



QUICK REVISION MODULE
[UPSC PRELIMS 2021] **ENVIRONMENT**

Policy and Constitutional Measures for Conservation of
BIODIVERSITY & SPECIES
Specific Initiatives

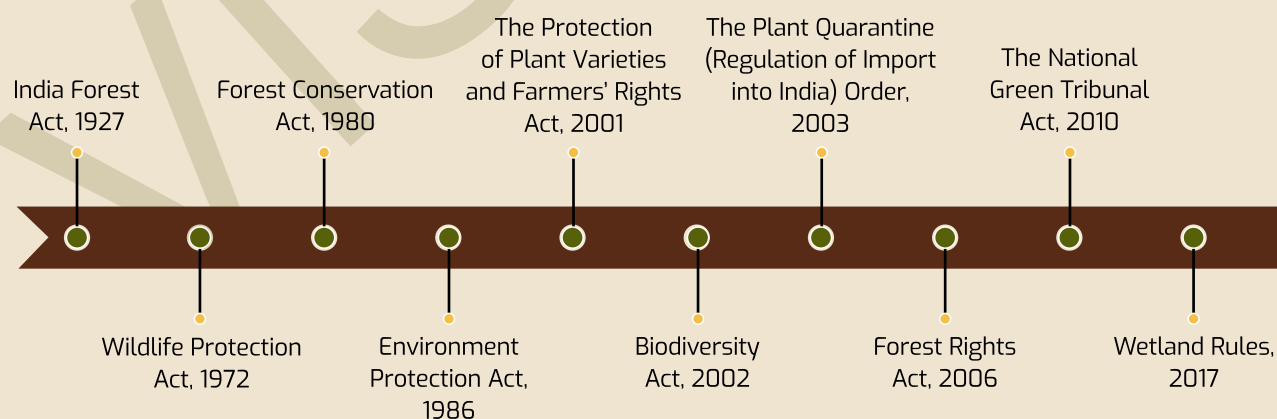
Policy Framework in India

Policy	Key Features
National Forest Policy (NFP), 1988	<p><u>Goals</u></p> <ul style="list-style-type: none">▶ Ensure environmental stability and maintain ecological balance.▶ Maintain atmospheric equilibrium vital for sustenance of all lifeforms – human, animal and plant.▶ Allow derivation of direct economic benefits but without disturbing above goals.▶ Bring 33% of the geographical area of the country under Forest/Tree Cover (FTC). <p>A new draft NFP is Under consideration at present with greater emphasis on:</p> <ul style="list-style-type: none">▶ Conservation,▶ Rehabilitation of degraded forests, and▶ Greater involvement of local and traditional communities and women in conservation and management.



National Environmental Policy (NEP), 2006	<p>Overall Goals:</p> <ul style="list-style-type: none">➤ Creating consolidated and coherent guidelines for all sectoral policies by outlining broad goals and parameters.➤ Ensuring integration of environmental concerns in all development planning and programmes.➤ Encouraging partnerships of different stakeholders such as public agencies, local communities, academic and scientific institutions, etc.➤ Securing required synergy in all environment related issues and actions. <p>Specific elements pertaining to biodiversity:</p> <ul style="list-style-type: none">➤ Creation of education and awareness for conservation & sustainable use of biodiversity with the involvement of people (especially traditional communities, the disadvantaged & the poor).➤ Integration of biodiversity values in all awareness building measures.➤ Ensuring that people dependent on particular resources obtain better livelihoods from conservation than from degradation of the resources.➤ Mutually beneficial multi-stakeholder partnerships between local communities, gender agencies, the academic and research community, investors and multilateral and bilateral development partners.➤ Identification and conservation of Eco Sensitive Zones with adequate participation of the local communities.
National Agroforestry Policy, 2014	<p>The policy promotes tree plantation in complementarity with crops and livestock to:</p> <ul style="list-style-type: none">➤ improve productivity, employment, incomes and livelihoods of rural households,➤ achieve efficient nutrient cycling and organic matter addition for sustainable agriculture,➤ expand vegetation cover,➤ increase FTC, and➤ contribute to conserving natural resources and forests by meeting demand for timber, food, fuel, fodder and other agroforestry products.
National Policy on Marine Fisheries, 2017	<p>Goals:</p> <ul style="list-style-type: none">➤ Sustainable development of fisheries for socio-economic upliftment of fishers.➤ Management of fisheries on the principle of subsidiarity and partnership and gender justice.➤ Harvesting and management based on precautionary approach to secure intergenerational equity.➤ Application of "Public trust doctrine in management while keeping fishers at the core".➤ Mainstreaming biodiversity conservation in harvesting and production processes and management plans by adopting ecosystem approach to management.➤ Mainstreaming conservation of Ecologically and Biologically Significant Areas (EBSAs) and Vulnerable Marine Ecosystems (VMEs), Protection of iconic and endangered and threatened species.➤ Harmonising conservation and tenurial rights of the traditional fishermen.➤ Blending Traditional Knowledge with science on the principles of sound business and effective engagement.

Legislative Framework in India



Constitutional Provisions

- **Article 48A** (added by 42nd Amendment in 1976): Directs the State to protect and improve the environment and safeguard wildlife and forests.
- **Article 51A:** Protecting and improving the natural environment including forests, lakes, rivers, and wildlife and having compassion for living creatures imposed as one of the **Fundamental duties** of the people of India.



Environment Protection Act (EPA), 1986

- ▶ Enacted by the Union government under Article 253 of the Constitution after the Bhopal gas Tragedy.
- ▶ Acts as an **"umbrella" legislation** designed to provide a framework for central government coordination of the activities of various central and state authorities established under previous laws, such as the Water Act and the Air Act.

Objectives

- ▶ Implementation of the decisions made at **Stockholm during the United Nation Conference on the Human Environment, 1972.**
- ▶ Creation of a **Government protection authority.**
- ▶ **Coordination of activities of different agencies** which are operating under the existing laws.
- ▶ **Enacting regular laws** for environmental protection.
- ▶ **Providing punishment** to those promoting endangerment to the human environment, safety and health.
- ▶ **Sustainable development** of the environment.
- ▶ **Protection of life under Article 21** of the Indian Constitution.

Authorizes the central government to-

- ▶ **Protect and improve environmental quality,** control and reduce pollution from all sources.
- ▶ **Prohibit or restrict the setting and /or operation of any industrial facility** on environmental grounds.
- ▶ **Establish authorities charged with the mandate of preventing environmental pollution** in all its forms and to tackle specific environmental problems that are peculiar to different parts of the country.

Rules/ Notifications under the EPA



Coastal Regulation Zone Notification (CRZN), 2019: Declares coastal stretches as Coastal Regulation Zone (CRZ) to regulate industrial and other activities in CRZ.



Environment (Protection) Rules: Lays down procedures for setting standards of emission or discharge of environmental pollutants.



Hazardous Waste (Management and Handling) Rules, 1989: To control the generation, collection, treatment, import, storage, and handling of hazardous waste.



Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989: Define the terms used in this context, and sets up an authority to inspect, once a year, the industrial activity connected with hazardous chemicals and isolated storage facilities.



Manufacture, Use, Import, Export, and Storage of hazardous Micro-organisms/Genetically Engineered Organisms or Cells Rules, 1989: To protect the environment, nature, and health, in connection with the application of gene technology and micro-organisms.

Wildlife Protection Act (WPA), 1972

Implementing Agencies:

- ▶ **Central Level:** Wildlife division in the Directorate General of Forests in MoEFCC.
- ▶ **State Level:** State wildlife departments and their subordinate offices at field level.

