



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

WILDLIFE CONSERVATION

BY

DR. POULAMI ADHIKARY MUKHERJEE
ASSISTANT PROFESSOR
DEPARTMENT OF ZOOLOGY
NARAJOLE RAJ COLLEGE

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Wildlife Conservation:

Wildlife conservation refers to the practice of protecting wild species (plant and animal species) and their habitats in order to maintain healthy wildlife species or populations and to restore, protect or enhance natural ecosystems. 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. It is achieved partially through legislation such as the



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Endangered Species Act, the establishment and protection of public lands, and responsible public practices that conserve wild animal populations.

Importance of Wildlife Conservation:

A few reasons stating the importance of wildlife conservation:

- **Important for their medicinal values:** More than one-third of our pharmaceutical needs are catered by wild plants.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Forests provide great scope for breakthroughs in the field of medical science and technology along with the requirements for the large-scale manufacture of antibiotics and other medicines for therapeutic uses.

- **Helps keep our environment healthy:** They are responsible for maintaining temperatures globally, thereby fighting against the greenhouse effect and in turn preventing the sea levels to rise sharply.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

- **Important to maintain ecological balance:** The interdependence of plants and animals is very essential.
- **Economical importance:** Fossil fuels obtained from forests help in the economic growth of the country, which in turn contributes towards a better standard of living.
- **Helps preserve biodiversity:** There are thousands of species that take shelter in these huge forests.
- Microorganisms in wildlife take part in nitrogen fixation, thus, bringing about an increase in the levels of soil fertility.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Purpose of Wildlife Conservation:

As the human population increases, more and more lands are brought under its control and, as a result, the amount of natural vegetation has diminished considerably and so also the habitat of various species. The vast expanses of tropical forest and its inhabiting species have become increasingly threatened in the last few decades. Even in the oceans, fishing is so intensive that populations are diminishing rapidly. We have become too efficient as predators.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

Sometimes we hunt species for luxury items! For example, the elephants for their tusk, the rhinoceroses for their horns etc. Sometimes we capture exotic species such as various birds, coral reef fishes etc. for the pet trade. Thus, we have become a species which is no longer in co-evolved balance with its environment.

Aldo Leopold (1943) has rightly said that wildlife had once fed us and shaded our culture; it had provided us pleasure for leisure hours. It has now become essential that we support the active

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

conservation of wildlife for reasons which reflect the different facets of our relationship with the natural world.

Conservation of wildlife is essential as it serves the following purposes:

A. The Role in Ecology:

Wildlife plays a vital role in ecological balance. The autecology of rare or threatened species, the synecology of communities and the role of the abiotic environment in ecosystems are all relevant to conservation. Wildlife is the integral part of any ecosystem.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

It maintains a balance in nature through biogeochemical cycles, food chains, population control by positive and negative feedbacks. If a species is lost, the natural balance of the ecosystem is lost and unfavourable incidences result.

This can be explained through the following examples:

1. If the herbivore animals reduce drastically or falls short in number, the carnivore animals (tiger, lion, leopard, wolf etc.) would then enter human settlements and attack human beings or its domesticated animals.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

2. If the carnivores decrease in number, then the population of herbivores would flourish which will eat up most of the vegetation or will attack the crop or vegetables cultivated by people.

Thus, through prey and predator chain natural balance is maintained. Destruction at any point of the food chain would endanger human civilisation.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

3. Birds provide a number of services to mankind. It acts as a pollinating agent, fruit disperser, scavenger, insect pest-eater etc. So, killing of birds or destruction of their habitat would result in innumerable loss to mankind.

4. Over-fishing has resulted in decline of net population. Fishing in North Atlantic has rendered the herrings, cods, haddocks etc. to the brink of extinction. Over-fishing has a wider implication, particularly the devastation wrought on oceanic food chain. One such example is the massive death of sea birds due to starvation.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

B. Economic Value:

Wildlife has a high economic value and is an important natural wealth. It has to be carefully conserved and, if scientifically exploited, can help in improving the national economy.

