonsalves, Susmita Kar, Camellia Nandi, Koly De, Malini Kundu, Srijita Ghose, Malabika Chakraborty, Abantika Devray, Lopamudra Adak and Monabi Mitra** , who gave me the golden opportunity to do this wonderful project on the topic

WILDLIFE CONSERVATION , which helped me in doing a lot of Research and i came to know about so many new things.

Secondly,i would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time.

THANKS AGAIN TO ALL WHO HELPED ME

# **CONTENTS**

# **PAGE NO**

1. INTRODUCTION	4
2. Effective Wildlife Conservation Methods	5
3. The International Union for Conservation of Nature (IUCN)	6-7
4. Need of Wildlife Conservation	8-10
5. Methods employed by Govt for Preservation of Wildlife	11-12
6. List of Protected Area in India	13-19
7. Conclusion	20-22
8. Bibliography	23



## **INTRODUCTION**

The Indian Parliament enacted the Wildlife (Protection) Act in 1972, which provides for the safeguard and protection of the wildlife (flora and fauna) in the country. This Act provides for the protection of the country's wild animals, birds, and plant species, in order to ensure environmental and ecological security. Among other things, the Act lays down restrictions on hunting many animal species. The Act was last amended in the year 2006. An Amendment bill was introduced in the Rajya Sabha in 2013 and referred to a Standing Committee, but it was withdrawn in 2015. Wildlife is a part of 'forests' and this was a state subject until the Parliament passed this law in 1972. Now it is Concurrent List. Reasons for a nationwide law in the domain of environment particularly wildlife include the following:

India is a treasure-trove of varied flora and fauna. Many species were seeing a rapid decline in numbers. For instance, it was mentioned by Edward Pritchard Gee (A naturalist), that at the turn of the 20th century, India was home to close to 40000 tigers. But, a census in 1972 showed this number drastically reduced to about 1827.

A drastic decrease in the flora and fauna can cause ecological imbalance, which affects many aspects of climate and the ecosystem.

The most recent Act passed during the British era in this regard was the Wild Birds and Animals Protection, 1935. This needed to be upgraded as the punishments awarded to poachers and traders of wildlife products were disproportionate to the huge financial benefits that accrue to them.

There were only five national parks in India prior to the enactment of this Act.

## Effective Wildlife Conservation Methods

Conservation of wildlife can be divided into two essential terms, namely “in situ conservation” and “ex-situ conservation.”

**In-Situ Protection:** This form of protection preserves the imperil animal or plant in its natural environment. In Situ Conservation falls under initiatives such as National Parks, Biological Reserves.

**Ex-Situ Conservation:** Ex-situ wildlife protection simply means off-site protection of wild animals and plants by eliminating and relocating a portion of a population to protected habitat.

To protect the environment, various types of wildlife management approaches may be employed. The following are some vital wildlife conservation methods in India:-

**Wildlife Conservation Laws** – The 1972 Wildlife Protection Act is an act which attempts to protect the Indian wildlife. The Indian parliament enacted this act on 9 September 1972, and after that, the destruction of wildlife was limited to some degree.

**Habitat Management** – This approach is used to perform wildlife conservation surveys and to hold statistical data. After that, the wildlife habitat can be improved.

**Creation of Protected Area** – Protected areas are created to preserve wildlife, such as national parks, reserve forests, wildlife sanctuaries, etc. In these restricted regions, wildlife protection laws are implemented to protect the species.

**Awareness** – There is a need to educate the people about the value of wildlife for wildlife conservation in India. Some people neglect or hurt wildlife since they are unaware of wildlife’s significance. Thus, awareness of conserving wildlife in India can be spread amongst people.

**Eliminating Superstitions** – Wildlife has always been endangered by superstition. Many body parts of wild animals, parts of trees are used as treatments for other diseases. Such remedies have no theoretical basis at all. Also, some people claim that bone, fur etc. will heal their chronic illness by wearing or using other animals.

# **The International Union for Conservation of Nature (IUCN)**

IUCN is a membership Union uniquely composed of both government and civil society organizations.

Created in 1948, it is the global authority on the status of the natural world and the measures needed to safeguard it.

It is headquartered in Switzerland.

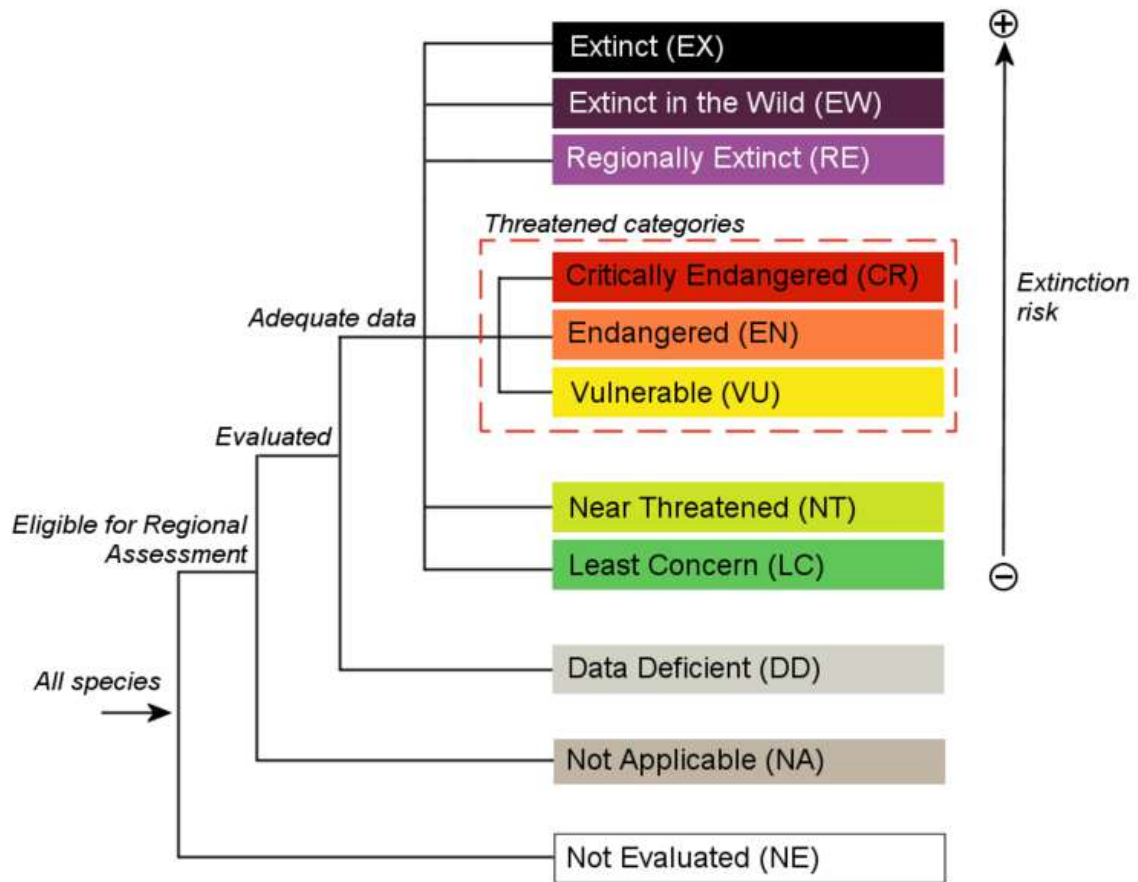
The IUCN Red List of Threatened Species is the world's most comprehensive inventory of the global conservation status of plant and animal species.

It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the world.

The IUCN Red List Categories define the extinction risk of species assessed. Nine categories extend from NE (*Not Evaluated*) to EX (*Extinct*). Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) species are considered to be threatened with extinction.

It is recognized as the most authoritative guide to the status of biological diversity.

It is also a key indicator for the SDGs and Aichi Targets.



## IUCN Red List of Threatened Species

SOURCE:- <https://www.iucnredlist.org/about/regional>

## **Need of Wildlife Conservation**

Today, about 23% (1,130 species) of mammals and 12% (1,194 species) of birds are considered as threatened by IUCN.

According to various surveys and reports, our planet has lost more than 58% of its wildlife since 1970 and is experiencing the sixth mass extinction. The 2016 Living Planet Report reveals the troubling extent of this and other environmental crises around the world, but it also sheds light on the ways we can still protect and rehabilitate what's left. An index compiled with data from the Zoological Society of London to measure the abundance of biodiversity was down 58 percent from 1970 to 2012 and would fall 6 percent by 2020 on current trends, the WWF said in a report. In 1972, The Wildlife Conservation Act was passed by the Government of India. In 1980, The World Conservation Strategy was developed by the "International Union for Conservation of Nature and Natural Resources" (IUCN) with assistance from The United Nations Environment Program and the World Wildlife Fund and in collaboration with the Food and Agriculture Organization of UN and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Global biodiversity is being lost much faster than natural extinction due to changes in land use, unsustainable use of natural resources, invasive alien species, climate change, and pollution among others. Land conversion by humans, resulting in natural habitat loss, is most evident in tropical forests and is less intensive in temperate, boreal, and arctic regions. Pollution from atmospheric nitrogen deposition is most severe in northern temperate areas close to urban centers, and the introduction of damaging alien species is usually brought about through patterns of human activity.

## **Species loss is also compounded by:**

The ongoing growth of human populations and unsustainable consumer lifestyles

Increasing production of waste and pollutants

Urban development

International conflict.

Fewer natural wildlife habitat areas remain each year. Moreover, the habitat that remains has often been degraded to bear little resemblance to the wild areas which existed in the past. Habitat loss due to destruction, fragmentation, and degradation of habitat is the primary threat to the survival of wildlife.

**Climate Change:** Global warming is making hot days hotter, rainfall and flooding heavier, hurricanes stronger and droughts more severe. This intensification of weather and climate extremes will be the most visible impact of global warming in our everyday lives.

It is also causing dangerous changes to the landscape of our world, adding stress to wildlife species and their habitat. Since many types of plants and animals have specific habitat requirements, climate change could cause a disastrous loss of wildlife species. A slight drop or rise in average rainfall will translate into large seasonal changes. Hibernating mammals, reptiles, amphibians, and insects are harmed and disturbed. Plants and wildlife are sensitive to moisture change so, they will be harmed by any change in moisture level. Natural phenomena like floods, earthquakes, volcanoes, lightning, and forest fires also affect wildlife.

**Unregulated Hunting and poaching:** Unregulated hunting and poaching cause a major threat to wildlife. Along with this, mismanagement of the forest department and forest guards triggers this problem.

**Pollution:** Pollutants released into the environment are ingested by a wide variety of organisms. Pesticides and toxic chemicals being widely used, making the environment toxic to certain plants, insects, and rodents.

**Over-exploitation:** Overexploitation is the overuse of wildlife and plant species by people for food, clothing, pets, medicine, sport, and many other purposes. People have always depended on wildlife and plants for food, clothing, medicine, shelter, and many other needs. More resources are being consumed than the natural world can supply. The danger is that if too many individuals of a species are taken from their natural environment, the species may no longer be able to survive. The loss of one species can affect many other species in an ecosystem. The hunting, trapping, collecting, and fishing of wildlife at unsustainable levels is not something new. The passenger pigeon was hunted to extinction, early in the last century, and over-hunting nearly caused the extinction of the American bison and several species of whales.

**Deforestation:** Humans are continually expanding and developing, leading to an invasion of wildlife habitats. As humans continue to grow, they clear forested land to create more space. This stresses wildlife populations as there are fewer homes and food sources for wildlife to survive.

**Population:** The increasing population of human beings is a major threat to wildlife. More people on the globe means more consumption of food, water, and fuel, therefore more waste is generated. Major threats to wildlife are directly related to the increasing population of human beings. A low population of humans results in less disturbance to wildlife.

## Methods employed by Govt for Preservation of Wildlife

**Indian Board for Wildlife** was constituted in 1952. The main purpose of the board was to advise the Government on the means of conservation and protection of wildlife, construction of national parks, sanctuaries, and zoological gardens as well as promoting public awareness regarding conservation of wildlife.

**Wildlife (Protection) Act, 1972** is a comprehensive law that has been adopted by all states. It governs wildlife conservation and the protection of endangered species. The Act prohibits trade in rare and endangered species.

**Project Tiger**, one of the premier conservation efforts in the country was launched in 1973. It is a centrally financed scheme under which 51 Tiger Reserves have been set up in 18 states. India now has as many as 2,967 tigers in the wild (Census 2018), with more than half of them in Madhya Pradesh and Karnataka, according to the latest tiger estimation report for 2018. The population of tigers has increased by 33% since the last census in 2014 when the total estimate was 2,226. The fourth cycle of the Tiger Census 2018 counted 2976 tigers which is 75% of the global tiger population.

**Project Elephant** was launched as a centrally sponsored scheme in February 1992. According to recent reports, the elephant population in India is demonstrating a stable trend across elephant reserves in India. The population of elephants in the year 2012, was estimated at 31,368 while it had fallen to 27312 in 2017. The elephant population of India was 27,682 in 2007. The average population throughout the period was about 26700.



**Crocodile Breeding Project**– This project was **initiated on April 1, 1974**, and the project began on April 1, 1975, in Odisha. Crocodile husbandry work was undertaken with a view to sanctuary development.

The **National Wildlife Action Plan (NWAP)** provides the framework of strategy as well as the program for the conservation of wildlife. The **first National Wildlife Action Plan of 1983 has been revised and a new Wildlife Action Plan (2002-2016) has been adopted**. The Indian Board of Wildlife is the apex advisory body overseeing and guiding the implementation of various schemes for wildlife conservation.

**National park** is a relatively large land or water area which contains representative samples and sites of major natural regions, features, scenery, and/or plant and animal species of national or international significance and is of special scientific, educational and recreational interest. Usually, the national parks contain one or several entire ecosystems that are not materially altered by human exploitation or occupation. National parks are protected and managed by the government in a natural or near-natural state. Visitors enter under special conditions for inspirational, educational, cultural, and recreational purposes.

**Wildlife Sanctuary** is more or less similar to a national park which is dedicated to protecting wildlife and concerned species. A wildlife sanctuary is an area constituted by the competent authority in which killing and capturing of any form of wildlife is prohibited. Grazing or movement of livestock is regulated. The chief warden is authorized to allow or disallow entry into the sanctuary or construction of roads, buildings, fences, etc. Hunting is also restricted and strictly regulated. The status of Wildlife sanctuary is equal to the IUCN category IV protected area.

**Biosphere Reserve** A biosphere reserve is a unique and **representative ecosystem of terrestrial and coastal areas** which are **internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) program**. The objectives of the Man and Biosphere Program (MAB) are as follows:

Conservation function: to conserve genetic resources, species, ecosystems, and landscapes

Development function: to promote sustainable human and economic development.

Logistic support function: to provide support for research and analyzing the issues of conservation and sustainable development.

# List of Protected Area in India

## NATIONAL PARKS IN INDIA

---

### List of Important National Parks- Wildlife Sanctuaries and Bird Sanctuaries in India

#### List of Important National Parks in India

Sno	Name of the Park	Location
1.	Anshi National Park	Karnataka
2.	Bandipur National Park	Karnataka
3.	Bannerghatta National Park	Karnataka
4.	Balphakram National Park	Meghalaya
5.	Bandhavgarh National Park	Madhya Pradesh
6.	Betla National Park	Jharkhand
7.	Bhitarkanika National Park	Odisha
8.	Blackbuck National Park (Velavadar)	Gujarat
9.	Buxa Tiger Reserve	West Bengal
10.	Campbell Bay National Park	Andaman and Nicobar Islands
11.	Chandoli National Park	Maharashtra
12.	Dachigam National Park	Jammu and Kashmir
13.	Darrah National Park	Rajasthan
14.	Desert National Park	Rajasthan
15.	Dibru-Saikhowa National Park	Assam
16.	Dudhwa National Park	Uttar Pradesh
17.	Eravikulam National Park	Kerala
18.	Galathea National Park	Andaman and Nicobar Islands
19.	Gangotri National Park	Uttarakhand
20.	Gir Forest National Park	Gujarat
21.	Gorumara National Park	West Bengal
22.	Govind Pashu Vihar Wildlife Sanctuary	Uttarakhand
23.	Great Himalayan National Park	Himachal Pradesh
24.	Gugamal National Park	Maharashtra
25.	Guindy National Park	Tamil Nadu

SOURCE:-[scribd.com/document/398404446/List-of-Important-National-Parks](https://www.scribd.com/document/398404446/List-of-Important-National-Parks)



## NATIONAL PARKS IN INDIA

SOURCE:-[www.pmfias.com/protected-areas-of-india-national-parks-tiger-reserves](http://www.pmfias.com/protected-areas-of-india-national-parks-tiger-reserves)

# WILDLIFE SANCTUARY IN INDIA

## List of Important Wildlife Sanctuaries in India :

<b>Sn o.</b>	<b>Name of the Sanctuaries</b>	<b>Location</b>
1.	Kaziranga Wildlife Sanctuary	Assam
2.	Manas Wildlife Sanctuary	Assam
3.	Gir National Park& Wildlife Sanctuary	Gujar
4.	Sundarbans National Park	West Bengal
5.	Periyar National Park& Wildlife Sanc- tuary	Kerala
6.	Kanha National Park	Madhya Pradesh
7.	Bandhavgarh National Park	Madhya Pradesh
8.	Ranthambore National Park& Wildlife Sanctuary	Rajasthan
9.	Bharatpur Bird Sanctuary	Rajasthan
10.	Tal Chappar Wildlife Sanctuary	Rajasthan
11.	Sariska Wildlife Sanctuary	Rajasthan
12.	Chilka Lake Bird Sanctuary	Odissa
13.	Nandankanan Zoo	Odissa
14.	Corbett National Park	Uttarkhand
15.	Bandipur National Park	Karnataka
16.	Parambikulam Wildlife Sanctuary	Kerala
17.	Mudumalai National Park& Wildlife Sanctuary	Tamil Nadu
18.	Govind Wildlife Sanctuary	Uttarakhand
19.	Indian Wild Ass Sanctuary	Gujarat
20.	Aralam Wildlife Sanctuary	Kerala

## Indian Wildlife Sanctuaries



# WILDLIFE SANCTUARIES IN INDIA

SOURCE:-[www.pinterest.com/pin/131448882851363252/](http://www.pinterest.com/pin/131448882851363252/)

## BIOSPHERE RESERVES IN INDIA

S.NO	NAME	DATE OF NOTIFICATION	AREA	LOCATION
1	Nilgiri	01.09.1986	5520 (Core 1240 & Buffer 4280)	Part of Wayanad, Nagarhole, Bandipur and Madumalai, Nilambur, Silent Valley and Siruvani hills (Tamil Nadu, Kerala and Karnataka).
2	Nanda Devi	18.01.1988	5860.69 (Core 712.12, Buffer 5,148.570) & T. 546.34)	Part of Chamoli, Pithoragarh, and Bageshwar districts (Uttarakhand).
3	Nokrek	01.09.1988	820 (Core 47.48 & Buffer 227.92, Transition Zone 544.60)	Part of Garo hills (Meghalaya).
4	Great Nicobar	06.01.1989	885 (Core 705 & Buffer 180)	Southern most islands of Andaman And Nicobar (A&N Islands).
5	Gulf of Mannar	18.02.1989	10,500 km <sup>2</sup> Total Gulf area (area of Islands 5.55 km <sup>2</sup> )	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu).
6	Manas	14.03.1989	2837 (Core 391 & Buffer 2,446)	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darrang districts (Assam)
7	Sunderbans	29.03.1989	9630 (Core 1700 & Buffer 7900)	Part of delta of Ganges and Brahmaputra river system (West Bengal).
8	Simlipal	21.06.1994	4374 (Core 845, Buffer 2129 & Transition 1400)	Part of Mayurbhanj district (Orissa).
9	Dibru-Saikhowa	28.07.1997	765 (Core 340 & Buffer 425)	Part of Dibrugarh and Tinsukia Districts (Assam)

10	Dehang-Dibang	02.09.1998	5111.50 (Core 4094.80 & Buffer 1016.70)	Part of Siang and Dibang Valley in Arunachal Pra- desh.
11	Pachmarhi	03.03.1999	4926	Parts of Betul, Hoshangabad and Chindwara dis- tricts of Madhya Pradesh.
12	Khangchendzon- ga	07.02.2000	2619.92 (Core 1819.34 & Buffer 835.92)	Parts of Khang- chendzonga hills and Sikkim.
13	Agasthyamalai	12.11.2001	1828	Neyyar, Peppara and Shendur- ney Wildlife Sanc- tuaries and their adjoining areas in Kerala.
14	Achanakamar - Amarkantak	30.3.2005	3835.51 (Core 551.55 & Buffer 3283.86)	Covers parts of Anupur and Din- dori districts of M.P. and parts of Bilaspur districts of Chhattishgarh State.
15	Kachchh	29.01.2008	12,454 km2	Part of Kachchh, Rajkot, Surendra Nagar and Patan Civil Districts of Gujarat State
16	Cold Desert	28.08.2009	7770	Pin Valley Nation- al Park and sur- roundings; Chan- dratal and Sarchu&Kibber Wildlife Sanctur- ary in Himachal Pradesh
17	Seshachalam Hills	20.09.2010	4755.997	Seshachalam Hill Ranges covering parts of Chittoor and Kadapa dis- tricts of Andhra Pradesh
18	Panna	25.08.2011	2998.98	Part of Panna and Chhattarpur dis- tricts in Madhya Pradesh



## BIOSPHERE RESERVES IN INDIA

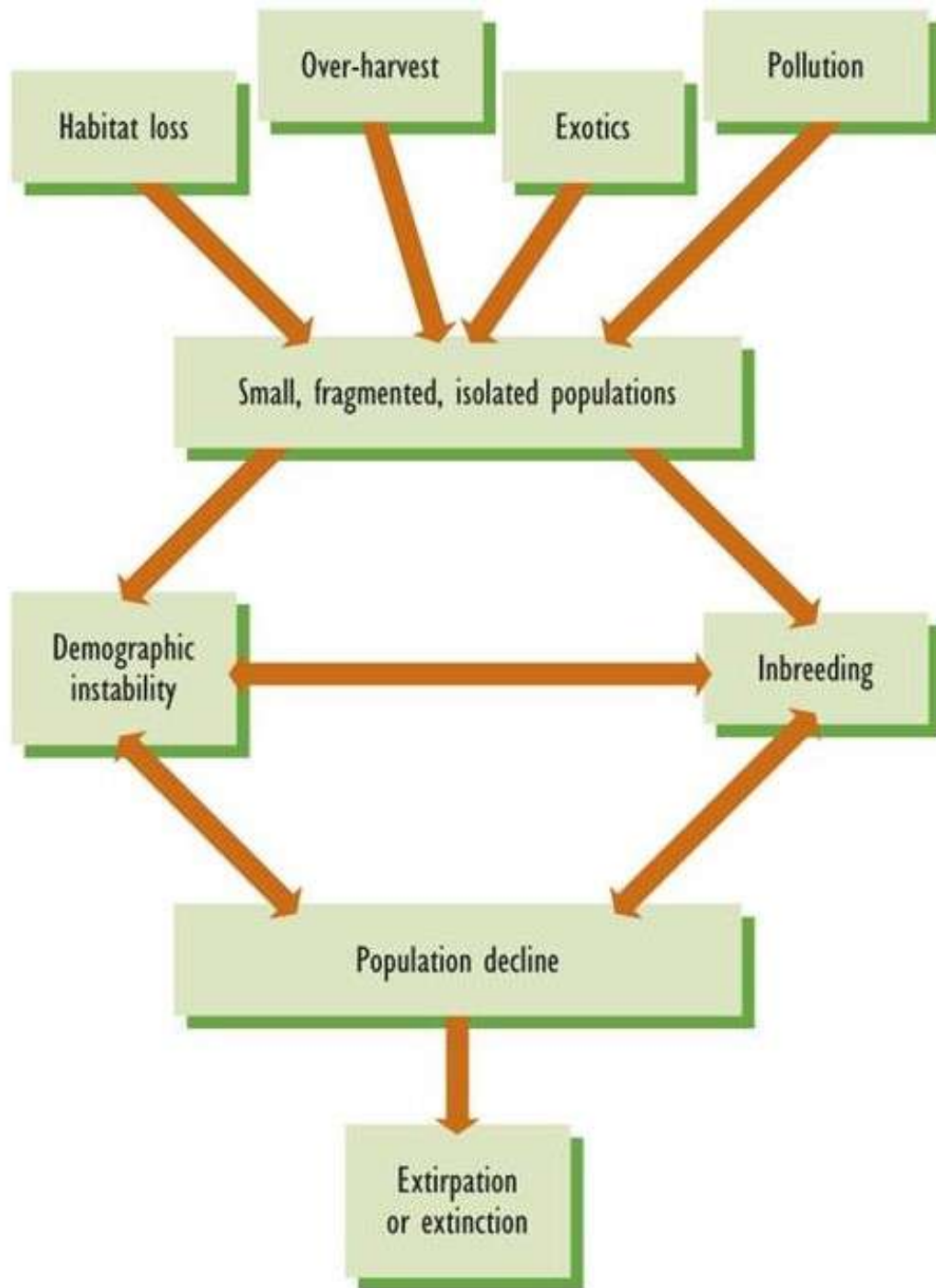
SOURCE:-WWW.CIVILSDAILY.COM



# Conclusion

Wildlife conservation in India has a long history, dating back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. Then, the formation of the Wildlife Board at the national level and enactment of Wildlife Act in 1972 laid the foundation of present day “wildlife conservation” era in post-independent India. Henceforth, the Act has been amended several times and the National Wildlife Advisory Board has undergone various changes.

With the opening up of Indian market and process of globalisation, the country has made significant progress in achieving higher Gross Domestic Product (GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within Protected Areas came to fore. Take for instance, the restrictions by Environmental Impact Assessment (EIA) for Development Projects, covering more than 30 sectors as far back in 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “Protected Areas”- largely on the basis of requirement of ‘Forest Clearance’ or on the assessment of impacts on Wildlife Habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.



## **CAUSES OF WILDLIFE DEPLETION**

SOURCE:-<https://ecampusontario.pressbooks.pub/environmentalscience/chapter/chapter-27-the-biodiversity-crisis/>

Hovering back to 2005, WTI had recently discharged its thorough report 'Right of Passage' posting 88 elephant halls in India.

Fifteen years on, the quantity of elephant passageways has expanded to 101.

Passageways are little fixes of land that elephants use to go starting with one ensured territory then onto the next. Since these are not secured forests, passages are in incredible peril of getting weakened. About a portion of these passageways need no physical securement since elephants utilize these patches, they should simply let these be.

For other people or animals, WTI has shown four strategies for securement, of which purchasing land is the fastest however not the most straightforward and the one including government mediation has demonstrated to be the slowest that can demonstrate as far as expenses of contention and deferrals. Critics may call it an outlandish dream; however, this is the thing that props us up. India has a great deal to celebrate and that illuminates as a ton to monitor.

**Conservation is like a game of chess. You play even when you know you may lose. We cannot sit back and watch the natural world die an unnatural death because of some human follies.**

# Bibliography

## LINKS:-

1. <https://www.nationalheraldindia.com/india/wildlife-conservation-in-india-are-we-really-serious>
2. <https://byjus.com/free-ias-prep/biosphere-reserve-in-india/>
3. <https://lotusarise.com/wildlife-resources-in-india-upsc/>
4. <https://www.clearias.com/iucn-classification-critically-endangered-endangered-and-vulnerable/>

**BOOK:-**Dr Erach Bharuchais. **Textbook of Environmental studies for Undergraduate Courses**: Orient Blackswan Pvt ltd. reprint 8 march 2021.



## **SCOTTISH CHURCH COLLEGE**

***NAME – INDIRA DAS***

***COLLEGE ROLL NO, - ENGA20F312***

***CU REGISTRATION NUMBER – 223-1211-0038-20***

***A PROJECT ON ENVIS***

***WORD COUNT – 2145***

***NO. OF PAGES USED – 13***

***TOPIC - WILD-LIFE CONSERVATION***

***Date of submission : 06/07/2021***



**THEME OF THE PROJECT :**

***WILDLIFE CONSERVATION IN INDIA.***

What do we understand when it comes to the word, Wild life conservation?  
Well to answer that question, at first we need to know the definition of the word 'wild-life'. For the most of us, it occurs as a mere mention of animals that live in forest, away from residential localities. But if we want proper knowledge , we have to dig a little deeper.

**Wildlife** traditionally refers to undomesticated animal species, but has come to include all organisms that grow or live wild in an area without being introduced by humans. Wildlife can be found in all ecosystems. deserts, forests, rainforests, plains, grasslands, and other areas, including the most developed urban areas, all have distinct forms of wildlife.

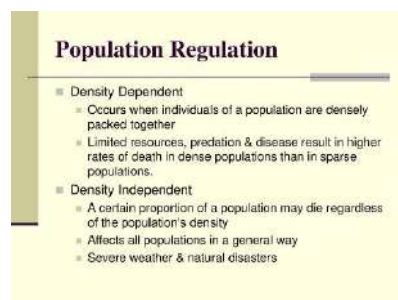
Wildlife plays an important role in balancing the environment and provides stability to different natural processes of nature. India's wildlife is both rich and varied, it includes all flora and fauna, animals, plants and macro organisms.

Wildlife is important for its beauty, economic, scientific and survival value. It helps to maintain the ecological balance of nature and maintains the food chain. It provides useful substances and wild animal products like ivory, leather, honey, tusk etc. Besides being a country's cultural asset it also provides aesthetic value to man. We largely depend on wildlife for every elementary requirement in our life eg. the clothes we wear and the medicines we consume.

Lets now discuss the huge impact of wildlife on nature.

### **Wildlife maintains nonetheless balance of nature through:**

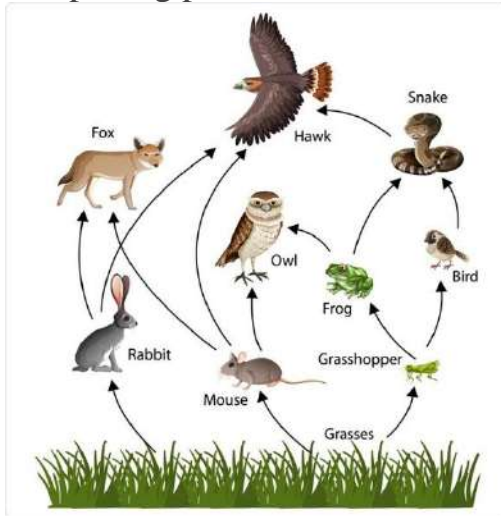
- (a) Regulation of population of different species by self-regulation and feedback,



**Population Regulation**

- Density Dependent
  - Occurs when individuals of a population are densely packed together
  - Limited resources, predation & disease result in higher rates of death in dense populations than in sparse populations.
- Density Independent
  - A certain proportion of a population may die regardless of the population's density
  - Affects all populations in a general way
  - Severe weather & natural disasters

(b) Food-chains or passage of food and energy through series of populations comprising producers, consumers and micro-organisms,



© and Natural cycles or circulation of inorganic nutrients between biotic and abiotic environments, prevention of leaching and run-off.

Thus it preserves the environment as a self-sustaining system. It balances population and maintains food-chains and natural-cycles.

Next up, we can also see how wildlife provides abundant benefits in the field of evolution for human civilisation.

### **Gene Bank:**



The most direct relationship of preservation of wildlife to human progress is its significance as gene banks for breeding programmes in agricultural, animal husbandry and fishery. Wildlife serves as a gene banks for breeding improved varieties in agriculture, animal husbandry and fishery.





Plant and animal breeders have been able to produce high-yielding and disease- and-stress resistant varieties which form the backbone of modern agriculture. Average life of a crop variety is 5-15 years.

More application of fertilizers, irrigation and pesticides cannot raise production unless a variety of a crop or of an animal has the genetic potentiality to respond to improved inputs. To develop such varieties, a very wide range of plants or animals has to be screened and selected.

Scientists have been constantly examining the wild relatives of crop plants for the presence of useful genes that can be introduced to breeding programmes. Hence, gene- bank maintenance is essential.

Wildlife conservation encompasses all human activities and efforts directed to preserve wild animal from extinction it involves both protection and scientific management of wild species. Wildlife and nature have largely being associated which humans for numerous emotional and social reasons. Wildlife plays an essential role in the ecological and biological processes that are yet again significant to life. The normal functioning of the biosphere depends on endless interaction among animals, plants and micro organisms. Wildlife has occupied a special place of veneration and preservation in various cultures of the world.



Here, in this presentation I would like to highlight the rich wildlife that our country, India possesses. The diversity itself is maddening.

The trans-Himalayan region, encompassing

Lahaul-Spiti district of Himachal Pradesh and Ladakh comprise the richest wild sheep and goat community in the world.



Tigers are found in the forests of Eastern Himalayan foothills. Leopard is found in Northern parts of Asom, Lynn and Yak in Ladakh along with Brown, Black and Sloth Bear in the Himalayan Region.



The Wild Buffalo is found in Asom, Bastar district of Madhya Pradesh, while the Great Indian Bison is found in the forests of Central India. Black Panther is found in widely distributed areas including deserts and jungles. Cats are found in the North-Western parts of the country.





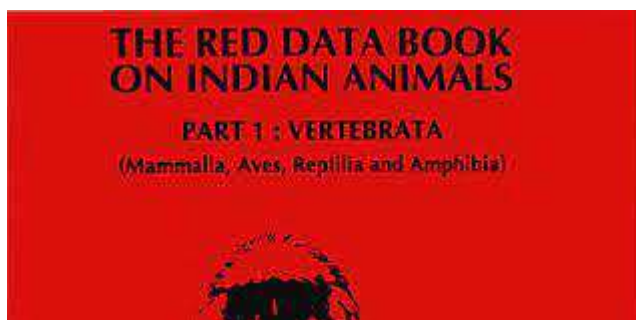
Several species of Wild Sheep and Goats too are found. Deer, Stag are common but have reduced in numbers considerably. Monkeys, Langurs, Chinkaras too are common as well as the Blue Bull, the Four-horned Antelope or the Chawsingha, Wild Dog, Fox, Jackal, Hyena, Mongoose, Shrews, Hedgehogs, Mole, Bats, Rodents and Squirrels. There is an abundance of reptiles like Cobra, Krait, Russel Vipers Dhamaoa, a non-poisonous large snake, Rock Python, Marsh Crocodiles, Gharial, Lizards, Chameleon, Monitor Lizards, Turtles etc,



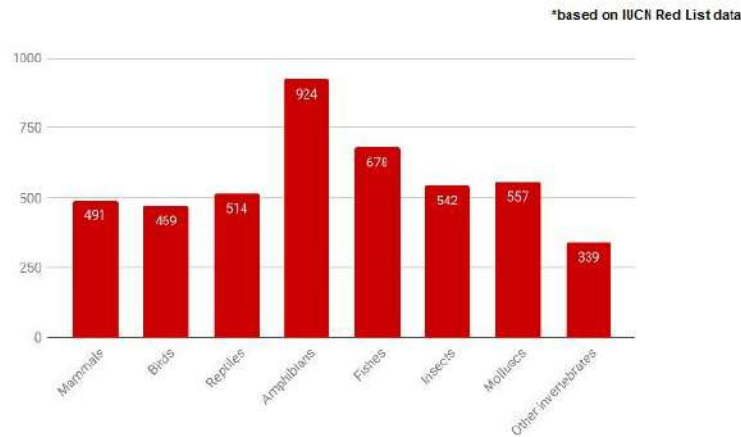
Elephant is the largest Indian mammal found in the forests of Asom, West Bengal, Central India, Karnataka, Kerala and Tamil Nadu. Rhinoceros is India's second largest mammal whose number has considerably decreased and is now confined to the forests of Asom and West Bengal under strict protection, in the famous Kaziranga and Manas Sanctuaries of Asom, and Jaldapara Sanctuary in West Bengal.



India can proudly boast of about 2000 species of birds in India which is thrice the amount of birds in all the countries of Europe put together. Aquatic birds like Storks, Herons, Ducks, Flamingoes, Egrets, Cormorants are found along with waders and shore birds like the Sea Gulls, Snipes, Iluses, Cranes and Lapwings. The Great Indian Bustard, Pea Fowl, Jungle Fowl, Quail and Partridges are the main ground birds along with Babblers, Barbits, Bulbuls, Mynas, Pigeons, Parakeets, Doves, Cuckoos, Rollers, Beaters, Fly catchers, Orioles, Warblers, Wagtails, Finch larks, Finches, Drongos and Hoops. Prey birds such as Owls, Eagles, Kites, Fallows and Kestrel too are found in large numbers. Peacock, is rightly the national bird of India symbolising the vast variety of our bird-wealth with its rich and magnificent plumage fossils of several animals have also been found in India. Titanosaurusindicus was the first dinosaur discovered in 1877 in the Narmada Valley by Richard Lydekker. Rajasaurus narmadensis, a carnivorous dinosaur was also known to inhabit this region. Whale fossils were found in the foothills of Himalayas, as the area used to be underwater (in the Tethys Sea)



Unfortunately, our wildlife has been adversely affected by the fast dwindling forest wealth. Large number of species have got reduced, others are endangered and still others are on the verge of extinction. This has adversely contributed to the disturbance of the ecological balance. Moreover, poaching and illegal killing of animals for their fur, skin, teeth, hair etc has contributed in the reduction of wildlife population.



India is a bio-diverse country, with nearly 6.5% of the world's known wildlife species. Approximately, 7.6% of the world's mammals and 12.6% of the world's birds are found in India. The illicit demand, globally, for wildlife and its products has seen the rise of crime across the subcontinent.

As defined by the International Consortium on Combating Wildlife Crime (ICWC), crime refers to acts committed contrary to national laws and regulations intended to protect resources and to administer management and use. This



wildlife  
natural  
their

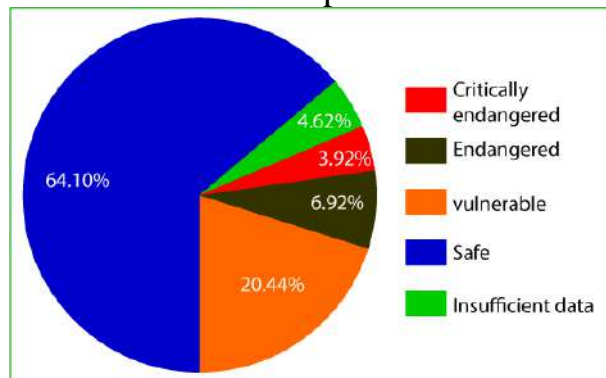
includes the illicit exploitation of natural resources, such as poaching of animals and unauthorized logging of trees. It may also include subsequent acts, such as the processing of fauna and flora into products, their transportation, sale and possession.



The UNODC is mandated to support its member states fight wildlife crime. The United Nations Convention against Transnational Organized Crime (UNTOC) is

an important instrument providing the necessary legal framework for international cooperation in combating wildlife crime.

In India, wildlife crime is a pervasive problem damaging ecosystems, impacting food security and affecting livelihoods of rural communities. In many cases, cross-border smuggling of live animals and plants can result in the spread of disease through carrier animals and plants.



Major wildlife crime in India includes poaching of tigers, rhinos and the sale of Star tortoises. Tigers are an endangered species, poached for their skin and bones to cater to an illegal market. Their body parts are used in Asian medicines and tiger claws are used in jewellery. Tiger whiskers are considered a dreadful poison in Malaysia and a powerful aphrodisiac in Indonesia.

Ancient trade routes for salt, spices and wool are being used to smuggle tiger skins and bones. These illegal goods are sent to buyers based largely in northern India and are then smuggled out of the country through couriers. The main route is via Nepal, with whom India has a porous border, or directly across the border to China. More recently, routes through Myanmar have also been used.

Apart from tigers, India is also witnessing a rise in wildlife crime against Rhinoceros. Driven by a soaring demand for their horn, hundreds of rhinos are being killed, illegally. According to a report by TRAFFIC and the International Union for the Conservation of Nature (IUCN), sophisticated poachers are using veterinary drugs, poison, cross bows and high calibre weapons to kill rhinos.

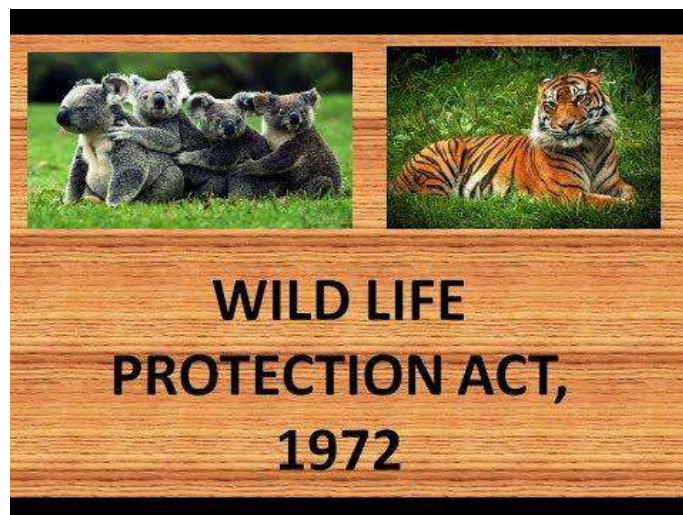
The Indian rhino could once be found from Pakistan, all the way through India, Nepal, Bangladesh, Bhutan and Myanmar. However, the current population of this species is dwindling and today only about 2500 survive in India and Nepal.



It is not only large mammals, but also

smaller species that are under threat. Star tortoises from South India are illegally traded in huge numbers. Due to their popularity in Feng Shui, they are kept as pets, believed to bring prosperity and can cost as much as \$500 in the illegal market. Many protected marine species such as sea cucumbers, molluscs, sea horses and coral are also illegally harvested in Indian waters for export.

The first species to disappear during the Indus Valley Civilisation was wild cattle. This probably happened due to inter-breeding with domestic cattle. Species of birds, like pink-headed duck and Himalayan quail have become extinct. Along with Tigers, the numbers of Cheetahs too have dwindled who are now surviving under protection and breeding programmes in the Gir Sanctuary, Gujarat.



To put a check on this, Indian Board for Wildlife was made in 1952 with its main function as an advisory board advising the government on how to conserve and protect wildlife with the construction of National Parks, Sanctuaries, Zoological gardens etc. to name a few, there are 104 national parks

in India covering an area of 43,716km<sup>2</sup>, which is 1.33% of the geographical area of the country eg. Kanha, Bandhavgarh, Kaziranga, Gir , Nagarhole etc.

There are 18 biosphere reserves in India:

1. Desert, Himachal Pradesh
2. Nanda Devi, Uttrakhand
3. Khangchendzonga, Sikkim
4. Dehang-Debang, Arunachal Pradesh
5. Manas, Assam
6. Dibru-Saikhowa, Assam
7. Nokrek, Meghalaya
8. Panna, Madhya Pradesh
9. Pachmarhi, Madhya Pradesh
10. Achanakmar-Amarkantak, Madhya Pradesh-Chhattisgarh
11. **Kachchh, Gujarat (Largest Area)**
12. Similipal, Odisha
13. Sundarban, West Bengal
14. Seshachalam, Andhra Pradesh
15. Agasthyamala, Karnataka-Tamil Nadu-Kerala
16. **Nilgiri, Tamil Nadu-Kerala (First to be Included)**
17. Gulf of Mannar, Tamil Nadu
18. Great Nicobar, Andaman & Nicobar Island

There are also 72 zoological gardens in India such as Alipore Zoological gardens, Amrithi Zoological park etc. Arignar Anna Zoological park is the oldest zoo in India.

The Wildlife Conservation Act, 1972 is a strict law and gives a firm footing to National Parks and Sanctuaries. The endangered species of plants and animals have been classified under this act for protection. Project Tiger was launched in 1973 under which 21 Tiger Reserves have been created to check intensive land-use practices like mining, construction of roads and railway lines affecting the tiger habitat and corridors. The National Tiger Conservation Authority (NTCA) has set-up a 10-member committee of experts in 2011. The committee will also appraise ongoing demand for diversion of habitat areas towards infrastructure



projects in states. Wildlife reserves have started using advanced technology for better maintenance of facilities and also the inhabiting animals. Haryana wildlife department will make use of the camera trap method to get the exact number of animals in its sanctuaries. Kolhapur department has been equipped with wireless communication.

Along with the efforts of the government, people's awareness and cooperation is needed in order to conserve and protect these invaluable natural resources of our country. Then only can the efforts of the government be given a concrete direction and the conservation goals can be achieved. On International Tiger Day, 29 July, Pench Tiger Reserve along with Rotary Club organised competitions in Nagpur. Such initiatives can go a long way in instilling responsibility towards wildlife among citizens. Wildlife is an integral part of our national heritage. We want our future generations to be able to 'hear' lions roar and not just 'see' them in picture books. For that we must take steps today. Otherwise, it will be too late!

NAME – SIMRAN MATHEWS

DEPARTMENT – ENGLISH HONOURS

SEMESTER – 2

COLLEGE ROLL NUMBER – ENGA20F306

CU ROLL NUMBER – 202223-11-0005

CU REGISTRATION NUMBER – 223-1211-0005-20

SUBJECT – ENVIRONMENTAL STUDIES

TOPIC – WILDLIFE CONSERVATION

WORD COUNT – 4623

Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provide balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species. The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting, fishing and poaching. National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting. They also promote biodiversity to support the growing human population while preserving existing species and habitats.

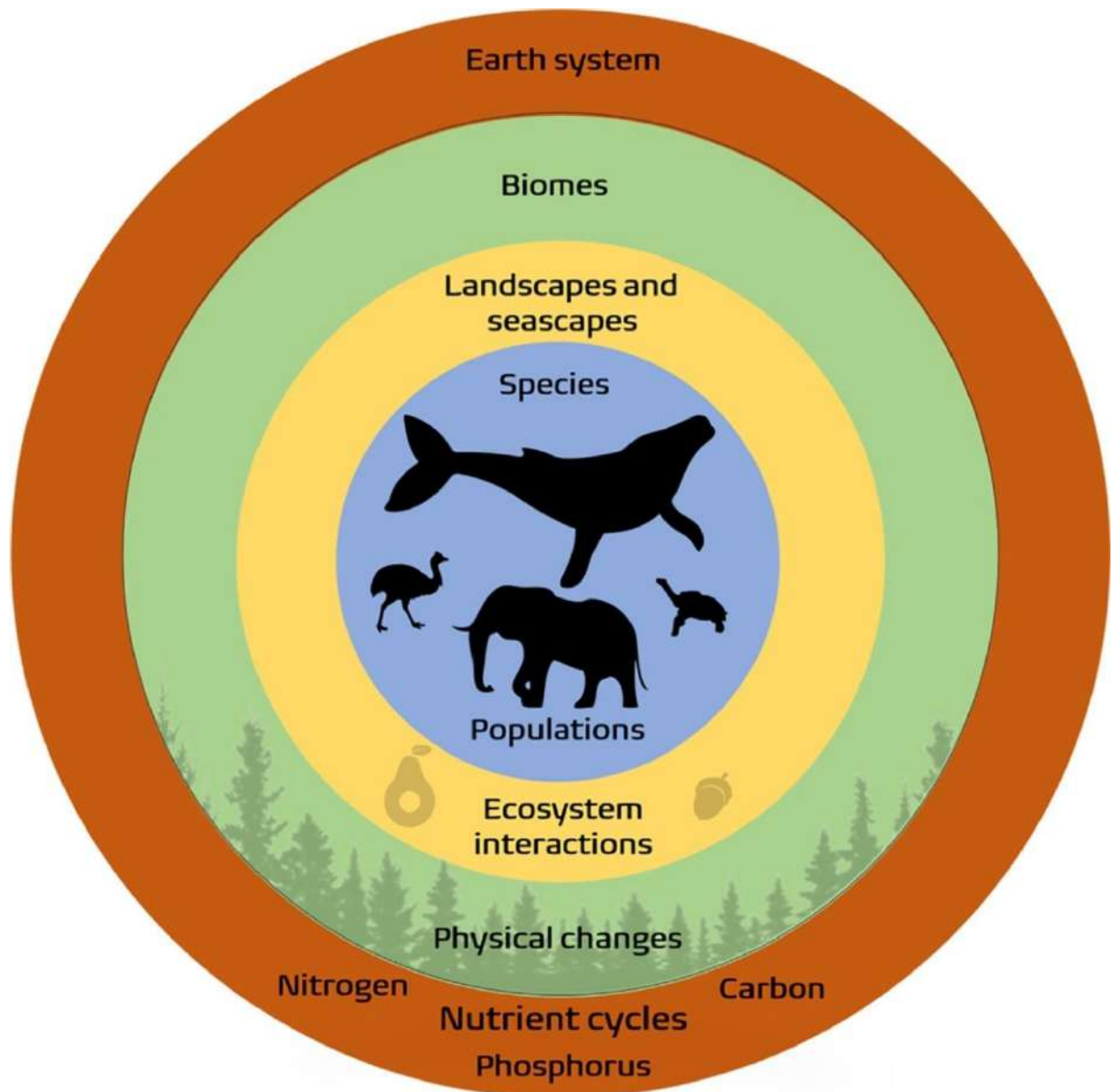
Wildlife conservation has several areas of importance such as:

1. **Biodiversity** – The variability of life on Earth is called biodiversity. Biodiversity takes into account all the living organisms present on Earth. Healthy and good biodiversity indicate a healthy and good ecosystem. Hence, biodiversity is very important. A healthy ecosystem also includes the availability of pure water, pure air, healthy land, good climate and availability of nutrients on Earth. Therefore, biodiversity

conservation plays an important role in the quality of life of all living organisms. A number of factors like pollution, erosion, evolution, urbanization, industrialization, population and depletion lead to the loss of biodiversity. Loss of biodiversity is very harmful to the ecosystem as it indicates either loss of species, or reduction of species in a natural habitat, or both of them on a global level. Loss of biodiversity has a poor impact on the ecosystem. Loss of biodiversity directly impacts the ecosystem and food chains in it. It affects agriculture and weakens the resistance to natural disasters like floods, drought, etc. biodiversity conservation can be defined as “protection, restoration and management of biodiversity in order to derive sustainable benefits for present and future generations”, or, it can also be defined as, “the totality of genes, species and ecosystems in a defined area”.

Conservation of biodiversity: Biodiversity conservation refers to the protection, preservation and management of ecosystems and natural habitats and ensuring that they are healthy and functional. The three main objectives of biodiversity conservation are as follows:

- To protect and preserve species diversity.
- To ensure sustainable management of the species and ecosystems.
- Prevention and restoration of ecological processes and life support systems.



Trends in Ecology & Evolution

There are two types of methods that are employed to conserve biodiversity. They are

– In-situ conservation and Ex-situ conservation.

**In-situ conservation:** In situ conservation refers to the preservation and protection of the species in their natural habitat. It means the conservation of genetic resources in natural populations of plant or animal species. In situ conservation involves the management of biodiversity in the same area where it is found. In situ biodiversity conservation has many advantages:

- It preserves species as well as their natural habitat.
- It ensures protection to a large number of populations.
- It is economic and a convenient method of conservation.
- It doesn't require species to adjust to a new habitat.

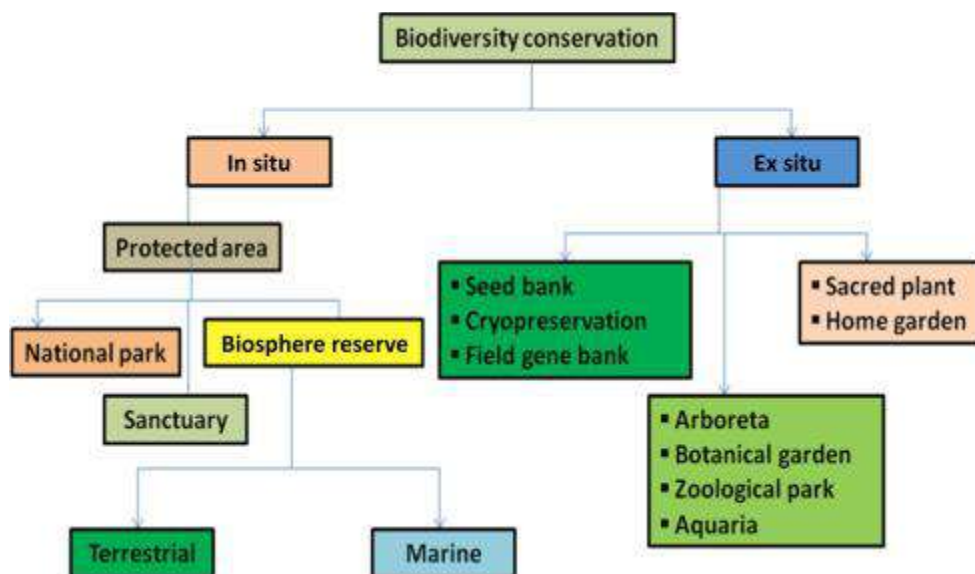
Different methods of In-situ conservation include biosphere reserves, national parks, wildlife sanctuaries, biodiversity hotspots, gene sanctuary and sacred groves. These are national governments nominates sites, large areas (often up to 5000 square km) of an ecosystem where traditional lifestyle and natural habitat of the inhabitants of that ecosystem are protected. They are mostly open to tourists and researchers. Example – Sundarban, Nanda Devi, Nokrek and Manas in India.

Ex-situ conservation: Ex situ conservation means conservation of life outside their natural habitat or place of occurrence. It is the method in which part of the population or the entire endangered species is taken from its natural habitat which is threatened and breeding and maintaining of these species take place in artificial ecosystems.

These artificial ecosystems could be zoos, nurseries, botanical gardens, etc. the living environments are altered in these conservation sites, so there are fewer survival struggles like scarcity of food, water or space. Advantages of ex situ conservation include:

- Essential life sustaining conditions like climate, food availability, veterinary care can be altered and are under human control.
- Artificial breeding methods can be introduced leading to successful breeding and creating many more offspring of the species.
- The species and be protected from poaching and population management can be efficiently done.

- Gene techniques can be applied to increase the population of the species and they can again be reintroduced into the wild.



2. Release suffering – Animal conservation can be important to relieve suffering for animals because they are kept captive. Animals love being in their natural habitat; the wild. Far too many wild animals are kept in zoos being poorly treated and tried to shape into domestic pets. Majority of the enclosures are too small for the animals inside them. So many animals lose their natural instincts and then if they are returned to the wild for any reason, they do not know how to act or hunt as a wild animal. People say it's okay to have animals in zoo because it's educational but it actually isn't. The animals are not been viewed in their natural habitat and are not acting or behaving as wild animals. Something needs to be done. Firstly most of the enclosures are way too small for the animals living in them. Yes that's right. It occurs mostly overseas rather than in Australia but there are captive animals that live in cages with concrete floors and dirty buckets filled with brown water as their only water source for their whole lives. Occurring mostly in Iraq, Egypt, India, Texas, China and many other countries. Zoo keepers have recognized that some species thrive in captivity

while others suffer. So many animals pace around their enclosures and stop eating, showing signs of stress and depression. The average enclosure size for a polar bear is one-millionth of the size of its home in the wild. Some polar bears spend 25% of their days in what scientists call stereotypic pacing. That is the life far too many captive animals are living. Secondly animals should not be kept in zoos because it's not actually educational. Zoo animals cannot be viewed as wild animals as they are not in their natural habitat therefore they are not acting in their natural state. One of the means why people go to zoos is to learn but it has got to the point where the animals are acting nothing like they would in the wild. If students or tourists want to learn about animals they should visit open range zoos where the animals are free to roam around and act somewhat naturally. Another reason why animal should not be kept in zoos is because they lose their natural instincts. When the animals are in zoos they are not for their food themselves, it is handed to them on a platter. In some zoos in Australia they tie the food high in trees so the animals have to find it and get it themselves but in other countries it is slid through a small door into the animal's cage. If the animals are ever returned to the wild for some reason they don't know how to fight or find their own food. When two prairie dogs were returned to the wild they were found two days later, dead from starvation. The area where they were released was also the home for a herd of buffalo so they did not die from there being no food, they died because they didn't know how to hunt anymore. If zoos are going to release animals back into the wild they need to make sure the animals know how to hunt and fend for themselves first. In conclusion animals in zoos deserve to be out in the wild acting like wild animals and not depressed domestic pets. Something needs to be done about the small enclosures, lack of entertainment to keep the animals occupied and the fact that animals are dying when they are finally let back into the wild. Examples of



this is the use of elephants in South East Asia for tourism. Likewise, the use of orangutans in Indonesia for boxing shows. In addition to the suffering cause to the animals, these activities create sharp population decline for the species.



3. Poaching – Poaching is the illegal hunting, capturing, and often killing of wild animals. It has been done for a number of reasons, including claiming the land for human use, but recently, the illegal act is being done for other ridiculous motives, especially the desire for rare animal products such as ivory, fur, organs, skin, bones or teeth. For instance, the rhino has been hunted because some believe its horn has medicinal value. It is so serious that today, the rhino is critically endangered with the Black Rhino's population decreasing by 97.6% since 1960. Other animals, such as the tiger are killed for their organs, pelts, and bones for medical and aesthetic reasons. The surprising truth is that these animal parts, which have made the animals prime target for poachers have no proven medicinal purposes. Poaching, however, is not only about the killing of endangered or protected animals but any unlawful killing of an animal. Other activities such as killing a wild or protected animal without a license, in a prohibited manner, while trespassing, or exceeding one's bag limit is as well considered poaching.

Various causes of poaching:-

- Lax and broken regulation systems: Poaching in recent times has increased due to the existence of wildlife protection regulations that can be circumvented. Some government officials have also taken a back seat in tightening poaching rules as they directly benefit from it. For example, some top officials working in the law enforcement agencies and governments, are susceptible to corruption and bribery and are direct beneficiaries of the proceeds from poaching. With the protection of such officials, poachers easily invade the wild and hunt the animals without being tracked.
- Food and exotic dishes for the elite: some wild animals like the zebras, lions, hippos, elephants, gazelles, snakes and giraffe are killed for their meat,

traditionally referred to as “bush meat”. The meat of these animals including apes and snakes are a delicacy in certain parts of Africa. In Asia, exotic wildlife dishes are made from snakes, turtles, pangolins, bats, whales and orangutans and sold to the elite in exclusive restaurants.

- **Organized criminal networks:** some wildlife animals are prey to criminal networks linked to human trafficking, money laundering and drug cartels. The criminal network is large enough to have the animal killed in sub-Saharan African and its parts used in Asia. Some animals are also captured alive so that they can be kept by the criminal gangs to show might and power, while others sold as pets. The rhino, for instance, has no known natural predator, except humans. Humans hunt and kill the animal for its horns, which are in high demand in Asia. They are used for ornamental cravings and traditional medicine.
- **Habitat loss, logging and expansion of human settlement areas:** The total human population grows larger by the day, forcing people to invade land set out for wild animals. In the process, the animals are killed so that people can grow their cities, develop roads, settle or practice agriculture. The destruction of animal habitats causes more animals to starve and they are killed when they invade agricultural land or attack livestock. Logging also creates roads and pathways into the interior of the wild, thereby giving poachers routes to use in accessing the deeper areas of the forests that host a variety of wildlife animals.

Devastating effects of poaching:-

- **The animals suffer:** Most animals need space to roam, swing from branches and fly. When they are captured, such privileges are taken and the animals tend not to survive in cages, suitcases, sacks or box. If they do survive, they suffer in their new and unnatural living situations. When humans encroach their land, the

animals tend to also live in constrained habitats, making it difficult for the animals to survive.

- It leads to more human deaths: Poaching has in tragic ways lead to the death of so many people. In certain parks where security is beefed up, poachers kill the rangers and officers, so that they can get access to the wild animals. According to the National Geographic, more than 600 rangers assigned to protect wildlife in Africa were killed by the poachers between 2009 and 2016. In the DRC, for instance, at the Virunga National Park, more than 170 rangers have been killed in the same period.
- Compounds criminal network activities and increase the global health risk: Poaching and the subsequent trafficking of ivory occur alongside other crimes such as money laundering, human trafficking, and corruption, not forgetting the murder of park rangers. In Africa, for instance, poaching has been linked to an armed militia. In recent times, poaching has as well been linked to the spread of viral and deadly diseases from wildlife animals to humans, threatening the survival of humanity. Examples include the SARA, Ebola, and the Covid-19 pandemic of 2019-2020 that have caused thousands of deaths.
- Decreased tourist attraction: Tourists visit some countries for their variety of wild animals. If they go extinct or reduce in number, there would be no more tourism and as such, the economies that depend on tourism will begin to crumble.

Extraordinary ways to stop poaching:-

- Recruit more wildlife scouts: To protect the animals, more wildlife rangers and scouts need to be recruited. It is a source of income for the employees, and they will help protect endangered animals.

- **Make tougher laws:** The legal systems are already in place and they outlaw the practices. However, poaching still continues, meaning the law needs to be toughened. More needs to be done in that front, to curb the demand and trade of animal parts and the selling of wildlife as exotic pets. Toughening the laws also means that harsher penalties will be dished out to poachers and for other wildlife-related crimes, protecting more animals.
- **Put more trackers and sensors in the wild:** Harmless and undetectable trackers need to be used in wildlife tracking, to enable those at the control rooms to have accurate data on the number of the animals, their location, and any threat that might be upon them. It is an easy way of managing poaching, logging and other illegal wildlife activities without having to rangers stay with the animals in the wild.
- **Outlaw the purchase and sale of animal parts and products:** Outlawing the buying and selling of wildlife animal parts, especially in animal markets can significantly reduce poaching. If the animal parts are outlawed, few people would go for them and a majority of those in the business will equally shut down. Ultimately, it will reduce the number of animals being killed for their parts.



4. Fishing – The environmental impact of fishing includes issues such as the availability of fish, overfishing, fisheries, and fisheries management; as well as the impact of

industrial fishing on other elements of the environment, such as by-catch. These issues are part of marine conservation, and are addressed in fisheries science programs. According to a 2019 FAO report, global production of fish, crustaceans, mollusks and other aquatic animals has continued to grow and reached 172.6 million tons in 2017, with an increase of 4.1 percent compared with 2016. There is a growing gap between the supply of fish and demand, due in part to world population growth. The journal *Science* published a four-year study in November 2006, which predicted that, at prevailing trends, the world would run out of wild-caught seafood in 2048. The scientist stated that the decline was a result of overfishing, pollution and other environmental factors that were reducing the population of fisheries at the same time as their ecosystems were being annihilated. Many countries, such as Tonga, the United States, Australia and Bahamas, and international management bodies have taken steps to appropriately manage marine resources. Reefs are also being destroyed by overfishing because of the huge nets that are dragged along the ocean floor while trawling. Many corals are being destroyed and as a consequence, the ecological niche of many species is at stake.

- Effects on marine habitat: some fishing techniques cause habitat destruction. Blast fishing and cyanide fishing, which are illegal in many places, harm surrounding habitat. Blast fishing refers to the practice of using explosives to capture fish. Cyanide fishing refers to the practice of using cyanide to stun fish for collection. These two practices are commonly used for the aquarium trade and the live fish food trade. These practices are destructive because they impact the habitat that the reef fish live on after the fish have been removed. Bottom trawling, the practice of pulling a fishing net along the sea bottom behind trawlers, removes around 5 to 25% of an area's seabed life on a single run. Most of the impacts are due to

commercial fishing practices. A 2005 report of the UN Millennium Project, commissioned by UN Secretary-General Kofi Annan, recommended the elimination of bottom trawling on the high seas by 2006 to protect seamounts and other ecologically sensitive habitats. This was not done. In mid-October 2006, United States President George W. Bush joined other world leaders calling for a moratorium on deep-sea trawling, the practice has shown to have harmful effects on sea habitat and, hence, on fish populations. No further action was taken. The sea animal's aquatic ecosystem may also collapse due to the destruction of the food chain. Additionally, ghost fishing is a major threat due to capture fisheries. Ghost fishing occurs when a net, such as gill net or trawl, is lost or discarded at sea and drifts within the oceans and can still act to capture marine organisms. According to the FAO Code of Conduct for Responsible Fisheries, States should act to minimize the amount of lost and abandoned gear, and work to minimize ghost fishing.

- **Overfishing:** Overfishing has also been widely reported due to increases in the volume of fishing hauls to feed a quickly growing number of consumers. This has led to a breakdown of some sea ecosystems and several fishing industries whose catch has been greatly diminished. The extinction of many species has also been reported. According to a Food and Agriculture Organization estimate, over 70% of the world's fish species are either fully exploited or depleted. According to the Secretary General of the 2002 World Summit on Sustainable Development, "Overfishing cannot continue, the depletion of fisheries poses a major threat to the food supply of millions of people". The cover story of the May 15, 2003 issue of the science journal *Nature* – with Dr. Ransom A. Myers, an internationally prominent fisheries biologist as the lead author – was devoted to a summary of the



scientific information. The story asserted that, as compared with 1950 levels, only a remnant of all large ocean-fish stocks are left in the seas. These large ocean fish are the species at the top of the food chains. This article was subsequently criticized as being fundamentally flawed, although much debate still exists and the majority of fisheries scientists now consider the results irrelevant with respect to large pelagic. The fishing down the food web is something that occurs when overfishing arises. Once all larger fish are caught, the fisherman will start to fish the smaller individuals, which would lead to more fish needing to be caught to keep up with demand. This decreases fish populations, as well as genetic diversity of the species, making them more susceptible to disease, and less likely to adapt to their stressors and the environment. Additionally, catching smaller fish leads to breeding of smaller offspring, which can be problematic for fish. In many species, the smaller the female, the less fecund it is, impacting the fish population.

- Ecological disruption: Overfishing can result in the over-exploitation of marine ecosystem services. Fishing can cause several negative physiological and psychological effects for fish populations including: increased stress levels and bodily injuries resulting from lodged fish hooks. Often, when this threshold is crossed, hysteresis may occur within the environment. More specifically, some ecological disturbances observed within the Black Sea marine ecosystem resulted from a combination of overfishing and various other related human activities which adversely affected the marine environment and ecosystem. Ecological disruption can also occur due to the overfishing of critical fish species such as the tilefish and grouper fish which can be referred to as ecosystem-engineers. Fishing may disrupt food webs by targeting specific, in-demand species. There might be too much fishing of prey species such as sardines and anchovies, thus reducing the

food supply for the predators. Disrupting these types of wasp-waist species may have effects throughout the ecosystem. It may also cause the increase of prey species when the target fishes are predator species, such as salmon and tuna. Overfishing and pollution of the oceans also affect their carbon storage ability and thus contribute to the climate crisis.

- **Bycatch:** Bycatch is the portion of the catch that is not the target species. These are either kept to be sold or discarded. In some instances the discarded portion is known as discards. Even sports fishermen discard a lot of non-target or target fish on the bank while fishing. For every 1 pound of the target species caught, up to 5 pounds of unintended marine species are caught and discarded as bycatch. As many as 40% of fish caught globally every year are discarded, and as many as 650,000 whales, dolphins and seals were killed every year by fishing vessels.
- **Marine debris:** Recent research has shown that, by mass, fishing debris, such as buoys, lines, and nets, accounts for more than two-thirds of large plastic debris found in the oceans; in the Great Pacific Garbage Patch, fishing nets alone comprise at least 46% of the debris. Similarly, fishing debris has shown to be a major source of plastic debris found on the shores of Korea. Marine life interacts with debris in two ways: either through entanglement or ingestion of the debris. Both are harmful to the animal. Marine debris consisting of old fishing nets or trawls can often be linked to phenomena such as ghost fishing, wherein the netting debris, referred to as ghost nets, continues to entangle and capture fish. A study performed in southern Japan on octopuses noted that there was an estimated mortality rate of 212,000-505,000 octopuses per year within the area's fishing grounds, due in large part to ghost fishing. Tracking garbage and monitoring the logistics of human waste disposal, especially waste materials primarily associated

with fishing, is one method to reduce marine debris. Using technological or mechanical innovations such as marine debris-clearing drones can further serve to reduce the amount of debris within oceans.

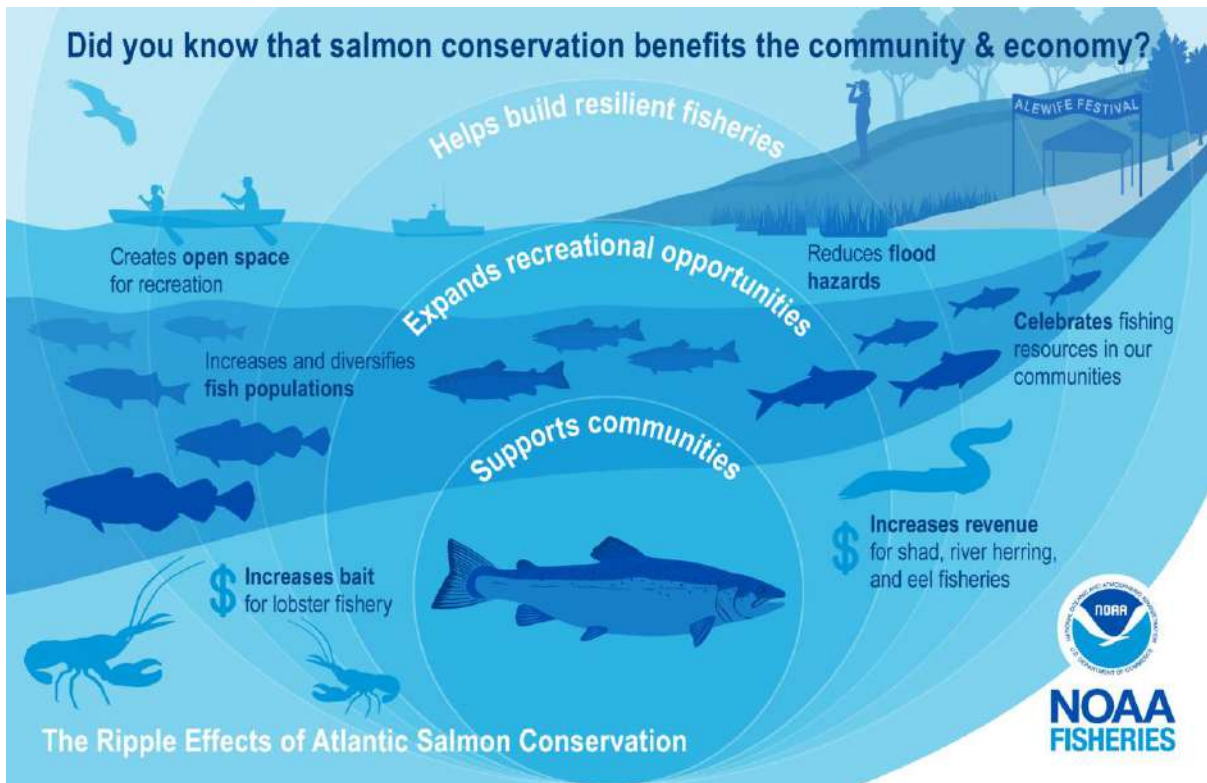
- Countermeasures: One method to increase fish population numbers and reduce the severity of adverse environmental impacts and ecological disturbances is the utilization of traditional fisheries management systems within fisheries.

Essentially, traditional fisheries management incorporates the aspects of fisheries management; however, the conservation efforts take into account concepts that place restrictions on the type of gear used and the allotment of permitted angling.

Traditional fisheries management also incorporates communities within its conservation efforts which often result in management scenarios where there is co-management conservation efforts led by communities. Ecosystem-based management of fisheries is another method used for fish conservation and impact remediation. Instead of solely focusing conservation efforts on a single species of marine life, ecosystem-based management is used across various species of fish within an environment. To improve the adoption of these types of fisheries management, it is important to reduce barriers to entry for management scenarios in order to make these methods more accessible to fisheries globally. Many governments and intergovernmental bodies have implemented fisheries management policies designed to curb the environmental impact of fishing. Fishing conservation aims to control the human activities that may completely decrease a fish stock or washout an entire aquatic environment. These laws include the quotas on the total catch of particular species in a fishery, effort quotas, the limits on the number of vessels allowed in specific areas, and the imposition of seasonal restrictions on fishing. In 2008 a large scale study of

fisheries that used individual transferable quotas and ones that didn't provided strong evidence that individual transferable quotas can help to prevent collapses and restore fisheries that appear to be in decline. Fish farming has been proposed as a more sustainable alternative to traditional capture of wild fish. However, fish farming has been found to have negative impacts on nearby wild fish and farming of predatory fish like salmon can rely on fish feed that is based on fish meal and oil from wild fish.

Marine reserves serve to foster both environmental protection and marine wildlife safety. The reserves themselves are established via environmental protection plans or policies which designate a specific marine environment as protected. Coral reefs are one of the many examples which involve the application of marine reserves in establishing marine protected areas. There have also been marine reserve initiatives located in the United States, Caribbean, Philippines and Egypt. To mitigate the negative environmental impacts of fishing with marine environments, marine reserves are intended to create, enhance, and re-introduce biodiversity within the area. As a result, the primary benefits arising from the implementation of this type of management effort include positive impacts towards habitat protection and species conservation.



Due to destruction of habitats, wildlife has main threat. The construction of industries, houses, dams has left fewer areas where animals can breed, nest and feed. Preventing deforestation is an important method of habitat preservation. Planting new forests provides

shelter and food for wildlife. By creating wildlife sanctuaries we can protect natural habitat. Habitat can be preserved by preventing deforestation. Planting trees (afforestation) to create new forest which provides shelter and food for wildlife can also protect natural habitat of animals by creating wildlife sanctuaries. India has a rich variety of flora and fauna. Man has destroyed them to quite an extent. Animals that cannot adjust to the environmental changes begin to die. As a result, many animals and birds that once existed on the earth have perished away. Some important international NGOs with branches in India are:-

- The world wide Fund For nature (WWF).
- The International Union For the conservation of Nature and Natural resources (IUCN).
- The World conservation union (WCU) work of wildlife conservation.

The Government has taken various steps to conserve our natural vegetation and wildlife. Some of them are:-

- Social Awareness programmes.
- Wildlife Protection Act, 1972.
- Special projects.
- Wildlife Sanctuaries.
- National parks.
- Bioreserves.

NAME : PRITY VAILANKANNI CHINAPPA

DEPARTMENT: ENGLISH

SEMESTER :2

COLLEGE ROLL NO: ENGA20F307

COLLEGE REGISTRATION NO :223-1211-0008-20

CU ROLL NO : 202223-11-0008

TOPIC :AIR POLLUTION

SUBJECT: ENVIRONMENTAL STUDIES

## ACKNOWLEDGEMENT

I would like to thank our Principal and all of our E.N.V.S teachers for giving us this opportunity to work on such a project which is not only on an immediate urgent issue, which is threatening to humankind but also which needs effective remedies to compensate for the already encumbered losses. As we were free to choose any topic among all the other project topics provided by our teachers, hence, I have chosen "AIR POLLUTION" as my topic



## INTRODUCTION

### WHAT IS AIR POLLUTION?

Air pollution is the presence of substances in the atmosphere that are harmful to the health of humans and other living beings, or cause damage to the climate or to materials. There are many different types of air pollutants, such as gases (such as ammonia, carbon monoxide, sulphur dioxide, nitrous oxides, methane and chlorofluorocarbons), particulates (both organic and inorganic), and biological molecules. Air pollution may cause diseases, allergies and even death to humans; it may also cause harm to other living organisms such as animals and food crops, and may damage the natural environment (for example, climate change, ozone depletion or habitat degradation) or built environment (for example, acid rain). Both human activity and natural processes can generate air pollution.



Figure 1- air pollution

Air pollution is a significant risk factor for a number of pollution-related diseases, including respiratory infections, heart disease, COPD, stroke and lung cancer. The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, and the individual's health status and genetics. Overall, air pollution causes the deaths of around 7 million people worldwide each year, and is the world's largest single environmental health risk. The scope of the air pollution crisis is enormous: 90% of the world's population breathes dirty air to some degree. Although the health consequences are extensive, the way the problem is handled is often haphazard.



Figure 2- air pollution

## OBJECTIVE

This project deals with the topic of "air pollution". This project is concerned with the cons of air pollution. An air pollutant is a material in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary.

Primary pollutants are usually produced by processes such as ash from a volcanic eruption.

The sole intention of taking up this topic for the project was to uphold the fact that exposure to three components of air pollution, fine particulate matter, nitrogen dioxide and ozone, correlates with cardiac and respiratory illness. In 2012, air pollution caused premature deaths on average of 1 year in Europe, and was a significant risk factor for a number of pollution-related diseases, including respiratory infections, heart disease, COPD, stroke and cancer. The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions.

## DESCRIPTION

An air pollutant is a material in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary. Primary pollutants are usually produced by processes such as ash from a volcanic eruption. Other examples include carbon monoxide gas from motor vehicle exhausts or Sulphur Dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. Ground level ozone is a prominent example of a secondary pollutant. Some pollutants may be both primary and secondary: they are both emitted directly and formed from other primary pollutants. Air pollution is one of the leading risk factors for death. In low-income countries it tops the list. In 2017, it was responsible for an estimated 5 million deaths globally. That means it contributed to 9% – nearly 1-in-10 – deaths. The death rates tend to be highest across Sub-Saharan Africa and South Asia. This highlights the large differences globally: death rates in the highest burden countries are more than 100 times greater than across much of Europe and North America.

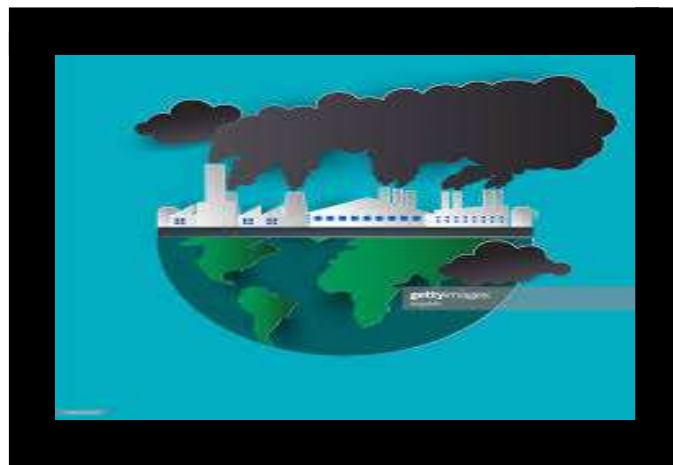


Figure 3- Earth under the effect of air pollution.



Figure 4- The polluted air.

## REMEDY

- ✓ Drive your car less. Vehicle exhaust is a major source of air pollution in Minnesota. Carpool. Bike. Bus. Telecommute. Electric vehicles. How could you burn less fuel? Keep your car in good repair. Fix exhaust and oxygen sensor problems . Check tire pressure monthly.
- ✓ Turn off your engine. An idling engine creates a hot spot of pollution. Buses and big trucks produce particularly unhealthy exhaust. Parents and teachers can help their schools and daycares develop and implement no-idling policies. MPCA has resources to get started.
- ✓ Don't burn your garbage. Burning your household garbage is dangerous to your health and our environment, and generally against the law in Minnesota. If you're still using a burn barrel, wood stove, or fire-pit for your trash, it's time for a change.
- ✓ Stop having campfires in the city. Smoky areas resulting from campfires in the city can cause unhealthy conditions for hundreds of people, especially during stagnant weather conditions. Since cities have elevated levels of pollution compared to Greater Minnesota already, please limit the number of campfires you start in urban locations.
- ✓ Plant and care for trees. Trees filter pollutants and absorb carbon dioxide. Trees also release oxygen into the atmosphere and help cool our homes. Learn more about the benefits of trees.
- ✓ Switch to electric or hand-powered lawn equipment. Gas-powered engines like those on lawnmowers and leaf or snow blowers often lack pollution control devices. An hour running

a lawn mower can produce nearly the same amount of pollution as a 100-mile car trip! Use hand-powered or electric lawn care equipment instead.

✓ Use less energy. Choose efficient appliances and heating systems. Get an energy audit and follow the advice. Turn off electrical stuff you are not using. It all adds up.

Check your home for radon. Radon is a colourless, odourless radioactive gas that seeps into your house from the soil.



Figure 5- remedy for air pollution

## CONCLUSION

While the effects of air pollution on materials, vegetation, and animals can be measured, health effects on humans can only be estimated from epidemiological evidence. Most of the evidence comes from occupational exposure to much higher concentrations of pollutants than the general public is exposed to. Moreover, the health effects of smoking and other lifestyle characteristics and exposures confound the observations of air pollutant effects. Ethical considerations preclude deliberate exposure of human subjects to concentrations of pollutants that might produce adverse effects, so evidence from sources other than epidemiology is virtually impossible to obtain. All of the evidence we have suggests that air pollutants threaten human health and well-being to an extent that control of these pollutants is necessary.



Figure 6- brutal effect of air pollution.



Figure 7- stop polluting the air.

## REFERENCES

<http://thegputor.blogspot.com>

<http://www.worldbank.org/UNITE>

<en.wikipedia.com>

<www.slideshare.com>

[www.evsnotes.com](http://www.evsnotes.com)



# WILDLIFE CONSERVATION (ENVS PROJECT)

**NAME-** SUTANUKA MAITI

**DEPARTMENT-** ENGLISH, SEM 2

**COLLEGE ROLL NO.-** ENGA20F309

**CU ROLL NO.-** 202223-11-0015

**CU REGISTRATION NO.-** 223-1211-0017-20

**TOPIC-** WILDLIFE CONSERVATION



# ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to all professors of the English department and Science department and principle of our college Dr.Madhumanjari Mondal who gave me the golden opportunity to do this wonderful project on the topic Wildlife Conservation. While making this project I came across various article and information which enriched my knowledge. I would thank my teachers for their constant support and guidance which helped me to complete the project within the limited time frame. Lastly I would thank my parents and friends for their support.

# INDEX

## TOPICS

## PAGE NO.

1. Introduction	4-5
2. Threats to Wildlife	5-7
2.1 Illegal Wildlife trade	5
2.2 Habitat Destruction	5-6
2.3 Overexploitation	6
2.4 Culling	6
2.5 Pollution	6
2.6 Climate Change	6
2.7 Human Wildlife Conflict	7
3. Endangered and Endemic Species of India	7-8
4. Conservation of Wildlife	9
4.1 Monitoring of wildlife population	9-10
4.2 National Park and wildlife sanctuary( in Situ)	10-13
4.3 Project Tiger	13
4.4 Project Elephant	13
4.5 Ex-situ Conservation	14
5. Conclusion	14-15
6. Bibliography	15



# INTRODUCTION

**India** is home to a large variety of wildlife. It is a biodiversity hotspot with its various ecosystems ranging from the Himalayas in the north to the evergreen rain forests in the south, the desert sands of the west to the marshy mangroves of the east. India lies within the realm and is the home to about 7.6% of mammal, 14.7% of amphibian, 6% of bird, 6.2% of reptilian, and 6.0% of flowering plant species. India's forest lands nurture about 500 species of mammals and 2000+ bird species.

India is one of the most biodiverse regions of the world and contains three of the world's 36 biodiversity hotspot – the Western Ghats, the Eastern Himalayas, and the Indo-Burma hotspot. It is one of the seventeen mega diverse countries. The country has seven Natural World Heritage sites, eleven Biosphere Reserves in the World ,Network of Biosphere Reserves and thirty seven Ramsar Wetlands.

In response to decrease in the numbers of wild animals, human encroachment and poaching activities, the government of India established a system of national parks and protected areas in 1935, which was subsequently expanded. In 1972, India enacted the Wildlife Protection Act and Project Tiger to safeguard crucial habitat. Further, federal protections were promulgated in the 1980s.

India has about 2,714 endemic Lichen species. In 2020, the Lichen Park in India was developed by the Uttarakhand Forest Department in Munsiyari.

Many Indian species are descendants of species originating in Gondwana, of which India originally was a part. Peninsular India's subsequent movement towards, and collision with, the Laurasian landmass set off a mass exchange of species. However, volcanism and climatic change 20 million years ago caused the extinction of many endemic Indian forms.<sup>[5]</sup> Soon thereafter, mammals entered India from Asia through two zoogeographical passes on either side of the emerging Himalaya. As a result, among Indian species, only 12.6% of mammals and 4.5% of birds are endemic, contrasting with 45.8% of reptiles and 55.8% of amphibians<sup>[1]</sup> Notable endemics are the Nilgiri langur and the brown and carmine Beddome's toad of the Western Ghats. India harbours 172, or 2.9%, of IUCN-designated threatened species.<sup>[7]</sup> India is located at the junction of three realms namely Afrotropical, Indomalayan and Palearctic, and therefore, has characteristic elements from each of them, spurring migration of avifauna from these regions.

India is home to several well-known large animals, including the Indian elephant, Indian rhinoceros, Bengal tiger, Asiatic lion, Indian leopard, snow leopard, and clouded leopard. Bears include sloth bear, the Himalayan black bear, the Himalayan brown bear, and deer and antelopes include the chausinga antelope, the blackbuck, chinkara, chital, sambar (deer), Tibetan antelope, goa (antelope), Kashmir stag, and the barasinga. It is home to big cats like Bengal tiger and Indochinese tiger, Asiatic lion, Indian leopard, snow leopard, and clouded leopard. Various species of caprines, including Bhutan and Mishmi takin, Himalayan and red goral, Himalayan serow, red serow, Himalayan tahr, Siberian ibex, markhor, and Nilgiri tahr, as well as the kiang and Indian wild ass can be found. Reptiles include king cobra, Indian cobra, bamboo pit viper, Sri Lankan green vine snake, Indian rock python, reticulated python, mugger crocodile, gharial, saltwater

crocodile and Indian golden gecko. Birds include Indian peacock, great Indian hornbill, painted stork, greater and lesser flamingo.

## **THREATS TO WILDLIFE**

The international Union for Conservation of Nature (IUCN) estimates that 27,000 species of the ones assessed are at risk of extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It's also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing.

Wildlife on planet Earth is under siege from all sides, facing down habitat loss and the impact of climate change. Some of the biggest threats to wildlife include illegal wildlife trade, habitat destruction, invasive species, pollution, and climate change.

**ILLEGAL WILDLIFE TRADE:** The illegal wildlife trade is the fourth largest criminal industry in the world, after drugs, arms and human trafficking. Gathering over \$US 20 Billion a year, it is also one of the biggest threat to some of the most iconic species on the earth, like Rhino and the elephant. Poaching of animals for their skin, fur, tusk, horns and meat for medicinal purposes are a major threat to birds, mammals and reptiles. Superstitious beliefs are the cause for the slaughter of certain species. The meat or body parts of these animals are believed to cure particular ailments. The convention on international trade in Endangered Species has been signed by many countries to prevent illegal trade of endangered species. India is a signatory of the convention and inspite of attempts to reduce poaching, it is still rampant and carried out by a highly destructive poachers network. However, the major criminals are the traders and exporters, while the exploited poacher who is apprehended is a poverty stricken local individual living in a bio-rich area.

**HABITAT DESTRUCTION:** The fires that swept across the Amazon and Australia rightly drew attention to just how fragile the most important ecosystems are. Half of the world's original forests are gone, and what remains is being cut down ten times faster than it can be replaced. Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human- caused habitat loss and fragmentation are primary devices of species decline and extinctions. Key examples of human induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood conflict with humans. Moreover, destruction

and fragmentation create smaller habitats. Smaller habitats support smaller populations, and smaller populations are more likely to get extinct. Worldwide the destruction of the remaining large areas of wilderness habitats, especially in the diverse tropical forests and coral reefs, is the most palpable threat to biodiversity. Scientists have estimated that human activities are likely to eliminate approximately 10 million species by the year 2050.

**OVEREXPLOITATION:** Overexploitation is the harvesting of animals and plants at a rate that's faster than the species ability to recover. While often associated with overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover. For example, over fishing of top marine predatory fish like tuna salmon over the past century has led to a decline in a fish sizes as well as fish numbers.

**CULLING:** Culling is the deliberate and selective killing of wildlife by governments for various purposes. An example of this is shark culling, in which "shark control" programs in Queensland and New South Wales (in Australia) have killed thousands of shark, as well as turtles, dolphins, whales, and other marine life. There are also examples of population culling in the United States, such as bison in Montana and swams, geese and deer in New York and other places. In India also elephant are caught illegally for ivory, Tigers for their skin for decorative purposes and many more the list is endless.

**POLLUTION:** A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another. Pollution can be of various forms like air pollution, soil pollution though heavy metals and toxic chemicals, water pollution due to excessive use of fertilizer and noise pollution. These really affect the health of wildlife adversely.

**CLIMATE CHANGE:** Humans are responsible for present day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming, a climate, fluctuating precipitation and changing weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope

with the rapidly changing conditions will go extinct. While modern climate is caused by humans, past climate change events occurred naturally and have led to extinction.

**HUMAN- WILDLIFE CONFLICT:** There are three major concerns when such conflicts occur-crop damage by elephants, deer, livestock lifting by tigers and leopards; rare occurrence of predator killing humans. The most important causes are 1. Lack of wilderness on the periphery of Pas (buffer zones) ; 2. Land use changes into intensified canal-fed farms prompting predators and herbivores into human land scape for food.3. conversion of elephant migrating corridors into tea and coffee plantation. Damage of crops also cause huge economic loss for the farmers.

This is a very complex issue and had to be dealt with carefully. Each PA should maintain ecological buffer zone between rehabilitation, resettlements or industrial areas that are at the fringes of National Park and sanctuary. Crop damage or life stock damage by wildlife should be compensated by government because people cannot be expected to pay the price of conservation. Eliciting local people for management of wildlife projects through skill development and education programmes which can also give them a alternate way of earning. This will ensure that locals do not regret about the wildlife conservation project carried out by government.

## ENDANGERED AND ENDEMIC SPECIES OF INDIA

The India cheetah and the pink headed duck are globally extinct. The Siberian crane that used to be seen only in Bharatpur wetlands in India, has not been seen there for about twenty years and now flies from its breeding grounds in Russia only to China. On the brink of early extinction are our six species of vultures that are dying due to the use of diclofenac in veterinary medicines. When vultures feed on the carcasses of livestock that have been treated with diclofenac, they die due to kidney failure. India has lost over 90% of the populations of vultures which are important species of several ecosystems as they clean up dead material. Several species are endangered by human activity. The endangered species are categorized as vulnerable, rare, indeterminate or threatened. Some species are endemic and are at a high risk of extinction if they are wiped out in India. Illegal poaching of animals for medicines and wild medicinal plants take them to the brink of extinction.



1



2



3



4



5



6

Figure 1. Asiatic lion

Figure 2. blackbuck

Figure3. Elephant

Figure4. One horned Rhino

Figure 5. Tiger

Figure 6. Hanuman langur



# CONSERVATION OF WILDLIFE

Conservation areas are not new to India. Several ancient indigenous cultures dedicated an area to a favoured or often feared animistic deity. This led to conservation of habitat and species in sacred grooves and other hallowed sites. The earliest conservation efforts in India that are well documented and are an evidence of the protection of sites and specific species, were implemented by the great ruler Ashoka. Ashokan edicts in the 3 century BC specified that had to be protected in a well-documented list. In ancient India, elephant reserves were forests that were left undisturbed for breeding of wild elephants. This was one of the earliest conservation strategy. The Mughals who were fond of mass killing of animals for sport( often by enclosing the poor creatures in corrals), killed thousands of animals. They however created large reserves of animals and birds from being killed by local people. Prior to independence Maharajas of British India continued to have private hunting reserves but made strict rules to punish hunters and poachers.

Many of their well looked hunting areas later became National parks and wildlife sanctuaries in independent India. In recent past, Conservation reserves and community reserves have been added through an Amendment of the Wildlife (protection) Act in 2003. India currently, in 2019 has 869 Protected Areas.

## \*MONITORING OF WILDLIFE POPULATION:

Monitoring of wildlife populations is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution, and genetic diversity, although many other metrics may be used.

Monitoring methods can be categorized as either "direct" or "indirect". Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on "signs" that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-opening counts, burrow counts, runaway counts, knockdown cards, snow tracks, or responses to audio calls. For large, terrestrial vertebrates, a popular method is to use camera traps for population estimation along with mark-recapture techniques. This method has been used successfully with tigers, black bears and numerous other species. Trail cameras can be triggered remotely and automatically via sound, infrared sensors, etc. Computer vision-based animal individual re-identification methods have been developed to automate such *sight-resight* calculations. Mark-recapture methods are also

used with genetic data from non-invasive hair or fecal samples. Such information can be analyzed independently or in conjunction with photographic methods to get a more complete picture of population viability.

## NATIONAL PARKS AND WILDLIFE SANCTUARIES (IN SITU CONSERVATION)

**In Situ** conservation refers to protecting species in their natural habitat by setting aside an adequate representation of wilderness as Protected Areas, consisting of a network of a national parks and wildlife sanctuaries, conservation reserves and community reserves.

**National parks** provide protection to the entire ecosystem, that is, flora, fauna , landscape etc. of that region. The national park not only conserves wildlife but also provides a diversion of environmental and landscape heritage in a manner that does not harm it, in order to provide enjoyment to future generations. National parks are given a greater degree of protection, with human activity strictly restricted. Only certain areas can be visited and only activities permitted by the chief wildlife warden of the state are allowed in the parks. These protected areas are established by central and state governments for the conservation of wild animals and for the purpose of propagating and conserving biodiversity.

**Wildlife sanctuary** is a protected area which is reserved for the conservation of only animals and human activities like timber, collecting minor forest products and private ownership rights are allowed as long as they do not interfere with the wellbeing of animals. Boundaries of sanctuaries are not well defined and controlled biotic interference is permitted.