Key Provisions:

- ▶ Provides for **formation of wildlife advisory boards, wildlife wardens** and specifies their powers and duties, etc.
- ▶ **Empowers the State to declare protected areas,** under four categories- National Parks, Wildlife Sanctuaries, Community Reserves and Conservation Reserves.
- ▶ **Prohibits the hunting of endangered species.**
- ▶ Scheduled animals are prohibited from being traded.
- ▶ **Provides for licenses for the sale, transfer, and possession** of some wildlife species.
- ▶ **Created six schedules** which gave varying degrees of protection to classes of flora & fauna.

Important Bodies established under the Act

National Board for Wildlife

- ▶ **An advisory board,** chaired by the Prime Minister, that offers advice to the central government on issues of wildlife conservation in India.
- ▶ Acts as the **apex body to review and approve all matters related to wildlife,** projects of national parks, sanctuaries, etc.

National Tiger Conservation Authority

- ▶ **Mandate:** To strengthen tiger conservation in India.
- ▶ Gives statutory authority to Project Tiger which launched in 1973.

Central Zoo Authority

- ▶ Central body, established in 1992, responsible for the oversight of zoos in India.

Salient Features



Schedules of the Wildlife Protection Act

Schedule I Species

- Covers **endangered species**.
- **Accorded Absolute protection**.
- **Harshest penalties** prescribed for violation of the law.
- **Prohibited to be hunted throughout India**, except under threat to human life.
- Their **Trade is prohibited**.
- **Examples:** Tiger, Blackbuck, Himalayan Brown Bear, Brow-Antlered Deer, Blue whale, Common Dolphin, Cheetah, Clouded Leopard, Hornbills, Indian Gazelle, etc.

Schedule II Species

- Accorded **high protection**.
- **Cannot be hunted** except under threat to human life.
- Their **Trade is prohibited**.
- **Examples:** Kohinoor (insect), Assamese Macaque, Bengal Hanuman langur, Large Indian Civet, Indian Fox, Larger Kashmir Flying Squirrel, Kashmir Fox, etc.

Schedule III & IV Species

- Protected Species that are **not endangered**.
- **Penalty for any violation is less compared** to the schedules I & II.
- **Examples:** Hyena, Himalayan rat, Porcupine, Flying fox, Malabar tree toad, etc.

Schedule V Species

- Animals that can be hunted.
- **Examples:** Mice, Rat, Common crow, Fruit bats, etc.

Schedule VI Species

- Plants forbidden from cultivation.
- **Examples:** Pitcher plant, Blue vanda, Red vanda, Kuth, etc.

Biodiversity Act (BA), 2002

Aim

- To protect and conserve the biological diversity, control the utilization of resources, and maintain equality in the distribution of its resources and benefits arising from it.
- To uphold the objectives put forth by the United Nations **Convention on Biological Diversity (CBD)** 1992, giving immense importance to the rights of a state over its resources.

Obligations of the Central Government under the act

- **Develop national strategies, plans and programmes** for conservation and sustainable use of biological diversity.
- **Institute measures to identify and monitor areas rich in biological resources.**
- **Promote in situ and ex situ conservation** of biological resources.
- **Create incentives for research, training and public education** to increase awareness about biodiversity.
- Integrate the conservation, promotion and sustainable use of biodiversity into relevant sectoral, cross sectoral plans, programmes and policies.
- **Protect the traditional knowledge holders and their knowledge.**
- Take measures **to assess and further prevent/diminish the harmful effects of upcoming projects** on biodiversity.
- **Notify state governments to prevent threats** faced by any areas rich in biological diversity or such resources.

Important Provisions

- Notifying species which are on the verge of extinction, or likely to become extinct in near future as threatened species.
- Rehabilitation of such species promoting Research & Development (R&D) and other necessary actions.
- Chronicling of knowledge related to biological resources at the local level.
- **Three tier architecture** for its implementation at national, state and the local levels.

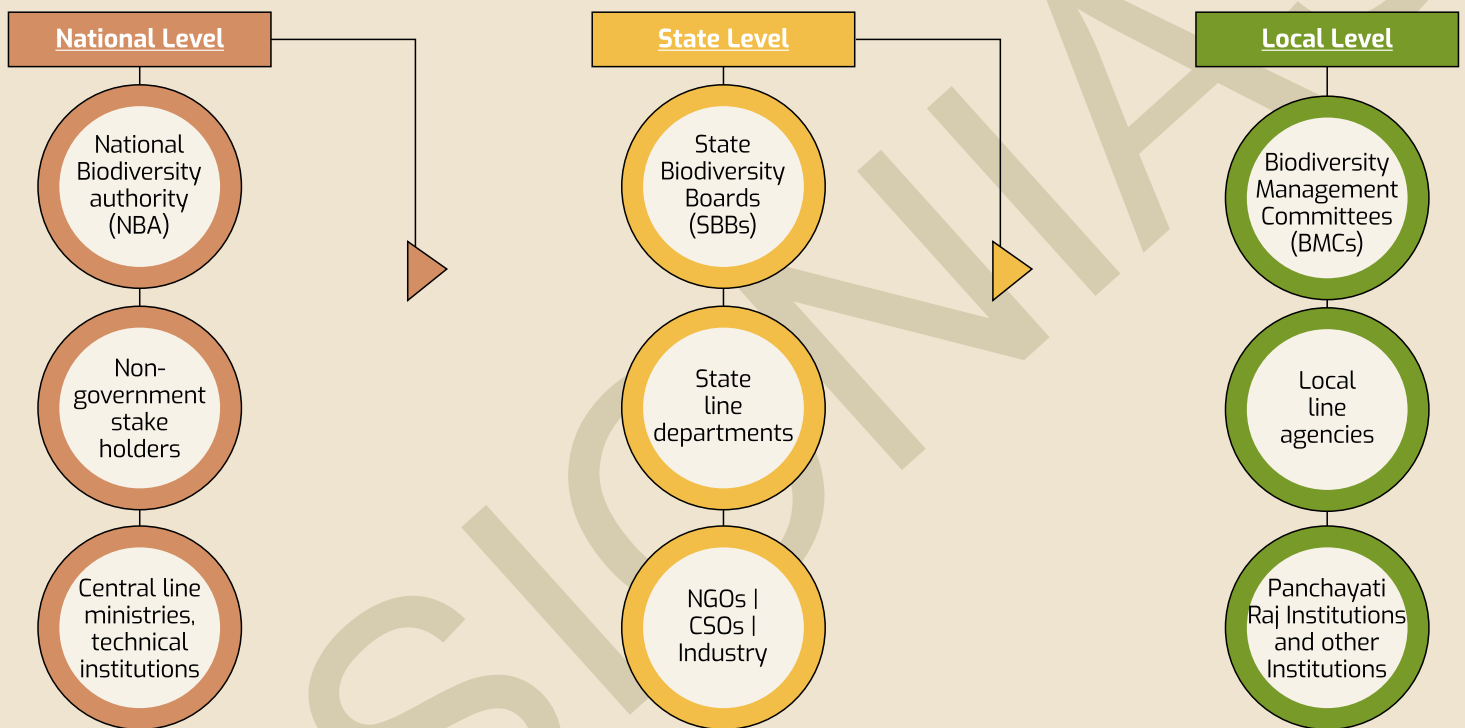


Conditionalities and modalities

- Conditionalities and modalities for seeking prior approvals for undertaking certain activities such as- **Research, biosurvey and bioutilisation, and commercial utilisation, granting access to biological resources and associated knowledge** for various purposes so as to ensure fair and equitable sharing of benefits from use of biological resources and associated knowledge.
 - All foreign national require approval from NBA for obtaining Biological Resources.
 - Indian individuals/entities to seek approval before transferring knowledge / research and material to foreigners.
 - **Prior approval of NBA before applying for any kind of IPR based on research conducted on biological material** and or associated knowledge obtained from India.
 - Indians required to provide prior intimation to SBBs for obtaining biological material for commercial purposes.
 - Growers and cultivators of Biological Diversity and vaidas and hakims who are practicing Indian system of medicines and local people exempted.