The economic values of wildlife are:

1. From wildlife we can obtain various products for our daily life use such as timber, firewood, natural rubber, gums, resins, tannins,



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

essential oils, spices, silk, lac, honey, feathers, musk, ivory, wool, egg, meat, milk etc.

2. Wildlife is a source of income for tourism industry. The most popular tourist attractions are the wildlife sanctuaries and national parks. It also attracts foreign tourists and earning of foreign exchange. The zoological gardens and botanical gardens are also sources of earning.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

3. Trade in live as well as dead animals not only serves to support thousands of people but also to earn foreign exchange. White tigers and other rare animals can fetch handsome foreign exchange. The rhino horn, ivory of elephants, glands of musk deer, antler of deers etc. all fetches high prices.

People of South America, Far East Asia and others eat the brain and meat of rare breeds of monkeys with an assumption that it cures



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

insane people and gives vitality. People in South India kill peacocks for meat and to extract oil for medicinal value.

Fat of tiger, Rhino's urine, Uromastix oil are used as cure for rheumatoid arthritis, gout, purification of blood and for increasing sexual powers. The people of China uses all the parts of the body of tiger in dried or powdered form for medicinal uses as given in Table given below:

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Table : The various organs of a tiger, in dried or powdered form, used for various medicinal value

| Organs of tiger | Uses |
|------------------------|---------------------------------------|
| 1. Nose | For epilepsy and convulsions |
| 2. Teeth | For rabies, asthma and sore in penis |
| 3. Whiskers | For toothache |
| 4. Hair | For driving away pests |
| 5. Skin | For mental illness |
| 6. Flesh | For nausea, malaria, vitality |
| 7. Fat | For vomiting |
| 8. Blood | For strong body and mind |
| 9. Tail | For skin disease |
| 10. Stomach | For stomach ache and better digestion |
| 11. Gall bladder | For healthy eyes |
| 12. Eyeballs | For epilepsy, nervousness, convulsion |
| 13. Brain | For laziness |
| 14. Testes | For tuberculosis |



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

4. Many plants have medicinal values, such as quinine is obtained from Cinchona, morphine from opium, and so on.
5. From the skeleton of shrimps and crabs, a chemical is obtained which serve in prevention of fungal infection.

C. Genetic Resource:

Genes from wild plants and animals are used to help in breeding better crop varieties through genetic engineering. Thus, wildlife is an important source of characteristics like disease resistance, higher production, higher ecological amplitude etc.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

D. Education:

Zoological garden, botanical garden, national park etc. provide education to school and college students.

E. Game Value:

Wildlife serves as game where millions of people spend billions of dollars in hunting or fishing or in recreation through bull fight, cock fight etc.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

F. Cultural Value:

Many mythological stories are based on wildlife. The various deities of Hindu mythology are associated with some animal or the other.

G. Aesthetic Value:

Wildlife is also important from the view-point of its aesthetic value for man. Such as the taste of wild berries, softness of moss bed, refreshing fragrance of wild flowers, melodious song of birds etc. —



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

all add to the pleasure and happiness of mankind. The forest would appear bleak and bare without wildlife.

H. Scientific Value:

Many wildlife have scientific values for humans.

For examples:

1. Sea urchin has helped greatly in the understanding of human embryology, Rhesus monkeys in present knowledge of human blood group, antlers of deer in determining the degree of radioactive



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

contamination of natural environment, a desert toad in early determination of pregnancy etc.

2. Many animals such as monkey, guinea pig, rat etc. are commonly used as experimental animal in medical research.

3. For preparing vaccine for leprosy, Nine-banded Armadillo is used as the bacterium of leprosy easily grows in its body.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Threats to wildlife conservation:

A. 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



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

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.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

B. 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



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

the past century has led to a decline in fish sizes as well as fish numbers.

C. 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



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

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.

D. Culling:

Culling is the deliberate and selective killing of wildlife by governments for various purposes.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

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.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

E. 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.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

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_x) 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.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

+ **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.[16] 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.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

+ **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.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

F. Climate change:

Humans are responsible for present-day climate change currently changing Earth's environmental conditions. It's 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.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

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.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Methods of Wildlife Conservation:

The number of endangered species of flora and fauna has increased over the years. Steps have been taken to protect and manage the wildlife of the country at state and central levels.