Among the 763 Protected Areas in India, some have been created in order to protect highly endangered and endemic species of wild plants and animals found nowhere in the world. There are 50 Tiger Reserves which are most critically important Protected Areas.





## 10 Important National Parks of India are listed below:

**1. Hemis National Park (4400 sq km):** The Hemis National Park is located on the eastern part of Jammu and Kashmir State and it is also the largest National Park in South Asia. Located on a height of 17,000 ft above sea, the park is famous for snow leopard. The park is one of the highly dense snow leopard places in the world. It is also the second largest contiguous protected region after Nanda Devi Biosphere Reserve. The park is also habitat of large numbers of flora and fauna like shapu, bharaal, Himalayan marmot, mountain weasel etc. Till now 16 species of mammals and 73 of birds' existence are recorded in the park.

### **2. Desert National Park (3162 sq km):**

India's only Desert National Park located 40 km from Jaisalmer, a city in Rajasthan and extended to the India-Pakistan Border. The main attraction of the National Park is Great Indian bustard, an endangered species found only in India. The park is also the habitat of chinkara, desert fox, wolf, desert cat, blackbuck etc.

### **3. Gangotri National Park (2390 sq km):**

The park is located in the Uttarkashi District of Uttarakhand. The park is spreads over the Western Himalayan range and it is one of the most beautiful parks in India. The park is named after the Gangotri glacier from where the river Ganga originates. The park is habitat of many animals like snow leopard, bear, Himalayan thar, musk deer, cheer pheasants etc.

### **4. Namdapha National Park (1985.24 sq km):**

Located in North Eastern part of India in Arunachal Pradesh, it is one of the largest biodiversity areas in India. The Park was established in the year 1974. The park is home to more than 400 species of flora and fauna. In 1983, the park was declared a Tiger Reserve and National Park. Although numbers of different species of animals and birds are found in the park, but it is

famous for the majestic gaur or mithun and white winged wood duck.

#### **5. Khangchendzonga National Park (1784 sq km):**

Located in the Northern part of Sikkim, it covers almost one fourth of the total area of the state. The Park is named after the world third tallest mountain Kanchenjunga and was established in the year 1977. The park has an elevation of 6,001 ft to over 28,050 ft. The main attraction of the park is musk deer, snow leopard and Himalayan tahr.

#### **6. Guru Ghasidas (Sanjay) National Park (1440.71 sq km):**

Guru Ghasidas (Sanjay) National park is located in the Koriya district of the state of Chhattisgarh. Guru Ghasidas National Park was formed when Chhattisgarh was separated from Madhya Pradesh and was a part of Sanjay National Park. The main attraction of this densely forest is Tigers, Leopards, Chital, Nilgai, Chinkara, Four-horned Antelopes, Jungle Cat, Bison, Hyena, Sloth Bear and Wild Dogs.

#### **7. Gir Forest National Park (1412 sq km):**

Gir National Park is the only area where Asiatic Lions are found in the world. Located in the southern part of Gujarat, it is a habitat of more than 500 lions. In 1900, Nawab Sir Muhammad Rasul Khanji Babi declared Gir as a "protected" area. There are seven rivers and four water reservoirs in the Gir region. It is also habitat of 38 different species of mammals like Asiatic wild ass, hyenas, leopards and more than 200 species of birds

#### **8. Sundarbans National Park (1330.12 sq km):**

It is a part of the world's largest delta formed by the three rivers Ganga, Brahmaputra and Meghna. Located in the 24 Paraganas district of West Bengal, it is established in the year 1984. The park is famous for Royal Bengal Tiger. The delta is densely covered by mangrove forests. The park is famous for birds, reptiles and salt-water crocodile. The park was declared as Sundarban Tiger Reserve in 1973.

#### **9. Jim Corbett National Park (1318.5 sq km):**

Jim Corbett National Park is the first national park established in India. The park was established in 1936 as Hailey National Park. Located in Nainital district of Uttarakhand in India, it is famous for Bengal Tiger. The park is named after the famous tiger hunter Jim Corbett. The park is resident of 488 different species of plants, 586 species of birds, 50 species of raptors and mammals. The save tigers, Tiger Project was first launched in 1973.

#### **10. Indravati National Park (1258.37 sq km):**

Indravati National Park is located in Bijapur district of Chhattisgarh state of India. The park is named after the nearby Indravati River. Established in 1981, the park is famous for wild Asian buffalos.

## PROJECT TIGER

Project Tiger was launched by the Government of India with the support of WWF-International in 1973. It was aimed at protecting this key species and all its habitats. Project Tiger was initiated in nine tiger reserves in different ecosystems of the country. In 2020, the number of tiger reserves has increased to 50. Project Tiger recognized the fact that Tigers cannot be protected in isolation and that to protect tigers its habitat needs to be preserved and well managed. The sudden disappearance of Tigers from the Sariska exposed a network of illegal poachers who were exporting the skin and bones of tigers for Chinese markets. Tiger estimations are done using camera traps placed in a tiger reserve and a complete programme can identify each individual based on pattern of its stripes.

The National Tiger Conservation Authority (NTCA) has been set up to future the aims and objectives of tiger reserves. The 2018 tiger estimates report stated that there are 2967 tigers.

## PROJECT ELEPHANT

Project elephant was launched in 1992 by the MoEF to provide financial and technical support to wildlife management efforts by the states for their free-ranging populations of wild Asian elephants. The project aimed to achieve long term survival of the population of elephants in their natural habitats by protecting the elephants, their habitats and migrating corridors. The project also supported research of the ecology and management of the elephants, conducted public education and awareness programmes for conservation among the local people and provided improved veterinary care for captive elephants. Through the project, measures for mitigating human-elephant conflicts and opposing the undue pressures of human interference and domestic stock and the impact on crucial habitats has been addressed.

The 2018 elephant estimation report stated that there are 29964 elephants across the three major habitats in India. The WTI has identified 100 corridors through which elephant migrate seasonally and it is imperative that these areas be provided with a 'right of passage'. However, conflicts with local people have to be addressed in a sensitive manner.

## EX SITU CONSERVATION

Ex situ conservation refers to protecting species outside their natural habitat, in condition that can be closely controlled and monitored. The genetic material of endangered species is also preserved in gene banks for future use. The ultimate purpose is to restore ecosystems in the wild and rehabilitate wild species. Conserving the species outside its natural habitat in a carefully controlled situation such as a zoological park for animals, where expertise is created to multiply the species under artificially managed conditions. A successful ex situ breeding programme must ensure that the species, after its recovery to a safe level, is reintroduced into its original wild habitats.

### Phyme hog (The first successful ex situ conservation breeding programme in India)

Phyme hog (*Orcula salvania*) is one of the smallest, rarest specialized members of the pig family. It was known to occur across a narrow strip of early successional tall grassed plains along southern Himalayan foothills, in NW Assam, where the species was 'rediscovered' in 1971 after it was long suspected to become extinct. It is listed as a critically endangered species by the International Union for Conservation of Nature (IUCN); its population size is estimated to be fewer than 250 mature individuals. Today, the Phyme hog is found in just few places of Assam-Manas, Sonai Rupai and Orang. The recovery programme was launched in 1995, during which the species was reduced to a single declining wild population of a few hundred hogs in the Manas National Park, with no individual in captivity in the world.

With the support of SOS (Save Our Species), Ecosystems- India, in collaboration with the Assam Forest Department, Durrell Wildlife Conservation Trust and SSC Wild Pig Specialist Group started the ex situ conservation programme for the first time in India. The project maintained about 60 captive hogs at two places in Assam.

## CONCLUSION

Biodiversity has to a great extent, been preserved by traditional societies that valued it as a resource and appreciated that its depletion would be a great loss to their society. Thus, apart from the local use or sale of products manufactured from the biodiversity, the social aspect must also be considered. For example many animals are considered sacred in India and are worshipped. Traditionally, the cow and various other animals have been venerated in our culture and religious beliefs. Traditional Knowledge systems (TKS) on the uses of plants and animals, are best known

to tribal and other indigenous groups of folk committees across India. Preserving this knowledge on biodiversity amongst tribal people, fisher-folk, farmers, livestock-breeders is of great importance as it has enormous future economic potential.

## Kokkare Bellure, Karnataka( Cexistence of humans and wildlife)

Kokkare Bellure is a village in Karnataka. Every year, hundreds of spot-billed pelicans, painted storks, ibis and other birds establish breeding colonies on the trees in the centre of the village. The local people have protected the birds, believing that they bring good luck, rains and better crops. The villagers collect the droppings of birds and use it as natural fertilizer. The droppings of these fish eating birds are rich in nitrates.

The owners of the trees inhibited by the birds dig pits under the trees, in which the guano is collected. Silt from nearby lakes and ponds are mixed with the guano, which is used in their fields and sold as organic fertilizer. The village people have planted trees around their house to encourage nesting. Young birds that fall out of their nests are rescued and fed till they are ready to fly away.

Human and Biodiversity should remain in peaceful coexistence. Sustainable developments must be followed for a better future. Our generation holds the key to a better future for our children, and their children. We cannot permit extinction through the impacts we make on nature today without thinking about its consequences for the future.

## BIBLIOGRAPHY

1. Bharucha Erach, Textbook of environmental studies for undergraduate courses, third edition, Universities press (India) private limited, India, 2021
2. <https://en.m.wikipedia.org/wiki>
3. <https://www.wildlifeconservationtrust.org>
4. [www.wienviis.nic.in](http://www.wienviis.nic.in)
5. Pictures- [www.wikepedia.org](http://www.wikepedia.org)



*Project on Wildlife  
Conservation*

*By Nairita Sen*

Subject: AECC(ENVS)

Course: BA Honors

Paper: 02

Semester: 02

Session: 2020-21

College Roll No: ENGA20F310

CU Registration no: 223-2122-0035-20

CU Roll No: 202223-11-0022

Email ID: sennairita49@gmail.com



# *Content*

<b>SI No</b>	<b>Name</b>	<b>Page No</b>
01	Introduction	1
02	An Overview Of India's Species Richness	2-3
03	What is meant by Wildlife	3
04	Why do we need to conserve Wildlife	4-6
05	What is Wildlife conservation and its Threats and Problems	6-8
06	Wildlife Conservation Measures	8-9
07	Wildlife Projects Of India	9-12
08	Challenges in Effective Implementation of Wildlife Protection Laws of India	13-14
09	Possible solutions of Wildlife Conservation and Implementation of Laws in India	15-17
10	Creation and Management of Biosphere Reserves	18-19
11	Conclusion	19-20
12	Bibliography	20
13	Image sources	21-22

*“Never apologize for being over sensitive and emotional when defending the welfare of wildlife.*

*Let this be a sign that you have a big heart and aren't afraid to show your true feelings.*

*These emotions give you the strength to fight for what is right and to be the voice of those who cannot be heard.”*

— Paul Oxton

## Introduction:

The Indian subcontinent is blessed with a natural habitat of a large and varied wildlife. We can find some of the most magnificent as well as the rarest wildlife species of the world in the country. The beauty and variety we see in the jungles of India is difficult to



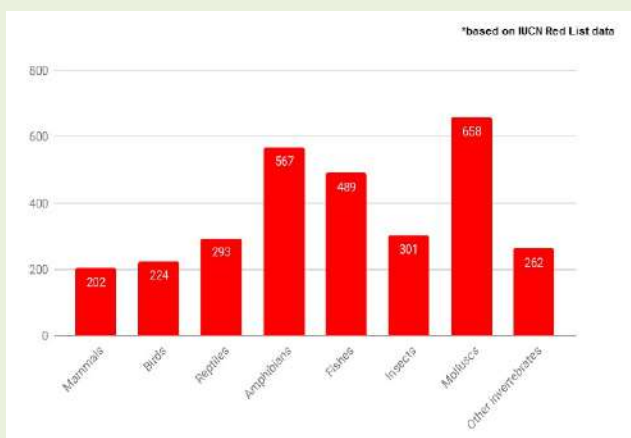
*Chital or Spotted Deer, a native to Indian Subcontinent*

be expressed in words. However, the past few decades have seen the greed and negligence of human beings leading to large-scale poaching, habitat destruction, resulting in animal - human conflict with rapid decline in the population of most of the wild animals and birds.

Conservation of Wildlife in India has slowly and gradually been understood by all. Today, efforts are being made towards wildlife conservation to preserve this natural wealth. Numerous wildlife conservation projects have been undertaken in India, both, at the government, as well as the individual level, to protect the wildlife of the subcontinent.

## An Overview Of India's Species Richness:

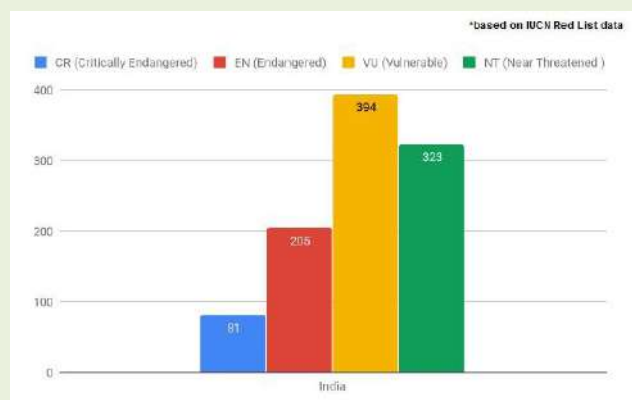
India is home to 16 percent of the world's population is a well known fact. However, it is a lesser known fact that 411 species of mammals, 1,232 birds, 456 reptiles, 219 amphibians, 2,546 fish, and 83,436 kinds of invertebrates and over 50,000 plant species



*Graph showing the number of Critically Endangered species around the world*

also call this subcontinent home. Wildlife in India is a precious gift of nature with a rich variety of diverse flora and fauna. India is a land which is one of the richest biodiversity hotspots in the world. The wildlife in this country has a wide variety of species among plants and animals. The wild animals such as tiger, lion, wolves, bears, rhinoceros, camels, monkeys, various species of reptiles, crocodiles, deer, bison and the Asian elephant are all native to this country. It also has a variety of species of birds such as peafowl, pelican, parakeets, wood-pecker and flamingos. India has three biodiversity hotspots among the 34 biodiversity hotspots of the world which are found in the Western Ghats, the Eastern Himalayas and the Indo-Burma region respectively. The grasslands of western India are as famous for their hunting animals as they are for their grazing herds. The Indian cheetah is now extinct in its range but the other big cats, lions and leopards still prowl the plains. With its rich, varied and diverse wildlife reserve, India has set up 104 National Parks, 18 bio-reserves and more than 515 sanctuaries to protect and preserve these species of wildlife. India is endemic to many species of

also call this subcontinent home. Wildlife in India is a precious gift of nature with a rich variety of diverse flora and fauna. India is a land which is one of the richest biodiversity hotspots in the world. The wildlife in this country has a wide variety of species among plants and animals. The wild animals such as tiger, lion, wolves, bears, rhinoceros, camels, monkeys, various species of reptiles, crocodiles, deer, bison and the Asian elephant are all native to this



*Graph showing the number of Animal species on different Categories on the IUCN Red list in India*

plants and animals which are evident from one of the study conducted which says that 12.6% avian, 7.6% mammals, 6.2% reptiles and 6.0% species of flowers are native to this country. The study also states that around 33% plant species are endemic to India and hence it is one of the biodiversity reserves in the world with around 70% endemic and diverse plants and animal species. India also has a wide range of forest belt which also depicts the diverse climatic pattern in the sub-continent which has provided home to such a rich and varied wildlife species. India has a vast belt of forests which ranges from tropical rainforest in Andaman Islands, North-Eastern region and the Western Ghats to the moist deciduous forest in the East, dry deciduous forest in Central and South India, Thorn forest in the Deccan and Western Gangetic Plain to the Coniferous forest in the Himalayas.

## What is meant by Wildlife :

Wildlife refers to those plants and animal species which live and grow in areas uninhabited by human. It includes all non-domesticated animals & plants including



*Flora and Fauna of India*

many other organisms & fungi. Wildlife is found in all ecosystems such as forests, plains, grasslands, deserts and all other areas and have a specific and different form of wildlife. But as the human civilizations developed, the domestication of wild animals and plants began for the benefit of human beings and this had a considerable impact on the environment. Due to human activities, many wild animals adapted to the changes in

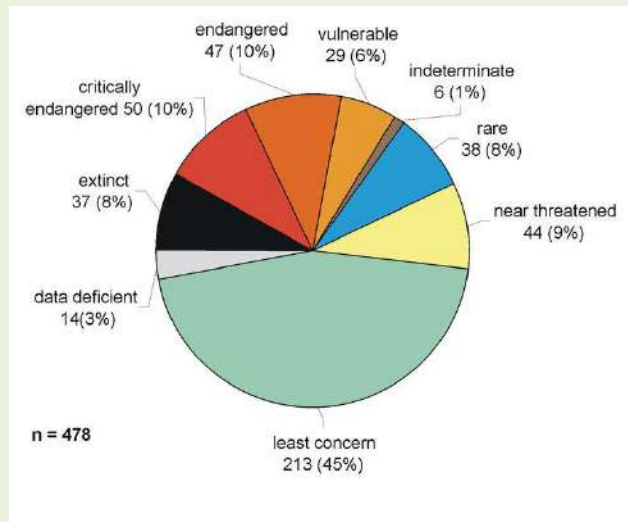
the environment and started to live in a domestic environment along with humans.

Examples of such animals are dogs, cats, cows, buffaloes, goats, rodents and a few species of birds etc. As the human activities increased and development took place on a large scale, the wildlife and the ecosystems were seen being affected by it. It was noticed that the exploitation of the wild animals for the benefit of human beings and recreation purposes increased.

## Why do we need to conserve Wildlife:

We must protect forest, rivers, sea, air, land and wild flora and fauna first and foremost for our own liking and survival, other reasons are:

- Wildlife and forests are measure of the biodiversity. By conserving the wildlife and forest we are ensuring that all diverse species in an area survive, breed and flourish. Conservation of wildlife and forests is vital for ecological stability.
- Forests are the habitat for wildlife and they are an important constituent of the various food chains and food webs. Forests are needed for smooth functioning of biogeochemical cycles, prevention of floods and soil erosion.
- Forest and life therein is essential for survival of villagers and tribal people who live in or around forests.
- Many industries depend on the forest and the natural resources obtained from there, such as timber, rubber and paper
- Forests give shelter, more oxygen, prevent global warming, make climate friendly and more suitable, prevent soil erosion and landslides and help in flood control.
- Most of the today's food crops have evolved from wild tropical plants; if they were not saved we should be deprived of many crops in future times.
- Pollination and seed dispersal by birds, insects and animals is essential to increase diversity of genetic recombination, as variation has been a basis of evolution.
- Survival of humans and other species is dependent on producers, if the ecosystem is disturbed and plants are affected we and other consumers will be



*Stats of species and their vulnerability*

adversely affected.

- Wildlife serves as gene library; premature extinction of species leads to irreversible loss of genetic information that influences the future evolution of life on earth.
- Bio and ecological diversities are essential to all life in earth and should not be disturbed by human actions. This blue planet, on which we live, is beautiful flowers, green trees and animals. To save the enchanting natural world, ecosystem as a whole has to be saved for our future generations to enjoy. Unless the entire ecosystem is preserved, the individual species will not be able to survive for long.
- The nature must be conserved to make the future generations more prosperous and wealthy.
- Conservation of wildlife is extremely important for sustaining the natural ecosystem. All living organisms of the biosphere are connected to each other by a common factor of food. Animals form a very important part of this food chain and there is a need to maintain equilibrium. Any disruption to this food chain can have major effects. Herbivores and carnivores are required to maintain the appropriate balance of nature. If all lions, tigers and other big cats vanish from the earth, the deer population would increase manifold thus bringing a disastrous effect on the plants and grass. Therefore it is essential that the population of carnivores is maintained through wildlife conservation.

## **What is Wildlife conservation and its Threats and Problems:**

Wildlife conservation is referred to as the process by which the animal and plant species are protected in their natural habitats. The main aim of wildlife conservation is to ensure protection of the wildlife and preservation of the nature and natural habitats for humans as well as wildlife. Towards this initiative, many governmental and non-governmental organizations have been set up for the very cause of wildlife conservation and

protection. The human activities for their own living and benefits have affected the wildlife considerably across the world. This has resulted in extinction of many wild animals & plants and biodiversity loss. It has been observed that a considerable number of species of animals and birds have become extinct in the past 2000 years. Some reasons were because of climatic change and some have been because of human activities for their own benefits such as food, clothing, shelter, medicine etc. It is also expected that many more species of wildlife will become extinct very soon if they are not protected by proper means of conservation and by enacting effective legislations. Hence, the international organizations and almost all the nations across the world have come together to protect the wildlife and the environment with the help of legislations, Acts, creating national parks, biosphere reserves, wildlife sanctuaries etc. and implementing these legislations and Acts strictly in their nations and regions. Wildlife conservation has become a major area of concern though. The conservation of animals and plant species mainly aims at protecting the endangered species from becoming extinct due to various human and human-induced activities. The wildlife is facing many threats due to the human encroachment and their activities as well as few natural factors which can be enumerated below :

i. **Habitat loss by destruction, fragmentation and degradation:** Habitat destruction and fragmentation can take

place by human activities such as felling of trees, dredging rivers, constructing dams, filling wetlands and mowing fields, use of lands for agriculture, construction of houses and roads etc. Habitat degradation can take place because of the increasing pollution level, invasion of new species and changing ecosystems etc.

ii. **Illegal Trading, Hunting and poaching of endangered species:** Illegal hunting and poaching has posed a major threat to wildlife which is further fuelled by the lack of proper management and use of resources by the forest officials to curb the menace and save the wildlife.

iii. **Climate change:** Global warming and climate change has also played a major role in posing threat to the wildlife. This is also again due to human induced activities which is

done by the burning of fossil fuels etc. which resulted in the changing of the climate globally.

iv. **Over exploitation of resources:** Exploitation and over exploitation of resources for food and other purposes has resulted in posing a threat to the wildlife, especially to the endangered species. The over use of the wild animals and plants for food, medicines, clothing etc has badly affected the wildlife populations and thus has become a threat to their existence.

v. **Pollution:** The ever increasing pollution level due to human activities and industrial operations has resulted in the release of harmful and toxic pollutants in the air, water and land. Hence, it has affected the wildlife in an adverse manner and ultimately posed a threat to become extinct. Thus, the threat to the wildlife and the endangered species of plants and animals calls for their conservation so as to maintain the balance of the ecosystem and save the world. Towards this objective, the governments across the world are working so as to protect and conserve wildlife by enacting legislations and Acts and providing effective implementation of these legislations and Acts. The Government of India has also recognized the threats and has established national parks, wildlife sanctuaries, biosphere reserves and protected areas. The first National Park was established in the year 1936 which was previously called as the Hailey National Park and later on it was renamed as the Jim Corbett National Park. The number of national parks then kept on increasing gradually and presently there are 104 national parks in the country as of April 2012. It was supported by the establishment of more than 500 wildlife sanctuaries and 18 biosphere reserves in the country. Currently there are 515 wildlife sanctuaries out of which 41 are identified as Tiger reserves under the Project Tiger.

Furthermore, the Government of India has also enacted various laws and Acts pertaining to the protection and conservation of wildlife in the country.





- Wildlife Protection Act 1972.** Hunting has been made punishable by law in many countries including India. In 1972, Wildlife protection Act was passed which provides legal protection to wildlife and endangered species in particular.

## Wildlife Projects Of India:

The need to create wild life projects is to preserve the endangered species. It must be understood that some animal species are more endangered than others, because their numbers have fallen to alarming levels due to poaching, reduction of habitat, pollution of water bodies and other man made disturbances like electromagnetic waves from mobile towers. Some of these projects are funded by the World Wildlife Fund (WWF) while, others are funded by the Government.

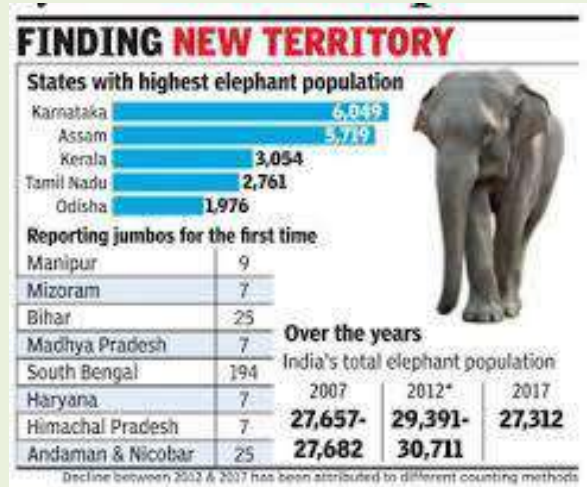
- Project Tiger.** In order to save the Tiger, the Indian government started the 'Project Tiger' in 1973-74, with the objective of restraining, as well as augmenting the declining population of tigers in the country. Under the project, nine wildlife sanctuaries were taken over and developed into tiger reserves. These reserves were

RISE SPANS MOST STATES WHERE THE BIG CATS ARE FOUND							
Change in tiger counts in some States and reserves							
	2010	2014		2010	2014		
Sunderbans	70	76	↑	Rajasthan	36	45	↑
Northern Bengal	—	3		Jharkhand	10	3	↓
Uttarakhand	227	340	↑	Karnataka	300	406	↑
Uttar Pradesh	118	117	↓	Kerala	71	136	↑
Bihar	8	28	↑	Tamilnadu	163	229	↑
Andhra Pradesh	72	68	↓	Goa	—	5	↑
Chhattisgarh	26	46	↑	Assam	143	167	↑
Madhya Pradesh	257	308	↑	Arunachal Pradesh	—	28	↑
Maharashtra	169	190	↑	Mizoram	5	3	↓
Odisha	32	28	↓	Final assessment not done yet			



developed as exact replicas of the varied terrains of the country, with their core area being free of any human movement. With time, the number of sanctuaries under the ambit of 'Project Tiger' was increased and by 2003, it had been increased to 27. Project Tiger helped increase the population of these tigers from 1,200 in the 1970s to 1700 in 2011.

- Project Elephant.** Project Elephant (PE), is a centrally sponsored scheme, launched in February 1992, to provide financial and technical support to major elephant bearing States in the country, for protection of elephants, their habitats and corridors. It also seeks to address the issues of human-elephant conflict and welfare of domesticated elephants. The Project is being implemented in 13 States / UTs , viz. Andhra Pradesh , Arunachal Pradesh , Assam , Jharkhand , Karnataka , Kerala , Meghalaya , Nagaland , Orissa , Tamil Nadu , Uttarakhand, Uttar Pradesh and West Bengal. 25 Elephant Reserves (ERs) extending over about 58,000 sq km have been formally notified by various State Governments till now. The estimated population of wild elephants is in excess of 25000.



*Save the Tuskers*



*Hangul or Kashmir Stag, a soft species of Elk, native to Kashmir*

- Project Hangul.** The Kashmiri stag also called Hangul is a subspecies of Central Asian Red Deer native to Northern India. This deer lives in groups of two to 18 individuals in dense riverine forests, high valleys and mountains of the Kashmir Valley and Northern Chamba, in Himachal Pradesh. In Kashmir, it is found in the Dachigam National Park, at elevations of 3,035 meters. The population of these deers has fallen from 5,000 animals in the beginning of the 20th century to about only about 150 animals by 1970. However, the state of Jammu & Kashmir, along with the IUCN and the WWF prepared a project for the protection of these animals, named as Project Hangul. This brought great results

and the population of this species has now increased to over 340 by 1980.

- **Crocodile Conservation Project.** The Indian Crocodile Conservation Project is considered among the more successful of conservation initiatives in the world. It has pulled back the once threatened crocodilians from the brink of extinction and placed them on a good path of recovery. The Project has not just produced a large number of crocodiles, but has contributed towards conservation in a number of related fields as well.



*India's largest crocodile sanctuary: Bhitarkanika*

- **Project Sea Turtle.** A significant proportion of world's Olive Ridley Turtle population migrates every winter to Indian coastal waters, for nesting mainly at Eastern Coast | Orissa. The Ministry of Environment & Forests in 1999 has initiated the Sea Turtle Conservation Project in collaboration with UNDP, with the objective of conservation of Olive Ridley Turtles and other endangered marine turtles. The Wildlife Institute of India, Dehradun has been designated as the Implementing Agency. The project is being implemented in 10 coastal States of the country with special emphasis in the State of Orissa.

- **Vulture Conservation in India.** India has nine species of vultures in the world. The population of three species i.e. White-backed Vulture, Slender-billed Vulture and Long-billed Vulture in the wild has



*Vultures numbers on a high after 15 years of conservation efforts*

declined drastically over the past decade. The decline of Gyps genus in India has been put at 97% by 2005. Due to this evidence, all three vulture species were listed by IUCN, the World Conservation Union, in 2000 as Critically Endangered. The workshop to prepare an Asian Vulture Recovery Plan held at Parwanoo in Himachal Pradesh, India in February 2004 recommended the establishment of captive holding and captive breeding facilities for three species of Gyps vultures at six different places in South Asia, besides implementing a ban on veterinary use of Diclofenac. These centres would serve as source for reintroduction of the birds after removal of the cause of mortality from the environment.

- **Indo-Russian Cooperation on Migratory Birds.** MoEF has also signed a protocol with Russian counterpart, for conservation of migratory bird species between the two countries. It has been agreed to develop joint projects of mutual interest on migration and nesting behaviour of Siberian Cranes and common cranes and also to exchange scientific and official information on issues relating to wetland management, conservation of avi-fauna etc.
- **Other Projects.** After the success of animal projects, the government has now initiated several new projects for conservation of other endangered animals like, The Himalayan Musk Deer Ecology and Conservation Project, Project Lion, Project Snow Leopard and endangered Birds / Pheasant Projects.

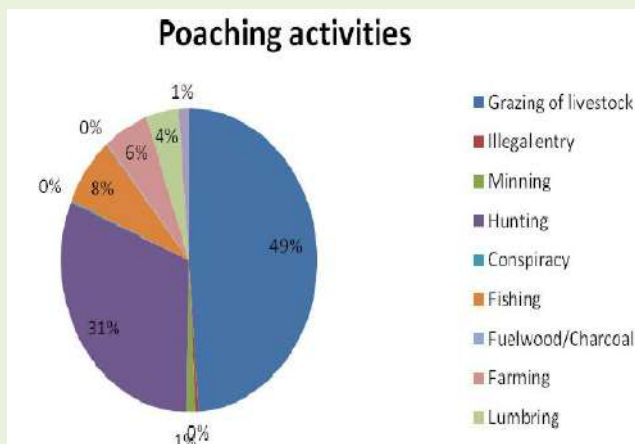
## Challenges in Effective Implementation of Wildlife Protection Laws of India:

The exploitation of wildlife for trade and other benefits of human have resulted in enacting and enforcing various legislations and Acts in almost all the countries of the world. India is also not untouched with this as it is a country with rich biodiversity. The laws enacted with the objective of protecting and conserving wildlife has strict provisions but despite these laws, the exploitation of wildlife



*Poaching of endangered species, a real threat*

resources and their illegal trade continues. The hunting, poaching of animals and uprooting of trees, using of various endemic species of plants for various purposes have led to the threat of extinction and loss of biodiversity in the country. The Wildlife Protection Act, Customs Act, Import-Export policies in India though has provisions in regulating the conservational measures and trade of wildlife species, especially the endangered species, the illegal hunting and poaching activities and trade



is still flourishing and these endangered species are still exploited .The Wildlife Protection Act also does not cover the foreign endangered species of plants and animals and hence does not have the authority to protect such foreign species if they are being hunted or poached or used. It is noticed that the punishment and penalties for offences

made under the Act is not enough to stop and control exploitation of wildlife. The offenders are still able to get away by paying fines and those who are fighting cases are also not bothered since the cases in the Indian Courts are resolved too slowly. The reason for it also accounts for the lakhs of backlog cases pending in the District Courts and other courts. Hence, the verdict by the courts in such cases takes approximately 10 years and by this time the offenders flourish in their activities and the exploitation of wildlife continues.

There is another problem identified that the Forest departments and the Forest Officers are not able to work effectively in implementing the laws and facilitate the conservation activities because they are not adequately trained or have adequate resources. It is seen that the enforcement mechanism of the laws in India for the conservation and protection of wildlife is also complicated in nature. The laws, on one hand, enable the forest officers to protect the forests resources, but they are not given any powers to make policies pertaining to the situation which further creates problems in the confiscation of the felled timber or the poached animal. This has further helped in increasing exploitation activities. On the other hand, the forest department itself plays a role in the exploitation activities for their selfish reasons and corruption. It has been noticed that the forest officials have never involved the local people residing in the surrounding places to stop the exploitation of wildlife despite the fact that these people can actually help in preventing the exploitation and protecting the wildlife resources. Recently, a new problem has come into the notice of environmentalists, NGOs and Law keepers concerned with the protection and conservation of wildlife. This issue pertains to the killing of many birds, listed in the Schedule I of the Wildlife Protection Act, 1972, due to human recreation of flying kites. Many birds listed in Schedule I are killed by the threads, called as 'manja' locally, which is used for Kite flying, especially the Chinese thread. In spite of the imposed ban on the use of Chinese thread for kite flying under Section 5 of the Environment (Protection) Act, 1986, it is still in use among the people. This has killed quite a number of birds which are endemic to this country while some of these birds belong to migrating species.

## Possible solutions of Wildlife Conservation and Implementation of Laws in India:

All the problems pertaining to wildlife protection and conservation needs to be addressed strictly adhering to the law and finding some alternative solutions too so that the wildlife could be protected and conserved. To stop the criminal and illegal activities of exploitation of wildlife resources in India, some stronger measures are required to be introduced. These measures could be in the manner of conducting awareness programmes among the public and the officials concerned with wildlife protection and the law enforcement personnel.

**A. Awareness among Public and Officials:** Towards the objective of protecting and conserving wildlife, there is a need to provide awareness among the forest and other government officials who are deputed in the protected areas and reserves. These concerned personnel should be provided with training and research in wildlife conservation measures and the legal provisions available for their protection. There is also a need to involve the local people who live in the surrounding areas of the protected areas by sensitizing them about the importance of wildlife conservation and protection and the relevant laws governing it. The local people should be apprised of all the available provisions of laws in protecting and conserving the wildlife and the threatened species. They should also be informed about the penalty and punishment in case of violation of any laws and harming the wildlife. This will help in an increased awareness among the local people which will further help in providing support to the forest officials who are



working in these protected areas as well as the government officials.

**B. Recognizing and involving NGOs:** The Non-Governmental Organizations (NGOs) also play an important role in the protection and conservation of wildlife with the help of their initiatives. One such organization is the Wildlife Protection Society of India which works towards providing information and support to the authorities of the government concerned with wildlife protection and conservation so as to fight illegal trade of wildlife and poaching of wild animals thereby saving the environment. The involvement of such NGOs will considerably help in protecting the wildlife resources in India. Some more solutions to protect and conserve wildlife can be done by in-situ & ex-situ breeding, increasing resilience of natural reserves and creation of biosphere reserves and their management.

**C. In-situ and Ex-situ Conservation:** In-situ and Ex-situ conservation strategies are one of the important strategies for conservation of wildlife, especially the endangered species of plants and animals. In-situ conservation strategy is carried out in the natural habitat of these species while ex-situ conservation is carried out in a place outside their natural habitat. These conservation strategies are beneficial in the reintroduction and translocation of wildlife thereby protecting the threatened species from the threat of climate change and human activities. These types of conservation of plants and animals includes captive breeding of animals and plants which are threatened by various activities of human and the climate change and are found to be on the verge of extinction. These conservation activities are carried out in protected areas but these strategies also depend on the severity of climate change and its effect on the species.

**D. Increasing Resilience of Nature Reserves:** This strategy includes maintaining natural reserves, creating buffer zones, minimization of human activities such as construction of buildings, roads and transportation activities, minimization of wildlife tourism, minimization of habitat fragmentation, conservation of genetic diversity, protection of biodiversity 'hot spots' thereby preventing extinction and protecting threatened species. Creation of buffer zones around fragmented landscapes is important in maximizing resilience. Areas protected by buffer zones also require restoration for which it focuses on reduction of specific impacts of climate change. There are some ecosystems which have intact landscapes and may have sufficient resilience but the use of land and water by the people residing in these regions needs to be controlled in a manner so as to prevent loss of resilience. Management of vegetation within these reserves also helps in maintaining resilience. Such strategies need to be implemented by the government in areas where the threat to wildlife and endangered species is more. The government also needs to have controlled wildlife tourism in these natural reserves and buffer zones. The wildlife tourism has adverse effect on the breeding and feeding pattern, disturb the nesting sites and thus government is required to have a vigilance on these activities and ensure that the rules and regulations under the relevant Acts and legislations are followed by the forest officials and concerned persons.

This strategy, if strictly followed, will prove to be very beneficial towards protection and conservation of wildlife and maintenance of wildlife in their natural habitat.

# Creation and Management of Biosphere Reserves :

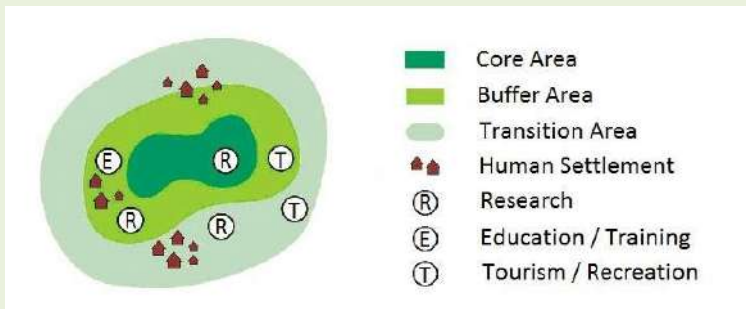
Biosphere reserve consists of a micro-territory or a large area of land which addresses different issues of protection of plants and animal species using different means according to their situation. Sometimes these reserves are divided into small units defined by geographical or human factors. Biosphere reserve consists of three zones, viz., core, and buffer and transition zone. Each zone is approached differently, depending on the need and objectives of biosphere reserve.

Creation and management of several biosphere reserves and other protected areas is an important strategy to protect and conserve wildlife. It includes connecting the corridors and habitat matrices which helps in linking fragmented reserves and landscapes by providing dispersal and migration of flora and fauna.

In India, there are 18 biosphere reserves at present. These reserves have been set up by the Government of India in order to protect and conserve wildlife. The human activities in and around these protected areas have



*Biosphere Reserves of India (2021)*



*Structure of a model biosphere reserve*

posed various kinds of problems and threats to the wild animals and plants. Thus, the government needs to be alert and watchful about the activities of human, including research activities in these reserves. The

Central government as well as the state governments should work together in coordination in maintaining these biosphere reserves and oversee that the officials deputed in these reserves are working in consonance with the legal provisions and regulations. The government should make stricter provisions of punishment also if the laws are violated and wildlife is harmed.

## Conclusion :

The Indian subcontinent is blessed with a natural habitat of a large and varied wildlife. We can find some of the most magnificent as well as the rarest wildlife species of the world in the country. The wildlife protection and conservation is a huge task in India with the growing concerns of illegal trade and exploitation of wildlife resources. This objective cannot be achieved until and unless all branches of the government authorities, villagers & local people residing in and around the protected areas, non-profit and nongovernmental organizations, law enforcement officers and the general public work together towards this goal. India has a rich heritage and is gifted with natural resources which are precious and endemic to the country and thus makes it a biodiversity rich country. Hence, there is a need for everyone to protect this rich resource and maintain a balanced environment.

The laws pertaining to the protection of wildlife and their natural habitat enacted and enforced in the country though provides strict legal provisions for the very cause of wildlife protection and conservation, it is still observed that the ground reality is not the same. The wildlife is still exploited; the animals are still hunted and traded for human benefits. Even the use of harmful substances in industries, daily activities of man, construction of roads and buildings, leisure and entertainment activities causes adverse effect on the environment which in turn affects the wildlife and their natural environment. Illegal hunting and trade of wildlife are still taking place in India without abiding by the norms of these laws. Thus, a strong need for awareness of wildlife protection and conservation among the public is required and effective & strict implementation of these laws needs to be done by every state. The state governments are required to keep

vigilance on the effective implementation of wildlife protection laws and conservation at the district and municipal level. The need for effective strategies and solutions for the protection of wildlife in India and conservation of wildlife is the need of the hour. The government must work in accordance to the present needs and demands in a situation when these wildlife species are threatened and many of which have come to the verge of extinction. The state governments and central government is required to work together and implement all the relevant laws and conservation strategies in order to protect the wildlife and prevent illegal hunting and trade of these endangered species and wildlife as a whole.

## Bibliography:

- [1] *Biodiversity Profile for India*, Indira Gandhi Conservation Monitoring Centre (IGCMC), New Delhi and the United Nations Environmental Programme (UNEP), World Conservation Monitoring Centre, Cambridge, UK. (2001)
- [2] Thapar, V., *Land of the Tiger: A Natural History of the Indian Subcontinent*, University of California Press (1998)
- [3] Tritsch, M.E., *Wildlife of India* Harper Collins, London (2001)
- [4] Groombridge, B. (ed)., *The 1994 IUCN Red List of Threatened Animals*. IUCN, Gland, Switzerland and Cambridge, UK. pp 286 (1993)
- [5] Klappenbach, L, 'Understanding the Threats to Animals and Wildlife – Examining Natural Threats and Man-made Threats', Available from
- [6] <https://www.scribd.com/document/93888838/Conservation-of-Forest-and-Wildlife>
- [7] <https://pdf4pro.com/cdn/conservation-of-natural-resources-including-forestry-and-46b35c.pdf>
- [8] <https://www.biyanicolleges.org/why-should-we-serve-wild-life/>

## Image sources:

1. <https://guidetoexam.com/wp-content/uploads/2019/02/fawn-1.jpg-00d3511c2567a9e2-1.jpg>
2. <https://thelogicalindian.com/story-feed/awareness/more-animals-join-global-red-list>
3. <https://i0.wp.com/www.cleantechloops.com/wp-content/uploads/2019/04/flora-and-fauna-bihar.jpg?fit=500%2C374&ssl=1>
4. [https://www.google.com/url?sa=i&url=https%3A%2F%2Fiasmania.com%2Fnational-parks-wildlife-sanctuaries-in-india%2F&psig=AOvVaw3bg0wOMRQA5X41XSgzpl9Q&ust=1625683661538000&source=images&cd=vfe&ved=2ahUKEwiyzMnajc\\_xAhVTvGMGHeqbDD8QjRx6BAgAEA8](https://www.google.com/url?sa=i&url=https%3A%2F%2Fiasmania.com%2Fnational-parks-wildlife-sanctuaries-in-india%2F&psig=AOvVaw3bg0wOMRQA5X41XSgzpl9Q&ust=1625683661538000&source=images&cd=vfe&ved=2ahUKEwiyzMnajc_xAhVTvGMGHeqbDD8QjRx6BAgAEA8)
5. [https://www.corbett-national-park.com/blog/wp-content/uploads/2015/05/tiger-status.jpg&imgrefurl=https://www.corbett-national-park.com/blog/wildlife-conservation-projects.html&tbnid=HrW\\_QLp1FaMPIM&vet=1&docid=cUwSmnF0HDoPmM&w=736&h=434&source=sh/x/im](https://www.corbett-national-park.com/blog/wp-content/uploads/2015/05/tiger-status.jpg&imgrefurl=https://www.corbett-national-park.com/blog/wildlife-conservation-projects.html&tbnid=HrW_QLp1FaMPIM&vet=1&docid=cUwSmnF0HDoPmM&w=736&h=434&source=sh/x/im)
6. [https://lh3.googleusercontent.com/proxy/VxSGaF3QRCjfmGbV0Jd8FqyF89BVI3nn0uJt8BS6cnzIHy3hJIXAbs0Zkuz24gExDFPGLWpQgxOYbGNXywTiCq1UtG2RGKR\\_82JTMW3pzHAoeqWrhf2jeZtsV2FAH39b3Ua8npjCxTM6us\\_MoeZ4YA](https://lh3.googleusercontent.com/proxy/VxSGaF3QRCjfmGbV0Jd8FqyF89BVI3nn0uJt8BS6cnzIHy3hJIXAbs0Zkuz24gExDFPGLWpQgxOYbGNXywTiCq1UtG2RGKR_82JTMW3pzHAoeqWrhf2jeZtsV2FAH39b3Ua8npjCxTM6us_MoeZ4YA)
7. [https://lh3.googleusercontent.com/proxy/OpCpl5uSBVnbRsrknwBah\\_xRpMXHqK Kv4qgjEuAuob3vo-kbtaljDv0FXvmRVU4t8XI2Lk2y8cllavvYLax-eBr9XC\\_8AFnJ\\_OxpVSG\\_pKPDhDCi3Rh6MtR4MjvYO5voEmy4](https://lh3.googleusercontent.com/proxy/OpCpl5uSBVnbRsrknwBah_xRpMXHqK Kv4qgjEuAuob3vo-kbtaljDv0FXvmRVU4t8XI2Lk2y8cllavvYLax-eBr9XC_8AFnJ_OxpVSG_pKPDhDCi3Rh6MtR4MjvYO5voEmy4)
8. <https://static.toiimg.com/photo/imgsize-,msid-51762131/51762131.jpg>
9. [https://www.bfn.de/fileadmin/\\_processed\\_/d/2/csm\\_threat Vertebrates\\_2009\\_71fac3e09c.jpg](https://www.bfn.de/fileadmin/_processed_/d/2/csm_threat Vertebrates_2009_71fac3e09c.jpg)
10. [https://i.natgeofe.com/n/dd79c52d-28e0-4930-b575-661047d21987/NationalGeographic\\_2451025.jpg&imgrefurl=https://www.nationalgeographic.com/animals/article/wildlife-watch-rhino-poaching-crisis-continues-south-](https://i.natgeofe.com/n/dd79c52d-28e0-4930-b575-661047d21987/NationalGeographic_2451025.jpg&imgrefurl=https://www.nationalgeographic.com/animals/article/wildlife-watch-rhino-poaching-crisis-continues-south-)

[africa&tbnid=vo7dzOkGapzh2M&vet=1&docid=4oom0B6c02wlqM&w=3072&h=2048&source=sh/x/im](https://www.researchgate.net/publication/311641120/figure/fig1/AS:439258755407872@1481738856581/Structure-of-a-model-biosphere-reserve.png)

11. <https://upsccolorfullnotes.com/wp-content/uploads/2021/06/unesco-biosphere-reserve-in-india-867x1024.webp>
12. <https://www.researchgate.net/profile/Krishna-Kumar-Yadav/publication/311641120/figure/fig1/AS:439258755407872@1481738856581/Structure-of-a-model-biosphere-reserve.png>
13. <https://byjus.com/free-ias-prep/list-national-parks-india/www.leadthecompetition.in/GK/sanctuaries-specific-to-animals.html>
14. <https://upsccolorfullnotes.com/biosphere-reserves-in-india-2021-map/>
15. <https://images.app.goo.gl/A7FQ5VuBpoW6G17o8>

# **SCOTTISH CHURCH COLLEGE**

**NAME : RIMA ROY**  
**COLLEGE ROLL NO. : ENGA20F313**  
**CU ROLL NO. : 202223-11-0025**  
**CU REG. NO. : 223-1211-0040-20**  
**CLASS : SEMESTER II**  
**SUBJECT : AECC2(ENVS PROJECT)**  
**TOPIC : WILDLIFE CONSERVATION**



# **INDEX**

- INTRODUCTION
  
- THREATS TO WILDLIFE
  - Habitat Destruction
  - Overexploitation
  - Poaching
  - Pollution
  - Climate Change
  
- SPECIES CONSERVATION
  - Leatherback Sea Turtle
  
- HABITAT CONSERVATION
  - Red-Cockaded Woodpecker
  
- CONSERVATION GENETICS
  - Florida Panther
  
- CONSERVATION METHODS
  - Wildlife Population Monitoring
  
- GOVERNMENT INVOLVEMENT
  
- NON- GOVERNMENT INVOLVEMENT
  - Non-Governmental Organisations
  
- CONCLUSION
  
- BIBLIOGRAPHY

# **WILDLIFE CONSERVATION**

## **Introduction :**

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International.



ANKENY WILDLIFE REFUGE IN OREGON

## **THREATS TO WILDLIFE**



A FOREST BURNED FOR AGRICULTURE IN SOUTHERN MEXICO

## **Habitat destruction :**

Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and

extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans. Moreover, destruction and fragmentation create smaller habitats. Smaller habitats support smaller populations, and smaller populations are more likely to go extinct.

### **Overexploitation :**

Overexploitation is the harvesting of animals and plants at a rate that's faster than the species's ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to a decline in fish sizes as well as fish numbers.

### **Poaching :**

Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. {Traded for their tusks, skins, and horns respectively}. Less well-known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.

### **Pollution :**

A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.

**Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high levels of sulfur oxides (SO<sub>x</sub>) can damage plants and stunt their growth. Sulfur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.

**Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.

**Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.

### **Climate change :**

Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing

weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct. While modern climate change is caused by humans, past climate change events occurred naturally and have led to extinctions.

## **SPECIES CONSERVATION**

It is estimated that, because of human activities, current species extinction rates are about 1000 times greater than the background extinction rate (the 'normal' extinction rate that occurs without additional influence). According to the IUCN, out of all species assessed, over 27,000 are at risk of extinction and should be under conservation. Of these, 25% are mammals, 14% are birds, and 40% are amphibians. However, because not all species have been assessed, these numbers could be even higher. A 2019 UN report assessing global biodiversity extrapolated IUCN data to all species and estimated that 1 million species worldwide could face extinction. Yet, because resources are limited, sometimes it is not possible to give all species that need conservation due consideration. Deciding which species to conserve is a function of how close to extinction a species is, whether the species is crucial to the ecosystem it resides in, and how much we care about it.



LEATHERBACK SEA TURTLE (DERMOCHELYS CORIACEA)

### **Leatherback Sea Turtle :**

The leatherback sea turtle (*Dermochelys coriacea*) is the largest turtle in the world, is the only turtle without a hard shell, and is endangered. It is found throughout the central Pacific and Atlantic Oceans but several of its populations are in decline across the globe (though not all). The leatherback sea turtle faces numerous threats including being caught as bycatch, harvest of its eggs, loss of nesting habitats, and marine pollution. In the US where the leatherback is listed under the Endangered Species Act, measures to protect it include reducing bycatch captures through fishing gear modifications, monitoring and protecting its habitat (both nesting beaches and in the ocean), and reducing damage from marine pollution. There is currently an international effort to protect the leatherback sea turtle.

## **HABITAT CONSERVATION**

Habitat conservation is the practice of protecting a habitat in order to protect the species within it. This is sometimes preferable to focusing on a single species especially if the species in question has very specific habitat requirements or lives in a habitat with many other endangered species. The latter is often true of species living in biodiversity hotspots, which are areas of the world with an exceptionally high concentration of endemic species (species found nowhere else in the world). Many of these hotspots are in the tropics, mainly tropical forests like the Amazon. Habitat conservation is usually carried out by setting aside protected areas like national parks or nature reserves. Even when an area isn't made into a park or reserve, it can still be monitored and maintained.



RED-COCKADED WOODPECKER (*PICOIDES BOREALIS*)

### **Red-Cockaded Woodpecker :**

The red-cockaded woodpecker (*Picoides borealis*) is an endangered bird in the southeastern US. It only lives in longleaf pine savannas which are maintained by wildfires in mature pine forests. Today, it is a rare habitat (as fires have become rare and many pine forests have been cut down for agriculture) and is commonly found on land occupied by US military bases, where pine forests are kept for military training purposes and occasional bombings (also for training) set fires that maintain pine savannas. Woodpeckers live in tree cavities they excavate in the trunk. In an effort to increase woodpecker numbers, artificial cavities (essentially birdhouses planted within tree trunks) were installed to give woodpeckers a place to live. An active effort is made by the US military and workers to maintain this rare habitat used by red-cockaded woodpeckers.

## **CONSERVATION GENETICS**

Conservation genetics studies genetic phenomena that impact the conservation of a species. Most conservation efforts focus on ensuring population growth but genetic diversity also greatly affect species survival. High genetic diversity increases survival because it means greater capacity to adapt to future environmental changes. Meanwhile, effects associated with low genetic diversity, such as inbreeding depression and loss of diversity from genetic drift, often decrease species survival by reducing the species' capacity to adapt or by increasing the frequency of genetic problems. Though not always the case, certain species are under threat because they have very low genetic diversity. As such, the best conservation action would be to restore their genetic diversity.

## **Florida Panther :**

The Florida panther is a subspecies of puma (specifically *Puma concolor coryi*) that resides in the state of Florida and is currently endangered. Historically, the Florida panther's range covered the entire southeastern US. In the early 1990s, only a single population with 20-25 individuals were left. The population had very low genetic diversity, was highly inbred, and suffered from several genetic issues including kinked tails, cardiac defects, and low fertility. In 1995, 8 female Texas pumas were introduced to the Florida population. The goal was to increase genetic diversity by introducing genes from a different, unrelated puma population. By 2007, the Florida panther population had tripled and offspring between Florida and Texas individuals had higher fertility and less genetic problems. In 2015, the US Fish and Wildlife Service estimated there were 230 adult Florida panthers and in 2017, there were signs that the population's range was expanding within Florida.



FLORIDA PANTHER (PUMA CONCOLOR CORYI)

## **CONSERVATION METHODS**

### **Wildlife Population Monitoring :**

Non-invasive monitoring of dhole is crucial for knowledge about its conservation status. More research is needed in chinese wilderness.

Monitoring of wildlife populations is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution, and genetic diversity, although many other metrics may be used.

Monitoring methods can be categorized as either "direct" or "indirect". Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on "signs" that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-opening counts, burrow counts, runaway counts, knockdown cards, snow tracks, or responses to audio calls.

For large, terrestrial vertebrates, a popular method is to use camera traps for population estimation along with mark-recapture techniques. This method has been used successfully with tigers, black bears and numerous other species. Trail cameras can be triggered remotely and automatically via sound, infrared sensors, etc. Computer vision-based animal individual re-identification methods have been developed to automate such sight-resight calculations. Mark-recapture methods are also used

with genetic data from non-invasive hair or fecal samples. Such information can be analyzed independently or in conjunction with photographic methods to get a more complete picture of population viability.



## **GOVERNMENT INVOLVEMENT**

In the US, the Endangered Species Act of 1973 was passed to protect US species deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally, and educationally important. In the same year, the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) was passed as part of an international agreement to prevent the global trade of endangered wildlife. In 1980, the World Conservation Strategy was developed by the IUCN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans. In 1992, the Convention on Biological Diversity (CBD) was agreed on at the UN Conference on Environment and Development (often called the Rio Earth Summit) as an international accord to protect the Earth's biological resources and diversity.

According to the National Wildlife Federation, wildlife conservation in the US gets a majority of its funding through appropriations from the federal budget, annual federal and state grants, and financial efforts from programs such as the Conservation Reserve Program, Wetlands Reserve Program and Wildlife Habitat Incentives Program. A substantial amount of funding comes from the sale of hunting/fishing licenses, game tags, stamps, and excise taxes from the purchase of hunting equipment and ammunition.

## **NON-GOVERNMENT INVOLVEMENT**

In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental organizations (NGOs). Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 “earmarking U.S. Agency for International Development (USAID) funds for (biodiversity)”. From 1990 till now, environmental conservation NGOs have become increasingly more focused on the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving the quality of the environment and its natural resources became a “priority” to “prevent international tensions” according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.

### **Non-Governmental Organizations :**

Many NGOs exist to actively promote, or be involved with, wildlife conservation:

The Nature Conservancy is a US charitable environmental organization that works to preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

World Wide Fund for Nature (WWF) is an international non-governmental organization working on the issues regarding the conservation, research and restoration of the environment, formerly named the World Wildlife Fund, which remains its official name in Canada and the United States. It is the world's largest independent conservation organization with over 5 million supporters worldwide, working in more than 90 countries, supporting around 1300[4] conservation and environmental projects around the world. It is a charity, with approximately 60% of its funding coming from voluntary donations by private individuals. 45% of the fund's income comes from the Netherlands, the United Kingdom and the United States.

### **CONCLUSION**

Wildlife conservation is necessary for sustainable development. Various efforts have been made at the international and national level. In India also various efforts have been made like Project Tiger, Project Elephant, Captive breeding programme etc. India also adopts various methods and policies at international level or in the line of international agreements and convention.



## **ACKNOWLEDGEMENT**

I would like to thank my subject teachers of AECC ENVS for providing me with adequate study materials for this topic and encouraging me to do this project systemically.

I would also like to extend my special thanks of gratitude to the Principal Ma'm Dr.Madhumanjari Mandal and Vice Principal Dr. Supratim Das for providing me with all the facilities that were required.

## **BIBLIOGRAPHY**

### **Books :**

1. TEXT BOOK FOR ENVIRONMENTAL STUDIES, ERACH BHARUCHA.

### **Online Sources :**

1. <https://pscnotes.in/wildlife-conservation-efforts-in-india/#:~:text=Conclusion,Elephant%2C%20Captive%20breeding%20program%20etc.>
2. [https://en.m.wikipedia.org/wiki/Wildlife\\_conservation](https://en.m.wikipedia.org/wiki/Wildlife_conservation)
3. <https://blog.ipleaders.in/top-5-conservation-projects-wildlife-india/>

**AECC 2 ENVS PROJECT**

**NAME: ISHIKA MUKHERJEE**

**COLLEGE ROLL NUMBER: ENGA20F317**

**DEPARTMENT: Environmental studies**

**CU ROLL NUMBER: 202223-11-0034**

**CU REGISTRATION NUMBER: 223-1211-0057-20**

**TOPIC: WILDLIFE CONSERVATION**

## **ACKNOWLEDGEMENT**

I hereby want to express my gratitude to my ENVS subject teachers to enlighten me about wildlife conservation. I'm extremely grateful to her for giving me this golden opportunity wherein I got a chance to research and hence study and learn about the environmental concerns rising in the present scenario.

Besides that I would also like to acknowledge the guidance of my principal ma'am Dr. Madhumanjari Mandal Chaube in the the project, and of my English Honours department and its teachers.

Lastly I would like to thank my friends and family who gave me great support to complete this project in such a limited time frame.

## **THANK YOU**

# **WILDLIFE CONSERVATION**



## **DEFINITION**

- According to the Wildlife Protection Act of 1972,
- Wildlife includes any animal, bees, butterfly, crustacean, fish and moth and aquatic or land vegetation, which form part of any habitat.
- Therefore, wildlife refers to living organisms (flora and fauna) in their natural habitats
- .Example: lion, deer, crocodiles, whales, trees and shrubs in dense forests etc.

## **BENEFITS OF WILDLIFE**

- Wildlife is an essential component of various food chains, food webs, biogeochemical cycles and energy flow through various trophic levels.
- It preserves vitality and health of environment and provides stability to various ecosystems.

## **THREATS TO WILDLIFE**

### **1. Indiscriminate hunting :**

- Indiscriminate killing and poaching of wild animals for food, horn, fur, tusk etc. has resulted in reduction and even extinction of many wild species.

### **2. Introduction of exotic species :**

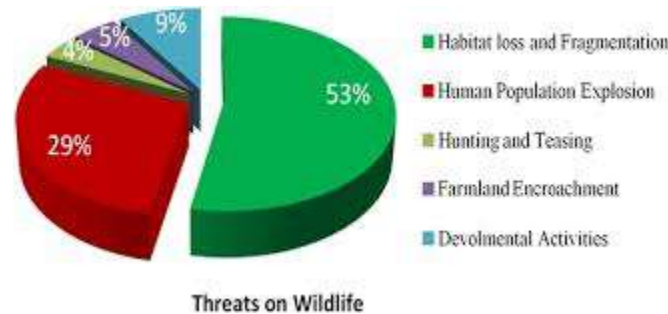
- Many native species have known to disappear and their existence is under threat because of the introduction of exotic and alien species. Sea Lampreys

### **3. Pollution :**

- Air, water, soil and noise pollution of the magnitude and toxicity never seen before is the major factor.
- Natural habitats have been destroyed or damaged by activities such as the indiscriminate use of synthetic materials, release of radiations and oil spills in the sea, generation of effluents and wastes of various kinds and toxicity, and their unscientific disposal.

#### 4. **Habitat loss**

- Population growth, fast industrialisation, urbanisation and modernisation have all contributed to a large-scale destruction of natural habitat of plants and animals.



### **IMPORTANCE OF WILDLIFE CONSERVATION**

#### **1. Beauty**

2. **Economic value** : Timber, fur, tusk, ivory, leather, honey etc.

3. **Scientific value** : Gene pool for the scientists to carry breeding programmers in agriculture, animal husbandry and fishery.

4. **Maintain Ecological Balance.**

5. **Eco - Tourism.**

### **CAUSES OF WILDLIFE DESTRUCTION**

#### **1. Habitat loss**

- Extensive human demand resulted into Habitat Loss.
- Rain forests are the main habitats.
- Tropical rainforests are cleared for wood / timber resources, development of petroleum resources, mineral resources.
- Second most critical factor in species extinction.
- Now there are 20% less forest cover than existed 300 years ago.

#### **2. Poaching and Hunting**

- Another major cause of animal species extinction.

- Poaching and illegal trade in animals are of about US \$10 - \$15 million per year worldwide.

**3. National and International wildlife trade**

- Pet, fur, meat, body parts trade and trade for biomedical research.

**4. Climate change / Global warming**

**5. Pollution**

**6. Introduced (Invasive) Species**

**7. Farmer / Rancher Shootings Rancher shooting Climate change**



**EFFECTS OF WILDLIFE DEPLETION**

- 1. Unbalance food chain and ecosystem.**
- 2. Reduction in rare wild animals.**
- 3. Impact on bio-diversity.**
- 4. Loss of economic value.**
- 5. Danger to human life.**
- 6. Loss in genetic information.**

**ENDANGERED SPECIES OF ANIMALS**

MAJESTIC ELEPHANTS



SNOW LEOPARD



SWAMP DEER



DESERT CAT



LEAF MONKEY



THE INDIAN BISON

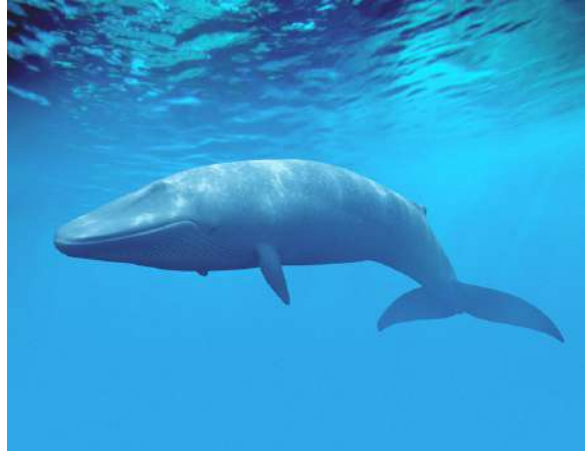




HISPID HARE

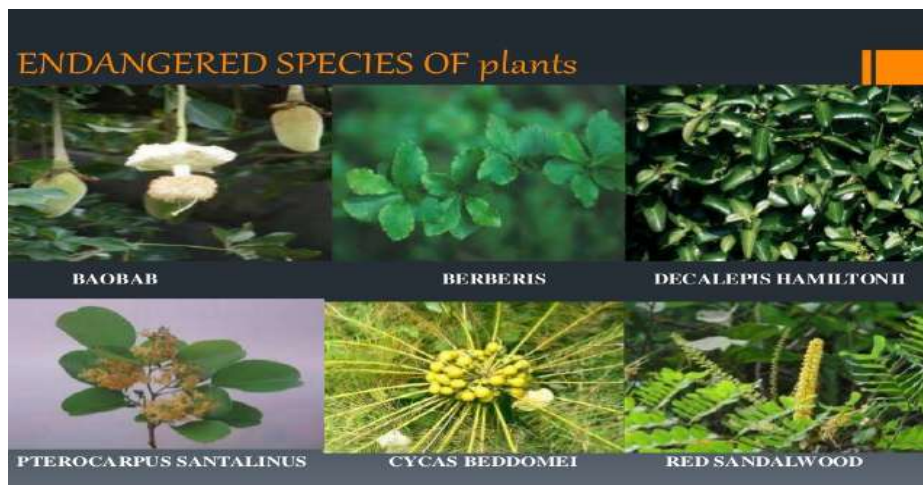


BLUE WHALE



**ENDANGERED SPECIES OF PLANTS**

1. CYCAS BEDDOMEI
2. RED SANDALWOOD
3. BAOBAB
4. BERBERIS
5. DECALEPIS HAMILTONII
6. PTEROCARPUS SANTALINUS



## **LEGAL FRAMEWORK FOR WILDLIFE CONSERVATION IN INDIA**

The Government of India has introduced various types of legislation in response to the growing destruction of wildlife and forests.

These are:

- The Wildlife (Protection) Act, 1972 (Last amended in 2006).
- National Wildlife Action Plan (2002-2016).
- The Environment (Protection) Act (1986).
- The Biological Diversity Act (2002).
- The Indian Fisheries Act (1897).
- The Indian Forest Act (1927).
- The Forest Conservation Act (1980).



## **PROJECTS UNDERTAKEN THE BY INDIAN GOVERNMENT FOR WILDLIFE PROTECTION**

Wildlife is an important component of biodiversity. To prevent the extinction of species, various projects have been initiated by the Indian government, such as:

### **1.LION**

- India's Gir sanctuary in Gujarat is most probably the last abode to Asiatic lion in the world. Even here, population of lion had dwindled due to many factors like animal-human conflict, deforestation, or disrupted predator-prey relationship.
- However, the Chief Minister of Gujarat was recently quoted in the [report](#) below, saying that the number of Asiatic lions has increased to 600, up from 523 in 2015 census. This increase has been attributed to the continuous government efforts and support from local people.

## India's endangered Asiatic lion population increases to 600

The endangered Asiatic lion, which only lives in Gir sanctuary in Gujarat, has fought back from the verge of extinction, with its population increasing to more than 600

Last Published: Tue, Mar 06 2018, 06:15 PM IST

- Being a state animal, the government has repeatedly shown its commitment to the cause of safeguarding the endangered species. Recently, the Government of Gujarat was faced with the spread of viral infection that took lives of 21 Gir lions, as reported. Taking serious cognizance, the government has roped in experts and veterinary doctors to control the spread of virus.

### **2. TIGER**

- India houses the largest population of tigers in the world.
- Despite increasing man and animal conflicts, due to paucity of land, the government's efforts, declaring several dedicated protected areas and ensuring consistent increase in their area coverage have proven to be beneficial for animal conversation, especially in case of tigers which are protected in about **50 tiger reserves**

Table: Estimated Population of tigers in India

Year	2010	2014	2018
Population	1706	2226	****

Source: [Lok Sabha Reply](#)

\*\*\*\* Tiger Population census 2018 is ongoing and data is likely to be released by January 2019.

- The population of tigers rose by more than 30 percent between 2010 and 2014.
- The tiger population census, conducted at the interval of every 4 years, is ongoing for the year 2018, data for which is likely to be released by January 2019.
- As per the preliminary findings of the ongoing census, the government is **expecting** a rise in the numbers of the tiger as many measures like checking poaching activities have been taken.

## Tiger census begins in January 2018, numbers expected to go up

With state surveys reporting notable increases, the tiger population is expected to cross 3,000 during the 2018 count.

ENVIRONMENT Updated: Dec 16, 2017 10:24 IST

ht Malavika Vyaswani  
Hindustan Times, New Delhi

- As per the above [report](#) published in December 2017, there is a notable increase in the big cat population in the state surveys. The results of the state survey will also reflect in the total tiger population across the country, that may reach around 3000.

### 3.ELEPHANT

- India houses a huge population of elephant. They have been labelled as the ‘Evolutionary Distinct and Globally Endangered’ (EDGE) species.
- As per the ‘Synchronised Elephant Population Estimation India 2017’ [survey](#), a population of 27,312 has been estimated in the country.
- Experts and wildlife conservationists have [found](#) this population to be stable.
- Some animal activists noted a decline in absolute numbers from 2012 census which may have been due to a difference in the counting method.
- Elephant Expert and Head of the Asian Nature Conservation Foundation (ANCF) R Sukumar, who has been studying elephant population for 20 years, [commenting](#) on the decline in absolute number of elephant population from 2012, [said](#),
- “We have a healthy elephant population in India. There is no question of decline. In fact, there may have been a slight increase.”

In fact, there was a duplication in counting and errors were reported in the census of 2012.



NEWS / INDIA'S ELEPHANT POPULATION STABLE: CENSUS

## India's elephant population stable: Census

Jayashree Nandi | TNN | Updated: Aug 13, 2017, 04:16 IST

✉ 🖨 A- A+

#### **4. GANGETIC DOLPHIN**

India declared Gangetic dolphin to be its national aquatic animal in 2009. This species has always faced a threat from fisherman as well as pollution in the River Ganga. However, there has been an increase in the sightings of Gangetic dolphin. In a recent dolphin mapping project conducted in collaboration with WWF India, as many as 110 dolphins were spotted in a stretch between Kaushambi and Handia. The efforts of the government towards reducing the pollution in this stretch are producing positive results.

**hindustantimes**

Thursday, Oct 04, 2018

india world cricket cities opinion entertainment lifestyle education sports photos videos htls ...

## Back from the brink of extinction: How the Gangetic dolphins made a comeback

The species, one of the four freshwater dolphins in the world, was declared India's National Aquatic Animal in 2009

INDIA Updated: Feb 10, 2017 08:56 IST

ht Smriti Malaviya  
Hindustan Times, Allahabad

#### **5. KASHMIRI STAG (HANGUL)**

- The population of one of the most endangered species of India which was on the verge of extinction has been revived. There is a positive trend in the numbers.
- BJP MLA and the then Minister for Forest Lal Singh, on the floor of the assembly, had said, number of hanguls at the Dachigam National Park (where most of the hanguls are found) stood at 182 as per the latest census of March 2017.
- Government efforts in this direction are bearing fruits. The hangul population in 2015 was estimated as low as 81 (lower range) which was on a declining trajectory since 2011. The government was able to reverse the trend by 2017, as seen in the rising numbers.

[/www.tribuneindia.com/news/jammu-kashmir/uptick-in-hangul-population/533577.html](http://www.tribuneindia.com/news/jammu-kashmir/uptick-in-hangul-population/533577.html)

RERA No.

Jammu Kashmir

Posted at: Jan 25, 2018, 12:25 AM; last updated: Jan 25, 2018, 12:25 AM (IST)

### Uptick in hangul population

**IMPORTANT WILDLIFE CONSERVATION SOCIETIES OF INDIA**

Wildlife Conservation Societies that have helped the country maintain its rich wildlife. Here is a glance at the important Wildlife Conservation Societies of India :



WORLD WILDLIFE FUND (WWF)



1. The Corbett Foundation.
2. Wildlife Institute of India.
3. Wildlife Protection Society of India.
4. Wildlife Conservation Trust.
5. Wildlife SOS.
6. World Wildlife Fund (WWF).
7. Centre for Wildlife Studies.

### **CONCLUSION**

Forests and wildlife are the renewable natural resources and if all the planned programmes are effectively executed, in a few decades the flora and the fauna will start flourishing.

Above study suggests the manner in which the Union and state governments along with people's participation are coming together to ensure India's animal population is progressively enhanced and conserved, since they form an integral part of ecology.

There is much more to be achieved towards this cause, especially in the background of fast paced urbanisation and increasing deforestation.

A cue can be taken from Prime Minister Narendra Modi, who has made the following observation in his recent op-ed, 'The green state of mind':

*"Today human society stands at an important crossroad. The path that we take hereon will not only determine our well-being but also that of the generations who will inhabit our planet after us. The imbalances between our greed and necessities have led to grave ecological imbalances. We can either accept this, go ahead with things as if it is business as usual, or we can take corrective actions."*

## **BIBLIOGRAPHY**

### Websites

- <https://iyap.global/wildlife-conservation/>
- [https://en.m.wikipedia.org/wiki/Wildlife\\_conservation](https://en.m.wikipedia.org/wiki/Wildlife_conservation)
- <https://www.thetruepicture.org/wildlife-conservation-animal-welfare-modi-government/>
- <https://www.slideshare.net/rajatrmr/wildlife-presentation-87241681>

### Book

- Textbook for Environmental Studies: Erach Bharucha for University Grants Commission

**SEMESTER-2**

**SUBJECT:- ENVS**

**PAPER:- AECC2**

**COLLEGE ROLL NO:- ENGA20F321**

**UNIVERSITY REGISTRATION NO:- 223-1211-0068-20**

**UNIVERSITY ROLL NO:- 202223-11-0037**

**TOPIC:- WILDLIFE CONSERVATION**

**SESSION:- 2020-2021**



## ACKNOWLEDGMENT

I would like to express my special thanks of gratitude to my teacher , as well as our principal Dr. Madhumanjari Mandal, who gave me the golden opportunity to do this wonderful project on WILDLIFE CONSERVATION Which also helped me in doing a lot of research and I came to know about so many new things I am really thankful to them.

Secondly I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

## **CONTENTS**

## **PAGE NUMBER**

<b>1.Introduction</b>	<b>: 4-5</b>
<b>2.Necessity of Wildlife conservation</b>	<b>: 6-8</b>
<b>3.Different types of Wildlife conservation</b>	<b>: 9-13</b>
• <b>In-situ</b>	<b>: 9-10</b>
• <b>Ex-situ</b>	<b>: 11-13</b>
<b>4. effort made by Indian Government for Wildlife Conservation</b>	<b>: 14-20</b>
• <b>Project Tiger</b>	<b>: 15</b>
• <b>Project Elephant</b>	<b>: 16</b>
• <b>Sea turtle project</b>	<b>: 17</b>
• <b>Crocodile conservation project</b>	<b>: 18</b>
• <b>Project Dolphin</b>	<b>: 19</b>
• <b>India adopts SAWEN</b>	<b>: 20</b>
• <b>Captive Breeding program</b>	<b>: 20</b>
<b>5.Conclusion</b>	<b>: 21-22</b>
<b>6..Bibliography</b>	<b>: 23</b>

## **INTRODUCTION**

The Indian Parliament enacted the Wildlife (Protection) Act in 1972, which provides for the safeguard and protection of the wildlife (flora and fauna) in the country. This Act provides for the protection of the country's wild an 4/12 and plant species, in order to ensure environmental and ecolo Among other things, the Act lays down restrictions on hunting many animal species. The Act was last amended in the year 2006. An Amendment bill was introduced in the Rajya Sabha in 2013 and referred to a Standing Committee, but it was withdrawn in 2015. Wildlife is a part of 'forests and this was a state subject until the Parliament passed this law in 1972. Now it is Concurrent List. Reasons for a nationwide law in the domain of environment particularly wildlife include the following:

India is a treasure-trove of varied flora and fauna. Many species were seeing a rapid decline in numbers. For instance, it was mentioned by Edward Pritchard Gee (A naturalist), that at the turn of the 20<sup>th</sup> century, India was home to close to 40000 tigers. But, a census in 1972 showed

this number drastically reduced to about 1827. A drastic decrease in the flora and fauna can cause ecological imbalance, which affects many aspects of climate and the ecosystem. The most recent Act passed during the British era in this regard was the Wild Birds and Animals Protection, 1935. This needed to be up graded as the punishments awarded to poachers and traders of wild life products were disproportionate to the huge financial benefits that accrue to them. There were only five national parks in India prior to the enactment of this Act.



Source:<https://images.app.goo.gl/y7UfiPu6qVNw3MhLA>

## **Necessity of Wildlife conservation**

The real reason to conserve wildlife in the wild is to conserve the ecosystems in which the relevant animals (and plants) live, because these ecosystems provide us with clean air, clean water, food, and shelter. Forest removal has climatic effects, increases erosion and silts up rivers.

Wildlife consists of flora and fauna, i.e. plants, animals and microorganisms which are not domesticated by humans. On the other hand conservation is preserving and protecting wild plants, animals and their habitats. Therefore, we can say that the Conservation of Wildlife is necessary to recognize the importance of nature and other wildlife species. Rivers, prairies, forests, wetlands, oceans, and everything else in nature is the cradle for wildlife, which are disappearing rapidly. Habitat is the place where all living things find favorable conditions to survive, reproduce,

and thrive. Pollution, land development, deforestation, and natural disasters are a few reasons why the wildlife and the number of species are decreasing rapidly today. When habitat is threatened or destroyed, the wildlife living in the habitat is threatened as well. When roads or new developments destroy the habitats of wild animals, they must move and find new places to thrive, putting pressure on the ecology and nature.

There are now 41,415 species on the International Union for Conservation of Nature and Natural Resources (IUCN) Red List, and 2700 of them are endangered species threatened with extinction. This includes both endangered animals and endangered plants.

Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change.

IUCN estimates that 27,000 species of the ones assessed are at risk for extinction but when expanding to all existing species, according to a 2019 UN report on biodiversity, this estimate is higher at a million species. It's also being acknowledged that an increasing number of ecosystems on earth containing endangered species are disappearing. To address these

issues, there have been both national and international governmental efforts to preserve Earth's wildlife.

### **Different types of Wildlife conservation**

Wildlife Conservation can broadly be divided into two types:

**In-situ:** Conservation of habitats, species and ecosystems where they naturally occur. This is in-situ conservation and the natural processes and interaction are conserved as well as the elements of biodiversity.

Biodiversity at all its levels, genetic species and As intact ecosystems, can be best preserved in-Situ by setting aside an adequate representation of wilderness as 'Protected Areas'. These Should consist of a network of National Parks And Wildlife Sanctuaries with each distinctive Ecosystem included in the network. Such a network would preserve the total diversity of life Of a region.

However species cannot be protected individually as they are all inter dependent on each other. Thus the whole ecosystem must be protected.

The biologist's view point deals with areas that are relatively species rich,

or those where rare, Threatened or endangered species are found, Or those with 'endemic' species which are not Found elsewhere. As rare endemic species are found only in a small area these easily become extinct due to human activity. Such areas must be given an added importance as their biodiversity is a special feature of the region. Animals such as elephants require different types of habitat to feed in during different seasons. They utilize open grasslands after the rains when the young grass shoots are highly nutritious. As the grasses dry, the elephants move into the forest to feed on foliage from the trees.

A Protected Area that is meant to protect elephants must therefore be large enough and include diverse habitat types to support a complete complement of inter linked species.

In-situ conservation is not always possible as habitats may have been degraded and there may be competition for land which means species need to be removed from the area to save them.

In-situ Conservation is all about creating a protected area for wildlife conservation.



**Ex-situ** :The conservation of elements of biodiversity out of the context of their natural habitats is referred to as ex-situ conservation. Zoos, botanical gardens and seed banks are all example of ex-situ conservation.

Protected areas of India for “In-Situ” Conservation of Biodiversity:

Three types of protected areas- Wildlife Sanctuaries;

National Park, Biosphere Reserves were created in India for “In-Situ” conservation of bio diversity. As on 31 March, 1994 there were 421 Wildlife Sanctuaries, 75 National Park, 14 Biosphere Reserved in India covering about 4% of total geographical area. In-situ conservation of wildlife is a comprehensive system of protected areas. There are different categories of protected areas, which are managed with different objectives for bringing benefits to the society. The major protected areas include: (i) National Parks, (ii) Sanctuaries, (iii) Biosphere reserves etc. These areas vary considerably in size, design, purpose and effectiveness of management.

(i)National Parks : According to the Indian Board for Wild Life (IBWL), “a National Park is an area dedicated by statute for all time to conserve the scenery, natural and historical objects, to conserve the wild life there

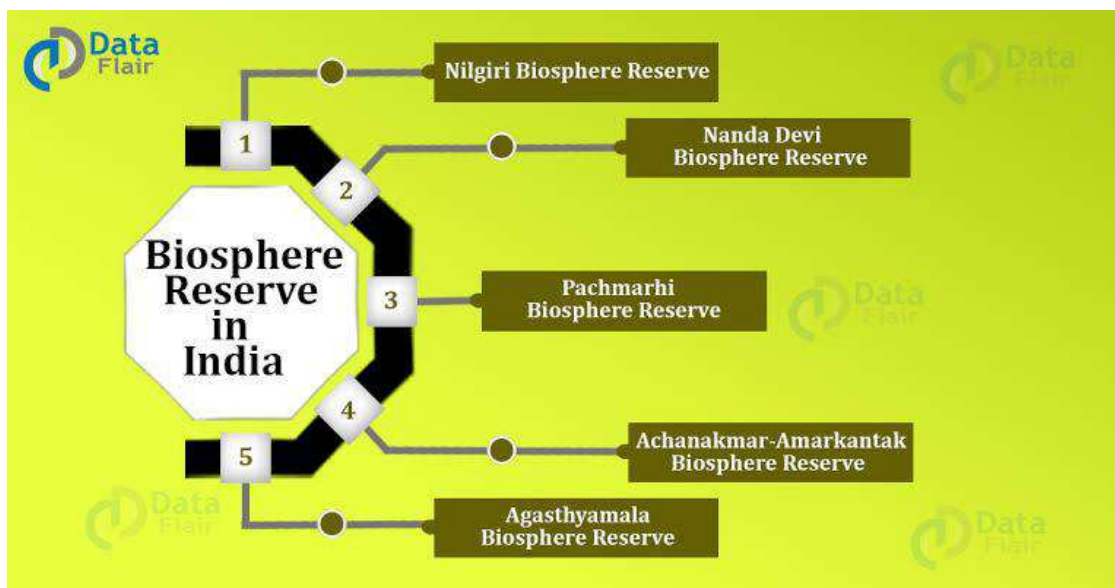
in and to provide for enjoyment of the same in such manner and by such means, that will leave them unimpaired for the enjoyment of future generations with such modification as local conditions may demand”.

The famous National parks are the Great Himalayan National park (Himachal Pradesh), Kaziranga National Park ( Assam), Kanha National park ( Madhyapradesh), Ranthambhore National Park (Jaipur), Periyar National Park (Kerala), Gir National Park (Gujrat) etc.

(ii)Sanctuaries: The Indian Board for Wild Life has defined a sanctuary as, ‘An area where killing, hunting, shooting or capturing of any species of bird or animal is prohibited except by or under the control of highest authority in the department responsible for the management of the sanctuary and whose boundaries and character should be sacrosanct as far as possible.’

There are a number of wildlife sanctuaries in India that are worth visiting and that are home to a lot of different species of animals. Some of them are Bhadra Wildlife Sanctuary (Karnataka), Tadoba Andhari Tiger Reserve (Maharashtra), Kutch Desert Wildlife Sanctuary (Gujarat), Indian Wild Ass Sanctuary (Gujarat), Koyna Wildlife Sanctuary (Maharashtra),. (iii) Biosphere Reserves : Biosphere Reserves have been described as undisturbed natural areas for scientific study as well as areas in which conditions of disturbance are under control. These serve as the centres for ecological research and habitat protection, the Biosphere consists of three zones – core area, Buffer Zone I, Transition area.

Source:<https://images.app.goo.gl/bjGPQPFs17P5NqX56>



## **Efforts Made by Indian Government for Wildlife**

### **Conservation**

The following are the efforts made by the Indian Government for wildlife conservation:

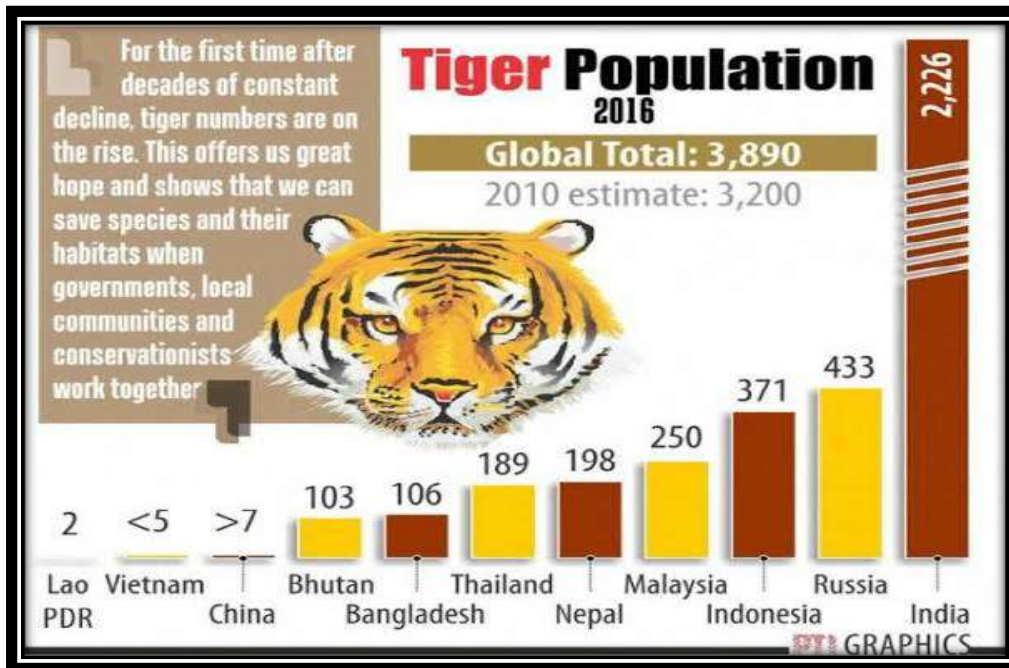
- Project Tiger
- Project Elephant
- Sea turtle project
- Crocodile conservation project

- Project Dolphin
- India adopts SAWEN
- Captive Breeding program

## **PROJECT TIGER**

- It is a centrally sponsored scheme launched in 1973 for the conservation of Indian Tiger which is endangered. The Tiger population has been reduced from many last decades.

- For this, the National Tiger Conservation Authority is constituted. The program started with 9 Tiger reserve, and presently it is approximately 20. Tiger census has occurred in every four years.



## PROJECT ELEPHANT

- It is also a centrally sponsored scheme and launched in 1992. It is implemented in 13 states. Under this, 88 Elephants corridors were set up.
- Haathi Mere Saathi scheme was also launched by the Ministry of Environment, Forest and Climate Change in partnership with wildlife trust of India.



## **SEA TURTLE PROJECT**

- It was launched by Ministry of Environment, Forest and Climate Change in collaboration with UNDP in 1999. The Olive Ridley Turtle visits India during Winter.

- The implementing agency of this project is the Wildlife Institute of India.

It is in the Vulnerable in IUCN list.

## **CROCODILE CONSERVATION PROJECT**

- The main aim of this project is to protect the remaining population of crocodiles in their natural habitat.

“Ghariyal” is listed as Critically Endangered in IUCN list.







## **PROJECT DOLPHIN**

- Ministry of Environment, Forest and Climate Change has notified Ganges River Dolphin as National Aquatic animal. It was listed in Schedule I of Wildlife Protection Act 1972.

- Major threat: river water pollution, poaching and siltation.



### **India Adopts Sawen**

- The acronym of SAWEN is South Asia Wildlife Enforcement Network.

It is an intergovernmental wildlife enforcement support body. It is launched in Paro Bhutan in 2011.

. It was established for mutual collaboration for harmonizing as well as enforcing the wildlife protection.

- The SAWEN constitutes Afghanistan, India, Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka and the Maldives.

### **Captive Breeding Program**

Captive breeding can be described as the selection of wild species and bred in the artificial condition under experts. It may represent the last chance to preserve a species in the wild.

### **Conclusion**

Wildlife conservation in India has a long history, dating back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. Then, the formation of the

Wildlife Board at the national level and enactment of Wildlife Act in 1972 laid the foundation of present day “wildlife conservation” era in post-independent India. Henceforth, the Act has been amended several times and the National Wildlife Advisory Board has undergone various changes.

With the opening up of Indian market and process of globalization, the country has made significant progress in achieving higher Gross Domestic Product (GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within Protected Areas came to fore. Take for instance, the restrictions by Environmental Impact Assessment (EIA) for Development Projects, covering more than 30 sectors as far back in 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “Protected Areas”-largely on the basis of requirement of

Forest Clearance' or on the assessment of impacts on Wildlife Habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.

## **Bibliography**

**LINKS:**

1. <https://www.nationalheraldindia.com/india/wildlife-conservation-in-india-are-we-really-serious>

2. <https://pscnotes.in/wildlife-conservation-efforts-in-india/>

3. <https://www.studymumbai.com/wildlife-conservation-in-india/>

4. <https://byjus.com/free-ias-prep/biosphere-reserve-in-india/>

5. <https://lotusarise.com/wildlife-resources-in-india-upsc/>

BOOK:- Dr Erach Bharuchais. Textbook of Environmental studies for Undergraduate Courses: Orient Blackswan Pvt Ltd reprint 8 march 2021.

**WILDLIFE**  
**CONSERVATION**

**SEMESTER-2**

**AECC-2**

**NAME- PRERONA SINGH**

**COLLEGE ROLL NUMBER- ENGA20F322**

**CU REGISTRATION NUMBER – 223-1211-0069-20**

**CU ROLL NUMBER –202223-11-0038**

**TOPIC OF PROJECT – WILDLIFE CONSERVATION**

**SESSION – 2020-21**

**WORD COUNT – 2,288**



## INTRODUCTION

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International. Each species on the planet is important for the continuance of the food chain. Wildlife and their habitat have numerous benefits for the existence of humans as well as the flora and fauna. In India, for instance, forests that house animals like tigers, elephants, hornbills and cobras are also watersheds of some primary rivers of India. Survival of wildlife is therefore dependent on the survival of forests. Forests are also home to millions of species of plants, insects, amphibians, reptiles, birds and mammals. They are therefore a treasure house of nature. If there is a lack of trees and grasslands, it will lead to lack of food for herbivores. If the herbivores are unable to survive, it will result in shortage of food for the carnivores. Thus in case of destruction of forests, the food web will also be destroyed.

Not only are animals important for the survival of the food chain, they are important also because they provide for economic activities like tourism. They add to the biological diversity of the region and maintain ecological balance. Maintaining national parks and sanctuaries is a good way to preserve wildlife. Killing of birds and animals is therefore banned in the country, but there is still a lot that needs to be done towards preservation of wildlife. The study of wildlife is also important to gain more knowledge about different species and their evolution. Different species make for a thorough gene pool that can also be harnessed to safeguard different species.

## WILDLIFE SANCTUARY

A wildlife sanctuary is an area where animals and birds can live protected and safe in their natural habitats, away from poaching or trafficking. It is also known as a natural reserve, biosphere reserve or a nature conservation area. It is an area where not only the animals are protected but the flora as well as other geological features are conserved and maintained either to be studied or for research purposes. They can be under the direct care of the government or owned by private charities and research institutions. In sanctuaries there are strict rules against killing, capturing and poaching of the animals. One of the main reasons they are established is for the protection of endangered species. In India there are about 543 wildlife sanctuaries which cover a total of 118,918 square kilometers. Some of the prominent ones are:

- Bhadra Wildlife Sanctuary, Karnataka

- Gir National Park and Wildlife Sanctuary
- Chinnar Wildlife Sanctuary, Kerala
- Senchal Wildlife Sanctuary, West Bengal
- Pani Dhing Wildlife Sanctuary, Assam

## NATIONAL PARK

A national park is a park in use for conservation purposes, created and protected by national governments. Often it is a reserve of natural, semi-natural, or developed land that a sovereign state declares or owns. Although individual nations designate their own national parks differently, there is a common idea: the conservation of 'wild nature' for posterity and as a symbol of national pride.

An international organization, the International Union for Conservation of Nature (IUCN), and its World Commission on Protected Areas (WCPA), has defined "National Park" as its *Category II* type of protected areas. According to the IUCN, 6,555 national parks worldwide met its criteria in 2006. IUCN is still discussing the parameters of defining a national park.

While this type of national park had been proposed previously, the United States established the first "public park or pleasuring-ground for the benefit and enjoyment of the people", Yellowstone National Park, in 1872. Although Yellowstone was not officially termed a "national park" in its establishing law, it was always termed such in practice and is widely held to be the first and oldest national park in the world. However, the Tobago Main Ridge Forest Reserve (established in 1776), and the area surrounding Bogd Khan Uul Mountain (1778) are seen as the oldest legally protected areas, predating Yellowstone by nearly a century. National parks are almost always open to visitors.

**National parks in India** are IUCN category II protected areas. India's first national park was established in 1936 as Hailey National Park, now known as Jim Corbett National Park, Uttarakhand. By 1970, India only had five national parks. In 1972, India enacted the Wildlife Protection Act and Project Tiger in 1973 to safeguard the habitats of conservation reliant species.

Further federal legislation strengthening protection for wildlife was introduced in the 1980s.

There are 104 existing national parks in India covering an area of 43,716 km<sup>2</sup>, which is 1.33% of the geographical area of the country (National Wildlife Database, Dec. 2020). In addition to the above 75 National Parks covering an area of 16,608 km<sup>2</sup> are proposed in the Protected Area Network Report (Rodgers & Panwar, 1988). The network of parks will go up 176 after full implementation of the above report.

## **BIOSPHERE RESERVE**

Biosphere reserves are 'learning places for sustainable development'. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine and coastal ecosystems. Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Biosphere Reserves are designated under the intergovernmental MAB Programme by the Director-General of UNESCO following the decisions of the MAB International Coordinating Council (MAB ICC). Their status is internationally recognized. Member States can submit sites through the designation process.