* SBBs are not constituted for Union Territories (UTs). NBA exercises the powers and perform the functions of a SBB for the UT.

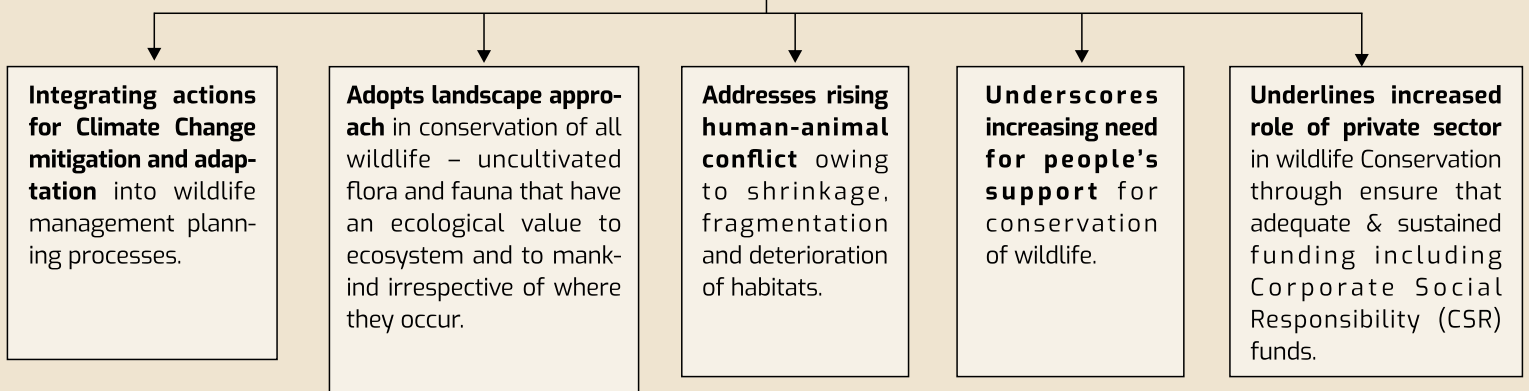
Implementation Architecture for Biodiversity Act



National Wildlife Action Plan 2017-31

- The **third National Wildlife Action Plan** for 2017-2031 (first- 1983 to 2001 and second- 2002 to 2016) to chalk out future road map for wildlife conservation.
- Unveiled at the Global Wildlife Programme (GWP) conference by Union Ministry of Environment, Forests and Climate Change (MoEFCC).
- Drafted by a committee chaired by JC Kala.

Key Focus Areas





Other Legislations

Acts	Key Provisions and other details
India Forest Act, 1927	<ul style="list-style-type: none">➤ Criteria and modalities for reserving and designating forests for conservation and legal protection,➤ Management of forest produce, and➤ Issues regarding transit of the forest produce and the fees and duties leviable on this produce. Implementing agencies: Directorate General of Forests in the MoEFCC at the central level, state forest departments and their subordinate agencies at lower administrative levels.
Forest Conservation Act, 1980	Governs matters relating to diversion of forest land for any non-forest purpose . The diversion of forest is made subject to: <ul style="list-style-type: none">➤ Stringent scrutiny, and➤ Recovery of net present value (NPV) and compensatory afforestation equal to the area diverted.
The Protection of Plant Varieties and Farmers' Rights (PPVFR) Act, 2001	Establishes an effective system for: <ul style="list-style-type: none">➤ Protection of plant varieties,➤ Recognition of varieties traditionally cultivated and evolved by farmers in their fields,➤ Recognition of wild relatives or landraces of a variety about which the farmers possess the common knowledge,➤ Farmers' and plant breeders' rights including rights in respect of their contributions made at any time in conserving, improving and making plant genetic resources available for the development of new plant varieties, and➤ Encouragement to development of new varieties of plants. Implemented by: PPVFR Authority set up under the Act.
The Plant Quarantine (Regulation of Import into India) Order, 2003	<ul style="list-style-type: none">➤ Notified under the Destructive Insects and Pests Act, 1914,➤ Aim: Preventing introduction of: exotic pests, diseases, and weeds likely to get introduced through import of agricultural commodities or plants/ materials into India.➤ Implemented through: 59 Plant Quarantine Stations (PQs) located in various states.
The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (Forest Rights Act, 2006)	Recognizes and vests the forest rights and occupation in forest land in the forest dwelling Scheduled Tribes and other traditional forest dwellers , who had been residing in such forests for generations but whose rights could not be recorded in the past. Aim: To balance these rights with the responsibilities for sustainable use, conservation of biodiversity and maintenance of ecological balance so that forests are conserved while ensuring the livelihood and food security of the forest dwelling Scheduled Tribes and other traditional forest dwellers. Types of rights recognized under that the Act <ul style="list-style-type: none">➤ Right of access to biodiversity➤ Community Right to intellectual property and TK related to biodiversity and cultural diversity
The National Green Tribunal Act, 2010	Establishes a National Green Tribunal (NGT) for effective and expeditious disposal of cases relating to environmental protection, conservation of forests and other natural resources.
Wetland Rules, 2017	<ul style="list-style-type: none">➤ Succeeded the Wetland (Conservation and Management) Rules, 2010.➤ Aim: Conservation and wise use of wetlands.➤ States responsible for conserving and sustainably managing wetlands.
Other biodiversity relevant legislations	<ul style="list-style-type: none">➤ Mineral Conservation and Development Rules (MCDR), 2017➤ The Energy Conservation Act, 2001➤ Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA Act)➤ The Patents Act, 1970➤ Mahatma Gandhi National Rural Employment Guarantee Act, 2005 (MGNREGA)





Institutions

Statutory Bodies

National Green Tribunal (NGT)



- ▶ Guided by principles of natural justice.
- ▶ Principles applied to pass orders: **Principle of sustainable development**, the **precautionary principle** and the **polluter pays principle**.
- ▶ **Principal Bench of the NGT– New Delhi**, with regional benches in Pune (Western Zone Bench), Bhopal (Central Zone Bench), Chennai (Southern Bench) and Kolkata (Eastern Bench).

Powers

- ▶ NGT by an order, can provide-
 - relief and compensation to the victims of air pollution and different environmental damage.
 - for restitution of property damaged.
 - for restitution of the environment for such vicinity or areas.
- ▶ Power to **regulate its own procedure**.
 - Not bound by the procedure laid down under the Code of Civil Procedure, 1908 or by the rules of evidence as enshrined in the Indian Evidence Act, 1872.
- ▶ Order/decision/award **executable as a decree of a civil court**.
- ▶ **Mandated to dispose applications/appeals within 6 months of filing**.
- ▶ **Appeal** against the order/decision/ award of the NGT can be filed **in the Supreme Court** (usually within 90 days).
- ▶ **Penalty for not complying with the Tribunal's orders**: Upto 3 years imprisonment and/ or fine of Rs 10 crores for individuals (Rs 25 crores for companies).