Various governmental and non-governmental organisations have taken up the cause to protect and conserve wildlife by the following ways:



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

1. Protection of natural habitats,
2. Maintenance of the viable number of species in protected areas,
3. Establishment of Biosphere Reserves,
4. Protection through legislation,
5. Imposing restriction on export of rare plant and animal species and their products,
6. Improving the existing conditions of protected areas,



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

7. Mass education,

8. To declare some animals, trees, flowers as national and state symbol.

A. Protection of Natural Habitat:

Wildlife habitats are not stable. Changes occurring in habitats are mainly due to biotic succession, retrogression or to rather sudden natural or man-caused disturbances such as by fire, logging or lagging, flooding, con-struction work, pollution etc. These changes alter food, cover and other habitat resources for all wildlife species.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

Much wildlife habitat management is, therefore, the management of succession, retrogression, and disturbance. Protection of the wildlife habitat can be done through ex-situ and in-situ conservation by establishing National Parks, Sanctuaries, and Reserve Forests etc. These networks of protected areas cover most of the representative habitat types in the country and provide protection to both wild species of plants and animals. These protected networks (National Parks, Sanctuaries etc.) have been set up within the legal framework of Wildlife (Protection) Act, 1972, thus providing the greatly needed legal support to these areas.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

B. Protection Through Legislation:

Various countries of the world have formed various laws to forbid killing of wildlife. In India, the legislative measures adopted for the protection of wildlife are:

(a) Directive Principles of State Policy:

The Indian Constitution's Directive Principles of State Policy provides in clear and unambiguous terms the State's commitment to protecting the environment. Article 48A of the Directive



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

Principles states: “The State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country”.

The Article 51A of Indian Constitution states: “It shall be the fundamental duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures”. The Constitution’s



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

73rd Amendment Act of 1992 on Panchayats is also linked to environmental protection and conservation.

(b) Inclusion of forests and wildlife in concurrent list:

In the Indian Constitution's 42nd Amendment (1976), forests and wild-life have been included in the Concurrent List. This provision has led the Central Government in not only controlling protection and preservation of wildlife but also in acquiring certain forests and



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

wildlife sanctuaries of national importance, under the powers of acquisition of property.

(c) Acts to Protect Wildlife:

For the protection of wild animals and the endangered species in particular, the state as well as the Central Government has made from time to time several Acts.

Some of these Acts are:



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

1. Madras Wild Elephant Preservation Act, 1873.
2. All India Elephant Preservation Act, 1879.
3. Wild Birds and Animals Preservation Act, 1912.
4. Bengal Rhinoceros Preservation Act, 1932.
5. Bombay Wild Animals and Wild Birds Protection Act, 1951.
6. Assam Rhinoceros Protection Act, 1954.
7. Indian Wildlife (Protection) Act, 1972 (as amended in 1983, 1986, 1991, etc.)

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

8. The Government banned the exhibition and training of bears, monkeys, tigers, panthers and lions in 1998.

The Wildlife (Protection) Act, 1972, affords special legal measures for the protection of wild animals in general and in particular to the endangered species. The Act is adopted by all states except Jammu and Kashmir (it has its own Act). The Wildlife (Protection) Act has provision for setting up of National Parks and Sanctuaries, regulation of trade and commerce in wild animals, animal products and trophies etc.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

It also lays down regulations for declaration of stocks, issue of ownership certificates, transfer of animals etc. from one state to another and from one owner to another, issue of licences for conducting trade, penal measures for violation, punishment to poachers etc.

The provisions of the Act have been amended from time to time. A major amend-ment came into force on 2nd October 1991. It provides for greater protection to wildlife and more stringent

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

punishment for viola-tions, enabling individuals to take instances of violation of the Act directly to the court.