In order to assist the stakeholders with the designation process, as well as periodic reviews, Technical Guidelines are being progressively created by the MAB International Co-ordinating Council.

Biosphere Reserves involve local communities and all interested stakeholders in planning and management. They integrate three main "functions":

- Conservation of biodiversity and cultural diversity
- Economic development that is socio-culturally and environmentally sustainable
- Logistic support, underpinning development through research, monitoring, education and training

These three functions are pursued through the Biosphere Reserves' three main zones:

### **Core Areas**

It comprises a strictly protected zone that contributes to the conservation of landscapes, ecosystems, species and genetic variation

### **Buffer Zones**

It surrounds or adjoins the core area(s), and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.

### **Transition Area**

The transition area is where communities foster socio-culturally and ecologically sustainable economic and human activities.

The Indian government has established 18 biosphere reserves (categories roughly correspondingly to IUCN Category V Protected areas) to protect larger areas of natural habitat than a typical national park or animal sanctuary, and that often include one or more national parks or reserves, along with buffer zones that are open to some economic uses. Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life.

## **EFFECTIVE WILDLIFE CONSERVATION METHODS**

Conservation of wildlife can be divided into two essential terms, namely “in situ conservation” and “ex-situ conservation.”

**In-Situ Protection:** This form of protection preserves the imperil animal or plant in its natural environment. In Situ Conservation falls under initiatives such as National Parks, Biological Reserves.

**Ex-Situ Conservation:** Ex-situ wildlife protection simply means off-site protection of wild animals and plants by eliminating and relocating a portion of a population to protected habitat. To protect the environment, various types of wildlife management approaches may be employed. The following are some vital wildlife conservation methods in India:-

**Wildlife Conservation Laws –** The 1972 Wildlife Protection Act is an act which attempts to protect the Indian wildlife. The Indian parliament enacted this act on 9 September 1972, and after that, the destruction of wildlife was limited to some degree.

**Habitat Management –** This approach is used to perform wildlife conservation surveys and to hold statistical data. After that, the wildlife habitat can be improved.

**Creation of Protected Area –** Protected areas are created to preserve wildlife, such as national parks, reserve forests, wildlife sanctuaries, etc. In these restricted regions, wildlife protection laws are implemented to protect the species.

**Awareness –** There is a need to educate the people about the value of wildlife for wildlife conservation in India. Some people neglect or hurt wildlife since they are unaware of wildlife’s significance. Thus, awareness of conserving wildlife in India can be spread amongst people.

**Eliminating Superstitions –** Wildlife has always been endangered by superstition. Many body parts of wild animals, parts of trees are used as treatments for other diseases. Such remedies have no theoretical basis at all. Also, some people claim that bone, fur etc. will heal their chronic illness by wearing or using other animals.

## **The International Union for Conservation of Nature (IUCN)**

IUCN is a membership Union uniquely composed of both government and civil society organizations. Created in 1948, it is the global authority on the status of the natural world and the measures needed to safeguard it. It is headquartered in Switzerland. The IUCN Red List of Threatened Species is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the world. The IUCN Red List Categories define the extinction risk of species assessed. Nine categories extend from NE (Not Evaluated) to EX (Extinct). Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) species are considered to be threatened with extinction. It is recognized as the most authoritative guide to the status of biological diversity. It is also a key indicator for the SDGs and Aichi Targets.

### **Need of Wildlife Conservation**

Today, about 23% (1,130 species) of mammals and 12% (1,194 species) of birds are considered as threatened by IUCN. According to various surveys and reports, our planet has lost more than 58% of its wildlife since 1970 and is experiencing the sixth mass extinction. The 2016 Living Planet Report reveals the troubling extent of this and other environmental crises around the world, but it also sheds light on the ways we can still protect and rehabilitate what's left. An index compiled with data from the Zoological Society of London to measure the abundance of biodiversity was down 58 percent from 1970 to 2012 and would fall 6 percent by 2020 on current trends, the WWF said in a report. In 1972, The Wildlife Conservation Act was passed by the Government of India. In 1980, The World Conservation Strategy was developed by the "International Union for Conservation of Nature and Natural Resources" (IUCN) with assistance from The United Nations Environment Program and the World Wildlife Fund and in collaboration with the Food and Agriculture Organization of UN and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Global biodiversity is being lost much faster than natural extinction due to changes in land use, unsustainable use of natural resources, invasive alien species, climate change, and pollution among others Land conversion by humans, resulting in natural habitat loss, is most evident in tropical forests and is less intensive in temperate, boreal, and arctic regions. Pollution from atmospheric nitrogen deposition is most severe in northern temperate areas close to urban centers, and the introduction of damaging alien species is usually brought about through patterns of human activity.

## **CONCLUSION**

Wildlife conservation in India has a long history, dating back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. Then, the formation of the Wildlife Board at the national level and enactment of Wildlife Act in 1972 laid the foundation of present day “wildlife conservation” era in post-independent India. Henceforth, the Act has been amended several times and the National Wildlife Advisory Board has undergone various changes. With the opening up of Indian market and process of globalization, the country has made significant progress in achieving higher Gross Domestic Product (GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within Protected Areas came to fore. Take for instance, the restrictions by Environmental Impact Assessment (EIA) for Development Projects, covering more than 30 sectors as far back in 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “Protected Areas”- largely on the basis of requirement of ‘Forest Clearance’ or on the assessment of impacts on Wildlife Habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.

## **ACKNOWLEDGEMENT**

I would like to express my special thanks of gratitude to all my respected professors , who gave me the golden opportunity to do this wonderful project on the topic WILDLIFE CONSERVATION , which helped me in doing a lot of Research and i came to know about so many new things. Secondly,I would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time. THANKS AGAIN TO ALL WHO HELPED ME.

## **BIBLIOGRAPHY**

- [https://en.wikipedia.org/wiki/Wildlife\\_conservation](https://en.wikipedia.org/wiki/Wildlife_conservation)
- <https://www.vedantu.com/biology/wildlife-sanctuaries>
- [https://en.wikipedia.org/wiki/National\\_park](https://en.wikipedia.org/wiki/National_park)
- <https://en.unesco.org/biosphere/about>









**UNIVERSITY OF CALCUTTA  
SCOTTISH CHURCH COLLEGE  
KOLKATA**



**PROJECT TITLE: WILDLIFE CONSERVATION**

**NAME: GLORIYA GAIKWAD**

**COLLEGE ROLL NO: ENGA20F323**

**UNIVERSITY ROLL NO: 202223-11-0040**

**REGISTRATION NO: 223-1211-0071-20**

**SEMESTER : BA-SEM 2**

**SUBJECT: ENVS**

**PAPER: AECC 2**

## **INTRODUCTION**

The Indian Parliament enacted the Wildlife (Protection) Act in 1972, which provides for the safeguard and protection of the wildlife (flora and fauna) in the country. This Act provides for the protection of the country's wild animals, birds, and plant species, in order to ensure environmental and ecological security.

Among other things, the Act lays down restrictions on hunting many animal species. The Act was last amended in the year 2006. An Amendment bill was introduced in the Rajya Sabha in 2013 and referred to a Standing Committee, but it was withdrawn in 2015. Wildlife is a part of 'forests' and this was a state subject until the Parliament passed this law in 1972. Now it is Concurrent List. Reasons for a nationwide law in the domain of environment particularly wildlife include the following:

India is a treasure-trove of varied flora and fauna. Many species were seeing a rapid decline in numbers. For instance, it was mentioned by Edward Pritchard Gee (A naturalist), that at the turn of the 20th century, India was home to close to 40000 tigers. But, a census in 1972 showed this number drastically reduced to about 1827. A drastic decrease in the flora and fauna can cause ecological imbalance, which affects many aspects of climate and the ecosystem. The most recent Act passed during the British era in this regard was the Wild Birds and Animals Protection, 1935. This needed to be upgraded as the punishments awarded to poachers and traders of wildlife products were disproportionate to the huge financial benefits that accrue to them. There were only five national parks in India prior to the enactment of this Act.

## **Effective Wildlife Conservation Methods**

Conservation of wildlife can be divided into two essential terms, namely “in situ conservation” and “ex-situ conservation.”

### **In-Situ Protection:**

This form of protection preserves the imperil animal or plant in its natural environment. In Situ Conservation falls under initiatives such as National Parks, Biological Reserves.

### **Ex-Situ Conservation:**

Ex-situ wildlife protection simply means off-site protection of wild animals and plants by eliminating and relocating a portion of a population to protected habitat.

To protect the environment, various types of wildlife management approaches may be employed. The following are some vital wildlife conservation methods in India:-

### **Wildlife Conservation Laws –**

The 1972 Wildlife Protection Act is an act which attempts to protect the Indian wildlife. The Indian parliament enacted this act on 9 September 1972, and after that, the destruction of wildlife was limited to some degree.

### **Habitat Management –**

This approach is used to perform wildlife conservation surveys and to hold statistical data. After that, the wildlife habitat can be improved.

### **Creation of Protected Area –**

Protected areas are created to preserve wildlife, such as national parks, reserve forests, wildlife sanctuaries, etc. In these restricted regions, wildlife protection laws are implemented to protect the species.

### **Awareness –**

There is a need to educate the people about the value of wildlife for wildlife conservation in India. Some people neglect or hurt wildlife since they are unaware of wildlife's significance. Thus, awareness of conserving wildlife in India can be spread amongst people.

### **Eliminating Superstitions –**

Wildlife has always been endangered by superstition. Many body parts of wild animals, parts of trees are used as treatments for other diseases. Such remedies have no theoretical basis at all.

Also, some people claim that bone, fur etc. will heal their chronic illness by wearing or using other animals.

## **What is National Park?**

National parks are areas that aim to protect the natural environment. They are also involved in public recreation and enjoyment activities. In a national park, the landscapes and its flora and fauna are present in their natural state.

India is rich in biodiversity. It comprises about 7.6% mammals, 6.2% reptiles, 12.6% birds, and 6.0% flowering plant species under the Indomalayan ecozone. Many eco-regions of our country like Shola forests exhibit high rates of endemism. The forests cover over the ranges from the tropical rainforest, the Western Ghats, and Northeast India to the coniferous forests in the Himalayan region.

The significant terrestrial ecosystem coming along the Indomalayan ecozone consists of temperate, polar, wet, dry regions for different kind of species to live. The species include elephant, tiger, cobra, crocodile, apes, sambar deer, spotted deer, rhinoceros, goats, lions along with different types of flora and faunas.

Indian wildlife has around 99 world-recognized national parks in different parts of the country. All these national parks and the wildlife reserves have been recognized by the IUCN or the International Union for the Conservation of Nature under the second category of protected areas.

### **List of National Parks in India**

National parks provide a haven for wildlife away from civilization. India has currently over 100 national parks distributed across the country, stretching across various biomes.

The Hailey National Park is the first national park in India. It is one of the finest examples of ecological conservation. The other national parks in India include:

01. Bandipur National Park in Karnataka
02. Bandhavgarh National Park in Madhya Pradesh
03. Bhadra Wildlife Sanctuary in Karnataka
04. Chinnar Wildlife Sanctuary in Kerala

05. Corbett National Park in Uttarakhand
06. Dandeli Wildlife Sanctuary in Karnataka
07. Dudhwa National Park in Uttar Pradesh
08. Gir National Park and Sasan Gir Sanctuary in Gujarat
09. Hemis National Park in Jammu & Kashmir
10. Kanha National Park in Madhya Pradesh
11. Kaziranga National Park in Assam
12. Keoladeo Ghana National Park in Bharatpur, Rajasthan
13. Manas National Park in Assam
14. Nagarhole National Park in Karnataka
15. Panna National Park in Madhya Pradesh
16. Periyar National Park in Kerala.
17. Pench National Park in Madhya Pradesh
18. Ranthambore National Park in Rajasthan
19. Sariska National Park in Rajasthan
20. Tadoba Andhari Tiger Reserve in Maharashtra
21. The Great Himalayan National Park in Himachal Pradesh

All these national parks are an abode to a large number of wild animals because of the optimum environmental conditions with proper upbringing and breeding facilities.

## **Description of Wild life Sanctuaries**

A wildlife sanctuary is an area where animal habitats and their surroundings are protected from any sort of disturbance. The capturing, killing and poaching of animals is strictly prohibited in these regions.

They aim at providing a comfortable living to the animals. India has beautiful wildlife sanctuaries, with dense forests, large rivers, high and beautiful mountains. Few of these in India are mentioned here.

### **List of Wildlife Sanctuaries in India**

Following is the list of sanctuaries found in India:

1. Dichigam Wildlife Sanctuary
2. Sunderbans Wildlife Sanctuary
3. Manas Wildlife Sanctuary
4. Bharatpur Bird Sanctuary
5. Periyar Wildlife Sanctuary
6. Vedanthangal Bird Sanctuary
7. Mundanthurai Wildlife Sanctuary
8. Annamalai Wildlife Sanctuary
9. Dandeli Wildlife Sanctuary
10. Chinnar Wildlife Sanctuary

Initially, many of the National Parks were wildlife sanctuaries. After the adoption of conservative measures by the Indian Government, there was a 30% rise in the number of tigers in the year 2015. These wildlife sanctuaries and national parks are the most visited areas in India that offer an unmatched wilderness in various regions.

The wildlife lovers and tourists can find more opportunities for sightseeing, safari tour, bird watching, angling, fishing, river crossing, camping, and tiger tours at distinct tiger reserves in India.



A wildlife sanctuary is an area where animal habitats and their surroundings are protected from any sort of disturbance. The capturing, killing and poaching of animals is strictly prohibited in these regions.

They aim at providing a comfortable living to the animals. India has beautiful wildlife sanctuaries, with dense forests, large rivers, high and beautiful mountains. Few of these in India are mentioned here.

There are a number of reasons for establishing wildlife sanctuaries. Some of the reasons are listed below:

The wildlife sanctuaries are established to protect the endangered species.

It is quite difficult to always relocate the animals from their natural habitat, therefore, protecting them in their natural environment is advantageous.

The endangered species are specially monitored in the wildlife sanctuaries. If they reproduce and grow in number while under protection, few specimens can be kept for breeding in the conservation parks for their survival.

Biologist activities and researches are permitted in the wildlife sanctuaries so that they can learn about the animals living there.

A few sanctuaries take in injured and abandoned animals and rehabilitate them to health before releasing them in the forest. Wildlife sanctuaries preserve the endangered species and protect them from humans and predators.

## **Methods employed by Govt for Preservation of Wildlife**

Indian Board for Wildlife was constituted in 1952. The main purpose of the board was to advise the Government on the means of conservation and protection of wildlife, construction of national parks, sanctuaries, and zoological gardens as well as promoting public awareness regarding conservation of wildlife.

**Wildlife (Protection) Act, 1972** is a comprehensive law that has been adopted by all states. It governs wildlife conservation and the protection of endangered species. The Act prohibits trade in rare and endangered species.

### **Project Tiger,**

one of the premier conservation efforts in the country was launched in 1973. It is a centrally financed scheme under which 51 Tiger Reserves have been set up in 18 states. India now has as many as 2,967 tigers in the wild (Census 2018), with more than half of them in Madhya Pradesh and Karnataka, according to the latest tiger estimation report for 2018. The population of tigers has increased by 33% since the last census in 2014 when the total estimate was 2,226. The fourth cycle of the Tiger Census 2018 counted 2976 tigers which is 75% of the global tiger population.

**Project Elephant** was launched as a centrally sponsored scheme in February 1992. According to recent reports, the elephant population in India is demonstrating a stable trend across elephant reserves in India. The population of elephants in the year 2012, was estimated at 31,368 while it had fallen to 27312 in 2017. The elephant population of India was 27,682 in 2007. The average population throughout the period was about 26700.

### **Crocodile Breeding Project–**

This project was initiated on April 1, 1974, and the project began on April 1, 1975, in Odisha. Crocodile husbandry work was undertaken with a view to sanctuary development.

The National Wildlife Action Plan (NWAP) provides the framework of strategy as well as the program for the conservation of wildlife. The first National Wildlife Action Plan of 1983 has been revised and a new Wild life Action Plan (2002-2016) has been adopted. The Indian Board of Wild life is the apex advisory body overseeing and guiding the implementation of various schemes for wildlife conservation. National park is a relatively large land or water area which contains representative samples and sites of major natural regions, features, scenery, and/or plant and animal species of national or international significance and is of special scientific, educational and recreational interest. Usually, the national parks contain one or several entire ecosystems that are not materially altered by human exploitation or occupation. National parks are protected and managed by the government in a natural or near-natural state. Visitors enter under special conditions for inspirational, educational, cultural, and recreational purposes.

**Wildlife Sanctuary** is more or less similar to a national park which is dedicated to protecting wildlife and concerned species. A wildlife sanctuary is an area constituted by the competent authority in which killing and capturing of any form of wildlife is prohibited. Grazing or movement of livestock is regulated. The chief warden is authorized to allow or disallow entry into the sanctuary or construction of roads, buildings, fences, etc. Hunting is also restricted and strictly regulated. The status of Wildlife sanctuary is equal to the IUCN category IV protected area.

#### **Biosphere Reserves:**

A biosphere reserve is a unique and representative ecosystem of terrestrial and coastal areas which are internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) program. The objectives of the Man and Biosphere Program (MAB) are as follows:  
Conservation function: to conserve genetic resources, species, ecosystems, and landscapes  
Development function: to promote sustainable human and economic development. Logistic support function: to provide support for research and analyzing the issues of conservation and sustainable development.

## **Need of Wildlife Conservation**

Today, about 23% (1,130 species) of mammals and 12% (1,194 species) of birds are considered as threatened by IUCN. According to various surveys and reports, our planet has lost more than 58% of its wildlife since 1970 and is experiencing the sixth mass extinction. The 2016 Living Planet Report reveals the troubling extent of this and other environmental crises around the world, but it also sheds light on the ways we can still protect and rehabilitate what's left. An index compiled with data from the Zoological Society of London to measure the abundance of biodiversity was down 58 percent from 1970 to 2012 and would fall 6 percent by 2020 on current trends, the WWF said in a report. In 1972, The Wildlife Conservation Act was passed by the Government of India. In 1980, The World Conservation Strategy was developed by the "International Union for Conservation of Nature and Natural Resources" (IUCN) with assistance from The United Nations Environment Program and the World Wildlife Fund and in collaboration with the Food and Agriculture Organization of UN and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Global biodiversity is being lost much faster than natural extinction due to changes in land use, unsustainable use of natural resources, invasive alien species, climate change, and pollution among others. Land conversion by humans, resulting in natural habitat loss, is most evident in tropical forests and is less intensive in temperate, boreal, and arctic regions. Pollution from atmospheric nitrogen deposition is most severe in northern temperate areas close to urban centers, and the introduction of damaging alien species is usually brought about through patterns of human activity.

### **Species loss is also compounded by:**

The ongoing growth of human populations and unsustainable consumer lifestyles. Increasing production of waste and pollutants. Urban development.

International conflict.

Fewer natural wildlife habitat areas remain each year. Moreover, the habitat that remains has often been degraded to bear little resemblance to the wild areas which existed in the past. Habitat loss due to destruction, fragmentation, and degradation of habitat is the primary threat to the survival of wildlife.

**Climate Change:**

Global warming is making hot days hotter, rainfall and flooding heavier, hurricanes stronger and droughts more severe. This intensification of weather and climate extremes will be the most visible impact of global warming in our everyday lives. It is also causing dangerous changes to the landscape of our world, adding stress to wildlife species and their habitat. Since many types of plants and animals have specific habitat requirements, climate change could cause a disastrous loss of wildlife species. A slight drop or rise in average rainfall will translate into large seasonal changes. Hibernating mammals, reptiles, amphibians, and insects are harmed and disturbed. Plants and wildlife are sensitive to moisture change so, they will be harmed by any change in moisture level. Natural phenomena like floods, earthquakes, volcanoes, lightning, and forest fires also affect wildlife.

**Unregulated Hunting and poaching:**

Unregulated hunting and poaching cause a major threat to wildlife. Along with this, mismanagement of the forest department and forest guards triggers this problem.

**Pollution:**

Pollutants released into the environment are ingested by a wide variety of organisms. Pesticides and toxic chemicals being widely used, making the environment toxic to certain plants, insects, and rodents.

**Over-exploitation:**

Overexploitation is the overuse of wildlife and plant species by people for food, clothing, pets, medicine, sport, and many other purposes. People have always depended on wildlife and plants for food, clothing, medicine, shelter, and many other needs. More resources are being consumed than the natural world can supply. The danger is that if too many individuals of a species are taken from their natural environment, the species may no longer be able to survive. The loss of one species can affect many other species in an ecosystem. The hunting, trapping, collecting, and fishing of wildlife at unsustainable levels is not something new. The passenger pigeon was hunted to extinction, early in the last century, and over-hunting nearly caused the extinction of the American bison and several species of whales.

**Deforestation:**

Humans are continually expanding and developing, leading to an invasion of wildlife habitats. As humans continue to grow, they clear forested land to create more space. This stresses wildlife populations as there are fewer homes and food sources for wildlife to survive.

**Population:**

The increasing population of human beings is a major threat to wildlife. More people on the globe means more consumption of food, water, and fuel, therefore more waste is generated. Major threats to wildlife are directly related to the increasing population of human beings. A low population of humans results in less disturbance to wildlife.

## **Conclusion:**

Wildlife conservation in India has a long history, dating back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. Then, the formation of the Wildlife Board at the national level and enactment of Wildlife Act in 1972 laid the foundation of present day “wildlife conservation” era in post-independent India. Henceforth, the Act has been amended several times and the National Wildlife Advisory Board has undergone various changes.

With the opening up of Indian market and process of globalisation, the country has made significant progress in achieving higher Gross Domestic Product (GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within Protected Areas came to fore. Take for instance, the restrictions by Environmental Impact Assessment (EIA) for Development Projects, covering more than 30 sectors as far back in 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “Protected Areas”- largely on the basis of requirement of ‘Forest Clearance’ or on the assessment of impacts on Wildlife Habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.

## **Bibliography**

1. <https://www.nationalheraldindia.com/india/wildlife-conservation>

*-in-india-are-we-really-serious*

2. <https://byjus.com>

3. <https://lotusarise.com/wildlife-resources-in-india-upsc/>

4. <https://www.clearias.com/iucn-classification-criticallyendangered-endangered-and-vulnerable/>

**BOOK:-** *Dr Erach Bharuchais. Textbook of Environmental studies for Undergraduate Courses: Orient Blackswan Pvt ltd: reprint 8 march 2021.*





**NAME: SUSMITA MONDAL**

**UNIVERSITY REGISTRATION NUMBER:  
223-1211-0078-20**

**UNIVERSITY ROLL NUMBER:  
202223-11-0044**

**COLLEGE ROLL NUMBER: ENGA20F326.**

**PAPER: ENVS**

**SUBJECT: ENVIRONMENTAL SCIENCE**

## **ACKNOWLEDGEMENT**

**I would like to express my special thanks of gratitude to all the respected professors for their able guidance and support in completing my Project.**

**I would also like to extend my gratitude to the Principal Dr. Madhumanjari Mandal and Vice-Principal Dr. Supratim Das for providing me with all the facilities that were required.**

# **CONTENTS**

**1. INTRODUCTION.**

**2. BODY**

**3. CONCLUSION.**

**4. BIBLIOGRAPHY.**

**WILDLIFE  
CONSERVATION  
EFFORTS IN INDIA**

## INTRODUCTION

The term wildlife is a self-explanatory word. The general meaning of the term “wild” means “undomesticated” or grow in natural habitat. The wildlife is a term which is used to describe flora and fauna live in natural habitat.

In simple words, we can say that wildlife is the species of plants and animals live in natural habitat or the undomesticated animals live in natural habitat (forest).

You can find various species of animals in various habitats. Some are found in the forest; some are in the rainforest, some are in the desert etc.

These organisms are helpful for maintaining the ecological balance and also helpful to fulfil the needs of human beings. Some of the uses of them are:

- Used as food
- They are used as pets
- For making variant cloths/items
- Used as a medicinal ingredient or in medicine

**Used as food:** from the ancient time the animals are used as food for humans as from the beginning the humans were hunter and gatherer who were totally relied on wild animals for food. In the present time, people also eat animals and seafood.

**They are used as pets:** the wild animals also used as pets in some parts of the world. Some use them for their earning like you can see bullock carts and in the circus.

**For making clothes/items:** many animals skin is used to make a different kind of fabric or clothes which is very expensive in the market. Also, many animals bones are used in making various items like knives, pins etc. making of tools from animal bone is a traditional practice.

**Medicinal use:** the animals also used as medicine or some are used as medicinal ingredients. For example animals bones are used in making bone powder or bone oil which is used to cure several pain.

## **Threats to Wildlife**

Today their use is increasing, and their population is declining day by day. According to a report, the population of wildlife animals is decreased by 68% since 1970 globally and also have said that we are near to sixth mass extinction. There are various reasons why this population is decreasing. Some of them are:

- Overpopulation
- Poaching
- Smuggling
- Overexploitation
- Climate change
- Pollution
- The natural or man-made disaster

**Overpopulation:** The human population is increasing day by day, which increases the demand for land and other things.

The increasing demand of land cause habitat loss of these animals, which is the major threat to wildlife.

**Poaching:** Poaching can be defined as the illegal trading of animals. It is increasing day by day as they are very expensive and have a high cost in the International market. Some people brought these animals to fulfil their interest.

**Overexploitation:** overexploitation can be described as the diminishing of species faster than its recovery. Many animal species are overexploited to meet the need of human beings. This is another major threat to wildlife.

**Climate change:** climate plays an important role in every aspect. In the past few decades, the temperature of Earth is increasing, which cause the melting of the glacier, volcanic eruptions etc. Global warming also plays a huge role in the destruction of wildlife habitat.

**Pollution:** Pollution is one of the major threats to wildlife. Air pollution, water pollution and another type of pollution are playing a major role in the destruction of habitat and reduce the population of many species of animals.

**Natural or man-made habitat:** Disaster can be either man-made or natural. Forest fire, earthquake, floods which are the natural disaster become a major reason for species loss. Land degradation and fragmentation, deforestation etc. are the man-made disaster which also contributes to the extinction of species.

These are the major threats to wildlife and hence biodiversity. Wildlife needs to be protected for ecological balance and



sustainable life on Earth. To protect wildlife, many international organizations and countries at the national level make efforts for wildlife conservation.

## **What is Wildlife Conservation and its Types**

The wildlife conservation is a method of protecting wild species and their natural habitat from the various threats like poaching, killing, smuggling etc. by protecting them; we can enhance, restore and protect the ecosystem.

For wildlife conservation, many efforts have been taken at the international and national level. Many NGO's are working towards wildlife conservation.

Convention on International Trade in Endangered Species of Wild Flora and Fauna (commonly known as CITES) in 1973 is one of the prominent agreements at International level. It lists the various species into different -different categories.

There are two types of wildlife conservation:

- Ex-situ conservation
- In- situ conservation

**IN- SITU CONSERVATION:** In this, the species remain in their natural habitats and the places is protected through protecting the whole ecosystem of the place—example: wildlife sanctuary.

**EX- SITU CONSERVATION:** In this, the protection of biodiversity or wild animals are taken from their natural habitat and transferred to a new place. Example: the zoo.

Many efforts are made by countries at the national level. India also launched various campaigns, acts and policies to curb out this issue.

### **Efforts Made by Indian Government for Wildlife Conservation**

The following are the efforts made by the Indian Government for wildlife conservation:

- Project Tiger
- Project Elephant
- Sea turtle project
- Vulture
- Crocodile conservation project
- Dolphin
- India adopts SAWEN
- Captive Breeding program

### **PROJECT TIGER**



- It is a centrally sponsored scheme launched in 1973 for the conservation of Indian Tiger which is endangered. The Tiger population has been reduced from many last decades.

- For this, the National Tiger Conservation Authority is constituted. The program started with 9 Tiger reserve, and presently it is approximately 20. Tiger census has occurred in every four years.

## **PROJECT ELEPHANT**



- It is also a centrally sponsored scheme and launched in 1992. It is implemented in 13 states. Under this, 88 Elephants corridors were set up.
- Haathi Mere Saathi scheme was also launched by the Ministry of Environment, Forest and Climate Change in partnership with wildlife trust of India.

## SEA TURTLE PROJECT



- It was launched by Ministry of Environment, Forest and Climate Change in collaboration with UNDP in 1999. The Olive Ridley Turtle visits India during Winter.
- The implementing agency of this project is the Wildlife Institute of India. It is in the Vulnerable in IUCN list.

## CROCODILE CONSERVATION PROJECT



- The main aim of this project is to protect the remaining population of crocodiles in their natural habitat.
- “Ghariyal” is listed as Critically Endangered in IUCN list.

## PROJECT DOLPHIN



- Ministry of Environment, Forest and Climate Change has notified Ganges River Dolphin as National Aquatic animal. It was listed in Schedule I of [Wildlife Protection Act 1972](#).
- Major threat: river water pollution, poaching and siltation.

### India Adopts Sawen

- The acronym of SAWEN is **South Asia Wildlife Enforcement Network**. It is an intergovernmental wildlife enforcement support body. It is launched in Paro, Bhutan in 2011.
- It was established for mutual collaboration for harmonizing as well as enforcing the wildlife protection.
- The SAWEN constitutes Afghanistan, India, Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka and the Maldives.

### Captive Breeding Program

- Captive breeding can be described as the selection of wild species and bred in the artificial condition under experts. It may represent the last chance to preserve a species in the wild.

## **Conclusion**

Wildlife conservation is necessary for sustainable development. Various efforts have been made at the international and national level. In India also various efforts have been made like: project Tiger, Project Elephant, Captive breeding program etc. India also adopts various methods and policies at international level or in the line of international agreements and convention.

## **BIBLIOGRAPHY**

**Website used-**

[www.google.com](http://www.google.com)

[www.wikipedia.org](http://www.wikipedia.org)

[www.scribd.com](http://www.scribd.com)

# DETAILS

**Name: SHRIMAYEE CHOWDHURY**

**Class: Semester II**

**CU Roll Number: 202223-11-0049**

**CU Registration Number: 223-1211-0087-20**

**College Roll Number: ENGA20F328**

**Topic: Wildlife Conservation**

**Number of pages: 15**



# ACKNOWLEDGEMENT

I would like to thank our college Prof. Aniruddha Chatterjee and Prof. Malini Kundu for giving us this very topic. A big thanks to all the professors who left no stone unturned to teach us all they could about this topic and made sure that every bit of their lecture got through to us. I would also like to thank some of the humble friends I made from my department who helped me figure out the framework of the project and provided links to some websites containing relevant information. Without them, I wouldn't have been able to finish this project on time.

# CONTENTS

<b>TOPIC</b>	<b>PAGE NUMBER</b>
<b>WHAT IS WILDLIFE CONSERVATION?</b>	<b>3</b>
<b>IMPORTANCE OF WILDLIFE</b>	<b>3-4</b>
<b>BIODIVERSITY</b>	<b>6</b>
<b>IMPORTANCE OF BIODIVERSITY</b>	<b>6-7</b>
<b>IUCN RED LIST CATEGORIES AND CRITERIA</b>	<b>7-8</b>
<b>THREATS TO WILDLIFE</b>	<b>8-9</b>
<b>METHODS OF WILDLIFE CONSERVATION</b>	<b>10-11</b>
<b>STEPS TAKEN BY INDIAN GOVT</b>	<b>11-14</b>

# WILDLIFE CONSERVATION

## **What is wildlife conservation?**

Saving nature is at the very heart of what we do as WWF. For 60 years, we have made it our mission to find solutions that save the marvelous array of life on our planet by applying the best science available and working closely with local communities.

But our work is far from done. Humans are behind the current rate of species extinction, which is at least 100–1,000 times higher than nature intended. We've seen an astonishing 60% decline in the size of populations of mammals, birds, fish, reptiles, and amphibians in just over 40 years, according to WWF's Living Planet Report 2018.

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change.

The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife.

## **Importance of wildlife**

### *Wildlife maintains balance in ecosystems*

Every living thing is connected. If even just one organism becomes threatened or extinct, it has a domino effect on an entire ecosystem. It disrupts the food chain, sending shockwaves through the environment. It's also important to know that threats to species rarely happen in isolation. The things that threaten, say, honeybees also threaten other pollinators. For ecosystems to thrive, all wildlife must be protected.

### *Diversity means healthier ecosystems*

When discussing wildlife, you'll often hear the term "biodiversity." This refers to the number of species in an ecosystem. Healthy ecosystems have a lot of diversity. Why is this important? Consider plants. A wide variety of plants means greater productivity and better health. If there are fewer plant species, a disease that affects them spreads faster and more effectively. More variety means better resistance.

#### *Wildlife provides nutrients to humans*

Everything we eat comes from either an animal or plant originally. While we don't eat as much "wildlife" as we used to because the food supply chain has become so industrial, crops and animals were wildlife at one point. Many people still depend on wildlife for their food, as well. Without a variety of food sources, our nutrition suffers. Protecting wildlife and natural habitats strengthens food security around the world. We can also improve nutrition by returning to more wild food sources and diversifying our diets.

#### *A lot of medicine comes from wildlife*

Humans have always turned to nature for medicine. Many medical systems (like Chinese traditional medicine) still rely on herbs, spices, and more, but even pharmaceuticals wouldn't be where they are today without wildlife. Medicines like morphine, penicillin, and aspirin were derived from wild plants. When searching for cures to diseases like cancer and Alzheimer's, researchers still look to nature. The more wildlife options they have to study, the better.

#### *Protecting wildlife and their habitats mean fewer diseases that affect humans*

The preservation of wildlife and where they live is important for human health. Research shows that in diverse, protected natural areas, there are fewer instances of malaria and Lyme disease. 60% of infectious diseases (including COVID-19) come from animals. Proximity to animals increases the risks for diseases changing and "jumping" species. By protecting habitats, humans and wildlife don't have to live so close together.

#### *People depend on wildlife for their livelihoods*

For many people, wildlife is their main source of income. According to the World Economic Forum, \$44 trillion (more than half the world's GDP) is tied to nature. In the Global South, 1.6 billion people depend on forests. Globally, ¾ jobs depend on water. As wildlife and their habitats shrink, jobs are lost.

## **BIODIVERSITY**

The term biodiversity (from “biological diversity”) refers to the variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life. Biodiversity includes not only species we consider rare, threatened, or endangered but also every living thing—from humans to organisms we know little about, such as microbes, fungi, and invertebrates.

At the Centre for Biodiversity and Conservation, we include humans and human cultural diversity as a part of biodiversity. We use the term “biocultural” to describe the dynamic, continually evolving and interconnected nature of people and place, and the notion that social and biological dimensions are interrelated. This concept recognizes that human use, knowledge, and beliefs influence, and in turn are influenced, by the ecological systems of which human communities are a part. This relationship makes all of biodiversity, including the species, land and seascapes, and the cultural links to the places where we live—be right where we are or in distant lands—important to our wellbeing as they all play a role in maintaining a diverse and healthy planet.

### **Why Is Biodiversity Important?**

Biodiversity is important to most aspects of our lives. We value biodiversity for many reasons, some utilitarian, some intrinsic. This means we value biodiversity both for what it provides to humans, and for the value it has in its own right. Utilitarian values include the many basic needs humans obtain from biodiversity such as food, fuel, shelter, and medicine. Further, ecosystems provide crucial services such as pollination, seed dispersal, climate regulation, water purification, nutrient cycling, and control of agricultural pests. Biodiversity also holds value for potential benefits not yet recognized, such as new medicines and other possible unknown services. Biodiversity has cultural value to humans as well, for spiritual or religious reasons for instance. The intrinsic value of biodiversity refers to its inherent worth, which is independent of its value to anyone or anything else. This is more of a philosophical concept, which can be thought of as the inalienable right to exist. Finally, the value of biodiversity can also be understood through the lens of the relationships we form and strive for with each other and the rest of nature. We may value biodiversity because of how it shapes who we are, our relationships to each other, and social norms. These relational values

are part of peoples' individual or collective sense of wellbeing, responsibility for, and connection with the environment. The different values placed on biodiversity are important because they can influence the conservation decisions people make every day.

## **2001 IUCN RED LIST CATEGORIES AND CRITERIA**

**EXTINCT (EX):** A taxon is Extinct when there is no reasonable doubt that the last individual has died. A taxon is presumed Extinct when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

**EXTINCT IN THE WILD (EW):** A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

**CRITICALLY ENDANGERED (CR):** A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered (see Section V), and it is therefore considered to be facing an extremely high risk of extinction in the wild.

**ENDANGERED (EN):** A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered (see Section V), and it is therefore considered to be facing a very high risk of extinction in the wild.

**VULNERABLE (VU):** A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild.

**NEAR THREATENED (NT):** A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

**LEAST CONCERN (LC):** A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

**DATA DEFICIENT (DD):** A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and a threatened status. If the range of a taxon is suspected to be relatively circumscribed, and a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

**NOT EVALUATED (NE):** A taxon is Not Evaluated when it is has not yet been evaluated against the criteria.

## **THREATS TO WILDLIFE**

*Habitat destruction:* Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans. Moreover, destruction and fragmentation create smaller habitats. Smaller habitats support smaller populations, and smaller populations are more likely to go extinct.

*Overexploitation:* Overexploitation is the harvesting of animals and plants at a rate that's faster than the species' ability to recover. While often associated with overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to a decline in fish sizes as well as fish numbers.

*Poaching:* Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. Less well-known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.

*Culling:* Culling is the deliberate and selective killing of wildlife by governments for various purposes.

*Pollution:* A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.

- **Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high levels of sulphur oxides can damage plants and stunt their growth. Sulphur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.
- **Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.
- **Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.





Oil spill damaging aquatic life. It is serious threat to wildlife.

*Climate change:* Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct.<sup>[19]</sup> While modern climate change is caused by humans, past climate change events occurred naturally and have led to extinctions.

## **METHODS OF CONSERVATION**

Conservation and management of wildlife is a special field of applied ecology that should rank very high in public interest. In general the following may be said to be the aims and objectives of wildlife management.

1. Protection of natural habitats of organisms through controlled exploitation.
2. Maintenance of rare species in protected areas such as national parks, sanctuaries etc.

3. Establishment of specific biosphere reserves for endangered plants and animals.
4. Protection of wild life through legislation such as banning hunting etc.
5. Imposing specific restrictions on export of endangered plants and animals or their products.
6. Educating the public about the need to protect and preserve the environment as a long range goal for the welfare of future generations.

The above aims and objectives may be realised by the following methods.

1. Establishment of national parks and sanctuaries including preservation of the original habitats of the organisms.
2. Establishment of zoos for captive breeding and maintenance of exotic animals which are not native to our country.
3. Enactment of suitable legislation to protect the wildlife.

### **Establishment of national parks and sanctuaries:**

Conservation of wildlife is of two types – in situ conservation and ex situ conservation. In the former the rare species are conserved in their original habitat where as in the second method the endangered species are conserved in green houses or glass houses if they are plants or in zoos and such other protected areas if they happened to be animals.

In conservation of biological diversity National parks and Sanctuaries have played a great role. Basically there is no difference between a national park and sanctuary. Generally however a sanctuary is species oriented. For e.g., sanctuary for the conservation of pitcher plant or conservation of great Indian bustard etc. In National parks however the basic aim is to preserve the entire habitat with a variety of wildlife such as tiger, lion etc.

## **Important Wildlife Protection Projects by Indian Government**

### ***Project Tiger***

Initiated in 1972, Project Tiger ([link to a detailed report](#)) aimed at repopulating Royal Bengal Tigers in the Indian subcontinent. It has not only contributed to the conservation of tigers but also of the entire ecosystem. Sponsored by Ministry of Environment Forest and Climate Change, this is among the most successful wildlife conservation ventures. Jim Corbett National Park and Ranthambore National Park are parts of this project among almost 47 tiger reserves situated in more than 17 regions of the country. These

tiger reserves conduct assessments of number of tigers, their habitat, and hunting habits under the supervision of the Tiger Task Force.

Success - Project Tiger has witnessed recovery of the habitat and increase in the tigers' population in the reserve areas. The wild species has increased from 268 in 9 reserves in 1972 to more than 1000 in 28 reserves in 2006 to 2000+ tigers in 2016.

### ***Project Elephant***

In 1992, Project Elephant was devised to conserve elephants and their natural habitat. Its major objective was to check poaching of wild elephants. The project also addressed issues like mitigation of human-elephant conflict and welfare of domestic elephants. Efforts of the Ministry of Environment and Forests under the Government of India took steps against the diminishing populace and disturbed migration of Asiatic elephants. Indian states namely Arunachal Pradesh, Andhra Pradesh, Arunachal Pradesh, Assam, Jharkhand, Chhattisgarh, Karnataka, Maharashtra, Kerala, Meghalaya, Orissa, Nagaland, Tamil Nadu, Uttarakhand, Tripura, West Bengal and Uttar Pradesh witnessed the initiative implementation.

Success – Since the project Elephant initiated, population of these animals has significantly increased. At the project commencement, it was almost 15000. As per many conservationists, the project is considered successful as the elephant populace is maintained at a stable and sustainable level in the country.

### ***Crocodile Conservation Project***

With conservation of Indian Crocodiles, Indian Government aims to conserve these species, especially those on the verge of extinction. Apart from protecting crocodiles, the project also contributes to various related conservation spheres. It established sanctuaries to protect their natural habitat and promote captive breeding. Additionally, it aims at involvement of locals and improvement of management.

Success - It is noteworthy that with Crocodile Conservation Project, 4000 alligators, 1800 crocodiles, and 1500 saltwater crocodiles could be restocked.

### ***UNDP Sea Turtle Project***

In November 1999, Wildlife Institute of India, Dehradun initiated the UNDP Sea Turtle Project to conserve the Olive Ridley Turtles. The project was initiated for 10 coastal

Indian states, especially Odisha, where it has immensely contributed to various steps in favor of sea turtle conservation. Breeding sites' map preparation of Sea Turtles, breeding places identification and habitats along the coast, and migratory routes taken by Sea Turtles are these steps. The project also developed guidelines to diminish the turtle mortality rate and encouraging tourism in sea turtle areas.

Success – One of the key accomplishments of this project is illustration of Satellite Telemetry use to locate the migratory sea route of sea turtles.

Other projects such as Vulture Conservation and India Rhino Vision (IRV) 2020 are also in force by the Government of India.

### **Steps Taken By Indian Government to Protect Biodiversity**

In addition to the aforementioned conservation projects, Government of India has initiated a few schemes for biodiversity protection. These schemes also minimize the mortality of critically endangered, endangered, and threatened animals. Some of the vital steps that Government of India has taken in the best interest of wildlife -

To curtail illegal trade of wildlife and endangered species, Wildlife Crime Control Bureau has been established. The State Governments have strengthened the field formations and increased patrolling of the Protected Areas.

As per Wildlife Protection Act of 1972, Protected Areas like National Parks, Sanctuaries, Conservation Reserves, and Community Reserves for the wildlife were created. Active breeding programs, and tracking and protection against wildlife poaching is taken care of by Ministry of Environment and Forest. Concentrated efforts have protected various exotic animal species such as Asiatic Lions in Gir National Park and Hoolock Gibbon in Hoollongapar Gibbon Sanctuary in various national parks. As of 2020, there are 103 national parks, 544 Wildlife Sanctuaries, 26 wetlands, and 18 Bio-Reserves in India. 10 out of these are parts of the World Network of Biosphere Reserves.

Wetland (Conservation and Management) Rules 2010 aim at protection of wetlands in India. The Central Government has also commenced the scheme, National Plan for Conservation of Aquatic Eco-System that assists the states for wetlands' management.

Wildlife Institute of India, Salim Ali Centre for Ornithology and Natural History, and Bombay Natural History society conduct wildlife conservation research.

Veterinary use of diclofenac drug is banned by Government of India to curb dwindling population of Gyps vulture in India.

National Tiger Conservation Authority is constituted by Government of India to strengthen tiger conservation. A Special Tiger Protection Force (STPF) has also been constituted and deployed in Odisha, Maharashtra, and Karnataka.

Kaziranga National Park (Assam) and borders of Ratapani Wildlife Sanctuary (Madhya Pradesh) have e-surveillance.

# BIBLIOGRAPHY

1. <https://iucn-csg.org/red-list-categories/>
2. [https://en.wikipedia.org/wiki/Wildlife\\_conservation](https://en.wikipedia.org/wiki/Wildlife_conservation)
3. <https://www.indianholiday.com/wildlife-india/wildlife-conservation-in-india.html>
4. <https://www.worldanimalprotection.org.in/blogs/what-are-biggest-threats-wildlife-and-why>
5. <https://www.amnh.org/research/center-for-biodiversity-conservation/what-is-biodiversity>
6. <https://www.ranthamborenationalpark.com/blog/wildlife-conservation-initiatives-indian-government/>

**NAME – RUMA ANMARY JACOB**

**DEPARTMENT - ENGLISH**

**COLLEGE ROLL NUMBER - ENGA20F329**

**CU REGISTRATION NUMBER - 223-1211-0088-20**

**CU ROLL NUMBER - 202223-11-0050**

**ENVS PROJECT (SEM 2)**

**TOPIC – ENDANGERED SPECIES**

**SESSION - 2021-2022**

**WORD COUNT - 3601**

## ENDANGERED SPECIES

An **endangered species** is a species that is very likely to become extinct in the near future, either worldwide or in a particular political jurisdiction. Endangered species may be at risk due to factors such as habitat loss, poaching and invasive species. The International Union for Conservation (IUCN) Red Lists lists the global conservation status of many species, and various other agencies assess the status of species within particular areas. Many nations have laws that protect conservation-reliant species which, for example, forbid hunting restrict land development, or create protected areas. Some endangered species are the target of extensive conservation efforts such as captive breeding and habitat restoration.

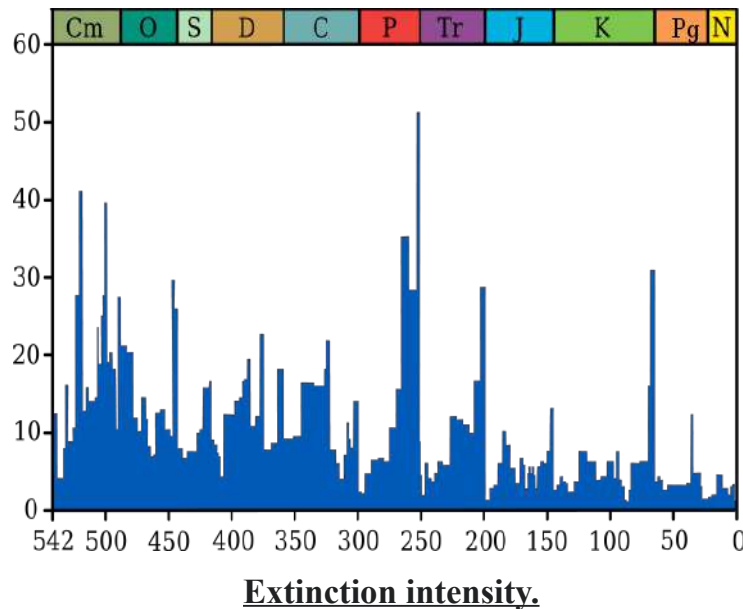
**Conservation status** – The conservation status of a species indicates the likelihood that it will become extinct. Multiple factors are considered when assessing the status of a species; e.g., such statistics as the number remaining, the overall increase or decrease in the population over time, breeding success rates, or known threats. The IUCN Red List of threatened species is the best-known worldwide conservation status listing and ranking system. Over 50% of the world's species are estimated to be at risk of extinction. Internationally, 195 countries have signed an accord to create Biodiversity Action Plans that will protect endangered and other threatened species. In the United States such plans are usually called Species Recovery Plans.

An **extinction event** (also known as a **mass extinction** or **biotic crisis**) is a widespread and rapid decrease in the biodiversity on Earth. Such an event is identified by a sharp change in the diversity and abundance of multicellular organisms. It occurs when the rate of extinction increases with respect to the rate of speciation. The number of major mass extinctions in the last 440 million years are estimated from as few as five to more than twenty. These differences stem from confusion as to what constitutes an extinction event as "major", and the data chosen to measure past diversity.

Because most diversity and biomass on Earth is microbial, and thus difficult to measure, recorded extinction events affect the easily observed, biologically complex component of the biosphere rather



than the total diversity and abundance of life. Extinction occurs at an uneven rate. Based on the fossil record the background record on extinctions on Earth is about two to five taxonomic families of marine animals every million years. Marine fossils are mostly used to measure extinction rates because of their superior fossil record and stratigraphic range compared to land animals.



The Great Oxidation Event which occurred around 2.45 billion years ago, was probably the first major extinction event. Since the Cambrian explosion five further major mass extinctions have significantly exceeded the background extinction rate. The most recent and arguably best-known, the Cretaceous-Paleogene extinction event which occurred approximately 66 Ma (million years ago), was a large-scale mass extinction of animal and plant species in a geologically short period of time. In addition to the five major mass extinctions, there are numerous minor ones as well, and the ongoing mass extinction caused by human activity is sometimes called the sixth extinction. Mass extinctions seem to be a mainly Phanerozoic phenomenon, with extinction rates low before large complex organisms arose.

## RECORD OF EXTINCT SPECIES



**Western African Black Rhinoceros**

**West African Black Rhinoceros** – The **western black rhinoceros** (*Diceros bicornis longipes*) or **West African black rhinoceros** is an extinct subspecies of the black rhinoceros. It was declared extinct by the IUCN in 2011. The western black rhinoceros was believed to have been genetically different from other rhino subspecies. It was once widespread in the Savana of sub-Saharan Africa, but its numbers declined due to poaching. The western black rhinoceros resided primarily in Cameroon, but surveys since 2006 have failed to locate any individuals.



**Baiji White Dolphin**

**Baiji White Dolphin** – The **baiji**, *Lipotes vexillifer*, *Lipotes* meaning "left behind", *vexillifer* "flag bearer" is a possibly extinct species of freshwater Dolphin, and is thought to be the first dolphin species driven to extinction due to the impact of humans. Since Baiji means 'white fin' in Chinese, it means 'white-finned dolphin'. The baiji population declined drastically in decades as China industrialized and

made heavy use of the river for fishing, transportation, and hydroelectricity. The last known living baiji was Qiqi, which died in 2002. The World Wildlife Fund is calling for the preservation of any possible baiji habitat, in case the species is located and can be revived.



**Dodo**

**The Dodo** – The **dodo** (*Raphus cucullatus*) is an extinct flightless bird that was endemic to the island of Mauritius, east of Madagascar in the Indian Ocean. The dodo's closest genetic relative was the also-extinct Rodrigues solitaire, the two forming the subfamily Raphinae of the family of pigeons and doves. Though the dodo has historically been considered fat and clumsy, it is now thought to have been well-adapted for its ecosystem. Its extinction was not immediately noticed, and some considered it to be a myth. The extinction of the dodo within less than a century of its discovery called attention to the previously unrecognised problem of human involvement in the disappearance of entire species.



**Woolly Mammoth**

**Woolly Mammoth** – The **woolly mammoth** (*Mammuthus primigenius*) is a species of mammoth that lived during the Pleistocene until its extinction in the Holocene epoch. It was one of the last in a line of mammoth species, beginning with *Mammuthus subplanifrons* in the early Pliocene. The woolly mammoth began to diverge from the steppe mammoth about 800,000 years ago in East Asia. Its closest extant relative is the Asian elephant. The woolly mammoth coexisted with early humans, who used its bones and tusks for making art, tools, and dwellings, and hunted the species for food. It disappeared from its mainland range at the end of the Pleistocene 10,000 years ago. Isolated populations survived on St. Paul Island until 5,600 years ago and on Wrangel Island until 4,000 years ago. After its extinction, humans continued using its ivory as a raw material, a tradition that continues today.



**Saber-toothed Cat**

**Saber-toothed Cat** – A **saber-toothed cat** (alternatively spelled **sabre-toothed cat**) is any member of various extinct groups of predatory mammals that are characterized by long, curved saber-shaped canine teeth which protruded from the mouth when closed. The saber-toothed cats have been found almost worldwide from the Eocene epoch to the end of the Pleistocene epoch 42 million years ago (mya) – 11,000 years ago. One of the best-known genera is *Smilodon*, the species of which, especially *S. fatalis*, are popularly, but incorrectly, referred to as "saber-toothed tigers". However, usage of the word cat is in some cases a misnomer, as many species referred to as saber-toothed "cats" are not closely related to modern cats (Felidae). This convergence is remarkable due not only to the development of elongated canines, but also a suite of other characteristics, such as a wide gape and bulky forelimbs, which is so consistent that it has been termed the "saber-tooth suite."

## INVASIVE SPECIES



An **invasive species** is an introduced organism that negatively alters its new environment. Although their spread can have beneficial aspects, invasive species adversely affect the invaded habitats and bioregions, causing ecological, environmental, and or economic damage. Sometimes the term is used for native species that invade human habitats and become invasive pests. In the 21st century they have become a serious economic, social, and environmental threat. Invasion of long-established ecosystems by organisms is a natural phenomenon, but human-facilitated introductions have greatly increased the rate, scale, and geographic range of invasion. For millennia, humans have served as both accidental and deliberate dispersal agents, beginning with their earliest migrations, accelerating in the age of discovery, and accelerating again with international trade. Notable examples of invasive plant species include the Kudzu vine, Acanthaceae Pampas grass, English ivy, Japanese Knotweed, and yellow starthistle. Animal examples include the New Zealand mud snail, Feral pig, European rabbit, Grey squirrel, Domestic cat, Carp, and Ferret.

**Adverse effects** - The European Union defines "Invasive Alien Species" as those that are, firstly, outside their natural distribution area, and secondly, threaten biological diversity. Biotic invasion is

considered one of the five top drivers for global biodiversity loss and is increasing because of tourism and globalization. This may be particularly true in inadequately regulated fresh water systems, though quarantines and ballast water rules have improved the situation. Invasive species may drive local native species to extinction via competitive exclusion, niche displacement, or hybridisation with related native species. Therefore, besides their economic ramifications, alien invasions may result in extensive changes in the structure, composition and global distribution of the biota at sites of introduction, leading ultimately to the homogenisation of the world's fauna and flora and the loss of biodiversity. It is difficult to unequivocally attribute extinctions to a species invasion. Although evidence is strong that the recent extinction of about 90 amphibian species can be traced to the chytrid fungus spread by international trade, most scientific research has focused on animal invaders. Invasive species can change the functions of ecosystems. For example, invasive plants can alter the fire regime (cheatgrass, *Bromus tectorum*), nutrient cycling (smooth cordgrass *Spartina alterniflora*), and hydrology (*Tamarix*) in native ecosystems.

**Control** - The field of Island restoration has developed as a field of conservation biology and ecological restoration, a large part of which deals with the eradication of invasive species. A 2019 study suggests that if eradications of invasive animals were conducted on just 169 islands the survival prospects of 9.4% of the Earth's most highly threatened terrestrial insular vertebrates would be improved.

Invasive vertebrate eradication on islands was found to align with the majority of United Nations Sustainable Development Goals (specifically Goal 15) and numerous associated targets such as marine and terrestrial biodiversity conservation, promotion of local and global partnerships, economic development, climate change mitigation, human health and sanitation and sustainable production and consumption

Rodents were carried to South Georgia, an island in the southern Atlantic Ocean with no permanent inhabitants, in the 18th century by sealing and whaling ships. They soon wrought havoc on the island's bird population, eating eggs and attacking chicks. In 2018, the South Georgia Island was declared free of invasive rodents after a multi-year extermination effort. Post-extermination, bird populations have rebounded, including populations of the South Georgia pipit and South Georgia pintail, two species found only on the island.

## CAUSE OF EXTINCTION

**Overhunting or overharvesting** - This has been the fate of most large animals, slow animals and tasty animals when humans have migrated to a previously uninhabited area. History abounds with stories of animals going extinct because of hunting and the consequent deaths of their predators if not by direct hunting as well, then by starvation because they no longer have a food source.

And a long history of wildlife depletion it is... There are many historical accounts about how humans have over hunted and over harvested species, leading to their endangerment, and often, extinction. One extinct species, the Passenger Pigeon, is a classic example of how humans over hunted a species, leading to the extinction of the entire species. It is the cause of some high profile near extinctions today, like elephants for their ivory tusks and rhinos for their horn. The horn is sold at exorbitant prices as cures from everything from hangovers to cancer.

**Habitat loss** - This is one of the biggest reasons for the steep decline of species, both in the animal world and the plant world. Many species in our world today are becoming endangered due to a loss of their primary habitat. Deforestation, agricultural spread, water extraction, mining and human migration have either destroyed the only habitats the species can survive in or driven the species to a severely fragmented habitat, generally meaning simply a slow demise of the species.

**Highly specialized species** - Rarity has its own problems. Highly specialized species that have very specific habitat requirements do not fare well when faced with a changing environment, such as a changing climate or a habitat loss. A small or very local population only has problems due to lack of suitable mates, and inbreeding presents another set of problems. The higher the level of inbreeding the double the dose of defective genes are passed on, generally leading to sterility and early death. Too, a small population is especially vulnerable to the vagaries of Mother Nature. A single strong storm, flood, wildfire or drought can be a death knell to a species. While some species have become well adapted to human presence (e.g. the Norway Rat), some species are so specialized that changes in their environment may threaten their very survival.

**Disease** - Diseases kill humans and animals alike. The Ebola virus killed 5,000 critically endangered western gorillas between 2002 and 2003 at the Lossi Sanctuary and other hundreds of gorillas in the Odzala-Kokoua National Park in 2003-2004. A deadly fungus decimated 30 species of amphibians in Panama in the early 2000s. A deadly fungus from Europe, where it is harmless to bats has spread to North America killing 6 million bats and taking many species to the brink of extinction. The northern long-eared bat is believed to have declined by 99 percent due to the “white nose syndrome. It was a fungus that destroyed the American chestnut tree, one hundred-foot hardwoods that once numbered in the billions in eastern forests of the United States, and a significant food source for a variety of wildlife, but which were virtually eliminated by a fungal pathogen accidentally imported into the United States from Asia. Because the American Chestnut tree had evolved in conditions without the presence of the fungus, it lacked the natural resistance to survive. Currently, there is ongoing research with the aim of creating a hybrid chestnut variety that is a cross between the American Chestnut and a variety of Chinese chestnut that is resistant to the chestnut fungus.

**High genetic vulnerability** - If a population has low genetic variation, it cannot evolve on the face of changing environmental variables and will face an increased risk of extinction. For example, if a population does not have a gene that is resistant to a certain disease, that disease may wipe out the entire population in one fell stroke. Some species, such as the Cheetah, maintain low genetic diversity, which makes them less able to adapt when faced with challenges such as overhunting or habitat loss. This low genetic diversity also makes them more vulnerable to diseases and expressions of negative genetic mutations. Koalas are known to have low genetic variation. This may be why they are showing high vulnerability to Chlamydia and the koala retrovirus. Their vulnerability may also make it more difficult for koalas to adapt to global warming and human encroachment of their habitats.

**Poaching** – Poaching is illegal hunting, capturing, and often killing of wild animals. It has been done for a number of reasons, including claiming the land for human use, but recently, the illegal act is being done for other ridiculous motives, especially the desire for rare animal products such as ivory, fur, organs, skins, bones, or teeth.



## **PREVENTION OF EXTINCTION**

One thing we humans fail at is seeing the big picture. We are often blind to the interconnectedness of everything that supports life, a web so complex and interdependent, we are only beginning to understand it. The food chain, from the tiniest little microorganisms to the largest creatures on earth, keep us humans alive.

So, when we talk about the grey whale, the timber wolf, the black rhino, it's not just that we should save these endangered creatures for their own good, but it's also for ours. The current legislation and government bodies that protect wild species from extinction are both being defunded and reorganized. It will be up to ordinary citizens and environmental groups to save these important links on the food chain. Here are some ways to accomplish this.

**Educate your family about endangered species in your area** - It's not just about snow leopards in Russia, it's about the ecosystem in your own backyard. Teach your friends and family about wildlife, birds, fish and plants that live near you. Just awareness of these species is a critical step. From the worms in the garden to the bats that pollinate and control the mosquitos, there are many ways that our daily habits at home affect these creatures.

**Recycle and buy sustainable products** - Much of what threatens local populations has to do with development and more and more of the natural world is plundered to product new goods. Never buy furniture made of wood from rainforests or endangered trees. Recycle your cell phones, because a mineral used in electronic production is mined in gorilla habitat. Don't use palm oil because forests where tigers live are being cut down to plant palm plantations.

**Grow native plants** - It's a no-brainer but local species rely on local plants. You are providing food and shelter for native wildlife and you can reduce your water usage at the same time. Attracting native insects like bees and butterflies can help pollinate your flowers. And conversely, invasive species compete with native species for resources and habitat, threatening biodiversity. They can even prey on

native species directly, forcing native species towards extinction. For more information about native plants in your area

**Black out the Black Market** - Sometimes when we travel, we don't realize that the souvenirs we are buying are under threat. Avoid supporting the market in illegal wildlife including: tortoise-shell, ivory, and coral.

**Laws and Acts to protect Endangered Species** - The Wild Life (Protection) Act, 1972 is an Act of the Parliament of India enacted for protection of plants and animal species. Before 1972, India had only five designated national parks. Among other reforms, the Act established schedules of protected plant and animal species; hunting or harvesting these species was largely outlawed. The Act provides for the protection of wild animals, birds and plants; and for matters connected there with or ancillary or incidental thereto. It extends to the whole of India.

It has six schedules which give varying degrees of protection. Schedule I and part II of Schedule II provide absolute protection - offences under these are prescribed the highest penalties. Species listed in Schedule III and Schedule IV are also protected, but the penalties are much lower. Animals under Schedule V, e.g. common crows, fruit bats, rats and mice, are legally considered vermin and may be hunted freely. The specified endemic plants in Schedule VI are prohibited from cultivation and planting. The Enforcement authorities have the power to compound offences under this Schedule (i.e. they impose fines on the offenders). Up to April 2010 there have been 16 convictions under this act relating to the death of tigers.

**Endangered Species Protection Act of 1966** – By the mid-twentieth century, the negative influence of humans on plants and animals became apparent. With thousands of species facing extinction, many nations passed laws to save these species. The United States Congress passed the Endangered Species Prevention Act in 1966, and the Endangered Species Conservation Act 1969. These two laws were a major step towards recognizing the need for humans to act in order to prevent the extinction of plants and animals.

**Marine Mammal Protection Act of 1972** – By the mid-twentieth century, human activity threatened the existence of numerous marine mammals. Familiar marine mammals like Otters, Walruses, Dolphins, Manatees, and Seals. In 1972, Congress passed the Marine Mammal Protection Act, a law designed to protect marine mammal population.

**ACTS NOW** - The US Endangered Species Act (ESA) is our nation's most effective law to protect at-risk species from extinction, with a stellar success rate: 99% of species listed on it have avoided extinction.

Passed with bipartisan support in 1973, the law allows individuals and organizations to petition to have a species listed as endangered or threatened. These listing petitions undergo rigorous scientific evaluation and public review before a final decision is made on whether a species should be protected. The law requires protection for critical habitat areas and the development and implementation of recovery plans for listed species. It also allows for flexibility in its implementation, requiring coordination among federal, state, tribal, and local officials on efforts to prevent extinction.

Populations are monitored over time to determine whether a given species is recovering. When species are considered recovered, they are removed from the list. Viewed as the gold standard for conservation legislation, the ESA is one of the world's most effective laws for preventing and reversing the decline of endangered and threatened wildlife. In 2016, more listed species were found to be partially or completely recovered than in any previous year since the ESA became law.

The rebound of a species is a gradual process that requires a long-term commitment dependent on many factors such as habitat, food availability, reproduction rate, and climate. The longer a species remains listed, the more likely it is to be recovering. Unfortunately, new regulations put in place by the Trump administration undermine the ESA, weakening the United States' most powerful—and in some cases, only—tool to save species from extinction.

WWF encourages Congress to oppose these changes to the law and, going forward, to focus on what is needed to improve implementation of the ESA by fully funding recovery efforts for the species it seeks to protect.

## BIBLIOGRAPHY

### --Websites referred

- [https://en.wikipedia.org/wiki/Endangered\\_species](https://en.wikipedia.org/wiki/Endangered_species)
- [https://en.wikipedia.org/wiki/Invasive\\_species](https://en.wikipedia.org/wiki/Invasive_species)
- <https://www.encyclopedia.com/environment/encyclopedias>
- <https://onekindplanet.org/top-10/top-10-worlds-extinct-animals/>
- <https://greentumble.com/10-reasons-why-species-become-endangered>

\*\*\*\*\*

# **SCOTTISH CHURCH COLLEGE**

1&3, Urquhart Square, Maniktala, Azad Hind Bag, Kolkata, West Bengal 700 006

## **English Honours**

**ENVS**

**AECC II**

## **Wildlife Conservation**

## **Project**

Name: Srabani Maity

Course: B.A. Honours

Semester: 2<sup>nd</sup>

Session: 2020-21

Subject: ENVS (AECC II)

College Roll Number: ENGA20F332

University Roll Number: 202223-11-0056

University Registration Number: 223-1211-0106-20

E-Mail ID: [srabanimaity55@gmail.com](mailto:srabanimaity55@gmail.com)

## **Acknowledgement**

I would like to express my special thanks of gratitude to my all ENVS teachers for their able guidance and support in completing my project.

I would like to extend my gratitude to the Principle ma'am Dr. Madhumanjari Mandal and Vice Principle Sir Supratim Das for providing me with all the facility that was require.

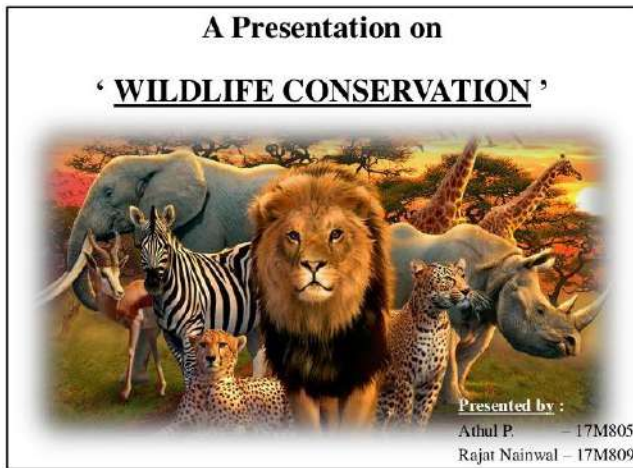
Date:

01/07/2021

Srabani Maity

2<sup>nd</sup> Sem, English Honours

# Wildlife Conservation



## **Introduction**

"Without natural resources life itself is impossible. From birth to death, natural resources, transformed for human use, feed, clothe, shelter, and transport us. Upon them we depend for every material necessity, comfort, convenience, and protection in our lives. Without abundant resources prosperity is out of reach." - Gifford Pinchot

Wildlife Conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world,

particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting, fishing, and poaching.

National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

National Geographic Explorers, like conservation biologists Camille Coudrat and Titus Adhola, are working to slow the extinction of global species and to protect global biodiversity and habitats. Environmental filmmakers and photographers, like Thomas P. Peschak, are essential to conservation efforts as well, documenting and bringing attention to endangered wildlife all over the world.

Conservation efforts actively protect wild plant and animal species and their natural habitats through various initiatives. This is to ensure that these species and habitats exist for future generations and also recognizes the importance of biodiversity and ecosystems. The current strain on endangered species are caused by loss of habitat due to farming or development, human-wildlife conflict and poaching.



Many people know about the protection of the large, charismatic species when they hear about wildlife conservation in Africa. Despite these species that tourists and students want to see, there is a lot more to it. Humans are inextricably linked to the natural world. Protecting the ecosystems that provide us with direct and indirect services for free, must become a higher priority for all. Without healthy, biodiverse ecosystems, we'd have no food, no water, no clean air, and disease.



- **Initiatives for Wildlife Conservation in India:**

India is rich in various biogeographical provinces, ranging from the cold deserts of Ladakh and Spiti to the hot deserts of Thar, temperate forests in the Himalayas to the lush green tropical rain forests of the low lands. India has also large freshwater bodies such as Wular and Manasbal lakes in Kashmir, Chilka lake in Orissa and Kolleru lake in Andhra Pradesh and the rugged and rich coastline and coral reefs of Deccan.

Protected Areas are ecological/biogeographical areas where wildlife is conserved. Their habitats and natural resources are conserved and poaching is prevented. They are delimited to protect biological diversity. They are cold desert (Ladakh and Spiti), hot desert (Thar), wetland (Assam

and N.E. States), saline swampy areas (Sunderbans, Rann of Kutch), mangroves, temperate forests, subtropical forests, tropical forests, tropical wet evergreen forests, tropical moist deciduous forests, tropical deciduous forests, tropical thorn, coral reef, etc. Protected Areas include national parks, sanctuaries and biosphere reserves.

### **1. National Parks:**

They are strictly reserved areas meant for the betterment of the wildlife. They are reserved for improvement of wildlife. In them cultivation, grazing, forestry operation and habitat manipulation is prohibited.

### **2. Sanctuaries:**

In them protection is given only to the fauna (animals) and harvesting of timber, collection of MFP and private ownership rights are permitted, but interference with the well-being of animals is not allowed. Here wild animals can take refuge without being hunted. Here collection of forest products, harvesting of timber, private ownership of land, tilling of land, etc., are allowed.

Sanctuary is declared by the State Government under Section 18(1) of Wildlife (Protection) Act, 1972, whereas National Park is declared under Section 35(1) of the Act.

In sanctuary the boundary is demarcated at the time of declaration. In national park boundary is well-defined and accurate.

### **3. Biosphere Reserves:**

Man and Biosphere Programme (MAB) of the UNESCO evolved the concept of Biosphere Reserves. In biosphere reserve, multiple land use is permitted designating various zones.

(i) Core zone in which human activity is not permitted. All forestry and harvesting operations are prohibited and even entry is restricted. Only population studies and scientific investigations are allowed.

(ii) Buffer zone in which limited human activity is permitted. Here no shooting is allowed, but no professional graziers are allowed to establish cattle pens. Camping for tourists are allowed.

(iii) Manipulation zone in which large number of human activities is allowed, but ecology is not permitted to be disturbed.

In a biosphere reserve, wild population, traditional tribals and varied domesticated plant and animal genetic resources are protected.

India has identified 14 areas as Biosphere Reserves. Nilgiri Biosphere Reserve includes parts of Karnataka, Kerala and Tamil Nadu. It was declared in 1986.

(iv) Restoration zone is a degraded area for restoration to near natural form.

#### **4. Safari Park:**

An enclosed park where wild animals are kept uncaged in the open providing natural habitat for viewing to the public.

#### **5. Zoo:**

An area set aside for exhibiting the wild animals kept in cages and artificial enclosures. Here animals' freedom is restricted.

## **6. Zoological Garden:**

A place where a large number of mammals, birds, reptiles, fishes, etc., are shown in a confined area in or near a city. Animals are usually kept in small enclosures or in cages. It is used for recreation and education of the public.

## **7. Zoological Park:**

It is a zoo where animals are comparatively free and are shown in the natural surrounding with barriers and restrictions hidden from view. It is best located on the outskirts of cities where enough land is available.

## **8. Sanctum Sanctorum:**

It is a sanctuary within the sanctuary or inner portion of a wild sanctuary or national park in which no forest operation or management is allowed. Even visitors are not allowed to prevent any kind of disturbance to wildlife.

- **Conservation of Wildlife:**

The management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generation and to maintain its potential to meet the needs and aspirations of future generations is called the conservation. It is scientific management of wildlife to maintain it at its optimum level.

The conservation of wildlife is directly related to healthy and better forests. Wildlife conservation includes protection, preservation, and perpetuation of rare species of plants and animals in their natural habitats.

**Conservation of living resources has three specific objectives:**

1. To maintain essential ecological processes and life supporting systems.
2. To preserve diversity of species.
3. Sustainable utilisation of species and ecosystems which support rural communities and major industries.

- **Conservation Strategies:**

For wildlife conservation and its propagation, proper management techniques should be employed. Sanctuaries, national parks, biosphere reserves, projects, etc., have been created for exclusively protecting the wild flora and fauna in India as well as in other countries of the world. Scientists of 100 countries of the world have evolved comprehensive “World Conservation Strategies” for the judicious use of resources.

**To save the existing species of wildlife they proposed some steps which are as follows:**

1. Efforts should be made to preserve the endangered species. Species that are sole representative of their family or genus should receive special attention. Endangered

species should be given priority over a vulnerable one, a vulnerable species over a rare one and a rare species over other categories.

All the threatened species should be protected. Priority be given belonging to monotypic genera, endangered over-vulnerable, vulnerable over rare and rare over other species.

2. Wildlife should be protected in their natural habitat in situ and in zoo and botanical gardens (ex situ). The threatened species should be conserved in situ as well as in ex situ.

3. Identify the habitats of wild relatives of the economically valuable and useful plants and animals and preserve them in protected areas like sanctuaries, national parks and biosphere reserves.

4. The critical habitats of the species like feeding, breeding, nursery and resting areas should be protected (safeguarded).

5. In case of migratory or wide ranging animals, protected areas should be established to preserve their habitats.

6. For migratory or wide ranging animals, pollution and exploitation of the environment along their migration routes should be controlled.

7. Unique ecosystem (national parks and biospheres) should be protected as a matter of priority.

The national protection programmes have to be coordinated with international programmes like biosphere reserve programme of UNESCO. Man and Biosphere Project and National

Parks and Protected Areas of International Union for Conservation of Nature and Natural Resources (IUCN).

National Wildlife (Protection) Act was enacted in India in 1972. Wildlife protection strategies were formulated in India in 1983. Biosphere reserves have also been put into practice since 1986. Wildlife Institute of India is located at Dehradun (Uttaranchal). Indian Board for Wildlife (IBWL) was established in 1952.

8. The productive capacities of exploited species and ecosystems have to be determined and their utilisation should not exceed from those capacities.

9. International trade in wild plants and animals has to be regulated by appropriate legislative and administrative measures.

India is a signatory to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).

Smt. Indira Gandhi (Late Prime Minister of India) addressed in her inaugural speech of World Conservation Strategies in 1980. She said that Indian tradition teaches us that all forms of life – human, animal and plant – are so closely interlinked that disturbance in one gives rise to imbalance in the other ... Nature is beautifully balanced. Any disturbance creates a chain reaction which may not be visible for some time.

- **Important Indian Wildlife:**

The science of zoogeography has both ecological and historical aspects and the two are intimately interwoven. Animals and plants are living indicators of the characteristics of their environment. Their ranges mark the places in which environmental conditions are the same or similar. The evolution and distribution of species throws light upon the geological evolution of various parts of earth and upon the course of global changes in climate and vegetation.

Based mainly on historical-cum-geographical factors, Philip Lutley Schaler (1825-1913) and Alfred Russel Wallace (1823-1913) have divided the world into six zoo-geographical regions, namely- Nearctic, Palearctic, Ethiopian, Oriental, Australian and Neotropical. India is of recent origin and it is a part of Oriental region. North Indian fauna during tertiary period were mastodons, eleven species of elephants, Siwalik bison, buffalo, ox, tamarau as well as the recent African animals like hippopotamus, giraffe, chimpanzee, rhinoceros and four-horned ruminant Sivatherium.

Area was covered with savannah and woodlands. Asiatic lion, striped hyaena and antelopes can be the relics of the past. The dhole, most endangered top predator, is on the edge of extinction. Less than 2500 members of species are alive in the world. From Siwalik were discovered fragments of jaw of Ramapithecus (primitive hominid ape).



- **Protected Areas in India:**

As referred to, Indian subcontinent is very rich in possessing natural beauty.

Its bio-geographical range consists of the coldest Ladakh and Spiti, the hot deserts of Thar, the temperate forest in Himalayas to the lush green tropical rain forests of the low lands; Indian subcontinent also possesses large fresh water bodies such as Wular and the Manasbal lakes in Kashmir, the Chilka in Orissa and Kolleru lake in Andhra Pradesh and the rugged and rich coastline and coral reefs of the Deccan.

Government of India passed the Wildlife Protection Act in 1972, under which national parks and sanctuaries could be created.

However, out of 434 national parks and sanctuaries in India, 17 have been selected as “Project Tiger” areas.

During the past twenty years UNESCO has evolved Biosphere Reserves under its Man and Biosphere (MAB) Programme. Accordingly, India has located 13 areas as Biosphere Reserves; from these Nilgiri Biosphere Reserve, including parts of Karnataka, Kerala and Tamil Nadu was declared in 1986 and the Nanda Devi Biosphere Reserve in 1988.

Probably two more Biosphere Reserves, one at Uttaranchal (including the Valley of Flowers in North-Western Himalayas) and another at Nokrek (North-Eastern Himalaya), has also been included in the list of Biosphere Reserve.

In a Biosphere Reserve, the land is designated into different zones; these are the core zone (where no human activity is allowed), the buffer zone (where limited human activity is allowed) and the manipulation zone (where a large number of human activities may go on). In Biosphere Reserves, wild population as well as traditional life styles is protected.



## **Conclusion**

Wildlife is an integral part of our planet. Wildlife plays a significant role in the ecology and the food chain. Disturbing their numbers or in extreme cases, extinction can have wide-ranging effects on ecology and humankind. Valuing and conserving forest and wildlife enhance the relation between man and nature. We want our future generation to be hear the lions roar and peacock dancing with their extravagant feather and not just see them in picture books. We must take steps today or else it will be too late. Wildlife conservation includes all human efforts to preserve wild animals from extinction. It involves the protection and wise management of wild

species of their environment. Some species have become extinct due to natural activities. The progress of man throughout has been beneficial for the human race but it is the wildlife that has suffered through the years. Inventions of sophisticated weapons, industrialization, urbanisation, and even increasing human population have been some of the major causes for dwindling of our rich resources. Hunting, clearing of forests, drawing of swamps and damming of rivers for irrigation and industry - this is what we appraise of man's progress. These activities have vastly reduced the natural habitats of our wildlife and many species are endangered or nearly extinct. Extinction is a 'biological reality' for no species has as yet existed for more than a few million years without evolving into something different, or dying out completely. Success in evolution is measured in terms of survival and failure by extinction. Once a species is extinct because of natural causes or human activities, it is gone forever. It is believed that each individual wild creature has a right to survive without human interference, just as each human being has the right to survive.



## **Bibliography**

<https://guidetoexam.com/essay-on-wildlife-conservation/>

[https://en.wikipedia.org/wiki/Wildlife\\_conservation](https://en.wikipedia.org/wiki/Wildlife_conservation)

<https://www.nhes.org/wildlife-conservation/>

<https://www.worldwildlife.org/initiatives/wildlife-conservation>

<https://sensingclues.org/>





NAME – MOUMITA SINHA

COLLEGE ROLL NUMBER – ENGA20F333

DEPARTMENT – ENGLISH HONOURS

SEMESTER - 2

CALCUTTA UNIVERSITY ROLL NUMBER – 202223-11-0057

CALCUTTA UNIVERSITY REGISTRATION NUMBER – 223-1211-0108-20

PAPER – AECC-2

SUBJECT – ENVIRONMENTAL STUDIES (ENVS)

**CONSERVATION OF ROYAL BENGAL TIGER IN**  
**THE SUNDARBANS**

## Acknowledgement

I would like to express my gratitude to Professor Aniruddha Chatterjee and Professor Malini Kundu. Their constant guidance, insightful information and support have been invaluable to me. I would also like to express my sincere thanks to Scottish Church College for providing me with the opportunity to do a project on this topic.

## Introduction

Wildlife conservation is the practice of protecting plant and animal species and their habitats. Wildlife forms an integral part of the world's biodiversity, creating and defining several ecosystems. The need for conservation arises due to the threat faced by wildlife and their habitats due to the explosion in population and subsequent human activities that encroach upon and destroy the wild species and their natural habitats. The efforts of wildlife conservation are largely geared towards the species that are in danger of becoming extinct. According to an estimate, human activities have led to current extinction rates being 1000 times greater than the background extinction rate or the normal extinction rate that occurs without additional influence.

Wildlife conservation can be achieved through legislation and governmental initiatives. The efforts of post-Independence India to conserve wild species started with the formation of the Wildlife Board at the national level and the Wildlife Protection Act in 1972. Under this Act, the Government of India created protected areas like national parks, wildlife sanctuaries, conservation reserves and community reserves for the wildlife and imposed punishments on those indulged in the illegal act of hunting. Thus, the second important way of conserving wildlife can be classified under in-situ conservation, that is, protection of endangered wild species in their natural habitat. India, as one of the 17 mega-diversities in the world with four of the 35 biodiversity hotspots of the world, has undertaken several important wildlife conservation projects such as Project Tiger (1972), Project Elephant (1992), Crocodile Conservation Project (1975) and UNDP Sea Turtle Project (1999).

The state of West Bengal in the eastern region of the country boasts of rich forests and abundant wildlife, be it the one-horned Indian rhinoceros in the Jaldapara and Gorumara national parks or red pandas and Himalayan black bears of the Himalayan forests. However, the haven of a vast and bewildering array of wildlife in West Bengal is the Sundarbans, an extensive mangrove area in the Gangetic delta. Enlisted as an UNESCO World Heritage Site, the Sundarbans National Park is home to nearly 500 fauna wildlife. A consistent loss of species in this area rich with tropical wildlife has been a source of worry, along with increase in salinity due to rising sea levels.



## The Sundarbans



## The Sundarbans

Named after the ‘sundari’ or the local name for the mangrove species *Heritiera fomes*, the Sundarban forests lie in the delta region of the Bay of Bengal formed by the confluence of three rivers – Ganga, Brahmaputra and Meghna. The freshwater swamp forests are spread out between India and her neighbour Bangladesh. The mangrove forests form a complex ecosystem which forms the largest mangrove forest of the world. The forest meets the Bay of Bengal to the south; to the east it is bordered by the Baleswar River and to the north, the land is intensively cultivated. The huge variety of wildlife found here are supported by numerous habitats – beaches, estuaries, permanent and semi-permanent swamps, tidal flats, tidal creeks, coastal dunes and levees.

Mangrove ecosystem can be termed as a highly specialised ecosystem occurring in coastal regions of tropical and sub-tropical regions. A difference can be noticed in the soils of the Sundarban mangrove forests from inland soils because these soils are often subject to salinity (from the Bay of Bengal) and waterlogging. Soil types found here include sandy loam, silt loam and clay loam. Terrestrial, brackish water and marine fauna constitute the major wildlife components.

1) The **terrestrial fauna** consists of tree dwellers as well as ground dwellers.

a) The habitats of **tree dwellers** include branches, roots and bark of trees. The upper canopy of mangrove trees is the home of birds, bats, monkeys and insects. The common species of kingfishers found here are the Blackcapped Kingfisher or *Halcyon pileata*, the Whitecollared Kingfisher or *Halcyon chloris* and the Brownwinged Kingfisher or *Pelargopsis amauroptera*. Birds of prey such as eagles and owls are found in plenty – Whitebilled Sea Eagle or *Haliaeetus leucogaster*, Crested Serpent Eagle or *Spilornis cheela* Pariah kit or *Milvus migrans*, Barn Owl or *Tyto alba* and Brown Fish Owl or *Bubo zeylonensis*. Bulbul, myna, flycatcher and finches are also common.



**Black-collared Kingfisher**

Bat species found here include Shortnosed Fruit Bat or *Cynopterus sphinx* and the Large Indian Flying Fox or *Pteropus giganteous*. The only species of primate inhabiting the mangrove forests is the Rhesus monkey or *Macaca mulatta* which is well distributed in the entire forest. They are commonly found feeding on either 'Keora' trees (*Sonneratia apetala*) or on crabs.



Rhesus Monkey

Among insects, several species of butterflies, moths, dragon flies, bees, wasps, fireflies, ants and beetles are found in the mangroves. The abundance of disease-causing mosquitoes make it impossible to enter the forests. *Anopheles sundaicus* is a predominant malarial mosquito of the mangrove environment. Honey produced by bees such as the Rock Bee or *Apis dorsata* is commercially important for the people living in this region.

- b) The forest floor is home to a large number of **ground-dwelling** wildlife species. Apart from the Royal Bengal Tiger or *Panthera tigris*, the ground fauna comprises of Fishing Cat or *Felis viverrina* which is the state animal of West Bengal, Spotted deer or *Cervus axis*, Wild Boar or *Sus scrofa*, mongoose, otter, etc. Species like the Swamp Deer (*Cervus devaucelli*) and the Javan Rhino (*Rhinoceros sondaicus*) are now extinct from this region.



Fishing Cat

2) The **intertidal mudflat fauna** comprises of marsh birds, aquatic snakes and the Estuarine Crocodile or *Crocodilus porosus*. The Dog-faced Water Snake or *Cerberus rhynchops* is also found at the water edge. Among birds, different species of plovers, sandpipers and egrets are seen, hopping on the mud during low tide for food. Hermit crabs are interesting creatures found here. They use empty shells from molluscs to protect themselves from predators. Other crab species found include fiddler crabs and ghost crabs.



Estuarine Crocodile

3) Among the aquatic estuarine fauna we have an abundance of dolphin species, notably the Plumbous Dolphin or *Sousa plumbea*, Malay Dolphin or *Stenella malayana*, Irrawaddy Dolphin or *Orcella brevirostris* along with the Gangetic Dolphin or *Platanista gangetica*. The Common Otter or *Lutra lutra* is also found in these rivers. The turtle population of the mangrove forests is

represented by Northern River Terrapin or *Batagur baska*, Olive Ridley Turtle or *Lepidochelys olivacea* and Ganges Softshelled Turtle or *Trionyx hurum*.



Endemic River Terrapin (*Batagur baska*)



Gangetic Dolphin

## The Royal Bengal Tiger – the Charisma of Sundarban



The man-eating Bengal tiger (*Panthera tigris*) is synonymous with the Sundarbans – so deeply is this magnificent creature a part of the forest and culture. It is one of the biggest tiger species in the world and has been rightly honoured as the national animal of India. The tigers found in the Sundarbans are the only ones in the world inhabiting mangrove forests. The Sundarbans Tiger Reserve, a part of the Sundarbans National Park was set up in 1973 as a part of the Tiger Project to conserve the tigers – for, despite being a magnificent icon among India’s rich wildlife species, the Bengal tiger faces threats to its survival. The tiger has been classified as Endangered by the IUCN (International Union for Conservation of Nature), meaning that their population is decreasing rapidly.

### HOW IS THE ROYAL BENGAL TIGER THREATENED?

According to the last tiger census report in 2019, “there are 2,967 Royal Bengal tigers in India.” India has “more than 75% of the total tiger population. In the last century, Sundarbans has lost 95% of the world’s tigers. The Bengal tigers, themselves known as man-eaters are threatened by human activities that lead to their hunting and killing and also cause climate change that destroys their habitat.

#### **1) Poaching**

Illegal trade in tiger skins and other body parts to neighbouring countries like Nepal and China from India is rampant and causes large scale destruction of these tigers. In 2019 it was reported that about 100 tigers were lost due to illegal poaching. Tiger bones are highly in demand for making traditional Chinese medicine. The animals are gunned down by well-organized gangs of professional poachers. The governments of India and her neighbouring countries have not been successful in implementing an enforcement response strict enough to control this kind of illegal hunting and trade.



Warning to poachers, outside a tiger reserve.

### 1) **Human-tiger conflict**

The Sundarbans region contains the densest population of tigers. However, the human population here has also increased which has set the stage for rampant human-wildlife conflict, leading to humans and tigers being unable to co-exist. Since 1990, an average of 3:3 people to tigers have been killed each year. The man-eating tigers can be classified into two groups – the tigers that go out hunting seeking to kill humans are the ‘confirmed’ or dedicated man-eaters. Whereas, the ‘opportunistic’ ones do not actively seek out human prey, but attack and devour humans when they find an opportunity. It is not uncommon for the honey-gatherers and fishermen who venture out into the dense forest and come upon a stealthy tiger. In turn, humans attack tigers to prevent the killing



of people and livestock, lack of support from local forest authorities when tigers enter villages or as an act of revenge for the killing of fellow villagers.

## 2) **Sea-level Rise**

Sea level is one of the most important of climate change here since the Sundarban area is approximately one metre above sea level. Globally, the sea levels are rising by 4cm per decade. With this current increase, a digital elevation model (DEM) of the Sundarbans has predicted that the national park will lose 96% of its land by as early as 2070. Due to this extreme loss of land, tiger populations would not be able to live in these areas.

## 3) **Soil Erosion**

Coastal landscapes such as the Sundarbans are rendered more vulnerable to rising sea levels due to large-scale erosion of soil. Mangroves are very important in protecting the coastline – their roots collect the silt and sediment from the sea and hold the soil in place. Increased tourism in these places have led to water pollution and improper waste disposal which have started to erode the soil. This is a hazard which will lead to the destruction of this area and in turn a loss of habitat for not only the Bengal tiger but too all the species.



Mangrove root system beginning to erode along the Sundarban coast.

#### 4) Saltwater Intrusion

More and more saline waters from the Bay of Bengal is intruding into the freshwater areas of the Sundarbans, causing Sundari or mangrove trees to die, leading to the habitat destruction of the tigers, according to experts. The freshwater river ways are connected to the ocean in a dense network. Salinity in these freshwater river ways has increased by 26% in the last 35 years. The tiger population is bound to perish if their only source of fresh drinking water, these rivers, turn saline. As a result, the tigers will venture into villages where human-tiger conflict will lead to the deaths of either the humans or the tigers.



NASA Satellite image, showing Sundarbans in deep green.

The river pathways connected to the ocean are shown.

## Tiger Conservation Measures

Several measures have been undertaken by the Indian Government on its own as well as in collaboration with other actions.

### WHAT MEASURES HAVE BEEN TAKEN BY INDIA?

- ✓ A major tiger conservation programme named the Tiger Project was undertaken by the Indian government in 1973. It aims to ensure a viable population of Bengal tigers in their natural habitats, protecting them from extinction and preserving areas of biological heritage as national heritage.
- ✓ The task force envisaged tiger reserves as breeding grounds, from which surplus animals would migrate to adjacent forests.
- ✓ Project Tiger guidelines have been revised and issued to State governments for strengthening tiger conservation.

- ✓ The government has set up a Tiger Protection Force to combat poachers and funded relocation of villagers to minimize human-tiger conflicts. A special strategy for monsoon patrolling is in place along with anti-poaching squads involving ex-army personnel.
- ✓ Indian Wildlife Protection Act of 1972 empowers the government to take strict measures to ensure tiger conservation.
- ✓ The Act was amended in 2006 to constitute the National Tiger Conservation Authority and the Tiger and Other Endangered Species Crime Control Bureau



Logo of the National Tiger Conservation Authority

### WHAT MEASURES HAVE BEEN TAKEN IN COLLABORATION WITH OTHER COUNTRIES?

- India has a bilateral understanding with Nepal on controlling trans-boundary illegal trade in wildlife and conservation, apart from protocol on tiger conservation with China.
- A protocol has been signed in 2011 with Bangladesh for conservation of the Royal Bengal Tiger of Sundarbans.
- India is the founder member of Global Tiger Forum of Tiger Range Countries for addressing international issues related to tiger conservation.
- India is an active member of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and introduced a resolution in 2007 for commercial breeding of tigers.

## Why do we need to save Tigers?

Tigers, one of the most endangered animals on the planet, benefit and impact the ecosystem in various ways of which people are largely unaware. Destruction of their natural habitat and their subsequent dwindling numbers has important implications for the ecosystem that we humans also inhabit.

1) **They reflect the health of the ecology.**

Experts state that tigers indicate the ecological wellness of the planet. Their main task as the dominant predators is to keep the number of herbivores in the ecosystem in check. An increase in the number of herbivore could lead to the destruction of forests as they consume plants and trees.



Deer are common prey to tigers.

2) **Carbon storage value**

A healthy tiger population lives in large forest areas that are natural reservoirs of carbon. Conservation of tigers would in turn ensure an adequate amount of carbon in the atmosphere to achieve carbon storage. If tigers are poached or killed, herbivore would increase and consume the forests, leading to a decline in the amount of carbon produced.

3) **Tigers support and contribute towards Livelihood**

The Sundarbans are renowned internationally as an animal lovers' ideal destination – especially due to the majestic, mesmerizing Royal Bengal Tiger. The tourist influx is the backbone of the livelihood of the people of Sundarbans and thus a declining tiger population would negatively affect the locals' livelihood.

4) **The tiger is the Symbol of India's National Pride**

There is no other animal but the Bengal tiger with its luxuriant yellow coat with black stripes, sleek, stealthy but majestic, impressive demeanour, agility to climb trees and swim with ease that symbolizes grace, strength and splendour – in other words, the pride of India. In 1972, the Royal Bengal Tiger was declared the national animal of India. Therefore it becomes a part of our moral obligation to ensure that these tigers are protected.



## Conclusion

The sentiment associated with the Royal Bengal Tiger in the minds of the people of Sundarbans is interesting to note – there is fear of being mauled and killed as they venture deep into the forest for their livelihood but at the same time a respect and admiration for the beast pervades. The tiger represents many things – it is a part of their culture and their daily lives. The tiger is worshipped as the deity Dakshin Rai in the Sundarbans. The tiger stands for the natural order – the tiger protects his dominion, the forest, which is also the home and source of livelihood for people living here. Therefore, be it the ferocious beast or the fishermen and honey-collectors and the widows and family members of those who fell prey, a co-existence exists and a co-dependence for survival.