Jurisdiction

- ▶ The Water (Prevention and Control of Pollution) Act, 1974
- ▶ The Water (Prevention and Control of Pollution) Cess Act, 1977
- ▶ The Forest (Conservation) Act, 1980
- ▶ The Air (Prevention and Control of Pollution) Act, 1981
- ▶ The Environment (Protection) Act, 1986
- ▶ The Public Liability Insurance Act, 1991
- ▶ The Biological Diversity Act, 2002

Structure

Chairperson

- ▶ Retired/Sitting Judge of a Supreme Court (SC) or Chief Justice of a High Court (HC)

Appointed by Central Govt. in consultation with CJI

Judicial Members (10-20)

- ▶ Retired/Sitting Judge of a SC or HC; Chief Justice of a HC

Appointed by Central Govt. on recommendation of a Selection Committee

Expert members (10-20)

- ▶ Professional qualification and a minimum of 15 years experience in the field of environment/forest

Term: 5 Years; Not eligible for reappointment

Important Judgements

- ▶ **2012**: Suspended a POSCO steel project in favour of the local communities and forests.
- ▶ **2012 Almitra H. Patel vs. Union of India case**: Ordered complete prohibition on open burning of waste on lands, including landfills.
- ▶ **2013 in Uttarakhand floods case**: Alaknanda Hydro Power Co. Ltd. ordered to compensate to the petitioner using the principle of 'polluter pays'.
- ▶ **2015**: Banned all diesel vehicles over 10 years old in Delhi-NCR.
- ▶ **2017**: The Art of Living Festival on Yamuna Food Plain was declared violating the environmental Norms and fined Rs. 5 Crore.
- ▶ **2017**: Imposed an interim ban on plastic bags of less than 50-micron thickness in Delhi because "they were causing animal deaths, clogging sewers and harming the environment".



Institutional structure under the Biodiversity Act (BA), 2002

Body	Powers and functions
 National Biodiversity Authority (NBA)	<ul style="list-style-type: none"> ▶ Regulate and issue guidelines for access to biological resources and for fair and equitable benefit sharing. ▶ Grant approvals for undertaking any activity under BA. ▶ Advise the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources. ▶ Advise the State Governments in the selection and management of heritage sites. ▶ On behalf of the Central Government, take any measures necessary to oppose the grant of intellectual property rights in any country outside India on any biological resource or associated knowledge obtained from India.
 State Biodiversity Boards (SBBs)	<ul style="list-style-type: none"> ▶ Advise the State Government on matters of biodiversity and its equitable distribution subject to the guidelines of the Central Government. ▶ Regulate granting of approvals or requests for commercial utilization of biological resources. ▶ SBBs require a prior intimation for obtaining biological resources only from Indian citizens or corporate associations or organizations registered in India.
Biodiversity Management committees (BMCs)	<ul style="list-style-type: none"> ▶ Conservation and sustainable utilization of biological resources. ▶ Eco-restoration of the local biodiversity. ▶ Proper feedback to the SBB in the matter of IPR, Traditional Knowledge and local Biodiversity issues, wherever feasible and essential feedback to be provided to the NBA. ▶ Management of Heritage Sites including Heritage Trees, Animals/ Microorganisms etc., and Sacred Groves and Sacred Water bodies. ▶ Regulation of access to the biological resources and/ or associated Traditional Knowledge, for commercial and research purposes. ▶ Sharing of usufructs arising out of commercial use of bio-resources. ▶ Conservation of traditional varieties/breeds of economically important plants/animals. ▶ Biodiversity Education and Awareness building. ▶ Documentation, enable procedure to develop bio-cultural protocols. ▶ Sustainable Use and Benefit Sharing.

Wildlife Crime and Control Bureau (WCCB)



Established under: Wild Life (Protection) Act, 1972.

Aim: To combat organized wildlife crime in the country.

Assist and advise the Customs authorities in inspection of the consignments of flora & fauna as per the provisions of WPA, CITES and EXIM Policy.

Advise the Government of India on issues relating to wildlife crimes having national and international ramifications, relevant policy and laws.

Establish a **centralized wildlife crime data bank**; co-ordinate actions by various agencies.

Powers and Functions of the WCCB

Assist foreign authorities and international organization for co-ordination and universal action for wildlife crime control.

Collect and collate intelligence related to organized wildlife crime activities and to disseminate the same to State and other enforcement agencies.

Capacity building of the wildlife crime enforcement agencies for scientific and professional investigation into wildlife crimes and assist State Governments to ensure success in prosecutions related to wildlife crimes.



Central Zoo Authority (CZA)



Established under: Wild Life (Protection) Act, 1972.

Aim: To provide oversight to zoos in India.

Specify the minimum standards for housing, upkeep and veterinary care of the animals kept in zoos.

Evaluate and assess the functioning of the zoos with respect to the prescribed standards and **Recognize or derecognize zoos.**

Regulate the exchange of animals of endangered category listed under Schedule-I and II of the WPA among zoos.

Functions of the CZA

Approve exchange of animals between Indian and foreign zoos before the requisite clearances under EXIM Policy and the CITES permits are issued by the competent authority.

Identify endangered species of wild animals for purposes of captive breeding.

Provide technical and financial assistance to such zoos which have the potential to attain the desired standard in animal management.

Other Bodies functioning under the Ministry of Environment, Forest & Climate Change



Botanical Survey of India (BSI)

- Apex taxonomic research organization of the country.
- Established in 1890 under the direction of **Sir George King**.
- **Headquarters: Kolkata**, 11 Regional Centers.

Objectives of BSI

- Survey of Plant resources of the country for preparing an inventory of the National, Regional and District Floras.
- Development of:
 - ❖ **Repositories of authentic specimens-** Central National Herbarium, Regional Herbaria etc.
 - ❖ **Institutes to study, introduction and conservation of flora Development-** E.g., Indian Botanic Garden, the Regional Experimental Gardens the National Orchidaria, Central Botanical Laboratory & Botanical Section of the Indian Museum.
- Assessment and care of threatened plants.
- Conduct studies on little known/new uses of plants particularly among rural and tribal societies.



Zoological Survey of India (ZSI)

- Genesis in the establishment of the Zoological Section of the Indian Museum at Calcutta in 1875.
- Established in 1916.

Objectives of ZSI

- **Exploration, Survey, Inventorying and Monitoring of faunal diversity** in various States, Ecosystems and Protected areas of India.
- **Taxonomic studies** of all faunal components collected.
- **Periodic review of the Status of Threatened and Endemic species.**
- **Preparation of Red Data Book**, Fauna of India and Fauna of States.
- **Bio-ecological studies** on selected important communities/species.
- **Preparation of databases** for the recorded species of the country.
- Maintenance & Development of National Zoological Collections.
- Training, Capacity Building and Human Resource Development.
- Faunal Identification, Advisory services and Library Services.
- Publication of results including Fauna of India and Fauna of States.

Non-Governmental Organizations (NGOs)

Wildlife Trust of India (WTI)



- **Formed in 1998** in response to the rapidly deteriorating condition of wildlife in India.
- **Aim:** To conserve nature, especially endangered species and threatened habitats, in partnership with communities and governments.
- Credited for achieving conservation milestones such as-
 - ❖ Recovering population of critically endangered species,
 - ❖ Translocation of Species,
 - ❖ Reducing Human-Animal Conflict,
 - ❖ Rescue and Rehabilitation of Animals including Elephants, Tigers, Leopards, One-horned Rhino and Bears.

Bombay Natural History Society (BNHS)



- **Founded in 1883.**
- Supports many research efforts through grants and publishes the Journal of the Bombay Natural History Society.