There are five schedules under the Wild-life (Protection) Act where wild mammals, birds, reptiles and amphibians are given specific status. The animals listed in these schedules are rare and endangered species and are provided with rigid protection under the legislation. The hunting of these animals are restricted more than ever before and strict control measures are imposed.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

Schedule I: It includes 41 rare and threatened species of mammals, 18 species of birds and 2 species of amphibians.

Schedule II: The animals included here enjoy special game status.

Schedule III: It includes big game (wild) animals.

Schedule IV: Small game (wild) animals are included here.

Schedule V: It includes vermin (wild animals).



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

(d) Convention on International Trade in Endangered Species (CITES):

CITES came into effect in 1975 and aims at preventing international trade in wild flora and fauna. There is great demand of the products of wild animals, such as musk pods of musk deer, horns of rhinoceros, skin of crocodile, tusks of elephant, skin of large wild animals and snakes etc., which fetch good money at the international market. Keeping in view of such illegal trade of



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

endangered species, India became a signatory to the International Convention of Trade in Endangered Species.

Among the species listed in the Appendices, the Appendix I has species threatened with extinction through trade. Appendix II lists species that may become threatened with extinction if trade involving them is not regulated. Under the convention, the countries party to it cannot import or export the species listed in the CITES without proper licence.

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

The signatories of CITES have unani-mously agreed:

1. That wild fauna and flora in their many beautiful and varied forms are an irre-placeable part of the natural systems of the earth.
2. That they are conscious of the ever--growing value of wild fauna and flora from aesthetic, scientific, cultural, recrea-tional and economic points of view.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

3. That people and states are, and should be, the best protectors of their own wild fauna and flora.

4. That international cooperation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade.

5. That there is an urgency of taking appropriate measures to this end.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

C. Mass Education:

Conservation education and awareness have to be achieved both at the formal and non-formal level. Most people of a country are ignorant about the utility of wildlife.

Thus, the following measures for mass education should be undertaken:



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

1. At the formal level schools, colleges and universities should include in the curriculum, the study of ecology, wildlife and conservation. However, this remains largely text book and examination oriented.

2. The creation of awareness and right attitude towards the environment and how everyone can contribute to conservation efforts.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

3. Mass media such as newspapers and magazines, radio and television, national parks and sanctuaries, zoological parks and natural history museums can play an important role in promoting conservation awareness among the public.

4. Cinematography on wildlife and the necessity for conservation should be screened even to the remotest villages and to all classes of students, so that they develop love and affection towards wildlife.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

5. Institutions specially devoted to import training in wildlife conservation was established by the Government of India in 1982.

D. Maintenance of Viable Species in Protected Areas:

A particular species of animal which is rare is given importance for conservation in a protected area. For example, Gir Forest at Gujarat conserves lions, Kaziranga (Assam), Jaldapara (W. Bengal) conserve one-horned rhinoceros etc.



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

E. To Declare Some Animals, Trees, Flowers as National and State Symbol:

A list of some animals and plants have been prepared with the help of Botanical Survey of India (BSI), Zoological Survey of India (ZSI), National Bureau of Plant Genetic Resources (NBPGR) and NBRI allotting 4 species to each of the 27 states/and to India.

This allotment is based on criteria such as nativity/endemicity, general importance etc. The states will have to take legislative



COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE

measures to declare them so and make it obligatory on their part to take practical steps for their conservation.

Thus, wildlife can be conserved by:

- Developing protective areas such as national parks, wildlife sanctuaries to protect the animals in their natural habitat.

- The endangered and vulnerable species can be kept in captivity in places such as zoos and bred to increase their population.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

- The cutting of forests should be strictly prohibited. It is an abode of a variety of wild animals.
- Hunting of wild animals should be banned.



**COMPILED AND CIRCULATED BY DR. POULAMI ADHIKARY MUKHERJEE, ASSISTANT
PROFESSOR, DEPARTMENT OF ZOOLOGY, NARAJOLE RAJ COLLEGE**

THANK YOU

ZOOLOGY: SEM- I, PAPER- C2T: ECOLOGY, UNIT 5: APPLIED ECOLOGY