Such a dangerously intimate human-tiger relationship exists in the heart of these mangrove forests, but so does a worldwide representation of the Royal Bengal Tiger in national and international culture. Rudyard Kipling's beloved collection of stories in 1894, *The Jungle Book* featured a Bengal tiger named Sher Khan. Yann Martel's 2001 novel *Life of Pi* that was made into a film of the same name in 2012 also features a Bengal tiger named Richard Parker as an important character.

The tiger is revered universally, which reinforces the need to conserve these splendid species. They are engaged in a symbiotic relationship with not only the people living in the area but also with the ecosystem at large. Animal species such as the Indian Cheetah and Great Indian Bustard are extinct today. It is most unfortunate that the Bengal tiger stands endangered mainly due to illegal human activities such as poaching. The authorities must be more vigorous and thorough in protecting the tigers by undertaking stricter enforcement measures. The duty of protecting the

pride of our nation is ours and thus people must be made aware of the importance and significance of the Royal Bengal Tiger. We, not only as part of the ecosystem but also as a part of this nation would stand to lose a lot if the tigers were to vanish from our forests. We owe it to them to ensure their existence is protected and conserved.

## Bibliography

Bharucha, Erach. *Textbook for Environmental Studies*.

Mandal, A.K. Nandi, N.C. *Fauna of Sundarban Mangrove Ecosystem, West Bengal, India (1989)*.

*Wildlife Conservation*

<https://www.nationalgeographic.org/encyclopedia/wildlife-conservation/>

*About Sundarbans*

[https://www.wwf.org/about\\_wwf/critical\\_regions/sundarbans3/about\\_sundarbans/](https://www.wwf.org/about_wwf/critical_regions/sundarbans3/about_sundarbans/)

*Sundarbans National Park*

[https://en.wikipedia.org/wiki/Sundarbans\\_National\\_Park](https://en.wikipedia.org/wiki/Sundarbans_National_Park)

*Bengal tiger*

[https://en.wikipedia.org/wiki/Bengal\\_tiger](https://en.wikipedia.org/wiki/Bengal_tiger)

*Bengal Tiger in Sundarbans National Park, Bangladesh.*

[Bengal Tigers in Sundarbans National Park, Bangladesh | Aksik](#)

*What is the Future of Bengal Tiger?*

<https://www.esquire.com/uk/culture/news/a9152/what-is-the-future-of-bengal-tiger/>



# **SCOTTISH CHURCH COLLEGE**

**NAME- TITAS PAUL**

**CLASS- SESMESTER-2 ENGA**

**SUBJECT- ENVIS PROJECT (AECC 2)**

**TOPIC- WILDLIFE CONSERVATIONS**

**COLLEGE ROLL NO.- ENGA20F338**

**CU REGISTRATION NO.- 223-1211-0121-20**

**CU ROLL NO.- 202223-11-0065**

## Contents

• Introduction .....	3
• Wildlife conservations in India.....	5
• ‘Project Tiger’ and Conservation Practices .....	7
• Current Status of Royal Bengal Tigers in India .....	8
• India’s Tiger Poaching Crisis .....	10
• Achievements of Project Tiger .....	10
• Conclusion .....	11
• Bibliography .....	12

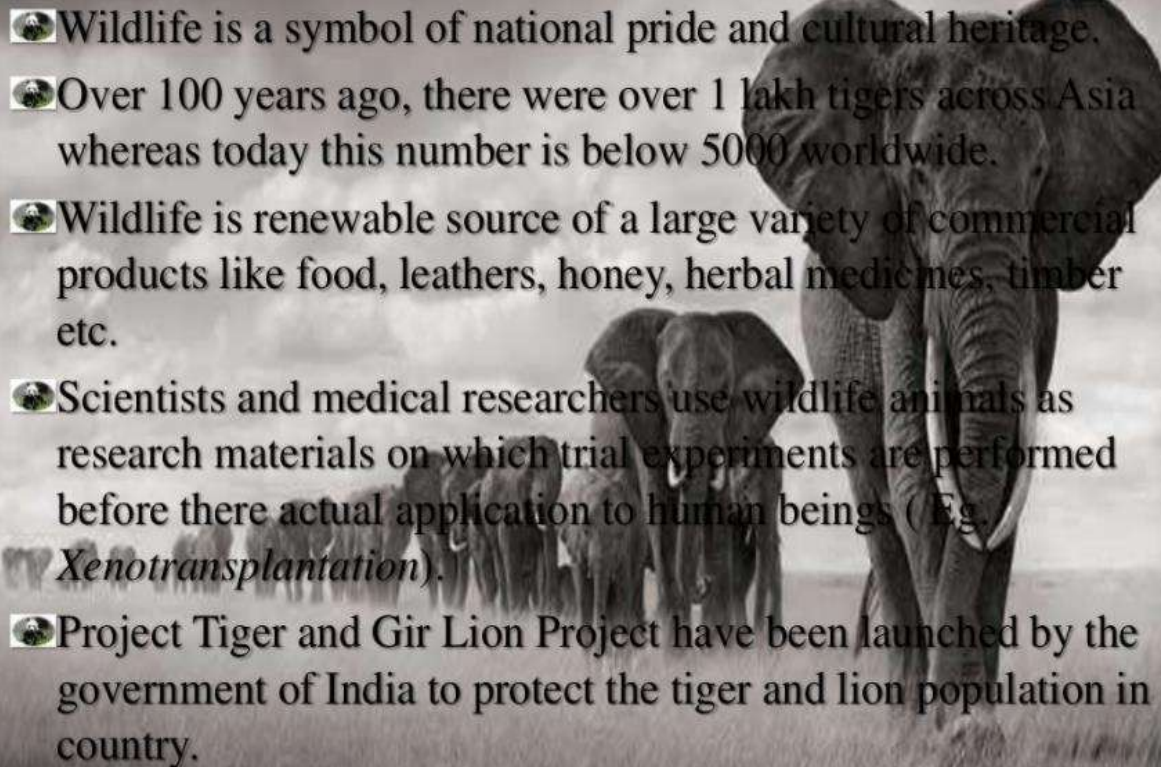
# WILDLIFE CONSERVATION



- **Introduction**

Wildlife resources has a vital link in the survival of the human species. It has been a subject of much fascination, interest, and research all over the world. We know that today wildlife habitats are under severe pressure and a large number of species of wild fauna have become endangered. So, in the time of such crisis the effective conservation of wild animals is of great significance because every one of us depends on plants and animals for all vital components of our welfare. Being living units of the ecosystem, plants and animals contribute to the welfare of us by providing us some great and important things. Here is a short list:

1. Material benefit of human life
2. Knowledge about genetic resources
3. Significant contribution to the enjoyment of life

- 
- 🌍 Wildlife is a symbol of national pride and cultural heritage.
  - 🌍 Over 100 years ago, there were over 1 lakh tigers across Asia whereas today this number is below 5000 worldwide.
  - 🌍 Wildlife is renewable source of a large variety of commercial products like food, leathers, honey, herbal medicines, timber etc.
  - 🌍 Scientists and medical researchers use wildlife animals as research materials on which trial experiments are performed before their actual application to human beings ( Eg. *Xenotransplantation*).
  - 🌍 Project Tiger and Gir Lion Project have been launched by the government of India to protect the tiger and lion population in country.

Considering the way, we are galloping ahead, it is quite obvious that we are planning for leaving behind a world for our future generation that does not seem so bright. Statisticians have showed that how for the past few years the human population have increased by more than half and the arable fertile land and tropical forests have been decreased by almost half. Genetic resources are treated as inexhaustible resources but this is high time and we really need to care about them. It is here that the concept of management and conservation of wildlife comes into play, because anything that is not human or undomesticated is 'wildlife'.

We determine the presence or absence of an animal or a plant in a region by ecological and historical facts. Animals and plants are considered as the indicators of the characteristics of their environment. In order to know the range of a species properly we need to know the required conditions for the species to live and thrive. The science of zoogeography has both ecological and historical aspects. On this basis, the world can be divided into six zoogeographical regions.

Nearctic	North America and Greenland
Palearctic	Eurasia, without India
Ethiopian	Africa, south of the Sahara
Oriental	India and Indochina
Australian	Australia and New Zealand
Neotropical	South and Central America, and the Antilles

- **Wildlife conservations in India**

India, Asia's second largest nation and the seventh largest country in the world with an area of 3,287,263 km<sup>2</sup>, a national border of 15,200 km, and a coastline of 7516 km. for administrative purposes, there is a division of total 28 states and union territories and is home to more than 1 billion people, which is approximately 16% of the world's population. Ecologically, India can be divided into three main regions:

1. The Himalayan Mountain system
2. The Peninsular India subregion (woodlands and desert)
3. The Tropical Rain Forest region

We can find a great wealth of biological diversity in these regions and also in the wetlands and marine areas of India. The next mentioned table points at the richness in the numbers of species and the proportions of the world's total they represent.

Group	Number of species in India (SI)	Number of species in the world (SW)	SI/SW (%)
Mammals	350	4629	7.6
Birds	1224	9702	12.6
Reptiles	408	6550	6.2
Amphibians	197	4522	4.4
Fishes	2546	21,730	11.7

Indian people were once blessed with some of the most profuse natural gifts: water-stocked Himalayan ranges, rich coastal fish resources, verdant forests, bountiful river systems, grassy pastures, bountiful river systems, and fertile soils. Ample amount of rain added to these plenitudes. Unfortunately, years of misarrangement, deforestation have degraded our forests, wounded our coastlines, and poisoned our aquifers with devastating results. Today, India 172 species of animals that are considered to be globally threatened by the IUCN. These include 53 species of mammals, 69 species of birds, 23 species of reptiles, and 3 species of amphibians.

Extinction is somehow classified as ‘biological reality’ because no species has, as yet, existed for more than a few million years without evolving into something different or dying out completely. Extinction is threatening all species, but most of the time smaller animals, like bats and rodents, face this threat more than other animals. We, however, tend to focus on the charismatic flagship species, which we like to see and which fascinate us.

# ***Wildlife Conservation in India***

- Importance of wildlife conservation
- Beauty
- Economic value
- Scientific value
- Survival value

## **Project Tiger**

- Indian government commenced the 'Project Tiger' in 1973-74, with the objective of restraining as well as augmenting the declining population of tigers.
- Under the project, nine wildlife sanctuaries were taken over and developed into tiger reserves.
- With time, the number of sanctuaries under the ambit of 'Project Tiger' was increased and by 2003.

Success in evolution is measured in terms of survival: failure, by extinction. Most recent extinctions can be attributed, either directly or indirectly, to human demographic and technological expansion, commercialized exploitation of species, and human-caused environmental change. These factors, in turn, have affected the reproductive rate of endangered species and their adaptability to changing environmental conditions. Concern for wildlife is, in fact, a concern for ourselves. The aim of this paper is to address the threat of extinction with respect to the Royal Bengal tiger.

## **• 'Project Tiger' and Conservation Practices**

The royal Bengal tiger, *Panthera tigris tigris*, is one of the integral parts of the legend and life of India. In the beginning of the 1900s the Indian tiger population was estimated at 40,000 animals. The first official estimate, done in 1972, recorded only about 1800 tigers. This led to

the establishment of a task force under the Indian Board of Wildlife, and based on their recommendations, 'Project Tiger' was launched on 1 April 1973 with the following objectives:

1. To maintain a viable population of tigers in India for scientific, economic, aesthetic, cultural, and ecological values
2. To preserve for all times, areas of biological importance as a national heritage for the benefit, education, and enjoyment of the people.



- Launched in 1973-74, it has been one of the most successful ventures in recent times to protect the striped predator. Under the same, a few sites in India were identified and named as Tiger Reserves. Special efforts were then carried out in these reserves to save the tiger. Some of the main aims of Project Tiger are as follows.
- \* Elimination of all kinds of human activity in the core zones and minimisation of activity in the buffer zone.
- \* Assessing the damage done to the eco-system by human activity and efforts to recover it to its original form.
- \* Monitoring the changes taking place and studying the reasons for the same.

## • **Current Status of Royal Bengal Tigers in India**

In India we got over half of the world's tiger population. Every two or four years, a comprehensive tiger census is conducted throughout India. In 1972, the first census recorded a total number of 1827 tigers. The establishment of Project tiger in 1973 led to an increase in the tiger population; the 1989 census recorded 4344 tigers, which led to self-congratulations within Project Tiger. But the next census in 1993 recorded only 3750 tigers, a decline from four years



earlier. Of these tigers, 1266 (36%) were within the boundaries of the 19 Project Tiger reserves, but to conservationists, this came as a final warning.



**Table 2. Population numbers of royal Bengal tigers in India reported by states, 1972–2002.**

Serial numbers of enumerated states	State	1972	1979	1984	1989	1993	1997	2001/02
1	West Bengal	33	65	97	95	97	62	60
2	Karnataka	102	156	202	257	305	350	401
3	Assam	147	300	376	376	325	458	354
4	Uttar Pradesh	262	487	698	735	465	475	284
5	Andhra Pradesh	35	148	164	235	197	171	192
6	Madhya Pradesh	457	529	786	985	912	927	710
Total	1638	2732	3543	4026	3432	3508	3511	

## • India's Tiger Poaching Crisis

The Wildlife Protection Society of India has made a concerted effort to gather accurate information and document cases of tiger poaching and unnatural deaths of tigers throughout India. Government sources state that 596 tigers are known to have been killed from 1994 to 2002; however, a nongovernment organization puts that number much higher (Table 3). Although international trade in tiger products has been banned under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), only 8 out of the 14 countries within the tiger's range comply with it.

**Table 3. Number of tigers poached in India, 1994–2002.**

<i>Year</i>	<i>No. of tigers poached</i>
1994	95
1995	121
1996	52
1997	88
1998	44
1999	81
2000	53
2001	72
2002	43
Total	649

## • Achievements of Project Tiger

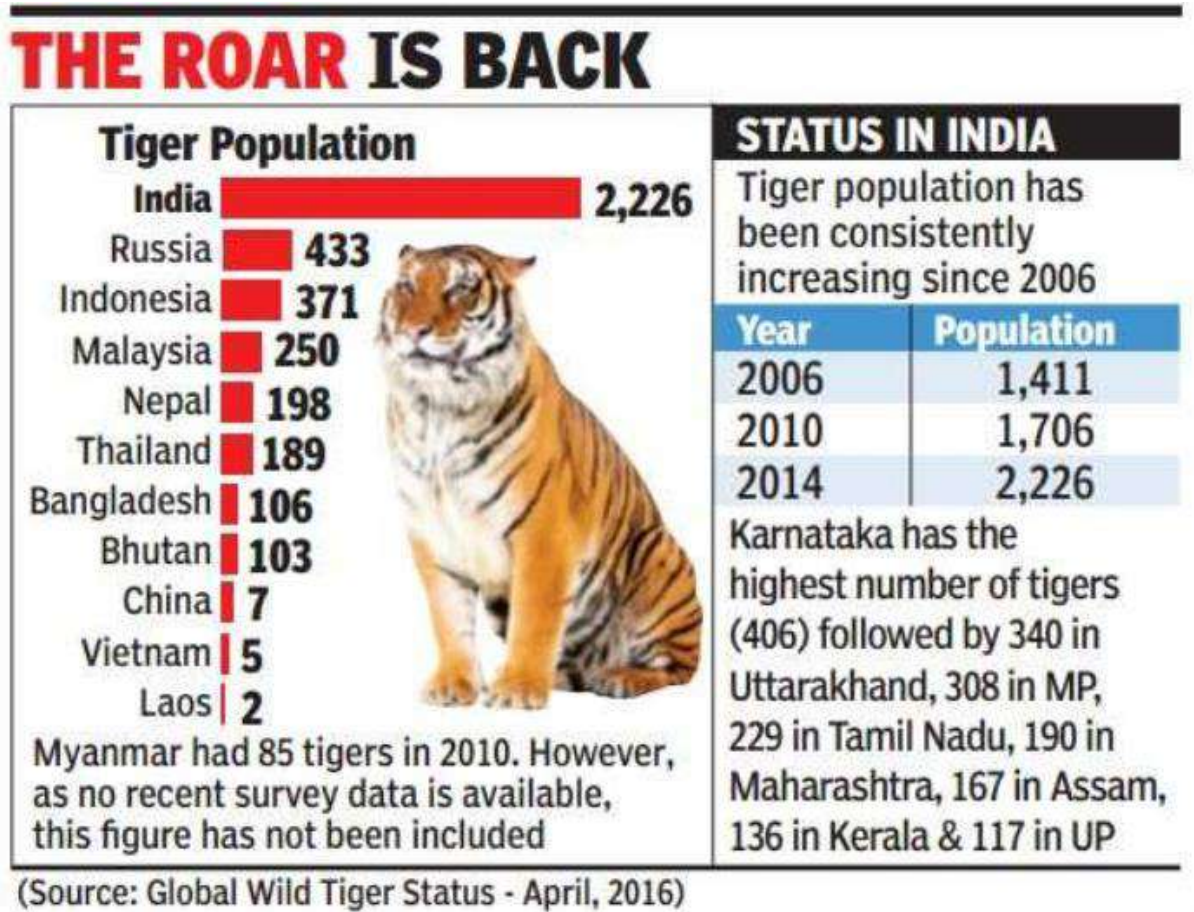
Project Tiger has completed more than 30 eventful years as the largest and most successful conservation project of its kind in the world. The project's achievements are as follows:

- Better management of the reserves has improved the status of flora and fauna, and the endangered species have shown signs of recovery. There has also been an improvement in the carrying capacity of the habitat.

- Biogeographically representative areas of the tiger reserves have shown better signs of ecological security and preservation.

- The project has played a major role in providing education to, and recreation facilities for, the people.

- Enhancement programs include the management of buffer areas and tourism facilities in tiger reserves.



### • Conclusion

Today wildlife species are facing a crisis around the world. Scientists esteem that global warming may cause the extension of 15-37% of species by 2050. Global warming is also a very important aspect that needs utmost care as for this we could lose about 1.25 million species. It is really important that we keep it in our mind that unlike any other losses this loss can't be recovered as nature is not likely to give a second chance to biodiversity. If we take into consideration the conventional reasons why wildlife is disappearing in Asia,

India is doing far better than other countries. India has launched an extensive protected area network of research institutions in which legislation, socio-economic factors, and wildlife researches are playing a great role. The Central Zoo Authority plays a key role with zoos in programming research activities related to the conservation and propagation of wild animals. India still has 65% of Asia's tiger population, 85% of the Asian rhino population, 80% of the Asian elephant population, and 100% of the Asiatic lion population. These are all highly endangered and poached animals.

- **Bibliography**

1. Seidensticker, J. 1991. The Bangladesh Sundarbans as wildlife habitat: a look ahead. Proceedings of a workshop on Sundarbans. Part IV: Living off the forest—wildlife management and businesses. November 20–21, 1987. Sustainable Development International Corporation, International Center, Smithsonian Institute, Washington, D.C.
2. [http://www.riotinto.com/ourcommitment/features-2932\\_16896.aspx](http://www.riotinto.com/ourcommitment/features-2932_16896.aspx)
3. [wikipedia](#)

**PROJECT ENVIRONMENTAL SCIENCE**

**AECC – 2**

**NAME: - POULOMI GHOSH**

**ROLL. NO.: - ENGA20F343**

**CU REGISTRATION NO.: - 223-1211-0137-20**

**CU ROLL NO.: - 202223-11-0074**

**TOPIC :- WILDLIFE CONSERVATION**

# WILDLIFE CONSERVATION



*Wildlife conservation* is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The growth and development of human population rapidly over 200 years has resulted in the faster consumption of natural resources which have certainly endangered the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting, fishing, and poaching.

National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many

different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

National Geographic Explorers, like conservation biologists Camille Coudrat and Titus Adhola, are working to slow the extinction of global species and to protect global biodiversity and habitats. Environmental filmmakers and photographers, like Thomas P. Peschak, are essential to conservation efforts as well, documenting and bringing attention to endangered wildlife all over the world.

## IMPORTANCE OF WILDLIFE CONSERVATION:-

### **1. Promotes pollination and continuity of native plant species**

Small animals particularly bees, insects, butterflies, and birds play an important role in food production. Conservation of these animals, therefore, aid in pollination. Since they depend on nectar from flowers, they are vital in crop production, inter-cropping, and promoting the continuity of native plant species. By moving from one flower to another in search of nectar, bees carry pollen by sustaining the process of crop growth.

## **2. Medicinal value**

Although plants are the major sources of medications, some animals are also vital in the production of medications. For example, the venom from cobra is an important ingredient in making the medications for leprosy while lobsters can be used as antifungals.

## **3. Protection of biodiversity and endangered species**

In the jungle, a lot of animals depend on each other through food chains and food webs. For example, carnivore animals like lions, cheetahs, and leopards depend on herbivores like antelopes for their survival. If antelopes become extinct in the jungle, the effect can be detrimental to the survival of the cats. It will also affect the survival of other herbivores in the jungle as the cats will depend on the remaining animals for their survival, which can greatly reduce the population of big animals like giraffes, which take longer to recreate.

## **4. Protecting ecological stability and balance**

Conserving fauna and flora encourages ecological stability and balance in the world. The plants, for example, play an important role in ensuring a healthy ecosystem by balancing carbon dioxide and oxygen in the environment. If animal species become dominant whether it is humans or wildlife, it will cause a lot of instability affecting the survival of all plant and animal species in the world. For example, if humans fail to conserve wildlife and natural habitats, it would lead to the destruction of water supply sources causing droughts and



dissertations. What is more, uncontrolled human activities like deforestation and logging are known to cause negative effects on the environment, and thus, conserving wildlife means protecting ecological stability and balance.

## **5. Can enhance food security**

Among the most fundamental roles of wildlife conservation to humans is to enhance food security. By protecting natural habitats from degradation and forests against deforestation, the availability of a variety of food products would rise. The reason is that wildlife conservation helps in research for promoting agricultural diversity. Habitat protection ensures there are sufficient and reliable natural resources for supporting agricultural activities thereby enhancing food security.



*Wildlife Sanctuary*

## **WILDLIFE SANCTUARY: -**

A wildlife sanctuary is a **space that is set aside exclusively for the use of wild animals**, which are protected

when they roam or live in that area. They are also referred to as wildlife refuges in some areas.

### **Importance of Wildlife Sanctuary:-**

There are various reasons for establishing wildlife sanctuaries:-

- The wildlife sanctuaries are established to protect the endangered species.
- It is quite difficult to always relocate the animals from their natural habitat, therefore, protecting them in their natural environment is advantageous.
- The endangered species are specially monitored in the wildlife sanctuaries. If they reproduce and grow in number while under protection, few specimens can be kept for breeding in the conservation parks for their survival.
- Biologist activities and researches are permitted in the wildlife sanctuaries so that they can learn about the animals living there.
- A few sanctuaries take in injured and abandoned animals and rehabilitate them to health before releasing them in the forest.
- Wildlife sanctuaries preserve the endangered species and protect them from humans and predators.

Examples of Wildlife Sanctuary in India :- Bibhutibushan Wildlife Sanctuary, North 24 Pargana, Ramnabagan Wildlife Sanctuary, Burdwan, Chintamani Kar Bird Sanctuary, Kolkata, etc.



*Sundarbans National Park*

## **NATIONAL PARK :-**

A national park is a park or a area of land officially recognized and protected by a nation's government. National parks are often made to protect the animals that live inside them or the land itself. There are many National Parks in the world. The first one established (in 1872) was the United States Yellowstone National Park.

## **IMPORTANCE OF NATIONAL PARK: -**

**1. PROTECTING BIODIVERSITY:** - The protection of this diversity of wildlife is one of the reasons why are parks important. Our National Parks protect these many species by providing a sanctuary for the plants and animals whose habitats are too often destroyed by human. High levels of biodiversity mean healthier and more resilient ecosystems. This results in the natural ecosystem's ability to continue providing benefits like climate regulation, pollination, air purification, and more.

## **2. THEY BENEFIT THE ENVIRONMENT**

**OVERALL:-** National parks enjoy a protected legal status to protect rare and endangered flora and fauna. In a national park, we get to enjoy and discover nature in its uncorrupted state. Think about the soil, plants, air, water, and indigenous life forms. Developing national parks as centers for environmental learning helps us to imitate nature, its rhythms, and preserve life. Besides keeping national parks as a tourist attraction, there are two primary reasons why we should protect national parks around the world.

## **3. ECONOMIC BENEFITS**

In 2017, our National Parks received 331 million visitors. This number just fell short of 90,000 visits, to beat 2016's record-breaking visits. And the economic benefits of National Parks extend beyond the scope of tourism. The natural amenities and recreational opportunities offered by National Parks support businesses and help them retain employees.

## **4. CENTERS FOR LEARNING**

The park system provides a beneficial contribution to the country's education system. On top of teaching students about the importance of the environment and why it's critical to protect nature, the parks also provide actual field experiences and professional development opportunities for students

Examples :- Kaziranga National Park, Kanha National Park, Subarban National Park.



*Biosphere Reserves in India*

## **BIOSPHERE RESERVES: -**

Biosphere reserves are the protected areas meant for the conservation of plants and animals. It also restores the traditional life of the tribals living in that vicinity. They conserve the biodiversity of that area. There are 18 Biosphere Reserves in India established by the government that protect large areas of natural habitats. These areas are provided with the buffer zones that are open for some economic uses. Not only the flora and fauna but also the humans inhabiting these areas are protected.

## **IMPORTANCE OF BIOSPHERE RESERVES:-**

**Conservation** :- Biosphere reserves conserve the species, ecosystems, genetic diversities, and landscapes without affecting the inhabitants.

**Development**:- It ensures sustainable developments including economic, cultural, social and economic developments.

**Restoration** :- The biosphere reserves restore any damage caused to the ecosystems and habitats.

**Education and Research** :- These areas provide a lot of information on how to restore, conserve, and develop the ecosystem. The researches provide ways to recreate landscapes that have been affected by human activities.

**Land Use Planning** :- All the landowners, public institutions, farmers, scientists, industry, and conservation groups found in these areas can work together to look for comprehensive land management.

**Healthy Ecosystems**:- They help in maintaining healthy ecosystems by preventing soil erosion, protecting water springs, and maintaining the decomposers to maintain the soil quality.

Examples:- Nilgiri Biosphere Reserve (2000), Karnataka, Tamil Nadu, Kerela; Subarbans Biosphere Reserve (2001), West Bengal, Simlipal Biosphere Reserve (2009), Orissa; etc.

## **ENDANGERED SPECIES OF INDIA :-**

- **ROYAL BENGAL TIGER**



- **KASHMIRI STAG**



- **GAUR**



- **GHARIAL**



- **GANGETIC DOLPHINS**



- **ASIAN ELEPHANTS**



- **FOUR-HORNED ANTELOPE**



- **PHAYRE'S LEAF MONKEY**





- **INDIAN VULTURE**



- **HAWKSBILL SEA TURTLE**



## **STEPS TAKEN BY THE GOVERNMENT FOR WILDLIFE CONSERVATION:-**

1. Some of the laws should be made to ban the killing or capturing of endangered animals or birds. It should be made a punishable offense. Such laws should be enforced strictly and should not remain on paper only.
2. Indiscriminate killing of wild birds and animals, whether are in abundance should not be allowed by the forest authorities.
3. The more number of National Parks and Sanctuaries should be established for preserving the natural habitats of wild animals and birds throughout the country.
4. The Department of Government should conduct a

periodic survey in all the forests regarding the conservation of wildlife. They should have the knowledge about the population of all the species of wild animals and birds, so that they can be helped during the time of floods and famines.

**5.** Special attention should be paid even by us also to the conservation of endangered species of wild animals and birds to prevent their extinction altogether.

**6.** The unauthorized cutting of forest trees for timber and wood for fuel should be stopped immediately. Because depletion of forests destroys the natural habitat of wild animals and birds.

**7.** In case of the authorization of the Government for felling of trees for every acre of forest, then the equal area of land should be planted with sapling of trees to make up for the loss in the long run.

**8.** It is the duty of all of us also to plant trees near our surroundings and also to motivate others to do the same.

**9.** Breeding programs for endangered species should be organized.

## **EXAMPLES:-**

### **1. The Wildlife (Protection) Act, 1972 (Last amended in 2006)**

The Wildlife (Protection) Act (WLPA), 1972 is an important statute that provides a powerful legal framework for:

- Prohibition of hunting
- Protection and management of wildlife habitats

- Establishment of protected areas
- Regulation and control of trade in parts and products derived from wildlife
- Management of zoos.

The WLPA provides for several categories of Protected Areas/Reserves:

- National Parks
- Wildlife Sanctuaries
- Tiger Reserves
- Conservation Reserves
- Community Reserves

## **2. The Indian Forest Act (1927) and Forest Acts of State Governments**

The main objective of the Indian Forest Act (1927) was to secure exclusive state control over forests to meet the demand for timber. Most of these untitled lands had traditionally belonged to the forest dwelling communities. The Act defined state ownership, regulated its use, and appropriated the power to substitute or extinguish customary rights. The Act facilitates three categories of forests, namely

- Reserved forests
- Village forests
- Protected forests

Reserved forests are the most protected within these categories. No rights can be acquired in reserved forests except by succession or under a grant or contract with the government. Felling trees, grazing cattle, removing forest products,

quarrying, fishing, and hunting are punishable with a fine or imprisonment. Although the Indian Forest Act is a federal act, many states have enacted similar forest acts but with some modifications.

### **3. The Forest Conservation Act (1980)**

In order to check rapid deforestation due to forestlands being released by state governments for agriculture, industry and other development projects (allowed under the Indian Forest Act) the federal government enacted the Forest Conservation Act in 1980 with an amendment in 1988. The Act made the prior approval of the federal government necessary for de-reservation of reserved forests, logging and for use of forestland for non- forest purposes.

This powerful legislation has, to a large extent, curtailed the indiscriminate logging and release of forestland for non-forestry purposes by state governments. While the federal government imposed such strict restrictions, it did not simultaneously evolve a mechanism to compensate state governments for loss of timber logging revenues. This anomaly coupled with increasing pressure for land due to a burgeoning population has generated considerable resentment within state governments resulting in growing pressure to dilute the restrictive provisions of the Act. The Supreme Court of India has currently imposed a complete ban on the release of forestland for non-forestry activities without the prior approval of the federal government.

**4. The Environment (Protection) Act (1986)** The Environment Protection Act is an important legislation that provides for coordination of activities of the various regulatory agencies, creation of authorities with adequate powers for

environmental protection, regulation of the discharge of environmental pollutants, handling of hazardous substances, etc. The Act provided an opportunity to extend legal protection to non-forest habitats ('Ecologically Sensitive Areas') such as grasslands, wetlands and coastal zones.

**5. The Biological Diversity Act (2002)** India is a party to the United Nations Convention on Biological Diversity. The provisions of the Biological Diversity Act are in addition to and not in derogation of the provisions in any other law relating to forests or wildlife.

**6. National Wildlife Action Plan (2002-2016)** replaces the earlier Plan adopted in 1983 and was introduced in response to the need for a change in priorities given the increased commercial use of natural resources, continued growth of human and livestock populations, and changes in consumption patterns.

The Plan most closely represents an actual policy on protection of wildlife. It focuses on strengthening and enhancing the protected area network, on the conservation of Endangered wildlife and their habitats, on controlling trade in wildlife products and on research, education, and training.

The Plan endorses two new protected area categories: "conservation reserves," referring to corridors connecting protected areas, and "community reserves", which will allow greater participation of local communities in protected area management through traditional or cultural conservation practices. These new categories of protected areas are likely to bring in corridor areas under protection. The Plan contains various recommendations to address the needs of local communities living outside protected areas and outlines the

need for voluntary relocation and rehabilitation of villages within protected areas. The Plan recognizes the need to reduce human-wildlife conflict and emphasizes the establishment of effective compensation mechanisms. It includes the restoration of degraded habitats outside protected areas as a key objective.

**7. National Forest Policy (1998)** The National Forest Policy, 1988, (NFP) is primarily concerned with the sustainable use and conservation of forests, and further strengthens the Forest Conservation Act (1980). It marked a significant departure from earlier forest policies, which gave primacy to meeting government interests and industrial requirements for forest products at the expense of local subsistence requirements. The NFP prioritizes the maintenance of ecological balance through the conservation of biological diversity, soil and water management, increase of tree cover, efficient use of forest produce, substitution of wood, and ensuring peoples' involvement in achieving these objectives. It also includes meeting the natural resource requirements of rural communities as a major objective. The NFP legitimizes the customary rights and concessions of communities living in and around forests.

# CONCLUSION

The wildlife conservation is an important part of human existence. We all are interdependent on each other. In order to maintain the balance in nature, we must extend our hand in preserving the flora and fauna.

We can help by creating awareness building to save wildlife, raising our voices, making films to raise awareness, financial condition and following the laws implemented by the government.

The governmental steps that have been taken, we must follow them carefully and maintain them accordingly. Let us all stand together and take the initiative of protecting our environment where we all will be saved and can secure the future for our coming generation.

# BIBLIOGRAPHY

- <https://www.bing.com/search?q=wildlife+conservation&qs=AS&pq=wildlife+con&sc=8-12&cvid=92ECD01A6CCC4670A6EB1C7015333FB4&FORM=CHRDEF&sp=1>
- <https://www.conserve-energy-future.com/wildlife-conservation-importance.php#:~:text=Among%20the%20most%20fundamental%20roles%20of%20wildlife%20conservation,conservation%20helps%20in%20research%20for%20promoting%20agricultural%20diversity.>
- [www.allthingsnature.org/what-is-a-wildlife-sanctuary.htm](http://www.allthingsnature.org/what-is-a-wildlife-sanctuary.htm)
- <https://www.bing.com/search?q=national+park&qs=n&form=QBRE&sp=-1&pq=national+par&sc=8-12&sk=&cvid=2DAB84D457494FC3969A921D1EDD30FA>
- <https://www.bing.com/search?q=list+of+endangered+animal&qs=n&form=QBRE&sp=-1&ghc=1&pq=list+of+endangered+animal&sc=8-25&sk=&cvid=5C05CA80F54B4B25B46DF37EA5533954>
- <https://www.bing.com/search?q=biosphere+reserves&qs=HS&pq=bio&sc=8-3&cvid=7F7208CB5DD345219B8992FDFF67ADBA&FORM=QBRE&sp=1>
- <https://www.bing.com/search?q=governal+steps+towards+wildlife+conservation&qs=n&form=QBRE&sp=-1&pq=governal+steps+towards+wildlife+conser&sc=1-38&sk=&cvid=D92B1067839045DDB92E3F40FBF6243A>
- Books on wildlife and other articles over internet.



**AECC- ENVIRONMENTAL SCIENCE (ENVS) PROJECT**

**COLLEGE ROLL NUMBER: ENGA20F345**

**CU REGISTRATION NUMBER: 223-1211-0149-20**

**CU ROLL NUMBER: 202223-11-0081**

**ENVS PROJECT ON '*WILDLIFE CONSERVATION*'.**



## **CONTENTS:-**

<b>TOPIC.</b>	<b>PG.NO.</b>
<b>INTRODUCTION.</b>	<b>P1</b>
<b>REASONS TO PRESERVE WILDLIFE.</b>	<b>P2-4</b>
<b>LIST OF ENDANGERED ANIMALS IN INDIA.</b>	<b>P5-9</b>
<b>Important Wildlife Protection Projects By Indian Government</b>	<b>P10-13</b>
<b>Steps taken by Indian Government to conserve Biodiversity</b>	<b>P14-15</b>
<b>CONSERVATION OF BIODIVERSITY</b>	<b>P16-18</b>
<b>CONCLUSION.</b>	<b>P19</b>
<b>BIBLIOGRAPHY.</b>	<b>P20</b>

## **INTRODUCTION.**

Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting, fishing, and poaching.

National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

## **P2** **REASONS TO PRESERVE WILDLIFE.**

From the mighty tiger to the humble worker bee, the huge variety of life on Earth contributes to our lives and well-being in more ways than we think. From offering a wealth of natural medicines to safeguarding us from climate shocks and improving soil health, we need wildlife for our survival, well-being and prosperity.

When you hear the term “wildlife,” you might picture animals, but many guidelines on conservation or similar areas include flora as well as fauna. These living things are not introduced by humans but are found wild. Different wildlife live in every ecosystem, including forests, oceans, deserts, and more. Why does wildlife matter? Here are ten reasons:

### **#1. Wildlife maintains balance in ecosystems**

Every living thing is connected. If even just one organism becomes threatened or extinct, it has a domino effect on an entire ecosystem. It disrupts the food chain, sending shockwaves through the environment. It’s also important to know that threats to species rarely happen in isolation. The things that threaten, say, honeybees also threaten other pollinators. For ecosystems to thrive, all wildlife must be protected.

### **#2. Diversity means healthier ecosystems**

When discussing wildlife, you’ll often hear the term “[biodiversity](#).” This refers to the number of species in an ecosystem. Healthy ecosystems have a lot of [diversity](#). Why is this important? Consider [plants](#). A wide variety of plants means greater productivity and better health. If there are fewer plant species, a disease that affects them spreads faster and more effectively. More variety means better resistance.

### **#3. Wildlife provides nutrients to humans**

Everything we eat comes from either an animal or plant originally. While we don’t eat as much “wildlife” as we used to because the food supply chain has become so industrial, crops and animals were wildlife at one point. Many people still depend on wildlife for their food, as well. Without a variety of food sources, our nutrition suffers. Protecting wildlife and natural habitats strengthens food security around the world. We can also improve nutrition by returning to more wild food sources and diversifying our diets.

**#4. A lot of medicine comes from wildlife** Humans have always turned to nature for medicine. Many medical systems (like chinese traditional medicine) still rely on herbs, spices, and more, but even pharmaceuticals wouldn’t be where they are today without wildlife. Medicines like morphine, penicillin, and

aspirin were derived from wild plants. When searching for cures to diseases like cancer and Alzheimer's, researchers still look to nature. The more wildlife options they have to study, the better.

#### **#5. Protecting wildlife and their habitats mean fewer diseases that affect humans**

The preservation of wildlife and where they live is important for human health. Research shows that in diverse, protected natural areas, there are fewer instances of malaria and Lyme disease. 60% of infectious diseases (including COVID-19) come from animals. Proximity to animals increases the risks for diseases changing and "jumping" species. By protecting habitats, humans and wildlife don't have to live so close together.

#### **#6. People depend on wildlife for their livelihoods**

For many people, wildlife is their main source of income. According to the World Economic Forum, \$44 trillion (more than half the world's GDP) is tied to nature. In the Global South, 1.6 billion people depend on forests. Globally,  $\frac{3}{4}$  jobs depend on water. As wildlife and their habitats shrink, jobs are lost.

#### **#7. Wildlife has cultural significance**

The impact wildlife has on culture can't be ignored. The presence of animals and plants has always influenced things like religious beliefs and food. In many indigenous groups, sage is a vital herb for religious ceremonies. For followers of Hinduism, elephants and cows are sacred symbols. Regional dishes made with local ingredients preserve memory and tradition, while also bringing communities together. To keep culture and traditions alive, it's important to protect wildlife.

#### **#8. Wildlife is important for the economy**

Wildlife conservation areas and preserved natural habitats attract visitors from all over the world. Many places depend on wildlife for tourism, which makes up over 10% of the world's GDP. Countries like Brazil, Australia, Kenya, and more are especially dependent on tourism. Without wildlife, the economy of many countries would suffer significantly.

#### **#9. Protecting wildlife creates more jobs**

Speaking of the economy, wildlife preservation also creates more jobs. As an example, a big conservation and sustainable management project in Honduras created over 8,000 jobs and raised community income levels over 300%. According to research from Heidi Peltier, a research professor and expert in employment in the U.S. economy, conservation and park development creates significantly more jobs than oil and gas. The creation of "green" jobs leads to a more sustainable and productive economy.

**P4**

**#10. Being around wildlife and nature is good for mental health**

There's a global mental health crisis. Evidence shows that nature can help. People who live close to natural environments and wildlife are found to be more active, emotionally strong, and physically healthier. In one project in the UK, volunteers with poor mental health took part in nature walks and conservation work. After 12 weeks, they reported feeling better. To protect our mental health, we need to protect wildlife and the habitats they live in.

**LIST OF ENDANGERED ANIMALS IN INDIA.**

*The Red List of 2018 was released at the Rio+20 Earth Summit. It contains 132 species of plants and animals in India endangered.*

Critically endangered animals

---

**Arthropods**

- Rameshwaram parachute spider (*Poecilotheria hanumavilasumica*)
- Peacock tarantula (*Poecilotheria metallia*)

**Birds**

**White-bellied heron (*Ardea insignis*)**

- Great Indian bustard (*Ardeotis nigriceps*)
- Baer's pochard (*Aythya baeri*)
- Spoon-billed sandpiper (*Calidris pygmaea*)
- White-rumped vulture (*Gyps bengalensis*)
- Indian vulture (*Gyps indicus*)
- Slender-billed vulture (*Gyps tenuirostris*)
- Bengal florican (*Houbaropsis bengalensis*)
- Bugun liocichla (*Liocichla bugunorum*)
- Himalayan quail (*Ophrysia superciliosa*)
- Jerdon's courser (*Rhinoptilus bitorquatus*)
- Red-headed vulture (*Sarcogyps calvus*)
- Sociable lapwing (*Vanellus gregarius*)
- Christmas Island Frigatebird (*Fregata andrewsi*)
- Pink-Headed Duck (*Rhodonessa caryophyllacea*)
- Yellow-breasted Bunting (*Emberiza aureola*)
- Siberian Crane (*Grus leucogeranus*)

**Fish**

- Wayanad mahseer (*Barbodes wynaadensis*)
- Pondicherry shark (*Carcharhinus hemiodon*)
- Ganges shark (*Glyphis gangeticus*)
- *Glypto thorax kashmirensis*
- Kudremukh glypto thorax (*Glypto thorax kudremukhensis*)
- Nilgiri mystus (*Hemibagrus punctatus*)
- *Horalabiosa arunachalami*
- *Hypselobarbus pulchellus*
- Red Canarese barb (*Hypselobarbus thomassi*)

- *Mesonoemacheilus herrei*
- Bovany barb (*Neolissochilus bovanicus*)
- Deolali minnow (*Parapsilorhynchus prateri*) possibly extinct
- Pookode Lake barb (*Pethia pookodensis*)
- Common sawfish (*Pristis pristis*)
- Largetooth sawfish (*Pristis microdon*)
- Longcomb sawfish (*Pristis zijsron*)
- *Psilorhynchus tenura*
- Deccan barb (*Puntius deccanensis*)
- *Schistura papulifera*

### **Insects**

- Pygmy hog-sucking louse (*Haematopinus oliveri*)

### **Reptiles and amphibians**

- Madras spotted skink (*Barkudia insularis*)
- Northern river terrapin (*Batagur baska*)
- Red-crowned roofed turtle (*Batagur kachuga*)
- *Cnemaspis anaikattiensis*
- Hawksbill sea turtle (*Eretmochelys imbricata*)
- Gharial (*Gavialis gangeticus*)
- Ghats wart frog (*Fejervarya murthii*)
- Jeypore ground gecko (*Geckoella jeyporensis*)
- Gundia Indian frog (*Indirana gundia*)
- Toad-skinned frog (*Indirana phrynoderma*)
- Charles Darwin's frog (*Ingerana charlesdarwini*)
- Rao's torrt frog (*Micrixalus kottigeharensis*)
- Dattatreya night frog (*Nyctibatrachus dattatreyaensis*)
- Sacred grove bushfrog (*Philautus sanctisilvaticus*)
- Amboli bush frog (*Pseudophilautus amboli*)
- White-spotted bush frog (*Raorchestes chalazodes*)
- Green eyed bushfrog (*Raorchestes chlorosomma*)
- Griet bush frog (*Raorchestes griet*)
- Kaikatti bushfrog (*Raorchestes kaikatti*)
- Mark's bushfrog (*Raorchestes marki*)
- Munnar bush frog (*Raorchestes munnarensis*)
- Ponmudi bush frog (*Raorchestes ponmudi*)
- Resplendent shrubfrog (*Raorchestes resplendens*)
- Shillong bubble-nest frog (*Raorchestes shillongensis*)
- Anaimalai flying frog (*Rhacophorus pseudomalabaricus*)



- Sushil's bushfrog (*Raorchestes sushili*)
- Amboli toad (*Xanthophryne tigerina*)
- Ghats wart frog (*Zakerana murthii*)

### **Mammals**

- Elvira rat (*Cremonomys elvira*)
- Andaman shrew (*Crocidura andamanensis*)
- Jenkins' shrew (*Crocidura jenkinsi*)
- Nicobar shrew (*Crocidura nicobarica*)
- Chinese pangolin (*Manis pentadactyla*)
- Malabar large-spotted civet (*Viverra civettina*)
- Kashmir stag or hangul (*Cervus canadensis hanglu*)

### Endangered animals

---

#### **Fish**

- Knifetooth sawfish (*Anoxypristis cuspidata*)
- Asian arowana (*Scleropages formosus*)
- Red line torpedo barb (*Sahyadria denisonii*)
- Golden mahaseer (*Tor putitora*)
- Deccan labeo (*Labeo potail*)

#### **Birds**

- Forest owlet (*Athene blewitti*)
- Steppe eagle (*Aquila nipalensis*)
- Great knot (*Calidris tenuirostris*)
- Masked finfoot (*Heliopais personatus*)
- Lesser florican (*Sypheotides indicus*)
- Manipur bush-quail (*Perdicula manipurensis*)
- Greater adjutant (*Leptoptilos dubius*)
- White-bellied blue robin (*Myiomela albiventris*)
- Nilgiri blue robin (*Myiomela major*)
- White-winged duck (*Asarcornis scutulata*)
- White-headed duck (*Oxyura leucocephala*)
- Green peafowl (*Pavo muticus*)
- Narcondam hornbill (*Rhyticero*)
- Nordmann's greenshank (*Tringa guttifer*)
- Black-bellied tern (*Sterna acuticauda*)
- Black-chinned laughingthrush (*Trochalopteron jerdoni*)
- Egyptian vulture (*Neophron percnopterus*)

## **P8**

### **Reptiles**

- Perrotet's vine snake (*Ahaetulla perroteti*)
- Three-striped roofed turtle (*Batagur dhongoka*)
- Green turtle (*Chelonia mydas*)
- Indian narrow-headed softshell turtle (*Chitra inkkal*;
- Goan day gecko (*Cnemaspis goaensis*)
- Wyanad day gecko (*Cnemaspis wynadensis*)
- Keeled box turtle (*Cuora mouhotii*)
- Boulenger's dasia (*Dasia subcaerulea*)
- Poona skink (*Eurylepis poonaensis*)
- Inger's mabuya (*Eutropis clivicola*)
- Yellow-headed tortoise (*Indotestudo elongata*)
- Asian forest tortoise (*Manouria emys*)
- Indian kangaroo lizard (*Otocryptis beddomii*)
- Assam roofed turtle (*Pangshura sylhetensis*)
- Cantor's giant softshell turtle (*Pelochelys cantorii*)
- Travancore Hills thorn-tail snake (*Platyplectrurus madurensis*)
- Travancore earth snake (*Rhinophis travancoricus*)
- Cochin forest cane turtle (*Vijayachelys silvatica*)

### **Mammals**

#### **Red panda (*Ailurus fulgens*)**

- Sei whale (*Balaenoptera borealis*)
- Blue whale (*Balaenoptera musculus*)
- Fin whale (*Balaenoptera physalus*)
- Wild water buffalo (*Bubalus arnee*)
- Hispid hare (*Caprolagus hispidus*)
- Dhole (*Cuon alpinus*)
- Indian elephant (*Elephas maximus indicus*)
- Kolar leaf-nosed bat (*Hipposideros hypophyllus*)
- Lion-tailed macaque (*Macaca silenus*)
- White-bellied musk deer (*Moschus leucogaster*)
- Servant mouse (*Mus famulus*)
- Mandelli's mouse-eared bat (*Myotis sicarius*)
- Nilgiri tahr (*Nilgiritragus hylocrius*)
- Asiatic lion (*Panthera leo persica*)
- Bengal tiger (*Panthera tigris tigris*)
- Ganges river dolphin (*Platanista gangetica gangetica*)
- Gee's golden langur (*Trachypithecus geei*)

- Nicobar treeshrew (*Tupaia nicobarica*)
- Sangai (*Rucervus eldii eldii*)

### Vulnerable animals

---

Listed by the IUCN As of 2012.

#### **Mammals**

- Gaur (*Bos gaurus*)
- Four-horned antelope or chousingha (*Tetracerus quadricornis*)
- Oriental small-clawed otter (*Aonyx cinerea*)
- white-chested bear (*Ursus thibetanus*)
- Yak (*Bos grunniens*)
- Takin (*Budorcas taxicolor*)
- Barasingha (*Rucervus duvaucelii*)
- Clouded leopard (*Neofelis nebulosa*)
- Dugong (*Dugong dugon*)
- Sun bear (*Helarctos malayanus*)
- Stump-tailed macaque (*Macaca arctoides*)
- Marbled cat (*Pardofelis marmorata*)
- Sperm whale (*Physeter macrocephalus*)
- Rusty-spotted cat (*Prionailurus rubiginosus*)
- Indian rhinoceros (*Rhinoceros unicornis*)
- Snow leopard (*Uncia uncia*)
- Nilgiri marten (*Martes gwatkinsii*)
- Sloth Bear (*Melursus ursinus*)

#### **Birds**

- Sarus crane (*Antigone antigone*)
- Nicobar megapode (*Megapodius nicobariensis*)
- Dalmatian pelican (*Pelecanus crispus*)

#### **Reptiles and amphibians**

- Olive ridley sea turtle (*Lepidochelys olivacea*)

## **Important Wildlife Protection Projects by Indian Government**

### **Project Tiger**



One of the most successful wildlife conservation ventures 'Project Tiger' which was initiated way back in 1972, has not only contributed to the conservation of tigers but also of the entire ecosystem. This project is sponsored by Ministry of Environment Forest and Climate Change. About 47 tiger reserves situated in more than 17 regions including Corbett National Park and Ranthambore National Park are part of this project which conducts assessments of number of tigers, their habitat, hunting habits under the supervision of the Tiger Task Force. Project Tiger has seen significant success in recovery of the habitat and increase in the population of the tigers in the reserve areas, from a scanty 268 in 9 reserves in 1972 to above 1000 in 28 reserves in 2006 to 2000+ tigers in 2016.

## **D11**

### **Project Elephant**



Initiated in 1992 by the Government of India Project Elephant aims at conserving elephants and their habitat and of migratory routes by developing scientific and planned management measures. Under the project welfare of the domestic elephants is also considered, issues like mitigation of human-elephant conflict are also taken care of. The project's endeavour is to strengthen the measures for protection of elephants against poachers and unnatural death.

## **D12**

### **Crocodile Conservation Project**



This project is yet another successful venture by Government of India to conserve the Indian Crocodiles, whose species were on the verge of extinction once. The project also contributes towards the conservation in a plethora of related fields. The main objectives of the crocodile project is to protect the remaining population of crocodiles and their natural habitat by establishing sanctuaries; to promote captive breeding; to improve management; and to involve the local people in the project intimately. It is worth noticing that with the initiation of Crocodile Conservation Project, 4000 gharial/aligator, 1800 mugger/crocodile and 1500 saltwater crocodiles could be restocked.

## **D13**

### **UNDP Sea Turtle Project**



With an objective to conserve the Olive Ridley Turtles, the UNDP Sea Turtle Project was initiated by Wildlife Institute of India, Dehradun as the Implementing Agency in November 1999. The project is for 10 coastal state in India especially Odisha where it has contributed towards the preparation of a map of breeding sites of Sea Turtles; identification of breeding places and habitats along the coast line, and migratory routes taken by Sea Turtles. The project also helped in the development of guidelines to safeguard the turtle mortality rate and for tourism in sea turtle areas. Amongst the major achievements of the project is the demonstration of use of Satellite Telemetry to locate the migratory route of sea turtles in the sea.

Apart from these projects, GOI also has been handling projects like Vulture Conservation and India Rhino Vision (IRV) 2020.

## **P14**

### **Steps taken by Indian Government to conserve Biodiversity**

Along with above specified conservation projects of the wild animals, GOI has also initiated few schemes that are worked upon to protect the biodiversity and minimize the mortality of critically endangered, endangered and threatened animals. Here are few important steps that Government of India has taken for the wildlife protection:

- In the Wildlife Protection Act of 1972, GOI created Protected Areas like National Parks, Sanctuaries, Conservation Reserves and Community Reserves for the wildlife and imposed punishments on those indulged in illegal act of hunting.
- Wetland (Conservation and Management) Rules 2010 have been drafted to protect of wetlands in India. The Central Government has also initiated the scheme, National Plan for Conservation of Aquatic Eco-System that lends assistance to the states for the sound management of all wetlands.
- In order to curb the illegal trade of wildlife and that of endangered species, Wildlife Crime Control Bureau has been established.
- Special organizations like Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are formed to conduct research on conservation of wildlife.
- To check the dwindling population of Gyps vulture in India, Government of India has banned the veterinary use of diclofenac drug.
- For restocking of the endangered species, the Central Government first initiated Integrated Development of Wildlife Habitat Scheme and later modified it by including a new component, Recovery of Endangered Species which included animals like Hangul/stag deer in Jammu & Kashmir, Vultures in Punjab, Haryana and Gujarat, Snow Leopard in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh, Swiftlet in Andaman & Nicobar Islands, Nilgiri Tahr in Tamil Nadu, Sangai Deer in Manipur. Financial and technical assistance is also extended to the state government to provide better means of protection and conservation for the specified species.
- The State Governments have been asked to strengthen the field formations and increase patrolling in and around the Protected Areas.



P15

- GOI intensified anti-poaching activities and initiated special patrolling strategy for monsoon season. Also, deployment of anti-poaching squad.
- In order to strengthen tiger conservation, National Tiger Conservation Authority is constituted by Government of India.
- A Special Tiger Protection Force (STPF) has also been constituted and is deployed in Karnataka, Maharashtra and Odisha.
- E-Surveillance has been started in Kaziranga National Park in Assam and borders of Ratapani Wildlife Sanctuary in Madhya Pradesh.

### **Important Environment and Biodiversity Acts Passed by Indian Government**

- Fisheries Act 1897
- Indian Forests Act 1927
- Mining And Mineral Development Regulation Act 1957
- Prevention of Cruelty To Animals 1960
- Wildlife Protection Act 1972
- Water (Prevention and Control of Pollution) Act 1974
- Forest Conservation Act 1980
- Air (Prevention and Control of Pollution) Act 1981
- Environment Protection Act 1986
- Biological Diversity Act 2002
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act 2006

Not only this, there are a few International schemes and projects that India has signed drafted with its neighbours, Nepal and Bangladesh related to illegal wildlife species trade and conservation of tigers and leopards. Apart from this, there are plenty of other legal, administrative and financial steps that Government of India has taken for effective wildlife conservation in the country. And apparently the success of its some projects and schemes related to Indian Rhinos, tigers and poaching have earned it immense confidence to continue working towards a prosperous and intact wildlife.

**CONSERVATION OF BIODIVERSITY**

Conservation of Biodiversity: Three types of protected areas- (i) Wildlife Sanctuaries; (ii) National Park; (iii) Biosphere Reserves were created in India for “In-Situ” conservation of biodiversity. As on 31 March, 1994 there were 421 Wildlife Sanctuaries, 75 National Park, 14 Biosphere Reserved in India covering about 4% of total geographical area. In-situ conservation of wildlife is a comprehensive system of protected areas. There are different categories of protected areas, which are managed with different objectives for bringing benefits to the society. The major protected areas include: (i) National Parks, (ii) Sanctuaries, (iii) Biosphere Reserves etc. These areas vary considerably in size, design, purpose and effectiveness of management.

- (i) **National Park:** According to the Indian Board for Wild Life (IBWL), “a National Park is an area dedicated by statute for all time to conserve the scenery, natural and historical objects, to conserve the wild life there in and to provide for enjoyment of the same in such manner and by such means, that will leave them unimpaired for the enjoyment of future generations with such modification as local conditions may demand”. The history of National parks in India begins in 1936 when the Hailey (now Corbett) national parks of United Provinces (now Uttar Pradesh) was created. The area is declared for the protection and preservation for all time of wild animal life and wild vegetation for the benefit and advantage and enjoyment of the general public. In this area hunting of fauna or collection of flora is prohibited except under the direction of park authority.
- (ii) **Sanctuary:** The Indian Board for Wild Life has defined a sanctuary as, ‘An area where killing, hunting, shooting or capturing of any species of bird or animal is prohibited except by or under the control of highest authority in the department responsible for the management of the sanctuary and whose boundaries and character should be sacrosanct as far as possible. By June 1992 India had 416 sanctuaries. The Board has further clarified the position by stating that while the management of sanctuaries does not involve suspension or restriction of normal forest operation, it is desirable to aside a completely sacrosanct area within a sanctuary to be known as

‘Abhyaranya’. It has also indicated that sanctuaries should be made accessible to the public. In India sanctuary is usually created by an order or gazette notification of State government. So the weakness of a sanctuary is that it can be desanctuarized merely by another order or gazette notification of a State government because it is not safeguarded by any proper legislation. The idea behind a wild life sanctuary and a national park is same, i.e., maximum protection, preservation and conservation of wild animals. But the fundamental difference between the two is that a sanctuary is created by order of a competent authority, who may be the chief conservator of forest: or minister of a State, while a national park can be harmed, abolished or changed only by the legislation of a State. There are, title status and degree of permanency and protection is much higher in a national park than in a sanctuary. In a wild life sanctuary private ownership rights may continue and forestry usages also may continue so long as wild life conservation is not adversely affected. However, in a national park all private ownership rights are extinguished and all forestry and other usages are prohibited. Every national park should have the minimum requisites of fauna, flora and scenery etc. There should be sufficient means of management and protection in a sanctuary to be upgraded as national park.

- (iii) **Biosphere reserves** are ‘learning places for sustainable development’. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine and coastal ecosystems. Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere Reserves involve local communities and all interested stakeholders in planning and management. They integrate three main "functions":

- Conservation of biodiversity and cultural diversity
- Economic development that is socio-culturally and environmentally sustainable

- Logistic support, underpinning development through research, monitoring, education and training

These three functions are pursued through the Biosphere Reserves' three main zones



## Core Areas

It comprises a strictly protected zone that contributes to the conservation of landscapes, ecosystems, species and genetic variation

## Buffer Zones

It surrounds or adjoins the core area(s), and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.

## Transition Area

The transition area is where communities foster socio-culturally and ecologically sustainable economic and human activities.

## **P19** **CONCLUSION.**

### **What is the Relevance of IUCN Red Data Book?**

**Killing of wild animals and birds** on the large scale by man is a serious threat that wildlife is facing for its survival. This disturbs the food chain and also the ecosystem. We can understand better with the help of an example; snake as a wild animal is in great demand for making fancy leather goods so, snake skin sells at high at a high price in the market. To earn money easily some people kill snakes indiscriminately in large numbers. This killing of snakes disrupts the food chain and creates imbalance in the nature. *Do you know the snake is a friend of the farmer* as it eats vermin's like rats, mice which are pests and damage the crops? So, it is very important to conserve wildlife to maintain the ecological balance in nature and also for preservation.

### **Steps to be taken for the Conservation of Wildlife are:**

- 1.** Some of the laws should be made to ban the killing or capturing of endangered animals or birds. It should be made a punishable offense. Such laws should be enforced strictly and should not remain on paper only.
- 2.** Indiscriminate killing of wild birds and animals, whether are in abundance should not be allowed by the forest authorities.
- 3.** The more number of National Parks and Sanctuaries should be established for preserving the natural habitats of wild animals and birds throughout the country.
- 4.** The Department of Government should conduct a periodic survey in all the forests regarding the conservation of wildlife. They should have the knowledge about the population of all the species of wild animals and birds, so that they can be helped during the time of floods and famines.
- 5.** Special attention should be paid even by us also to the conservation of endangered species of wild animals and birds to prevent their extinction altogether.
- 6.** The unauthorized cutting of forest trees for timber and wood for fuel should be stopped immediately. Because depletion of forests destroys the natural habitat of wild animals and birds.
- 7.** In case of the authorization of the Government for felling of trees for every acre of forest, then the equal area of land should be planted with sapling of trees to make up for the loss in the long run.
- 8.** It is the duty of all of us also to plant trees near our surroundings and also to motivate others to do the same.
- 9.** Breeding programs for endangered species should be organized.

**BIBLIOGRAPHY.**

***BOOKS USED-***

1. 'Environmental Science' by Dr. Y.K. Singh.
2. 'Textbook of Environmental Studies for Undergraduate Courses' by Erach Bharucha .

***ONLINE ARTICLES-***

1. <https://www.nationalgeographic.org/>
2. <https://theimportantsite.com/>
3. <https://www.jagranjosh.com/>
4. <https://www.ranthamborenationalpark.com/>
5. <https://en.wikipedia.org/>

**CU Roll No. – 202223-11-0084**

**CU Regd. No. – 223-1211-0153-20**

**Semester – 2**

**Honors Subject – English**

**Subject for Tutorial- AECC ENVS**

**Tutorial Topic – The Water Logging Problem at Vikas Nagar, Dhanbad, Jharkhand**

**Batch- 2020-2023**

## **ACKNOWLEDGEMENT**

I would like to thank my subject teachers of AECC ENVS for providing me with adequate study materials for this topic and encouraging me to do this project systematically. I would also like to thank my family and friends for guiding and helping me through this project. It would have been impossible to complete my project without their help and guidance. At last I would like to thank my Principal Dr. MadhuManjari Mandal for giving me a chance to study and prosper at this auspicious Colloge.

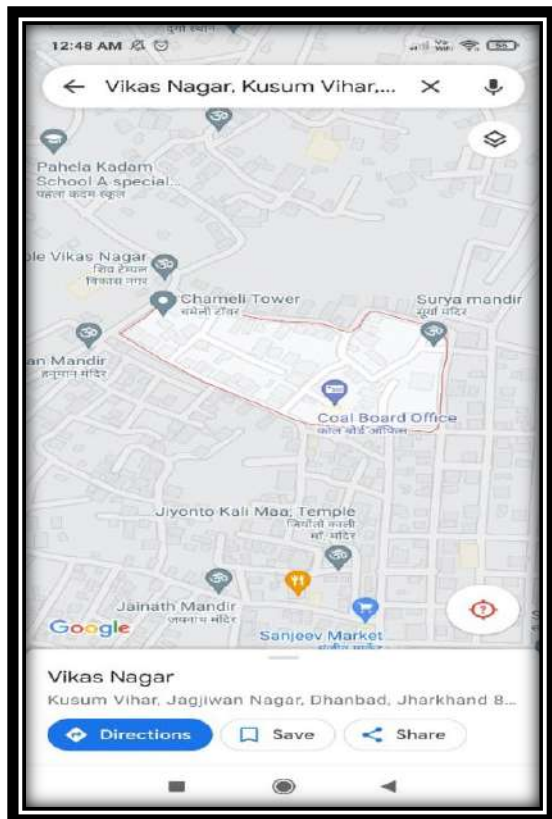


## **INTRODUCTION**

Water-logging occurs when there is a heavy rainfall and also due to improper drainage system, the water gets collected on the road and causes problems. It can also be said that when the soil cannot absorb more water, it causes an increase in the underground water level. As a result, it leads to roads getting waterlogged. It is a serious problem. Apart from the inconveniences that it causes, it also brings miseries along it. During the rainy season, a lot of water-borne disease spreads. These diseases lead to epidemics and unfortunately proves fatal to humans. It is a situation when water becomes stagnant in fields. Water logged areas have very few spaces in which air is present as all the micro and macro pores are filled with moisture. It creates a situation when there is a lack of oxygen and other important gasses essential for the growth of plants and other micro-organisms that help plant or crops in growth. This situation occurs (as is common for salinization) in poorly drained soils where water can't percolate deeply. For example, there may be an impermeable clay layer below the soil. It also occurs on areas that are poorly drained topographically.

## STUDY AREA

Vikash Nagar is a residential colony in Jagjiwan Nagar, it is located near Old Doctor's Colony and Koyla Nagar. It measures around 4 km sq. It comes under ward no 24 at the Dhanbad Municipal Corporation. The post office of Vikash Nagar is Jagjiwan Nagar and the Police station is Saraidhela. The pin code of this area is 826003. New Apartments are constructed in this area every now and then, making this area populous.



**IMAGE: TAKEN FROM GOOGLE MAPS OF THE STUDY AREA THAT IS VIKASH NAGAR, DHANBAD.**

## **DISCUSSION**

Vikash Nagar is a residential colony in Jagjiwan Nagar which is densely populated area of Dhanbad, this area faces some regular problems like traffic congestion, water logging, improper waste management, etc. Water logging is one of the major problems of this area, every year during monsoons water gets logged and movement of the local people gets problematic. Due to unplanned infrastructure, the drainage and sewer facility are not developing accordingly.

Overpopulation is the root cause for many problems whether it is deforestation or global and Water logging is also one of those problems which are caused by dense population as land is becoming concrete and rain water does not get absorbed which is leading to water logging. Moreover, as new buildings are constructed every now and then, the population is increasing immensely in a particular area and the output of the waste is also increasing as well. Before construction of these buildings, they do not even plan the drainage and sewage system and as a result many a times all the sewage of these buildings flow on roads. Encroachment is also one of the biggest problems which lead to water logging as people starts living in an area which is meant for playgrounds or parks. But people unethically make mud huts or puts tents in these areas and start living, neither there are toilets nor they think about where the waste generated by them goes and what if it may cause infection.

Unplanned drainage & sewage infrastructure is another cause of water logging. The residents living here do not care about proper drainage and regularly dump their wastes in gutters, which clog the gutters and prevent the flow of water, causing the gutters to overflow. And after a light rainfall, the streets are flooded with wastes and garbage. These kinds of situations do create very toxic and unhealthy conditions for the people living in the locality. These are a very big factor for degradation of the environment. The people are facing health deterioration due to waterborne diseases and the unhygienic situation. Stagnation of water also occurs due to blocked water passages. This also makes the residents around susceptible to infection from mosquitoes and other insects. We are also exposed to numerous air and water borne diseases with current polluted environment and stagnant water.

Blocked drains caused by reckless negligence there are serious issues like oversaturation of soils that swell, which thereby is destroying the foundations and reducing its stability. This causes big cracks in walls day by day, premature aging and discoloration of the exterior brick and the concrete. Also, open drain in our area is a great contributor to soil erosion. The water carries the soil away and silt while travelling at a very high speed. The uncontrolled speed of the water is

also leading to excessive erosion of the sides of the roads, which is making them narrow and impassable for vehicles. This sometimes leads to big traffic jams and create chaos in our area. Due to dirty stagnant water in the open drains, there comes a very bad odor that makes it very much uncomfortable and unsightly for the residents living around the open drains. They also cause a lot of inconveniences, especially in the neighborhoods with a lot of children as they might play near the infected water risking the children's health.

Due to Improper waste management the wastes lie everywhere and whenever there is rain these wastes mainly plastic bags and clothes falls in the drain chokes the drains and further leading to water logging.

### **IMPACT**

Students are the worst sufferers as many parts of this area get flooded in the rain. With pants folded up to their knees, many could be seen going to their schools and colleges. The logged water in the colony gets polluted with solid waste, silt and contaminants that are washed away from the roads. The high increase in volume and rate of logged water causes erosion and siltation. It is therefore becoming a burden for the inhabitants of the residential area, leading to unhygienic environment and creating adviser social, physical, economical as well as environmental impacts. When the soil is waterlogged in the area, the water loving wild plant life grows abundantly. The people face problems like water crisis, due to the overall power cut. Also the students are not able to charge their devices in this online mode of study. The old people don't move out because of the germs and the fear of the dangerous diseases due to water logging. Sometimes while going to the office, people face when their vehicles get stuck in the pot holes. Sometimes it causes some injuries too to them. The people don't send their children out to play due to the issue which is constantly resulting in a negative manner in the children's health. The growth and development is such an important factor for any child's development which indirectly is related to the country's development. The fruits vendors also face issues and their economic development gets disturbed due to the problems by the clogged water and innocently suffers for it. The stray animals face are also one of the worst sufferers of it. They are left with no place to live. They don't get proper food which results in their poor health and eventually they die. Just because of our mistakes and carelessness, they suffer.

## **MEASURES OR SOLUTIONS**

Water Logging in this area is not caused due to natural calamity but due to negligence and improper management so there are many solutions for this problem, some of these are a) On the basis of outfall the total water shed should be divided into number of drainage zones as per to check the discharging capacity of the outfalls and analyzing the existing conditions related to. b) Proper Drainage facility in the area. c) Improvement of drainage network by construction of new primary and secondary drains. d) Covering of all the drains so that it is not blocked by the plastics bags and other elements and separate surface drains of rain water. e) Cleaning and removal of blockage from existing drains and repair and rehabilitation of f) existing primary, secondary and tertiary drains and protection of the water quality at outfall.

## **CONCLUSION**

Water logging mainly occurs due to blockages of drains and unavailability of proper drainage system. In this area, non-implementation of proper plan has caused all such ambiguities. They are much unplanned and lack in systematic drainage network. This area suffers from inundation due to internal storm water drainage congestion, and also for choked up with solid wastes. After taking some preventive measures in this area, changes have positively been noticed and ill-effects of water logging have been reduced.

Thus, Lack in social awareness is a huge concern for smooth functioning of the same and each one needs to be socially aware that what harm he is causing to the nature and the people.

## **BIBLIOGRAPHY**

This work has been completed with the help of the following references taken from:

1. <https://www.thedailystar.net/frontpage/city-people-suffer-waterlogged-roads-1428880>
2. <https://timesofindia.indiatimes.com/topic/dhanbad-sewage-problems-and-solutions>

**SCOTTISH CHURCH COLLEGE**  
**UNIVERSITY OF CALCUTTA**  
**WEST BENGAL , INDIA**

**SUBJECT – ENVIRONMENTAL STUDIES ( ENVS)**

**PAPER - AECC**

**PROJECT NAME : WILDLIFE CONSERVATION**

**NAME OF THE STUDENT : ALIVIA MONDAL**

**COLLEGE ROLL NO : ENGA20F350**

**CU ROLL NO : 202223-11-0089**

**CU REGISTRATION NUMBER : 223-1211-0161-20**

**SEMESTER : 2**

**SESSION : 2020 – 2021**

## **ACKNOWLEDGEMENT**

**I convey my deep sense of gratitude to my several respected teachers for suggesting the way I may find suitable for the development of my project , and her valuable guidance has been a constant help and encouragement in the preparation of this manuscript . I owe to her in every sense for providing me with the facilities throughout the course of the investigation . I am grateful to all of my other respected professors , my parents and my friends who have helped me with various supports .**



## WILDLIFE CONSERVATION

The term **biodiversity** (from “**biological diversity**”) refers to the variety of life on Earth at all its levels, from genes to ecosystems, and can encompass the evolutionary, ecological, and cultural processes that sustain life.

The great variety of life on earth has provided for man’s needs over thousands of years. This diversity of living creatures forms a support system which has been used by each civilization for its growth and development. Those that used this “bounty of nature” carefully and sustainably survived. Those that overused or misused it disintegrated. Science has attempted to classify and categorize the variability in nature for over a century. This has led to an understanding of its organization into communities of plants and animals. This information has helped in utilizing the earth’s biological wealth for the benefit of humanity and has been integral to the process of ‘development’. This includes better health care, better crops and the use of these life forms as raw material for industrial growth which has led to a higher standard of living for the developed world. However this has also produced the modern consumerist society, which has had a negative effect on the diversity of biological resources upon which it is based. The diversity of life on earth is so great that if we use it sustainably we can go on developing new products from biodiversity for many generations. This can only happen if we manage biodiversity as a precious resource and prevent the extinction of species.

### Definition:

‘Biological diversity’ or biodiversity is that part of nature which includes the differences in genes among the individuals of a species, the variety and richness of all the plant and animal species at different scales in space, locally, in a region, in the country and the world, and various types of ecosystems, both terrestrial and aquatic, within a defined area.

Biological diversity deals with the degree of nature’s variety in the biosphere. This variety can be observed at three levels; the genetic variability within a

species, the variety of species within a community, and the organisation of species in an area into distinctive plant and animal communities constitutes ecosystem diversity.

### 1. **GENETIC DIVERSITY** :

Each member of any animal or plant species differs widely from other individuals in its genetic makeup because of the large number of combinations possible in the genes that give every individual specific characteristics. Thus, for example, each human being is very different from all others. This genetic variability is essential for a healthy breeding population of a species. If the number of breeding individuals is reduced, the dissimilarity of genetic makeup is reduced and in-breeding occurs. Eventually this can lead to the extinction of the species. The diversity in wild species forms the '**gene pool**' from which our crops and domestic animals have been developed over thousands of years. Today the variety of nature's bounty is being further harnessed by using wild relatives of crop plants to create new varieties of more productive crops and to breed better domestic animals. Modern biotechnology manipulates genes for developing better types of medicines and a variety of industrial products .

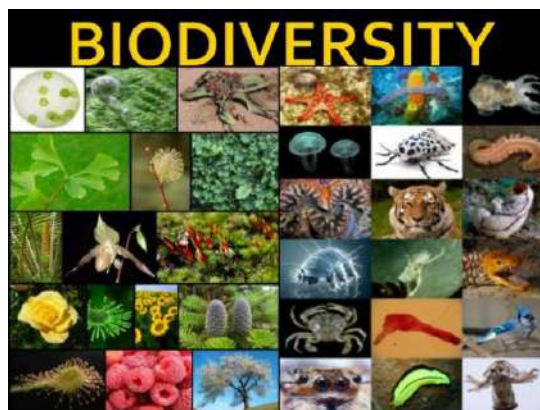
### 2. **SPECIES DIVERSITY** :

The number of species of plants and animals that are present in a region constitutes its species diversity. This diversity is seen both in natural ecosystems and in agricultural ecosystems. Some areas are more rich in species than others. Natural undisturbed tropical forests have a much greater species richness than plantations developed by the Forest Department for timber production. A natural forest ecosystem provides a large number of non-wood products that local people depend on such as fruit, fuel wood, fodder, fiber, gum, resin and medicines. Timber plantations do not provide the large variety of goods that are essential for local consumption. In the long-term the economic sustainable returns from non-wood forest products is said to be greater than the returns from felling a forest for its timber. Thus the value of a natural forest, with all its species richness is much greater than a plantation.

Modern intensive agricultural ecosystems have a relatively lower diversity of crops than traditional agropastoral farming systems where multiple crops were planted. At present conservation scientists have been able to identify and categorise about 1.8 million species on earth. However, many new species are being identified, especially in the flowering plants and insects. Areas that are rich in species diversity are called ‘hotspots’ of diversity. India is among the world’s 15 nations that are exceptionally rich in species diversity.

### **3. ECOSYSTEM DIVERSITY :**

There are a large variety of different ecosystems on earth, which have their own complement of distinctive inter linked species based on the differences in the habitat. Ecosystem diversity can be described for a specific geographical region, or a political entity such as a country, a State or a taluka. Distinctive ecosystems include landscapes such as forests, grasslands, deserts, mountains, etc., as well as aquatic ecosystems such as rivers, lakes, and the sea. Each region also has man-modified areas such as farmland or grazing pastures. An ecosystem is referred to as ‘natural’ when it is relatively undisturbed by human activities, or ‘modified’ when it is changed to other types of uses, such as farmland or urban areas. Ecosystems are most natural in wilderness areas. If natural ecosystems are overused or misused their productivity eventually decreases and they are then said to be degraded. India is exceptionally rich in its ecosystem diversity.



### **BIOGEOGRAPHIC CLASSIFICATION OF INDIA**

Our country can be conveniently divided into ten major regions, based on the geography, climate and pattern of vegetation seen and the communities of mammals, birds, reptiles,

amphibia, insects and other invertebrates that live in them. Each of these regions contains a variety of ecosystems such as forests, grasslands, lakes, rivers, wetlands, mountains and hills, which have specific plant and animal species.

### **India's Biogeographic Zones -**

1. The cold mountainous snow covered Trans Himalayan region of Ladakh
2. The Himalayan ranges and valleys of Kashmir, Himachal Pradesh, Uttarakhand, Assam and other North Eastern States.
3. The Terai, the lowland where the Himalayan rivers flow into the plains
4. The Gangetic and Bhramaputra plains.
5. The Thar Desert of Rajasthan.
6. The semi arid grassland region of the Deccan plateau Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu.
7. The Northeast States of India,
8. The Western Ghats in Maharashtra, Karnataka and Kerala.
9. The Andaman and Nicobar Islands.
10. The long western and eastern coastal belt with sandy beaches, forests and mangroves.

### **VALUE OF BIODIVERSITY:**

Environmental services from species and ecosystems are essential at global, regional and local levels. Production of oxygen, reducing carbon dioxide, maintaining the water cycle, protecting soil are important services. The world now acknowledges that the loss of biodiversity contributes to global climatic changes. Forests are the main mechanism for the conversion of carbon dioxide into carbon and oxygen. The loss of forest cover, coupled with the increasing release of carbon dioxide and other gases through industrialization contributes to the '**greenhouse effect**'. Global warming is melting ice caps, resulting in a rise in the sea level which will submerge the low lying areas in the world. It is causing major atmospheric changes, leading to increased temperatures, serious droughts in some areas and unexpected

floods in other areas. Biological diversity is also essential for preserving ecological processes, such as fixing and recycling of nutrients, soil formation, circulation and cleansing of air and water, global life support (plants absorb CO<sub>2</sub> , give out O<sub>2</sub> ), maintaining the water balance within ecosystems, watershed protection, maintaining stream and river flows throughout the year, erosion control and local flood reduction. Food, clothing, housing, energy, medicines, are all resources that are directly or indirectly linked to the biological variety present in the biosphere. This is most obvious in the tribal communities who gather resources from the forest, or fisherfolk who catch fish in marine or freshwater ecosystems. For others, such as agricultural communities, biodiversity is used to grow their crops to suit the environment. Urban communities generally use the greatest amount of goods and services, which are all indirectly drawn from natural ecosystems. It has become obvious that the preservation of biological resources is essential for the well-being and the long-term survival of mankind. This diversity of living organisms which is present in the wilderness, as well as in our crops and livestock, plays a major role in human 'development'. The preservation of 'biodiversity' is therefore integral to any strategy that aims at improving the quality of human life.



### **BIODIVERSITY HOTSPOT :**

A **biodiversity hotspot** is a biogeographic region with significant levels of biodiversity that is threatened by human habitation.

Norman Myers wrote about the concept in two articles in "The Environmentalist" (1988), and 1990 revised after thorough analysis by Myers and others "Hotspots: Earth's Biologically

Richest and Most Endangered Terrestrial Ecoregions” and a paper published in the journal *Nature*.

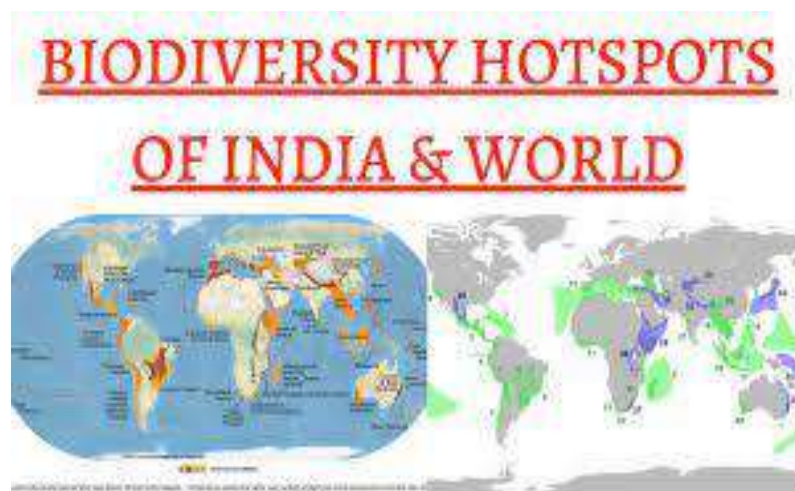
### **BIODIVERSITY HOTSPOTS OF THE WORLD :**

Biodiversity hotspots are defined as regions “where exceptional concentrations of endemic species are undergoing an exceptional loss of habitat”. In this article, we are giving the concept of Biodiversity Hotspots, the criteria to qualify as a Biodiversity Hotspot and the name of Hotspot regions of the world, which is very useful for the competitive examinations like UPSC-prelims, SSC, State Services, NDA, CDS, and Railways etc.

Biodiversity hotspots are defined as regions “where exceptional concentrations of endemic species are undergoing an exceptional loss of habitat”. The concept of biodiversity hotspots was developed by the **Norman Myers in 1988** when he identified that the tropical forest losing its plants species as well as habitat.

IUCN prepares ‘**Red Data Book**’. There are **34 areas around the world** which are qualified as **Biodiversity hotspots**. These hotspots represent only 2.3% of the total Earth's land surface. These hotspots are important because Biodiversity underpins all life on Earth.

Without species, there would be no air to breathe, no food to eat, no water to drink. There would be no human society at all. And as the places on Earth, where the most biodiversity is under the most threat, hotspots are critical to human survival.



## **Biodiversity Hotspots of the World :**

These hotspots regions support a rich biodiversity because of geologic formations and endemic flora and fauna and also exhibit exceptional scientific interest. It is important ecosystem in the world and the habitat of endemic species. The Biodiversity Hotspots of the World are given below:

### **Africa**

1. Eastern Afro-Montane
2. The Guinean forests of Western Africa
3. Horn of Africa
4. Madagascar and the Indian Ocean Islands
5. Maputoland, Podoland, Albany hotspot
6. Succulent Karou
7. East Malanesian islands
8. South Africa's Cape floristic hotspot
9. Coastal forests of Eastern Africa

## **Terrestrial Biomes of the world**

### **Asia and Australia**

1. Himalayan hotspot
2. The Eastern Himalayas
3. Japan biodiversity hotspot
4. Mountains of South-West China
5. New Caledonia
6. New Zealand biodiversity hotspot
7. Philippine biodiversity hotspot

8. Western Sunda (Indonesia, Malas and Brunei)
9. Wallace (Eastern Indonesia)
10. The Western Ghats of India and Islands of Sri Lanka
11. Polynesia and Micronesian Islands Complex including Hawaii
12. South-Western Australia

### **North and Central America**

1. California Floristic Province
2. Caribbean islands hotspot
3. Modrean pine-oak wood lands of the USA and Mexico border
4. The Mesoamerican forests

### **Aquatic Biomes of the World**

#### **South America**

1. Brazil's Cerrado
2. Chilean winter rainfall (Valdivian) Forests
3. Tumbes-Choco-Magdalena
4. Tropical Andes
5. Atlantic forest

#### **Europe and Central Asia**

1. Caucasus region
2. Iran-Anatolia region
3. The Mediterranean basin and its Eastern Coastal region
4. Mountains of Central Asia

Above Biodiversity Hotspot regions are blessed with a variety of exceptional plant species and habitat, but facing endemism and serious habitat loss. Hence, it is our duty to protect and



conserve the endemic species and their habitat. We can conserve biodiversity in two ways- first is in-situ and second is ex-situ. In-situ conservation involves in the maintenance of biodiversity rich area in its natural form, whereas in ex-situ conservation, the endangered species are kept in a specially protected area which is separated from its natural habitat region.

## **WILDLIFE CONSERVATION**

**Wildlife conservation** refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change.

The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International.



## **IMPORTANCE OF WILDLIFE CONSERVATION :**

### **1. Wildlife maintains balance in ecosystems**

Every living thing is connected. If even just one organism becomes threatened or extinct, it has a domino effect on an entire ecosystem. It disrupts the food chain, sending shockwaves through the environment. It's also important to know that threats to species rarely happen in isolation. The things that threaten, say, honeybees also threaten other pollinators. For ecosystems to thrive, all wildlife must be protected.

### **2. Diversity means healthier ecosystems**

When discussing wildlife, you'll often hear the term "biodiversity." This refers to the number of species in an ecosystem. Healthy ecosystems have a lot of diversity. Why is this important? Consider plants. A wide variety of plants means greater productivity and better health. If there are fewer plant species, a disease that affects them spreads faster and more effectively. More variety means better resistance.

### **3. Wildlife provides nutrients to humans**

Everything we eat comes from either an animal or plant originally. While we don't eat as much "wildlife" as we used to because the food supply chain has become so industrial, crops and animals were wildlife at one point. Many people still depend on wildlife for their food, as well. Without a variety of food sources, our nutrition suffers. Protecting wildlife and natural habitats strengthens food security around the world. We can also improve nutrition by returning to more wild food sources and diversifying our diets.

### **4. People depend on wildlife for their livelihoods**

For many people, wildlife is their main source of income. According to the World Economic Forum, \$44 trillion (more than half the world's GDP) is tied to nature. In the Global South, 1.6 billion people depend on forests. Globally,  $\frac{3}{4}$  jobs depend on water. As wildlife and their habitats shrink, jobs are lost.

## Methods Used for the Conservation of Wildlife:

Methods of conservation of faunal and floral species are broadly classified into two methods, such as In-situ conservation and Ex-situ conservation.

### In-situ conservation

In-situ conservation is the most appropriate method. This approach includes protection of total ecosystems through a network of Protected Areas. The common natural habitats (protected areas) that have been set for in-situ conservation of wildlife include national parks, sanctuaries, biosphere reserves, several wetlands (mangroves, coral reefs etc.), sacred groves and lakes.

### Ex-situ conservation

Ex-situ conservation involves cultivation of rare plants and rearing of threatened animal species in zoological and botanical gardens and preservation of the plant species in the form of seeds in seed banks etc. by means of tissue-culture techniques. Individuals of the species are maintained in artificial conditions under human supervision. These methods include maintaining gene banks, pollen preservation and the most useful is the cryopreservation by with tissue culture and germ plasm conservation are made.

## LIST OF BIOSPHERE RESERVES OF INDIA

Sr. No	Year	Name	State	Type	Key Fauna
1	2008	Great Rann of Kutch	Gujarat	Desert	Indian Wild Ass
2	1989	Gulf of Mannar*	Tamil Nadu	Coasts	Dugong or Sea Cow
3	1989	Sundarbans*	West Bengal	Gangetic Delta	Royal Bengal Tiger
4	2009	Cold Desert	Himachal Pradesh	Western Himalayas	Snow Leopard
5	1988	Nanda Devi*	Uttarakhand	Western Himalayas	NA
6	1986	Nilgiri Biosphere Reserve*	Tamil Nadu, Kerala and Karnataka	Western Ghats	Nilgiri Tahr, Lion-tailed macaque
7	1998	Dihang-Dibang	Arunachal Pradesh	Eastern Himalaya	NA
8	1999	Pachmarhi Biosphere Reserve*	Madhya Pradesh	Semi-Arid	Giant Squirrel, Flying Squirrel
9	2010	Seshachalam Hills	Andhra Pradesh	Eastern Ghats	NA
10	1994	Simlipal*	Odisha	Deccan Peninsula	Gaur, Royal Bengal Tiger, Wild elephant
11	2005	Achanakamar -Amarkantak*	Madhya Pradesh, Chhattisgarh	Maikala Hills	NA
12	1989	Manas	Assam	East Himalayas	Golden Langur, Red Panda
13	2000	Khangchendzonga	Sikkim	East Himalayas	Snow Leopard, Red Panda
14	2001	Agasthyamalai Biosphere Reserve	Kerala, Tamil Nadu	Western ghats	Nilgiri Tahr, Elephants
15	1989	Great Nicobar Biosphere Reserve*	Andaman and Nicobar Islands	Islands	Saltwater Crocodile
16	1988	Nokrek*	Meghalaya	East Himalayas	Red Panda
17	1997	Dibru-Saikhowa	Assam	East Himalayas	Golden Langur
18	2011	Panna	Madhya Pradesh	Ken River	Tiger, Chital, Chinkara, Sambharand Sloth bear

### **GOVERNMENT INVOLVEMENT :**

In the US, the Endangered Species Act of 1973 was passed to protect US species deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally, and educationally important. In the same year, the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) was passed as part of an international agreement to prevent the global trade of endangered wildlife. In 1980, the World Conservation Strategy was developed by the IUCN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans. In 1992, the Convention on Biological Diversity (CBD) was agreed on at the UN Conference on Environment and Development (often called the Rio Earth Summit) as an international accord to protect the Earth's biological resources and diversity.

According to the National Wildlife Federation, wildlife conservation in the US gets a majority of its funding through appropriations from the federal budget, annual federal and state grants, and financial efforts from programs such as the Conservation Reserve Program, Wetlands Reserve Program and Wildlife Habitat Incentives Program. A substantial amount of funding comes from the sale of hunting/fishing licenses, game tags, stamps, and excise taxes from the purchase of hunting equipment and ammunition.

### **NON-GOVERNMENT INVOLVEMENT :**

In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental organizations (NGOs) . Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 “earmarking U.S. Agency for International Development (USAID) funds for [biodiversity]”. From 1990 till now, environmental conservation NGOs have become increasingly more focused on the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving

the quality of the environment and its natural resources became a “priority” to “prevent international tensions” according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.

## CONCLUSION :

The goal of wildlife conservation is to protect and nurture nature and wildlife which is integral in maintaining balance in nature.. Aims of wildlife conservation are-

- 1) Maintaining healthy wildlife populations
- 2) Maintaining the number of animals in balance with their habitats.
- 3) Keeping track of current habitat conditions and breeding populations
- 4) preventing total extinction of species.

Wildlife conservation has become an increasingly important practice due to the negative effects of human activity. Wildlife conservation creates awareness to recognise the importance of wildlife for their aesthetic, scientific and ecological values.

NGO's and government agencies of many nations are dedicated to wildlife conservation. Along with several non profit organisations they help to implement policies to protect wildlife and promote various wildlife conservation processes.

## **BIBLIOGRAPHY:**

- <https://www.ugc.ac.in/oldpdf/modelcurriculum/chapter4.pdf>
- [https://en.m.wikipedia.org/wiki/wildlife\\_conservation](https://en.m.wikipedia.org/wiki/wildlife_conservation)
- <https://www.globalteer.org/importance-of-wildlife-conservation>
- <https://socratic.org/questions/what-is-the-goal-of-wildlife-conservation>

**Name:** Fiona Flora Rozario

**CU Roll no.** 202223-11-0093

**CU Registration no.** 223-1211-0170-20

**College Roll no.** ENGA20F352

**AECC-2 ENVS Project**

***AECC ENVS Project on  
Wildlife Conservation.***



Wildlife is a national resource that maintains ecological balance and is bifacial for economic, recreational and aesthetic purposes. Wildlife can be found in all ecosystems, deserts, rainforests, plains and other areas including the most developed urban sites- all have distinct forms of wildlife. Wildlife Conservation is a collective term that includes animals, bear, butterflies, crustaceans, fish, moths, aquatic and land vegetation which forms a part of a habitat. While the term in popular culture usually refers to animals that are untouched by human factors, most scientists agree that carbide around the world is impacted by human activities.

Domesticating wild plant and animal species for human benefit has occurred many times all over the planet and has a major impact on the environment, both positive and negative. With the expansion of agriculture and industrial acuties, the number of ruled animals has declined. Some of the species have become extinct and other are on the verge of being so. Mass-scale killing of wild animals for their meat, bones, fur and skies, depleted their numbers. Pollution, climate charge, deforestation, industrialization and population explosion have destroyed the natural habitat of wildlife; hunting, habitat reduction and land degradation have threatened the biodiversity in the industrialized world. Therefore the need for wildlife conservation has now become a necessity.



# Destruction of Wildlife.

The four most general reasons that lead to destruction of wildlife include overkill, habitat, impact of introduced species and chains of extinction, poaching, pollution & climate change.



## 1. Overkill

This happens whenever hunting occurs at a rate greater than the reproductive capacity of the population being exploited the effects of this are often noticed much more dramatically in slow grouping populations such as many larger species of fish. If a portion of a ruled population is hunted, an increased availability of resources is experienced increasing growth and reproduction as density dependent inhibition is lowered. However if this hunting continues at a rate higher than the rate at which new members of the population can reach breeding age and produce more young, the population will begin to decrease in number.

## 2. Habitat Destruction and Fragmentation

It is a process that describes the emergences of fragmentation or the destruction of the environment inhabited by an organism. Marine ecosystems are experiencing high rates of habitat loss and degradation and these processes are as the most critical threat to marine biodiversity.

Example of habitat destruction include garaging of bush land by farmed animals, changes to natural fire regimes, forest clearing for timber production and wetland draining for city expansion.



### 3. Impact of Introduced Species

Rats, cats, rabbits, dandelions and poison ivy are all examples of species that have become invasive threats to wildlife species in various parts of the world. Approximately 42 percent of threatened or endangered species are at risk due to invasive species.

Human health and economies are also at risk from invasive species. The impacts of invasive species on our natural ecosystems and economy cost billions of dollars each year. Many of our commercial, agricultural and recreational activities depend on healthy native ecosystems.

Invasive species cause harm to wildlife in many ways, when a new and aggressive species is introduced into an ecosystem, it may not have any natural predators or controls. It can breed and spread quickly taking over an area. Native wildlife may not have evolved defenses against the invader, or they may not be able to compete with species that has no predators.