Global Efforts for Biodiversity Conservation

Convention on Biological Diversity (CBD)

- ▶ The CBD is an **international legally binding multilateral treaty** which was opened for signature in 1992 at the United Nations Conference on Environment and Development (**the Rio "Earth Summit"**).
- ▶ The CBD has **196 parties** and **India is one of them**.

Three main **objectives**:

- ▶ The conservation of biological diversity.
- ▶ The sustainable use of the components of biological diversity.
- ▶ The fair and equitable sharing of the benefits arising out of the utilization of genetic resources.

Supplementary agreements of CBD (**India has signed and ratified all 3** of these protocols).

The Cartagena Protocol on Biosafety: It aims to ensure the safe handling, transport and use of living modified organisms (LMOs) resulting from modern biotechnology that may have adverse effects on biological diversity and human health. It established-

- ▶ **Advance informed agreement (AIA) procedure** for ensuring that countries are provided with the information necessary to make informed decisions before agreeing to the import of such organisms into their territory.
- ▶ **Biosafety Clearing - House** to facilitate the exchange of information on living modified organisms.

The Nagoya Protocol on Access and Benefit-sharing: It aims at sharing the benefits arising from the utilization of genetic resources in a fair and equitable way.

The Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety: It aims to contribute to the conservation and sustainable use of biodiversity by providing international rules and procedures in the field of liability and redress relating to LMO.

Species Specific Conservation Initiatives

Integrated Development of Wildlife Habitats' (IDWH)

A Centrally Sponsored Scheme that provides financial assistance to State/UT Governments for-

- ▶ Protection and conservation of wildlife and its habitats in Protected Areas (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves).
- ▶ Protection of Wildlife Outside Protected Areas.
- ▶ Recovery programmes for saving critically endangered species and habitats.

Programmes under IDWH



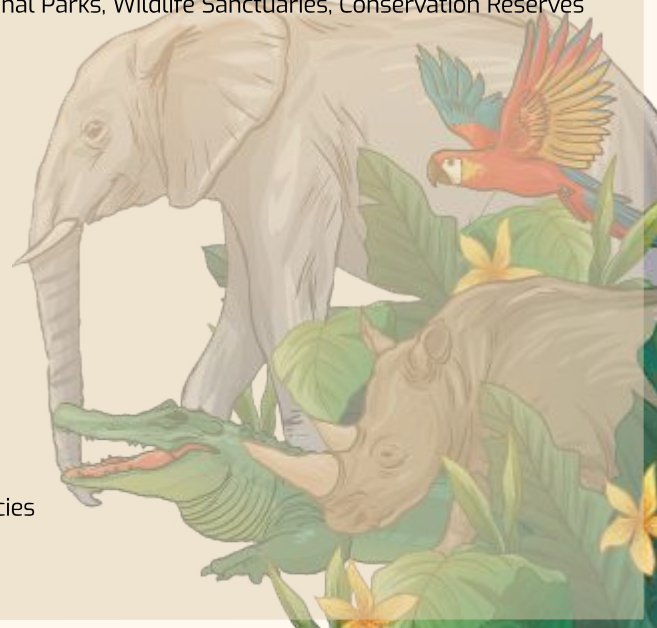
Project Tiger (PT)



Project Elephant (PE)



Recovery Programme for critically endangered species



Project Tiger



Indian Tiger or Royal Bengal Tiger (*Panthera tigris*)

Conservation status

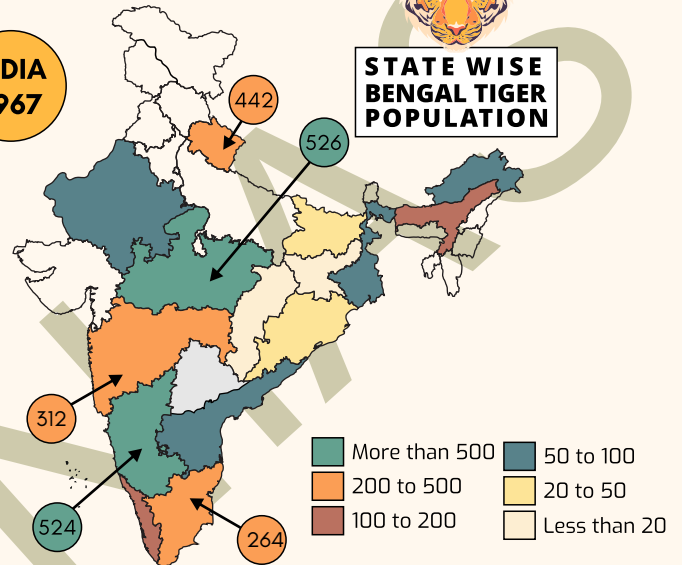
- ▶ **IUCN Red List:** Endangered
- ▶ **Wild life protection Act (WPA), 1972:** Schedule I
- ▶ **Convention on International Trade in Endangered Species (CITES):** Appendix I



About the species

- ▶ **Largest extant** cat species and national animal of India.
- ▶ An **apex predator**, primarily preying on ungulates such as deer and wild boar.
- ▶ **Territorial** and generally a solitary but **social predator**, requiring **large contiguous areas of habitat** to support its requirements for **prey and rearing of its offspring**.
- ▶ **Usual Habitats:** Tropical rainforests, marshes, and tall grasses.
- ▶ **Found in:** India, Bangladesh, Nepal, Bhutan, areas of China and Burma.
 - ◉ India is home to **80% of global tiger population** (largest populations of Bengal tigers).
 - ◉ **Maximum number of tigers- Madhya Pradesh**
- ▶ **Threats:** Habitat loss, human-wildlife conflict, Poaching and Wildlife Crime.

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Conservation Efforts in India

Project Tiger

- ▶ Established in 1973 for providing Central assistance to the Tiger States for tiger conservation in designated Tiger Reserves (Trs), and tiger bearing forests outside tiger reserve.
- ▶ TRs constituted on a **Core and Buffer strategy**.
- ▶ **Tiger Protection Force** set up to combat poachers and funded relocation of villagers to minimize human-tiger conflicts.
- ▶ **Implementing Agency: National Tiger Conservation Authority (NTCA).**

All India Tiger Estimate -2018

- ▶ World's largest wildlife estimation exercise conducted every **4 years**.
- ▶ 2018 Census was led by the **NTCA and the Wildlife Institute of India (WII)**, in collaboration with State Forest Departments.
 - ◉ World Wildlife Fund India was the implementation partner.
- ▶ **Key Findings**
 - ◉ **33% rise in tiger numbers** (highest ever recorded).
 - ◉ Biggest increase in Madhya Pradesh.
 - ◉ No tiger recorded in Buxa (West Bengal), Dampa (Mizoram) and Palamu (Jharkhand) tiger reserves.
 - ◉ **India achieved the T X 2 target set by the St. Petersburg declaration** on tiger conservation ahead of schedule.

Management Effectiveness Evaluation (MEE) Framework

- ▶ Using internationally applied MEE Framework, the **NTCA with technical support from WII** has adapted and developed 32 headline indicators and a transparent reporting process to support tiger reserve management.
 - ◉ MEE is assessment of how well National Park and Wildlife Sanctuaries (NP&WLS) are being managed.

M-STripES

- ▶ Monitoring System for Tigers – Intensive Protection and Ecological Status (M-STripES) is a software based monitoring system launched across Indian tiger reserves by the NTCA.





Global Tiger Forum (GTF)

- Only inter- governmental international body established with members from willing countries to embark on a global campaign to protect the Tiger.
- Formed in 1993 on recommendations from an **international symposium on Tiger Conservation at New Delhi, India.**
- Chairperson: usually a Minister from one of the TRCs for a fixed tenure of 3 Years.
- **Secretariat: New Delhi, India.**

Integrated Tiger Habitat Conservation Programme (ITHCP)

- A strategic funding mechanism launched in late 2014.
- **Aim:** to save tigers in the wild, their habitats and to support human populations in key locations throughout Asia.
- Supported by the **German Government and the German Development Bank (KfW).**
- **Implementing agency: IUCN**

Global Tiger Recovery Program (GTRP)

- Seeks to empower TRCs to address the entire spectrum of threats, domestic as well as **those that are trans-boundary in nature**, and work toward increased financial sustain ability through the integration of conservation objectives into development

Project Elephant

Elephant

Conservation status of Elephant

- **IUCN Red List:** Asian Elephants (Endangered); African Elephants (Savanna elephant- Endangered and forest elephant- Critically Endangered).
- **WPA, 1972:** Schedule I
- **CITES:** Appendix I.

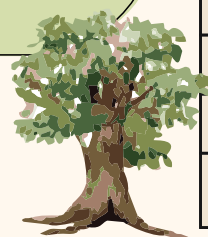


About the species

- Herbivorous Mammals of the family Elephantidae and the largest existing land animals.
- National Heritage Animal of India and considered a **keystone species**.
- **Characteristics:**
 - Stay near water when it is accessible.
 - The leader of group is a female.
 - Have longest gestation period of all mammals (18 to 22 months).
- **Three species currently recognized:** the African bush elephant, the African forest elephant, and the Asian elephant.
 - Asian elephants (found in India) are smaller than African elephants, and their ears are smaller compared to the large fan-shaped ears of the African species.
 - Only some male Asian elephants have tusks**, while both male and female African elephants grow tusks.
- **Habitats:** savannah, forests, deserts, and marshes.
- **Found in:** Sub-Saharan Africa, South Asia, & Southeast Asia.
- India has more than 60% population of Asian Elephant.
 - Highest Population- Karnataka** followed by Assam and Kerala respectively.
- **Threats:** Ivory trade, habitat destruction and conflicts with local people.

List of Landscape and Elephant Reserves in India

Sl. No.	Elephant Range	Elephant Reserve	State
1	East-Central Landscape (South-West Bengal-Jharkhand - Orissa)	1. Mayurjharna ER	West Bengal
		2. Singhbhum ER	Jharkhand
		3. Mayurbhanj ER	Orissa
		4. Mahanadi ER	Orissa
		5. Sambalpur ER	Orissa
		6. Baitami ER	Orissa
		7. South Orissa ER	Orissa
		8. Lemru ER	Chhattishgarh
		9. Badalkhol - Tamoringla ER	Chhattishgarh
2	Kameng-Sonitpur Landscape (Arunachal - Assam)	10. Kameng ER	Arunachal
		11. Sonitpur ER	Assam
3	Eastern-South Bank Landscape (Assam - Arunachal)	12. Dihing-Patkai ER	Assam
		13. South Arunachal ER	Arunachal
4	Kaziranga-Karbi Anglong-Intanki Landscape (Assam - Nagaland)	14. Kaziranga-Karbi Anglong ER	Assam
		15. Dhansiri-Lungding ER	Assam
		16. Intanki ER	Nagaland
5	North Bengal- Greater Manas Landscape (Assam - West Bengal)	17. Chirang-Ripu ER	Assam
		18. Eastern Dooars ER	West Bengal
6	Meghalaya Landscape (Meghalaya)	19. Garo Hills ER	Meghalaya
		20. Khasi-hills ER	Meghalaya
7	Brahmagiri-Nilgiri-Eastern Ghat Landscape (Karnataka - Kerala- Tamil Nadu- Andhra)	21. Mysore ER	Karnataka
		22. Wayanad ER	Kerala
		23. Nilgiri ER	Tamil Nadu
		24. Rayala ER	Andhra
		25. Nilambur ER	Kerala
		26. Coimbatore ER	Tamil Nadu
8	Anamalai-Nelliampathy-High Range Landscape (Tamil Nadu - Kerala)	27. Anamalai ER	Tamil Nadu
		28. Anamudi ER	Kerala
9	Periyar-Agasthyamalai Landscape (Kerala - Tamil Nadu)	29. Periyar ER	Kerala
		30. Srivilliputhur ER	Tamil Nadu
10	North-Western Landscape (Uttarakhand - Uttar Pradesh)	31. Shivalik ER	Uttarakhand
		32. Uttar Pradesh ER	U.P.





Conservation Efforts in India

Project Elephant

- ▶ Launched in 1992 as a Centrally Sponsored Scheme with following objectives:
 - To protect elephants, their habitat & corridors.
 - To address issues of man-animal conflict.
 - Welfare of captive elephants.

Elephant Corridors

- ▶ **Narrow strips of land** that allow elephants to move from one habitat patch to another.
- ▶ **Secured through voluntary relocation** of settlements and/or **acquisition** of land.
- ▶ Presently there are approximately 100 elephant corridors in India.

Global Efforts

Monitoring of Illegal Killing of Elephants (MIKE) Programme

- ▶ An international collaboration that **tracks trends in information related to the illegal killing of elephants across Africa and Asia**, to monitor effectiveness of field conservation efforts.
- ▶ Established by the **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)** by a resolution adopted at the 10th COP in 1997.
- ▶ Started in South Asia in 2003.
- ▶ **India has ten sites** under MIKE programme.



Asian Elephant Alliance

- ▶ **An umbrella of five NGOs**-Elephant Family, International Fund for Animal Welfare (IFAW), IUCN Netherlands, World Land Trust (WLT) and Wildlife Trust of India (WTI).
- ▶ Launched in July **2015 in London, United Kingdom**.
- ▶ **Aim:** To secure a safe future for the wild elephants of India.

Elephant Trade Information System (ETIS)

- ▶ Established in 1989, it analyzes levels and trends in illegal trade in ivory and other elephant products.
- ▶ Managed by: **TRAFFIC**.

Recovery Programme for critically endangered species

- ▶ **22 Species Identified under the recovery programme:** Snow Leopard; Bustard (including Floricans); Dolphin, Hangul; Nilgiri Tahr; Marine Turtles; Dugongs; Edible Nest Swiftlet; Asian Wild Buffalo; Nicobar Megapode; Manipur Brow-antlered Deer; Vultures; Malabar Civet; Indian Rhinoceros; Asiatic Lion; Swamp Deer; Jerdon's Courser; the Northern River Terrapin; Clouded Leopard; Arabian Sea Humpback Whale; Red Panda and Caracal.

Species and Conservation Status

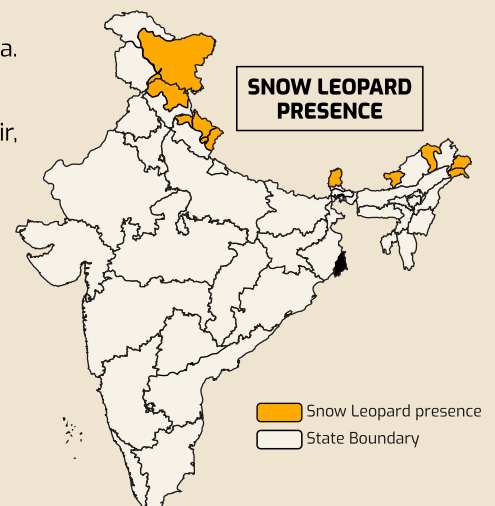
Conservation efforts and other Details



Snow Leopard

- IUCN Red List: **Vulnerable**
- WPA, 1972: **Schedule I**
- CITES: **Appendix I**
- Convention on Migratory Species (CMS): **Appendix I**

- ▶ **Habitat:** Mountainous regions of central and southern Asia.
- ▶ **Found in-**
 - **Western Himalayas-** the states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand.
 - **Eastern Himalayas-** Sikkim and Arunachal Pradesh.
- ▶ **Threats:** Reduction in prey populations; illegal poaching; increased human population infiltration into the species habitat; illegal trade of wildlife parts and products etc.