### 4. Chains of Extinction

The final group is one of the secondary effects. All wild populations of living things have many complex intertwining links with other living things around them. Large herbivorous animals such as the hippopotamus have populations of insectivorous birds that feed off the many parasitic insects that grow on the hippo. Should the hippo die out, so too will these groups of birds, leading to further destruction as other species depended on the birds are affected. Also referred to as a Domino effect, this series of chain reactions is by far the most destructive process that can occur in any ecological community.



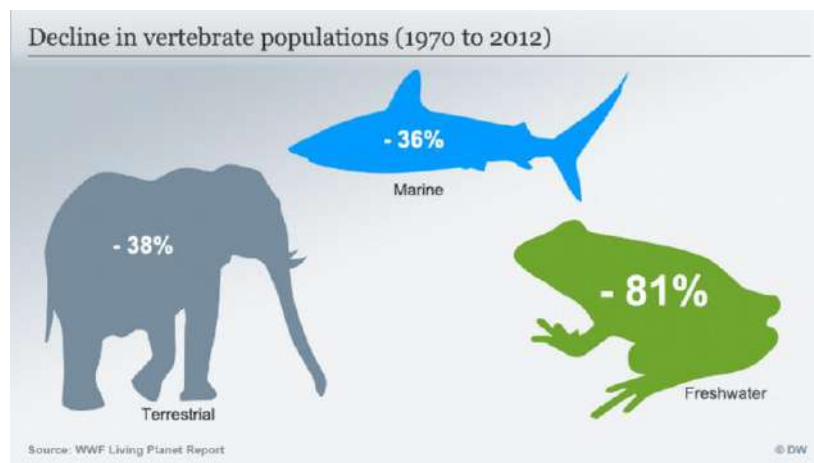
## 5. Poaching

It can be defined as illegal trading of animals. It is increasing day by day as they are very expensive and have high cost in the international market.



## 6. Pollution

It is one of the major threats to wildlife. Plastic, air, water and other types of pollutions play a major role in the destruction of habitat and reduce population of many species of animals.



## 7. Climate change

This plays an important role in every aspect. The temperature of the earth in the past few decades is increasing, which is causing the glaciers to melt, volcanic eruptions etc. Rise in water temperatures result in the Great Barrier Reef to lose its colours and large parts of the coral reefs die.

# Noise pollution and animals

We are noisy neighbours. Animals have adapted to the natural noises in their environment, but humans disrupt the soundscape with loud, unfamiliar sounds.

**AIR**

Birds can adjust how they sing to try and be heard over our noise. Some change their pitch and others try singing at night instead of during the day. Birds and bats may have trouble finding food in noisy areas because they can't hear their prey.

Noisy stuff →

- Transport
- Airports
- Gas wells

**LAND**

Australian pobblebonk frogs can usually hear each other up to 800 metres away, but in noisy areas this can be reduced to just 14 metres. In North America, noise from highway traffic makes it hard for prairie dogs to find food, hear predators, and communicate.

Noisy stuff →

- Traffic
- Construction
- Cities

**OCEAN**

Human noises can cause hearing loss in dolphins, porpoises and whales. They can interfere with animals' sonar and navigation systems, and their ability to communicate and find food. Octopuses and squid can lose their sense of balance, affecting their ability to hunt. Marine ecosystems can be disrupted as animals move to quieter areas.

Noisy stuff →

- Ships
- Oil & gas exploration
- Sonar

**What can we do?** While humanity doesn't plan on going silent any time soon, there are steps we can take to reduce the impact of noise pollution on animals. To help marine animals we could establish quiet areas in the ocean, and develop quieter ships and machinery. To help our animal friends of the land and air we could develop quieter cars, reduce traffic speed limits, and build noise reduction barriers around major traffic areas.

**Still curious?** Find out more about noise pollution at [nova.org.au](http://nova.org.au)

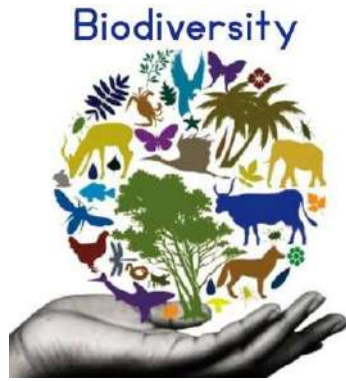
**nova**  
CC BY-NC 4.0



# Why is animal conservation important?



Conservation has several areas of importance—firstly Biodiversity is an important issue. Reduction in numbers of one animal interrupts the eco system and the natural food chain, and leads to the threat of other species. Secondly, Release Suffering which means to relieve suffering of animals that are kept captive. For example—use of elephants in South East Asia for tourism. Likewise, the use of orangutans in Indonesia for boxing shows, these activities cause suffering to animals and these create sharp population decline for the species. Thirdly, Human needs, all animals play an important role in the ecosystem. The loss or reduction of species can have a flow effect; including an effect on human food and water source that are critical to our survival. And fourthly, Water and air, keeping the eco system in balance helps providing with clean air and clean water that we all benefit from, people and animals.



## Biodiversity

**THE NEED FOR WILDLIFE CONSERVATION**

- To Maintain the balance of nature
- It has economic value
- It has scientific value
- It has recreational value
- It has cultural value
- It helps in the preservation of human civilization



### Wildlife sanctuary



Poaching

Capturing

### National Park



Flora, Fauna, Landscape and Historical objects

### Biosphere Reserve



It may contains other protected area in it

## Conserve Wildlife for Better Envisionment of Man.

In living memory, India's hunting Cheetah, which was the fastest land lion-which loves the country's national emblem, is confined only to a small pocket in the Gir forest of Gujarat. These are only a few of the examples in the last 500 years, one in every 100 of the world's higher animals extinct, and the shadows are closing around several more.



The concern for wildlife is however, the concern for a man himself. All form of life—human, animal and plant are so closely interlinked that disturbance in one give rise to imbalance in the other. If species of a plant or animals becomes endangered they signify a degradation in the environment which may threaten man's own existence. So conservation of wildlife is an essential part of environment by conservation, we do not mean merely preservation, but conservation means the utilization of renewable national resources in such a manner that they are not allowed to destroy but are to be used later.

In order to conserve the wildlife the following methods are currently being used for the wildlife conservation:

- **Habitat Management**- It encompasses all the ways we work to maintain to enhance uncommon, exemplary and vulnerable natural communities on our wildlife sanctuaries. This frequently involves a passive approach, which means monitoring our land to ensure objectives are being met. In specific cases, this requires active intervention to improve conditions for plants and animals.
- **Breeding in captivity**- Sometimes species find it extremely to survive in their favorable environment. Such species can be protected area that satisfies the conditions favorable for survival. Tree species such as Ginkgo has survived only in captivity.



- **Controlled Hunting-** When there's an increase in the no. of a species in a given area threatening not only its endurance but also that of other species, such no.s must be reduced by controlled hunting or by restoring its natural enemies where they have become scarce.
- **Reintroduction-** Several animals and plants have become extinct, they were allowed to regenerate and reproduce and flourish in suitable places similar to the original ones, later they were reintroduced in several park and sanctuaries and areas of their habitat.
- **Mass education-** For any conservation program, there is a great need of educating the people to achieve their partition.



# Wildlife Conservation in India

Nature has assisted always in making mankind prosperous however we are not talking about the Wildlife Conservation in India about what it gives to us but it is what the humans give back to nature in return.

Does protecting the rare species in the world and taking required dealings for the species which are on the edge of disappearance means anything to us?

The natural schemes and programs initiated by the government of India like Project Tiger, Asiatic Lion Reintroduction Project, Project Snow Leopard, Nature Camps, Jungle Lodges and Resorts have been planned to encourage wildlife alertness in the people. These plans help not only in conserving our nature but also promote eco-tourism in India.

## Project Snow Leopard

This project was launched in 2009, aims to promote inclusivity and participatory approach to conservation of the species. To add to this project, **SECURE HIMALAYA** is another initiative taken to conserve high altitude biodiversity. Save Our Snow Leopards (SOS) is another initiative launched by WWF India in collaboration with Tata Housing Development Company 2014, it aims at assessing the status and distribution of snow leopards through setting up cameras traps. Also aims to promote conservation strategies.



## Project Tiger

It was launched in 1973, in Palamau Tiger Reserve, Jim Corbett National Park, Uttarakhand. This is a centrally sponsored scheme of the Ministry of



Environment and Forests. The aim of this project is the protection of tigers from extinction. The project began from nine reserves in 1973-74 and has substantially grown into 50 reserves. It has seen a significant success in the recovery of the habitat and the population of the tigers in the reserved areas.



### Asiatic Lion Reintroduction Project

This project was an initiative of the Indian Government to provide safeguards to the Asiatic lion from extinction in the wild by means of reintroduction. The last wild population of the Asiatic lion is found in the region of Gir Forest National Park.



The most attractive present that God has offered to the beautiful nature are the wildlife, they decorate the natural loveliness by their exclusive method of survival. But due to the rising crash of deforestation, some worried wildlife lovers are putting together regular efforts to protect the endangered wildlife as well as those animals are the edge of disappearance and protect the earth from losing our natural heritage.

Few of the schemes and wildlife conservation in India which includes Project Tiger etc. has been as of now the successful first in defending and conserving the royal tiger population in India

**Gir National Park of Gujarat** - the last home of Asiatic lions in India

**Kaziranga National Park**- preserving the highly endangered one-horned rhinoceros.

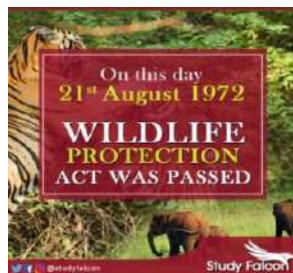
**Periya National Park in Kerala**- preserving the wild elephants

**Dachigam National Park of Jammu & Kashmir**- protecting the Hangul or Kashmiri Stag.



## Wild life Protection Act

More than 50 wildlife sanctuaries in India have been designated as tiger reserves and protected areas under the Wild Life Protection Act, 1972 (WPA-1972)



It is an Act of the Parliament of India enacted for the protection of plants and animals species. Prior to this legislation, India had only 5 designated national parks. The Act established schedules of protected plant and animal species; hunting or harvesting these species was largely outlawed. The Act provides for the protection of wild animals, birds and plants; and for matters connected therewith or ancillary or incidental thereto. It extends to all territory under the Indian government.

All the animals in Schedule I of the Wildlife Protection Act are granted protection from poaching, killing, trade etc. Those committing crimes under this are liable to be punished with the severest punishment under Indian

Law for such crimes. Section of the Wild Life Act prohibits the hunting of any animals in India.

The International Union for Conservation of Nature (IUCN)- Established on 5<sup>th</sup> October 1948 in the French town of Fontainebleau, has the global authority on the status of the natural world and the measures needed to safeguard it. IUCN publishes the revised statuses of animals in its Red List of Threatened Species.

## **List of animals that are granted protection under WPA-1972:**

1. **The Black Buck**- This animal was earlier founded in undivided India, is now found only in India, Nepal & Pakistan and is extinct in Bangladesh. Its mostly found in shrub lands or thin forests. Killing this animal through any means can attract a punishment of a minimum one year and a maximum of 6years, with a fine of Rs10,000.
2. **Brow Antlered Deer**- Also known as Eld's Deer, this deer is indigenous to South Asia, especially in Manipur, Myanmar and Thailand.
3. **Chinkara**- Also called the Indian Gazelle and is native to Iran, Afghanistan, Pakistan and India. It is found in arid plains and hilly areas, deserts, dry shrub areas and thin forests, Karnataka government in 2001 announced that it is establishing a sanctuary in Yadahalli village in Bagalkot district dedicated especially to the Chinkara.
4. **Capped Langur**- Its an herbivore animal found in the tropical dry forests or subtropical forests of Northeastern region of India, Myanmar and in Bangladesh.
5. **Bengal Tiger**- This sub- species is one of the 9 species of tigers, one of the most charismatic endangered species on the planet. Found in India, Bangladesh, Nepal and Bhutan. Around 2,500 and 3,700 tigers survive in India alone, which makes up around 3quarters of the worlds population.

Apart from the above mentioned species of mammals, the other mammals that are protected under this Act are—Binturong, Caracal, Cloud Leopard, Dugong, Hispid hare, Kashmir Stag, Lion-tailed macaque, Loris, Marbled cat and many others.



The Wildlife Protection Act is for securing protection of the wild life. The way the wild animals are vanishing from the earth, there is an absolute urgent need to stop hunting and killing of wild animals in general and endangered species in particular. Several species of animals have become extinct and several others are at the verge of extinction. Therefore the need for wildlife conservation has now become a necessity.

To conclude, by conserving wildlife and forest we are ensuring that all diverse species in an area survive, breed and flourish. Conservation of wildlife and forests is vital for ecological stability. Forest are the habitat for wildlife and they are an important constituent of the various food chains and food webs. Taking care of the world's wildlife is everyone's responsibility. The big corporate companies have a lot of power over what is produced. However, demand from the consumers is equally as important. Know that your actions have power too. Such as your consumption habits, traces you leave in terms of waste, as well as your awareness and worded opinions.



## **Bibliography**

<https://blog.ipleaders.in/top-5-conservation-projects-wildlife-india/amp/>

<https://india.wcs.org/Programmes/Human-wildlife-interactions>

<https://www.globalteer.org/importance-of-wildlife-conservation/>

<https://www.insideindianjungles.com/wildlife-conservation-in-india/>

[https://wwf.panda.org/wwf\\_news/?360235/world-wildlife-day](https://wwf.panda.org/wwf_news/?360235/world-wildlife-day)

# **PROJECT OF ENVS (AECC)**

Name : YASHODHARA MAZUMDER

College Roll No. : ENGA20F316

CU Roll No. : 202223-11-0095

CU Registration No. : 223-1211-0178-  
20

Department of : ENGLISH HONOURS  
(SEMESTER 2)

Topic :

# WILDLIFE CONSERVATION



*' Wildlife plays a significant role in the ecosystem '*

# WILDLIFE

Wildlife has a crucial role in balancing the ecosystem. The importance extends to the spheres of economic importance, investigatory importance, gene bank, conservation of biological diversities, cultural importance, etc.

Wildlife is defined under *Section 2(37) of the Wildlife Protection Act, 1972* to include any animal, either aquatic or terrestrial and vegetation that forms a part of any habitat. The legislation has been implemented for the protection of wild animals, birds and plants with a view of ensuring the ecological and environmental security. In addition, a



*Wildlife Crime Control Bureau* has been established to curb the illegal trade of wildlife, including endangered species.



*' Forests and Livelihoods '*

# WILDLIFE CONSERVATION

Wildlife conservation is the practice of protecting plant and animal species and their habitat. The goal is to ensure the survival of these species and to educate people on living sustainably with other species. It aims to protect plant and animal species as the human population encroaches on their resources. Much like us, all wild animal and plant species are component of the biodiversity and so we must take every measure to protect it.

Prominent conservation agreements include include the 1973 *Conservation of International Trade in Endangered Species of Wild Fauna and Flora (CITES)*

and the 1992 *Convention on Biological Diversity (CBD)*.



*' Sustaining all life on Earth '*

# HUMAN-WILDLIFE CONFLICT

Human-wildlife conflict (HWC) occurs when animals pose a direct and recurring threat to the livelihood or safety of people, leading to the prosecution of that species. Though people and wildlife have coexisted for millennia, HWC is one that is becoming much more frequent, serious and widespread and a global concern for conservation and development alike. It affects most large carnivores as well as many other species.

As countries increasingly grapple with this multi-faceted challenge, HWC is beginning to appear in national policies and strategies for wildlife, development

and poverty alleviation. Almost every country in the world hosts some form of HWC, and highly biodiverse developing countries particularly struggle with this issue.

HWC often severally impacts the livelihoods, security and well being of the people from whom we ask support for wider conservative goals, and affects many nations trying to align with, and benefit from, conservation and development programmes.

Efforts to address the obvious problems without fully considering the underlying socio-political conflicts fuelling the situation often result in only temporary fixes or, worse, exacerbating

pre-existing tensions. Coordinated and collaborative conservation actions are therefore required to deliver meaningful results and allow communities to shift from conflict to coexistence with wildlife.



*' The growing human population is one of the few major reason behind the Human-Wildlife Conflict '*

# THREATS TO WILDLIFE

Wildlife on planet Earth is under siege from all sides, facing down habitat loss and the impact of climate change. Some of the biggest threats to wildlife include illegal wildlife trade, habitat destruction, invasive species, pollution and climate change.

**ENDANGERED  
SPECIES**

## 1. ILLEGAL WILDLIFE TRADE

The illegal wildlife trade is the fourth largest criminal industry in the world, after drugs, arms and human trafficking. Gathering in over \$US20 billion a year, it is also one of the biggest threats to some of the most iconic species on the planet.





## 2. HABITAT DESTRUCTION

The fires that swept across the Amazon and Australia rightly drew attention to just how fragile the most important ecosystems are. Half of the world's original forests are gone, and what remains is being cut down ten times faster than it can be replaced.



### 3. INVASIVE SPECIES

Whether accidentally or intentionally introduced, the non-native species grow and reproduce rapidly, then spread across ecosystems aggressively. They are one of the leading threats to native wildlife, putting 42% of threatened or endangered species at risk.





## 5. CLIMATE CHANGE

From more regular and fiercer storms to more prolonged and more intense droughts, the impact of climate change is rising ocean temperatures and diminishing Arctic sea ice affecting marine biodiversity, shifting vegetation zones and forcing species to adapt to new conditions.



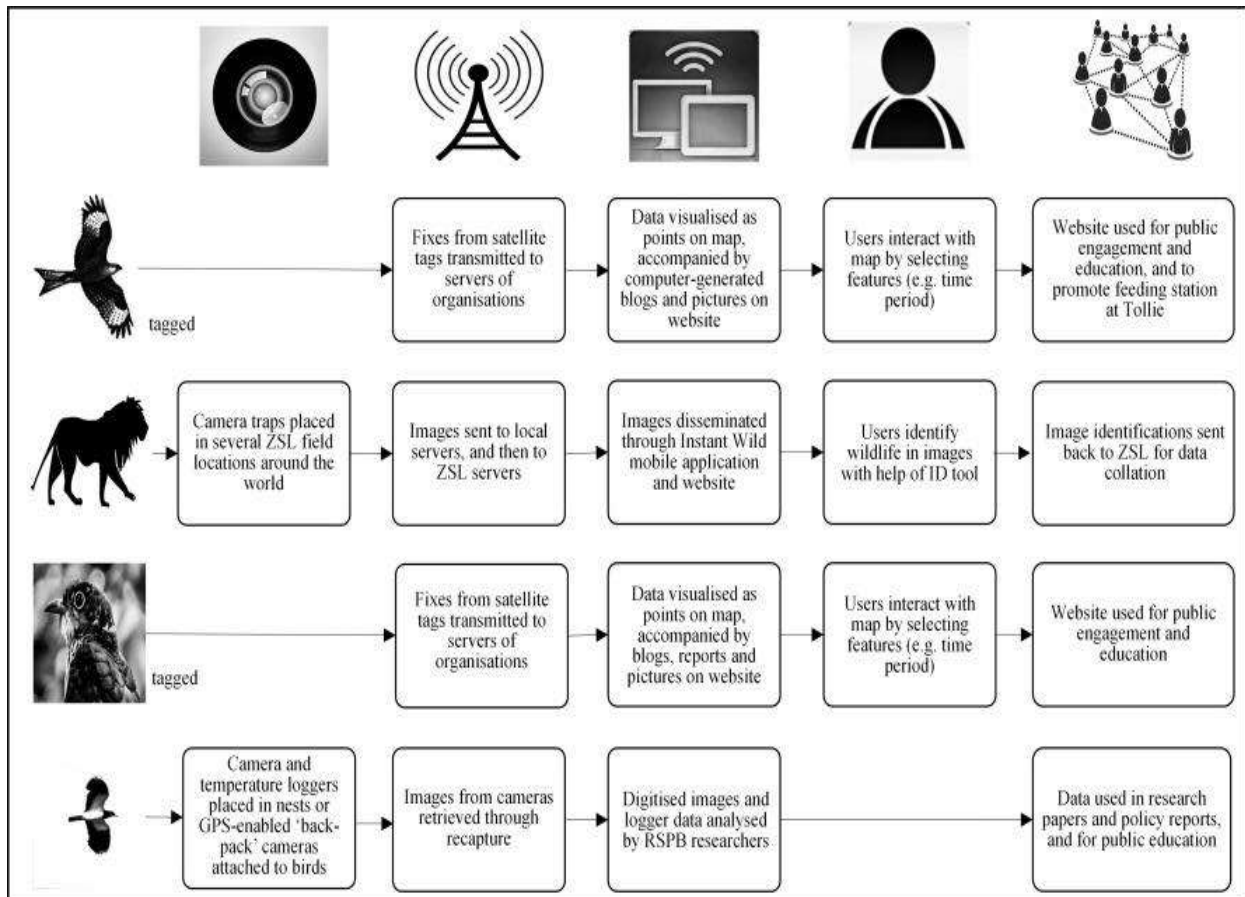
# CONSERVATION METHODS

Monitoring of wildlife populations is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations.

Monitoring methods can be categorized as either "*direct*" or "*indirect*". Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on

"signs" that indicate the animals are present.

A popular method is to use camera traps for population estimation along with mark-recapture techniques. Trail cameras are triggered remotely and automatically via sound, infrared sensors, etc. Computer vision-based animal individual re-identification methods have been developed to automate such *sight-resight* calculations.



*‘ New technologies capture wildlife data through networks of sensors and humans ’*

# ENDANGERED SPECIES ACT

The *Endangered Species Act (ESA)* of 1973 is our nation's strongest law protecting wild plants and animals. It is enforced by the *U.S. Fish and Wildlife Service (USFWS)* and the *National Marine Fisheries Service*. Under the ESA, a species can be designated as "threatened" or "endangered". Threatened and endangered species are protected under the provisions of the ESA, which restricts human activities that may harm these species and their habitats. Due in part by protections under the ESA, many species have been brought back from the brink of extinction.



The ESA's mission statement provides for the conservation of species that are endangered or threatened and the conservation of the ecosystems on which they depend. The ESA replaced the Endangered Species Conservation Act of 1969. It has been amended several times since 1973.

Among the 1,880 species listed under the ESA, approximately 1,310 are found in part or entirely in the US and its waters. The remainder are foreign. This includes wildlife and plantlife. Nearly 1200 animals and 750 plants.

ESA listing is responsible for the recovery of many species that would have gone extinct without protection.

Because of the remedies of ESA, the Peregrine Falcon numbers increased from 324 to 1,700 between 1975 to 2000.



*' There are approximately 1,880 species under the ESA '*

# IMPORTANCE OF WILDLIFE CONSERVATION

Human activities like agriculture, expansion, logging and poaching are usually the biggest causes of flora and fauna extinction and biodiversity loss. In a bid to counteract this wildlife conservation is mandatory as it comes with numerous benefits for both animals and humans.

## 1. WILDLIFE MAINTAINS BALANCE IN ECOSYSTEM

Every living thing is connected. If even just one organism becomes threatened or extinct, it has a domino effect on an entire ecosystem. It disrupts

the food chain, sending shockwaves through the environment. It's also important to know that threats to species rarely happen in isolation. The things that threaten, say, honeybees also threaten other pollinators. For ecosystems to thrive, all wildlife must be protected.

## 2. DIVERSITY MEANS HEALTHIER ECOSYSTEM

When discussing 'wildlife', we often come across the term *biodiversity*. This refers to the number of species in an ecosystem. Healthy ecosystems have a lot of diversity. A wide variety of wildlife means greater productivity, better health and more resistance.

### 3. WILDLIFE PROVIDES NUTRIENTS TO HUMANS

Everything we eat comes from either an animal or plant originally. While we don't eat as much 'wildlife' as we used to because the food supply chain has become so industrial, crops and animals were wildlife at one point. Many people still depend on wildlife for their food, as well. Without a variety of food sources, our nutrition suffers. Protecting wildlife and natural habitats strengthens food security around the world. We can also improve nutrition by returning to more wild food sources and diversifying our diets.

#### 4. A LOT OF MEDICINE COMES FROM WILDLIFE

Humans have always turned to nature for medicine. Many medical systems still rely on herbs, spices, and more, but even pharmaceuticals wouldn't be where they are today without wildlife. Medicines like morphine, penicillin, and aspirin were derived from wild plants. When searching for cures to diseases like cancer and Alzheimer's, researchers still look to nature. The more wildlife options they have to study, the better.

#### 5. WILDLIFE HAS CULTURE SIGNIFICANCE

Wildlife conservation areas and preserved natural habitats attract visitors from all over the world. Many places

depend on wildlife for tourism, which makes up over 10% of the world's GDP. Countries like Brazil, Australia, Kenya, and more are especially dependent on tourism, . Without wildlife, the economy of many countries would suffer significantly.



*'Only the youth around the world can prevent habitat loss now'*

# WAYS TO CONSERVE WILDLIFE

There are more than 7 billion people on Earth and if each one of us commit to do one thing to protect wildlife, even minor actions will have a major impact. Here are ways we can make a difference.

1. Planting native plants in our garden or on any land is a great way of preserving the natural habitat of local creatures. This is not only good for the population of these animals but also helps guard against invasive species, which causes problems for the native fauna.



2. Recycling is a great way to minimize our use of non-renewable resources and make the most out of our materials. Easy on the environment as well as the economy, there is really no good reason not to recycle. If we can't reuse, we should recycle.
  
3. Driving is a reality of everyday life, and most will find themselves driving to and from work. Driving is not particularly good for the environment; however, emissions from car exhausts contribute heavily to CO<sub>2</sub> pollution in the air. By driving more economically, slowing down and braking less, we

can minimize the amount of exhaust fumes your car pumps out.

4. Donating to wildlife charities. While this may seem somewhat obvious, the fact of the matter is that the more money these charities receive, the more they can do to help conservation efforts around the world. Whether we set up a standing order or make a one-off payment, we can donate a large amount or just put our spare change in a bucket. Every little bit of money helps.
  
5. Indiscriminate killing of wild birds and animals, whether they are in abundance, should not be allowed

anywhere. National Parks and Sanctuaries should be established in more numbers for preserving the natural habitats of wild animals and birds throughout the country.

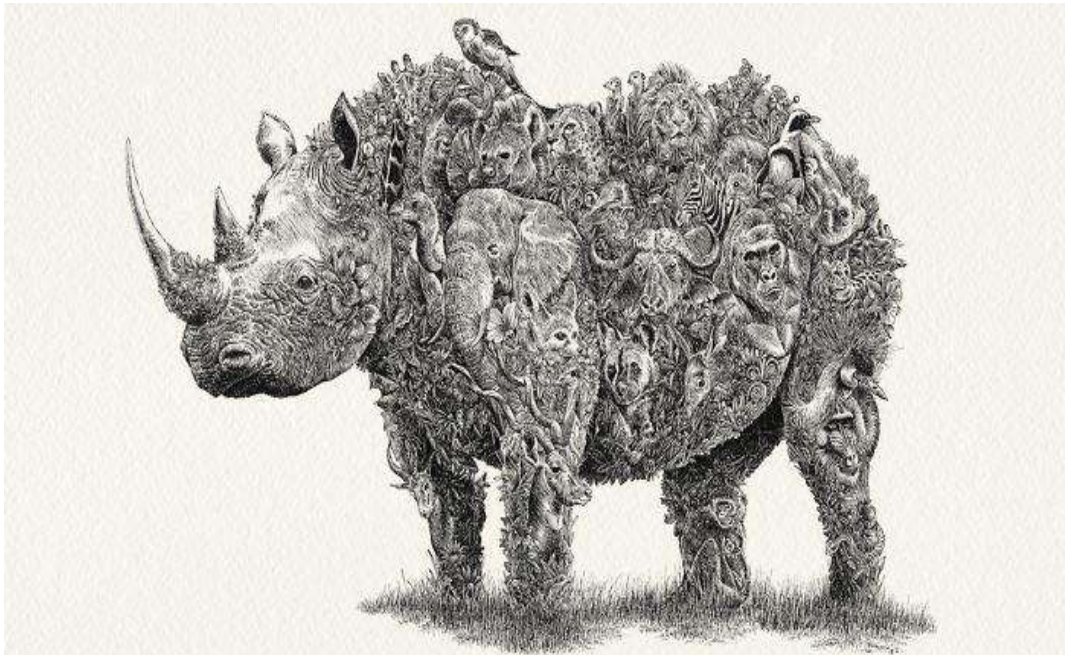


#163026221

*' Save the natural fund of Earth '*

# CONCLUSION

Wildlife is an integral part of our planet. It plays a significant role in the ecology and the food chain. Disturbing their numbers or in extreme cases, extinction can have wide-ranging effects on ecology and humankind. Valuing and conserving forest and wildlife enhance the relation between man and nature.



Thus in order to have a healthy future,  
we must take steps before it's too late.  
Never leave an opportunity to celebrate  
the world's diverse regions and wildlife.

# BIBLIOGRAPHY

I have derived my research materials from the following websites :~

1. [https://en.m.wikipedia.org/wiki/Wildlife\\_conservation](https://en.m.wikipedia.org/wiki/Wildlife_conservation)
2. <https://www.notesonzology.com/wildlife/wildlife-conservation-purpose-and-methods-zoology/4330>
3. <https://www.fws.gov/international/laws-treaties-agreements/us-conservation-laws/>

# ACKNOWLEDGEMENT

It is my proud privilege to release the feelings of my gratitude to several persons who have helped me directly or indirectly to conduct this research project work. I express my heartfelt indebtedness and owe a deep sense of gratitude to my professors for their sincere guidance and inspiration. I also thank all my fellow mates who have more or less contributed to the preparation of this project report. The study has indeed helped me to explore more knowledgeable avenues related to my topic and I am sure it will help me in my future.





**Subject – ENVS**

**Paper – AECC2**

**Topic – Wildlife Conservation**

**Semester- II**

**Roll No.- ENGA20F348**

**CU Roll No. - 202223-11-0102**

**CU Registration no- 223-1211-0192-20**

**Session – 2020-2021**

## Acknowledgment

I would like to express my sincere thanks to all professors of ENVS . for their valuable guidance and support in completing my project. I would also like to express my gratitude towards our principal DR. MADHUMANJARI MANDAL for giving me this great opportunity to do a project on Wildlife Conservation . Without their support and suggestions, this project would not have been completed. I would also like to thank my fellow classmates who encouraged me to work on this project .

## **Introduction**

Standing in 2021 , our main motto should be “ Live and Let live”. But Greed’s triumph over conscience and moral values in human nature , has destroyed the very idea of a world inhabited by every single species . The International Union for Conservation of Nature declared 15 species extinct in only 2020 . So while fighting for equal rights for every human being so vigorously , we should also secure the other animals’ right to live . This is why some good-willed men proposed to conserve those endangered species .

## **Wildlife conservation**

Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world’s ecosystems, wildlife provides balance and stability to nature’s processes. The aim of wildlife conservation is to assure the survival of these species, and to spread awareness on living sustainably with other species. Along with it , Wildlife conservation also aims to increase awareness about the necessity of every single creature of biodiversity . A simpler definition of wildlife conservation is helping others species’ existence through sustainable practices to ensure future generations can enjoy it as well.

Conservation is a term frequently confused with preservation. But in the terms of environmental studies , Preservation and Conservation are two different methods of savings the wild life . While preservation is the idea that human should be completely disconnected from the wildlife after making a safe place for them . Preservation prefer not to interfere, allowing nature to take its course, regardless of the consequences to the species in question, or collateral damage to humans and other species in their shared habitat. On the other hand Conservation refers to complete protection of wildlife while maintaining the natural relation of dependency on one another.

Simply conservation seeks the proper use of nature, while preservation seeks protection of nature from use.

### **Necessity of Wildlife conservation**

The real reason to conserve wildlife in the wild is to conserve the ecosystems in which the relevant animals (and plants) live, because these ecosystems provide us with clean air, clean water, food, and shelter. Forest removal has climatic effects, increases erosion and silts up rivers.

Wildlife consists of flora and fauna, i.e. plants, animals and microorganisms which are not domesticated by humans. On the other hand conservation is preserving and protecting wild plants, animals and their habitats. Therefore, we can say that the Conservation of Wildlife is necessary to recognize the importance of nature and other wildlife species. Rivers, prairies, forests, wetlands, oceans, and everything else in nature is the cradle for wildlife, which are disappearing rapidly. Habitat is the place where all living things find favorable conditions to survive, reproduce, and thrive. Pollution, land development, deforestation, and natural disasters are a few reasons why the wildlife and the number of species are decreasing rapidly today. When habitat is threatened or destroyed, the wildlife living in the habitat is threatened as well. When roads or new developments destroy the habitats of wild animals, they must move and find new places to thrive, putting pressure on the ecology and nature.

### **Threats to Wildlife**

There are now 41,415 species on the International Union for Conservation of Nature and Natural Resources (IUCN) Red List, and 2700 of them are endangered species threatened with extinction. This includes both endangered animals and endangered plants. IUCN estimates that 27,000 species of the ones assessed are at risk for extinction but when expanding to all existing species, according to a 2019 UN report on biodiversity, this estimate is higher at a million species. It's also being acknowledged that an increasing number of ecosystems on earth containing endangered species are disappearing.

Illegal Wildlife Trade: The illegal wildlife trade is the fourth largest criminal industry in the world, after drugs, arms, and human trafficking. Gathering in over \$US20 billion a year, it is also one of the biggest threats to some of the most iconic species on the planet, like the rhino and the elephant.

Habitat Destruction: The fires that swept across the Amazon and Australia rightly drew attention to just how fragile the most important ecosystems are. Half of the world's original forests are gone, and what remains is being cut down ten times faster than it can be replaced.



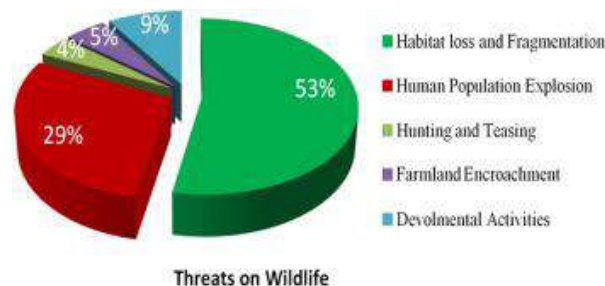
Australian bushfires

Invasive Species: Whether accidentally or intentionally introduced, the non-native species grow and reproduce rapidly, then spread across ecosystems aggressively. They are one of the leading threats to native wildlife, putting 42% of threatened or endangered species at risk.

Pollution: There are 500 times more pieces of micro plastic in the sea than there are stars in our galaxy. Eight hundred million tonnes of plastic are dumped into the ocean each year, washing up on previously pristine parts of the planet and is a threat to the survival of more than 600 species of marine wildlife.

Climate Change: From more regular and fiercer storms to more prolonged and more intense droughts, the impact of climate change is rising ocean temperatures and diminishing Arctic sea ice affecting marine biodiversity, shifting vegetation zones and forcing species to adapt to new conditions.

To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife.



## Different types of Wildlife conservation

Wildlife Conservation can broadly be divided into two types:

In-situ: Conservation of habitats, species and ecosystems where they naturally occur. This is in-situ conservation and the natural processes and interaction are conserved as well as the elements of biodiversity.

Biodiversity at all its levels, genetic species and As intact ecosystems, can be best preserved in-Situ by setting aside an adequate representation of wilderness as 'Protected Areas'. These Should consist of a network of National Parks And Wildlife Sanctuaries with each distinctive Ecosystem included in the network. Such a network would preserve the total diversity of life Of a region.

However species cannot be protected individually as they are all inter dependent on each other. Thus the whole ecosystem must be protected. The biologist's view point deals with areas that are relatively species rich, or those where rare, Threatened or endangered species are found, Or those with 'endemic' species which are not Found elsewhere. As rare endemic species are found only in a small area these easily become extinct due to human activity. Such areas must be given an added importance as their biodiversity is a special feature of the region. Animals such as elephants require different types of habitat to feed in during different seasons. They utilize open grasslands after the rains when the young grass shoots are highly nutritious. As the grasses dry, the elephants move into the forest to feed on foliage from the trees. A Protected Area that is meant to protect elephants must therefore be large enough and include diverse habitat types to support a complete complement of inter linked species.

In-situ conservation is not always possible as habitats may have been degraded and there may be competition for land which means species need to be removed from the area to save them.

In-situ Conservation is all about creating a protected area for wildlife conservation.

Ex-situ: The conservation of elements of biodiversity out of the context of their natural habitats is referred to as ex-situ conservation. Zoos, botanical gardens and seed banks are all example of ex-situ conservation.

Protected areas of India for "In-Situ" Conservation of Biodiversity:

Three types of protected areas- Wildlife Sanctuaries;

National Park , Biosphere Reserves were created in India for “In-Situ” conservation of bio diversity. As on 31 March, 1994 there were 421 Wildlife Sanctuaries, 75 National Park, 14 Biosphere Reserved in India covering about 4% of total geographical area. In-situ conservation of wildlife is a comprehensive system of protected areas. There are different categories of protected areas, which are managed with different objectives for bringing benefits to the society. The major protected areas include: (i) National Parks, (ii) Sanctuaries, (iii) Biosphere reserves etc. These areas vary considerably in size, design, purpose and effectiveness of management.

**National parks :** According to the Indian Board for Wild Life (IBWL), “a National Park is an area dedicated by statute for all time to conserve the scenery, natural and historical objects, to conserve the wild life there in and to provide for enjoyment of the same in such manner and by such means, that will leave them unimpaired for the enjoyment of future generations with such modification as local conditions may demand”.

The famous National parks are the Great Himalayan National park ( Himachal Pradesh) , Kaziranga National Park ( Assam) , Kanha National park ( Madhyapradesh), Ranthambhore National Park ( Jaipur) , Periyar National Park ( Kerala ) , Gir National Park (Gujrat) etc.

**Sanctuaries:** The Indian Board for Wild Life has defined a sanctuary as, ‘An area where killing, hunting, shooting or capturing of any species of bird or animal is prohibited except by or under the control of highest authority in the department responsible for the management of the sanctuary and whose boundaries and character should be sacrosanct as far as possible.’

There are a number of wildlife sanctuaries in India that are worth visiting and that are home to a lot of different species of animals . Some of them are Bhadra Wildlife Sanctuary (Karnataka) , Tadoba Andhari Tiger Reserve (Maharashtra), Kutch Desert Wildlife Sanctuary (Gujarat), Indian Wild Ass Sanctuary (Gujarat), Koyna Wildlife Sanctuary (Maharashtra), .

**(iii) Biosphere Reserves :** Biosphere Reserves have been described as undisturbed natural areas for scientific study as well as areas in which conditions of disturbance are under control. These serve as the centres for ecological research and habitat

protection, the Biosphere consists of three zones - core area , Buffer Zone I , Transition area .

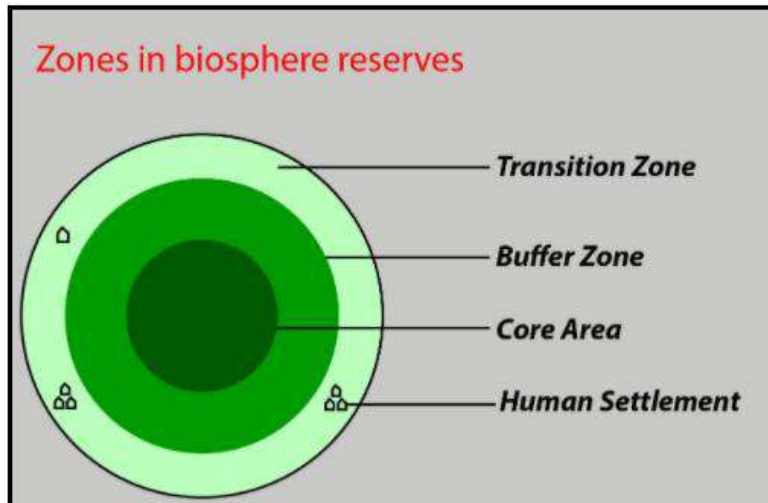


Figure: Biosphere reserve.

Some of the most important biosphere reserves are Nilgiri biosphere reserves , Andaman biosphere reserve , Sundarbans Biosphere Reserves etc.

In-situ : In-situ conservation' means the 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 or cultivated species, in the surroundings where they have developed their distinctive properties .

In-situ conservation' means the 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 or cultivated species, in the surroundings where they have developed their distinctive properties .

### Endangered species

Endangered species are species which will disappear in near future without leaving any specimen of the species. The last individual of the species will be dead in a esteemed future. This process is known as extinction.

The International Union for Conservation of Nature commonly known as IUCN has categorised the animal world in several lists. Those are –



- Extinct (completely dissolved, no known living individual) Ex.- saber-toothed Cat, Golden toads , Dodos,
- Extinct in Wild (only surviving in captivity) Ex.- Northern White Rhinoceros, Alagoas Curassow , Guam Kingfisher
- Critically Endangered (Extremely high risk of extinction in the wild) Ex. The Beluga sturgeon, Sunda Tiger , Western Lowland Gorilla ,
- Endangered (High risk of Extinction in the wild) Ex. Siberian Tiger , Iberian lynx , Malayan Tapir , Indian Pangolin
- Vulnerable (High risk of endangerment in the wild) Ex. Snares penguin , Black Spider Monkey , Giant Panda ,
- Near Threatened (Likely to become endangered in the near future) Ex. Jaguar , White Rhino , European Otter , Man wolf
- Conservation Dependent (Low risk; is conserved to prevent being near threatened, certain events may lead it to being a higher risk level) Ex.- black caiman, sinarapan ,South American river turtle
- Least Concern (Lowest risk; does not qualify for a higher risk category. Widespread and abundant taxa are included in this category). Ex. Arctic Fox, Grey Whale , Amazon River Dolphin , Brown Bear ,
- Data Deficient (Not enough data to make an assessment of its risk of extinction)

- Not Evaluated (Has not yet been evaluated against the criteria.)



List of species 1

### ‘Critically Endangered’ Mammals In India :

- Himalayan Brown/Red Bear (*Ursus arctos isabellinus*) Himalayan Brown/Red Bear

Distribution : Nepal, Tibet, north India, and north Pakistan.

Threats: loss of suitable habitat and persecution by humans



Himalayan Brown Bear

- Pygmy Hog (*Porcula salvania*)

Distribution: Previously spread across India, Nepal, and Bhutan. Now only found in Assam (Manas Wildlife Sanctuary and its buffer reserves).

Threats: The main threats are loss and degradation of grasslands, dry-season burning, livestock grazing and afforestation of grasslands. Hunting is also a threat.



Pygmy Hog

- Malabar Civet (*Viverra civettina*)

Distribution: Western Ghats.

Threats: Deforestation and commercial plantations are major threats.



Malabar Civet

- Namdapha Flying Squirrel (*Biswamoyopterus biswasi*)

Distribution: Found only in Namdapha Tiger Reserve in Arunachal Pradesh.

Threats: Hunted for food.



Namdapha Flying Squirrel

- Kashmir stag/hangul (*Cervus elaphus hanglu*)

Habitat: Dense riverine forests, high valleys, and mountains of the Kashmir valley and northern Chamba in Himachal Pradesh.

Threat: habitat destruction, over-grazing by domestic livestock, and poaching.



Kashmir Stag

## Endangered Mammals In India

- Red Panda

Habitat: Sikkim and Assam, northern Arunachal Pradesh.

Threats: habitat loss and fragmentation, poaching, and inbreeding depression.



Red Panda

- Golden langur (*Trachypithecus geei* )

Distribution: small region of western Assam and in the neighbouring foothills of the Black Mountains of Bhutan.

Threats: Deforestation, human encroachments.

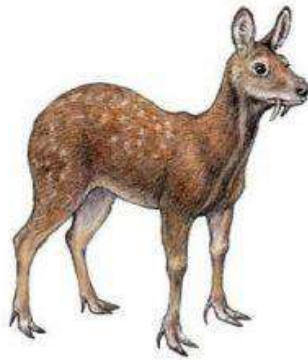


Golden Langoor

- Himalayan / White-bellied Musk Deer

Habitat: Kashmir, Kumaon and Sikkim.

Threatening : poaching & illegal trade for its musk. Only males produce the musk.



Musk deer

There are many More species like Eld's deer/thamin or brow-antlered deer (*Panolia eldii*), Dhole/Asiatic wild dog or Indian wild dog (*Cuon alpinus*), Lion-tailed macaque/ wanderoo (*Macaca silenus*).

### **Conservation steps taken by Government of India**

Besides initiating several conservation projects of wild animals like Project Tiger , Project Elephant , Crocodile Conservation Project , Indian Government has also initiated additional schemes to protect endangered animals and for wildlife protection in general.

Indian Government came up with the Wildlife Protection Act in 1972, and created several protected Areas like National Parks, Sanctuaries, Conservation Reserves

and Community Reserves for protecting wildlife. There's law in place now that punishes those involved in illegal acts such as hunting, poaching.

Wetland (Conservation and Management) Rules 2010 have been drafted to protect wetlands in India. The National Plan for Conservation of Aquatic Eco-System provides assistance to the various states for proper management of all wetlands.

Some acts imposed by the government are Fisheries Act 1897

Indian Forests Act 1927, Prevention of Cruelty To Animals 1960 , Wildlife Protection Act 1972, Conservation Act 1980 , Environment Protection Act 1986 , Biological Diversity Act 2002. .

There are some non- Governmental NGOs who are working on Wildlife Conservation too.

## **Conclusion**

We live in a way where every small thing has its impact and every thing is interconnected . To be a help to wildlife conservation , We first need to remember this. As a Species better than any other creature of this planet , We human have to save the biodiversity from ourselves. We can help to conserve the biodiversity by taking active parts in Wildlife Projects , by Spreading Awareness and by launching campaign . All the rules can make a difference only if co- operate .

## Bibliography

### Websites

- [https://en.m.wikipedia.org/wiki/Italian\\_renaissance\\_painting](https://en.m.wikipedia.org/wiki/Italian_renaissance_painting)
- <https://www.pmfias.com/>
- <https://www.nationalgeographic.com/>
- <https://www.clearias.com/>

# **PROJECT ON WILDLIFE CONSERVATION**

Name of the college : Scottish Church College

Paper to be mentioned : AECC ENVS

Core Course number : AECC 2

Name of the student : Mohita Sarkar

Colloege Roll No : ENGA20F315

CU registration number : 223-1212-0050-20

CU Roll no. : 202223-11-0114

Semester : 2<sup>nd</sup> Semester

Session : 2020

Email id of the student : [mohitasarkarn18@gmail.com](mailto:mohitasarkarn18@gmail.com)



# **ACKNOWLEDGEMENT**

I would like to express my special thanks of my gratitude to my AECC Dept professors who gave me the golden opportunity to do this wonderful project and helped me in completing my project. I came to know about so many things. I am very thankful to ma'am.

# **WILDLIFE CONSERVATION**

## **WHAT IS WILDLIFE CONSERVATION :**

Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting , fishing, and poaching.

National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

National Geographic Explorers, like conservation biologists Camille Coudrat and Titus Adhola, are working to slow the extinction of global species and to protect global biodiversity and habitats. Environmental filmmakers and photographers, like Thomas P. Peschak, are essential to conservation efforts as well, documenting and bringing attention to endangered wildlife all over the world.

Filmmakers and photographers are essential to conservation efforts. They take the photographs, such as these Asian elephants and the films that interest others in protecting wildlife.

### **THE NECESSITY OF WILDLIFE CONSERVATION:**

- 1) Wildlife serves as gene pool for pest-resistant strains :- Scientists look for resistant strains in wild plants because wild plants have evolved features resistant to disease.
- 2) Wildlife enriches food production:-Bees, bats, birds, among other animals help plants become productive by serving as agents of pollination.
- 3) Wildlife is a source of medicine: more than 40,000 species of plants, animals, fungi and microscopic animals are used in some way to benefit humans more than a third of pharmaceuticals originated from wild plants.
- 4) Wildlife has bequest value. The goal of wildlife conservation is to ensure that nature will be around for future generations to enjoy and also to recognize the importance of wildlife and wilderness for humans and other species alike.

### **WHAT ARE WILDLIFE SANCTUARIES, NATIONAL PARK AND**

### **BIOSPHERE RESERSVE:**

**WILDLIFE SANCTUARY:** A Wildlife Sanctuary is an area where animals and birds can live protected and safe in their natural habitats, away from poaching or trafficking. It is also known as a natural reserve, biosphere reserve or a nature conservation area. Example: Bharatpur Bird Sanctuary , Rajasthan .



**NATIONAL PARK:** National park, an area set aside by a national government for the preservation of the natural environment. A National park may be set aside for purposes of public recreation and enjoyment or because of its historical or scientific interest.

Example : Gir in Gujarat .



**BIOSPHERE RESERVE:** Biosphere Reserve is a term given by UNESCO which stands for places where typical species of flora and fauna exist. Examples: Sunderbans in West Bengal and Nilgiris in Tamilnadu. Protection is also granted to the local people to preserve their ethnic identity.



## **WILDLIFE CONSERVATION IN INDIA**

### **ENDANGERED SPECIES IN INDIA :**

Indian elephant, Bengal tiger, Indian lion, Indian Rhino, Gaur, lion tailed macaque, Tibetan Antelope, Ganga river dolphin, the Nilgiri Tahr, snow leopard, dhole, black buck, great Indian bustard, forest owlet, white – winged duck and many more are the most endangered animals in India .

India is home to different types of animals, birds and fishes which include some important farm animals like goats, poultry, cows, buffaloes, pigs etc. The country is also a habitat for wild animals like Bengal tigers, deer, wolves, pythons, Indian lions, bears, snakes, monkeys, many types of bison, Asian elephants and antelope species. India is one of the mega diverse countries out of a total of seventeen mega diverse countries in the world. These seventeen mega diverse countries, including India, are the habitats of around 60 – 70% of the world's biodiversity. The Western Ghats, The Eastern Himalayas and Indo–Burma are the three biodiversity hotspots out of total 34 in the whole world.

India has 6.5% of the world's total wildlife species according to a report which was published by the United Nations Office on Drugs and Crime (UNODC) that includes 7.6% of all mammals and 12.6% of all bird species.

According a report issued by the International Union for Conservation of Nature (IUCN) Red List in 2014, 15 species of birds, 12 species of mammals, and 18 species of reptiles and amphibians have joined the critically endangered list.



### **REASONS OF ENDANGERMENT :**

1. Loss of habitat is one of the primary reasons for the endangerment of species. Today, human intervention plays a major role in the destruction of the natural landscape. Human activities like removal of trees that provide both food and shelter for innumerable number of species, mining and agriculture.
2. Over hunting and poaching has a very destructive and catastrophic effect on the number of animals and fishes all over the world.

3. Pollution like air pollution, water pollution and waste pollution, especially in the form of plastic plays a very dominant role in the endangerment of animal species. Pollution not only causes health hazards for humans, but it affects the animals also.

### **WILDLIFE PROJECTS IN INDIA :**

The need to create wild life projects is to preserve the endangered species. It must be understood that some animal species are more endangered than others, because their numbers have fallen to alarming levels due to poaching, reduction of habitat, pollution of water bodies and other man made disturbances like electromagnetic waves from mobile towers. Some of these projects are funded by the World Wildlife Fund (WWF) while, others are funded by the Government.

**1. Project Tiger** - In order to save the Tiger, the Indian government started the 'Project Tiger' in 1973-74, with the objective of restraining, as well as augmenting the declining population of tigers in the country. Under the project, nine wildlife sanctuaries were taken over and developed into tiger reserves. These reserves were developed as exact replicas of the varied terrains of the country, with their core area being free of any human movement. With time, the number of sanctuaries under the ambit of 'Project Tiger' was increased and by 2003, it had been increased to 27. Project Tiger helped increase the population of these tigers from 1,200 in the 1970s to 1700 in 2011.

**2. Project Elephant** - Project Elephant (PE), is a centrally sponsored scheme, launched in February 1992, to provide financial and technical support to major elephant bearing States in the country, for protection of elephants, their habitats and corridors. It also seeks to address the issues of human-elephant conflict and welfare of domesticated elephants. The Project is being implemented in 13 States / UTs , viz. Andhra Pradesh , Arunachal Pradesh , Assam , Jharkhand , Karnataka , Kerala , Meghalaya , Nagaland , Orissa , Tamil Nadu , Uttarakhand, Uttar Pradesh and West Bengal. 25 Elephant Reserves (ERs) extending over about 58,000 sq km have been formally notified by various State Governments till now. The estimated population of wild elephants is in excess of 25000.

**3. Project Hangul** - The Kashmiri stag also called Hangul is a subspecies of Central Asian Red Deer native to Northern India. This deer lives in groups of two to 18 individuals in dense riverine forests, high valleys and mountains of the Kashmir Valley and Northern Chamba, in Himachal Pradesh. In Kashmir, it is found in the Dachigam National Park, at elevations of 3,035 meters. The population of these deers has fallen from 5,000 animals in the beginning of the 20th century to about only about 150 animals by 1970. However, the state of Jammu & Kashmir, along with the IUCN and the WWF prepared a project for the protection of these animals, named as Project Hangul. This brought great results and the population of this species has now increased to over 340 by 1980.

**4. Crocodile Conservation Project** - The Indian Crocodile Conservation Project is considered among the more successful of conservation initiatives in the world. It has pulled back the once threatened crocodilians from the brink of extinction and placed them on a good path of recovery. The Project has not just produced a large number of crocodiles, but has contributed towards conservation in a number of related fields as well.

**5. Project Sea Turtle** - A significant proportion of world's Olive Ridley Turtle population migrates every winter to Indian coastal waters, for nesting mainly at Eastern Coast I Orissa. The Ministry of Environment & Forests in 1999 has initiated the Sea Turtle Conservation Project in collaboration with UNDP, with the objective of conservation of Olive Ridley Turtles and other endangered marine turtles. The Wildlife Institute of India, Dehradun has been designated as the Implementing Agency. The project is being implemented in 10 coastal States of the country with special emphasis in the State of Orissa .

**6. Vulture Conservation in India** - India has nine species of vultures in the world. The population of three species i.e. White-backed Vulture, Slender-billed Vulture and Long-billed Vulture in the wild has declined drastically over the past decade. The decline of Gyps genus in India has been put at 97% by 2005. Due to this evidence, all three vulture species were listed by IUCN, the World Conservation Union, in 2000 as 'Critically Endangered'. The workshop to prepare an Asian Vulture Recovery Plan held at Parwanoo in Himachal Pradesh, India in February 2004 recommended the establishment of captive holding and captive breeding facilities for three species of Gyps vultures at six different places in South Asia, besides implementing a

ban on veterinary use of Diclofenac. These centres would serve as source for reintroduction of the birds after removal of the cause of mortality from the environment.

**7. Indo-Russian Cooperation on Migratory Birds** - MoEF has also signed a protocol with Russian counterpart, for conservation of migratory bird species between the two countries. It has been agreed to develop joint projects of mutual interest on migration and nesting behaviour of Siberian Cranes and common cranes and also to exchange scientific and official information on issues relating to wetland management, conservation of avi-fauna etc.

**8. Other Projects** - After the success of animal projects, the government has now initiated several new projects for conservation of other endangered animals like, The Himalayan Musk Deer Ecology and Conservation Project, Project Lion, Project Snow Leopard and endangered Birds / Pheasant Projects.

### **IMPORTANT CONFERENCES FOR WILDLIFE CONSERVATION :**

**1. Convention on Migratory Species** : The CMS kicks off the environmental super year with its conference in India in February to discuss the many issues confronting species that live and travel across national boundaries. Nothing exemplifies the need for governments to cooperate internationally more than the threats confronting birds, large terrestrial mammals, whales, sharks and many other species that traverse the planet. The meeting will see efforts to add the Asian elephant, the jaguar and more shark species to the list of animals protected by CMS.

**2. The International Maritime Organization** : The IMO's Marine Environmental Protection Committee (MEPC) also meets at the end of March. On its agenda is a proposal led by Canada to enhance the work of the IMO on underwater noise. Sound is vital for the survival of many ocean species. Noise pollution, primarily from shipping, affects marine mammals and many fish species, by limiting their ability to communicate, navigate, find mates, detect prey and predators – essentially their ability to survive. The MEPC meeting will also see further discussion on how to limit greenhouse gas emissions from shipping; one of the major contributors to global warming. The MEPC meets again in October.



**3. UN Ocean conference :** A second UN Ocean Conference takes place in Lisbon, Portugal, in June. Following the first ever UN Ocean conference in 2017, governments will again meet to catalyse further action to protect the ocean in what is a critical year for marine conservation.

**4. UN high-level biodiversity summit :** As part of the environmental super year, the UN aims to gather world leaders at a meeting alongside the UN General Assembly in September, to generate the necessary political will to drive through an ambitious new deal for nature, to be negotiated at the Convention on Biological Diversity meeting the following month.

### **STEPS TAKEN BY GOVT. FOR WILDLIFE PROTECTION -**

The exploitation of wildlife for trade and other benefits of human have resulted in enacting and enforcing various legislations and Acts in almost all the countries of the world. India is also not untouched with this as it is a country with rich biodiversity. The laws enacted with the objective of protecting and conserving wildlife has strict provisions but despite these laws, the exploitation of wildlife resources and their illegal trade continues. The hunting, poaching of animals and uprooting of trees, using of various endemic species of plants for various purposes have led to the threat of extinction and loss of biodiversity in the country. The Wildlife Protection Act, Customs Act, Import-Export policies in India though has provisions in regulating the conservational measures and trade of wildlife species, especially the endangered species, the illegal hunting and poaching activities and trade is still flourishing and these endangered species are still exploited. The WP Act also does not cover the foreign endangered species of plants and animals and hence does not have the authority to protect such foreign species if they are being hunted or poached or used.

It is noticed that the punishment and penalties for offences made under the Act is not enough to stop and control exploitation of wildlife. The offenders are still able to get away by paying fines and those who are fighting cases are also not bothered since the cases in the Indian Courts are resolved too slowly. The reason for it also accounts for the lakhs of backlog cases pending in the District Courts and other courts. Hence, the verdict by the courts in such cases takes approximately 10 years and by this time the offenders flourish in their activities and the exploitation of wildlife continues.

There is another problem identified that the Forest departments and the Forest Officers are not able to work effectively in implementing the laws and facilitate the conservation activities because they are not adequately trained or have adequate resources. It is seen that the enforcement mechanism of the laws in India for the conservation and protection of wildlife is also complicated in nature. The laws, on one hand, enable the forest officers to protect the forests resources, but they are not given any powers to make policies pertaining to the situation which further creates problems in the confiscation of the felled timber or the poached animal. This has further helped in increasing exploitation activities. On the other hand, the forest department itself plays a role in the exploitation activities for their selfish reasons and corruption. It has been noticed that the forest officials have never involved the local people residing in the surrounding places to stop the exploitation of wildlife despite the fact that these people can actually help in preventing the exploitation and protecting the wildlife resources.

Recently, a new problem has come into the notice of environmentalists, NGOs and Law keepers concerned with the protection and conservation of wildlife. This issue pertains to the killing of many birds, listed in the Schedule I of the Wildlife Protection Act, 1972, due to human recreation of flying kites. Many birds listed in Schedule I are killed by the threads, called as 'manja' locally, which is used for Kite flying, especially the Chinese thread. In spite of the imposed ban on the use of Chinese thread for kite flying under Section 5 of the Environment (Protection) Act, 1986, it is still in use among the people. This has killed quite a number of birds which are endemic to this country while some of these birds belong to migrating species.

## **POSSIBLE SOLUTIONS IN WILDLIFE CONSERVATION AND**

### **IMPLEMENTATION OF LAWS:**

All the problems pertaining to wildlife protection and conservation needs to be addressed strictly adhering to the law and finding some alternative solutions too so that the wildlife could be protected and conserved. To stop the criminal and illegal activities of exploitation of wildlife resources in India, some stronger measures are required to be introduced. These measures could

be in the manner of conducting awareness programmes among the public and the officials concerned with wildlife protection and the law enforcement personnel.

**Awareness among Public and Officials:** Towards the objective of protecting and conserving wildlife, there is a need to provide awareness among the forest and other government officials who are deputed in the protected areas and reserves. These concerned personnel should be provided with training and research in wildlife conservation measures and the legal provisions available for their protection. There is also a need to involve the local people who live in the surrounding areas of the protected areas by sensitizing them about the importance of wildlife conservation and protection and the relevant laws governing it. The local people should be apprised of all the available provisions of laws in protecting and conserving the wildlife and the threatened species. They should also be informed about the penalty and punishment in case of violation of any laws and harming the wildlife. This will help in an increased awareness among the local people which will further help in providing support to the forest officials who are working in these protected areas as well as the government officials.

**Recognizing and involving NGOs:** The Non-Governmental Organizations (NGOs) also play an important role in the protection and conservation of wildlife with the help of their initiatives. One such organization is the Wildlife Protection Society of India which works towards providing information and support to the authorities of the government concerned with wildlife protection and conservation so as to fight illegal trade of wildlife and poaching of wild animals thereby saving the environment. The involvement of such NGOs will considerably help in protecting the wildlife resources in India. Some more solutions to protect and conserve wildlife can be done by in-situ & ex-situ breeding, increasing resilience of natural reserves and creation of biosphere reserves and their management.

**In-situ and Ex-situ Conservation:** In-situ and Ex-situ conservation strategies are one of the important strategies for conservation of wildlife, especially the endangered species of plants and animals. In-situ conservation strategy is carried out in the natural habitat of these species while ex-situ conservation is carried out in a place outside their natural habitat. These conservation strategies are beneficial in the reintroduction and translocation of wildlife thereby protecting the threatened species from the threat of climate change and human activities. These types of conservation of plants and animals includes captive breeding of animals and plants which are

threatened by various activities of human and the climate change and are found to be on the verge of extinction. These conservation activities are carried out in protected areas but these strategies also depend on the severity of climate change and its effect on the species.

**Creation and Management of Biosphere Reserves:** Creation and management of several biosphere reserves and other protected areas is an important strategy to protect and conserve wildlife. It includes connecting the corridors and habitat matrices which helps in linking fragmented reserves and landscapes by providing dispersal and migration of flora and fauna. In, India, there are 18 biosphere reserves at present. These reserves have been set up by the Government of India in order to protect and conserve wildlife. The human activities in and around these protected areas have posed various kinds of problems and threats to the wild animals and plants. Thus, the government needs to be alert and watchful about the activities of human, including research activities in these reserves. The Central government as well as the state governments should work together in coordination in maintaining these biosphere reserves and oversee that the officials deputed in these reserves are working in consonance with the legal provisions and regulations. The government should make stricter provisions of punishment also if the laws are violated and wildlife is harmed.

## **CONCLUSION :**

The wildlife protection and conservation is a huge task in India with the growing concerns of illegal trade and exploitation of wildlife resources. This objective cannot be achieved until and unless all branches of the government authorities, villagers & local people residing in and around the protected areas, non-profit and nongovernmental organizations, law enforcement officers and the general public work together towards this goal. India has a rich heritage and is gifted with natural resources which are precious and endemic to the country and thus makes it a biodiversity rich country. Hence, there is a need for everyone to protect this rich resource and maintain a balanced environment. The laws pertaining to the protection of wildlife and their natural habitat enacted and enforced in the country though provides strict legal provisions for the very cause of wildlife protection and conservation, it is still observed that the ground reality is not the same. The wildlife is still exploited; the animals are still hunted and traded for human benefits. Even the use of harmful substances in industries, daily activities of man, construction of roads and buildings, leisure and entertainment activities causes adverse effect on the environment which in turn affects the wildlife and their natural environment. Illegal hunting and trade of wildlife are still taking place in India without abiding by the norms of these laws. Thus, a strong need for awareness of wildlife protection and conservation among the public is required and effective & strict implementation of these laws needs to be done by every state. The state governments are required to keep vigilance on the effective implementation of wildlife protection laws and conservation at the district and municipal level. The need for effective strategies and solutions for the protection of wildlife in India and conservation of wildlife is the need of the hour. The government must work in accordance to the present needs and demands in a situation when these wildlife species are threatened and many of which have come to the verge of extinction. The state governments and central government is required to work together and implement all the relevant laws and conservation strategies in order to protect the wildlife and prevent illegal hunting and trade of these endangered species and wildlife as a whole.

## **BIBLIOGRAPHY:**

1. Thapar, V., Land of the Tiger: A Natural History of the Indian Subcontinent, University of California Press (1998)
2. Tritsch, M.E., Wildlife of India Harper Collins, London (2001)
3. Singh, C., India's Forest Policy and Forest Law, Natraj Publishers, Dehradun (2000)
4. Singhar, A. S, Laws for Protection of Wildlife in India: Need for Awareness towards Implementation and Effectiveness, Indian Forester (2002)

# **SCOTTISH CHURCH COLLEGE**

## **ENVS PROJECT**

**NAME – ANWESHA DAS**

**COLLEGE ROLL NO – ENGA20F331**

**DEPARTMENT – ENGLISH HONOURS**

**C.U ROLL NO – 202223-11-0119**

**C.U REGISTRATION NO – 223-1212-0099-20**

**SEMESTER – 2**

**TOPIC – WILDLIFE CONSERVATION**

## **ACKNOWLEDGEMENT :**

I, Anvesha Das, student of 2nd Semester of the Department of English, wish to express my sincere gratitude towards all our ENVS teachers for their constant guidance and support throughout the project work .

I would also wish to thank our principal ma'am, Dr. Madhumanjari Mandal , our vice-principal, Dr. Supratim Das as well as all our teachers of the Department of English for giving me the opportunity to work on this project and also for their constant motivation. Without their supervision I may not be able to complete my project.

Lastly, I would like to thank my family who gave me great support to complete this project in such a limited time frame.



## **CONTENTS :**

### **TOPIC**

### **PAGE NO**

• Wildlife Conservation	03 - 13
1. Introduction	03
2. Objectives of Wildlife Conservation	04
3. Causes of Wildlife Depletion	04 - 06
4. Effects of Wildlife Depletion	06 - 07
5. Methods of Wildlife Conservation	07 - 09
6. Governmental and Non- Governmental Measures for Wildlife Conservation	09 - 10
7. Importance of Wildlife Conservation	11 - 12
8. How can we promote Wildlife Conservation?	12
9. Conclusion	12 - 13
• Bibliography	14

## WILDLIFE CONSERVATION

### INTRODUCTION –

Wildlife resources constitute a vital link in the survival of the human species and have been a subject of much fascination, interest, and research all over the world. Today,



when wildlife habitats are under severe pressure and a large number of species of wild fauna have become endangered, the effective conservation of wild animals is of great significance. Major threats of wildlife include habitat

destruction, degradation, fragmentation, poaching, overexploitation, pollution, climate change and many more. Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems.

Human society depends on genetic resources for virtually all of its food; nearly half of its medicines; much of its clothing; in some regions, all of its fuel and building materials; and part of its mental and spiritual welfare.

Considering the way we are galloping ahead, oblivious of what legacy we plan to leave for future generations, the future does not seem too bright. Statisticians have projected that by 2022, the human population will have increased by more than half, and the arable fertile land and tropical forests will be less than half of what they are today. Genetic resources are treated as inexhaustible mineral resources, but we need to care about them. It is here that the concept of management and conservation of wildlife comes into play, because anything that is not human or undomesticated is 'wildlife'.

Presence or absence of an animal or plant in a region is determined by ecological and historical factors. Animals and plants are living indicators of the characteristics of their environment; their ranges mark the places where environmental conditions are the same or similar. To interpret the range of a species properly, it is necessary to know, in detail, the conditions required for the species to live and thrive. The science of zoogeography has both ecological and historical aspects. On this basis, the world can be divided into six zoogeographical regions:

Nearctic	North America and Greenland
Palearctic	Eurasia, without India
Ethiopia	Africa, south of the Sahara
Oriental	India and Indochina
Australian	Australia and New Zealand
Neotropical	South and Central America, and the Antilles

## **Objectives of Wildlife Conservation :**

The main objectives of wildlife conservation are :



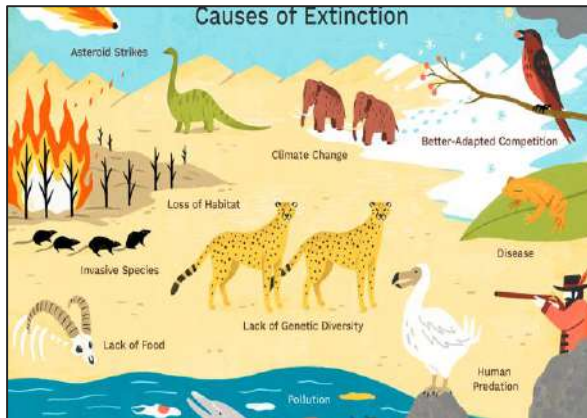
1. Protection of natural habitats of organisms through controlled exploitation.
2. Maintenance of rare species in protected areas such as national parks, sanctuaries etc.,
3. Establishment of specific biosphere reserves for endangered plants and animals.
4. Protection of wild life through legislation such as banning hunting etc.,
5. Imposing specific restrictions on export of endangered plants and animals or their products.
6. Educating the public about the need to protect and preserve the environment as a long range goal for the welfare of future generations.

## **Causes of Wildlife Depletion :**

Since the species have been evolved, species have been undergoing the process of extinction. The causes of extinction for each species are varied, some are complex, and others are simple. Some of the important causes of the depletion of wildlife are :

- **Destruction of Habitat** – The single biggest cause of extinction today is loss of habitat. Agriculture, forestry, mining, and urbanization have disturbed or destroyed more than half of Earth's land area. Deforestation has killed off more species than we can count. Whole ecosystems live in our forests. It is predicted that all our rainforest can disappear in the next 100 years if we cannot stop deforestation.

- **Exotic species** introduced by humans into new habitats. They may carry disease, prey on native species, and disrupt food webs. Often, they can out-compete native species because they lack local predators.



- **Over – exploitation** – Over-exploitation is the harvesting of animals and plants at a rate that's faster than the ability of the species to recover. It can apply to many groups including mammals, birds, amphibians, reptiles and plants. The danger of over-exploitation is that if too many individuals of a species

are taken, then the species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to a decline in fish sizes as well as numbers.

- **Global climate change**, largely due to the burning of fossil fuels. This is raising Earth's air and ocean temperatures. It is also rising sea levels. These changes threaten many species.
- **Human overpopulation**, which is crowding out other species. It also makes all the other causes of extinction worse.
- **Poaching** – Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers and rhinoceros (traded for their tusks, skins and horns respectively). As because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.
- **Pollution** – When we introduce unnatural chemicals that contaminate our air, soil and seas, it interferes with the metabolism of animals and they are unable to cope. Air pollutants include carbon monoxide, sulfur dioxide and nitrogen oxides. Water and soil pollutants are heavy metals such as mercury, cadmium and lead, and pesticide and herbicide compounds. Pollution adds chemicals, heat, and noise to the environment beyond its capacity to absorb them. This causes widespread harm to organisms.

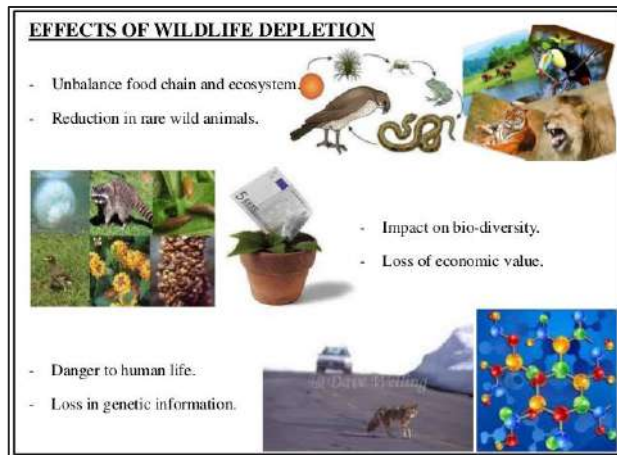
- **International trade** – The trade of some items of wild origin such as animals fur, bones, tusks, musk or as orchids, medicinal plants resulted in the decline of wild animals and plants.
- **Genetic pollution** – Extinction can threaten species evolved to specific ecologies through the process of genetic pollution i.e., uncontrolled hybridization, introgression genetic swamping which leads to homogenization or out-competition from the introduced (or hybrid) species.
- **Predation, competition, and disease** – In the natural course of events, species become extinct for a number of reasons, including extinction of a necessary host, prey or pollinator, inter-species competition, inability to deal with evolving diseases and changing environmental conditions (particularly sudden changes) which can act to introduce novel predators, or to remove prey.
- **Coextinction** – Coextinction refers to the loss of a species due to the extinction of another; for example, the extinction of parasitic insects following the loss of their hosts. Coextinction can also occur when a species loses its pollinator, or to predators in a food chain who lose their prey.

### **Effects of Wildlife Depletion :**

Wildlife Depletion poses serious impact in the environment as well as in the life of living beings. Some of the effects of wildlife depletion are :-

1. Loss of wildlife species eventually leads to extinction of a particular set of animal species. Normally if the animals do not get adequate food or water during a famine or drought they will perish without human or a country's Forest Department's assistance.
2. Similarly in Forest Fires, many plants, trees, birds, reptiles, insect species & animals get engulfed by fire . So they will also lose their lives if the forest fires are not doused on time.
3. Deforestation and Habitat Loss due to Developmental Works & Timber related Tree felling carried out by Human beings also causes untold damage to an ecosystem and many animals are deprived of their forests and a safe abode.
4. Hunting and Poaching of Animals also causes a depletion of a species of animals in number count.

5. Uncontrolled Fishing and Over Exploitation of Marine resources by Humans are also responsible for extinction of aquatic & amphibious varieties of animals & reptiles.
6. Releasing Toxic Pesticides & Industrial Effluents leads to Toxicity of Water bodies like rivers, lakes & water bodies and a lower biochemical oxygen demand will result



in elimination of aquatic life.

7. All of these causes lead to Depletion of Wild animals and their Former Habitats (Forests, Grasslands, Plains, Valleys) are completely wiped out and taken over by human beings for real estate projects, railways, roads, industries, aerodromes, yards etc.

8. So Greenhouse Effect will come into play, Ozone Layer depletion and Global Warming with climate change will become the order of the day with scanty rainfall, drought, smog and acid rains. Everybody is bound to suffer in future due to these wrongful methods being followed.
9. Basically if there are no big carnivores, then the forest will be full of herbivores and over-grazing will occur and the primary producers like grass, plants & shrubs will dwindle. The humans will be lesser afraid without the carnivorous animals, and they will take over the wild areas. Similarly if there are no primary producers or herbivores, then the pure carnivores will not find food to survive.

So if the wild has to survive, then it must have wild animals in its abode as a balanced ecosystem and a vice versa policy is also applicable. If the animals have to survive, they will definitely need a natural habitat to sustain their living.

### **Methods of Wildlife Conservation :**

The methods of conservation of wildlife are as follows :

1. **In – situ Conservation** – National parks, wildlife reserves and conservation area have been established as protected areas in different parts of Nepal. There are total 10 national parks, 3 wildlife reserves, 4 conservation areas, 1 hunting reserve and 11 buffer zones. The wildlife reserves, conservation areas and national parks are helping

in a conservation of the living beings in in-situ, that is, in their original places. The living beings get the proper natural environment, food and habitat there. Chitwan National Park, Langtang National Park, Parsa Wildlife Reserve, Annapurna Conservation Area, Dhorpatan Hunting Reserve, etc. are some examples.

2. **Ex – situ Conservation** – The artificial environment should be created for the conservation of rare living beings as in-situ conservation is not possible for all types of living beings. In order to conserve the disappearing and rare animals, birds and vegetation, the government has established a botanical garden, parks and zoos. Attempts are being made to create a suitable environment in the central zoo to conserve animals and birds. Similarly, botanical gardens are preserving different types of vegetation. These activities contribute to the conservation of biodiversity through protecting the genes of the living beings and assisting them to grow and reproduce.
3. **Awareness rising programme and conservation programme at local level** – Government and non-governmental organizations are involved in biodiversity



conservation. They create awareness of its forest and Soil Conservation Ministry has been conducting natural environment and watershed conservation programme.

Similarly, Ministry of Environment, Science and Technology formulates the policy on environmental conservation and implements it. It coordinates the programmes

contributing to the conservation of ecosystem and biodiversity. Biodiversity is a common property. So its conservation is the duty of all. Joint efforts can help to achieve the success. Conservation programme should be conducted at community levels. National Trust for Nature Conservation (NTNC) conducts programmes at local level whereas international organizations such as IUCN – The World Conservation Union, World Wildlife Fund (WWF) are also involved in conservation programmes. These programmes help in the conservation of biodiversity and environment as well.

4. **Study of Habitat** – In order to protect wildlife, a thorough knowledge of their habitat is essential. The critical habitat like feeding, breeding, nursery, resting areas of wildlife should be studied.

5. **International multilateral arrangements** – Wide-ranging animals and migratory birds cover large areas that may differ in habitat. Not merely known area but those areas that come on their routes should be protected to conserve the species. The habitats of migratory animals fall into two different nations, so, a bilateral or multilateral arrangement should be made to protect all the habitats.
6. **Legislation or protection by laws** – There should be proper legislative and administrative measures against the international trade of wildlife. People hunt animals for their valuable skin, horns, tusks, meat etc. To protect these animals, stringent laws should be enforced strictly.

## **Governmental and Non- Governmental Measures for Wildlife**

### **Conservation :**

#### **Governmental Measures :**

- In the US, the Endangered Species Act of 1973 was passed to protect US species



deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally and educationally important.

- In the same year, the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) was passed as part of an international agreement to prevent the global trade of endangered wildlife.
- In 1980, the World Conservation Strategy was developed by the IUCN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans.
- In 1992, the Convention on Biological Diversity (CBD) was agreed on at the UN Conference on Environment and Development (often called the Rio Earth Summit) as an international accord to protect the Earth's biological resources and diversity.
- According to the National Wildlife Federation, wildlife conservation in the US gets a majority of its funding through appropriations from the federal budget, annual federal



and state grants, and financial efforts from programs such as the Conservation Reserve Program, Wetlands Reserve Program and Wildlife Habitat Incentives Program.

- A substantial amount of funding comes from the sale of hunting/fishing licenses, game tags, stamps, and excise taxes from the purchase of hunting equipment and ammunition.

### **Non-governmental Measures :**

- In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental organizations (NGOs).
- Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 “earmarking U.S. Agency for International Development (USAID) funds for [biodiversity]”.
- From 1990 till now, environmental conservation NGOs have become increasingly more focused on the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving the quality of the environment and its natural resources became a “priority” to “prevent international tensions” according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.
- Many NGOs exist to actively promote, or be involved with, wildlife conservation. The Nature Conservancy is a US charitable environmental organization that works to preserve the plants, animals, and natural communities that represent the diversity of



life on Earth by protecting the lands and waters they need to survive.

- World Wide Fund for Nature (WWF) is an international non-governmental organization working on the issues regarding the conservation, research and restoration of the environment,

formerly named the World Wildlife Fund, which remains its official name in Canada and the United States.

## Importance Of Wildlife Conservation :

Conservation of wildlife is very important and care is to be taken against disappearing animals. The following points illustrate the importance of wildlife :

1. **Ecological balance** – Each species plays an important role in ecosystem by balancing the population, maintaining the food chain and natural cycle of the earth. They make the environment a self sustaining system. Example – if the wild animal deer is removed from the food-chain as shown below grass will increase and lions will decrease.

Grass (Producer) - Deer (Herbivore) - Lion (Carnivore)

It leads to ecological imbalance. Thus wildlife plays an important role in the



terrestrial ecosystem.

2. **Biological control** – Wildlife performs the function of biological control to keep a check on its animal and plant communities and their balance.

3. **Survival value** – The rich diversity of species surviving today on earth represent years of evolution

which constituted a heritage to the past.

4. **Scientific value** – Wildlife provides valuable information to naturalist in understanding the environment, ecology and behaviour of the animals. Various experiments of medical products are also done on these animals to study their impact on living organisms.
5. **Economic value** – By selling animals and animal products a country may earn money, therefore wild species economically important.
6. **Genetic value** – Because of why life is a great value in breeding programmes in agriculture animal husbandry, etc.
7. **Maintenance of natural cycle** – Wildlife maintains the natural recycling of various organic and inorganic matters that keeps the soil fertile.
8. **Educative value** – They have educative values for life science students.

9. **Aesthetic and Recreational value** – Wildlife is a best source of recreation. Wildlife has a great aesthetic and recreational value.
10. **Medicinal value** – Many wild species have medicinal value but there are many varieties in the wild species whose medicinal importance is not known even today. Man is trying to explore the hidden values of some of these. It is a great loss to mankind if these plants or animals are lost before their importance is understood by man.

### **How can we promote the conservation of wildlife ?**

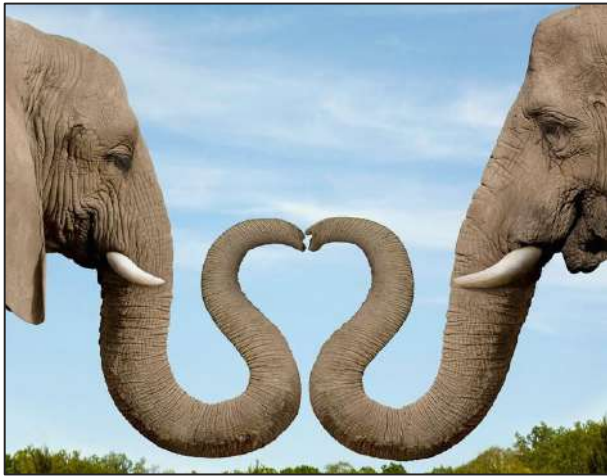
- Reduce, reuse, and recycle to protect wildlife habitat in the U.S. and abroad.
- Adopt a plant-based diet. Millions of acres of wildlife habitat are degraded in the U.S. and abroad to raise livestock for slaughter and crops to feed livestock prior to slaughter.
- Do not participate in sport hunting. Take shots only from your camera.
- Write your legislators to express your support for laws that protect wild animals and habitat.
- Live harmoniously with wild animals around your own home and when visiting public lands.
- Learn about invasive species – both plant and animal and do your part to stop their spread. Only plant native and non-invasive plants in your yard and garden.

### **CONCLUSION :**

Wildlife habitat and species around the world are facing a crisis. It is estimated that global warming may cause the extinction of 15–37% of species by 2050. This is another aspect which needs attention because we could lose about 1.25 million species. Unlike other environmental losses, this one cannot be reversed because nature does not give second chances to biodiversity. Thus, conservation of wildlife is essential to maintain the smooth survival of the lives as well as to maintain the eco-system.

If we take into consideration the conventional reasons why wildlife is disappearing in Asia, India is doing far better than other countries. India has launched an extensive protected area network of research institutions in which legislation, socio-economic factors, and wildlife research are playing a great role. The Central Zoo Authority plays a key

role with zoos in programming research activities related to the conservation and propagation of wild animals. Planned research activities include studies on wildlife biology, genetic



variability of species, specific nutritional requirements, animal behavior, epidemiological surveys and disease diagnosis through postmortem examination. The future depends on interaction between captive and wild animals, preservation of biodiversity, and genetic and demographic variations of species. India still has 65% of Asia's tiger population, 85% of the Asian rhino

population, 80% of the Asian elephant population, and 100% of the Asiatic lion population. These are all highly endangered and poached animals.

## **BIBLIOGRAPHY :**

### **WEBSITES :**

- Wildlife Conservation – Wikipedia,  
[https://en.m.wikipedia.org/wiki/Wildlife\\_conservation](https://en.m.wikipedia.org/wiki/Wildlife_conservation). N.p., n.d. Web. Accessed 5<sup>th</sup> Jul., 2021.
- Wildlife Conservation| National Geographic Society,  
<https://www.nationalgeographic.org/encyclopedia/wildlife-conservation/>. National Geographic. 27<sup>th</sup> Mar., 2020. Web. Accessed 5<sup>th</sup> Jul., 2021.
- Wildlife Conservation| Initiatives| WWF,  
<https://www.worldwildlife.org/initiatives/wildlife-conservation>. World wildlife Fund. n.d. Web. Accessed 5<sup>th</sup> Jul.,2021.

### **BOOKS :**

- Bala Kumar, Sujan. *Environmental Studies* .New Ed. 2019. Kolkata: Maiti Book House, 2009. Print.
- Mathur, Reena. *Wildlife Conservation And Management*. U.P: Rastogi Publications. 2018. Print.

**AECC 2 ENVS PROJECT**

**NAME -ANJALI LAMA**

**COLLEGE ROLL NUMBER – ENGA20F339**

**DEPARTMENT- ENGLISH**

**CU ROLL NUMBER- 202223-11-0126**

**CU REGISTRATION NUMBER- 223-1213-0125-20**

**TOPIC- WILDLIFE CONSERVATION**

## **ACKNOWLEDGEMENT**

I hereby want to express my gratitude to my ENVIS subject teachers to enlighten me about wildlife conservation. I'm extremely grateful to her for giving me this golden opportunity wherein I got a chance to research and hence study and learn about the environmental concerns rising in the present scenario. Besides that, I would also like to acknowledge the guidance of my principal ma'am Dr. Madhumanjari Mandal Chaube in the Project, and of my English Honours department and its teachers.

Lastly, I would like you to thank my friends and family who gave me great support to complete this project in such a limited time frame.

**THANK YOU**

## WILDLIFE CONSERVATION



### Meaning of wildlife conservation:-

According to the Wildlife Protection Act of 1972, wildlife includes any animal, bees, butterfly, crustacean, fish and moth; and aquatic or land vegetation, which form part of any habitat.

Example: lion, deer, crocodiles, whales, trees and shrubs in dense forests etc. Therefore, wildlife refers to living organisms (flora and fauna) in their natural habitats. But cultivated plants and domesticated animals are not included in wildlife.

Wildlife includes all non- domesticated plants, animals and other organisms.

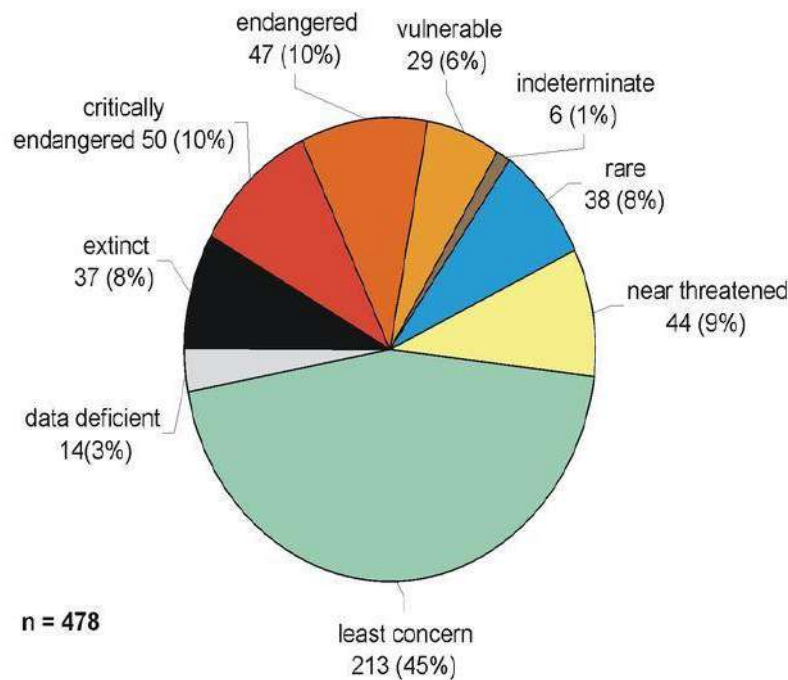
- Domesticating wild plant and animal species for human benefit has occurred many times all over the planet, and has a major impact on the environment, both positive and negative.
- Wildlife can be found in all ecosystems. Deserts, rain forests, plains, and other areas including the most developed urban sites, all have distinct forms of wildlife.
- While the term in popular culture usually refers to animals that are untouched by human factors, most scientists agree that wildlife around the world is impacted by human activities.



## **Benefits of Wildlife**

- Wildlife is an essential component of various food chains, food webs, biogeochemical cycles, and energy flow through various trophic levels.
- Preserves vitality and health of environment and provides stability to various ecosystems.

## **THREATS TO WILDLIFE:**



### **1. Habitat loss:**

Population growth, fast industrialization, urbanization and modernization have all contributed to a large-scale destruction of natural habitat of plants and animals.

## 2. Pollution:

Air, water, soil and noise pollution of the magnitude and toxicity never seen before is the major factor. Natural habitats have been destroyed or damaged by activities such as the indiscriminate use of synthetic materials, release of radiations and oil spills in the sea, generation of effluents and wastes of various kinds and toxicity, and their unscientific disposal.

## 3. Indiscriminate hunting:

Indiscriminate killing and poaching of wild animals for food, horn, fur, tusk etc. has resulted in reduction and even extinction of many wild species.

### **IMPORTANCE OF WILDLIFE CONSERVATION**

1. Beauty
2. Economic value: Timber, fur, tusk, ivory, leather, honey. etc.
3. Scientific value: Gene pool for the scientists to carry breeding programmes in agriculture, animal husbandry and fishery.
4. Maintain Ecological Balance.
5. Eco - Tourism.

### **CAUSES OF WILDLIFE DESTRUCTION**

#### **1. Habitat loss**

- Extensive human demand resulted into Habitat Loss.
- Rain forests are the main habitats.
- Tropical rainforests are cleared for wood / timber resources, development of petroleum IMPORTANCE resources, mineral resources.
- Now there are 20% less forest cover than existed 300 years ago.

#### **2. Poaching and Hunting**

- Another major cause of animal species extinction.
- Poaching and illegal trade in animals are of about US \$10 - \$15 million per year worldwide.

### **3. National and International wildlife trade**

- Pet, fur, meat, body parts trade and trade for biomedical research.

### **4. Climate change / Global warming**

### **5. Pollution**

### **6. Introduced (Invasive) Species**

### **7. Farmer / Rancher Shootings Rancher shooting Climate change.**



## **EFFECTS OF WILDLIFE DEPLETION**

1. Unbalance food chain and ecosystem.
2. Reduction in rare wild animals.
3. Impact on bio-diversity.
4. Loss of economic value.
5. anger to human life.
6. Loss in genetic information.

## ENDANGERED SPECIES OF ANIMALS

### MAJESTIC ELEPHANT



### SWAMP DEER



### LEAF MONKEY



### SNOW LEOPARD ENDANGERED



### DESERT CAT



### THE INDIAN BISON



## ENDANGERED SPECIES OF PLANTS

1. CYCAS BEDDOMEI
2. RED SANDALWOOD
3. BAOBAB
4. BERBERIS

5. DECALEPIS HAMILTONII
6. PTEROCARPUS SANTALINUS



### **LEGAL FRAMEWORK FOR WILDLIFE CONSERVATION IN INDIA**

The Government of India has introduced various types of legislation in response to the growing destruction of wildlife and forests.

These are:

- The Wildlife (Protection) Act, 1972 (Last amended in 2006).
- National Wildlife Action Plan (2002-2016).
- The Environment (Protection) Act (1986).
- The Biological Diversity Act (2002).
- The Indian Fisheries Act (1897).
- The Indian Forest Act (1927).
- The Forest Conservation Act (1980).



## Environmental Laws

### **PROJECTS UNDERTAKEN BY THE INDIAN GOVERNMENT FOR WILDLIFE PROTECTION: -**

Wildlife is an important component of biodiversity. To prevent the extinction of species, various projects have been initiated by the Indian government, such as:

1. **Lion** • India's Gir sanctuary in Gujarat is most probably the last abode to Asiatic lion in the world. Even here, population of lion had dwindled due to many factors like animal-human conflict, deforestation, or disrupted predator-prey relationship.
  - However, the Chief Minister of Gujarat was recently quoted in the report below, saying that the number of Asiatic lions has increased to 600, up from 523 in 2015 census. This increase has been attributed to the continuous government efforts and support from local people.



Home » Science

### **India's endangered Asiatic lion population increases to 600**

The endangered Asiatic lion, which only lives in Gir sanctuary in Gujarat, has fought back from the verge of extinction, with its population increasing to more than 600

Last Published: Tue, Mar 06 2018. 06 15 PM IST

- Being a state animal, the government has repeatedly shown its commitment to the cause of safeguarding the endangered species. Recently, the Government of Gujarat was faced with the spread of viral infection that

took lives of 21 Gir lions, as reported. Taking serious cognizance, the government has roped in experts and veterinary doctors to control the spread of virus.

## 2. Tiger

- India houses the largest population of tigers in the world.
- Despite increasing man and animal conflicts, due to paucity of land, the government's efforts, declaring several dedicated protected areas and ensuring consistent increase in their area coverage have proven to be beneficial for animal conversation, especially in case of tigers which are protected in about 50 tiger reserves.

<u>YEAR</u>	2010	2014	2018
<u>POPULATION</u>	1706	2226	****

Table: Estimated Population of tigers in India

Source: Lok Sabha Reply

Tiger Population census 2018 is ongoing and data is likely to be released by January 2019.

- The population of tigers rose by more than 30 percent between 2010 and 2014.
- The tiger population census, conducted at the interval of every 4 years, is ongoing for the year 2018, data for which is likely be released by January 2019.
- As per the preliminary findings of the ongoing census, the government is expecting a rise in the numbers of the tiger as many measures like checking poaching activities have been taken.

**hindustantimes**

Friday, Sep 28, 2018

india world cricket cities opinion entertainment lifestyle education sports photos videos asia cup 2018 brandstudio live ●●●

## Tiger census begins in January 2018, numbers expected to go up

With state surveys reporting notable increases, the tiger population is expected to cross 3,000 during the 2018 count.