Conservation Efforts in India

- **Project Snow Leopard:** Launched in 2009 to promote an inclusive and participatory approach to conserve snow leopards and their habitat.
- **Securing livelihoods, conservation, sustainable use and restoration of high range Himalayan Ecosystems (SECURE Himalaya):** A Govt. of India (MoEFCC)-UNDP-GEF project (2017- 2023) being implemented in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and Sikkim.
- **Snow Leopard Population Assessment in India (SLPAI):** Prepared by the Wildlife Institute of India, Nature Conservation Foundation, GSLEP committee, Global Tiger Initiative Council, World Wide Fund for Nature, World Bank, Global Tiger Forum and Wildlife Conservation Trust.

Global Efforts

- **Global Snow Leopard and Ecosystem Program (GSLEP):** An inter-governmental alliance of all the 12 Snow Leopard range countries- India, Nepal, Bhutan, China, Mongolia, Russia, Pakistan, Afghanistan, Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan.



Asiatic Lion

- IUCN Red List: **Endangered**
- WPA, 1972: **Schedule I**
- CITES: **Appendix I**

- **One of five pantherine cats inhabiting India**, along with the Bengal tiger, Indian leopard, snow leopard and clouded leopard.
- **Population limited to only five protected areas in Gujarat** – Gir National Park, Gir Sanctuary, Pania Sanctuary, Mitiyala Sanctuary and Girnar Sanctuary.
- **Asiatic vs African Lions**

Criteria	Asiatic	African
Size	Larger	Smaller
Mane	Relatively dense, Lighter mane	Relatively short, Darker, sparse mane
Skin Fold	Absent	Longitudinal fold of skin that runs along the belly
Pride Size	Larger	Smaller

Conservation Efforts

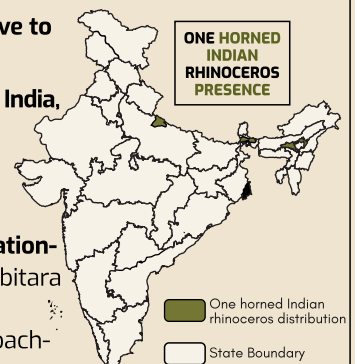
- **Asiatic Lion Conservation Project:** Funded from the Centrally Sponsored Scheme- Development of Wildlife Habitat (CSS-DWH) with the contributing ratio being 60:40 of Central and State share.
- **Focus:** To ensure a stable and viable Lion population in the country via-
 - Habitat improvement.
 - Scientific interventions.
 - Disease control and veterinary care.
 - Adequate eco-development works for the fringe population.



One-horned Rhino

- IUCN Red List: **Vulnerable**
- WPA, 1972: **Schedule I**
- CITES: **Appendix I**

- The Indian rhinoceros (*Rhinoceros unicornis*) is a rhinoceros species **native to the Indian subcontinent**.
- Largest of the rhino species found commonly in **Nepal, Bhutan, Pakistan & India**, with India being home to 2,200 rhinos, or over 85% of the population.
- **Habitat:** Alluvial Terai-Duar savanna and grasslands and riverine forest.
- **Found in-** Uttar Pradesh, West Bengal and Assam.
 - Assam has 91% of total Rhino population of India, with **Kaziranga National Park holding about 70% of the world population**, and a few in Pobitora Wildlife Sanctuary.
- **Threats:** Poaching, Habitat destruction due to human and livestock encroachment, flooding etc.



Conservation Efforts in India

- **Indian Rhino Vision 2020 (IRV 2020):** Launched in 2005, it is an ambitious effort to attain a wild population of at least 3,000 greater one-horned rhinos spread over seven protected areas in Assam by the year 2020.
 - **Aim:** To translocate Rhinos from Kaziranga National Park and Pobitora Wildlife Sanctuary to five other protected areas namely Manas, Laokhowa, Buracharpori-Kochmora, Dibrusaikhowa and Orang.
- **National Rhino Conservation Strategy:** It was launched in 2019 to conserve the greater one-horned rhinoceros.
- **MoEFCC has begun a project to create DNA profiles** of all rhinos in the country.





Indian Ganges Dolphin

- IUCN Red List: **Endangered**
- WPA, 1972: **Schedule I**
- CITES: **Appendix I**

- **Popularly named the 'Susu'** due the sound it produces when breathing.
- **National aquatic animal**, granted **non-human personhood status** by government in 2017.
- Presence in a river system signals a healthy ecosystem since the river dolphin is at the apex of the aquatic food chain.
- **Characteristics:** Long thin snout, rounded belly and large flippers, mammal and cannot breathe in the water and must surface every 30-120 seconds.
- **Among the 4 freshwater dolphins found in the world** (other three- 'baiji' of the Yangtze River, China; the endangered 'bhulan' of the Indus, Pakistan; and the 'boto' of the Amazon River, Latin America).
- **Habitat:** Fluvatile (riverine), may also be found in brackish water but never enters the sea.
- **Found in:** Ganges-Brahmaputra-Meghna and Karnaphuli- Sangu river systems of Nepal, India, & Bangladesh.
 - **Vikramshila Gangetic Dolphin Sanctuary (VGDS) in Bihar** is India's only sanctuary for the Gangetic dolphin.
- **Threats:** Water development projects, Pollution, hunting and death due to accidental catch in fishing gear.

Conservation Efforts in India

- **Conservation Action Plan for Dolphins:** Wildlife Institute of India undertook this project in 2016 to:
 - Develop a recovery plan for Ganges dolphins and their habitats in India.
 - Engagement of stake holders in conservation of river ecosystems in India.
- **National Mission for Clean Ganga (NMCG):** In its efforts of biodiversity conservation in Ganga River basin, it has been working on the Ganges River Dolphin Conservation Action.
- **National Dolphin Research Centre (NDRC), Patna:** India's and Asia's first Centre for strengthening conservation efforts and research to save the endangered mammal.
- **Prime Minister announced Project Dolphin**, to work as a catalyst to increase Dolphin population.



Dugong (Dugong dugon)

- IUCN Red List: **Critically Endangered**
- WPA, 1972: **Schedule I**
- CITES: **Appendix I**

- Also called as 'Sea Cow', **one of the 4 surviving species in the Order Sirenia**.
- **Only existing species of herbivorous mammal that lives exclusively in the sea including in India.**
- **Characteristics:** Feed on seagrass, can remain underwater for 3-12 minutes, long lifespan of 70 years or more, and slow rate of reproduction.
- **Habitat:** Warm tropical waters.
- **Found in:** East Africa and Vanuatau in South Pacific Ocean.
 - In India they occur in **Gulf of Mannar, PalkBay, Gulf of Kutch and Andaman and Nicobar islands**.
- **Threats:** Fishing-related fatalities, habitat degradation and hunting.