ENVIRONMENT Updated: Dec 16, 2017 10:24 IST

ht Malavika Vyawahare  
Hindustan Times, New Delhi

- As per the above report published in December 2017, there is a notable increase in the big cat population in the state surveys. The results of the state survey will also reflect in the total tiger population across the country, that may reach around 3000.

### 3. Elephant

- India houses a huge population of elephant. They have been labelled as the ‘Evolutionary Distinct and Globally Endangered’ (EDGE) species.
- As per the ‘Synchronized Elephant Population Estimation India 2017’ survey, a population of 27,312 has been estimated in the country.
- Experts and wildlife conservationists have found this population to be stable.
- Some animal activists noted a decline in absolute numbers from 2012 census which may have been due to a difference in the counting method.
- Elephant Expert and Head of the Asian Nature Conservation Foundation (ANCF) R Sukumar, who has been studying elephant population for 20 years, commenting on the decline in absolute number of elephant population from 2012, said,
- “We have a healthy elephant population in India. There is no question of decline. In fact, there may have been a slight increase.”
- In fact, there was a duplication in counting and errors were reported in the census of 2012.



### 4. Gangetic Dolphin

India declared Gangetic dolphin to be its national aquatic animal in 2009. This species has always faced a threat from fisherman as well as pollution in the



River Ganga. However, there has been an increase in the sightings of Gangetic dolphin.

In a recent dolphin mapping project conducted in collaboration with WWF India, as many as 110 dolphins were spotted in a stretch between Kaushambi and Handia. The efforts of the government towards reducing the pollution in this stretch are producing positive results.

## Back from the brink of extinction: How the Gangetic dolphins made a comeback

The species, one of the four freshwater dolphins in the world, was declared India's National Aquatic Animal in 2009

INDIA Updated: Feb 10, 2017 08:56 IST

ht Smriti Malaviya  
Hindustan Times, Allahabad

### 5. Kashmiri Stag (Hangul)

- The population of one of the most endangered species of India which was on the verge of extinction has been revived. There is a positive trend in the numbers.
- BJP MLA and the then Minister for Forest Lal Singh, on the floor of the assembly, had said, number of hanguls at the Dachigam National Park (where most of the hanguls are found) stood at 182 as per the latest census of March 2017.
- Government efforts in this direction are bearing fruits. The hangul population in 2015 was estimated as low as 81 (lower range) which was on a declining trajectory since 2011.
- The government was able to reverse the trend by 2017, as seen in the rising numbers.



WORLD WILDLIFE FUND (WWF)



## **IMPORTANT WILDLIFE CONSERVATION SOCIETIES OF INDIA**

Wildlife Conservation Societies that have helped the country maintain its rich wildlife. Here is a glance at the important Wildlife Conservation Societies of India :

1. The Corbett Foundation.
2. Wildlife Institute of India.
3. Wildlife Protection Society of India.
4. Wildlife Conservation Trust.
5. Wildlife SOS.
6. World Wildlife Fund (WWF).
7. Centre for Wildlife Studies.

## **CONCLUSION**

Forests and wildlife are the renewable natural resources and if all the planned programmes are effectively executed, in a few decades the flora and the fauna will start flourishing.

Above study suggests the manner in which the Union and state governments along with people's participation are coming together to ensure India's animal population is progressively enhanced and conserved, since they form an integral part of ecology.

There is much more to be achieved towards this cause, especially in the background of fast paced urbanisation and increasing deforestation.

A cue can be taken from Prime Minister Narendra Modi, who has made the following observation in his recent op-ed, 'The green state of mind':

"Today human society stands at an important crossroad. The path that we take hereon will not only determine our well-being but also that of the generations

who will inhabit our planet after us. The imbalances between our greed and necessities have led to grave ecological imbalances. We can either accept this, go ahead with things as if it is business as usual, or we can take corrective actions.”

## BIBLIOGRAPHY

### **References: -**

- <https://iyap.global/wildlife-conservation/>
- [https://en.m.wikipedia.org/wiki/Wildlife\\_conservation](https://en.m.wikipedia.org/wiki/Wildlife_conservation)
- <https://www.thetruepicture.org/wildlife-conservation-animalwelfaremodi-government/>
- <https://www.slideshare.net/rajatrmr/wildlife-presentation-87241681>
- ● Textbook for Environmental Studies: Erach Bharucha for University Grants Commission

**NAME: SUBHAM TALUKDAR**

**ROLL NO.: ENGA20M314**

**CU REGISTRATION NO.: 223-1111-0044-20**

**CU ROLL NO.: 202223-21-0011**

**TOPIC: Wildlife Conservation**



Conservation refers to preventing the wastage of a resource. Wildlife Conservation can be defined as the practice of protecting animal species and their habitats. It includes protecting both the animals and their habitat. We apply wildlife conservation to species that are in danger of becoming extinct by different causes. These different causes include pollution, climate change and unreasonable laws. Several quotas for people in the forest regions can lead to excessive hunting and high number of wild animals in captivity.

Examples of this can be the pollution of water that threatens marine wildlife. Or rise in water temperatures, resulting in the Great Barrier Reef to lose its colours and large parts of the corals on reef to die. The number of corals on the reef has declined by 89% since 2016. The Great Barrier Reef is also supporting thousands of different species and marine mammals. Other examples are shootings of wolves; usually, people do this to protect livestock like sheep rather than invest in fencing or other measure to protect them. There is also a huge problem with captivation of threatened species like elephants.



## ***Importance of Animal Conservation***

Animal conservation is important for several reasons.

### ***Biodiversity***

Biodiversity is one of the major issues. Reduction in numbers of a particular species of animal, disturbs the eco-system and the food chain, and threatens other species.

### ***Release suffering of Animals***

Animal conservation helps to relieve various sufferings of animals because they are kept captive. One major example can be is the usage of elephants in South East Asia for tourism. Also, the use of orangutans in Indonesia for boxing shows. These activities don't only cause injuries to the animals, but it causes a sharp decline in their population.

### ***Human needs***

Reduction in a particular species of animal also starts a chain effect on other species which affects human beings as well. All animals play an important role in the eco system. The loss or reduction of certain species can have a flow on effect; including an effect on food for human beings and water source that are critical to our survival.

## *Water and air*

We need to keep our eco-system in balance to ensure the provision of clean air and clean water that we all benefit from, both humans and animals.

### **How public lands promote wildlife conservation -**

To survive, a species requires adequate food, water, shelter, space, and opportunities to reproduce. In the United States, as elsewhere in the world – the destruction of habitat is a primary threat to the continued survival of species. Without the existence of suitable habitat, a species will eventually face extinction. These lands are set aside to be protected for animal and plant species, as well as future generations.

### **Additional threats to Wildlife animals -**

The introduction of invasive species from far away continents introduced by humans can wreak havoc on native plant and animal species. The proliferation of chemicals in the environment including pesticides, PCBs, and oil spills, has the potential to poison wild animals and inhibit their reproductive capacities. Wild animal populations can also be threatened by poaching, wildlife trafficking, and military weapons testing.



## *Wildlife Conservation in India*

- Wildlife conservation has a long history in India, it dates back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. The formation of the Wildlife Board at the national level and enactment of Wildlife Act in 1972 laid the foundation of present day “wildlife conservation” era in post-independent India.

Henceforth, the Act has been amended several times and the National Wildlife Advisory Board has undergone various changes.

- Project Tiger in the 1970s and the Project Elephant in 1992—both with flagship species—attracted global attention. India then also became a member of all major international conservation treaties related to habitat, species and environment (like Ramsar Convention, 1971; Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973; Convention on Migratory Species, 1979; Convention on Biological Diversity, 1992, among others). Today, a chain of 41 tiger reserves and 28 elephant reserves, besides a network of 668 Protected Areas, bear testimony to the efforts of Centre. The Environmental Protection Act, 1986, and notifications issued thereunder made serious efforts to protect wildlife habitats and wildlife corridors.
- With the opening up of Indian market and process of globalisation, the country has made significant progress in achieving higher Gross Domestic Product (GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within Protected Areas came to fore. Take for instance, the restrictions by Environmental Impact Assessment (EIA) for Development Projects, covering more than 30 sectors as far back in 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “Protected Areas”- largely on the basis of requirement of ‘Forest



Clearance’ or on the assessment of impacts on Wildlife Habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.

- It will be worthwhile to mention that in the 31<sup>st</sup> meeting of the Standing Committee for National Board for Wildlife (NBWL), held between August 12-13, 2014, as many as 173 projects were listed for clearance from 24 states of India. A total of 130 projects were cleared, but were eventually struck down by the Supreme Court of India on the grounds that the current constitution of NBWL is a violation of law. Again, in a single NBWL meeting, held on January 21, 2015, at least 34 project proposals, cutting across 12 states have been approved; including those for road, rail, oil drilling, pipeline, canal construction—all being within the declared boundary of 27 wildlife sanctuaries, four national parks, one tiger reserves and two bird sanctuaries, among others. All these projects involve diversion of forest land within ‘Protected Area’ for non-forestry purpose.
- Besides, at least 15 proposals from 10 states got clearance for diversion of forest land within 10 km radius of national parks and wildlife sanctuaries, which according to EIA norm should not have been given permission. The range of projects included construction of jetty in water ways and highway on land, storage facilities, irrigation, canal construction, road, mining, thermal power, hydrocarbon exploration.
- The gamut of development projects being cleared may be indicative of country’s rapid growth, but it also poses a question—what is the future of wildlife in India? Thanks to illegal poaching, Sariska and Panna tiger reserves in Rajasthan and Madhya Pradesh respectively were recently declared “tiger-less”. Buxa Tiger Reserve in West Bengal also has no tiger now. A recent news on death of “lions” in large number in Gujarat attracted

national media attention. Also, the illegal poaching or human-induced deaths as witnessed in Manas Wildlife Sanctuary, causing decline in rhino population. But on the other hand, deliberate and predicted deaths of Indian Elephants on railway tracks in north Bengal. Stories of these deaths that were five times more since the railway line was broadened also attracted eyeballs. Has any action been taken to prevent such colossal loss of wildlife—legally or illegally? Very recently, Government of India had again cleared another railway project connecting North Bengal to Sikkim via Rongpo, diverting 86 ha of forests land. These wildlife species are all listed under Schedule I of Indian Wildlife Protection Act and should have been given highest protection status. Land is not the only place with wildlife crisis. Hundreds of dead sea turtles have recently been spotted on Odisha coast. It is alleged that uncontrolled trawling operation made the coast a cemetery for Olive Ridley turtles.

- The 48 projects recommended for clearance in January 2015, if undertaken, will convert 2,144 ha of forest land within the Protected Area. But in some cases, forest area has not been clearly defined and manoeuvred in such language as “afforestation of boundary of Protected Area for exclusion of part of limestone bearing mineral zone” in Kamur Wildlife Sanctuary, Bihar. The title at least does not indicate “what the limestone bearing area is” that is referred to within the sanctuary. In June 2015, NBWL had again cleared 18 new projects and deferred four projects without rejecting a single one. These include six projects within five tiger reserve areas. One can recall how years ago, dolomite mining was totally banned in Buxa Tiger Reserve, although mining history dates back 50 years before the tiger reserve was notified.

The forest cover in India has a target to reach 33 per cent of land area but forests within the Protected Areas have special significance in terms of biodiversity and wildlife conservation. Years back, a study by Zoological Survey of India on tiger reserves of India revealed how tiger reserves have contributed towards efforts of conservation of biological diversity in the country by protecting keystone species and forests. One has to remember that till date 70 per cent of biodiversity has been recorded from the forested area in the world.



Kipling's incisive eyes and 6 years of hard work not only created a composition that excited kids but indirectly boasts the rich wildlife in India. Even though it was just a fable it did show the diversity of animals in the country. To really talk about diversity, India is one of the 17 mega diversities in the world and is home to 7.6% of all mammal, 12.6% of bird, 6.2% of reptile, and 6.0% of flowering plant

species. The country also has some of the most biodiverse regions on the planet and it comprises of four of 35 biodiversity hotspots of the world like the Western Ghats, the Eastern Himalayas, Indo-Burma and Nicobar Islands in Sundaland. So far, the country's wildlife is preserved in 120+ national parks, 515 wildlife sanctuaries, 26 wetlands, and 18 Bio-Reserves, out of which 10 are part of the World Network of Biosphere Reserves. Evidently, this large biodiverse land needs protection, and inarguably conservation is a mandatory measure.

Keeping in view the recent human encroachment, the Indian Government did take effective initiatives to conserve wildlife in the country, and amongst it, most commendable initiatives is the Wildlife Protection Act of 1972, which prohibits trade of rare and endangered species. However, this is not the only laudatory measure taken by the Government of India (GOI), there is so much more that needs to be told about the schemes and projects that have helped the country maintain its rich wildlife. Here is a glance at the important wildlife conservation initiatives that GOI has taken:

### ***Important Wildlife Protection Projects by Indian Government***

#### **Project Tiger**



One of the most successful wildlife conservation ventures 'Project Tiger' which was initiated way back in 1972, has not only contributed to the conservation of tigers but also of the entire ecosystem. This project is sponsored by Ministry of Environment Forest and Climate Change. About 47 tiger reserves situated in more than 17 regions including Corbett National Park and Ranthambore National Park are part of this project which conducts assessments of number of tigers, their habitat, hunting habits under the supervision of the Tiger Task Force. Project Tiger has seen significant success in recovery of the habitat and increase in the population of the tigers in the reserve areas, from a scanty 268 in 9 reserves in 1972 to above 1000 in 28 reserves in 2006 to 2000+ tigers in 2016.

### **Project Elephant**



Initiated in 1992 by the Government of India Project Elephant aims at conserving elephants and their habitat and of migratory routes by developing scientific and planned management measures. Under the project welfare of the domestic elephants is also considered, issues like mitigation of human-elephant conflict are also taken care of. The project's endeavour is to strengthen the measures for protection of elephants against poachers and unnatural death.

## *Crocodile Conservation Project*



This project is another successful venture by Government of India to conserve the Indian Crocodiles, especially in the state of Odisha of species which were on the verge of extinction once. The project contributes towards the conservation in a plethora of related fields. The main objectives of the crocodile project is to protect the remaining population of crocodiles and their natural habitat by establishing sanctuaries; to promote captive breeding; to improve management; and to involve the local people in the project intimately. It is worth noticing that with the initiation of Crocodile Conservation Project, 4000 gharial/aligator, 1800 mugger/crocodile and 1500 saltwater crocodiles could be restocked.

## *UNDP Sea Turtle Project*



With an objective to conserve the Olive Ridley Turtles, the UNDP Sea Turtle Project was initiated by Wildlife Institute of India, Dehradun as the Implementing Agency in November 1999. The project is for 10 coastal state in India especially Odisha where it has contributed towards the preparation of a map of breeding sites of Sea Turtles; identification of breeding places and habitats along the coast line, and migratory routes taken by Sea Turtles. The project also helped in the development of guidelines to safeguard the turtle mortality rate and for tourism in sea turtle areas. Amongst the major achievements of the project is the demonstration of use of Satellite Telemetry to locate the migratory route of sea turtles in the sea.

Apart from these projects, GOI also has been handling projects like Vulture Conservation and India Rhino Vision (IRV) 2020.

### **Steps Taken By Indian Government to Protect Biodiversity**

Along with above specified conservation projects of the wild animals, GOI has also initiated few schemes that are worked upon to protect the biodiversity and minimize

the mortality of critically endangered, endangered and threatened animals. Here are few important steps that Government of India has taken for the wildlife protection:

- In the Wildlife Protection Act of 1972, GOI created Protected Areas like National Parks, Sanctuaries, Conservation Reserves and Community Reserves for the wildlife and imposed punishments on those indulged in illegal act of hunting.
- Wetland (Conservation and Management) Rules 2010 have been drafted to protect of wetlands in India. The Central Government has also initiated the scheme, National Plan for Conservation of Aquatic Eco-System that lends assistance to the states for the sound management of all wetlands.
- In order to curb the illegal trade of wildlife and that of endangered species, Wildlife Crime Control Bureau has been established.
- Special organizations like Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are formed to conduct research on conservation of wildlife.
- To check the dwindling population of Gyps vulture in India, Government of India has banned the veterinary use of diclofenac drug.
- For restocking of the endangered species, the Central Government first initiated Integrated Development of Wildlife Habitat Scheme and later modified it by including a new component, Recovery of Endangered Species which included animals like Hangul/stag deer in Jammu & Kashmir, Vultures in Punjab, Haryana and Gujarat, Snow Leopard in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh, Swiftlet in Andaman & Nicobar Islands, Nilgiri Tahr in Tamil Nadu, Sangai Deer in Manipur. Financial and technical assistance is also extended to the state government to provide better means of protection and conservation for the specified species.
- The State Governments have been asked to strengthen the field formations and increase patrolling in and around the Protected Areas.
- GOI intensified anti-poaching activities and initiated special patrolling strategy for monsoon season. Also, deployment of anti-poaching squad.
- In order to strengthen tiger conservation, National Tiger Conservation Authority is constituted by Government of India.
- A Special Tiger Protection Force (STPF) has also been constituted and is deployed in Karnataka, Maharashtra and Odisha.



- E-Surveillance has been started in Kaziranga National Park in Assam and borders of Ratapani Wildlife Sanctuary in Madhya Pradesh.

### ***Important Environment and Biodiversity Acts Passed by Indian Government***

- Fisheries Act 1897
- Indian Forests Act 1927
- Mining And Mineral Development Regulation Act 1957
- Prevention of Cruelty To Animals 1960
- Wildlife Protection Act 1972
- Water (Prevention and Control of Pollution) Act 1974
- Forest Conservation Act 1980
- Air (Prevention and Control of Pollution) Act 1981
- Environment Protection Act 1986
- Biological Diversity Act 2002
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act 2006

Not only this, there are a few International Schemes and Projects that India has signed drafted with its neighbours, Nepal and Bangladesh related to illegal wildlife species trade and conservation of tigers and leopards. Apart from this, there are plenty of other legal, administrative and financial steps that Government of India has taken for effective wildlife conservation in the country. And apparently the success of its some projects and schemes related to Indian Rhinos, tigers and poaching have earned it immense confidence to continue working towards a prosperous and intact wildlife.



*How one can promote conservation of wildlife -*

- Reduce, reuse, and recycle to protect wildlife habitat in the world.
- Adopt a plant-based diet. Millions of acres of wildlife habitat are degraded to raise livestock for slaughter and crops to feed livestock prior to slaughter.
- Do not participate in sport hunting. Take shots only from your camera.
- Write your legislators to express your support for laws that protect wild animals and habitat.
- Live harmoniously with wild animals around your own home and when visiting public lands.
- Learn about invasive species – both plant and animal and do your part to stop their spread. Only plant native and non-invasive plants in your yard and garden.

*Bibliography –*

1. [www.nhes.org](http://www.nhes.org)
2. [www.globalteer.org](http://www.globalteer.org)
3. [www.nationalgeographic.org](http://www.nationalgeographic.org)
4. [www.wikipedia.org](http://www.wikipedia.org)
5. [www.globalwildlife.org](http://www.globalwildlife.org)
6. [www.conservationindia.org](http://www.conservationindia.org)

# Scottish Church College

Name – Sourish Mondal

College Roll No. – ENGA20M324

University Roll No. – 202223-21-0020

University Reg. No. – 223-1111-0075-20

Course – B. A. English Hons.

Semester – 2<sup>nd</sup>

Topic – Wildlife Conservation

Date of Submission – 6<sup>th</sup> July, 2021.

# Wildlife Conservation.

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International.

## **Threats to wildlife.**

1. **Habitat Destruction** - Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions.
2. **Overexploitation** - Overexploitation is the harvesting of animals and plants at a rate that's faster than the species' ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover.
3. **Poaching** - Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. Less well-known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.
4. **Culling** - Culling is the deliberate and selective killing of wildlife by governments for various purposes. An example of this is shark culling, in which "shark control" programs in Queensland and New South Wales (in Australia) have killed thousands of sharks, as well as turtles, dolphins, whales, and other marine life.
5. **Pollution** - A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g., pesticides). For others, it's through inhaling (e.g., air pollutants) or ingesting it (e.g., toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.
  - a. **Air Pollutants** - Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their

ecosystems. For example, high levels of sulfur oxides (SO<sub>x</sub>) can damage plants and stunt their growth. Sulfur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.

b. **Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.

c. **Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.

6. **Climatic Change** - Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction.

### **Conservation methods.**

1. **Wildlife population monitoring** - Monitoring of wildlife populations are an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution, and genetic diversity, although many other metrics may be used. Monitoring methods can be categorized as either "direct" or "indirect". Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on "signs" that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-opening counts, burrow counts, runaway counts, knockdown cards, snow tracks, or responses to audio calls.

2. **Government Involvement** - In the US, the Endangered Species Act of 1973 was passed to protect US species deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally, and educationally important. In the same year, the Convention on International Trade in Endangered Species of Fauna and Flora was passed as part of an international agreement to prevent the global trade of endangered wildlife. In 1980, the World Conservation Strategy was developed by the IUCN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans.

3. Non – Government Involvement - In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental organizations (NGO). Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 “earmarking U.S. Agency for International Development (USAID) funds for”. From 1990 till now, environmental conservation NGOs have become increasingly more focused on the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving the quality of the environment and its natural resources became a “priority” to “prevent international tensions” according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.

### **Five Wildlife conservation projects.**

1. Project Snow Leopard - The species of Snow Leopard inhabits the Himalayan landscape as well as states such as Jammu and Kashmir, Uttarakhand, Arunachal Pradesh, Sikkim, and Himachal Pradesh. Schedule I of the Wildlife Protection Act, 1972 and IUCN declare the species as a ‘vulnerable’ category. Additionally, the species is listed in CITES and CMS which reveals that the highest conservation status has been accorded to them, both nationally and internationally. The International Snow Leopard Day is celebrated on 23rd October each year. The Government of India launched the ‘First National Protocol on Snow Leopard Population Assessment’ in 2019. This involves the use of technology such as camera traps and scientific surveys. This initiative was developed under the global protocol of Global Snow Leopard and Ecosystem Protection Program. This program is an intergovernmental alliance of 12 snow leopard range countries, India, Pakistan, Nepal, Russia, China, Bhutan, Afghanistan, Tajikistan, Uzbekistan, Kazakhstan, Kyrgyzstan, Mongolia. The Population Assessment of World’s Snow Leopard (PAWS) is a collaborative effort of these countries. The primary threats to snow leopards were loss of habitat, poaching, and man-animal conflict. In *Sansar Chand vs State of Rajasthan* (2010), the organized nature of wildlife crime has been highlighted. In this case, it was mentioned that an FIR was filed against his younger brother who was also involved in illicit trade of wild animals. One snow leopard skin was seized from the younger brother, Narayan Chand. He was also named as an accused under Section 55 of the Wildlife Act, 1972 in this case. There are several other cases pending against him. Project Snow Leopard launched in 2009, aims to promote inclusivity and participatory approach for the conservation of the species. To add to this project, SECURE Himalaya (Securing livelihoods, conservation, sustainable use and restoration of high range Himalayan ecosystems) is another initiative taken to conserve high altitude biodiversity. This is operational in Sikkim, Himachal Pradesh, Uttarakhand, and Jammu & Kashmir. The key component of the project is the protection of snow leopards and other endangered species. The six-year-long project also focuses on securing livelihoods of the local public and enhancing enforcement to reduce wildlife crime. The government has allocated 130 crores for the project, to protect around 200 snow leopards in the Trans and Greater Himalayan Region.

In addition, SOS or Save Our Snow Leopards is an initiative launched by WWF India in collaboration with Tata Housing Development Company in 2014. The project aims at assessing the status and distribution of snow leopards through setting up camera traps. It also aims to promote conservation strategies.

Secured Areas – The Sacred Himalayan Landscape, Kibber Wildlife Sanctuary, Great Himalayan National Park, Hemis National Park, Dibang Wildlife Sanctuary and Pin Valley National Park.

2. Project Tiger - The population of Indian Tigers was drastically declining towards the end of the 20th century. Resultantly, a nation-wide Tiger Census was conducted in 1972 to estimate the population of tigers. Large scale development activities including dams, mines, railway projects and establishment of industries led to deforestation and further loss of habitat. Since the body parts of the tigers are used for traditional Chinese medicine, they were killed in high numbers. All these factors collectively led to a decline in the population of tigers. In the case of Sansar Chand vs. State of Rajasthan (2010), the appellant was arrested in 1974 for poaching tigers and smuggling their body parts to various countries, particularly China. He was allegedly involved in 57 wildlife cases between 1974 and 2005. He was convicted in all the offences registered against him. The Supreme Court also requested the Central and the State Government to take stringent actions against such offenders. The acts of poaching, killing, maiming, etc. of any animal are offences under Section 428 and Section 429 of the Indian Penal Code, 1860. The punishment under S.428 is imprisonment for two years and under S.429, imprisonment for five years. In 1973, Project Tiger was launched in the Polamalu Tiger Reserve, Jim Corbett National Park, Uttarakhand. This is a centrally sponsored scheme of the Ministry of Environment and Forests. It is primarily governed under the Wildlife Act, 1972 itself. The project is administered by the National Tiger Conservation Authority, which was established in December 2005. The aim of the project is the protection of tigers from extinction, by ensuring that there is a viable population of the species in their natural habitats. The Project began from nine reserves in 1973-74 and has substantially grown to fifty reserves. The Project has seen significant success in the recovery of the habitat and the population of the tigers in the reserved areas.

In 2019, the Tiger Census has shown that there are 2967 Bengal Tigers in India.

3. Project Elephant - Project Elephant was launched in 1992 and is a centrally sponsored scheme. Elephants face the threat of attrition, as opposed to extinction faced by Tigers. The project aims at assisting the management and protection of elephants in the States which have free-ranging populations of wild elephants. The Elephants' Preservation Act, 1879 has also been formulated for the protection of elephants across the country. India has over 27,000

elephants spread over 26 elephant reserves but only 65% of the elephant corridors are in protected areas. The protection of elephants is also important because it has been declared as a national heritage of the country. This was done by the Government of India in 2010 after the Standing Committee on the National Board of Wildlife gave its recommendations. This step was taken to create awareness about the dwindling population of the elephants so that people would actively participate in its conservation

The objectives of the project are:

- a. Protection of Elephants, Elephant Corridors and their Habitats;
- b. Prevention of Man-Animal Conflicts
- c. Ensuring the welfare of domesticated elephants.

This project is crucial because it protects the elephants from hunters and poachers and thereby curb illegal trading of ivory.

4. Elephant Corridors - Elephant Corridors are narrow strips of forested lands which act as a bridge to larger elephant habitats. This conduit is essential for the movement of the elephants and to enhance the survival rate of the species in the wild. The National Green Tribunal in the case of Rohit Chaudhary vs. Union of India & Ors. (2016) has ruled that elephant have the first right on the forests. It ordered the demolition of a boundary wall in the middle of an elephant corridor in Assam's Deopahar Reserve Forest. The elephants also have a right to passage. In this case, some elephants died after the wall was built. It was determined that there was a destruction of the environment through the establishment of the wall. Hence, Numaligarh Refinery Limited was held liable to pay the environmental compensation based on the 'polluters pay principle' and the 'precautionary principle'. It was held in the case of Vellore Citizens Forum vs. Union of India (1996), that these aforementioned principles are essential features of sustainable development. Further, it was ruled that no power fencing could be erected on the elephant corridors. This judgment was upheld by the Supreme Court. The corridors are categorized into high ecological priority and medium priority. The categorization is on the basis of the regularity of elephant movement, the size of the population, the area of habitats connected and the presence of other routes nearby. The corridors are also graded on the basis of conservation feasibility. Further, only about 77.3% of these corridors are regularly being used by the species. The major threat to these corridors is the loss of habitat due to fragmentation of forests and other protected areas. The fragmentation is due to an increase in human activities and industrialization, which includes mining activities. The Supreme Court ordered restraining all kinds of mining and related activities along the Kaziranga National Park area, in the case of In Re: T.N. Godavarman Thirumulpad vs. Union of India & Ors. (2019).

5. Project Hangul - In the 1970s, the Jammu and Kashmir Government in association with the International Union for Conservation of Nature (IUCN) and World Wildlife Fund (WWF) designed a project for the protection and conservation of the Kashmir Red Stag and its habitat. This project came to be known as Project Hangul. Hangul or Kashmir Red Stag is a subspecies of the Central Asian Red Deer, which is native to northern India. It is mostly found in the dense riverine forests of Kashmir Valley, some parts of Himachal Pradesh, Sindh Valley, Dachigam National Park and in the forests of Kishtwar. It is also the state animal of Jammu and Kashmir. The project was started since Hangul's were enlisted in the critically



endangered species list prepared by IUCN. The species is scattered through an area of 141 square kilometers in the Dachigam National Park. The population of these deer was once approximately 5,000 in number. Problems such as overgrazing of domestic livestock in the habitat of Hangul's and criminal activities like poaching, illicit trading led to the decline in the population of Hangul. Then, their population dwindled to as low as 150 by the end of 1970. The aim of the project was to create enclosures for artificial breeding of the species. After the implementation of the project, the numbers rose to 340 by 1980. But over a course of time, the project however failed due to several factors. As per the census of 2008, their population was approximately 160.

6. Crocodile Conservation Project. - The species of crocodilians was threatened in India due to the increasing number of indiscriminate killings. They were poached for commercial purposes, which led to a drastic decline in their population. Apart from this, there was a loss of habitat due to the increasing development projects and industrialization. In light of this situation, Project Crocodile was introduced in 1975. The primary focus was on breeding and rearing in captivity. The initiative was taken by the Government of India in association with the Food and Agriculture Organization and United Nations Development Fund. Due to the implementation of this project, there is an increase in the population of crocodiles, which has saved them from extinction. The protected areas include National Chambal Sanctuary and Katerniaghat Wildlife Sanctuary.

There are mainly three species of crocodilians:

- a. Gharial or Gavialis Gangeticus
- b. Mugger or Crocodiles Palustris
- c. Saltwater Crocodile or Crocodiles Porous

The strategy adopted for rehabilitation of these species was to offer them protection in their own habitats. The practice of captive rearing was followed and subsequently, they were released. The methods of 'grow and release' and 'rear and release' were used. The objective of this project is to protect the remaining population of the species, to promote research which would help in improving management, to promote the rebuilding of their habitat and to encourage local public participation. The project has saved the species from the verge of extinction, as they were enlisted as critically endangered in the IUCN Red List. It has also been helpful in the creation of wetland sanctuaries which has led to active management of other species as well. These species include turtles, Gangetic dolphins, lizards and others.

# Conclusion

It can be concluded that the conservation of wildlife is important to maintain stability in the ecosystem. The expansion of human activities into the habitats of these species has led to considerable damage in the environment. The implementation of wildlife laws has to be stricter.

An attempt has been made through these projects for mitigating the harm caused and to prevent future disruptions. The human being as the most intelligent species on the earth has to take care that our actions and omissions do not harm the wildlife.

The extinction of wildlife can pose extreme dangers to the entire planet. When one crucial part of the ecosystem is eliminated, the entire planet suffers.

# Bibliography

Helped by- Our ENVIS teacher and my parents.

Source of help -

1. [http://nja.nic.in/Concluded\\_Programmes/2018-19/P-1102\\_PPTs/3.The%20Wildlife%20\(Protection\)%20Act,%201972.pdf](http://nja.nic.in/Concluded_Programmes/2018-19/P-1102_PPTs/3.The%20Wildlife%20(Protection)%20Act,%201972.pdf)
2. <http://www.asiannature.org/sites/default/files/2005%20Menon%20Sukumar%20Right-of-Passage.pdf>
3. [https://www.symlaw.edu.in/files/Empirical-Study-on-Implementation-of-Wildlife-Protection-Laws-FinalReport\\_Oct16.pdf](https://www.symlaw.edu.in/files/Empirical-Study-on-Implementation-of-Wildlife-Protection-Laws-FinalReport_Oct16.pdf)
4. [https://www.wti.org.in/wp-content/uploads/2017/08/pub\\_right\\_of\\_passage-1.pdf](https://www.wti.org.in/wp-content/uploads/2017/08/pub_right_of_passage-1.pdf)
5. [https://www.forests.tn.gov.in/tnforest/app/webroot/img/document/news/news/Expert\\_Committee\\_Report.pdf](https://www.forests.tn.gov.in/tnforest/app/webroot/img/document/news/news/Expert_Committee_Report.pdf)
6. <https://www.wikipedia.org>

Submission date – 05<sup>th</sup> July, 2021.

**NAME- MELVIN ANTHONY BURBIDGE**

**DEPARTMENT- ENGLISH (SEM-2)**

**COLLEGE ROLL NUMBER-  
ENGA20M327**

**CU REGISTRATION NUMBER- 223-  
1111-0082-22**

**CU ROLL NUMBER- 202223-21-0022**

**SUBJECT- AECC-2**

**TOPIC- WILDLIFE CONSERVATION**

**SESSION- 2020-21**

# INTRODUCTION



## **What is wildlife conservation ?**

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The ICUN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous non-governmental organizations (NGO's) dedicated to conserve such as the Nature Conservancy, World Wildlife Fund, and Conservation International.

# THREATS TO WILDLIFE

## HABITAT DESTRUCTION



Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans. Moreover, destruction and fragmentation create smaller habitats. Smaller habitats support smaller populations, and smaller populations are more likely to extinct.

## **OVEREXPLOITATION**

Overexploitation is the harvesting of animals and plants at a rate that's faster than the species's ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to decline in fish sizes as well as fish numbers.

## **POACHING**

Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros (traded for their tusks, skins and horns).

Less well known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.

# POLLUTION



A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.

- **Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high level of sulphur oxides (SO<sub>x</sub>) can damage plants and stunt their growth. Sulphur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.
- **Toxic chemicals:** There are many resources of toxic chemical pollution including industrial waste water, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can



cause cancer, reproductive disorders, immune system problems, and nervous system problems.

- **Heavy metals:** Heavy metals like arsenic lead, and mercury naturally occur at low levels in the environment, but when ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels and various industrial processes have contributed to the rise in heavy metal levels in environment.

# CLIMATE CHANGE

Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges. Overall, the effects of climate change increases stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct. While modern climate change is caused by humans, past climate change is caused by humans, past climate change events occurred and have led to extinctions.

# **SPECIES CONSERVATION**

It is estimated that, because of human activities, current species extinction rates are about 1000 times greater than the background extinction rate (the 'normal' extinction rate that occurs without additional influence). According to the IUCN, out of all species assessed, over 27,000 are at risk of extinction and should be under conservation. Of these, 25% are mammals, 14% are birds and 40% are amphibians. However not all species have been assessed, these numbers could be even higher. A 2019 UN report assessing global biodiversity extrapolated ICUN data to all species and estimated that 1 million species worldwide could face extinction. Yet, because resources are limited, sometimes it is not possible to give all species and need conservation due consideration. Deciding which species to conserve is a function of how close to extinction a species is, whether the species is crucial to the ecosystem it resides in, and how much we care about it.

## LEATHERBACK SEA TURTLE



The leatherback sea turtle (*Dermochelys coriacea*) is the largest turtle in the world, is the only turtle without a hard shell, and is endangered. It is found throughout the central Pacific and Atlantic Ocean but several of its populations are in decline across the globe (though not all). The leatherback sea turtle faces numerous threats including being caught as bycatch, harvest of its eggs, loss of nesting habits, and marine pollution. In the US the leatherback is listed under the Endangered Species Act, measures to protect it include reducing bycatch captures through fishing gear modifications, monitoring and protecting its habitat (both nesting beaches and in the ocean), and reducing damage from marine pollution. There is currently an international effort to protect the leatherback sea turtle.

# HABITAT CONSERVATION

Habitat conservation is the practice of protecting a habitat in order to protect the species within it. This is sometimes preferable to focusing on a single species especially if the species in question has very specific habitat requirements or lives in a habitat with many other endangered species. The latter is often true of species living in biodiversity hotspots, which are areas of the world with an exceptionally high concentration of endemic species (species found nowhere else in the world). Many of these hotspots are in the tropics, mainly tropical forest like the Amazon. Habitat conservation is usually carried out by setting aside protected areas like national park and nature reserves. Even when an area isn't made into a park or reserve, it can still be monitored and maintained.

## RED-COCKADED WOODPECKER



The red-cockaded woodpecker (*Picoides borealis*) is an endangered bird in the southeastern US. It only lives in longleaf pine savannas which are maintained by wildfires in mature pine forests. Today, it is a rare habitat (as fires have been cut down for agriculture) and is commonly found on land occupied by US military bases, where pine forests are kept for military training purposes and occasional bombing (also for training) set fires that maintain pine savannas. Woodpeckers live in tree cavities they excavate in the trunk. In an effort to increase woodpecker numbers artificial cavities (essentially birdhouses planted within tree trunks) were installed to give woodpeckers a place to live. An active effort is made by the US military and workers to maintain this rare habitat used by red-cockaded woodpeckers.

# CONSERVATION GENETICS

Conservation genetics studies the phenomena that impact the conservation of a species. Most conservation efforts focus on ensuring population growth but genetic diversity also greatly affect species survival. High genetic diversity increases survival because it means greater capacity to adapt to future environmental changes. Meanwhile, effects associated with lower genetic diversity, such as inbreeding depression and loss of diversity from genetic drift, often decreases species survival by reducing the species capacity to adapt or by increasing the frequency of genetic problems. Though not always the case, certain species are under threat because they have very low genetic diversity. As such, the best conservation action would be to restore their genetic diversity.

# FLORIDA PANTHER



The Florida panther is the subspecies of puma (specifically *Puma concolor coryi*) that resides in the state of Florida and is currently endangered. Historically, the Florida panther's range covered the entire southeastern US. In the early 1990's, only a single population with 20-25 individuals were left. The population had very low genetic diversity, was highly inbred, and suffered from several genetic issues including kinked tails, cardiac defects and low fertility. In 1995, 8 female Texas pumas were introduced to the Florida population. The goal was to increase genetic diversity by introducing genes from a different, unrelated puma population. By 2007, the Florida panther population tripled and offspring between Florida and Texas individuals had higher fertility and less genetic problems. In 2015, the US Fish and Wildlife Service estimated there were 230 adult Florida panthers and in 2017, there were signs that the population's range was expanding within Florida.



# CONSERVATION METHODS

## WILDLIFE MONITORING



Monitoring of wildlife population is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution and genetic diversity, although many other metrics may be used.

Monitoring methods can be categorized as either “direct” or “indirect”. Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on “signs” that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-openings counts, burrow counts, runway counts, knockdown cards, snow tracks, or responses to audio calls.

For large, terrestrial vertebrates, a popular method is to use camera traps for population estimation along with mark-recapture techniques. This method has been used successfully with tigers, black bears and numerous other species. Trail cameras can be triggered remotely and automatically via sound, infrared sensors, etc. Computer vision based animal individual re-identification methods have been developed to automate such *sight-resight* calculations. Mark-recapture methods are also used with genetic data from non-invasive hair or fecal samples. Such information can be analysed independently or in conjunction with photographic methods to get a more complete picture of population viability.

# GOVERNMENT INVOLVEMENT

In the US, the Endangered Species Act of 1973 was passed to protect US species deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally, and educationally important. In the same year, the Convention on International Trade in Endangered Species of Fauna and Fauna (CITES) was passed as part of an international agreement to prevent the global trade of endangered wildlife. In 1980, the World Conservation Strategy was developed by the ICUN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans. In 1992, the Convention on Biological Diversity (CBD) was agreed on at the UN Conference on Environment and Development (often called the Rio Earth Summit) as an international accord to protect the Earth's biological resources and diversity.

According to the National Wildlife Federation, wildlife conservation in the US gets a majority of its funding through appropriations from the federal budget, annual federal and state grants, and financial efforts from programs such as the Conservation Reserve Program and Wildlife Habitat and Wildlife Habitat Incentives Program. A substantial amount of funding comes from the sale of hunting/fishing licenses, game tags, stamps, and excise taxes from the purchase of hunting equipment and ammunition.

# NON-GOVERNMENT INVOLVEMENT

In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental (NGOs). Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 “earmarking U.S. Agency for International Development (USAID) funds for [biodiversity]”. From 1990 till now, environmental conservation NGOs have become increasingly more focused on the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving the quality of the environment and its natural resources became a “priority” to “prevent international tensions” according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.

## NON-GOVERNMENT ORGANIZATIONS



Many NGOs exist to actively promote, or be involved with, wildlife conservation:

- **The Nature Conservancy** is a US charitable environmental organization that works to preserve the plants, animals and natural communities that

represent the diversity of life on earth by protecting the lands and waters they need to survive.

- **World Wide Fund for Nature** (WWF) is an international non-governmental organisation working on the issues regarding the conservation, research and restoration of the environment, formerly named the World Wildlife Fund, which remains its official name in Canada and the United States. It is the world's largest independent conservation organisation with over five million supporters worldwide, working in more than ninety countries, supporting around 1300 conservation and environmental projects around the world. It is a charity, with approximately 60% of its funding coming from voluntary donations by private individuals. 45% of the fund's income comes from the Netherlands, the United Kingdom and the United States.
- **Save Cambodia's Wildlife** founded in 1999 and registered in 2002, is a national NGO (non-government organization) working for the protection and conservation of natural resources and wildlife habitats throughout Cambodia. The organization aims to raise awareness on climate change, wildlife protection and environmental issues in general. The work approach is "Conservation through Education" as means of empowerment and change, using book publications, teaching programs and awareness campaigns to reach all levels of society. The focus of SCW's work is sustainable Natural Resource Management [including the setup of Community Protected Areas (CPAs) and Community Fisheries (CFis)], climate change and renewable energy, environmental education as well as alternative livelihood options and Social Business, in order to face Cambodia's main environmental challenges, which are deforestation, illegal logging poaching and destruction of wildlife habitats.

# CONCLUSION

Wildlife conservation includes all human efforts to preserve wild animals from extinction. It involves the protection and wise management of wild species of their environment. Some species have become extinct due to natural activities. The progress of man throughout has been beneficial to the human race but it is the wildlife that has suffered through the years. Inventions of sophisticated weapons, industrialization, urbanization and even increasing human population have been some of the major causes for dwindling of our resources. Hunting , clearing of forests, drawing of swamps and damming of rivers for irrigation and industry- this is what we appraise of man's progress. These activities have vastly reduced the natural habitats of our wildlife and many species are endangered or nearly extinct.

Extinction is 'biological reality' for no species has as yet existed for more than a few million years without evolving into something different or dying out completely. Success in evolution is measured in terms of survival and failure by extinction. Once a species is extinct because of natural causes or human activities, it is gone forever. It is believed that each individual wild creature has a right to survive without human interference, just as each human beings has the right to survive.

# BIBLIOGRAPHY

All the information to complete the project was taken from the following :

- [en.m.wikipedia.org](https://en.m.wikipedia.org)
- [brainly.in](https://brainly.in)
- [studymode.com](https://studymode.com)

# **SCOTTISH CHURCH COLLEGE**

**1 & 3 Urquhart Square, Manicktala, Kolkata – 700006.**

## **HONOURS PAPER – ENGLISH HONOURS**

**ABILITY      ENHANCEMENT      COMPULSORY**

**COURSE – 2**

**NAME – PARTHA PRATIM SANTRA**

**COURSE – B.A.**

**COLLEGE ROLL NO. – ENGA20M330**

**CU ROLL NO. – 202223-21-0028**

**CU REGISTRATION NO. – 223-1111-0098-20**

**SEMESTER – 2**

**SESSION – 2020-2021**

**TOPIC – WILDLIFE CONSERVATION.**



## **Acknowledgement :**

I would like to express my special thanks of gratitude to my teacher as well as my principal ma'am '**Dr. Madhumanjari Mandal**' along with my vice - principal '**Dr. Supratim Das**' sir, by whom, I was given this golden opportunity to do this wonderful project on the topic **WILDLIFE CONSERVATION**, which helped me in doing a lot of research on the topic, which in turn helped me gain a lot of knowledge.

Secondly, I would also like to thank my parents and friends who helped me a lot in finishing this project within the specified time.

## **CONTENTS:**

<b><u>Topic</u></b>	<b><u>Page No.</u></b>
<i>Introduction</i>	<i>04</i>
<i>What is wildlife?</i>	<i>04</i>
• <i>Forest Habitat</i>	<i>04-06</i>
➤ <i>Types of forest habitat</i>	<i>04-06</i>
• <i>Desert Habitat</i>	<i>06-07</i>
• <i>Plains</i>	<i>07-08</i>
<i>Major threats to wildlife</i>	<i>08-10</i>
<i>Species – Categorization (Based on their availability)</i>	<i>10-12</i>
<i>Wildlife Conservation – Initiatives</i>	<i>12-15</i>
<i>Initiatives taken by the Indian Government to conserve wildlife</i>	<i>15-18</i>
<i>Conclusion</i>	<i>19</i>
<i>Bibliography</i>	<i>20</i>

**Introduction** – Conservation means to prevent waste of a resource. Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

Generally, we apply wildlife conservation to species that are in danger of becoming extinct by unnatural causes. These can be causes such as pollution, climate change, unreasonable laws. Moreover, quotas can lead to excessive hunting and high number of wild animals in captivity.

**What is wildlife?**

Wildlife traditionally refers to undomesticated animal species, but has come to include all organisms that grow or live wild in an area without being introduced by humans. They can be found in all ecosystems. Forests, rainforests, deserts, plains, grasslands, and other areas, including the most developed urban areas, all have distinct forms of wildlife.

- **Forest Habitat** – A Forest habitat is a forest or woodland which provides a 'habitat' (a place to live) for a variety of plants and animals. Forests are home to 80% of the world's plant and animal species (many of which are still waiting to be discovered), and three hundred million people live in forests across the globe! Animal and plant species live in every layer of the forest, so it's easy to see why forest habitats are so rich with wildlife.



A classic example of a forest habitat. The species of flora found here is hard to count.

**Types of Forest Habitat.**

- **Tropical** – Tropical forests are also known as 'rainforests' because they occur in areas where there are high levels of rainfall and no dry season. These kinds of forests have an extremely thick and closed canopy and they're the most biologically diverse in the world. The most famous rainforest is the Amazon Rainforest in Brazil.

**Orchids** and **ferns** are the notable examples of wildlife in tropical forests.



(Ferns – A notable example of tropical habitat)

- Boreal – Boreal forests grow where temperatures are freezing for 6-8 months of the year. Because of these harsh conditions, the forests usually consist of coniferous trees, including pine and birch trees. These forests are found at the north of the globe, most commonly in Russia, Canada, Alaska and Scandinavian countries.

**Pine** and **Fir** are some of the notable examples of habitat in boreal forests, along with some shrubs.



(Pine trees – Found mostly in the boreal habitat)

- Temperate – Temperate forests are found in-between tropical and boreal regions, located in what's called the 'temperate zone'. They have high levels of precipitation, humidity, and the most common trees are deciduous. There are two types of temperate forest: a deciduous forest and an evergreen forest. You can find these in the Eastern United States, Canada, Europe, China, Japan and parts of Russia.

**Maple** and **Oak** can be regarded as important examples of habitat in the temperate regions.



(Oak Tree – A notable example of a flora found in the temperate regions)

- The two types of trees that make up most forests are **deciduous** and **coniferous**. **Deciduous trees** have flat leaves that change from green to orange or golden brown in the autumn, fall off in the winter and grow back in the spring. Maple and oak trees are deciduous trees.



Deciduous Trees

**Coniferous trees** have sharp needles in place of leaves and they grow cones, which is where their seeds are stored. Most conifers are evergreen trees (which means they stay green all year long and their leaves don't fall) but some aren't. 'Conifer' simply means 'cone bearer'.



Coniferous Trees

- **Desert Habitat** – Deserts are places that don't get much rain, and are very dry. They can be either hot places, or cold places. Because deserts don't have much water, animals

that live in the desert are able to conserve water and keep their body temperature at the right level. Both plants and animals have adapted to be able to live in the desert.

Desert temperatures can be very extreme – hot deserts can be as hot as 40-45°C, but then cool down as far as 0°C at night. This is because there's nothing on the dry land (like tall trees) that can protect it from heating up when the sun is shining, and cooling right down when the sun sets. Rain and snow can fall on deserts, and when it does it's usually in a very heavy storm. It can rain so much all at once in a desert that it can cause a flood.

Desert habits are extremes in temperature and months without rain there can bring sandstorms and even flash floods! Lots of the animals living in hot deserts are nocturnal: they hide underground during the day when it is very hot and emerge at night. Most of the animals who live in the desert are insects, scorpions, reptiles and spiders. Most of the mammals who live in the desert are very small, but large mammals like camels, gazelles and donkeys have adapted to deal with the very dry conditions and can survive for long periods of time without water.

**Barrel cactus** and **dromedary camel** are the notable examples of a desert habitat.



Dromedary Camel, found mostly in the desert regions.

- **Plains** - Many plains, such as the Great Plains that stretch across much of central North America, are grasslands. A grassland is a region where grass is the main type of vegetation.

In North America, temperate grasslands—those in places with warm summers and cold winters—are often called prairies. In areas with little rain and snow, short grasses grow. In areas that receive more rain and snow, tall grasses can grow 1.5 meters (5 feet) high. However, most tallgrass prairies have been ploughed under and are now farmland or pasture.

Tropical grasslands are called savannas. Savannas exist in places that are warm throughout the year. They often have scattered trees. Savannas such as the Serengeti

plains stretch across much of central Africa. They are also found in Australia, South America, and southern North America.

Not all plains are grasslands. Some, such as Mexico's Tabasco Plain, are forested. Forested plains have different types of trees, shrubs, and other vegetation.

**Bison** and **Pronghorn** are the most common examples of wildlife found in the plains.



Bison is a type of animal, found mostly in the plains.

Wildlife on planet Earth is under siege from all sides, facing down habitat loss and the impact of climate change. Some of the biggest threats to wildlife include illegal wildlife trade, habitat destruction, invasive species, pollution, and climate change.

### **Major threats to wildlife.**

Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. Below are explained briefly about the types of threats.

- **Habitat destruction** – Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans.
- **Overexploitation** – Overexploitation is the harvesting of animals and plants at a rate that's faster than the species' ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals,

birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover.

For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to a decline in fish sizes as well as fish numbers.

- **Poaching** – Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. [traded for their tusks, skins, and horns respectively]. Less well-known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.



Elephant's tusks are an important element for the poachers, as costly ivory materials can be made out of it. It is highly expensive in the black market.

- **Pollution** – A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.



Water and air pollution, both taking simultaneously at the same place, thereby disturbing and destroying the natural habitat of the place.



- **Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high levels of sulphur oxides (SO<sub>x</sub>) can damage plants and stunt their growth. Sulphur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.
- **Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.
- **Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.
- **Climate Change** – Humans are responsible for present-day climate change, currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct. While modern climate change is caused by humans, past climate change events occurred naturally and have led to extinctions.

### **Species – Categorization (Based on their availability)**

- **Near Threatened** – A near-threatened species is a species which has been categorized as "Near Threatened" (NT) by the International Union for Conservation of Nature as

that may be considered threatened with extinction in the near future, although it does not currently qualify for the threatened status.

Some of the examples are jaguar, beluga, albacore tuna and a few more species.



Black Jaguar, notable example of a 'near threatened' species.

- **Vulnerable** – A vulnerable species is a species which has been categorized by the International Union for Conservation of Nature as likely to become endangered unless the circumstances that are threatening its survival and reproduction improve. Vulnerability is mainly caused by habitat loss or destruction of the species' home.

The most notable examples are hippopotamus and polar bears.



Polar Bears are an example of a 'vulnerable' species.

- **Endangered** – An endangered species is a species that is very likely to become extinct in the near future, either worldwide or in a particular political jurisdiction.

Asian-elephants and chimpanzees are among the group of endangered species.



Asian Elephants belong to the group of 'endangered' species.

- **Critically Endangered** – An IUCN Red List Critically Endangered (CR) species is one that has been categorized by the International Union for Conservation of Nature as facing an extremely high risk of extinction in the wild.

Black Rhino and Orangutan are among the critically endangered species.



The species of Orangutan are at risk, as they are 'critically endangered' species.

### **Wildlife Conservation – Initiatives.**

One of the most famous and basic initiative taken globally, to protect the species all over the world is that, certain places have been demarcated either as 'biosphere reserve' or 'wildlife sanctuary'.

**Biosphere Reserves** – Biosphere reserves are 'learning places for sustainable development'. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine and coastal ecosystems. Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located.

Biosphere Reserves involve local communities and all interested stakeholders in planning and management. They integrate three main "functions":

- Conservation of biodiversity and cultural diversity
- Economic development that is socio-culturally and environmentally sustainable
- Logistic support, underpinning development through research, monitoring, education and training

These three functions are pursued through the Biosphere Reserves' three main zones.

- **Core Areas**

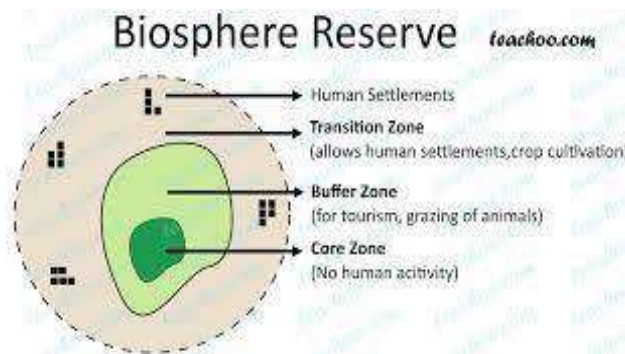
It comprises a strictly protected zone that contributes to the conservation of landscapes, ecosystems, species and genetic variation

- **Buffer Zones**

It surrounds or adjoins the core area(s), and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.

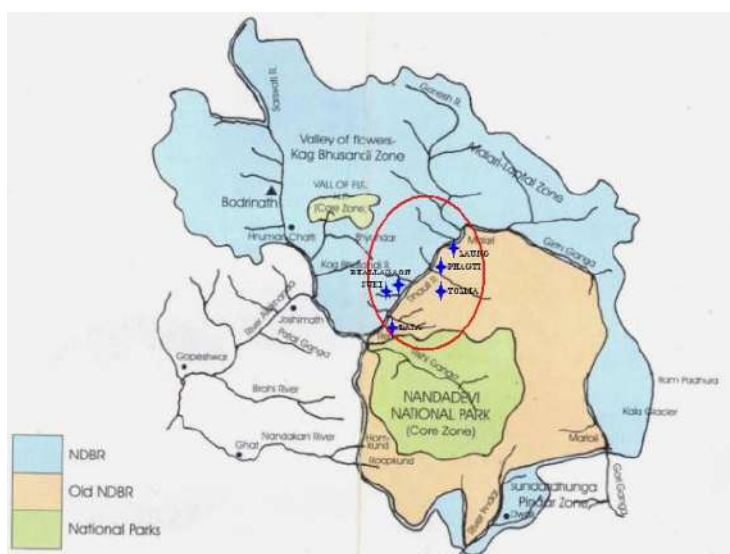
- **Transition Area**

The transition area is where communities foster socio-culturally and ecologically sustainable economic and human activities.



Zones of a biosphere reserve

‘Nanda Devi’, located in Uttarakhand, and ‘Gulf of Mannar’ in Tamil Nadu are among some of the Biosphere Reserves in India.



Map showing the location of Nanda Devi National Park.

**Wildlife Sanctuaries** – Any area other than area comprised with any reserve forest or the territorial waters can be notified by the State Government to constitute as a sanctuary if such area is of adequate ecological, faunal, floral, geomorphological, natural, or zoological significance, for the purpose of protecting, propagating or developing wildlife or its environment. Some restricted human activities are allowed inside the Sanctuary area.

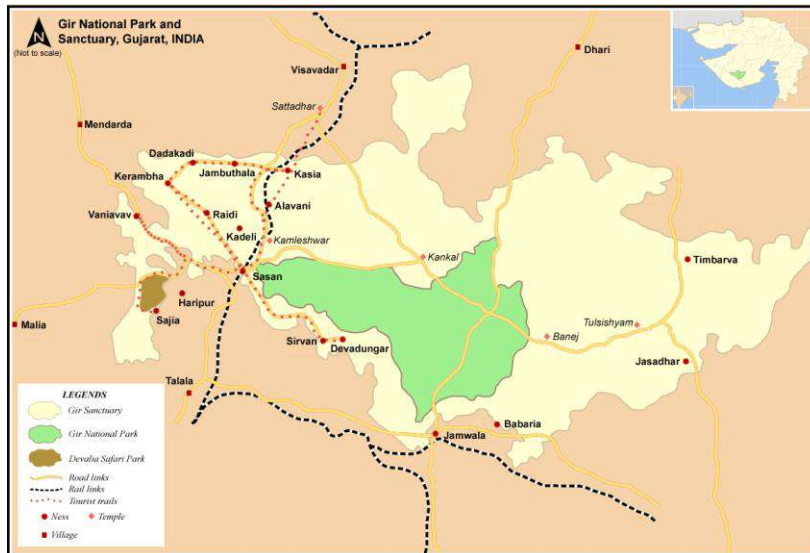
**Importance of Wildlife Sanctuaries :**

Many species of plants and animals are on the verge of extinction. Such creatures are conserved in the wildlife sanctuaries. Various sanctuaries have been established such as the Fleurieu peninsula sanctuary is maintained to protect the oak habitat for glossy black cockatoos.

There are a number of reasons for establishing wildlife sanctuaries. Some of the reasons are listed below:

- The wildlife sanctuaries are established to protect the endangered species.
- It is quite difficult to always relocate the animals from their natural habitat, therefore, protecting them in their natural environment is advantageous.
- The endangered species are specially monitored in the wildlife sanctuaries. If they reproduce and grow in number while under protection, few specimens can be kept for breeding in the conservation parks for their survival.
- Biologist activities and researches are permitted in the wildlife sanctuaries so that they can learn about the animals living there.
- A few sanctuaries take in injured and abandoned animals and rehabilitate them to health before releasing them in the forest.
- Wildlife sanctuaries preserve the endangered species and protect them from humans and predators.

**‘Bharatpur Bird Sanctuary’** in Rajasthan and **‘Gir National Park and Wildlife Sanctuary’** in Gujarat are among the notable examples.



Map showing the location of Gir National Park and Wildlife Sanctuary.

### **Initiatives taken by the Indian Government to conserve wildlife -**

Keeping in view the recent human encroachment, the Indian Government did take effective initiatives to conserve wildlife in the country, and amongst it, most commendable initiatives is the Wildlife Protection Act of 1972, which prohibits trade of rare and endangered species. However, this is not the only laudatory measure taken by the Government of India (GOI), there is so much more that needs to be told about the schemes and projects that have helped the country maintain its rich wildlife. Here is a glance at the important wildlife conservation initiatives that GOI has taken:

### **Important Wildlife Protection Projects by Indian Government**

#### **Project Tiger**

One of the most successful wildlife conservation ventures 'Project Tiger' which was initiated way back in 1972, has not only contributed to the conservation of tigers but also of the entire ecosystem. This project is sponsored by Ministry of Environment Forest and Climate Change. About 47 tiger reserves situated in more than 17 regions including Corbett National Park and Ranthambore National Park are part of this project which conducts assessments of number of tigers, their habitat, hunting habits under the supervision of the Tiger Task Force. Project Tiger has seen significant success in recovery of the habitat and increase in the population of the tigers in the reserve areas, from a scanty 268 in 9 reserves in 1972 to above 1000 in 28 reserves in 2006 to 2000+ tigers in 2016.

#### **Project Elephant**

Initiated in 1992 by the Government of India Project Elephant aims at conserving elephants and their habitat and of migratory routes by developing scientific and planned management measures. Under the project welfare of the domestic elephants is also considered, issues like mitigation of human-elephant conflict are also taken care of. The project's endeavour is to strengthen the measures for protection of elephants against poachers and unnatural death.

### **Crocodile Conservation Project**

This project is yet another successful venture by Government of India to conserve the Indian Crocodiles, whose species were on the verge of extinction once. The project also contributes towards the conservation in a plethora of related fields. The main objective of the crocodile project is to protect the remaining population of crocodiles and their natural habitat by establishing sanctuaries; to promote captive breeding; to improve management; and to involve the local people in the project intimately. It is worth noticing that with the initiation of Crocodile Conservation Project, 4000 gharial/alligator, 1800 mugger/crocodile and 1500 saltwater crocodiles could be restocked.

### **UNDP Sea Turtle Project**

With an objective to conserve the Olive Ridley Turtles, the UNDP Sea Turtle Project was initiated by Wildlife Institute of India, Dehradun as the Implementing Agency in November 1999. The project is for 10 coastal state in India especially Odisha where it has contributed towards the preparation of a map of breeding sites of Sea Turtles; identification of breeding places and habitats along the coast line, and migratory routes taken by Sea Turtles. The project also helped in the development of guidelines to safeguard the turtle mortality rate and for tourism in sea turtle areas. Amongst the major achievements of the project is the demonstration of use of Satellite Telemetry to locate the migratory route of sea turtles in the sea.

Apart from these projects, GOI also has been handling projects like Vulture Conservation and India Rhino Vision (IRV) 2020.

### **Steps Taken by the Indian Government to Protect Biodiversity**

Along with above specified conservation projects of the wild animals, GOI has also initiated few schemes that are worked upon to protect the biodiversity and minimize the mortality of critically endangered, endangered and threatened animals. Here are few important steps that Government of India has taken for the wildlife protection:

- In the Wildlife Protection Act of 1972, GOI created Protected Areas like National Parks, Sanctuaries, Conservation Reserves and Community Reserves for the wildlife and imposed punishments on those indulged in illegal act of hunting.
- Wetland (Conservation and Management) Rules 2010 have been drafted to protect of wetlands in India. The Central Government has also initiated the scheme, National Plan for Conservation of Aquatic Eco-System that lends assistance to the states for the sound management of all wetlands.
- In order to curb the illegal trade of wildlife and that of endangered species, Wildlife Crime Control Bureau has been established.
- Special organizations like Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are formed to conduct research on conservation of wildlife.
- To check the dwindling population of Gyps vulture in India, Government of India has banned the veterinary use of diclofenac drug.
- For restocking of the endangered species, the Central Government first initiated Integrated Development of Wildlife Habitat Scheme and later modified it by including a new component, Recovery of Endangered Species which included animals like Hangul/stag deer in Jammu & Kashmir, Vultures in Punjab, Haryana and Gujarat, Snow Leopard in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh, Swiftlet in Andaman & Nicobar Islands, Nilgiri Tahr in Tamil Nadu, Sangai Deer in Manipur. Financial and technical assistance is also extended to the state government to provide better means of protection and conservation for the specified species.
- The State Governments have been asked to strengthen the field formations and increase patrolling in and around the Protected Areas.
- GOI intensified anti-poaching activities and initiated special patrolling strategy for monsoon season. Also, deployment of anti-poaching squad.
- In order to strengthen tiger conservation, National Tiger Conservation Authority is constituted by Government of India.
- A Special Tiger Protection Force (STPF) has also been constituted and is deployed in Karnataka, Maharashtra and Odisha.



- E-Surveillance has been started in **Kaziranga National Park** in Assam and borders of **Ratapani Wildlife Sanctuary** in Madhya Pradesh.

**Important Environment and Biodiversity Acts Passed by Indian Government**

- Fisheries Act 1897
- Indian Forests Act 1927
- Mining And Mineral Development Regulation Act 1957
- Prevention of Cruelty To Animals 1960
- Wildlife Protection Act 1972
- Water (Prevention and Control of Pollution) Act 1974
- Forest Conservation Act 1980
- Air (Prevention and Control of Pollution) Act 1981
- Environment Protection Act 1986
- Biological Diversity Act 2002
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act 2006

Not only this, there are a few international schemes and projects that India has signed drafted with its neighbours, Nepal and Bangladesh related to illegal wildlife species trade and conservation of tigers and leopards. Apart from this, there are plenty of other legal, administrative and financial steps that Government of India has taken for effective wildlife conservation in the country. And apparently the success of its some projects and schemes related to Indian Rhinos, tigers and poaching have earned it immense confidence to continue working towards a prosperous and intact wildlife.

**Conclusion** – Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. The Endangered Species Act (ESA) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are. U.S. Fish and Wildlife Service (FWS) The FWS maintains a worldwide list of endangered species.

Animal conservation is a complicated field that requires a specific set of knowledge. Just as all interaction with animals, conservation needs to be done right. The programmes are thereby run by local expertise that know the areas and animals better than anyone. And of course, have the animals' best interests at heart.

## **BIBLIOGRAPHY :**

### **ONLINE SOURCES :**

- [https://en.wikipedia.org/wiki/Wildlife\\_conservation](https://en.wikipedia.org/wiki/Wildlife_conservation)
- <https://www.nationalgeographic.org/encyclopedia/wildlife-conservation/>
- <https://www.globalteer.org/importance-of-wildlife-conservation/>
- <https://www.ranthamborenationalpark.com/blog/wildlife-conservation-initiatives-indian-government/>



# *SCOTTISH CHURCH COLLEGE*

## Department Of English

Semester:-2

### PROJECT

NAME:-Manoj Hasda

SUBJECT:-ENVS

CU REGISTRATION:-223-1111-0116-20

CU ROLL NO:-202223-21-0031

COLLEGE ROLL NO:-ENGA 20M336

TOPIC : Wildlife Conservation

## ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher who gave me the golden opportunity to do this wonderful project on the topic **Wildlife conservation** which also helped me in doing a lot of Research and I came to know about so many new things

I am really thankful to them .

Secondary I would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time.

I am making this project not only for marks but to also increase my knowledge.

**THANKS AGAIN TO ALL WHO HELPED ME**

Manoj Hasda

English Departmen

**INTRODUCTION:** India is home to 16 percent of the world's population is a well known fact. However, it is a lesser known fact that 411 species of mammals, 1,232 birds, 456 reptiles, 219 amphibians, 2,546 fish, and 83,436 kinds of invertebrates and over 50,000 plant species also call this subcontinent home. Wildlife in India is a precious gift of nature with a rich variety of diverse flora and fauna. India is a land which is one of the richest biodiversity hotspots in the world. The wildlife in this country has a wide variety of species among plants and animals. The wild animals such as tiger, lion, wolves, bears, rhinoceros, camels, monkeys, various species of reptiles, crocodiles, deer, bison and the Asian elephant are all native to this country. It also has a variety of species of birds such as peafowl, pelican, parakeets, woodpecker and flamingos. India has three biodiversity hotspots among the 34 biodiversity hotspots of the world which are found in the Western Ghats, the Easter Himalayas and the Indo-Burma region respectively. The grasslands of western India are as famous for their hunting animals as they are for their grazing herds. The Indian cheetah is now extinct in its range but the other big cats - lions and leopards still prowl the plains. With its rich, varied and diverse wildlife reserve, India has set up 104 National Parks, 18 bio-reserves and more than 515 sanctuaries to protect and preserve these species of wildlife. India is endemic to many species of plants and animals which are evident from one of the study conducted which says that 12.6% avian, 7.6% mammals, 6.2% reptiles and 6.0% species of flowers are native to this country.[1] The study also states that around 33% plant species are endemic to India and hence it is one of the biodiversity reserves in the world with around 70% endemic and diverse plants and animal species.[2] India also has a wide range of forest belt which also depicts the diverse climatic pattern in

the sub-continent which has provided home to such a rich and varied wildlife species. India has a vast belt of forests which ranges from tropical rainforest in Andaman Islands, North-Eastern region and the Western Ghats to the moist deciduous forest in the East, dry deciduous forest in Central and South India, Thorn forest in the Deccan and Western Gangetic Plain to tThe recent developmental activities of human and their encroachment on the wildlife habitat have posed a serious threat to the very wildlife, especially to the endemic species such as the Asiatic Lion, the Bengal Tiger, the Indian White-rumped Vulture, the Nilgiri Leaf Monkey etc. 172 wildlife and endemic species of India are also included in the IUCN designated threatened species of the world which accounts for 2.9% of the number of threatened species of the world.

## WILDLIFE CONSERVATION AND ITS PROBLEMS & THREATS

Wildlife conservation is referred to as the process by which the animal and plant species are protected in their natural habitats. The main aim of wildlife conservation is to ensure protection of the wildlife and preservation of the nature and natural habitats for humans as well as wildlife. Towards this initiative, many governmental and non-governmental organizations have been set up for the very cause of wildlife conservation and protection. The human activities for their own living and benefits have affected the wildlife considerably across the world. This has resulted in extinction of many wild animals & plants and biodiversity loss. It has been observed that a considerable number of species of animals and birds have become extinct in the past 2000 years. Some reasons were because of climatic change and some have



been because of human activities for their own benefits such as food, clothing, shelter, medicine etc. It is also expected that many more species of wildlife will become extinct very soon if they are not protected by proper means of conservation and by enacting effective legislations. Hence, the international organizations and almost all the nations across the world have come together to protect the wildlife and the environment with the help of legislations, Acts, creating national parks, biosphere reserves, wildlife sanctuaries etc. and implementing these legislations and Acts strictly in their nations and regions. Wildlife conservation has become a major area of concern though. The conservation of animals and plant species mainly aims at protecting the endangered species from becoming extinct due to various human and human-induced activities. The wildlife is facing many threats due to the human encroachment and their activities as well as few natural factors which can be enumerated below

**Habitat loss by destruction, fragmentation and degradation:** Habitat destruction and fragmentation can take place by human activities such as felling of trees, dredging rivers, constructing dams, filling wetlands and mowing fields, use of lands for agriculture, construction of houses and roads etc. Habitat degradation can take place because of the increasing pollution level, invasion of new species and changing ecosystems etc.

**Illegal Trading, Hunting and poaching of endangered species:** Illegal hunting and poaching has posed a major threat to wildlife which is further fuelled by the lack of proper management and use of resources by the forest officials to curb the menace and save the wildlife. iii. Climate change: Global warming and climate change has

also played a major role in posing threat to the wildlife. This is also again due to human induced activities which is done by the burning of fossil fuels etc. which resulted in the changing of the climate globally.

**Over exploitation of resources:** Exploitation and over exploitation of resources for food and other purposes has resulted in posing a threat to the wildlife, especially to the endangered species. The over use of the wild animals and plants for food, medicines, clothing etc has badly affected the wildlife populations and thus has become a threat to their existence. The Coniferous forest in the Himalayas.

**Pollution:** The ever increasing pollution level due to human activities and industrial operations has resulted in the release of harmful and toxic pollutants in the air, water and land. Hence, it has affected the wildlife in an adverse manner and ultimately posed a threat to become extinct. Thus, the threat to the wildlife and the endangered species of plants and animals calls for their conservation so as to maintain the balance of the ecosystem and save the world. Towards this objective, the governments across the world are working so as to protect and conserve wildlife by enacting legislations and Acts and providing effective implementation of these legislations and Acts. The Government of India has also recognized the threats and has established national parks, wildlife sanctuaries, biosphere reserves and protected areas. The first National Park was established in the year 1936 which was previously called as the Hailey National Park and later on it was renamed as the Jim Corbett National Park. The number of national parks then kept on increasing gradually and presently there are 104 national parks in the country as of April 2012. It was supported

by the establishment of more than 500 wildlife sanctuaries and 18 biosphere reserves in the country. Currently there are 515 wildlife sanctuaries out of which 41 are identified as Tiger reserves under the Project Tiger. Furthermore, the Government of India has also enacted various laws and Acts pertaining to the protection and conservation of wildlife in the country.

## CHALLENGES IN EFFECTIVE IMPLEMENTATION OF WILDLIFE PROTECTION LAWS IN INDIA

The exploitation of wildlife for trade and other benefits of human have resulted in enacting and enforcing various legislations and Acts in almost all the countries of the world. India is also not untouched with this as it is a country with rich biodiversity. The laws enacted with the objective of protecting and conserving wildlife has strict provisions but despite these laws, the exploitation of wildlife resources and their illegal trade continues. The hunting, poaching of animals and uprooting of trees, using of various endemic species of plants for various purposes have led to the threat of extinction and loss of biodiversity in the country. The Wildlife Protection Act, Customs Act, Import-Export policies in India though has provisions in regulating the conservational measures and trade of wildlife species, especially the endangered species, the illegal hunting and poaching activities and trade is still flourishing and these endangered species are still exploited. The WP Act also does not cover the foreign endangered species of plants and animals and hence does not have the authority to protect such foreign species if they are being hunted or poached or used. It is noticed that the punishment and penalties for offences made under the Act is not enough to stop and control exploitation of wildlife. The offenders are

still able to get away by paying fines and those who are fighting cases are also not bothered since the cases in the Indian Courts are resolved too slowly. The reason for it also accounts for the lakhs of backlog cases pending in the District Courts and other courts. Hence, the verdict by the courts in such cases takes approximately 10 years and by this time the offenders flourish in their activities and the exploitation of wildlife continues. There is another problem identified that the Forest departments and the Forest Officers are not able to work effectively in implementing the laws and facilitate the conservation activities because they are not adequately trained or have adequate resources. It is seen that the enforcement mechanism of the laws in India for the conservation and protection of wildlife is also complicated in nature. The laws, on one hand, enable the forest officers to protect the forests resources, but they are not given any powers to make policies pertaining to the situation which further creates problems in the confiscation of the felled timber or the poached animal. This has further helped in increasing exploitation activities. On the other hand, the forest department itself plays a role in the exploitation activities for their selfish reasons and corruption. It has been noticed that the forest officials have never involved the local people residing in the surrounding places to stop the exploitation of wildlife despite the fact that these people can actually help in preventing the exploitation and protecting the wildlife resources. [8] Recently, a new problem has come into the notice of environmentalists, NGOs and Law keepers concerned with the protection and conservation of wildlife. This issue pertains to the killing of many birds, listed in the Schedule I of the Wildlife Protection Act, 1972, due to human recreation of flying kites. Many birds listed in Schedule I are killed by the threads, called as 'manja'

locally, which is used for Kite flying, especially the Chinese thread. In spite of the imposed ban on the use of Chinese thread for kite flying under Section 5 of the Environment (Protection) Act, 1986, it is still in use among the people. This has killed quite a number of birds which are endemic to this country while some of these birds belong to migrating species.

## POSSIBLE SOLUTIONS IN WILDLIFE CONSERVATION AND IMPLEMENTATION OF LAWS

All the problems pertaining to wildlife protection and conservation needs to be addressed strictly adhering to the law and finding some alternative solutions too so that the wildlife could be protected and conserved. To stop the criminal and illegal activities of exploitation of wildlife resources in India, some stronger measures are required to be introduced. These measures could be in the manner of conducting awareness programmes among the public and the officials concerned with wildlife protection and the law enforcement personnel.

### A. Awareness among Public and Officials:

Towards the objective of protecting and conserving wildlife, there is a need to provide awareness among the forest and other government officials who are deputed in the protected areas and reserves. These concerned personnel should be provided with training and research in wildlife conservation measures and the legal provisions available for their protection. There is also a need to involve the local people who live in the surrounding areas of the protected areas by sensitizing them about the importance of wildlife conservation and protection and the relevant laws

governing it. The local people should be apprised of all the available provisions of laws in protecting and conserving the wildlife and the threatened species. They should also be informed about the penalty and punishment in case of violation of any laws and harming the wildlife. This will help in an increased awareness among the local people which will further help in providing support to the forest officials who are working in these protected areas as well as the government officials.

## B. Recognizing and involving NGOs:

the Wildlife Protection Society of India which conservation of wildlife with the help of their initiatives. One such organization is works towards providing information and support to the authorities of the government concerned with wildlife protection and conservation so as to fight illegal trade of wildlife and poaching of wild animals The Non-Governmental Organizations (NGOs) also play an important role in the protection and thereby saving the environment. The involvement of such NGOs will considerably help in protecting the wildlife resources in India. Some more solutions to protect and conserve wildlife can be done by in-situ & ex-situ breeding, increasing resilience of natural reserves and creation of biosphere reserves and their management.

## C. In-situ and Ex-situ Conservation:

In-situ and Ex-situ conservation strategies are one of the important strategies for conservation of wildlife, especially the endangered species of plants and animals. In-situ conservation strategy is carried out in the natural habitat of these species while ex-situ conservation is carried out in a place outside their natural habitat. These conservation strategies are beneficial in the reintroduction

and translocation of wildlife thereby protecting the threatened species from the threat of climate change and human activities. These types of conservation of plants and animals includes captive breeding of animals and plants which are threatened by various activities of human and the climate change and are found to be on the verge of extinction. These conservation activities are carried out in protected areas but these strategies also depend on the severity of climate change and its effect on the species.

**D. Increasing Resilience of Nature Reserves:** This strategy includes maintaining natural reserves, creating buffer zones, minimization of human activities such as construction of buildings, roads and transportation activities, minimization of wildlife tourism, minimization of habitat fragmentation, conservation of genetic diversity, protection of biodiversity 'hot spots' thereby preventing extinction and protecting threatened species. Creation of buffer zones around fragmented landscapes is important in maximizing resilience. Areas protected by buffer zones also require restoration for which it focuses on reduction of specific impacts of climate change. There are some ecosystems which have intact landscapes and may have sufficient resilience but the use of land and water by the people residing in these regions needs to be controlled in a manner so as to prevent loss of resilience. Management of vegetation within these reserves also helps in maintaining resilience. Such strategies need to be implemented by the government in areas where the threat to wildlife and endangered species is more. The government also needs to have controlled wildlife tourism in these natural reserves and buffer zones. The wildlife tourism has adverse effect on the breeding and feeding

pattern, disturb the nesting sites and thus government is required to have a vigilance on these activities and ensure that the rules and regulations under the relevant Acts and legislations are followed by the forest officials and concerned persons. This strategy, if strictly followed, will prove to be very beneficial towards protection and conservation of wildlife and maintenance of wildlife in their natural habitat.

## Creation and Management of Biosphere

Biosphere reserve consists of a micro-territory or a large area of land which addresses different issues of protection of plants and animal species using different means according to their situation. Sometimes these reserves are divided into small units defined by geographical or human factors. Biosphere reserve consists of three zones, viz., core, and buffer and transition zone. Each zone is approached differently, depending on the need and objectives of biosphere reserve. Creation and management of several biosphere reserves and other protected areas is an important strategy to protect and conserve wildlife. It includes connecting the corridors and habitat matrices which helps in linking fragmented reserves and landscapes by providing dispersal and migration of flora and fauna. In, India, there are 18 biosphere reserves at present. These reserves have been set up by the Government of India in order to protect and conserve wildlife. The human activities in and around these protected areas have posed various kinds of problems and threats to the wild animals and plants. Thus, the government needs to be alert and watchful about



the activities of human, including research activities in these reserves. The Central government as well as the state governments should work together in coordination in maintaining these biosphere reserves and oversee that the officials deputed in these reserves are working in consonance with the legal provisions and regulations. The government should make stricter provisions of punishment also if the laws are violated and wildlife is harmed.

**CONCLUSION:** The wildlife protection and conservation is a huge task in India with the growing concerns of illegal trade and exploitation of wildlife resources. This objective cannot be achieved until and unless all branches of the government authorities, villagers & local people residing in and around the protected areas, non-profit and nongovernmental organizations, law enforcement officers and the general public work together towards this goal. India has a rich thus makes it a biodiversity rich country. Hence, there is a need for everyone to protect this rich resource and maintain a balanced environment. The laws pertaining to the protection of wildlife and their natural habitat enacted and enforced in the country though provides strict legal provisions for the very cause of wildlife protection and conservation, it is still observed that the ground reality is not the same. The wildlife is still exploited; the animals are still hunted and traded for human benefits. Even the use of harmful substances in industries, daily activities of man, construction of roads and buildings, leisure and entertainment activities causes adverse effect on the environment which in turn affects the wildlife and their natural environment. Illegal hunting and trade of wildlife are still taking place in India without abiding by the norms of these laws. Thus, a strong need for awareness

of wildlife protection and conservation among the public is required and effective & strict implementation of these laws needs to be done by every state. The state governments are required to keep vigilance on the effective implementation of wildlife protection laws and conservation at the district and municipal level. The need for effective strategies and solutions for the protection of wildlife in India and conservation of wildlife is the need of the hour. The government must work in accordance to the present needs and demands in a situation when these wildlife species are threatened and many of which have come to the verge of extinction. The state governments and central government is required to work together and implement all the relevant laws and conservation strategies in order to protect the wildlife and prevent illegal hunting and trade of these endangered species and wildlife as a whole.

## BIBLIOGRAPHY

To make this project I have taken source from INTERNET as well as BOOK.

**WILDLIFE**  
**CONSERVATION**

**SEMESTER-2**

**AECC-2**

**NAME- DEBJYOTI BANERJEE**

**COLLEGE ROLL NUMBER – ENGA20M311**

**CU REGISTRATION NUMBER – 223-1111-0177-20**

**CU ROLL NUMBER – 202223-21-0045**

**TOPIC OF PROJECT – WILDLIFE CONSERVATION**

**SESSION – 2020-21**

**WORD COUNT – 2,298**

## INTRODUCTION

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International. Each species on the planet is important for the continuance of the food chain. Wildlife and their habitat have numerous benefits for the existence of humans as well as the flora and fauna. In India, for instance, forests that house animals like tigers, elephants, hornbills and cobras are also watersheds of some primary rivers of India. Survival of wildlife is therefore dependent on the survival of forests. Forests are also home to millions of species of plants, insects, amphibians, reptiles, birds and mammals. They are therefore a treasure house of nature. If there is a lack of trees and grasslands, it will lead to lack of food for herbivores. If the herbivores are unable to survive, it will result in shortage of food for the carnivores. Thus in case of destruction of forests, the food web will also be destroyed.

Not only are animals important for the survival of the food chain, they are important also because they provide for economic activities like tourism. They add to the biological diversity of the region and maintain ecological balance. Maintaining national parks and sanctuaries is a good way to preserve wildlife. Killing of birds and animals is therefore banned in the country, but there is still a lot that needs to be done towards preservation of wildlife. The study of wildlife is also important to gain more knowledge about different species and their evolution. Different species make for a thorough gene pool that can also be harnessed to safeguard different species.

## WILDLIFE SANCTUARY

A wildlife sanctuary is an area where animals and birds can live protected and safe in their natural habitats, away from poaching or trafficking. It is also known as a natural reserve , biosphere reserve or a nature conservation area. It is an area where not only the animals are protected but the flora as well as other geological features are conserved and maintained either to be studied or for research purposes. They can be under the direct care of the government or owned by private charities and research institutions. In sanctuaries there are strict rules against killing, capturing and poaching of the animals. One of the main reasons they are established is for the protection of endangered species. In India there are about 543 wildlife sanctuaries which cover a total of 118,918 square kilometers. Some of the prominent ones are:

- Bhadra Wildlife Sanctuary, Karnataka

- Gir National Park and Wildlife Sanctuary
- Chinnar Wildlife Sanctuary, Kerala
- Senchal Wildlife Sanctuary, West Bengal
- Pani Dhing Wildlife Sanctuary, Assam

## NATIONAL PARK

A national park is a park in use for conservation purposes, created and protected by national governments. Often it is a reserve of natural, semi-natural, or developed land that a sovereign state declares or owns. Although individual nations designate their own national parks differently, there is a common idea: the conservation of 'wild nature' for posterity and as a symbol of national pride.

An international organization, the International Union for Conservation of Nature (IUCN), and its World Commission on Protected Areas (WCPA), has defined "National Park" as its *Category II* type of protected areas. According to the IUCN, 6,555 national parks worldwide met its criteria in 2006. IUCN is still discussing the parameters of defining a national park.

While this type of national park had been proposed previously, the United States established the first "public park or pleasuring-ground for the benefit and enjoyment of the people", Yellowstone National Park, in 1872. Although Yellowstone was not officially termed a "national park" in its establishing law, it was always termed such in practice and is widely held to be the first and oldest national park in the world. However, the Tobago Main Ridge Forest Reserve (established in 1776), and the area surrounding Bogd Khan Uul Mountain (1778) are seen as the oldest legally protected areas, predating Yellowstone by nearly a century. National parks are almost always open to visitors.

**National parks in India** are IUCN category II protected areas. India's first national park was established in 1936 as Hailey National Park, now known as Jim Corbett National Park, Uttarakhand. By 1970, India only had five national parks. In 1972, India enacted the Wildlife Protection Act and Project Tiger in 1973 to safeguard the habitats of conservation reliant species.

Further federal legislation strengthening protection for wildlife was introduced in the 1980s.

There are 104 existing national parks in India covering an area of 43,716 km<sup>2</sup>, which is 1.33% of the geographical area of the country (National Wildlife Database, Dec. 2020). In addition to the above 75 National Parks covering an area of 16,608 km<sup>2</sup> are proposed in the Protected Area Network Report (Rodgers & Panwar, 1988). The network of parks will go up 176 after full implementation of the above report.

## **BIOSPHERE RESERVE**

Biosphere reserves are 'learning places for sustainable development'. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges. Biosphere reserves include terrestrial, marine and coastal ecosystems. Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Biosphere Reserves are designated under the intergovernmental MAB Programme by the Director-General of UNESCO following the decisions of the MAB International Coordinating Council (MAB ICC). Their status is internationally recognized. Member States can submit sites through the designation process.

In order to assist the stakeholders with the designation process, as well as periodic reviews, Technical Guidelines are being progressively created by the MAB International Co-ordinating Council.

Biosphere Reserves involve local communities and all interested stakeholders in planning and management. They integrate three main "functions":

- Conservation of biodiversity and cultural diversity
- Economic development that is socio-culturally and environmentally sustainable
- Logistic support, underpinning development through research, monitoring, education and training

These three functions are pursued through the Biosphere Reserves' three main zones:

### **Core Areas**

It comprises a strictly protected zone that contributes to the conservation of landscapes, ecosystems, species and genetic variation

### **Buffer Zones**

It surrounds or adjoins the core area(s), and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.

### **Transition Area**

The transition area is where communities foster socio-culturally and ecologically sustainable economic and human activities.

The Indian government has established 18 biosphere reserves (categories roughly correspondingly to IUCN Category V Protected areas) to protect larger areas of natural habitat than a typical national park or animal sanctuary, and that often include one or more national parks or reserves, along with buffer zones that are open to some economic uses. Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life.

## **EFFECTIVE WILDLIFE CONSERVATION METHODS**

Conservation of wildlife can be divided into two essential terms, namely “in situ conservation” and “ex-situ conservation.”

**In-Situ Protection:** This form of protection preserves the imperil animal or plant in its natural environment. In Situ Conservation falls under initiatives such as National Parks, Biological Reserves.

**Ex-Situ Conservation:** Ex-situ wildlife protection simply means off-site protection of wild animals and plants by eliminating and relocating a portion of a population to protected habitat. To protect the environment, various types of wildlife management approaches may be employed. The following are some vital wildlife conservation methods in India:-

**Wildlife Conservation Laws –** The 1972 Wildlife Protection Act is an act which attempts to protect the Indian wildlife. The Indian parliament enacted this act on 9 September 1972, and after that, the destruction of wildlife was limited to some degree.

**Habitat Management –** This approach is used to perform wildlife conservation surveys and to hold statistical data. After that, the wildlife habitat can be improved.

**Creation of Protected Area –** Protected areas are created to preserve wildlife, such as national parks, reserve forests, wildlife sanctuaries, etc. In these restricted regions, wildlife protection laws are implemented to protect the species.

**Awareness –** There is a need to educate the people about the value of wildlife for wildlife conservation in India. Some people neglect or hurt wildlife since they are unaware of wildlife’s significance. Thus, awareness of conserving wildlife in India can be spread amongst people.

**Eliminating Superstitions –** Wildlife has always been endangered by superstition. Many body parts of wild animals, parts of trees are used as treatments for other diseases. Such remedies have no theoretical basis at all. Also, some people claim that bone, fur etc. will heal their chronic illness by wearing or using other animals.



## **The International Union for Conservation of Nature (IUCN)**

IUCN is a membership Union uniquely composed of both government and civil society organizations. Created in 1948, it is the global authority on the status of the natural world and the measures needed to safeguard it. It is headquartered in Switzerland. The IUCN Red List of Threatened Species is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the world. The IUCN Red List Categories define the extinction risk of species assessed. Nine categories extend from NE (Not Evaluated) to EX (Extinct). Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) species are considered to be threatened with extinction. It is recognized as the most authoritative guide to the status of biological diversity. It is also a key indicator for the SDGs and Aichi Targets.

### **Need of Wildlife Conservation**

Today, about 23% (1,130 species) of mammals and 12% (1,194 species) of birds are considered as threatened by IUCN. According to various surveys and reports, our planet has lost more than 58% of its wildlife since 1970 and is experiencing the sixth mass extinction. The 2016 Living Planet Report reveals the troubling extent of this and other environmental crises around the world, but it also sheds light on the ways we can still protect and rehabilitate what's left. An index compiled with data from the Zoological Society of London to measure the abundance of biodiversity was down 58 percent from 1970 to 2012 and would fall 6 percent by 2020 on current trends, the WWF said in a report. In 1972, The Wildlife Conservation Act was passed by the Government of India. In 1980, The World Conservation Strategy was developed by the "International Union for Conservation of Nature and Natural Resources" (IUCN) with assistance from The United Nations Environment Program and the World Wildlife Fund and in collaboration with the Food and Agriculture Organization of UN and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Global biodiversity is being lost much faster than natural extinction due to changes in land use, unsustainable use of natural resources, invasive alien species, climate change, and pollution among others. Land conversion by humans, resulting in natural habitat loss, is most evident in tropical forests and is less intensive in temperate, boreal, and arctic regions. Pollution from atmospheric nitrogen deposition is most severe in northern temperate areas close to urban centers, and the introduction of damaging alien species is usually brought about through patterns of human activity.

## **CONCLUSION**

Wildlife conservation in India has a long history, dating back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. Then, the formation of the Wildlife Board at the national level and enactment of Wildlife Act in 1972 laid the foundation of present day “wildlife conservation” era in post-independent India. Henceforth, the Act has been amended several times and the National Wildlife Advisory Board has undergone various changes. With the opening up of Indian market and process of globalization, the country has made significant progress in achieving higher Gross Domestic Product (GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within Protected Areas came to fore. Take for instance, the restrictions by Environmental Impact Assessment (EIA) for Development Projects, covering more than 30 sectors as far back in 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “Protected Areas”- largely on the basis of requirement of ‘Forest Clearance’ or on the assessment of impacts on Wildlife Habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.

## **ACKNOWLEDGEMENT**

I would like to express my special thanks of gratitude to all my respected professors , who gave me the golden opportunity to do this wonderful project on the topic WILDLIFE CONSERVATION , which helped me in doing a lot of Research and i came to know about so many new things. Secondly,I would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time. THANKS AGAIN TO ALL WHO HELPED ME.

## **BIBLIOGRAPHY**

- [https://en.wikipedia.org/wiki/Wildlife\\_conservation](https://en.wikipedia.org/wiki/Wildlife_conservation)
- <https://www.vedantu.com/biology/wildlife-sanctuaries>
- [https://en.wikipedia.org/wiki/National\\_park](https://en.wikipedia.org/wiki/National_park)
- <https://en.unesco.org/biosphere/about>







**PROJECT ON  
WILDLIFE CONSERVATION IN INDIA**

NAME – JEET OJHA

COLLEGE ROLL NO. ENGA20M319

CU REGISTRATION NO.

223-1111-0180-20

CU ROLL NO. 202223-21-0047

TOPIC – WILDLIFE CONSERVATION IN INDIA

SUBJECT – ENVS (ENVIRONMENTAL STUDIES)

PAPER – AECC 2

SEMESTER - 2

## **ACKNOWLEDGEMENT**

I would like to express my heartfelt gratitude to Professor Aniruddha Chatterjee and Professor Malini Kundu. They taught us, the significance of wildlife and the major threats to wildlife and also made sure that every bit of their lectures got through us. They also taught us, the various initiatives by the Government to conserve wildlife and made us understand the importance of conserving wildlife.

I would also like to thank my friends, who, even though are far away from me in this pandemic, helped me to choose my topic. Last but not the least, I would like thank my parents. I couldn't have completed this project without their support.

# CONTENTS

	Page No.
1. INTRODUCTION	04
2. THE IUCN RED LIST OF THREATENED SPECIES	05
3. THREATS TO WILDLIFE	07
4. IMPORTANCE OF WILDLIFE CONSERVATION	08
5. WILDLIFE CONSERVATION PROJECTS IN INDIA AND OTHER INITIATIVES	09
6. CONCLUSION	14
7. BIBLIOGRAPHY	15



## INTRODUCTION

Wildlife includes all animals and plants which are not domesticated or tamed and can be found in all ecosystems including deserts, forests and rain forests. Wildlife predominantly includes those animals or plants that are untouched by human factors and live in their natural habitat but many scientists agree on the fact that much of the wildlife is affected by human interventions and climate change.

According to The **Wildlife (Protection) Act, 1972** "wildlife" includes any animal, bees, butterflies, crustacean, fish and moths; and aquatic or land vegetation which forms part of any habitat. It also includes habitat like land, water or vegetation which is the natural home of any wild animal.

Wildlife conservation is the practice of protecting plant and animal species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The Indian landmass is home to a large variety of flora and fauna. India has an amazingly wide variety of wildlife animals and birds that live in the diverse terrain of the country. From ferocious Royal Bengal tigers to gigantic Asian Elephants, India houses this huge variety of animals in its 89 national parks, 18 Bio-Reserves and more than 400 wildlife sanctuaries. However, due to irresponsible human interference in the ecosystem has resulted in the loss and extinction of many species. Due to this interference and the threats that have risen out of this, conservation of these biodiversity rich spots and their wildlife in India have become important.

Due to this, national parks and wildlife reserves have come up in different parts of the country where a healthy interaction of humans and wildlife is encouraged. The government of India established a system of national parks and protected areas in 1935, which was subsequently expanded. In 1972, India enacted the Wildlife (Protection) Act and Project Tiger to safeguard crucial habitat. Further, federal protections were promulgated in the 1980s. India, today, has as many as 15 biosphere reserves for the conservation of endemic and endangered species, out of which four are part of the World Network of Biosphere Reserves.

# THE IUCN RED LIST OF THREATENED SPECIES

The International Union for Conservation of Nature (IUCN) Red List of Threatened Species (also known as the IUCN Red List or Red Data Book), founded in 1964, is the most authoritative, objective and comprehensive list of animals, plants and fungi that have been assessed for their risk of extinction. Described as the Barometer of Life, it is widely recognised as the best measure of how the world's wildlife is faring. The first official list was published in book form in 1966, but now, much of the information is available on their website, in a searchable database that is accessible to anyone.

The Swiss-based IUCN (the International Union for Conservation of Nature) is responsible for producing the Red List, but on a day-to-day basis it is managed and compiled by the Global Species Programme Red List Unit, based in Cambridge, which draws on information from 16,000 scientists and 1,300 partner organisations in almost every country in the world.



LOGO OF THE IUCN RED LIST OF THREATENED SPECIES

Each species is rigorously evaluated, using specified and quantifiable criteria (such as population size, the rate of population growth decline and geographic range) with input from BirdLife International, the IUCN Species Survival Commission and many other members of the Red List partnership. Once the assessment has been independently checked for accuracy, the species is placed into one of eight official categories. The eight categories are:

- **Extinct (EX)** – A taxon is said to be extinct when there no reasonable doubt that the last individual has died.
- **Extinct in the Wild (EW)** – A taxon is said to be Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalised population well outside its historic range.
- **Critically Endangered (CR)** – A taxon is said to be Critically Endangered when it is considered to be facing an extremely high risk of extinction in the wild.
- **Endangered (EN)** – A taxon is said to be Endangered when it is considered to be facing a very high risk of extinction in the wild.

- **Vulnerable (VU)** – A taxon is said to be Vulnerable when it is considered to be facing high risk of extinction in the wild.
- **Near Threatened (NT)** – A taxon is said to be Near Threatened when it is likely to qualify for a threatened category in the future.
- **Least Concern (LC)** – A taxon is said to be Least Concern when it does not qualify for a more at-risk category.
- **Data Deficient (DD)** – A taxon is said to be Data Deficient when there is inadequate data to make an assessment.
- **Not Evaluated (NE)** – A taxon is said to be Not Evaluated when it is has not yet been evaluated against the criteria.

The recent developmental activities of human and their encroachment on the wildlife habitat have posed a serious threat to the very wildlife, especially to the endemic species such as the Asiatic Lion, the Royal Bengal Tiger, the Indian White-rumped Vulture, the Nilgiri Leaf Monkey etc. 172 wildlife and endemic species of India are also included in the IUCN designated threatened species of the world which accounts for 2.9% of the number of threatened species of the world.



**THE WHITE-RUMPED VULTURE**

## THREATS TO WILDLIFE

India is one of the most biodiverse countries in the world. The land of 1.3 billion people is still host to wild herds of elephants and free-roaming leopards. But unfortunately, there are many threats to wildlife worldwide and in India. While most people are aware of habitat loss and climate change, there are several threats to wildlife in India which many people don't know about. Here is a list of 5 threats to Indian wildlife which are often overlooked:

1. **Habitat Destruction** - Habitat destruction is the main cause for wildlife extinction in India. The rapid deterioration of the environment due to human interference is aiding the disappearance of wildlife from the biosphere. According to IUCN, habitat loss and degradation have affected about 89 percent of all threatened birds, 83 percent of mammals and 91 percent of all threatened plants globally. Habitat loss is due to deforestation for extended cultivation, construction of dams, mining operations and road laying.
2. **Selective Cultivation** - With the advent of agriculture man began to grow large quantities of selected crops in his own chosen place, after clearing away the existing natural ecosystem. Selective cultivation has paved the way for the disappearance of wild and rare species. As a result, we have lost much of the faunal diversity that depended on those species. Large scale use of pesticides and fertilizers has polluted the land and river ecosystems.
3. **Pollution** - Pollution by heavy metals, persistent biocides, organic wastes, removal of sand from riverbeds and agricultural run-off have spoilt the river ecosystem. The marine ecosystem is affected by hot water from nuclear and thermal power plants, toxic effluents from coastal areas, oil spills, blasting and dredging, collection of undersized fishes and other organisms, exploitation of ornamental seashells and pearl oysters by domestic shell craft industry, export of sea fans and seaweeds, etc.
4. **Poaching** - Poaching of animals for their skin, fur, horns, tusks and meat for medicinal purposes are a major threat to birds, mammals, plants and reptiles. Superstitious beliefs are the cause for the slaughter of certain species.
5. **Government Laws** - Contradictory laws and policies of the Government and ineffective implementation of laws have also affected the wildlife.

# IMPORTANCE OF WILDLIFE CONSERVATION

We know how important it is to maintain environment wholesomeness for our existence. The major causes of biodiversity loss and forests' degradation include logging, poaching, and agricultural and urban expansion.

Some of the animal species have reached near extinction during the last four decades. Almost 10,000 species are lost every year, which is a very shocking and alarming fact. We should prioritize wildlife conservation as soon as possible or else this wildlife extinction will have long term consequences upon human life. Conservation of wildlife is important for a number of reasons, which are as follows:

1. **Ecosystem Balance** - All animals are important for the eco system. When the population of an animal species reduces, another species is threatened. This interrupts the natural food chain and eventually the eco system.
2. **Enhance Food, Water, and Air Security** - Wildlife conservation enhances food security for human beings. Protection of natural habitats from degradation and forests against deforestation, rises food availability. The availability of clean air and water is ensured as well.
3. **Medicinal Value** – Animals play a huge role in medicine production. For instance, venom of cobra is vital to make leprosy medication. Hence, wildlife conservation is instrumental for the sustainability of the pharmaceutical industries.
4. **Boosts Tourism** - Tourism is also affected adversely if wildlife conservation is not taken seriously. A host of tourists prefer holidaying in areas that include wildlife sanctuaries, national parks, forests, zoos, and game parks. Wildlife conservation ensures that people enjoy nature at its best, while boosting economic growth of nations.
5. **Identification of New Plant and Animal Species for Research** - Despite the increased animal research over the last decades, it is estimated that a significant number of animals and plants are yet to be discovered. Some researchers believe that the medications for some of the incurable diseases will most likely from animals or plants that are yet to be discovered which highlights the need to conserve wildlife.
6. **Employment Opportunities** - Wildlife is also instrumental for various employment opportunities. There are thousands of people who do jobs which are dependent on wildlife such as jobs at zoological parks, etc.

# WILDLIFE CONSERVATION PROJECTS IN INDIA AND OTHER INITIATIVES

India is one of the 17 megadiverse countries in the world and is home to 7.6% of all mammals, 12.6% of all birds, 6.2% of all reptiles, and 6.0% of all flowering plant species. Some of the most biodiverse regions on the planet are present in India. The country comprises of four of the 36 biodiversity hotspots of the world like the Western Ghats, the Eastern Himalayas, the Indo-Burma region and the Sundaland. The country has more than 120 national parks, 515 wildlife sanctuaries, 26 wetlands, and 18 Bio-Reserves, out of which 10 are included in the World Network of Biosphere Reserves. Evidently, this large biodiverse land needs protection, due to which wildlife conservation becomes a mandatory measure.

The Indian Government took several effective initiatives to conserve wildlife in the country, and amongst it, the most commendable initiative is the Wildlife (Protection) Act of 1972, which prohibits trade of rare and endangered species. However, this is not the only praiseworthy measure taken by the Government of India, there is so much more that needs to be mentioned and discussed about the schemes and projects that have helped the country maintain its rich and diverse wildlife.

## Important Wildlife Conservation Projects by The Indian Government:

- **Project Tiger** – Initiated in 1973, Project Tiger is aimed at repopulating Royal Bengal Tigers in India. It has not only contributed to the conservation of tigers but also of the entire ecosystem. Sponsored by the Ministry of Environment, Forest and Climate Change, this one of the most successful wildlife conservation ventures ever. Jim Corbett National Park and Ranthambore National Park played a huge role in this project. There are almost 47 tiger reserves situated in more than 17 regions of the country. These tiger reserves conduct assessments of the number of tigers, their habitat, and hunting habits under the supervision of the Tiger Task Force. Project Tiger has witnessed recovery of the habitat and increase in the population of tigers in the reserve areas. The wild species has increased from 268 in 9 reserves in 1972 to more than 1000 in 28 reserves in 2006 to more than 2000 tigers in 2016.



THE ROYAL BENGAL TIGER

- Project Elephant** – Initiated in 1992 by the Government of India, Project Elephant aims at conserving elephants and their habitat by developing scientific and planned management measures. Under the project welfare of the domestic elephants is also considered, issues like mitigation of human-elephant conflict are also taken care of. The project’s endeavour is to strengthen the measures for protection of elephants against poachers and unnatural death. Since the project Elephant initiated, population of these animals has significantly increased. At the project commencement, it was almost 15000.



**THE INDIAN ELEPHANT**

As per many conservationists, the project is considered successful as the elephant population is maintained at a stable and sustainable level in the country.

- Crocodile Conservation Project** - With conservation of Indian Crocodiles, The Indian Government aims to conserve these species, especially those on the verge of extinction. Apart from protecting crocodiles, the project also contributes to various related conservation spheres. It established sanctuaries to protect their natural habitat and promote captive breeding. Additionally, it aims at involvement of locals and improvement of management. It is noteworthy that with Crocodile Conservation Project, 4000 alligators, 1800 crocodiles, and 1500 saltwater crocodiles could be restocked.



**THE MUGGER CROCODILE**

- UNDP Sea Turtle Project** - In November 1999, Wildlife Institute of India, Dehradun initiated the UNDP Sea Turtle Project to conserve the Olive Ridley Turtles. The project was initiated for 10 coastal Indian states, especially Odisha, where it has immensely contributed to various steps in favour of sea turtle conservation. Preparation of map of breeding sites of Sea Turtles, breeding places identification and habitats along the coast, and migratory routes taken by Sea Turtles are these steps. The project also developed guidelines to reduce the turtle mortality rate and encouraging tourism in



**THE OLIVE RIDLEY TURTLE**

sea turtle areas. One of the key accomplishments of this project is illustration of Satellite Telemetry use to locate the migratory sea route of sea turtles.

Apart from these projects, The Government of India also has been handling projects like Vulture Conservation and Indian Rhino Vision (IRV) 2020.

## **Steps Taken by Indian Government to Protect Biodiversity**

Along with the above specified wildlife conservation, The Government of India has also initiated few schemes that are worked upon to protect the biodiversity and minimize the mortality of critically endangered, endangered and threatened animals. Here are a few important steps that Government of India has taken for the wildlife protection:

- In the Wildlife (Protection) Act of 1972, The Government of India created Protected Areas like National Parks, Sanctuaries, Conservation Reserves and Community Reserves for the wildlife and imposed punishments on those, who indulged in illegal act of hunting.
- Wetland (Conservation and Management) Rules, 2017 have been drafted to protect of wetlands in India. The Central Government has also initiated the scheme, National Plan for Conservation of Aquatic Eco-Systems, that lends assistance to the states for the sound management of all wetlands.
- In order to curb the illegal trade of wildlife and that of endangered species, Wildlife Crime Control Bureau has been established.
- Special organizations like Wildlife Institute of India, Bombay Natural History society and Salim Ali Centre for Ornithology and Natural History are formed to conduct research on conservation of wildlife.
- To check the dwindling population of Gyps vulture in India, The Government of India has banned the veterinary use of diclofenac drug.
- For restocking of the endangered species, the Central Government first initiated Integrated Development of Wildlife Habitat Scheme and later modified it by including a new component, Recovery of Endangered Species which included animals like Hangul in Jammu & Kashmir, Nilgiri Tahr in Tamil Nadu, Vultures in Punjab, Haryana and Gujarat,



**THE NILGIRI TAHR**



Snow Leopard in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Arunachal Pradesh, Swiftlet in Andaman & Nicobar Islands, Sangai Deer in Manipur. Financial and technical assistance is also extended to the state government to provide better means of protection and conservation for the specified species.

- The State Governments have been asked to strengthen the field formations and increase patrolling in and around the Protected Areas.
- The Government of India intensified anti-poaching activities and initiated special patrolling strategy for monsoon season. Also, deployment of anti-poaching squad.
- In order to strengthen tiger conservation, National Tiger Conservation Authority is constituted by Government of India.
- Special Tiger Protection Force (STPF) has also been constituted and is deployed in Karnataka, Maharashtra and Odisha.
- E-Surveillance has been started in Kaziranga National Park in Assam and borders of Ratapani Wildlife Sanctuary in Madhya Pradesh.



THE KAZIRANGA NATIONAL PARK

### **Important Environment and Biodiversity Acts Passed by Indian Government**

- Fisheries Act, 1897
- Indian Forest Act, 1927
- Mines And Minerals (Regulation and Development) Act, 1957
- Prevention of Cruelty to Animals, 1960
- The Wild Life (Protection) Act, 1972
- Water (Prevention and Control of Pollution) Act, 1974
- Forest (Conservation) Act, 1980
- Air (Prevention and Control of Pollution) Act, 1981
- Environment Protection Act, 1986
- Biological Diversity Act, 2002
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

Not only this, there are a number of International Schemes and Projects that India has signed with its neighbours, Nepal and Bangladesh related to illegal wildlife species trade and

conservation of tigers and leopards. Apart from this, there are plenty of other legal, administrative and financial steps that The Government of India has taken for effective wildlife conservation in the country. The success of its some projects and schemes related to Indian Rhinos, tigers and poaching have earned immense confidence to continue working towards a prosperous and intact wildlife.

### **NGOs For Wildlife in India**

Several Non-Governmental Organisations have stepped up to the demands of wildlife conservation in India as well. Activism against encroachment of forest land, poaching and habitat destruction is a common phenomenon in modern India. There are several volunteer groups and corporations that take initiative towards maintaining undisturbed environments for flora and fauna to flourish in. Some of the most renowned NGOs in India include Wildlife Trust of India in New Delhi, Rhino Foundation for Nature in Assam, Wildlife Society of Odisha, Friends of Forests in Maharashtra, Nature's Beckon in Assam, North Eastern



LOGO OF THE WILDLIFE TRUST OF INDIA

Society for Preservation of Nature and Wildlife in West Bengal, Nature Conservation Society of Amravati in Maharashtra, Bali Nature and Wild Life Conservation Society in West Bengal and The Friends of the Doon in Uttarakhand.

India is one of the few countries to have a rich and diverse wildlife. However, due to overpopulation and due to the negative effects of human intervention (such as climate change), the wildlife in India is rapidly declining. It is a known fact that coexistence of man and nature is necessary for the survival of human life, making it extremely important for each and every individual to step up to his/her responsibility towards nature and help in their own ways to protect and nurture it.

## CONCLUSION

It can be concluded that the conservation of wildlife is important for ecological stability and sustainable development. The expansion of human activities into the wildlife habitats has led to a considerable damage in the environment. Various efforts have been made at the international and national level. In India also various efforts have been made like: Project Tiger, Project Elephant, Captive breeding program etc. India also adopted various methods and policies at international level or in the line of international agreements and conventions.

An attempt has been made through these projects for mitigating the harm caused and to prevent future disruptions. We humans are the most intelligent species on the earth and we are hence, responsible for conserving and taking care of the wildlife of our planet. We need to take care of our each and every action and have to make sure that we do not harm the wildlife in any way, shape, or form.

## **BIBLIOGRAPHY**

1. <https://www.ranthamborenationalpark.com/blog/wildlife-conservation-initiatives-indian-government/>
2. <https://www.nationalgeographic.org/encyclopedia/wildlife-conservation/>
3. [https://en.wikipedia.org/wiki/Wildlife\\_of\\_India](https://en.wikipedia.org/wiki/Wildlife_of_India)
4. <https://www.thehindu.com/children/wild-wonderlands/article34686553.ece>
5. <https://en.wikipedia.org/wiki/Wildlife>
6. <https://www.iucnredlist.org/assessment/process>
7. <https://www.britannica.com/topic/IUCN-Red-List-of-Threatened-Species>
8. <https://iucn-csg.org/red-list-categories/>
9. <https://blog.ipleaders.in/top-5-conservation-projects-wildlife-india/amp/>
10. <https://www.thrillophilia.com/wildlife-india>

**PROJECT ON WILDLIFE CONSERVATION.  
SCOTTISH CHURCH COLLEGE.**



**NAME: AUKONIS GHOSH.**

**SEMESTER-II**

**ROLL NO-ENGA20M334**

**SUBJECT-ENVS.**

**C.U. REGISTRATION NO.:223-1111-0184-20**

**C.U. ROLL NO.:202223-21-0050**

**NO. OF WORDS-2,764**

## **INTRODUCTION**

The Indian Parliament enacted the Wildlife (Protection) Act in 1972, which provides for the safeguard and protection of the wildlife (flora and fauna) in the country. This Act provides for the protection of the country's wild animals, birds, and plant species, in order to ensure environmental and ecological security. Among other things, the Act lays down restrictions on hunting many animal species. The Act was last amended in the year 2006. An Amendment bill was introduced in the Rajya Sabha in 2013 and referred to a Standing Committee, but it was withdrawn in 2015. Wildlife is a part of 'forests' and this was a state subject until the Parliament passed this law in 1972. Now it is Concurrent List.

Reasons for a nationwide law in the domain of environment particularly wildlife includes the following: India is a treasure-trove of varied flora and fauna. Many species were seeing a rapid decline in numbers. For instance, it was mentioned by Edward Pritchard Gee (A naturalist), that at the turn of the 20th century, India was home to close to 40000 tigers. But, a census in 1972 showed this number drastically reduced to about 1827.

A drastic decrease in the flora and fauna can cause ecological imbalance, which affects many aspects of climate and the ecosystem.

The most recent Act passed during the British era in this regard was the Wild Birds and Animals Protection, 1935. This needed to be up-graded as the punishments awarded to poachers and traders of wild- life products were disproportionate to the huge financial benefits that accrue to them.

There were only five national parks in India prior to the enactment of this Act.

Effective Wildlife Conservation Methods

Conservation of wildlife can be divided into two essential terms, namely "in situ conservation" and "ex-situ conservation."

**In-situ Conservation:** - Conservation of genetic resources of gene pool through different projects and setting natural condition aside a larger population of earth surface for wild life is known as in-situ conservation.

In order to protect endangered species and to find the undisturbed habitats for wildlife many protected areas have been established by the government. Throughout the country the endangered species and wild lives are being protected in protected areas of different states. Abiding by the laws framed by constitution, there are three main types of protected areas, namely (i) National park, (ii) Sanctuary and (iii) Biosphere reserve.

**(i) National Park:** The protected area in which all plants and wildlives in their compatible environments are being protected according to the constitution framed rules and regulation and under the direct supervision of the government is known as national park. The aim of these protected areas is to conserve the natural habitat of a species through protection of a community. National park appears to be quite large in area that may extend from 0.04 sq km to 3162sq kms. In India there are 88 national parks. For entry of the tourist in the national park there are special arrangements. Hunting is totally prohibited. The authority looks into the matter so that major part of the area remains undisturbed.

**(ii) Sanctuary:** The protected area in which along with the plants, the wildlives are protected is known as Sanctuary. To enter into the sanctuary, permission is required from the forest department. For the purpose of research, some animals may be conserved. Besides some private establishments may also be present within the sanctuary subject to permission from the authority.

**(iii) Biosphere Reserve:** The land or aquatic entire ecosystem in which its total biodiversity is protected according to Man and Biosphere programme of UNESCO, is known as Biosphere Reserve. Biosphere reserve is recognized internationally. Each Biosphere is usually enriched with profuse biodiversity and the protected area represents the major biogeographical area. These are also the symbols of ideal ecosystem. Such protected areas remain free for the purpose of research studies and therefore they may be used for both education and research. The purpose of the establishment of Biosphere Reserve is to mark the Biographical area and conservation of Biodiversity there. These protected areas are

expected to promote cultural and economical development of the inhabitants of the area as well as of the nation. In India there are 12 biosphere reserves.

Name of the site	Date of notification	Area in Sq. km	Location (State)
Nilgiri	01.08.86	5,520	Part of Wynad, Nagarhole, Bandipur... and Madumalai, Nilambur, Silent Valley and Siruvani hills (Tamil Nadu, Kerala and Karnataka)
Nanda Devi	18.01.88	5,860.69	Part of Chamoli, Pithoragarh, Almora Districts (Uttaranchal)
Nokrek	01.09.88	820	Part of Gora Hills (Meghalaya)
Manas	14.03.89	2,837	Part of Kokrajhar, Bongaigaon, Barpeta, Nalbari, Kamrup and Darang district (Assam)
Sunderbans	29.03.89	9,630	Part of delta of Ganga & Brahmaputra river system (West Bengal)
Gulf of Mannar	18.02.89	10,500	Indian part of Gulf of Mannar between India and Sri Lanka (Tamil Nadu)
Great Nicobar	06.01.89	885	Southern most islands of Andaman and Nicobar (A&N islands)
Similpal	21.06.94	4,374	Part of Mayurbhanj district (Orissa)
Dibru-Saikhowa	28.07.97	765	Part of Dibrugarh and Tinsukia district (Assam)
Dehang Debang	02.09.98	5,112	Part of Siang and Debang valley (Arunachal Pradesh)
Pachmarhi	03.03.99	4,926.28	Parts of Betul, Hoshangabad and Chhindwara districts (Madhya Pradesh)
Kanchanjanga	07.02.00	2,619.92	Part of Kanchanjanga Hills (Sikkim)

**Ex-situ Conservation:** Conservation of genetic resources or gene pool through artificial means, i.e. out of natural condition is known as ex-situ conservation. Ex-Zoo. To protect the environment, various types of wildlife management approaches may be employed. The following are some vital wildlife conservation methods in India:-

**Wildlife Conservation Laws** – The 1972 Wildlife Protection Act is an act which attempts to protect the Indian wildlife. The Indian parliament enacted this act on 9 September 1972, and after that, the destruction of wildlife was limited to some degree.

**Habitat Management** – This approach is used to perform wildlife conservation surveys and to hold statistical data. After that, the wildlife habitat can be improved.

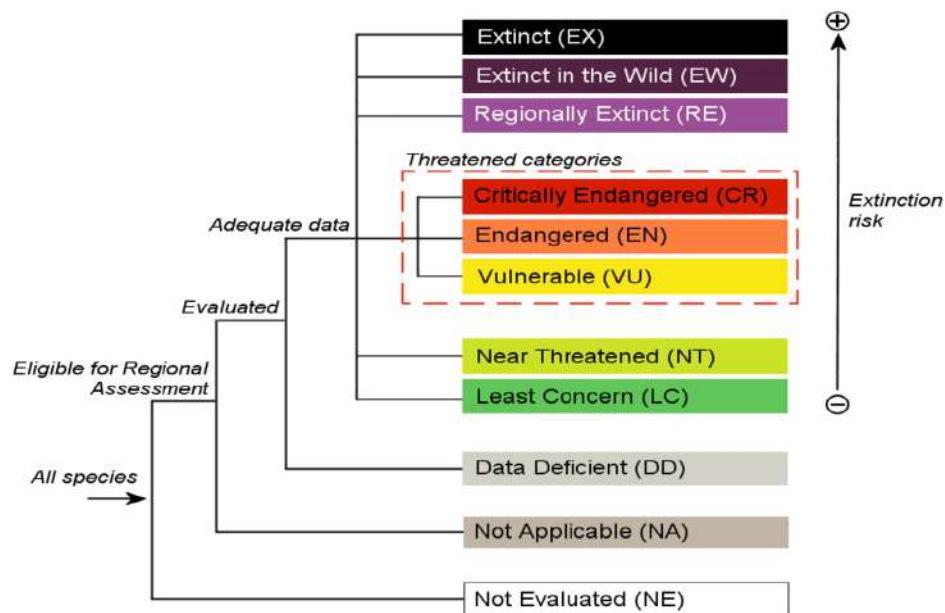
**Creation of Protected Area** – Protected areas are created to preserve wild- life, such as national parks, reserve forests, wildlife sanctuaries, etc. In these restricted regions, wildlife protection laws are implemented to protect the species.

**Awareness** – There is a need to educate the people about the value of wildlife for wildlife conservation in India. Some people neglect or hurt wildlife since they are unaware of wildlife's significance. Thus, awareness of conserving wildlife in India can be spread amongst people.

**Eliminating Superstitions** – Wildlife has always been endangered by superstition. Many body parts of wild animals, parts of trees are used as treatments for other diseases. Such remedies have no theoretical basis at all. Also, some people claim that bone, fur etc. will heal their chronic illness by wearing or using other animals.

## The International Union For Conservation Of Nature (IUCN)

IUCN is a membership union uniquely composed of both government and civil society organizations. Created in 1984, it is the global authority on the status of the natural world and the measures needed to safeguard it. It is headquartered in Switzerland. The IUCN red list of threatened species in the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of quantitative criteria to evaluate the extinction risk of species. These criteria are relevant to most species and all regions of the world. The IUCN red list categories define the extinction risk of species assessed. Nine categories extend from NE (Not Evaluated) to Ex (Extinct). Critically Endangered (CR), Endangered (EN), and Vulnerable (VU) species are considered to be threatened with extinction. It is recognized as the most authoritative guide to the status of biological diversity. It is also a key indicator for the SDGs and Aichi Targets.



## Need of wildlife conservation

Today, about 23% (1,130 species) of mammals and 12% (1,194 species) of birds are considered as threatened by IUCN. According to various surveys and reports, our planet has lost more than 58% of its wildlife since 1970 and is experiencing the sixth mass extinction. The 2016 living planet report reveals the troubling extent of this and other environmental crises around the world, but it also sheds light on the ways we can still protect and rehabilitate what's left. An index compiled with data from the Zoological Society of London to measure the abundance of biodiversity was down 58 percent from 1970 to 2012 and would fall 6 percent by 2020 on current trends, the WWF said in a report. In 1972, The Wildlife Conservation Act was passed by the Government of India. In 1980, The World Conservation Strategy was developed by the "International Union for Conservation of Nature and Natural Resources" (IUCN) with



assistance from The United Nations Environment Program and the World Wildlife Fund and in collaboration with the Food and Agriculture Organization of UN and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Global biodiversity is being lost much faster than natural extinction due to changes in land use, unsustainable use of natural resources, invasive alien species, climate change, and pollution among others. Land conversion by humans, resulting in natural habitat loss, is most evident in tropical forests and is less intensive in temperate, boreal, and arctic regions. Pollution from atmospheric nitrogen deposition is most severe in northern temperate areas close to urban centers, and the introduction of damaging alien species is usually brought about through patterns of human activity.

### **Species loss is also compounded by:**

- The ongoing growth of human population and unsustainable consumer lifestyles
- Increasing production of waste and pollutants
- Urban development
- International conflict

Fewer natural wildlife habitat areas remain each year. Moreover, the habitat that remains has often been degraded to bear little resemblance to the wild areas which existed in the past. Habitat loss due to destruction, fragmentation, and degradation of habitat is the primary threat to the survival of wildlife.

**Climate Change:** Global warming is making hot days hotter, rain- fall and flooding heavier, hurricanes stronger and droughts more severe. This intensification of weather and climate extremes will be the most visible impact of global warming in our everyday lives. It is also causing dangerous changes to the landscape of our world, adding stress to wildlife species and their habitat. Since many types of plants and animals have specific habitat requirements, climate change could cause a disastrous loss of wildlife species. A slight drop or rise in average rainfall will translate into large seasonal changes. Hibernating mammals, reptiles, amphibians, and insects are harmed and disturbed. Plants and wildlife are sensitive to moisture change so, they will be harmed by any change in moisture level. Natural phenomena like floods, earthquakes, volcanoes, lightning, and forest fires also affect wildlife.

**Unregulated Hunting and poaching:** Unregulated hunting and poaching cause a major threat to wildlife. Along with this, mismanagement of the forest department and forest guards triggers this problem.

**Pollution:** Pollutants released into the environment are ingested by a wide variety of organisms. Pesticides and toxic chemicals being widely used, making the environment toxic to certain plants, insects, and rodents.

**Over-exploitation:** Overexploitation is the overuse of wildlife and plant species by people for food, clothing, pets, medicine, sport, and many other purposes. People have always depended on wildlife and plants for food, clothing, medicine, shelter, and many other needs. More resources are being consumed than the natural world

can supply. The danger is that if too many individuals of a species are taken from their natural environment, the species may no longer be able to survive. The loss of one species can affect many other species in an ecosystem. The hunting, trapping, collecting, and fishing of wildlife at unsustainable levels is not something new. The passenger pigeon was hunted to extinction, early in the last century, and over-hunting nearly caused the extinction of the American bison and several species of whales.

**Deforestation:** Humans are continually expanding and developing, leading to an invasion of wildlife habitats. As humans continue to grow, they clear forested land to create more space. This stresses wildlife populations as there are fewer homes and food sources for wildlife to survive.

**Population:** The increasing population of human beings is a major threat to wildlife. More people on the globe means more consumption of food, water, and fuel, therefore more waste is generated. Major

threats to wildlife are directly related to the increasing population of human beings. A low population of humans results in less disturbance to wildlife.

### **Methods employed by Govt. for preservation of wildlife**

Indian board for wildlife was constituted in 1952. The main purpose of the board was to advise the Government on the means of conservation and protection of wildlife, construction of national parks, sanctuaries, and zoological gardens as well as promoting public awareness regarding conservation of wildlife.

**Wildlife (protection) act, 1972** is a comprehensive law that has been adopted by all states. It governs wildlife conservation and the protection of endangered species. The act prohibits trade in rare and endangered species.

**Project Tiger**, one of the premier conservation efforts in the country was launched in 1973. It is a centrally financed scheme under which 51 Tiger Reserves have been set up in 18 states. India now has as many as 2,967 tigers in the wild (census 2018), with more than half of them in Madhya Pradesh and Karnataka, according to the latest tiger estimation report for 2018. The population of tigers has increased by 33% since the last census in 2014 when the total estimate was 2,226 tigers. The fourth cycle of the Tiger Census 2018 counted 2976 tigers which is 75% of global tiger population.

**Project Elephant** was launched as a centrally sponsored scheme in February 1992. According to recent reports, the elephant reserves in India. The population of elephants in the year 2012, was estimated at 31,368 while it had fallen to 27312 in 2017. The elephant population of India was 27,682 in 2007. The average population throughout the period was about 26700.

**Crocodile Breeding Project**– This project was initiated on April 1, 1974, and the project began on April 1, 1975, in Odisha. Crocodile husbandry work was undertaken with a view to sanctuary development.

**The National Wildlife Action Plan (NWAP)** provides the framework of strategy as well as the program for the conservation of wildlife. The first National Wildlife Action Plan of 1983 has been revised and a new Wild- life Action Plan (2002-2016) has been adopted. The Indian Board of Wild life is the apex advisory body overseeing and guiding the implementation of various schemes for wildlife conservation. **National park** is a relatively large land or water area which contains representative samples and sites of major natural regions, features, scenery, and/or plant and animal species of national or international significance and is of special scientific, educational and recreational interest. Usually, the national parks contain one or several entire ecosystems that are not material- ly altered by human exploitation or occupation. National parks are protected and managed by the government in a natural or near-natural state. Visitors enter under special conditions for inspirational, educational, cultural, and recreational purposes.

**Wildlife Sanctuary** is more or less similar to a national park which is dedi- cated to protecting wildlife and concerned species. A wildlife sanctuary is an area constituted by the competent authority in which killing and captur- ing of any form of wildlife is prohibited. Grazing or movement of livestock is regulated. The chief warden is authorized to allow or disallow entry into the sanctuary or construction of roads, buildings, fences, etc. Hunting is also restricted and strictly regulated. The status of Wildlife sanctuary is equal to the IUCN category IV protected area.

**A Biosphere Reserves** is a unique and representative ecosystem of terrestrial and coastal areas which are internationally recognized within the framework of UNESCO's Man and Biosphere (MAB) program. The objectives of the Man and Biosphere Program (MAB) are as follows:

Conservation function: to conserve genetic resources, species, ecosystems and landscapes

Development function: to promote sustainable human and economic development

Logistic support function: to provide support for research and analyzing the issues of conservation and sustainable development.

## **Conclusion**

Wildlife Conservation in India has a long history, dating back to the colonial period when it was rather very restrictive to only targeted species and that too in a defined geographical area. Then, the formation of the wildlife board at the national level and enactment of wildlife act in 1972 laid the foundation of present day “wildlife conservation” era in post independent India. Henceforth, the act has been amended several times and the national wildlife advisory board has undergone various changes.

With the opening up of Indian market and process of globalization the country has made significant progress in achieving higher gross domestic product(GDP). But, on the other hand, disturbing developments about dilution of conservation efforts on the part of the system of governance on one side and a significant increase in the death toll of protected species, combined with intervention within protected areas came to fore. Take for instance, the restrictions by environmental impact assessment (EIA) for development projects, covering more than 30 sectors as far back 1994, surprisingly omitting all railway projects from its ambit. The history of last 20 years bears testimony to the sad fact, in attempts of the so called “development lobby” to establish practices like “green blockade”. EIA notification, for instance, puts special restriction for development projects in and around “protected areas” largely on the basis of requirement of “Forest Clearance” or on the assessment of impacts on wildlife habitat or on well found apprehension of fragmentation of wildlife habitat or corridors.

## **Bibliography**

### **Links :-**

- <https://www.nationalheraldindia.com/india/wildlife-conservation-in-india-are-we-really-serious>
- <https://byjus.com/free-ias-prep/biosphere-reserve-in-india/>
- <https://lotusarise.com/wildlife-resources-in-india-upsc/>
- <https://www.clearias.com/iucn-classification-critically-edangered-endangered-and-vulnerable/>

**Books:-** DrErachBharuchais. **Textbook of Environmental studies for undergraduate courses:**Orient Blackswan Pvt ltd. Reprint 8 march 2021

SCOTTISH CHURCH COLLEGE, WEST BENGAL, INDIA

HONOURS PAPERS: ENGLISH HONOURS

SUBJECT – AECC 2 (ENVIRONMENTAL STUDIES)

TOPIC:- WILDLIFE CONSERVATION

NAME OF THE STUDENT: AVIRUP MONDAL

COURSE: BA.HONOURS

COLLEGE ROLL NUMBER: ENGA20M340

CU REGISTRATION ID: 223-1111-0186-20

SEMESTER: 2

SESSION: 2020-2021

EMAIL ID OF THE STUDENT: **mondalavirup280@gmail.com**

# WILDLIFE CONSERVATION

**Definition: Wildlife conservation** refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention On Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International.

## Threats to wildlife

### Habitat destruction

Habitat destruction decreases the number of places wildlife can live in, breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans. Moreover, destruction and fragmentation create smaller habitats. Smaller habitats support smaller populations, and smaller populations are more likely to go extinct.

### Overexploitation

Overexploitation is the harvesting of animals and plants at a rate that's faster than the species's ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to a decline in fish sizes as well as fish numbers.

### Poaching

Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. [traded for their tusks, skins, and horns respectively]. Less well-known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.

## Culling

Culling is the deliberate and selective killing of wildlife by governments for various purposes. An example of this is shark culling, in which "shark control" programs in Queensland and New South Wales (in Australia) have killed thousands of sharks, as well as turtles, dolphins, whales, and other marine life. The Queensland "shark control" program alone has killed about 50,000 sharks — it has also killed more than 84,000 marine animals. There are also examples of population culling in the United States, such as bison in Montana and swans, geese, and deer in New York and other places.

## Pollution

A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.

**Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high levels of sulfur oxides (SO<sub>x</sub>) can damage plants and stunt their growth. Sulfur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.

**Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer.<sup>1</sup> How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.

**Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.

## Climate change

Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct. While modern climate change is caused by humans, past climate change events occurred naturally and have led to extinctions.

## Species conservation

It is estimated that, because of human activities, current species extinction rates are about 1000 times greater than the background extinction rate (the 'normal' extinction rate that occurs without additional influence). According to the IUCN, out of all species assessed, over 27,000 are at risk of extinction and should be under conservation. Of these, 25% are mammals, 14% are birds, and 40% are amphibians. However, because not all species have been assessed, these numbers could be even higher. A 2019 UN report assessing global biodiversity extrapolated IUCN data to all species and estimated that 1 million species worldwide could face extinction. Yet, because resources are limited, sometimes it is not possible to give all species that need conservation due consideration. Deciding which species to conserve is a function of how close to extinction a species is, whether the species is crucial to the ecosystem it resides in, and how much we care about it.

## **Leatherback sea turtle**

The leatherback sea turtle (*Dermochelys coriacea*) is the largest turtle in the world, is the only turtle without a hard shell, and is endangered. It is found throughout the central Pacific and Atlantic Oceans but several of its populations are in decline across the globe (though not all). The leatherback sea turtle faces numerous threats including being caught as bycatch, harvest of its eggs, loss of nesting habitats, and marine pollution. In the US where the leatherback is listed under the Endangered Species Act, measures to protect it include reducing bycatch captures through fishing gear modifications, monitoring and protecting its habitat (both nesting beaches and in the ocean), and reducing damage from marine pollution. There is currently an international effort to protect the leatherback sea turtle.

## **Habitat conservation**

Habitat conservation is the practice of protecting a habitat in order to protect the species within it. This is sometimes preferable to focusing on a single species especially if the species in question has very specific habitat requirements or lives in a habitat with many other endangered species. The latter is often true of species living in biodiversity hotspots, which are areas of the world with an exceptionally high concentration of endemic species (species found nowhere else in the world). Many of these hotspots are in the tropics, mainly tropical forests like the Amazon. Habitat conservation is usually carried out by setting aside protected areas like national parks or nature reserves. Even when an area isn't made into a park or reserve, it can still be monitored and maintained.

## **Red-cockaded woodpecker**

The red-cockaded woodpecker (*Picoides borealis*) is an endangered bird in the southeastern US. It only lives in longleaf pine savannas which are maintained by wildfires in mature pine forests. Today, it is a rare habitat (as fires have become rare and many pine forests have been cut down for agriculture) and is commonly found on land occupied by US military bases, where pine forests are kept for military training purposes and occasional bombings (also for training) set fires that maintain pine savannas. Woodpeckers live in tree cavities they excavate in the trunk. In an effort to increase woodpecker numbers, artificial cavities (essentially birdhouses planted within tree trunks) were installed to give woodpeckers a place to live. An active effort is made by the US military and workers to maintain this rare habitat used by red-cockaded woodpeckers.

## **Conservation genetics**

Conservation genetics studies genetic phenomena that impact the conservation of a species. Most conservation efforts focus on ensuring population growth but genetic diversity also greatly affect species survival. High genetic diversity increases survival because it means greater capacity to adapt to future environmental changes. Meanwhile, effects associated with low genetic diversity, such as inbreeding depression and loss of diversity from genetic drift, often decrease species survival by reducing the species' capacity to adapt or by increasing the frequency of genetic problems. Though not always the case, certain species are under threat because they have very low genetic diversity. As such, the best conservation action would be to restore their genetic diversity.

## **Florida panther**

The Florida panther is a subspecies of puma (specifically *Puma concolor coryi*) that resides in the state of Florida and is currently endangered. Historically, the Florida panther's range covered the entire southeastern US. In the early 1990s, only a single population with 20-25 individuals were left. The population had very low genetic diversity, was highly inbred, and suffered from several genetic issues including kinked tails, cardiac defects, and low fertility. In 1995, 8 female Texas pumas were introduced to the Florida population. The goal was to increase genetic diversity by introducing genes from a different, unrelated puma population. By 2007, the Florida panther population had tripled and offspring between Florida and Texas individuals had higher fertility and less genetic problems. In 2015, the US Fish and Wildlife Service estimated there were 230 adult Florida panthers and in 2017, there were signs that the population's range was expanding within Florida.

## **Conservation methods**

### **Wildlife population monitoring**

Monitoring of wildlife populations is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution, and genetic diversity, although many other metrics may be used.

Monitoring methods can be categorized as either "direct" or "indirect". Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on "signs" that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-opening counts, burrow counts, runaway counts, knockdown cards, snow tracks, or responses to audio calls.

For large, terrestrial vertebrates, a popular method is to use camera traps for population estimation along with mark-recapture techniques. This method has been used successfully with tigers, black bears and numerous other species. Trail cameras can be triggered remotely and automatically via sound, infrared sensors, etc. Computer vision-based animal individual re-identification methods have been developed to automate such *sight-resight* calculations. Mark-recapture methods are also used with genetic data from non-invasive hair or fecal samples. Such information can be analyzed independently or in conjunction with photographic methods to get a more complete picture of population viability.

## **Government involvement**

In the US, the Endangered Species Act of 1973 was passed to protect US species deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally, and educationally important. In the same year, the Convention on



International Trade in Endangered Species of Fauna and Flora (CITES) was passed as part of an international agreement to prevent the global trade of endangered wildlife. In 1980, the World Conservation Strategy was developed by the IUCN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans. In 1992, the Convention on Biological Diversity (CBD) was agreed on at the UN Conference on Environment and Development (often called the Rio Earth Summit) as an international accord to protect the Earth's biological resources and diversity.

According to the National Wildlife Federation, wildlife conservation in the US gets a majority of its funding through appropriations from the federal budget, annual federal and state grants, and financial efforts from programs such as the Conservation Reserve Program, Wetlands Reserve Program and Wildlife Habitat Incentives Program. A substantial amount of funding comes from the sale of hunting/fishing licenses, game tags, stamps, and excise taxes from the purchase of hunting equipment and ammunition.

## Non-government involvement

In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental organizations (NGOs) . Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 “earmarking U.S. Agency for International Development (USAID) funds for [biodiversity]”. From 1990 till now, environmental conservation NGOs have become increasingly more focused on the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving the quality of the environment and its natural resources became a “priority” to “prevent international tensions” according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.

## Non-governmental organizations

Many NGOs exist to actively promote, or be involved with, wildlife conservation:

The Nature Conservancy is a US charitable environmental organization that works to preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

World Wide Fund for Nature (WWF) is an international non-governmental organization working on the issues regarding the conservation, research and restoration of the environment, formerly named the World Wildlife Fund, which remains its official name in Canada and the United States. It is the world's largest independent conservation organization with over 5 million supporters worldwide, working in more than 90 countries, supporting around 1300[4] conservation and environmental projects around the world. It is a charity, with approximately 60% of its funding coming from voluntary donations by private individuals. 45% of the fund's income comes from the Netherlands, the United Kingdom and the United States.

Conservation International

Fauna and Flora International

WildTeam

Wildlife Conservation Society

Audubon Society

Traffic (conservation programme)

Born Free Foundation

African Wildlife Defence Force

Save Cambodia's Wildlife

WildEarth Guardians

## Conclusion

Thus we can finally conclude that Wildlife conservation has come up as a very important issue in each and every nation and they are doing their best in conserving the wildlife before it leads to extinction of innumerable species of flora and fauna. Hopefully in the near future we can stop the extinction of many rare species of flora and fauna , with the help of both governmental and nongovernmental organizations for the collective well being of the world as a whole.

## BIBLIOGRAPHY

In these pandemic situations, our teachers have been unable to help us individually, though they made us understand the topic of this project with greater depth and have provided us with the required knowledge to approach this topic. However, doing this project wouldn't have been possible without taking references from Google and Wikipedia.

**SCOTTISH CHURCH COLLEGE, WEST BENGAL, INDIA**

**HONOURS PAPERS : ENGLISH HONOURS**

**PROJECT: AECC 2 ENVIRONMENTAL STUDIES**

**NAME OF THE STUDENT: DURLAV GHOSH**

**COURSE : BA. HONOURS**

**COLLEGE ROLL NUMBER : ENGA20M353**

**CU REGISTRATION ID : 223-1111-0208-20**

**CU ROLL NUMBER : 202223-21-0058**

**SEMESTER : 2**

**PROJECT TOPIC : WILDLIFE CONSERVATION**

**NUMBER OF PAGES : 15**

## **WILDLIFE CONSERVATION:**

### **What is wildlife conservation?**

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems.

Wildlife conservation is the practice of protecting plant and animal species and their habitats.... The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

### **Aims of Wildlife Conservation :**

Wildlife conservation aims at:

- Maintaining healthy wildlife populations.
- Maintaining the number of animals in balance with their habitats.
- Keeping track of current habitat conditions and breeding populations and preventing total extinction of species.

### **Importance of Wildlife Conservation :**

By conserving wildlife, we're ensuring that future generations can enjoy our natural world and the incredible species that live within it. To help protect wildlife, it's important to understand how species interact within their ecosystems, and how they're affected by environmental and human influences.

### **What is the main aim of forest and wild life conservation?**

The main aim of the management of forests and wildlife is to conserve our inherited biodiversity in order to maintain the ecological balance.

## **Wildlife Conservation:**

The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting, fishing, and poaching.

National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

## **Threats to Wildlife:**

### **1.Habitat Destruction:**

Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones.[3] Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans. Moreover, destruction and fragmentation create smaller habitats. Smaller habitats support smaller populations, and smaller populations are more likely to go extinct.

### **2.Overexploitation :**

Overexploitation is the harvesting of animals and plants at a rate that's faster than the species's ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over ways so a pollutant that is bad for one might not affect another.

- **Air pollutants:**the past century has led to a decline in fish sizes as well as fish numbers. Illegal wildlife trade confiscated skins. Confiscated animal pelts from the illegal wildlife trade.

### **3. Poaching:**

Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. [traded for their tusks, skins, and horns respectively. Less well known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.

### **4. Culling:**

Culling is the deliberate and selective killing of wildlife by governments for various purposes. An example of this is shark culling, in which "shark control" programs in Queensland and New South Wales (in Australia) have killed thousands of sharks, as well as turtles, dolphins, whales, and other marine life. The Queensland "shark control" program alone has killed about 50,000 sharks - it has also killed more than 84,000 marine animals. There are also examples of population culling in the United States, such as bison in Montana and swans, geese, and deer in New York and other places.

### **5. Pollution:**

wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, its through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways.

- **Air pollutants :** The past century has led to a decline in fish sizes as well as fish numbers. Illegal wildlife trade confiscated skins. Confiscated animal pelts from the illegal wildlife trade.

Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high levels of sulfur oxides (SOx) can damage plants and stunt their growth. Sulfur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.

- **Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.

- **Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.

### Climate change:

Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct. While modern climate change is caused by humans, past climate change events occurred naturally and have led to extinctions.

### Species Conservation :

It is estimated that, because of human activities, current species extinction rates are about 1000 times greater than the background extinction rate (the 'normal' extinction rate that occurs without additional influence). According to the IUCN, out of all species assessed, over 27,000 are at risk of extinction and should be under conservation. Of these, 25% are mammals, 14% are birds, and 40% are amphibians. However, because not all species have been assessed, these numbers could be even higher. A 2019 UN report assessing global biodiversity extrapolated IUCN data to all species and estimated that 1 million species worldwide could face extinction. Yet, because resources are limited, sometimes it is not possible to give all species that need conservation due consideration. Deciding which species to conserve is a function of how close to extinction a species is, whether the species is crucial to the ecosystem it resides in, and how much we care about it.

### Habitat Conservation:

Habitat conservation is the practice of protecting a habitat in order to protect the species within it. This is sometimes preferable to focusing on a single species especially if the species in question has very specific habitat requirements or lives in a habitat with many other endangered species. The latter is often true of species living in biodiversity hotspots, which



are areas of the world with an exceptionally high concentration of endemic species (species found nowhere else in the world), Many of these hotspots are in the tropics, mainly tropical forests like the Amazon. Habitat conservation is usually carried out by setting aside protected areas like national parks or nature reserves. Even when an area isn't made into a park or reserve, it can still be monitored and maintained.

### Conservation Genetics:

Conservation genetics studies genetic phenomena that impact the conservation of a species. Most conservation efforts focus on ensuring population growth but genetic diversity also greatly affect species survival. High genetic diversity increases survival because it means greater capacity to adapt to future environmental changes. Meanwhile, effects associated with low genetic diversity, such as inbreeding depression and loss of diversity from genetic drift, often decrease species survival by reducing the species' capacity to adapt or by increasing the frequency of genetic problems. Though not always the case, certain species are under threat because they have very low genetic diversity. As such, the best conservation action would be to restore their genetic diversity.

### Conservation Methods :

Monitoring of wildlife populations is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution, and genetic diversity, although many other metrics may be used.

Monitoring methods can be categorized as either "direct" or "indirect". Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on "signs" that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-opening counts, burrow counts, runaway counts, knockdown cards, snow tracks, or responses to audio calls.

For large, terrestrial vertebrates, a popular method is to use camera traps for population estimation along with mark-recapture techniques. This method has been used successfully with tigers, black bears and numerous other species. Trail cameras can be triggered remotely and automatically via sound, infrared sensors, etc. Computer vision-based animal individual re-identification methods have been developed to automate such sight-resight calculations. Mark recapture methods are also used with genetic data from non-invasive hair

or fecal samples. Such information can be analyzed independently or in conjunction with photographic methods to get a more complete picture of population viability.

### **Some methods of Wildlife Conservation:**

#### **•Biosphere Reseve:**

Biosphere reserves are 'learning places for sustainable development'.... Biosphere reserves include terrestrial, marine and coastal ecosystems. Each site promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Biosphere Reserves are designated under the intergovernmental MAB Programme by the Director-General of UNESCO following the decisions of the MAB International Coordinating Council (MAB ICC). Their status is internationally recognized. Member States can submit sites through the designation process.

In order to assist the stakeholders with the designation process, as well as periodic reviews, Technical Guidelines are being progressively created by the MAB International Co-ordinating Council.

#### **Structure of Biosphere Reserve:**

##### **■ Core Areas:**

It is the most protected area of a biosphere reserve. It may contain endemic plants and animals.They conserve the wild relatives of economic species and also represent important genetic reservoirs having exceptional scientific interest.

A core zone is a protected region, like a National Park or Sanctuary/protected/regulated mostly under the Wildlife (Protection) Act, 1972. It is kept free from human interference.

**■ Buffer Zone:** The buffer zone surrounds the core zone and its activities are managed in this area in the ways that help in the protection of the core zone in its natural condition.

It includes restoration, limited tourism, fishing, grazing, etc; which are permitted to reduce its effect on the core zone.Research and educational activities are tobe encouraged.

##### **■ Transition Zone:**

It is the outermost part of the biosphere reserve. It is the zone of cooperation where human ventures and conservation are done in harmony.It includes settlements, croplands, managed forests and areas for intensive recreation and other economic uses characteristics of the region.

## **Functions of Biosphere Reserve Conservation:**

- Managing Biosphere Reserve's genetic resources, endemic species, ecosystems, and landscapes.
- It may prevent man-animal conflict eg. death of tiger Avni who was shot dead when she turned man-eater

Along with the wildlife, culture and customs of tribals are also protected.

### **• Development:**

Promoting economic and human growth that is sustainable on a sociocultural and ecological level. It seeks to strengthen the three pillars of sustainable development: social, economic and protection of the environment.

### **▪ Logistic support:**

Promoting research activities, environmental education, training and monitoring in the context of local, national and international conservation and sustainable development.

## **Important Biosphere Reserves of India:**

The Indian government has established 18 biosphere reserves (Categories roughly correspondingly to IUCN Category V Protected areas) to protect larger areas of natural habitat than a typical national park or animal sanctuary, and that often include one or more national parks or reserves, along with buffer zones that are open to some economic uses. Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life.

### **List of Biosphere Reserves in India:**

There are 18 biosphere reserves in India:

- Cold Desert, Himachal Pradesh
- Nanda Devi, Uttarakhand
- Khangchendzonga, Sikkim

- Dehang-Debang, Arunachal Pradesh
- Manas, Assam
- Dibru-Saikhowa, Assam
- Nokrek, Meghalaya
- Panna, Madhya Pradesh
- Pachmarhi, Madhya Pradesh
- Achanakmar-Amarkantak, Madhya Pradesh-Chhattisgarh
- Kachchh, Gujarat (Largest Area)
- Similipal, Odisha

#### **Sunderban, West Bengal**

- Seshachalam, Andhra Pradesh
- Agasthyamala, Karnataka-Tamil Nadu Kerala
- Nilgiri, Tamil Nadu-Kerala (First to be Included)
- Gulf of Mannar, Tamil Nadu
- Great Nicobar, Andaman & Nicobar Island

#### **Man and Biosphere Programme:**

- Launched in 1971, UNESCO's Man and the Biosphere Programme (MAB) is an intergovernmental scientific programme that aims to establish a scientific basis for the improvement of relationships between people and their environments.
- MAB combines natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems, thus promoting innovative approaches to economic development that are socially and culturally appropriate, and environmentally sustainable.

## **•Sanctuary:**

A wildlife sanctuary is an area where animal habitats and their surroundings are protected from any sort of disturbance. The capturing, killing and poaching of animals is strictly prohibited in these regions. They aim at providing a comfortable living to the animals. India has beautiful wildlife sanctuaries, with dense forests, large rivers, high and beautiful mountains.

Few examples of Sanctuaries in India are:

- **Bhadra Wildlife Sanctuary, Karnataka....**
- **Tadoba Andhari Tiger Reserve, Maharashtra.....**
- **Chinnar Wildlife Sanctuary, Kerala....**
- **Interview Island Wildlife Sanctuary, Andaman....**
- **Kutch Desert Wildlife Sanctuary, Gujarat....**
- **Karakoram Wildlife Sanctuary, Jammu and Kashmir....**
- **Indian Wild Ass Sanctuary, Gujarat.**

## **Importance of Sanctuaries:**

There are a number of reasons for establishing wildlife sanctuaries. Some of the reasons are listed below:

The wildlife sanctuaries established to protect endangered species.

It is quite difficult to always relocate the animals from their natural habitat, therefore, protecting them in their natural environment is advantageous.

The endangered species are specially monitored in the wildlife sanctuaries. If they reproduce and grow in number while under protection, few specimens can be kept for breeding in the conservation parks for their survival.

Biologist activities and researches are permitted in the wildlife sanctuaries so that they can learn about the animals living there.

- **A few sanctuaries take in injured and abandoned animals and rehabilitate them to health before releasing them in the forest.**
- **Wildlife sanctuaries preserve the endangered species and protect them from humans and predators.**

## **•National Park:**

National parks are areas that aim to protect the natural environment. They are also involved in public recreation and enjoyment activities. In a national park, the landscapes and its flora and fauna are present in their natural state. India is rich in biodiversity. It comprises about 7.6% mammals, 2% reptiles, 12.6% birds, and 6.0% flowering plant species under the Himalayan ecozone. Many eco regions of our country like Shola forests exhibit high rates of endemism. The forests cover over the ranges from the tropical rainforest, the Western Ghats, and Northeast India to the coniferous forests in the Himalayan region. The significant terrestrial ecosystem coming along the Himalaya zone consists of temperate, polar, dry regions for different kind of species to live. The species include elephant, tiger, cobra, crocodile, apes, sambar deer, spotted deer, rhinoceros, goats, lions along with different types of flora and faunas. Indian wildlife has around 99 world recognized national parks in different parts of the country. All these national parks and the wildlife reserves have been recognized by the IUCN or the International Union for the Conservation of Nature under the second category of protected areas.

List of National Parks in India are mentioned below:

1. Bandipur National Park in Karnataka
2. Bandhavgarh National Park in Madhya Pradesh 3. Bhadra Wildlife Sanctuary in Karnataka
4. Chinnar Wildlife Sanctuary in Kerala
5. Corbett National Park in Uttarakhand
6. Dandeli Wildlife Sanctuary in Karnataka
7. Dudhwa National Park in Uttar Pradesh
8. Gir National Park and Sasan Gir Sanctuary in Gujarat
9. Hemis National Park in Jammu & Kashmir
10. Kanha National Park in Madhya Pradesh
11. Kaziranga National Park in Assam
12. Keoladeo Ghana National Park in Bharatpur, Rajasthan
13. Manas National Park in Assam

14. Nagarhole National Park in Karnataka
15. Panna National Park in Madhya Pradesh
16. Periyar National Park in Kerala.
17. Pench National Park in Madhya Pradesh
18. Ranthambore National Park in Rajasthan
19. Sariska National Park in Rajasthan
20. Tadoba Andhari Tiger Reserve in Maharashtra
21. The Great Himalayan National Park in Himachal Pradesh

All these national parks are an abode to a large number of wild animals environmental conditions with proper because of the optimum breeding facilities.

### **Biodiversity Hotspots:**

Biodiversity is referred to as the variation of plant and animal species in a particular habitat. Species evenness and species richness form the major components of biodiversity.

India is known for its rich biodiversity and has around 24.46% of the eographical area covered by forests and trees. Coined by Norman Myers, the term "Biodiversity hotspots" can be defined as the regions which are known for their high species richness and endemism.

#### **Biodiversity Hotspots - 2 Main Qualifying Criteria**

According to Conservation International, a region must fulfill the following two criteria to qualify as a hotspot:

1. The region should have at least 1500 species of vascular plants i.e., it should have a high degree of endemism.
2. It must contain 30% (or less) of its original habitat, i.e. it must be threatened.

Following the criteria must for an area to be declared as Biodiversity Hotspot, there are major four biodiversity hotspots in India:

1. The Himalayas
2. Indo-Burma Region
3. The Western Ghats
4. The Sundaland

### **•The Himalayas:**

Considered the highest in the world, the Himalayas (overall) comprises North-East India, Bhutan, Central and Eastern parts of Nepal. This region (NE Himalayas) holds a record of having 163 endangered species which includes the Wild Asian Water buffalo, One-horned Rhino; and as many as 10,000 plant species, of which 3160 are endemic. This mountain range covers nearly 50,000 km<sup>2</sup>.

### **•Indo-Burma Region:**

The Indo-Burma Region is stretched over a distance of 2,373,000 km<sup>2</sup>. In the last 12 years, 6 large mammal species have been discovered in this region: the Large-antlered Muntjac the Annamite Muntjac, the Grey shanked Douc, the Annamite Striped Rabbit, the Leaf Deer, and the Saola.

This hotspot is also known for the endemic freshwater turtle species, most of which are threatened with extinction, due to over-harvesting and extensive habitat loss. There are also 1,300 different bird species, including the threatened White-eared Night heron, the Grey-crowned Crocias, and the Orange-necked Partridge.

### **•The Western Ghats:**

The Western Ghats are present along the western edge of peninsular India and covers most of the deciduous forests and rain forests. As per UNESCO, it is home to at least 325 globally threatened flora, fauna, bird, amphibian, reptile and fish species. Originally, the vegetation in this region was spread over 190,000 km<sup>2</sup> but has been now reduced to 43,000 km<sup>2</sup>. The region is also known for the globally threatened flora and fauna represented by 229 plant species 31 mammal species, 15 bird species, 43 amphibian species, 5 reptile species and 1 fish species. UNESCO mentions that "Of the total 325 globally threatened species in the Western Ghats, 129 are classified as Vulnerable, 145 as Endangered and 51 as Critically Endangered."

### **•Sundaland:**

The Sundaland hotspot lies in South East Asia and covers Singapore, Thailand, Indonesia, Brunei, and Malaysia. In the year 2013, the Sundaland was declared as a World Biosphere Reserve by the United Nations. This region is famous for its rich terrestrial and marine ecosystem. Sundaland is one of the biologically richest hotspots in the world which comprises 25,000 species of vascular plants, of which 15,000 are found only in this region.



## **Endangered Species of India:**

According to the International Union for Conservation of Nature, "India accounts for 7-8% of all recorded species, including over 45,000 species of plants and 91,000 species of animals. But with the rapid loss of biodiversity, many species are becoming extinct or at risk of becoming critically endangered. The species that are at risk of extinction due to the sudden decrease in their population and habitat are known as endangered species.

### **Top 5 Endangered Species of India:**

1. Endangered Animal Species
2. The Royal Bengal Tiger
3. The Great Asiatic Lion
4. The Snow Leopard
5. Nilgiri Tahr
6. Indian Rhino

### **Endangered Plant Species of India:**

1. Ebony tree
2. Indian Mallow
3. Malabar Lily
4. Assam Catkin Yew
5. Milkwort

## **What is the IUCN Red List?**

Founded in 1964, the IUCN Red List also known as the Red Data List evaluates the biological species in the world which are at the risk of extinction. IUCN aims to focus on the conservation of the world's species to reduce species extinction. More than 77,300 species have been assessed on the IUCN Red List.

The IUCN Red List can be divided into the following 9 categories:

1. Extinct (EX) - No known individuals remaining.
2. Extinct in the wild (EW) - Known only to survive in captivity, or as a naturalized population outside its historic range.
3. Critically endangered (CR) Extremely high risk of extinction in the wild.
4. Endangered (EN) - High risk of extinction in the wild.

5. **Vulnerable (VU) - High risk of endangerment in the wild.**
6. **Near threatened (NT) - Likely to become endangered shortly.**
7. **Least concern (LC) - Lowest risk. Does not qualify for a more at-risk category. Widespread and abundant taxa are included in this category.**
8. **Data deficient (DD) - Not enough data to assess its risk of extinction.**
9. **Not evaluated (NE) - Has not yet been evaluated against the criteria**

**Thank You!**

# **SCOTTISH CHURCH COLLEGE, WEST BENGAL, INDIA**

## **Project on the 'Wildlife Conservation of INDIA'**

**HONOURS PAPER: ENGLISH HONOURS**

- **ENVS PROJECT**
- **CORE COURSE NO: 3**
- **NAME OF THE STUDENT: ANIRBAN ROY**
- **COURSE: B. A. HONS**
- **COLLEGE ROLL NO: ENGA20M320**
- **CU REGISTRATION NUMBER: 223-1112-0067-20**
- **SEMESTER: 2**
- **SESSION: 2020 - 2021**
- **E-MAIL ID OF THE STUDENT: anirban249roy@gmail.com**
- **CU ROLL NO: 202223-21-0063**



# CONTENTS

<i>Introduction.....</i>	<i>3</i>
<i>WILDLIFE CONSERVATION OF INDIA.....</i>	<i>5</i>
<i>Project tiger and conservation practices.....</i>	<i>7</i>
<i>Current status of the royal Bengal Tigers of India.....</i>	<i>8</i>
<i>The global tiger forum and achievement of project tiger.....</i>	<i>8</i>
<i>The current status of Indian Antelope.....</i>	<i>10</i>
<i>Current status of the great indian bustard.....</i>	<i>11</i>
<i>Current status of the freshwater gangetic gharial.....</i>	<i>14</i>
<i>Wildlife conservation and its problems &amp; threats.....</i>	<i>17</i>
<i>Possible solutions in wildlife conservation and implementation of laws: .....</i>	<i>20</i>
<i>Creation and Management of Biosphere Reserves: .....</i>	<i>23</i>
<i>Conclusion.....</i>	<i>25</i>

# INTRODUCTION

Wildlife refers to those plants and animal species which live and grow in areas uninhabited by human. That means when we are talking about wildlife, we are talking about trees, animals, creepers and others which grow without any help or interference of human being. But as the human civilizations developed, the domestication of wild animals and plants began for the benefit of human beings and this had a considerable impact on the environment. Due to human activities, many wild animals adapted to the changes in the environment and started to live in a **domestic** environment along with humans. Examples of such human



activities increased and development took place on a large scale, the wildlife and the ecosystems were seen being affected by it. It was noticed that the exploitation of the wild animals for the benefit of human beings and recreation purposes increased.

India is home to 16 percent of the world's population is a well known fact.

However, it is a lesser known fact that 411 species of mammals, 1232 birds, 456 reptiles, 219 amphibians, 2546 fishes and 83436 kinds of invertebrates and over

50,000 plant species also call this subcontinent home. Wildlife in India is a precious gift of nature with a rich variety of diverse flora and fauna. India is a land which is one of the richest bio-diversity wild animals such as tiger, lion wolves, bears, rhinoceros, camels, monkeys, various species of reptiles, crocodiles, deer bison and

the Asian elephant are all native to this country. It also has a variety of species of among the 34 bio-diversity hotspots of the world which are found in the Western Ghats, the Easter Himalayas and the Indo-Burma region respectively. The grasslands of western India are as famous for their hunting animals as they are for their grazing herds. The Indian cheetah is now extinct in its range but the other big cats – lions and leopards still prowl the plains.

With its rich, varied and diverse wildlife reserve, India has set up 104 National Parks, 18 bio-reserves and more than 515 sanctuaries to protect and preserve these species of



wildlife. India is endemic to many species of plants and animals which are evident from one of the study conducted which says that 12.6% avian, 7.6% mammals, 6.2% reptiles and 6.0% species of flowers are native to this country.[1] The study also states that around 33% plant species are endemic to

India and hence it is one of the biodiversity reserves in the world with around 70% endemic and diverse plants and animal species. India also has a wide range of forest belt which also depicts the diverse climatic pattern in the sub-continent which has provided home to such a rich and varied wildlife species. India has a vast belt of forests which ranges from tropical rainforest in Andaman Islands, North-Eastern region and the Western Ghats to the moist deciduous forest in the East, dry deciduous forest in Central and South India, Thorn forest in the Deccan and Western Gangetic Plain to the Coniferous forest in the Himalayas.

Presence or absence of an animal or plant in a region is determined by ecological and historical factors. Animals and plants are living indicators of the characteristics of their environment; their ranges mark the places where environmental conditions are the same or similar. To interpret the range of a species properly, it is necessary to

know, in detail, the conditions required for the species to live and thrive. The science of zoogeography has both ecological and historical aspects. On this basis, the world can be divided into six zoogeographical regions:

Nearctic	North America and Greenland
Palaeartic	Eurasia, without India
Ethiopian	Africa, south of the Sahara
Oriental	India and Indochina
Australian	Australia and New Zealand
Neotropical	South and Central America, and the Antilles

## **WILDLIFE CONSERVATION IN INDIA:**

India is the seventh largest country in the world and Asia's second largest nation with an area of 3,287,263 km<sup>2</sup>, a national border of 15,200 km, and a coastline of 7516 km. For administrative purposes, India is divided into 28 states and union territories and is home to more than 1 billion people, which is approximately 16% of the world's population. Ecologically, India can be divided into three main regions:

- ❖ The Himalayan Mountain system;
- ❖ The peninsular India subregion (woodlands and desert); and
- ❖ The tropical rain forest region.

A great wealth of biological diversity exists in these regions and in India's wetlands and marine areas. This richness is shown in absolute numbers of species and the proportion of the world's total they represent. The numbers, we have discussed earlier.

The people of the Indian subcontinent were once blessed with some of the most profuse natural gifts: verdant forests, water-stocked Himalayan ranges, rich coastal fish resources, productive estuaries, grassy pastures, and bountiful river systems. Abundant rain and fertile soils added to this plentitude. Years of mismanagement, however, have degraded our forests, wounded our coastline, and poisoned our aquifers with devastating results. Today, India contains 172 species (2.9% of the world's total number) of animals that are considered to be globally threatened by the IUCN. These include 53 species of mammals, 69 species of birds, 23 species of reptiles, and 3



species of amphibians. Extinction is somehow classified as 'biological reality' because no species has, as yet, existed for more than a few million years without evolving into something different or

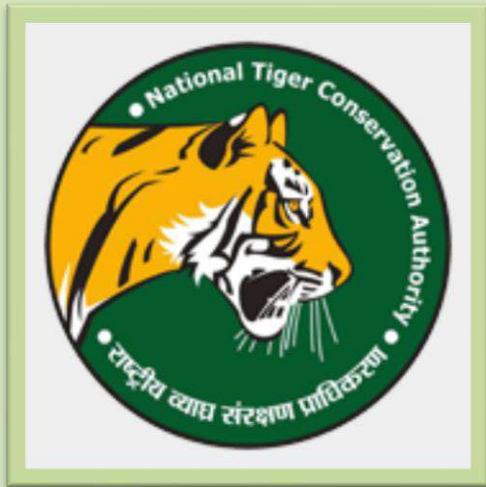
dying out completely. Extinction is threatening all species, but most of the time smaller animals, like bats and rodents, face this threat more than other animals. We, however, tend to focus on the charismatic flagship species, which we like to see and which fascinate us. Success in evolution is measured in terms of survival: failure, by extinction. Most recent extinctions can be attributed, either directly or indirectly, to human demographic and technological expansion, commercialized exploitation of species, and human-caused environmental change. These factors, in turn, have affected the reproductive rate of endangered species and their adaptability to changing environmental conditions. Concern for wildlife is, in fact, a concern for us. In this paper, I would like to address the threat of extinction with respect to four species: the



royal Bengal tiger and blackbuck (mammals), the great Indian bustard (bird), and the gangetic gharial (reptile).

### *Project Tiger and Conservation Practices:*

Tigers once inhabited a vast area from Turkey to the east coast of Russia and China,



north to Siberia and south to the Indonesian island of Bali. The royal Bengal tiger, *Panthera tigris tigris*, has always been an integral part of the life and legend of India. At the beginning of the 1900s, the Indian tiger population was estimated at 40,000 animals. The first official estimate, done in 1972, recorded only about 1800 tigers. This led to the establishment of a task force under the Indian Board of Wildlife, and based on their

recommendations, 'Project Tiger' was launched on 1 April 1973 with the following objectives:

- ❖ To maintain a viable population of tigers in India for scientific, economic, aesthetic, cultural, and ecological values; and
- ❖ To preserve, for all times, areas of biological importance as a national heritage for the benefit, education, and enjoyment of the people.

At the beginning of the project, 9 tiger reserves were created. Currently, there are 27 tiger reserves in over 17 states. These reserves cover a total area of 37,761 km<sup>2</sup>.

## CURRENT STATUS OF ROYAL BENGAL TIGER IN INDIA:

India has over half the world's tiger population. Every two to four years, a



comprehensive tiger census is conducted throughout India. The first census was conducted in 1972, and 1827 tigers were recorded.

Establishment of Project Tiger in 1973 led to an increase in

the tiger population; the 1989 census recorded 4344 tigers, which led to self congratulations within Project Tiger. But the next census in 1993 recorded only 3750 tigers, a decline from four years earlier. Of these tigers, 1266 (36%) were within the boundaries of the 19 Project Tiger reserves, but to conservationists, this came as a final warning.

## THE GLOBAL TIGER FORUM AND ACHIEVEMENTS OF PROJECT TIGER:

The International Conference on Tigers was held at New Delhi in March 1990, and was attended by countries within the tiger's range. A majority of the participant countries joined to establish a new organization—The Global Tiger Forum. The main aim of the forum is to protect the tiger from extinction at the global level. Anywhere that tigers live today is high quality wildlife habitat. The success of Project Tiger has shown that no species, however important, can be conserved in isolation. Active involvement of the local people in the management of parks has made conservation

measures more effective, and resource sharing ensures reciprocity of commitment. Project Tiger has completed more than 30 eventful years as the largest and most successful conservation project of its kind in the world. The project's achievements are as follows:

- Better management of the reserves has improved the status of flora and fauna, and the endangered species have shown signs of recovery. There has also been an improvement in the carrying capacity of the habitat.



- Biogeographically representative areas of the tiger reserves have shown better signs of ecological security and preservation.

• The project has played a major role in providing education to, and recreation facilities for, the people.

• The project has played a major role in providing education to, and recreation facilities for, the people.

• Enhancement programs include the management of buffer areas and tourism facilities in tiger reserves.

The landscape will continue to change, directly and indirectly, at the hands of humans, and as emphasized earlier, survival of humankind depends on maintaining the

ecological balance among the living systems of the earth. New management and research initiatives have started a new era in tiger conservation.

### *CURRENT STATUS OF THE BLACKBUCK/INDIAN ANTELOPE:*

The blackbuck (*Antelope cervicapra*), or Indian antelope, is exclusive to the Indian subcontinent and is one of the most elegant antelope species in India. Its striking sandy color and beautiful spiraled horns make it unquestionably the most splendid specimen of the antelopes. It is also the swiftest long-distance runner among animals; at the slightest hint of danger, it can run for about 10 km at 60 km/h. A buck with five does constitutes a family. Given protection, blackbucks breed prolifically. The



blackbuck was once very abundant, but constant persecution by humans

has sadly reduced its numbers, and it is now considered to be an endangered species. The blackbuck is no longer found in regions where it used to thrive. It

was distributed throughout the plains of Punjab, Haryana, Uttar Pradesh, Rajasthan, Orissa, Gujarat, and Tamil Nadu, and was hunted by the princely states with the help of trained cheetahs. The blackbuck is essentially an animal of open, flat, or slightly undulating terrain, and reaches its greatest abundance in areas covered with thorn and dry deciduous forests. With the destruction of forests, however, the animal has adapted to wastelands and agricultural fields. After the disappearance of the cheetah in the early 1960s, the blackbuck population exploded, and the species was found in large numbers in the central and southern parts of Punjab. It began to be branded as a crop raider and was hunted indiscriminately, especially during the 'grow more food

campaign'. Its flesh was relished by all. The blackbuck was listed under Schedule I of the Wildlife (Protection) Act, 1972, and Punjab and Haryana honored it as their state animal. Now there are about 4000 blackbucks in the Abohar area of Punjab,



Rajasthan, and Haryana states. Only about 5% of Punjab's total geographic area is forested, and much of this occurs in small strips along roads, railway lines, and canals where one cannot expect much wildlife to occur. Various forms of reserve forests have been established, but they form only 2% of the total area of the state. Additionally, only

2% of this space has been left to the many species of animals that occur there. There are five wildlife sanctuaries in Punjab. In the case of the blackbuck, the Abohar Wildlife Sanctuary has been established under the aegis of the Bishnoi community of the area. The Bishnoi are a predominately agricultural Hindu community which disallows felling of trees as well as killing of all wild animals, including birds. The strict policy of local cooperation and noninterference towards the local wildlife has provided protection to peafowl, partridges, hares, jungle cats, Nilgai, and other wild animals. Undoubtedly, the protection afforded to blackbucks by the Bishnois is laudable, but the government should also develop a plan to save the species.

### *CURRENT STATUS OF THE GREAT INDIAN BUSTARD:*

The great Indian bustard (*Ardeotis nigriceps*) is a large, handsome bird of the shortgrass plains of the Indian subcontinent. It shared its habitat with the blackbuck (*Antelope cervicapra*), chinkara (*Gazelle bennetti*), nilgai (*Boselephus tragocamelus*),

wolf (Canis lupus), fox (Vulpes bengalensis), jackal (Canis aureus), and wild cat (Felis chaus), but is now confined to a few pockets in Rajasthan, Gujarat, Madhya Pradesh, Andhra Pradesh, and Karnataka states in India. The great Indian bustard is an endangered species with less than 1000 surviving individuals. Ironically, it is the state bird of Rajasthan and an indicator of the health of the grassland ecosystem of the Indian plains, but it is on the brink of extinction. The great Indian bustard forages, shelters, displays, and breeds in the grasslands, and its absence are the first warning



signal that grasslands are deteriorating. In the early 1980s, five states undertook conservation measures for the great Indian bustard, and eight protected areas were declared (Table 4). Despite these measures, the state of the bustard has deteriorated sharply

during the last 10 years. In the Rajasthan, which is considered as the stronghold of the species, there were 131 birds in 2001, 97 in 2002, and 85 in 2003.

*The major problems that face the survival of the great Indian bustard include:*

- Habitat destruction and deterioration. Too many domestic animals are causing disturbances during the breeding season, and habitat has been lost due to the conversion of grasslands and wastelands to crop fields;
- Poaching. This is widespread in parts of the Thar Desert in Rajasthan;
- Increased numbers of blackbuck and Nilgai. Conservation measures for the great Indian bustard that were adopted by the local people have resulted in crop damage due

to increased numbers of blackbuck and Nilgai; hence, there is resentment among villagers towards the conservation movement, in general, and the bustard, in particular;

- Corruption and total mismanagement of bustard sanctuaries; and
- Lack of clear cut policy on land use and domestic grazing in India.

The Need for ‘Project Bustard’:



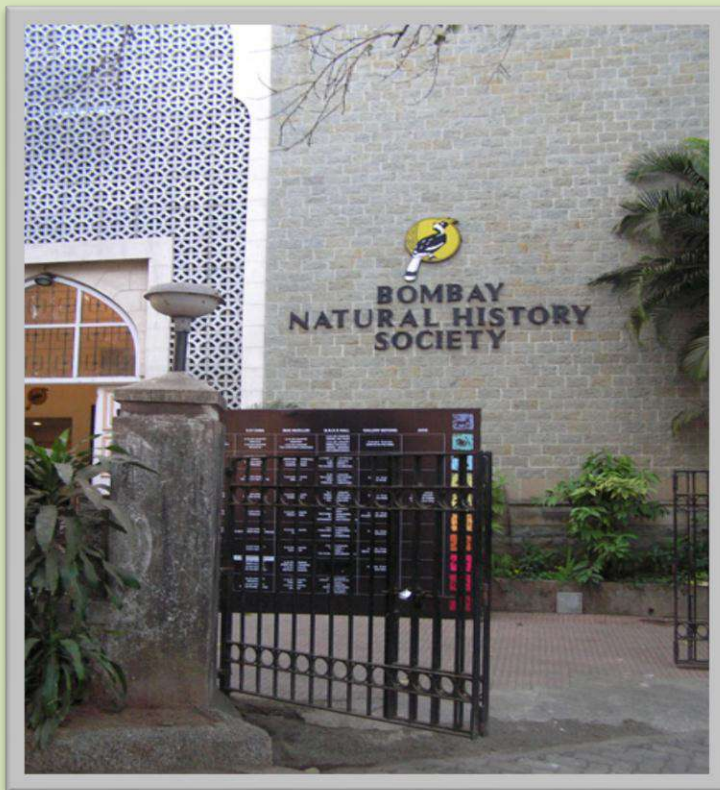
Conservation measures in India have shown that by identifying an indicator species and focusing attention on it and its habitat, a substantial part of the natural ecosystem can be

protected, which benefits an array of threatened species. The following is a proposed list of objectives for initiating ‘Project Bustard’:

1. Conserve the habitat types of the great Indian bustard and its associated species;
2. Establish, with the cooperation of the state government and local people, more bustard conservation areas;
3. Supervise and coordinate management of bustard conservation areas;

4. Coordinate long-term studies on bustards and their habitats in different states;
5. Produce educational material for publicity, and for decision makers, stakeholders, students, and others; and
6. Integrate bustard habitat conservation with national grazing policy and overall land use patterns.

The Bombay Natural History Society is a pioneer in promoting the conservation of



the great Indian bustard, and undertakes intensive campaigns to educate and encourage the Government of India to take appropriate measures to reverse the declining trend of the species.

### *Current Status of the Freshwater Gangetic Gharial:*

The gangetic gharial (*Gavialis gangeticus*) is a thoroughly aquatic crocodylian and a resident of deep, fast flowing rivers. It is primarily a fish-eating species and uses sandbanks for nesting. The gangetic gharial used to have wide range over all of Indochina, but today it is the most endangered of all the crocodylians.



A gharial status survey



conducted in Nepal indicated there were 60 individuals in the wild. In the Sind region of Pakistan, there are only one or two gharials remaining. The species is practically extirpated in Bhutan and Myanmar. The situation in Bangladesh is much worse. No gangetic gharials are found in the wild there due to heavy impacts from fishing activities and habitat degradation.

### *Conservation*

The gangetic gharial was brought back from the brink of extinction by restocking programs that were initiated first in India in 1975, and then in Nepal in 1978. In India, there are nine protected areas, with a total area of nearly 3000 km<sup>2</sup> that are designated for gharial management. Gharials are captive bred for release at six breeding centers.



Eggs are also collected from wild nests for captive rearing and release. More than 3000 juveniles have been released at 12 sites, and follow-up surveys suggest there has been an overall increase of more than 1500 individuals in the wild

population. In some areas, however, the restocking program has not resulted in population increases, although some gharials remain. In Nepal, 432 individuals were released to the wild between 1978 and 1994. By collaborating with its neighboring countries, Pakistan is also trying to improve the status of this unique animal. Although the gangetic gharial is virtually extirpated in Pakistan, there are plans to start a restocking effort with assistance from Indian institutions.

### Threats to Gangetic Gharial Conservation

The high cost of captive breeding and the paucity of additional release sites threaten gharial conservation efforts. Increasing interactions between riverside human populations and the gharial, as well as the negative effects of agriculture and fishing restrict successful gharial populations to a few stretches along isolated and protected rivers. Gharial migration out of protected areas has been identified as a significant factor that is slowing population recovery.

Priority Projects for Gangetic Gharial Conservation The following projects are considered to be a priority for conserving the gangetic gharial:

- Use of population and habitat viability analyses (PHVA) to develop future conservation strategies
- Development of a national management plan in India and implementation of the recommendations of the gharial PHVA
- Population modeling
- continued restocking of gharials
- Continuous monitoring of protected and restored populations
- Analysis of genetic diversity and the effects of a bottleneck in the founder stock
- Increased public education
- Survey of gangetic gharial status and distribution in Pakistan
- Establishment of a captive-rearing center in Pakistan
- Development of international coordination for gharial management and conservation between India and Nepal
- Expansion of the restoration program in Nepal

- genetic gharial status survey in the river systems of Myanmar.

## WILDLIFE CONSERVATION AND ITS PROBLEMS & THREATS

Wildlife conservation is referred to as the process by which the animal and plant species are protected in their natural habitats. The main aim of wildlife conservation is to ensure protection of the wildlife and preservation of the nature and natural habitats for humans as well as wildlife. Towards this initiative, many governmental and non-governmental organizations have been set up for the very cause of wildlife conservation and protection.

The human activities for their own living and benefits have affected the wildlife considerably across the world. This has resulted in extinction of many wild animals & plants and biodiversity loss. It has been observed that a considerable number of species of animals and birds have become extinct in the past 2000 years. Some



reasons were because of climatic change and some have been because of human activities for their own benefits such as food, clothing, shelter, medicine etc. It is also expected that many more species of wildlife will become extinct very soon if they are not protected by proper means of conservation and by enacting

effective legislations. Hence, the international organizations and almost all the nations across the world have come together to protect the wildlife and the environment with the help of legislations, Acts, creating national parks, biosphere

reserves, wildlife sanctuaries etc. and implementing these legislations and Acts strictly in their nations and regions.

Wildlife conservation has become a major area of concern though. The conservation of animals and plant species mainly aims at protecting the endangered species from becoming extinct due to various human and human-induced activities. The wildlife is facing many threats due to the human encroachment and their activities as well as few natural factors which can be enumerated below:

- i. Habitat loss by destruction, fragmentation and degradation: Habitat destruction and fragmentation can take place by human activities such as felling of trees, dredging rivers, constructing dams, filling wetlands and mowing fields, use of lands for agriculture, construction of houses and roads etc. Habitat degradation can take place because of the increasing pollution level, invasion of new species and changing ecosystems etc.
- ii. Illegal Trading, Hunting and poaching of endangered species: Illegal

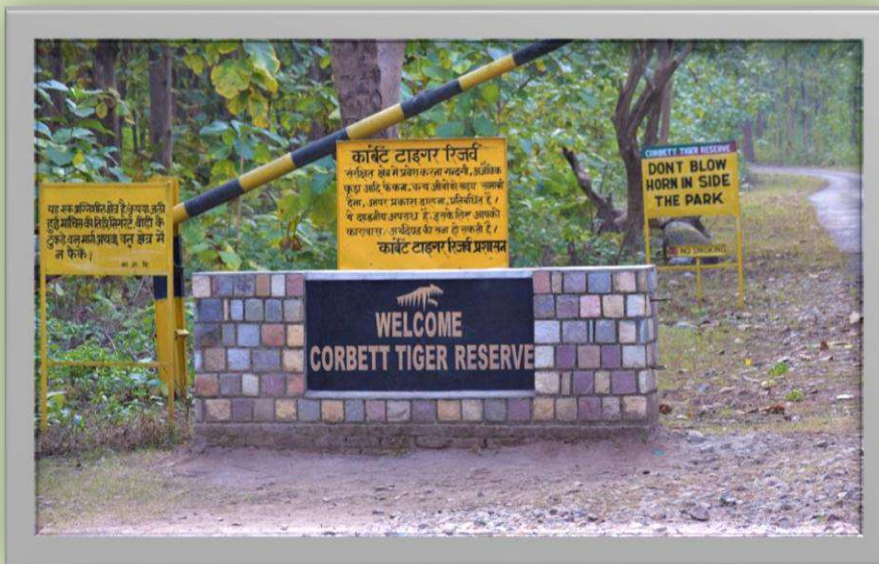


hunting and poaching has posed a major threat to wildlife which is further fuelled by the lack of proper management and use of resources by the

forest officials to curb the menace and save the wildlife.

- iii. Climate change: Global warming and climate change has also played a major role in posing threat to the wildlife. This is also again due to human induced activities which is done by the burning of fossil fuels etc. which resulted in the changing of the climate globally.
- iv. Over exploitation of resources: Exploitation and over exploitation of resources for food and other purposes has resulted in posing a threat to the wildlife, especially to the endangered species. The over use of the wild animals and plants for food, medicines, clothing etc has badly affected the wildlife populations and thus has become a threat to their existence.
- v. Over exploitation of resources: Exploitation and over exploitation of resources for food and other purpose has resulted in posing a threat to the wildlife, especially to the endangered species. The over use of the wild animals and plants for food, medicines, clothing etc has badly affected the wildlife populations and thus has become a threat to their existence.

Thus, the threat to the wildlife and the endangered species of plants and animals calls for their conservation so as to maintain the balance of the ecosystem and save the



world. Towards this objective, the governments across the world are working so as to protect and conserve wildlife by enacting legislations and Acts and

providing effective implementation of these legislations and Acts. The Government of India has also recognized the threats and has established national parks, wildlife sanctuaries, biosphere reserves and protected areas. The first National Park was established in the year 1936 which was previously called as the Hailey National Park and later on it was renamed as the Jim Corbett National Park. The number of national parks then kept on increasing gradually and presently there are 104 national parks in the country as of April 2012. It was supported by the establishment of more than 500 wildlife sanctuaries and 18 biosphere reserves in the country. Currently there are 515 wildlife sanctuaries out of which 41 are identified as Tiger reserves under the Project Tiger.

Furthermore, the Government of India has also enacted various laws and Acts pertaining to the protection and conservation of wildlife in the country.

### POSSIBLE SOLUTIONS IN WILDLIFE CONSERVATION AND IMPLEMENTATION OF LAWS:

All the problems pertaining to wildlife protection and conservation needs to be addressed strictly adhering to the law and finding some alternative solutions too so that the wildlife could be protected and conserved. To stop the criminal and illegal activities of exploitation of wildlife resources in India, some stronger measures are required to be introduced. These measures could be in the manner of conducting awareness programs among the public and the officials concerned with wildlife protection and the law enforcement personnel.

- A. Awareness among Public and Officials: Towards the objective of protecting and conserving wildlife, there is a need to provide awareness among the forest and other government officials who are deputed in the protected areas and reserves. These concerned personnel should be provided with training and research in wildlife conservation measures and the legal provisions available

for their protection. There is also a need to involve the local people who live in the surrounding areas of the protected areas by sensitizing them about the



importance of wildlife conservation and protection and the relevant laws governing it.[9] The local people should be apprised of all the available provisions of laws in protecting and conserving the wildlife and

the threatened species. They should also be informed about the penalty and punishment in case of violation of any laws and harming the wildlife. This will help in an increased awareness among the local people which will further help in providing support to the forest officials who are working in these protected areas as well as the government officials.

- B. Recognizing and involving NGOs: The Non-Governmental Organizations (NGOs) also play an important role in the protection and conservation of wildlife with the help of their initiatives. One such organization is the Wildlife Protection Society of India which works towards providing information and support to the authorities of the government concerned with wildlife protection and conservation so as to fight illegal trade of wildlife and poaching of wild animals thereby saving the environment. The involvement of such NGOs will considerably help in protecting the wildlife resources in India. Some more solutions to protect and conserve wildlife can be done by in-situ & ex-situ breeding, increasing resilience of natural reserves and creation of biosphere reserves and their management.
- C. In-situ and Ex-situ Conservation: In-situ and Ex-situ conservation strategies are one of the important strategies for conservation of wildlife, especially the

endangered species of plants and animals. In-situ conservation strategy is carried out in the natural habitat of these species while ex-situ conservation is carried out in a place outside their natural habitat. These conservation strategies are beneficial in the reintroduction and translocation of wildlife thereby protecting the threatened species from the threat of climate change and human activities.



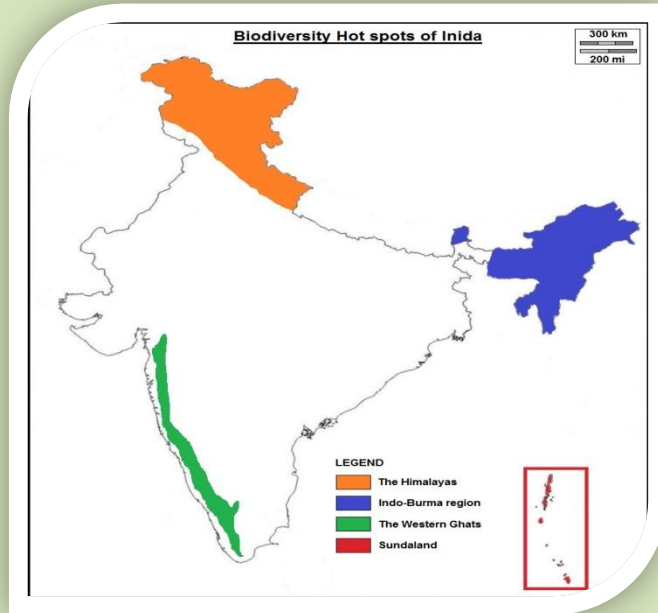
These types of

conservation of plants and animals includes captive breeding of animals and plants which are threatened by various activities of human and the climate change and are found to be on the verge of extinction. These conservation activities are carried out in protected areas but these strategies also depend on the severity of climate change and its effect on the species.

- D. Increasing Resilience of Nature Reserves: This strategy includes maintaining natural reserves, creating buffer zones, minimization of human activities such as construction.
- E. One of buildings, roads and transportation activities, minimization of wildlife tourism, minimization of habitat fragmentation, conservation of genetic diversity, protection of biodiversity 'hot spots' thereby preventing extinction and protecting threatened species. Creation of buffer zones around fragmented landscapes is important in maximizing resilience. Areas protected by buffer



zones also require restoration for which it focuses on reduction of specific impacts of climate change. There are some ecosystems which have intact



landscapes and may have sufficient resilience but the use of land and water by the people residing in these regions needs to be controlled in a manner so as to prevent loss of resilience. Management of vegetation within these reserves also helps in maintaining resilience.[11] Such

strategies need to be implemented by the government in areas where the threat to wildlife and endangered species is more. The government also needs to have controlled wildlife tourism in these natural reserves and buffer zones. The wildlife tourism has adverse effect on the breeding and feeding pattern, disturb the nesting sites and thus government is required to have a vigilance on these activities and ensure that the rules and regulations under the relevant Acts and legislations are followed by the forest officials and concerned persons. This strategy, if strictly followed, will prove to be very beneficial towards protection and conservation of wildlife and maintenance of wildlife in their natural habitat.

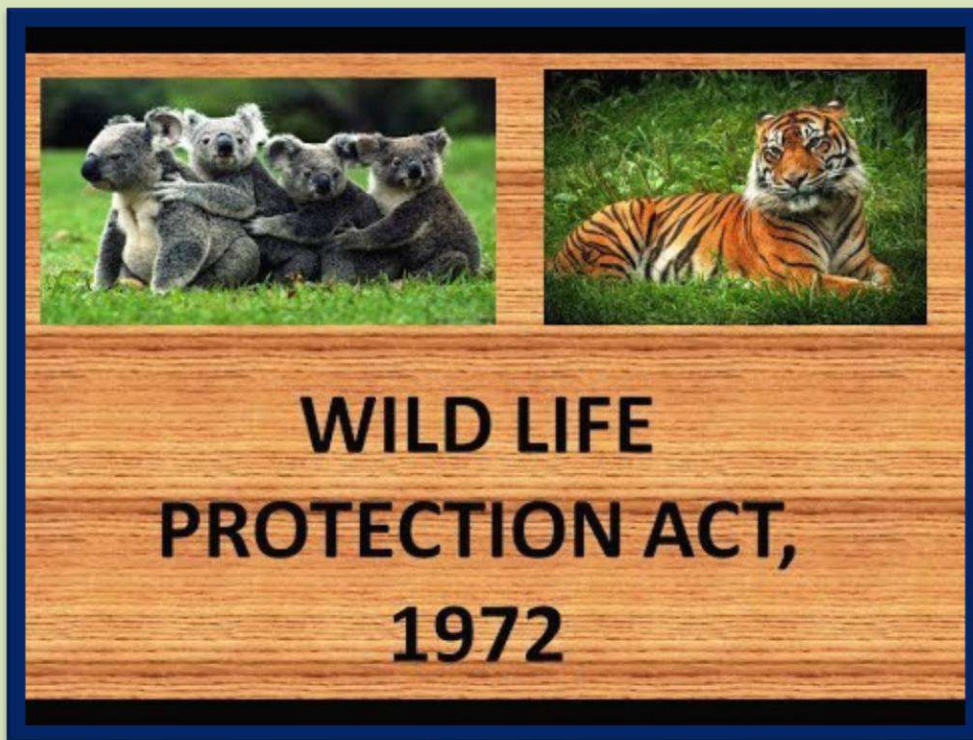
### *Creation and Management of Biosphere Reserves:*

Biosphere reserve consists of a micro-territory or a large area of land which addresses different issues of protection of plants and animal species using different

means according to their situation. Sometimes these reserves are divided into small units defined by geographical or human factors. Biosphere reserve consists of three zones, viz., core, and buffer and transition zone. Each zone is approached differently, depending on the need and objectives of biosphere reserve. Creation and management of several biosphere reserves and other protected areas is an important strategy to protect and conserve wildlife. It includes connecting the corridors and habitat matrices which helps in linking fragmented reserves and landscapes by providing dispersal and migration of flora and fauna. [12] In, India, there are 18 biosphere reserves at present. These reserves have been set up by the Government of India in order to protect and conserve wildlife. The human activities in and around these protected areas have posed various kinds of problems and threats to the wild animals and plants. Thus, the government needs to be alert and watchful about the activities of human, including research activities in these reserves. The Central government as well as the state governments should work together in coordination in maintaining these biosphere reserves and oversee that the officials deputed in these reserves are working in consonance with the legal provisions and regulations. The government should make stricter provisions of punishment also if the laws are violated and wildlife is harmed.