Conservation Efforts in India

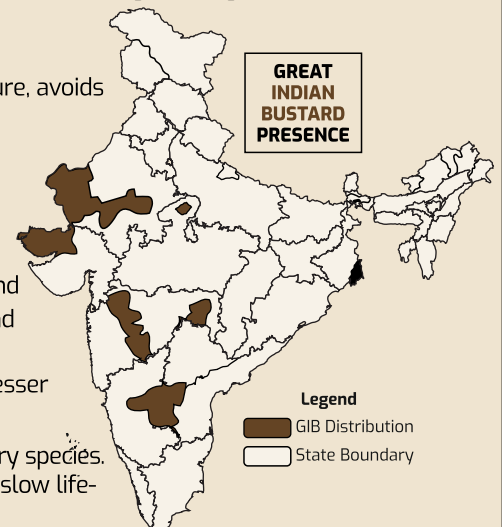
- **Task Force for Conservation of Dugongs:** Constituted by MoEFCC to investigate the entire gamut of issues related to conservation of dugongs and implementation of the 'UNEP/CMS Dugong MoU'.
- **National Conservation Plan:** Provides for-
 - **Species Level Conservation and Management:** E.g., Site specific monitoring plans to reduce hunting.
 - **Habitat Level Conservation and Management:** E.g., Reduce direct and indirect threats to seagrass habitat.
 - **Participatory management of Dugong and its habitats:** E.g., Network of 'Friends of Dugong' and 'Dugong scholarships'.
 - **Participatory management of Dugong and its habitats:** E.g., Creation of "Marine Rescue and Rehabilitation Team" at state level.



Great Indian Bustard (GIB)

- IUCN Red List: **Critically Endangered**
- WPA, 1972: **Schedule I**
- CITES: **Appendix I**
- CMS: **Appendix I**

- **Characteristics:** Among the heaviest bird with a horizontal body and long bare legs (ostrich like appearance), males display to attract females.
- **An indicator species** for grassland habitats.
- **Habitat:** Short grasslands, open scrub and rain-fed agriculture, avoids irrigated areas.
 - Breed in traditionally selected grasslands.
- **Endemic to Indian Sub-continent.**
- **Found in:** Central India, western India and eastern Pakistan.
 - **Largest population-Thar Desert, Rajasthan** (state bird).
 - **Other populations** occur in Kachchh (Gujarat), Solapur and Chandrapur (Maharashtra), Kurnool (Andhra Pradesh) and Bellary (Karnataka).
- **Bustard Species Found in India:** Great Indian Bustard, the Lesser Florican and the Bengal Florican.
 - Houbara also belong to Bustard family but it's a migratory species.
- **Threats:** Excessive hunting, habitat loss, compounded, very slow life-history Traits.





Conservation Efforts in India

- ▶ **National Guidelines for Recovery of Bustards, 2013:** Advocated a multi-pronged approach involving:
 - ◉ Stringent protection and research-informed management of breeding enclosures.
 - ◉ Coexistence with compatible land uses and mitigation of unfriendly land uses in priority habitats of adjoining landscapes identified through research.
 - ◉ Participation of local communities in conservation through incentives and Outreach.
 - ◉ Establishment of captive population as insurance against extinction and possible reintroduction.
- ▶ **"Project Godawan"** of **Rajasthan state government** for its conservation at Desert National Park (DNP) in Jaisalmer.



Vultures

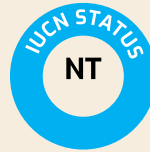
- ▶ Nature's most efficient scavengers
- ▶ **Characteristics:** Bald head, devoid of normal feathers, to maintain hygiene while feeding on carcass and for thermo regulation; and feathery neck.
- ▶ Divided into:
 - ◉ **New World vultures-** Californian and Andean condors.
 - ◉ **Old World vultures-** White-rumped and Red-headed vultures.
- ▶ **Found in:** New World vultures are found in North and South America; Old World vultures are found in Europe, Africa, and Asia.
 - ◉ No vultures found in Australia and Antarctica.
- ▶ **Nine species of vultures exist in India** of which five belong to the genus Gyps.
 - ◉ 7 are Residents- Three Gyps vultures, namely the White-rumped Vulture Gyps bengalensis, Long-billed Vulture Gyps indicus, and Slender-billed Vulture Gyps tenuirostris.
 - ◉ 2 are Largely wintering species- Eurasian Griffon Vulture Gyps fulvus and Himalayan Griffon Vulture Gyps himalayensis.
- ▶ **Threat:** Veterinary use of the non-steroidal anti inflammatory drug 'diclofenac'.

Type & Conservation Status (IUCN)		Description
Indian Long billed Vulture- Gyps Indicus		<ul style="list-style-type: none">▶ Smaller and less heavily built species.▶ Breeds mainly on cliffs or human-made structures.▶ Feeds mostly from carcasses of dead animals▶ On the verge of extinction because of veterinary drug diclofenac.
Slender Billed Vulture- Gyps Tenuirostris		<ul style="list-style-type: none">▶ Species of old world vulture found along the Sub-Himalayan regions of Indian Subcontinent.▶ Has suffered an extremely rapid population decline in India.
White Rumped Vulture- Gyps Bengalensis		<ul style="list-style-type: none">▶ Medium-sized vulture and the smallest of the Gyps vultures found in India.
Red - Headed Vulture - Sarcogyps Calvus		<ul style="list-style-type: none">▶ Also known as Indian Black Vulture.▶ Medium sized vulture that has no subspecies.▶ Habitat: Deciduous forests and foothills & river valleys.▶ Found only in the Indian Subcontinent.
Egyptian Vulture- Neophron Percnopterus		<ul style="list-style-type: none">▶ Widely distributed species of small old world vulture.▶ Found in the north-west part of India.▶ 3 subspecies of Egyptian vulture found in Indian subcontinent.
Himalayan Vulture- Gyps Himalayensis		<ul style="list-style-type: none">▶ One of the two largest old world vultures and a true raptor.▶ The largest and heaviest bird found in the Himalayas of Indian Subcontinent.



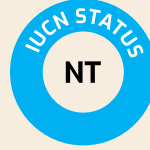


Bearded Vulture-
Gypaetus Barbatus



- ▶ Only member of the genus Gypaetus found in **mountainous regions of Himalayas and Ladakh in north India.**
- ▶ Also found in **Kashmir to Arunachal Pradesh.**

Cinereous Vulture-
Aegypius Monachus



- ▶ Large raptorial bird believed to be the largest true bird of prey in the world
- ▶ Member of the family Accipitridae.
- ▶ **Found in northern India.**

Conservation Efforts in India

- ▶ **Vulture Conservation and Breeding Centre, Pinjore:** Joint project of the **Haryana Forest Department and the Bombay Natural History Society (BNHS)** to save the three species of vultures- the White-backed, Longbilled and Slender-billed, from looming extinction.
- ▶ **Vulture Conservation Project 2020-2025:** Includes h both ex-situ and in-situ conservation.
 - Uttar Pradesh, Tripura, Maharashtra, Karnataka and Tamil Nadu will get a vulture conservation and breeding centre each.
 - Laid out strategies and actions to stem the decline in vulture population, especially of the three Gyps species:
 - 👉 **Oriental white-backed vulture**
 - 👉 **Slender-billed vulture**
 - 👉 **Long-billed vulture**
 - Suggested that new veterinary non-steroidal anti-inflammatory drugs (NSAIDS) be tested on vultures before their commercial release.
- ▶ **Government of India banned the use of diclofenac in veterinary medicine** and initiated **Vulture Breeding Programme for ex-situ conservation.**

Global Efforts

- ▶ **SAVE (Saving Asia's Vultures from Extinction):**
 - **Objective:** To save three critically important species from extinction through a single programme.
 - **SAVE partners:** Bombay Natural History Society, Bird Conservation Nepal, Royal Society for the Protection of Birds(RSPB) (UK), National Trust for Nature Conservation (Nepal), International Centre for Birds of Prey (UK) and Zoological Society of London.