## *CONCLUSION*

The wildlife protection and conservation is a huge task in India with the growing concerns of illegal trade and exploitation of wildlife resources. This objective cannot be achieved until and unless all branches of the government authorities, villagers & local people residing in and around the protected areas, non-profit and nongovernmental organizations, law enforcement officers and the general public

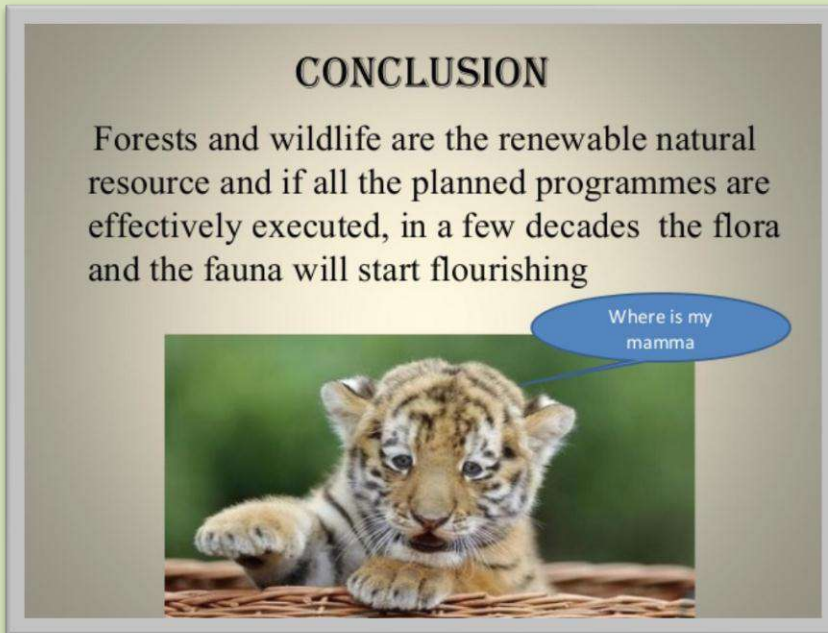


work together towards this goal. India has a rich heritage and is gifted with natural resources which are precious

and endemic to the country and thus makes it a biodiversity rich country. Hence, there is a need for everyone to protect this rich resource and maintain a balanced environment.

The laws pertaining to the protection of wildlife and their natural habitat enacted and enforced in the country though provides strict legal provisions for the very cause of wildlife protection and conservation, it is still observed that the ground

reality is not the same. The wildlife is still exploited; the animals are still hunted and traded for human benefits. Even the use of harmful substances in industries, daily activities of man, construction of roads and buildings, leisure and entertainment activities causes adverse effect on the environment which in turn



affects the wildlife and their natural environment. Illegal hunting and trade of wildlife are still taking place in India without abiding by the norms of these laws. Thus, a strong need for awareness of wildlife protection and

conservation among the public is required and effective & strict implementation of these laws needs to be done by every state. The state governments are required to keep vigilance on the effective implementation of wildlife protection laws and conservation at the district and municipal level.

The need for effective strategies and solutions for the protection of wildlife in India and conservation of wildlife is the need of the hour. The government must work in accordance to the present needs and demands in a situation when these wildlife species are threatened and many of which have come to the verge of extinction. The state governments and central government is required to work together and implement all the relevant laws and conservation strategies in order to protect the wildlife and prevent illegal hunting and trade of these endangered species and wildlife as a whole.

## Acknowledgement:

It was utterly impossible to complete this piece of work without the careful guidance of the honoured and respected professors. Special thanks to ALL THE TEACHERS WHO TAUGHT US FOR A WEEK LONG, for their kind helps. They helped us in every possible way. As we are literally new in this type of works, they had assisted me properly. On the other hand, my parents helped me in a several way. They provided me materials as well as moral support. The author of the books which I took as a reference, special thanks to them also.

## BIBLIOGRAPHY

1. [https://www.arlis.org/docs/vol11/69415913/hundal\\_edited\\_final\\_march\\_10.pdf](https://www.arlis.org/docs/vol11/69415913/hundal_edited_final_march_10.pdf)
2. [https://www.researchgate.net/publication/308610297\\_Current\\_trends\\_in\\_wildlife\\_conservation\\_A\\_review](https://www.researchgate.net/publication/308610297_Current_trends_in_wildlife_conservation_A_review)
3. <https://www.biologydiscussion.com/essay/wildlife-conservation/essay-on-wildlife-conservation-india-biology/80662>
4. <https://www.preservearticles.com/essay/wildlife-conservation-in-india/7137>
5. <https://www.gettyimages.in/photos/indian-bustard?excludenudity=false&family=creative&license=rf&phrase=indian%2520bustard&sort=mostpopular>
6. CgNpbWcQAzoECAAQQzoFCAAQsQM6CAgAELEDEIMBOgcIABCxAxB  
DOgIIADoGCAAQCBAeUJ11WKKeAWCBowFoAHAAeACAAdQCiAGYJ  
ZIBCD AuMTguNi4xmAEAoAEBqgELZ3dzLXdpei1pbWfAAQE

Name – Sourav Saha

College Roll No. ENGA20M325

BA English Honours 2<sup>nd</sup> Semester

AECC – 2, ENVS

CU Registration No. – 223-1112-0077-20

CU Roll No. – 202223-21-0064

Topic- *Environment Conservation*

# Contents

<b>Sub-topics</b>	<b>Page no.</b>
<b>1. Introduction</b>	<i>03</i>
<b>2. What is Environment Conservation?</b>	<i>04</i>
<b>3. Importance of Environmental Conservation</b>	<i>04—05</i>
<b>4. Methods of Environmental Conservation</b>	<i>06</i>
<b>5. Forest Conservation</b>	<i>06—07</i>
<b>6. Soil Conservation</b>	<i>08</i>
<b>7. Waste Management</b>	<i>09</i>
<b>8. Public Awareness</b>	<i>10—11</i>
<b>9. Pollution Control</b>	<i>11—12</i>
<b>10. Things We Can Do to Prevent Climate Change</b>	<i>12—16</i>
<b>11. Conclusion</b>	<i>16</i>

## **Introduction:**

Human existence is quite impossible without the presence of a healthy ecosystem. Our environment comprises all living and non-living components and their interactions within a natural habitat. Environmental conservation has become one of the core issues that need to be addressed to battle climate change and global warming. Sustainable development is the need of the hour which can save the mother earth from the repercussions of industrialization. In this blog, we will aim to elaborate upon environmental conservation, its needs as well as methods.

*“International Day of Nature Conservation is held  
on the 28<sup>th</sup> July around the world annually.”*





## **What is Environment Conservation?**

There are various core environmental issues which are taking a heavy toll on human lives. Ranging from overpopulation, hydrological issues, ozone depletion, global warming to deforestation, desertification and pollution, all these issues pose a severe threat to the existence of humankind. The environmental conservation is a practice that paves the way for protecting the environment and natural resources on the individual, organisational as well as governmental levels. Unless environmental conservation is becoming an effective mass movement, it is futile to expect positive growth especially in the age of digital media which holds the potential to bring a revolution to save our planet from destruction.

# **Importance of Environmental Conservation**

It has become inherently important to work towards environmental conservation in contemporary times. The following pointers elucidate this crucial need to save the environment from further degradation:

To reduce air, water and land pollution

To facilitate the conservation of natural resources for our future generations

To ensure the protection of biodiversity

To implement sustainable development

To restore the ecological balance

To save our planet from harmful repercussions of global warming



*“A true conservationist is a man who knows  
that the world is not given by his fathers,  
but borrowed from his children.”*

John James Audubon

## **What are the Methods of Environmental Conservation?**

Now that you are familiar with the meaning and importance of Environmental Conservation, let's understand the core methods through which it can be effectively facilitated:

## Forest Conservation

We know that plants and trees are the essential sources of air, food as well as other day-to-day products we use. Forests are the dwelling place of different living creatures and a single disturbance in the ecosystem can cause disruption in the water cycle as well as the food chain.



Thus, afforestation is amongst the core Environmental conservation and aims to plant more trees as well as save the existing ones from cutting down as trees play a crucial role in maintaining the ecological balance.

*“The Global Day of Forests, celebrated internationally*

*on 21 March, is an incentive to recognize the vital importance of forests for human and environmental wellbeing.”*

## **Soil Conservation**

As one of the prominent methods for environmental conservation, the need for soil conservation has arisen to tackle the harmful effects of soil pollution. On earth, the soil is the main element that plays a pivotal role in soil erosion, land degradation and floods. Soil is filled with rich nutrients for plant production. Soil conservation can be carried out by ensuring minimal use of fertilizers and venomous chemicals as well as abolishing the disposal of harmful industrial waste in the soil.



## **Waste Management**

Especially in developing countries and congested places, on a daily basis, a large amount of waste is thrown away recklessly on the streets and roads. The improper disposal of waste segregation can lead to various dreadful diseases as well as soil pollution.

To ensure minimal wastage as well as facilitate waste disposal, we can opt for various techniques like the 3R's, i.e. Reduce, Reuse and Recycle, dry and wet waste segregation, amongst others.



## Public Awareness

With the boom of information technology and the advent of digital media, public awareness pertaining to environmental conservation can potentially yield promising results. There is a dire need to aware the masses about the consequences of environmental pollution and degradation. Further, every individual should be made conscious of how they are polluting the environment and what steps can be taken to implement environment conservation, be it through using greener energy sources to following the 3Rs of Reduce, Recycle and Reuse.

*“Every year on the 2<sup>nd</sup> of December, India observes National Pollution Control Day in remembrance of the memory of those who lost their lives in the tragic 1984 Bhopal Gas Tragedy.”*

## **Pollution Control**

As the increase in temperature is concerning, there is a need to keep a watch on the toxic compounds we ingest that pollute the atmosphere. We need to adopt environmentally sustainable methods to minimise multiple forms of emissions, such as eliminating waste, saving electricity, limiting the unnecessary usage of fertilisers, insecticides and pesticides, and using energy-efficient appliances, among others.





*“In nature’s economy the currency is not money, it is life.”*

Vandana Shiv

# **6 Things We Can Do to Prevent Climate Change:**

## **1. Make Our Commute Green**

Millions of people drive to work every day. It is simply unavoidable in our modern-day society. However, the downside to this is that millions of cars emit greenhouse gases that destroy our atmosphere. Vehicle emissions are a close second when it comes to the top causes of climate change. There are always other options that you can utilize to make your commute to work eco-friendly. For starters, taking public transportation to work is a great way to cut out emissions. Riding your bike to work is also incredibly helpful to the environment and is a great method to get exercise.

## **2. Be More Conservative with Energy Usage**

Becoming more energy efficient is a great way to prevent pollution. It causes the power plants to expend less energy that can lead to the production of greenhouse gasses. This means that you

should do what you can to cut down on energy usage in your household. Make sure to turn off lights and unplug devices that you are not using anymore when you are done with them. Replace your light bulbs with energy-efficient light bulbs to help you save electricity too.

*“Climate change is real. It is happening  
right now, it is the most urgent threat facing  
our entire species and we need to work  
collectively together and stop procrastinating.”*

—Leonardo Di Caprio, Actor & Environmentalist

### **3. Get Active and Vote**

One of the best ways to improve climate change is to help those who will fight against it get into office. This means voting for legislation and politicians that aid against the detrimental effects of climate change. Many corporations have politicians on their payroll and use them to lobby against legislation that would require more regulations against them. Voting the right people into

office will help pass legislation that allows us to fight against these corporations that are mainly to blame for climate change.

#### **4. Recycle**

Manufacturing plants emit a large number of greenhouse gasses per year. It is unavoidable in the production of goods that we use on a regular basis. However, a cleaner alternative would be to invest in recycling. Recycling is a cost-effective and eco-friendly process that eliminates waste and doesn't emit greenhouse gasses into the environment. Be sure to collect your discarded paper, glass, plastic, and electronics to your local recycling center. The professionals will take these items to a processing plant where they will be remade into other recyclable materials again.

#### **5. Educate Yourself and Others**

The importance of educating others about climate change cannot be overstated in our modern society. There are many platforms for us to utilize that can allow us to spread our message easily. Whether you use word of mouth or social media, there are always ways to educate others on what

climate change is doing to our planet. You can help protect the planet by educating others about the dangers of climate change and how to act against it.

## **6. Encourage the use of renewable energies**

Focusing your efforts to spread awareness about renewable energy is the best way to create a positive impact in your community. By informing others about how renewable energy is better than utilizing fossil fuels, you will sway others into investing in the idea.

## **Conclusion:**

Global Warming is one of the most dangerous curses that we are facing in the 21<sup>st</sup> century and it is high time that we must do the things that can stop it. Glaciers are melting, wild animals are losing their homes, birds don't have trees to make their nests, farmers are suffering from uncertain weather changes, floods and droughts are causing life losses and above all Earth is getting uninhabitable for every living species as a result of climate change and other environmental problems. Thus let's come together and take oath to do anything we can to make our planet more habitable.

# Scottish Church College

Semester 2 (English Honours)

Project\_AECC\_2(ENVS)



**Name-** Sugata Talukdar

**College Roll No.-** ENGA20M346

**Calcutta University Registration No.-** 223-1112-0152-20

**Calcutta University Roll No.-** 202223-21-0069

**Topic-** In situ conservation in India

**Year-** 2021-2022

**Introduction:**

There are mainly two types of conservations, In situ conservation and Ex situ conservation. Today, in this project we are going to discuss "In situ conservation" in India. But first, we have to know what In situ conservation is.

**What is In situ conservation?**

In situ biodiversity conservation is done by protecting natural habitats and all the species that live in them. This is the major objective of our National Parks and Wildlife Sanctuaries. Biodiversity at all levels - genetic, species and intact ecosystems – is preserved in situ by setting aside an adequate representation of wilderness as protected areas in each of our 10 biogeographic zones in India. These consist of a network of Protected Areas under the State forest departments.

**Protected areas:**

The Protected Areas – national parks and sanctuaries – are notified to preserve major wildlife species such as tigers, lions, elephants, gaur and deer, as well as birds, reptiles, fish, amphibians and invertebrates. They also preserve all species of trees, shrubs, climbers and ground flora. These relatively intact protected areas preserve all the microscopic unicellular plants and animals. Thus, each ecosystem is preserved in its natural state. This includes all the terrestrial and aquatic freshwater ecosystems, marine protected areas and all their associated species.

**Protected areas in India:**

In India, we have 769 Protected Areas (2018). There are 103 national parks, 544 wildlife sanctuaries, 76 conservation reserves and 46 community reserves. India has 8% of the world's species in only 2% of the world's terrestrial land. This gives India a mega diversity status at the global level. Thus the 5% of India's land in which the government has notified Protected Areas is of great importance to our nation as well as for the world.

Protected Areas that help preserve our natural resources provide vital services for people who live outside their boundaries. Water from streams in the Protected Area flows out of forests, and insects pollinate croplands. The natural habitat provides clean air and provides water for drinking and irrigation. Ecosystem services include preserving good soil with its nutrients. Biodiversity provides opportunities for tourism, peace and quiet and a feeling of appreciation of the many beautiful things present in our world. Thus, while Protected Areas restrict environmental goods from being taken out for unsustainable use (both for consumptive purposes by local people and produce goods for sale and income generation) the economic value of services from the Protected Areas provides innumerable and unaccountable services for surrounding people which far outweighs the potential value of restricting the use of its saleable goods.

While 50 years ago this was an ad hoc selection of areas that had major mammal or bird populations, it was evident that this could not be expected to effectively protect ecosystems and all our flora and fauna with an adequate representation of the great variations in genetic differences in individuals.

In 1988, Rodgers and Panwar of the Wildlife Institute of India designed a scientific base for selecting and notifying an effective Protected Area System in India. This was based on geography, climate (rainfall and temperature), soil, vegetation patterns and fauna

distribution in the ten different biogeographic zones. The Protected Areas are now selected according to the needs of the individual biogeographic zones.

### Wildlife sanctuaries and National Parks of India:

Among the 763 Protected Areas in India, some have been created in order to protect highly endangered or endemic species of wild plants or animals found nowhere else in the world (Table 4.3). There are 50 Tiger Reserves which are the most critically important Protected Areas. Tiger reserves include a variety of ecosystems and habitats.



The Protected Area in Ladakh protects the high altitude plateau for the snow leopard and several species of wild sheep and goats. The rare black-necked crane nests in its wetlands.



The Great Himalayan National Park is the largest sanctuary in this fragile Himalayan ecosystem and is one of the last homes of the beautiful snow leopard.

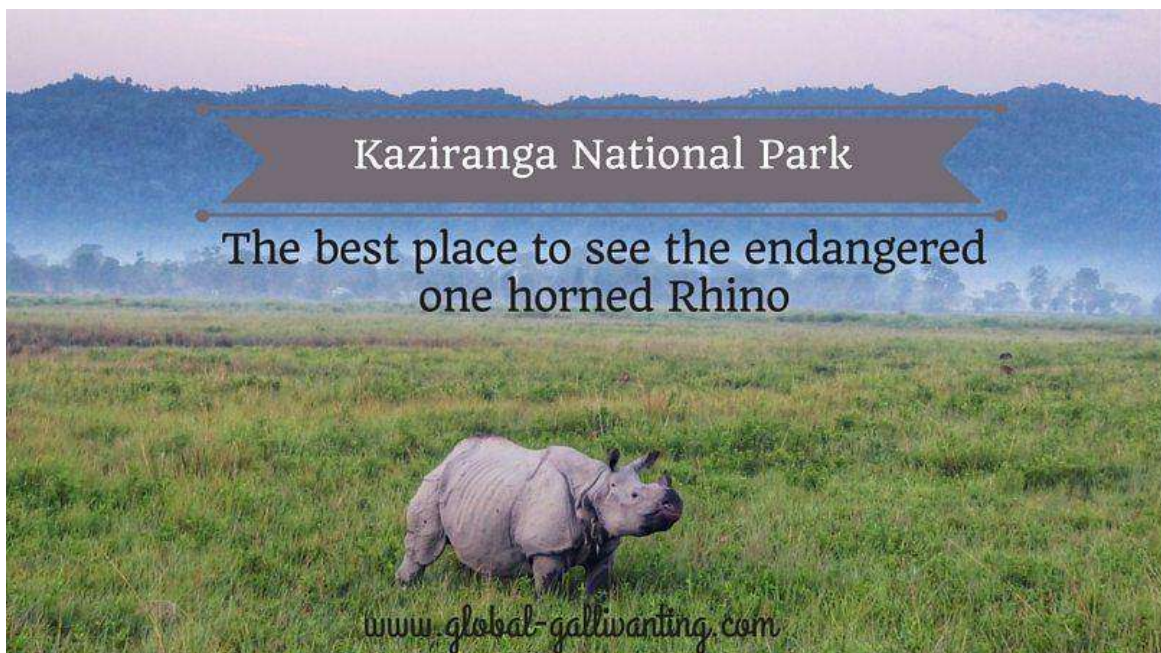


Snow leopard



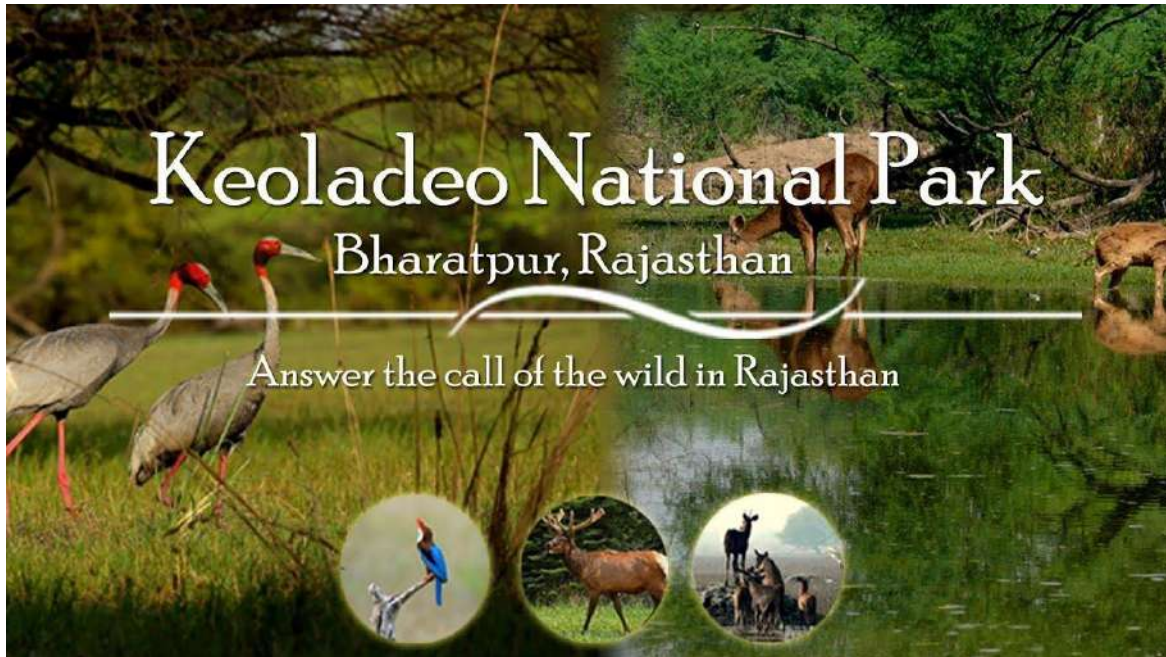
Kashmir stag

The Dachigam sanctuary is the only place where the rare hangul (Kashmir stag) is found. There are several sanctuaries in the low lying terai region south of the Himalayas and in the Indo-Gangetic plain. Of these, the Kaziranga National Park is the most famous as it is the home of the one-horned rhinoceros.



In the last few decades, some of them have been translocated to Manas and other PAs. The terai Protected Areas have an elephant, gaur, wild boar, swamp deer and hog deer, and are known for tigers, leopards and rare small wildcats. The birdlife is extremely rich and includes ducks, geese, pelicans and storks in the wetlands. The Manas sanctuary, in addition to the common terai species, also includes the rare golden langur and the very rare pygmy hog, which is the smallest wild boar in the world. The florican is found only in a few undisturbed grasslands in the terai sanctuaries. The sal forest PAs of Madhya Pradesh includes Kanha which offers a wonderful opportunity to observe wildlife and is the habitat of the rare barasingha. It is the only protected area in which a sub-species of the barasingha is found.

Keoladeo Ghana national park-Bharatpur is one of the most famous water-bird sanctuaries in the world.



Thousands of ducks, geese, herons and other wading birds can be seen here. In the past, this was the only home of the very rare Siberian crane. It used to migrate to India every winter. Siberian cranes have been rarely seen in India after 2002.



*Siberian crane*

In the Thar desert, wildlife is protected in the Desert National Park. Here, large numbers of blackbuck, nilgai and chinkara can be seen. The last few Great Indian Bustards still live in these arid lands. Ranthambore is the most well-known Protected Area for observing tigers in thorn forests and scrubland in the semi-arid zone. The Great Rann is the only breeding area of the flamingo in India, and the Little Rann of Kutch wild sanctuary is a unique ecosystem. The star tortoise, the desert fox, the caracal and several other arid area birds and reptiles are found in this unique ecosystem.

# Ranthambore National Park



In Gujarat, the Gir sanctuary protects the last population of the majestic Asiatic lion. This thorn forest with patches of the deciduous forest is also the home of large herds of chital, sambar, nilgai and wild boar. Forest birds, reptiles and insect life are abundant in this sanctuary.



*Gir Sanctuary*

The sanctuaries of the Western Ghats and associated hill ranges in the Nilgiris and Agasthyamalai hills protect some of the most diverse evergreen and shola forests. The Western Ghats is considered a global biodiversity hotspot and is recognised as a UNESCO world heritage site. The sanctuaries of the Western Ghats are the habitat of highly threatened species including the Malabar giant squirrel, the flying squirrel and a variety of hill birds. Several species of amphibians, reptiles and insects are found in the high rainfall evergreen tracts of the ghats, which are also rich in endemic plant life. A unique aspect of the ghats is its tree-less lateritic.



*Malabar giant squirrel*

Plateaus with very little soil cover, on which a large number of rare and endangered monsoon plants grow. They form carpets of multicoloured flowers many of which are very rare. An example is the Kass plateau near Satara. Protected Areas such as Bhimashankar, Koyna,

Chandoli and Radhanagari preserve the rich flora in Maharashtra; Bandipur, Bhadra, Dandeli and Nagarhole which are important Protected Areas in Karnataka; Eravikulam and Periyar Protected Areas, and the Silent Valley in Kerala are important habitats of a rich complement endemic flora and fauna.

### *Silent valley*



In the Nilgiri hills, the rich forest sanctuaries protect some of the important habitats of the Indian elephant in South India. Examples include Bandipur, Mudumalai, Wayanad and Bhadra. During the last several years, a large number of the tuskers have been ruthlessly killed for their ivory. The Eravikulam sanctuary protects the last

pocket of the Nilgiri tahr, the only wild goat species south of the Himalayas.

Two important estuarine bird sanctuaries meant for the preservation of coastal ecosystems are the Chilika lake in Odisha and Point Calimere in Tamil Nadu.



*Chilka*



*Point Calimere*

The Sunderbans protect the largest mangrove delta in India. The Marine national park in Gujarat protects the shallow areas of the sea. Its islands, coral reefs and extensive mudflats are home to a wide range of marine life which include mammals such as whales and dolphins, fish such as the whale shark, marine invertebrates, starfish, mussels, molluscs and coral.

### *The Sunderbans*



preserve their very special island ecosystems in different forest types. The marine ecosystem with Over a hundred Protected Areas have been created in the Andaman and Nicobar islands to its wealth of coral reefs is of high biological importance.

**Conclusion:**

So, in this project, we can see, a lot of projects were taken and attention was given to the in situ wildlife conservation in India. But still, it's not enough. Many species are still in grave danger, illegal hunting is still not totally uprooted, but we are progressing to a better future where every species of animal are living healthily like they deserve to, without any danger of being hunted or starving. With this wish in mind, here I finish my project.

**Bibliography:**

1. Bharucha, Erach. Textbook of Environmental Studies for Undergraduate Course. Hyderabad. University Press. 2021.
2. [https://en.wikipedia.org/wiki/Wildlife\\_of\\_India](https://en.wikipedia.org/wiki/Wildlife_of_India)
3. [https://en.wikipedia.org/wiki/In-situ\\_conservation\\_in\\_India](https://en.wikipedia.org/wiki/In-situ_conservation_in_India)

**UNIVERSITY OF CALCUTTA  
SCOTTISH CHURCH COLLEGE  
KOLKATA**

**PROJECT TITLE: WILDLIFE CONSERVATION**

**NAME: SOUMYA GANGULY**

**COLLEGE ROLL NO: ENGA20M318**

**UNIVERSITY ROLL NO: 202223-21-0078**

**REGISTRATION NO: 223-1141-0062-20**

**SEMESTER: BA-SEM 2**

**SUBJECT: ENVS**

**PAPER: AECC2**

## **Introduction to the Conservation of Wildlife:**

It is a well-established fact that the concern for wildlife is the concern for man himself. All forms of life viz. Human, animal and plant are so closely interlinked that disturbance in one gives rise to imbalance in the others. If species of plants or animals become endangered, they signify degradation in the environment which may threaten man's own existence.

From an ecosystem point of view, all organic life on earth is organized as a series of energy transfers called trophic-level in a closed system of living and nonliving parts in the forms of producers, consumers and decomposers. Producer, consumer and decomposer are linked together in the food-chain and again various food-chains are joined at different trophic-levels forming a complicated food-web.

In this intricate web of relationships, the existence of one organism is dependent upon the other. The process of "natural selection" has led to species specialising in the performance of certain functions in the food-chains. These are the niches which organisms occupy. The entire trophic structure is delicately balanced on these niches.

In these inter relationships, one form of life is dependent upon the other for its existence and species of plants and animals keep a check on their numbers through such food-chains. Destruction of any particular link in the chain or different stands in the web may lead to imbalances which may threaten the existence of man himself on this planet.

Nature maintains this vast diversity of animals and plants in a complex organization in which the various life processes of production, consumption and disposal of waste are maintained in well-balanced cycles. Plants and animals constitute the world's living resources and the various food-chains and cycles constitute life-support-systems essential for their survival, including the survival of man.

These living resources are also renewable. Any process of development by human societies with varying levels of their technology in harvesting natural resources is an intervention in nature and its life-support-system.

To be sustainable, it requires that the renewability of the resources and life-support-system is maintained in perpetuity. This, in its turn, needs an understanding of the ability of species to adapt themselves to changing environments and to integrate these considerations in the development planning process. This is the crux of "wildlife-conservation".

Unfortunately, due to lack of awareness among the people about the benefits of conservation of wild fauna and flora, selfishness for commercial exploitation as well as ornamental purposes, habitat destruction through deforestation for various purposes etc. are the main reasons for depletion in wildlife-population.

Today we are facing the problem of under-populated wild animals resulting in rare, endangered, threatened species and so on. A basic consideration is the balance between mortality and reproduction. Some of the endangered forms are handicapped by having a naturally low reproductive-rate.

Under optimum conditions, this may be of no great disadvantage, but it can create serious repercussions if normal reproduction is checked by undue disturbance or by such factors as weakening of species vitality through fragmentation of the population.

It has been very correctly said that no natural resource is more sensitive to conservation than wildlife and no natural resource has suffered more from lack of conservation. The human race has a long record of shameful over-exploitation of the earth's natural resources particularly wildlife and a large number of species have been made extinct and endangered.

Hence, now-a-days alarming conditions have come up before us due to depletion of wild animals which has haunted all corners of the society like educationists, scientists, public, government officials as well as non- government officials to save wildlife. Therefore, in order to save them; conservation, preservation and protection are required to propagate their population so that a healthy and pollution-free atmosphere may give eco-balance on this planet.

Wildlife management is the resultant to solve this problem having objectives to maintain ecological- balance or to protect the environment by achieving balanced-population of wild fauna and flora by applying scientific technologies.

It is interesting to know how we have gradually developed awareness of the protection of wildlife. At the turn of the twentieth century, the people, perhaps with the idea that wildlife was inexhaustible, took pride in boosting the killing of animals. But the British rulers began to appreciate the importance of conservation of wildlife and enforced various acts viz. Rhino Protection Act, Elephant Protection Act, Arms Act etc. from time to time to save the wild animals from ruthless massacre.

However, the first concrete step towards it was taken soon after independence in 1952 with the setting up of a Central Board for Wildlife which was subsequently renamed the Indian Board for



Wildlife (IBWL). Most of the states also followed it up. In spite of the formation of these boards, much could not be achieved because of working in isolation from the mainstream of planning-process.

IBWL is the main advisory board for advising the Government of India regarding wildlife policy in the country. Some of its important achievements are the enacting of WildLife (Protection) Act, 1972; establishment of national parks, sanctuaries and zoological gardens; promoting public interest and education in wildlife and its products; formulation of a national environmental conservation policy; revision of the national forest policy etc.

To restrict and regulate the thriving global trade in endangered species, India became a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1976.

Afterwards, many of the international bodies like International Union for Conservation of Nature and Natural Resources (IUCN), Worldwide Fund for Nature (WWF), International Council for Bird Preservation (ICBP) etc. have come up for the purposes of safeguarding conservation, management and creation of awareness. India is the member of all these bodies.

For effective conservation of wildlife, there are three basic needs such as:

- (a) Adequate food and water,
- (b) Place of living, and
- (c) Place to breed in safety.

To achieve these, the following measures are in practice:

1. Reserve forests, national parks, sanctuaries are left unexploited. Where total un-exploitation is not possible, the cutting-operation of the forests is done in limited blocks at a time.
2. Growing of a single variety of plant is discouraged as far as possible, instead mixed vegetation is encouraged.
3. Natural opening of the forest, waterholes and riversides are guarded against poachers.
4. Control-burning of grassland, to increase forage and to preserve organic materials in the soil, is done in blocks with un-burnt areas in between.
5. Provisions for dust-baths and artificial salt-licks are made in the forests for maintaining the normal health of the animals.
6. Grazing of domestic livestock is dangerous to wild animals, as the latter can never compete successfully with the domestic stock. Moreover, the domestic stock may be responsible for

transmitting several contagious diseases. Hence, grazing by the domestic stock is avoided as much as possible.

7. Cultivation near the sanctuaries/parks is also avoided to prevent ecological-hazards due to pesticides.

8. Scientific studies by qualified personnel specially on threatened species of wild animals are encouraged in order to assess and improve their status, even by breeding them in captivity and rehabilitating them in suitable habitats.

Several such measures have been undertaken and many more are needed to halt the decline of wildlife and to create conditions in which it can flourish with its diversity in natural settings. But nothing could be fruitful without educational and publicity programmes for a change in the human-outlook, especially in the school children who are the builders of the future society.

There is a general lack of knowledge in the conservation of nature and the value of wildlife in our country. Nature has been treated as a milch cow. Anything of use to man is exploited indiscriminately and inevitably leading to its depletion. Sometimes beyond redemption, unless the economy is tempered by ecology, there is no possibility of halting the present trend.

The only permanent solution to the problems of protection of wildlife, which is a part of the macro-problem of protection of biosphere and its component ecosystems, lies in proper understanding of the living world and in the reorientation of the human-outlook.

To find the goals of the above said objectives, government as well as public sector were attracted to their attention as an issue of national concern. As a result, Government Organisations, Non-Government Organizations/Voluntary Organisations as well as Advisory Bodies are actively dedicated to the cause of wildlife-conservation.

### **Need for the Conservation of Wildlife:**

Conservation embraces the positive and dynamic science of ecology (the study of living processes and their interdependencies on each-other and their habitat). According to Noel Simon, conservation means “the maintenance of a reasonable number of members of every species from the largest mammals to the smallest invertebrates in their own habitat without destroying that habitat”.

Again according to Indian Forest Record (1965), conservation means “planned management and wide use of natural resources, so as to prevent over-exploitation, destruction or neglect i.e. wildlife conservation. Originally the term was used to denote strict preservation leading to locking-up of resources and prevention of their use. This meaning has become antiquated. In a broader sense, conservation implies the field of knowledge concerned with the co-ordination and practical application of data from science with a view to increasing and sustaining the availability of natural resources”.

In broad sense, conservation is defined as the management of human-use of the biosphere so that it may yield the greatest sustainable benefit to the present generation while maintaining its potential to meet the needs and aspirations of future generations.

However, in strict sense; wildlife conservation denotes that wildlife is to be conserved in such a way that it may remain in the nature in peak status and to get the benefit is not the main objective but maintain natural-balance, while in wildlife management along with the conservation of wildlife they are to be managed in such a way that they can meet the specific objectives of human beings.

It is now recognized world over that biological diversity is insurance for food and ecological security. Biological diversity is threatened by encroachment on natural ecosystems by the activities of the ever-growing human population. Creation of new species and elimination of a few others are the results of organic evolution.

Extinction of a species is also a part of the natural process. But with the gradual emergence of human beings as a major evolutionary force, people have increasingly exploited the wildlife rather callously. The rate of decline has been particularly rapid in the last one hundred years without any corresponding renewal.

It is estimated that about 25000 plant species and 1000 vertebrate species and subspecies are threatened with extinction world over. These figures do not include invertebrates like molluscs, insects, corals and innumerable other forms of life, which are invariably vulnerable. It is believed that at least 10 percent of the living species are in danger.

The most serious threat to the wildlife comes from habitat destruction. Habitats, which protect wildlife, are being converted to human settlements, harbours, dams, reservoirs, croplands, grazing grounds, plantations and mining sites.

The introduction of exotic species, overexploitation, and international trade in increasingly scarce commodities of wild origin, mainly from developing countries, are other causes of destruction of many species. The rare species of plants and animals have been categorized for conservation purposes by the International Union for Conservation of Nature and Natural Resources (IUCN).

Majorly the categories like Endangered (E), Vulnerable (V), Rare (R), and Threatened (T) have been identified. The IUCN now called WCU (World Conservation Union) maintains a “red database” at the World Conservation Monitoring Centre (WCMC).

From time to time, this database is translated into popular documents and published as Red list or Red Data Book of species that are facing the risk of extinction. According to IUCN 2000, there are 113 endangered plant species and 54 animal species. In India, Botanical Survey of India (BSI) published a Red Book for endangered plant species which should be provided with conservation.

### **Objectives of Conservation of Wildlife:**

There are three specific objectives of conservation of biodiversity or wildlife as follows:

- (a) To maintain essential ecological processes and life-supporting systems (air, water and soil).
- (b) To preserve the diversity of species or the range of genetic material of the world's organisms.
- (c) To ensure a continuous use of species, in fact ecosystems, that support rural communities and urban industries.

Thus the conservation of wildlife has broad objectives, not only concerned with biotic (plants, animals and microorganisms) but also with abiotic factors. Therefore, conservation of biodiversity is a complex operation which is specifically concerned with plants, animals and microorganisms and with these non living elements of the environment on which they depend.

### **Strategies for the Conservation of Wildlife:**

Scientists representing 100 countries of the world have evolved a comprehensive World Conservation Strategy for judicious use of resources.

Some of the important steps are as follows:

- (i) Preservation of species which have been marked endangered.
- (ii) Sound planning and management of land and water uses. The wildlife should be protected both in their natural habitat (In-situ) and in zoos and botanical/biological gardens (Ex-situ).
- (iii) Preservation of as many varieties as possible of food crops, forage plants, timber trees, live-stocks, animals for agriculture and their wild relatives and microbes. Priority should be given to those varieties that are most threatened and most needed for national and international breeding programmes.
- (iv) Each country should identify the habitats of wild relatives of the economically valuable and useful plants and animals and ensure their preservation in Protected Areas.
- (v) Safeguarding of the critical habitats (the feeding, breeding, nursery and resting areas) of the species.
- (vi) Establishing a network of Protected Areas for migratory or wide ranging animals to preserve the habitat of the species.
- (vii) If a species migrates or ranges from one national jurisdiction to another, bilateral or multilateral agreements should be made to set up the required network. Exploitation of the species and pollution of the environment along the migratory routes should be regulated.
- (viii) Unique ecosystems should be protected as a matter of priority. Only those uses which are compatible with their preservation should be permitted.
- (ix) The productive capacities of exploited species and ecosystems have to be determined and it has to be ensured that utilization does not exceed those capacities.
- (x) International trade in wild plants and animals has to be regulated to appropriate legislative and administrative measures.

### **Methods Used for the Conservation of Wildlife:**

Methods of conservation of faunal and floral species are broadly classified into two methods, such as In-situ conservation and Ex-situ conservation.

In-situ conservation is the most appropriate method. This approach includes protection of total ecosystems through a network of Protected Areas. The common natural habitats (protected areas) that have been set for in-situ conservation of wildlife include national parks, sanctuaries, biosphere reserves, several wetlands (mangroves, coral reefs etc.), sacred groves and lakes.

Ex-situ conservation involves cultivation of rare plants and rearing of threatened animal species in zoological and botanical gardens and preservation of the plant species in the form of seeds in seed banks etc. by means of tissue-culture techniques.

Individuals of the species are maintained in artificial conditions under human supervision. These methods include maintaining gene banks, pollen preservation and the most useful is the cryopreservation with which tissue culture and germplasm conservation are made.

Thus, methods of biodiversity conservation may be presented by chart as below:

## **Methods of Biodiversity Conservation**

### **Preservation:**

In contrast to conservation, preservation is concerned with the strictest protection of a species almost without regard to the consequences.

According to Indian Forest Record (1965):

“Preservation is to save and maintain the wild animals against injury or destruction as well as keeping them safe and undisturbed from private or public use”.

### **Protection:**

It means guarding the wild species against danger or injury. Partial protection of certain species is achieved by enforcing close-seasons (closed for hunting, fishing etc.) and restricted shooting.

Total protection is achieved by constituting sanctuaries or by legally prohibiting the killing or maiming of a particular species at any time and in any place. Generally, the term protection is used now, only when referring to species or places which are totally closed to being used in any way, and it implies locking-up from use.

### **Extinction of Species:**

Creation of new species and elimination of a few others are the results of organic-evolution, and extinction of a species is also a part of this natural process. Hence, extinction is a “biological

reality” because no species has as yet existed for more than a few million years without evolving into something different or dying-out completely.

But with the gradual emergence of human-beings as a major evolutionary force, people have been increasingly exploiting wildlife rather callously. As many as 500 million kinds of plants, animals and microorganisms have made this planet as their home since life began over 3.5 billion years ago.

Today, there are more than 30 million species alive. The rate of decline has been particularly rapid in the last one hundred years without any corresponding renewal. It is estimated that about 25,000 plant species and 1000 vertebrate species and subspecies are threatened with extinction.

These figures do not include invertebrates like molluscs, insects, corals and innumerable other forms of life, which are invariably vulnerable. It is believed that at least 10% of the living species are in danger.

### **Extinct Species:**

Stracey (1963) opined to be biological minimum numbers below which the rebuilding of the species is impossible and extinction results, known as the critical-limit for the particular species. Hence, a very important matter which needs special attention is the need for preserving and propagating our living resources in a scientific manner.

Extinct refers to the species (fauna and flora) which were available or found in the past but became disappeared and presently not found. Hence, extinct species are the species that are no longer known to exist in the wild, though they may survive in cultivation. According to CITES, a species is said to be extinct, if it is not definitely known in the wild during the past 50 years.

It may be locally, countrywide or worldwide due to the unscientific management, destruction of habitat, merciless and reckless hunting and so on. Extinction results ecological-hazards, imbalances in ecosystem and food-chain/food-web ultimately hampering and affecting present and future generations of the human-beings.

### **For example:**

- i) Extinction of cheetah from India (the last authentic record in India is of three males wantonly shot together in Korea, Bustar in Chhattisgarh State in 1948).
- ii) Two horned rhinoceros from India.
- iii) Pink-headed duck.
- iv) Mountain quail.
- v) Dodo bird from Mauritius etc.

### **Extinction Threshold:**

The minimum numbers in a population of a particular species of animals, below which the population numbers are too few for rebuilding the species then extinction results.

When there is a gradual decline in the population of a certain species, a stage may come when the numbers go down below a minimum-level of population needed for survival of the species. This minimum level or the critical-level is known as the Extinction-threshold.

According to Stracey (1963) “there is a biological minimum and if the numbers decrease below this minimum, the rebuilding of the species is impossible and extinction results. This is known as critical-limit for the particular species”.

As stated, about 25,000 plant species, 1000 vertebrates and 10% invertebrate species are in danger of extinction.

### **Causes of Extinction/Depletion:**

#### **(i) Hunting:**

Large-scale destruction of the wildlife for food, safety and pleasure started with the use of fire as a means of hunting. It is believed that man-made forest fires have caused the extinction of several species in the past. With the advent of firearms and acceptance of hunting as a sport, needless killing of wild animals assumed dangerous proportions.

Disappearance of Dodo (*Didus ineptus*) , a unique bird of Mauritius, and the cheetah (*Acinonyx jubatus*) from India are recent calamities. A number of orchids and medicinal plants have disappeared.

#### **(ii) Destruction of Habitats:**

The most serious threat to the wildlife comes from habitat destruction.

It has been destroyed due to:



- (a) Establishment of new human settlements, croplands, grazing grounds, quarry in mining sites etc.
- (b) Deforestation caused by Jhuming, felling of trees for timber/ firewood, fire and overgrazing etc.
- (c) Conversion of forest into agricultural land.
- (d) Damages of forest/grasslands by acid rain.
- (e) Pollution of water bodies killing aquatic plants and animals.
- (f) Building of roads and rail lines through ecologically fragile areas.
- (g) Construction of dams/reservoirs destroying habitats of wildlife and block spawning and migration of certain fishes.

Hence, the most serious depletion of wildlife comes from habitat destruction. Habitats which protect wildlife are being converted for human-settlements, harbours, dams, reservoirs, crop-lands, grazing- grounds, mining-operations etc. Environmental-pollution and deforestation have also resulted in the degradation of important habitats.

Migratory animals are particularly vulnerable to destruction of habitats because disturbance at any point of their migratory-routes affects them. Some of the dams are blocking spawning, migration of fishes by inundating the habitats and by altering the physical environment.

Sometimes, a habitat may be damaged without significantly changing its physical appearance. The California condor, the largest flying bird of today, is a shy scavenger. It is not only the victim of many human activities but also its habitat has been severely affected by human cleanliness. The carcasses of the livestock, which form its food, used to be left in the open in the past, but are presently buried or burnt by the farming community.

The introduction of exotic species deliberately or inadvertently has affected many native species by imposing new factors in competition for food and space, predation, habitat destruction and degradation, transmission of diseases and parasites. The native species of fish of freshwater and of islands are specially affected by the introduction of new species.

For example, exotic trout and bass endangered many species of fish in the U.S.A. Goats and rabbits introduced in the islands of the Pacific and Indian Ocean have destroyed the habitats of several plants, birds and reptiles. The American chestnut trees found in the coastal areas of the U.S.A. have been devastated by a fungus (blight) introduced from China.

Over-exploitation is a serious threat to the wildlife. Over-fishing is seriously depleting the marine living resources and significantly affecting the freshwater ones. Many species of fish and molluscs, whales, sea-cows and sea-turtles are facing total extinction as they are caught by mechanical devices for the sea-food industry.

International trade in increasingly scarce commodities of wild origin, mainly from the developing countries, is the cause of destruction of many species. The use of hides and skins (for luxury), of fur and leather in industry, of exotic meat and fish for special cuisine are serious threats resulting in the dwindling of species.

The use of a wide range of animal and plant products-for the pharmaceuticals, perfumes, cosmetics, aphrodisiacs and decoration souvenirs and as specimens for museum's collection and the trade in live plants and animals are other dangers.

**(iii) Cleanliness:**

Vultures and kites feed on carcasses. Since the carcasses are being buried or burnt now, the population of the largest flying bird, California condor (*Gymnogyps californianus*) has started declining.

**(iv) Migratory Routes:**

Changes in settling areas and routes of migratory animals resulted in their going astray and perishing.

**(v) Exotic Species:**

Exotic species or species introduced from outside (often requiring specific environment) produce ecological-imbalance due to removal of biological-control such as:

- a) Goats and rabbits introduced in Pacific and Indian Ocean islands have destroyed habitats of reptiles, birds and plants.
- b) *Eupatorium odoratum* replaced *Tectona grandis* in N.E.India.
- c) *Lantana camara* in forests of Uttar Pradesh and Madhya Pradesh.
- d) *Parthenium hysterophorus* (introduced in 1956) has replaced herbs and shrubs in open spaces.
- e) Chestnut Blight (*Endothia parasitica*) from China has damaged Chestnut trees in coastal areas of the U.S.A.
- f) Water Hyacinth (*Eichhonia crassipes*).

(vi) Low Fecundity.

(vii) Industrial and environmental pollution.

(viii) Economic Considerations – Scarce commodities are always in demand i.e. exotic meat/fish, hides/skins, and rare animals/plants.

### **Endemic Species:**

Endemic species is a species which is found in a particular natural habitat beyond which it is unknown. In other words; the plant and animal species confined to a given region and having originated there (or, a species which occurs continuously in a given area). India has a large number of endemic species such as *Elettaria cardamomum*, *Ficus religiosa*, *Butea monosperma* etc.

### **Threatened Species:**

A threatened species is the one that is liable to become extinct if not allowed to realize full biotic-potential by protection from exotic- species/human-exploitation/habitat-deterioration/depletion of food and so on.

## **BIBLIOGRAPHY**

1. <https://www.nationalheraldindia.com/india/wildlife-conservation-in-india-are-we-really-serious>

2. <https://byjus.com>

3. <https://lotusarise.com/wildlife-resources-in-india-upsc/>

4. <https://www.clearias.com/iucn-classification-criticallyendangered-endangered-and-vulnerable/>

BOOK:- Dr Erach Bharuchais. Textbook of Environmental studies for Undergraduate Courses: Orient Blackswan Pvt ltd: reprint 8 march 2021.

**Name: Jared Bret Cruz Manuel**

**CU Roll No. 202223-21-0079**

**CU Registration No. 223-1111-0594-20**

**College Roll No. ENGA20M341**

## **AECC ENVS PROJECT ON**

### ***Wildlife Conservation***

#### **INTRODUCTION**

Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes.

Other threats to introduction of other parts of the pollution, hunting,

international



wildlife include the invasive species from world, climate change, fishing, and poaching. National and organizations like the

World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

National Geographic Explorers, like conservation biologists Camille Coudrat and Titus Adhola, are working to slow the extinction of global species and to protect global biodiversity and habitats. Environmental filmmakers and photographers, like Thomas P. Peschak, are essential to conservation efforts as well, documenting and bringing attention to endangered wildlife all over the world.

## WILDLIFE CONSERVATION

Wildlife conservation is the practice of protecting animal species and their habitats. It is achieved partially through legislation such as the Endangered Species Act, the establishment and protection of public lands, and responsible public practices that conserve wild animal populations. Read answers to the following FAQs to learn how wildlife is protected in the United States.

What does the Act do? Species Act nation's protecting wild is enforced by Wildlife Service the National Service. Under be designated as



Endangered Species The Endangered (ESA) of 1973 is our strongest law plants and animals. It the U.S. Fish and (USFWS) and Marine Fisheries the ESA, a species can “threatened” or

“endangered”. Threatened and endangered species are protected under the provisions of the ESA, which restricts human activities that may harm these species and their habitats. Due in part by protections under the ESA, many species have been brought back from the brink of extinction.

How do public lands promote wildlife conservation?

In order to survive, a species requires adequate food, water, shelter, space, and opportunities to reproduce. In the United States, as elsewhere in the world – habitat destruction is a primary threat to the continued survival of species. Without the existence of suitable habitat, a species will eventually face extinction. Public lands include parks managed by The National Park Service and national wildlife refuges operated by the U.S. Fish and Wildlife Service. These lands are set aside to be protected for animal and plant species, as well as future generations.

In addition to habitat destruction, what are other threats to wildlife?

The introduction of invasive species from far away continents introduced by humans can wreak havoc on native plant and animal species. The proliferation of chemicals in the environment including pesticides, PCBs, and oil spills, has the potential to poison wild animals and inhibit their reproductive capacities. Wild animal populations can also be threatened by poaching, wildlife trafficking, and military weapons testing.

How can I promote the conservation of wildlife?

- Reduce, reuse, and recycle to protect wildlife habitat in the U.S. and abroad.
- Adopt a plant-based diet. Millions of acres of wildlife habitat are degraded in the U.S. and abroad to raise livestock for slaughter and crops to feed livestock prior to slaughter.
- Do not participate in sport hunting. Take shots only from your camera.
- Write your legislators to express your support for laws that protect wild animals and habitat.
- Live harmoniously with wild animals around your own home and when visiting public lands.
- Learn about invasive species – both plant and animal and do your part to stop their spread. Only plant native and non-invasive plants in your yard and garden.



Conservation means to prevent waste of a resource. Wildlife conservation can be defined as the practice of protecting animal species and their habitats. Which includes protecting both the animals and their habitat.



Generally, we apply wildlife conservation to species that are in danger of becoming extinct by unnatural causes. These can be causes such as pollution, climate change, unreasonable laws. Moreover, quotas can lead to excessive hunting and high number of wild animals in captivity.

Examples of this can be the pollution of water that threatens marine wildlife. Or rise in water temperatures, resulting in the Great Barrier Reef to lose its colours and large parts of the corals on reef to die. The number of corals on the reef has declined by 89% since 2016. The Great Barrier Reef is also supporting thousands of different species and marine mammals.





Other examples are shootings of wolves; usually, people do this to protect livestock like sheep rather than invest in fencing or other measure to protect them. There is also a huge problem with captivation of threatened species like elephants.

Why is animal conservation important?

Conservation has several areas of importance.

### *Biodiversity*

Biodiversity is one important issue. Reduction in numbers of one animal interrupts



the eco system and the natural food chain, and leads to the threat of other species.

### *Release suffering*

Animal conservation can be important to relieve suffering for animals because they are kept captive. Examples of this is the use of elephants in South East Asia for tourism. Likewise, the use of orangutans in Indonesia for boxing shows. In addition to the suffering cause to the animals, these activities create sharp population decline for the species.

### *Human needs*

Reduction in numbers of one animal can also have a chain effect on other species that are important to human beings. All animals play an important role in the eco system. The loss or reduction of certain species can have a flow on effect; including an affect on human food and water source that are critical to our survival.

## *Water and air*

Keeping the eco system in balance helps providing with clean air and clean water that we all benefit from, people and animals.



## Our Programmes

Globalteer works with several different conservation programmes. We work with Elephants sanctuaries in two parts of Thailand, and in Cambodia. Also, in Peru we have a marine conservation program, a wildlife sanctuary as well as an Amazon conservation project. Moreover, we collaborate with marine conservation projects in Costa Rica, and in Borneo!

## How we Work with Them

Animal conservation is a complicated field that requires a specific set of knowledge. Just as all interaction with animals, conservation needs to be done right. Globalteer has partnered up with local, already existing programmes. These

fit with our vision of providing “appropriate support to responsible and sustainable projects working in community development, wildlife rescue, and environmental conservation.” The programmes are thereby run by local expertise that know the areas and animals better than anyone. And of course, have the animals’ best interests at heart. We support the programmes through providing them with volunteers and administration work and donations to support their work.



### What can You do to Help Conservation?

Here are some ways to contribute to conservation of our fauna & flora.

1. Leave only footprints. Indeed, you can start by picking up your trash to take care of our nature. And maybe join a local pickup day?
2. Limit your amount of plastic usage. 8 million tons of plastic is dumped in to our oceans every year effecting our sea mammals, birds and water quality.

3. Move towards a plant-based diet. A lot of habitat destruction is from cutting down forests for agriculture. This is not only for cattle, but also for the grains and soy to feed the animals that humans eat!
4. Check your medicine cabinet! More than 25% of all medicine prescribed contains animal products; if possible find an alternative that does not. If you are travelling throughout Asia, pay extra attention to traditional medicines you find here as many contain products from endangered or threatened species!
5. Volunteer with one of our programmes! Make a difference in conservation efforts next time your travel abroad.
6. Donate to help support programmes doing vital conservation work!
7. Stay informed. Keep reading about conservation and the newest research to educate yourself. You will then know how to contribute in the best way towards sustainable treatment of our animals.

All life, including our own, depends on a fully functional planet to survive and thrive. Biodiversity, the vast array of plants, animals, and ecosystems, is the life support system of our planet and ecosystems that underpins the healthy air and water, stable climate, and provide us food, clean medicines.



What makes Global Conservation

different? We have a collaborative model that works directly with local partners to protect wildlife and their habitats, focused on often overlooked but highly threatened species and ecosystems integral to the health of our planet.

Much like biodiversity itself, our work relies on relationships. We hold fast to our founding principle that collaborative, local community-led solutions make the biggest difference. We partner with indigenous governments local communities, groups, organizations, and



partner with indigenous governments

to co-develop and implement solutions to address each location's unique needs. We provide additional financial support, expertise, and tools for greater impact.

Wildlife conservation is the preservation and protection of animals, plants, and their habitats. By conserving wildlife, we're ensuring that future generations can



enjoy our natural world and the incredible species that live within it. To help protect wildlife, it's important to understand how species interact within their ecosystems, and how they're affected by environmental and human influences.

Plants and animals have life events that seemingly occur like clockwork every year. Birds can migrate, mammals may hibernate, flowers bloom, and leaves change colors. The study of how the biological world times these natural events is called phenology. Scientists now understand that plants and animals take their cues from their local climate (long-term weather patterns). Climate is impacted by non-biological factors—temperature, precipitation, and available sunlight. Species use the predictable yearly changes in the climate to determine when they start natural events such as breeding or flowering.

Climate change is slowly increasing average annual temperatures. One of the most noticeable ways that climate change is impacting wildlife is by disrupting the timing of natural events. With warmer temperatures, flowering plants are blooming earlier in the year and migratory birds are returning from their wintering grounds

earlier in the spring. Phenology is an important subject for conservationists to study because it helps us understand the patterns of specific species and overall ecosystem health. Every species has an impact on those in its food chain and community, and the timing of one species' phenological events can be very important to the survival of another species.

The energy we receive from food can be traced back to the sun. As the sun shines, it radiates light energy. Plants absorb the light energy, convert it to sugars (photosynthesis), and produce energy for other wildlife. The energy from the sun moves its way through ecosystems by predators eating their prey. A food web breaks down how all the producers, consumers, and decomposers interact in an ecosystem and how energy is transferred between species.

When animals eat their prey, they consume more than just energy. They also absorb all the chemicals and nutrients inside the prey. Sometimes animals ingest pollutants that can become stored in their fat and tissues. Human-caused pollution has added heavy metals, oil, and industrial and pharmaceutical chemicals to the environment. Plants, fish, and other species absorb these toxins, and as they are eaten by predators, the toxins are then absorbed into the predators' tissues. As the chain of predator and prey continues up the food web, the toxins become more concentrated and move higher and higher up the food web. The process that causes the concentration of a substance to increase as it moves up the food web is called bioaccumulation. The pollutants can have a disastrous effect on the food web and potentially kill species.

### Natural Disturbances

A natural disturbance is any event that causes a disruption to the current state of an ecosystem. Natural disturbances are caused by forces of nature, including weather, geology, and biological fluctuations. This may include fires, floods, earthquakes, diseases, and droughts. After a disturbance impacts an ecosystem, there can be devastation, but healthy ecosystems have an amazing ability to bounce back. Some

ecosystems even depend on disturbances, such as the threatened longleaf pine ecosystem. Sometimes the ecosystem will go back to its former structure, with the same plant and animal species. Other times, the disturbance will create something new by allowing new species to populate the area.

Not all disturbances are natural. Human actions have contributed to many disturbances seen in ecosystems today. While natural disturbances happen on occasion, human disturbances are putting constant pressure on ecosystems and dramatically impacting species. Human disturbances, including clear-cutting, habitat fragmentation, and pollution, are continuously affecting ecosystems. The moment the ecosystem begins adjusting to one stress, another appears. Many ecosystems that we depend on are not given enough time to adapt to the new conditions. The natural cycle of disturbances—growth, dieback, and growth—cannot properly function because too many disturbances are putting pressure on the ecosystem at once.

Wild animals are always on the move. They move from place to place in search of food, mates, shelter, and water. Many animals do not have to move far in order to have all their needs met, but other animals—for example migratory birds, wolves, mountain lions, or butterflies—require much more space. Currently many species with large territories, including gray wolves, are threatened because habitat loss and fragmentation have limited their available space. Roads, fences, and buildings cut off habitat and force wildlife into smaller areas. Conservationists have to take into account the different spatial needs of wildlife when designing plans to protect them. They have to think about the territory size, different habitat types, and migration routes that wildlife need.

A wildlife corridor is a tract of land that connects different wildlife habitats (such as refuges, parks, or rivers) that might otherwise be separated by human development. Wildlife corridors provide many benefits to wildlife. With corridors, animals have a better opportunity of finding the basic necessities they need—food, water, shelter, and places to raise their young. Animals that require larger territories can access new habitats and maintain a healthy territory size. Wildlife

corridors also promote genetic biodiversity. When more individuals of a species are interconnected, the gene pool becomes larger and more viable. Migratory wildlife benefit from corridors because they can move safely over long distances without having to come into contact with human developments or cars. Species are more likely to survive disturbances by having more undisturbed areas.

The National Wildlife Federation, in partnership with the Santa Monica Mountains Fund, is working to create a wildlife crossing for mountain lions in California. By linking protected habitat on either side of a freeway, mountain lions and other wildlife can have the access to green space they need to survive. The Liberty Canyon Wildlife Crossing, when built, will be the largest such crossing in the world, and a model for urban wildlife conservation.

Unlike mammals, birds and butterflies travel from one place to another by flying, so they face different kinds of challenges. Not only do we have to protect their winter and summer habitat, but also key rest stops that migratory wildlife use along the way. Conservationists can help threatened bird and butterfly populations by protecting habitat along major migratory flyways—pathways used by migratory birds and insects. Birds tend to take predictable routes to get from the winter feeding grounds to the summer breeding grounds and back. Flyways usually occur along coastlines, major rivers, and near mountains. The United States has four main migratory flyways.

The charismatic giant panda is a global conservation icon and the symbol of our organisation. Thanks to decades of successful conservation work, wild panda numbers are starting to recover, but they remain at risk. Human activities continue





to be the biggest threats to their survival. An extensive giant panda nature reserve network exists, but one-third of all wild pandas live outside of protected areas in small isolated populations.

Pandas typically lead a solitary life. They're excellent tree climbers, but they spend most of their time feeding. They can eat for 14 hours a day, mainly bamboo, which is 99% of their diet (though they sometimes eat eggs or small animals too).

Giant pandas are living proof that conservation works. And even better, by protecting pandas we're also helping protect the wider environment where they live, for all the wildlife and the people that depend on it.



Wild giant pandas could once have been found throughout eastern and southern China, northern Vietnam and northern Myanmar. Now the pandas range is restricted to just six isolated mountain ranges in Gansu, Shaanxi and Sichuan Provinces in south-central China.

They live mainly in deciduous broadleaf, mixed conifer and sub-alpine coniferous forests between elevations of about 1,200-3,400 metres.

Giant pandas help to keep their mountain forests healthy by spreading seeds in their droppings, which helps vegetation to thrive.

The panda's forest environment is also important for local people – for food, income and fuel for cooking and heating. Giant pandas live in the mountain catchment areas of the Yangtze and Yellow rivers, whose river basins are the economic heart of China, home to over half a billion people.



Panda habitat rivals the highest biodiversity of any ecosystem in the world. It's also vitally important for other threatened and endangered species, including golden snub-nosed monkeys, takins, red pandas and snow leopards.

By protecting pandas we're helping conserve the wider environment, for the people and wildlife that depend on it.



Over the past five decades, our field work has helped bring several iconic animals back from the brink of extinction – including white and greater one-horned rhinos, certain populations of African elephants, mountain gorillas, giant pandas and tigers.

We've also achieved important policy changes – for instance: helping bring about the global moratorium on commercial whaling; improving controls for trade in threatened species such as tigers; and regulating trade in over used trees, like mahogany, and fish such as sturgeons (caught for caviar).

Our work hasn't just given a more certain future for specific wildlife, but has helped thousands more species by contributing to the conservation of all the diversity of life within their environments.

Our wildlife conservation efforts are also directly helping people, through improved livelihoods, food security, access to fresh water, incomes, and by strengthening communities, socially and politically.

The work we do is playing a part in at least five of the 17 UN Sustainable Development Goals, and contributing to poverty reduction in several parts of the world.

What are the steps taken for the Conservation of Wildlife?

Conservation of Wildlife is necessary to recognize the importance of nature and other wildlife species. It is important to protect the endangered plants and animal species along with their natural habitat. The main concern is to preserve the habitats so that the future generations of wildlife and even humans can enjoy it. This article deals with the steps required for the conservation of Wildlife.

Wildlife consists of flora and fauna, i.e. plants, animals and microorganisms which are not domesticated by humans. On the other hand Conservation is preserving and protecting Wild plants, animals and their habitats. Therefore, we can say that the Conservation of Wildlife is necessary to recognize the importance of nature and other wildlife species.

Conservation of Wildlife is important to protect the endangered plants and animal species along with their natural habitat. The main concern is to preserve the habitats so that the future generations of wildlife and even humans can enjoy it.

Killing of wild animals and birds on the large scale by man is a serious threat that wildlife is facing for its survival. This disturbs the food chain and also the ecosystem. We can understand better with the help of an example; snake as a wild animal is in great demand for making fancy leather goods so, snake skin sells at high at a high price in the market. To earn money easily some people kill snakes indiscriminately in large numbers. This killing of snakes disrupts the food chain and creates imbalance in the nature. *Do you know the snake is a friend of the farmer* as it eats vermin's like rats, mice which are pests and damage the crops?



So, it is very important to conserve wildlife to maintain the ecological balance in nature and also for preservation.

Steps to be taken for the Conservation of Wildlife are:

1. Some of the laws should be made to ban the killing or capturing of endangered animals or birds. It should be made a punishable offense. Such laws should be enforced strictly and should not remain on paper only.
2. Indiscriminate killing of wild birds and animals, whether are in abundance should not be allowed by the forest authorities.
3. The more number of National Parks and Sanctuaries should be established for preserving the natural habitats of wild animals and birds throughout the country.
4. The Department of Government should conduct a periodic survey in all the forests regarding the conservation of wildlife. They should have the knowledge about the population of all the species of wild animals and birds, so that they can be helped during the time of floods and famines.
5. Special attention should be paid even by us also to the conservation of endangered species of wild animals and birds to prevent their extinction altogether.
6. The unauthorized cutting of forest trees for timber and wood for fuel should be stopped immediately. Because depletion of forests destroys the natural habitat of wild animals and birds.
7. In case of the authorization of the Government for felling of trees for every acre of forest, then the equal area of land should be planted with sapling of trees to make up for the loss in the long run.
8. It is the duty of all of us also to plant trees near our surroundings and also to motivate others to do the same.
9. Breeding programs for endangered species should be organized.

Wildlife is a precious gift of God to this planet. The term 'wildlife' not only caters to wild animals but also takes into account all undomesticated lifeforms including birds, insects, plants, fungi and even microscopic organisms. For maintaining a healthy ecological balance on this earth, animals, plants and marine species are as important as humans. Each organism on this earth has a unique place in food chain that helps contribute to the ecosystem in its own special way.

But, sadly today, many of the animals and birds are getting endangered. The natural habitats of animals and plants are being destroyed for land development and farming by humans. Poaching and hunting of animals for fur, jewellery, meat and leather are other great factors contributing to wildlife extinction. If soon, no

stringent steps are taken to save wildlife, it would not be long when they will find a place only on the list of extinct species.

And that would not be all! The extinction of wildlife species will certainly have a fatal impact on human race as well. So, for us as humans, it becomes a great responsibility to save the wildlife, our planet and most importantly, our own selves.

Here are few more reasons that will provide you an in-depth understanding why wildlife plays such a significant role in maintaining an ecological equilibrium on earth:

- For a Healthy Eco-System
- For Their Medicinal Values
- For Agriculture and Farming
- For Healthy Environment
- For Preserving Rich Bio-Diversity
- For Recreation
- For Economic Value
- For Livelihood of Individuals
- For Aesthetical Value
- For Socio-Cultural Value



A huge number of plants and animal species are used to benefit humans in one way or the other. Many of the medicines such as aspirin, penicillin, quinine, morphine and vincristine have been derived from uncultivated plants. If we talk about the ancient medicinal system of Ayurveda, it has also been using extracts and juices from various plants and herbs to cure problems like blood pressure, diabetes and many other neurological problems since ages.

It's not only the plants which are useful, many of the extracts from animal species are rich in nutrients and anti-oxidants. For instance, the oil from liver of Cod fish is rich in Omega 3 and Omega 6 anti-oxidants that helps fight ageing, chemicals derived from shrimps and lobsters are used in treating fungal infections, venom of Cobra is used as a cure for leprosy and the list does not end here. Today, various

species of animals are also being studied and researched upon to find cures to deadly diseases like cancers, Alzheimer's and Parkinson's. If wildlife is not preserved today, there would soon be a time when human race would also be in great danger.



Human population largely depends on agricultural crops and plants for its food needs. Are you aware that wildlife plays a significant role in growth of these crops? If not, let's understand the concept. The fruits and vegetables that we get from plants are a result of a process called pollination, a reproduction system in plants wherein the pollen grains from male flower is transferred to the female flower, resulting in production of seeds.

Now, for the pollination to occur, birds, bees and insects, which are few of the tiniest species on this planet, play an important role. It is through these insects and birds that the pollens are transferred between flowers as they move from one flower to the other. The crop growth can be significantly affected if the pollen carrying birds and insects are reduced in numbers for whatsoever reason. You would be amazed to know that 90 percent of world's apple crop is dependent on honey-bee pollination.

Besides pollination, many birds also play an important role in controlling pests by feeding on them.

# **SCOTTISH CHURCH COLLEGE**

**C.U. Registration no. :- 223-1111-0630-20**

**C.U. Roll no. :- 202223-21-0085**

**College roll no. :- ENGA20M344**

**Department :- ENGLISH (HONOURS)**

**SEMESTER II**

**Tutorial topic :- Wildlife Conservation**

**Subject for tutorial :- AECC (ENVS)**



## **ACKNOWLEDGEMENT**

I would like to thank my subject teachers of AECC (ENVS) for giving me this golden opportunity to do a project on wildlife conservation which leads me to do a research and it also help me to gain a lot more information and I would also like to thank my friend and my family for guiding me and supported me in this project and help me to complete this project.

**Thanks again to all who supported**

## **CONTENTS**

- Introduction
- Topic
- Wildlife Conservation
- Threats to Wildlife
- Species Conservation
- Habitat Conservation
- Conservation Genetics
- Conservation Methods
- Government Involvement
- Non-Government Involvement
- Importance of Wildlife
- How can we conserve wildlife
- Conclusion
- Bibliography

## **INTRODUCTION**

Wildlife conservation is the practice of protecting plant and animal species and their habitats. As part of the world's ecosystems, wildlife provides balance and stability to nature's processes. The goal of wildlife conservation is to ensure the survival of these species, and to educate people on living sustainably with other species.

The human population has grown exponentially over the past 200 years, to more than seven billion people today, and it continues to rapidly grow. This means natural resources are being consumed faster than ever by the billions of people on the planet. This growth and development also endangers the habitats and existence of various types of wildlife around the world, particularly animals and plants that may be displaced for land development, or used for food or other human purposes. Other threats to wildlife include the introduction of invasive species from other parts of the world, climate change, pollution, hunting, fishing, and poaching.

National and international organizations like the World Wildlife Fund, Conservation International, the Wildlife Conservation Society, and the United Nations work to support global animal and habitat conservation efforts on many different fronts. They work with the government to establish and protect public lands, like national parks and wildlife refuges. They help write legislation, such as the Endangered Species Act (ESA) of 1973 in the United States, to protect various species. They work with law enforcement to prosecute wildlife crimes, like wildlife trafficking and illegal hunting (poaching). They also promote biodiversity to support the growing human population while preserving existing species and habitats.

National Geographic Explorers, like conservation biologists Camille Coudrat and Titus Adhola, are working to slow the extinction of global species and to protect global biodiversity and habitats. Environmental filmmakers and photographers, like Thomas P. Peschak, are essential to conservation efforts as well, documenting and bringing attention to endangered wildlife all over the world.

## **WILDLIFE CONSERVATION**

Wildlife conservation refers to the practice of protecting wild species and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. Major threats to wildlife include habitat destruction, degradation, fragmentation, overexploitation, poaching, pollution and climate change. The IUCN estimates that 27,000 species of the ones assessed are at risk for extinction. Expanding to all existing species, a 2019 UN report on biodiversity put this estimate even higher at a million species. It is also being acknowledged that an increasing number of ecosystems on Earth containing endangered species are disappearing. To address these issues, there have been both national and international governmental efforts to preserve Earth's wildlife. Prominent conservation agreements include the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the 1992 Convention on Biological Diversity (CBD). There are also numerous nongovernmental organizations (NGO's) dedicated to conservation such as the Nature Conservancy, World Wildlife Fund, and Conservation International.



Ankeny Wildlife Refuge in Oregon.

## **Threats to Wildlife**



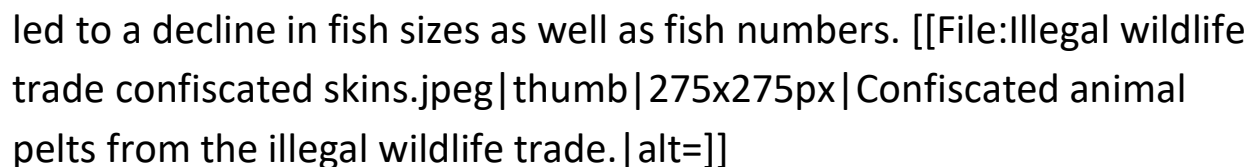
A forest burned for agriculture in southern Mexico.

## **Habitat Destruction**

Habitat destruction decreases the number of places wildlife can live in. Habitat fragmentation breaks up a continuous tract of habitat, often dividing large wildlife populations into several smaller ones. Human-caused habitat loss and fragmentation are primary drivers of species declines and extinctions. Key examples of human-induced habitat loss include deforestation, agricultural expansion, and urbanization. Habitat destruction and fragmentation can increase the vulnerability of wildlife populations by reducing the space and resources available to them and by increasing the likelihood of conflict with humans. Moreover, destruction and fragmentation create smaller habitats. Smaller habitats

support smaller populations, and smaller populations are more likely to go extinct.

### **Overexploitation**

Overexploitation is the harvesting of animals and plants at a rate that's faster than the species's ability to recover. While often associated with Overfishing, overexploitation can apply to many groups including mammals, birds, amphibians, reptiles, and plants. The danger of overexploitation is that if too many individuals of a species are taken, then the species may not recover. For example, overfishing of top marine predatory fish like tuna and salmon over the past century has led to a decline in fish sizes as well as fish numbers.  [[File:Illegal wildlife trade confiscated skins.jpeg|thumb|275x275px|Confiscated animal pelts from the illegal wildlife trade. |alt=]]

### **Poaching**

Poaching for illegal wildlife trading is a major threat to certain species, particularly endangered ones whose status makes them economically valuable. Such species include many large mammals like African elephants, tigers, and rhinoceros. [traded for their tusks, skins, and horns respectively]. Less well-known targets of poaching include the harvest of protected plants and animals for souvenirs, food, skins, pets, and more; Because poachers tend to target threatened and endangered species, poaching causes already small populations to decline even further.



## Culling

### **Main article: Culling**

Culling is the deliberate and selective killing of wildlife by governments for various purposes. An example of this is shark culling, in which “shark control” programs in Queensland and New South Wales (in Australia) have killed thousands of sharks, as well as turtles, dolphins, whales, and other marine life. The Queensland “shark control” program alone has killed about 50,000 sharks — it has also killed more than 84,000 marine animals. There are also examples of population culling in the United States, such as bison in Montana and swans, geese, and deer in New York and other places.



Aerial view of the BP Deepwater Horizon oil spill in 2010.

## **Pollution**

A wide range of pollutants negatively impact wildlife health. For some pollutants, simple exposure is enough to do damage (e.g. pesticides). For others, it's through inhaling (e.g. air pollutants) or ingesting it (e.g. toxic metals). Pollutants affect different species in different ways so a pollutant that is bad for one might not affect another.

**Air pollutants:** Most air pollutants come from burning fossil fuels and industrial emissions. These have direct and indirect effects on the health of wildlife and their ecosystems. For example, high levels of sulfur oxides (Sox) can damage plants and stunt their growth. Sulfur oxides also contribute to acid rain, harming both terrestrial and aquatic ecosystems. Other air pollutants like smog, ground-level ozone, and particulate matter decrease air quality.





**Heavy metals:** Heavy metals like arsenic, lead, and mercury naturally occur at low levels in the environment, but when ingested in high doses, can cause organ damage and cancer. How toxic they are depends on the exact metal, how much was ingested, and the animal that ingested it. Human activities such as mining, smelting, burning fossil fuels, and various industrial processes have contributed to the rise in heavy metal levels in the environment.

**Toxic chemicals:** There are many sources of toxic chemical pollution including industrial wastewater, oil spills, and pesticides. There's a wide range of toxic chemicals so there's also a wide range of negative health effects. For example, synthetic pesticides and certain industrial

chemicals are persistent organic pollutants. These pollutants are long-lived and can cause cancer, reproductive disorders, immune system problems, and nervous system problems.

## **Climate change**

### **Main article: Climate change**

Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It is related to some of the aforementioned threats to wildlife like habitat destruction and pollution. Rising temperatures, melting ice sheets, changes in precipitation patterns, severe droughts, more frequent heat waves, storm intensification, and rising sea levels are some of the effects of climate change. Phenomena like droughts, heatwaves, intense storms, and rising sea levels, directly lead to habitat destruction. Meanwhile, a warming climate, fluctuating precipitation, and changing weather patterns will impact species ranges. Overall, the effects of climate change increase stress on ecosystems, and species unable to cope with rapidly changing conditions will go extinct. While modern climate change is caused by humans, past climate change events occurred naturally and have led to extinctions.

## **Species Conservation**

It is estimated that, because of human activities, current species extinction rates are about 1000 times greater than the background extinction rate (the 'normal' extinction rate that occurs without additional influence). According to the IUCN, out of all species assessed, over 27,000 are at risk of extinction and should be under conservation. Of these, 25% are mammals, 14% are birds, and 40% are amphibians. However, because not all species have been assessed, these numbers could be even higher. A 2019 UN report assessing global biodiversity extrapolated

IUCN data to all species and estimated that 1 million species worldwide could face extinction. Yet, because resources are limited, sometimes it is not possible to give all species that need conservation due consideration. Deciding which species to conserve is a function of how close to extinction a species is, whether the species is crucial to the ecosystem it resides in, and how much we care about it.



Leatherback sea turtle (*Dermochelys coriacea*)

### **Leatherback sea Turtle**

The leatherback sea turtle (*Dermochelys coriacea*) is the largest turtle in the world, is the only turtle without a hard shell, and is endangered. It is found throughout the central Pacific and Atlantic Oceans but several of its populations are in decline across the globe (though not all). The leatherback sea turtle faces numerous threats including being caught as bycatch, harvest of its eggs, loss of nesting habitats, and marine pollution. In the US where the leatherback is listed under the Endangered Species Act, measures to protect it include reducing bycatch captures through fishing gear modifications, monitoring and protecting its habitat (both nesting beaches and in the ocean), and reducing damage from

marine pollution. There is currently an international effort to protect the leatherback sea turtle.

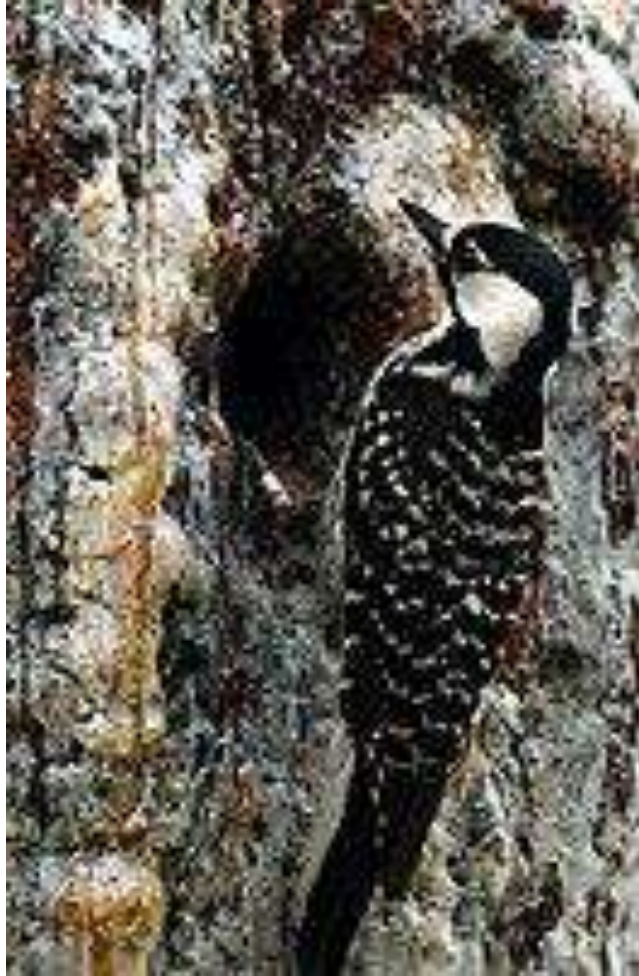
### **Habitat Conservation:-**

Habitat conservation is the practice of protecting a habitat in order to protect the species within it. This is sometimes preferable to focusing on a single species especially if the species in question has very specific habitat requirements or lives in a habitat with many other endangered species. The latter is often true of species living in biodiversity hotspots, which are areas of the world with an exceptionally high concentration of endemic species (species found nowhere else in the world). Many of these hotspots are in the tropics, mainly tropical forests like the Amazon. Habitat conservation is usually carried out by setting aside protected areas like national parks or nature reserves. Even when an area isn't made into a park or reserve, it can still be monitored and maintained.

### **Red-cockaded woodpecker**

#### **Main article: Red-cockaded woodpecker**

The red-cockaded woodpecker (*Picoides borealis*) is an endangered bird in the southeastern US. It only lives in longleaf pine savannas which are maintained by wildfires in mature pine forests. Today, it is a rare habitat (as fires have become rare and many pine forests have been cut down for agriculture) and is commonly found on land occupied by US military bases, where pine forests are kept for military training purposes and occasional bombings (also for training) set fires that maintain pine savannas. Woodpeckers live in tree cavities they excavate in the trunk. In an effort to increase woodpecker numbers, artificial cavities (essentially birdhouses planted within tree trunks) were installed to give woodpeckers a place to live. An active effort is made by the US military and workers to maintain this rare habitat used by red-cockaded woodpeckers.



Red tockaded woodpecker (*Picoides borealis*)

### **Conservation Genetics**

Conservation genetics studies genetic phenomena that impact the conservation of a species. Most conservation efforts focus on ensuring population growth but genetic diversity also greatly affect species survival. High genetic diversity increases survival because it means greater capacity to adapt to future environmental changes. Meanwhile, effects associated with low genetic diversity, such as inbreeding depression and loss of diversity from genetic drift, often decrease species survival by reducing the species' capacity to adapt or by increasing the frequency of genetic problems. Though not always the case, certain

species are under threat because they have very low genetic diversity. As such, the best conservation action would be to restore their genetic diversity.

## **Florida panther**

### **Main article: Florida panther**

The Florida panther is a subspecies of puma (specifically *Puma concolor coryi*) that resides in the state of Florida and is currently endangered. Historically, the Florida panther's range covered the entire southeastern US. In the early 1990s, only a single population with 20-25 individuals were left. The population had very low genetic diversity, was highly inbred, and suffered from several genetic issues including kinked tails, cardiac defects, and low fertility. In 1995, 8 female Texas pumas were introduced to the Florida population. The goal was to increase genetic diversity by introducing genes from a different, unrelated puma population. By 2007, the Florida panther population had tripled and offspring between Florida and Texas individuals had higher fertility and less genetic problems. In 2015, the US Fish and Wildlife Service estimated there were 230 adult Florida panthers and in 2017, there were signs that the population's range was expanding within Florida.



Florida panther (*Puma concolor coryi*)

## Wildlife population monitoring



Non-invasive monitoring of dhole is crucial for knowledge about its conservation status. More research is needed in Chinese wilderness.

Monitoring of wildlife populations is an important part of conservation because it allows managers to gather information about the status of threatened species and to measure the effectiveness of management strategies. Monitoring can be local, regional, or range-wide, and can include one or many distinct populations. Metrics commonly gathered during monitoring include population numbers, geographic distribution, and genetic diversity, although many other metrics may be used.

Monitoring methods can be categorized as either “direct” or “indirect”. Direct methods rely on directly seeing or hearing the animals, whereas indirect methods rely on “signs” that indicate the animals are present. For terrestrial vertebrates, common direct monitoring methods include direct observation, mark-recapture, transects, and variable plot surveys. Indirect methods include track stations, fecal counts, food removal, open or closed burrow-opening counts, burrow counts, runaway counts, knockdown cards, snow tracks, or responses to audio calls.

For large, terrestrial vertebrates, a popular method is to use camera traps for population estimation along with mark-recapture techniques. This method has been used successfully with tigers, black bears and numerous other species. Trail cameras can be triggered remotely and automatically via sound, infrared sensors, etc. Computer vision-based animal individual re-

identification methods have been developed to automate such sight-resight calculations. Mark-recapture methods are also used with genetic data from non-invasive hair or fecal samples. Such information can be analyzed independently or in conjunction with photographic methods to get a more complete picture of population viability.

## **Government Involvement:**

In the US, the Endangered Species Act of 1973 was passed to protect US species deemed in danger of extinction. The concern at the time was that the country was losing species that were scientifically, culturally, and educationally important. In the same year, the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) was passed as part of an international agreement to prevent the global trade of endangered wildlife. In 1980, the World Conservation Strategy was developed by the IUCN with help from the UN Environmental Programme, World Wildlife Fund, UN Food and Agricultural Organization, and UNESCO. Its purpose was to promote the conservation of living resources important to humans. In 1992, the Convention on Biological Diversity (CBD) was agreed on at the UN Conference on Environment and Development (often called the Rio Earth Summit) as an international accord to protect the Earth's biological resources and diversity.

According to the National Wildlife Federation, wildlife conservation in the US gets a majority of its funding through appropriations from the federal budget, annual federal and state grants, and financial efforts from programs such as the Conservation Reserve Program, Wetlands Reserve Program and Wildlife Habitat Incentives Program. A substantial amount of funding comes from the sale of hunting/fishing licenses, game tags, stamps, and excise taxes from the purchase of hunting equipment and ammunition.

## **Non-government involvement**

In the late 1980s, as the public became dissatisfied with government environmental conservation efforts, people began supporting private sector conservation efforts which included several non-governmental organizations (NGOs). Seeing this rise in support for NGOs, the U.S. Congress made amendments to the Foreign Assistance Act in 1979 and 1986 "earmarking U.S. Agency for International Development (USAID) funds for [biodiversity]". From 1990 till now, environmental conservation NGOs have become increasingly more focused on



the political and economic impact of USAID funds dispersed for preserving the environment and its natural resources. After the terrorist attacks on 9/11 and the start of former President Bush's War on Terror, maintaining and improving the quality of the environment and its natural resources became a "priority" to "prevent international tensions" according to the Legislation on Foreign Relations Through 2002 and section 117 of the 1961 Foreign Assistance Act.

## **Non-governmental organizations**

Many NGOs exist to actively promote, or be involved with, wildlife conservation:

The Nature Conservancy is a US charitable environmental organization that works to preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

World Wide Fund for Nature (WWF) is an international non-governmental organization working on the issues regarding the conservation, research and restoration of the environment, formerly named the World Wildlife Fund, which remains its official name in Canada and the United States. It is the world's largest independent conservation organization with over 5 million supporters worldwide, working in more than 90 countries, supporting around 1300[4] conservation and environmental projects around the world. It is a charity, with approximately 60% of its funding coming from voluntary donations by private individuals. 45% of the fund's income comes from the Netherlands, the United Kingdom and the United States.

Conservation International

Fauna and Flora International

WildTeam

Wildlife Conservation Society

Audubon Society

Traffic (conservation programme)

Born Free Foundation

African Wildlife Defence Force

Save Cambodia's Wildlife

WildEarth Guardians

## Importance of wildlife

Wildlife plays an important role in balancing the environment . Wildlife provides a stability to different processes of the nature . Wildlife and nature have been largely associated with humans for emotional and social reasons . The importance of wildlife can be categorized as ecological , economic and investigatory importance as well as conservation of biological diversities etc . Animals have also been highly useful to us in providing food , clothing and source of income . Our life is almost impossible without the support of wildlife .We are also a part of wildlife to make ecological balance on earth. It plays a very crucial role in our life .



### **1. Ecological importance**

Wildlife helps in maintaining the eco-logical balance of nature. Killing of carnivores leads to an increase in the number of herbivores which in turn affect the forest vegetation, thus due to lack of food in the forest they come out from the forest to agriculture land and destroy our crops. This makes us know that wildlife helps in maintaining ecological balance even by being predators of each other . Animals are great predators which is the major reason for ecological development . Therefore, once the equilibrium and stability is disturbed it leads to many problems .

### **2. Economic importance**

The wild life can be used to earn money. Wild plant products like food, medicine, timber, fibres, etc. are of economic value and the wild animal products such as meat, medicines, hide, ivory, lac, silk, etc. are of tremendous economic value. Wildlife provides us the raw and basic material to start any industry , factory etc for our earnings . Wildlife is also considered to be the one of the greatest factor for increase and better development of word trade and increase in national income. It also helps the farmers the most by providing a better way in ploughing and other techniques .Therefore, wildlife is of immense value to all in economic development . Since wildlife is the source of income to many they play a vital role in their life as the economic factor.

### **3. Investigatory importance**

Some wild organisms are used for scientific experiments such as to test effect of medicine. Generally monkey, chimpanzee, etc. are used for scientific experiments. Also animals like rats are first used to do experiments and test before trying them on humans because rats have somewhat same nature and body design that supports scientific experiments . No doubt wildlife supports scientific researches a lot .

### **4. Conservation of biological diversities**

By conserving wildlife, diversity in the environment can be conserved. According to some scientists an ecosystem with more diversity is more stable .



## 5. Importance in agriculture

Wild organisms are very important for modern agriculture. Importance of wildlife in agriculture field are as follows :

1. Production of new hybrid variety using wild plants .
2. Production of better hybrid variety of animals used for agriculture using wild animals.

3. New species of plants and animals can be produced by them .

Wildlife plays a very important role in agricultural development because animals like cows , buffaloes etc help in ploughing or tilling of soil etc . Also many microorganisms and small animals like reptiles etc also help in increasing the fertility of soil and providing a good base for agricultural activities .Micro Organism are said to be the friends of farmers for example earthworm loosens the soil and help in decomposition of dead remains and then add hums to the soil. This increases soil's fertility.

### **How can we conserve wildlife:-**



Elephants are just one of Africa's iconic species — and one of the world's most vulnerable.

There are more than 7 billion people on Earth. Imagine if every one of us committed to do one thing — no matter how small — to protect wildlife every day. Even minor actions can have a major impact when we all work together. Here are ways you can make a difference:



Philip recycles discarded and disinfected plastics into sheets through the organization Full Circle Africa.

### **1. Pitch In.**

Trash isn't just ugly, it's harmful. Birds can trap their heads in plastic rings. Fish can get stuck in nets. Plus, trash pollutes everyone's natural resources. Do your part by putting trash in its place and keeping your community clean.

### **2. Recycle.**

Find new ways to use things you already own. Manoh Philip Sesay, a YALI Network member in Sierra Leone, uses discarded plastics to create shopping bags, handbags and computer bags.

#### **4. Restore.**

Habitat destruction is the main threat to 85 percent of all threatened and endangered species, according to the International Union for Conservation of Nature. You can help reduce this threat by planting native trees or cleaning up beaches in your area.

#### **5. Join.**

Whether you're more interested in protecting natural habitats or preventing wildlife trafficking, find the organization that speaks to your passion. If such an organization doesn't exist in your community, create one!



Organizations such as Save the Rhino provide volunteer opportunities in Kenya, Uganda and Zimbabwe.

## 6. Volunteer

One way to support an organization is to donate your time. Many offer volunteer programs. You can help clean beaches, rescue wild animals or teach tourists about your local habitat.

## 7. Speak Up.

Share your passion for wildlife conservation with your family. Tell your friends how they can help. Ask everyone you know to do what they can to help conserve Africa's wildlife.

## Conclusion

From this above project work we came to about our most vulnerable things and about the wildlife and their nature of living in their own ecosystem. But we also saw that how humans are destroying our heavenly environment day by day and our earth's vulnerable species by hunting poaching , it is the main reason for the destruction of wildlife in our environment and we are not conserving our wildlife and our environment.

We also see that how humans are creating a threat to wildlife and their ecosystem and we also go through the importance of wildlife and also go through that how leatherback turtle are in the verge of existence and how we can help to conserve our wildlife and improve it day by day.

## BIBLIOGRAPHY

- [https://en.m.wikipedia.org/wiki/wildlife\\_conservation](https://en.m.wikipedia.org/wiki/wildlife_conservation)
- <https://www.nationalgeographic.org/encyclopedia/wildlife-conservation/>
- <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation>
- [Www.worldWildlife.org](http://www.worldWildlife.org)
- <https://yali.state.gov/conserves-wildlife/>
- <https://sites.google.com/gsbi.org/gvc1702/wildlife/india/importance-of-wildlife>

**THANK YOU**



