

TARGET PRELIMS 2024

BOOKLET-42; EB&CC-11

NATIONAL CONSERVATION EFFORTS

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2. LAWS DEALING WITH BIODIVERSITY PROTECTION

1) BIOLOGICAL DIVERSITY ACT, 2002

- **Introduction**
 - In order to help it realize the objectives of CBD, India has enacted an umbrella legislation called the Biological Diversity Act 2002. India was the first country, to pass a law to uphold the CBD nationally.
 - The objective of the act are conservation, sustainable utilization, and fair and equitable sharing of benefits arising out of use of biological resources and associated knowledge.
 - The act extends to whole of India.
- The act works towards biodiversity protection in the following ways:
 - » **Regulation of extraction to biological resources**
 - » **Protection of Biodiversity Heritage Sites**
 - » **Biodiversity Management Committees** play a crucial role in promoting conservation and sustainable use of biological resources within their respective areas and facilitate people's participation in biodiversity conservation.
 - » **Conservation of Endangered species:** The act prohibits the transfer of any endangered species, parts, or products without the permission of the State Biodiversity Board (SBB) or the NBA.
- **Conservation of Traditional Knowledge** – the act recognizes the importance of traditional knowledge associated with biodiversity conservation and ensures its protection and preservation.
- **The act recognizes the contributions of Indigenous local communities in conservation of biodiversity** and a company using these resources is required to share 0.5% of the sales post tax to these ILCs. Only those companies whose turnover is more than 3 crore are required to make this payment.
- **Institutional Framework for the implementation of the law**
 - The act is being implemented through three tiered institutional structure
 - i. National Biodiversity Authority (at central level)
 - ii. State Biodiversity Boards (at state level)
 - iii. Biodiversity Management Committees (at local level)

A) NATIONAL BIODIVERSITY AUTHORITY (NBA)

- The central government has established the NBA in exercise of powers conferred by sub-section (1)(4) of Section 8 of BDA, 2002.
- The NBA is Autonomous body and that performs **facilitative, regulatory and advisory function** for Government of India on issue of Conservation, sustainable use of biological resource and fair equitable sharing of benefits of use.

B) BIODIVERSITY MANAGEMENT COMMITTEE (BMC)

- Under section 41(1) of the Act, every local body of the state shall constitute a Biodiversity Management Committee within areas of its jurisdiction for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats, conservation of land races, folk varieties & cultivars, domestic stock and breeds of animals and micro-organisms and chronic knowledge relating to biological diversity.
- The main function of the BMC is to prepare People's Biodiversity Register (PBR) in consultation with local people. This register shall contain comprehensive information on availability and knowledge of local biological resources, their medicinal or any other use or any other traditional knowledge associated with it.
- They shall also be responsible for:
 - » Conservation, Sustainable use and access to benefit sharing of biological resources
 - » Eco-restoration of the local biodiversity
 - » Feedback/Information to the Board, and the NBA in matters of IPRs, traditional knowledge etc.
 - » Management of Biodiversity Heritage sites including Heritage trees, animals, micro-organisms, and Sacred Groves.
 - » Conservation of traditional varieties/breeds of economically important plant species
 - » Biodiversity Education and Awareness building

C) ISSUE OF FAIR AND EQUITABLE SHARING OF BENEFITS ARISING OUT OF USE OF BIOLOGICAL RESOURCES AND ASSOCIATED KNOWLEDGE

- **Introduction**
 - » The Biological Diversity Act, 2002 regulates the extraction of biological resources through the state Biodiversity Boards and the National Biodiversity Authority.
 - Broadly, all foreign entities (companies, institutions and individuals) are within the jurisdiction of NBA while all Indian entities are the subject matter of the state board.
 - » **Biological resources** include plants, animals and micro-organisms but exclude those which are normally traded as commodities.
 - » **What does the law say about sharing of Benefits?**
 - Before a commercial entity extracts biological resources, it must make prior approval of the state board or the NBA and also undertake to share benefits arising out of the use of such biological entities within the local community, which has conserved and protected these biological resources. **The benefits** can be in the form of monetary compensation as well as 'joint ownership of IPRs' and/or 'transfer of technology'.
- **Divya Pharmacy vs Union of India case:** Landmark Judgment by Uttarakhand High Court on Dec 28, 2018
 - » **Core Issue:** Whether the State Biodiversity Board could impose 'Fair and Equitable Benefit Sharing' as one of the regulatory functions on the Indian entities using Biological Resources.

» **Key Highlights of the Judgment:**

- » Indian companies which are extracting biological resources are liable to seek prior approval as well as share part of their revenue with the local communities that are responsible for conserving and protecting such resources.
 - The court also referred to international conventions and treaties such as Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits arising from their utilization to the Convention on Biological Diversity.
- » The court held that rights of indigenous and local communities have to be protected, equally from outside as well as from within.
- » The court finally ordered that the State Biodiversity Board does have jurisdiction to demand "fair and equitable sharing of benefits" from Divya Pharmacy and, by implication, from all Indian companies.

D) THE BIOLOGICAL DIVERSITY (AMENDMENT) ACT, 2023

- It was introduced in LS by MoEF&CC in Dec 2021 and was finally passed in the house in July 2023 and Rajya Sabha in Aug 2023.
- The amendment intends to encourage the Indian system of medicine; facilitate fast-tracking of research, patent application process; attract more foreign investment in the preservation and commercial utilization of India's biological resources; and decriminalizes all the offences under the act.
- **Key Highlights:**
 - i. Simplify compliance requirements for domestic companies
 - ii. Exempts AYUSH practitioners, local people, and communities of the area, including growers and cultivators of biodiversity, from giving prior intimation to State Biodiversity Boards for accessing biological resources for commercial utilization.
 - iii. Users of codified traditional knowledge and AYUSH practitioners will be exempted from sharing benefits with local communities
 - Issue/Criticism: The term Codified Traditional Knowledge hasn't been defined by the bill or by CBD. A broad interpretation might exempt all local traditional knowledge from benefit sharing requirements.
 - Legal experts also feel that exemption to Ayush practitioners would be detrimental to ecology and go against the principle of sharing commercial benefits with indigenous communities.
 - iv. Removes research and bio-survey from the purview of benefit sharing.
 - v. Benefit sharing will be based on terms agreed between the user and the local management committee represented by the National Authority
 - Issue/Criticism: The bill removes direct role of local communities in determining the benefit sharing provisions.

- vi. Companies registered in India and controlled by Indians are now treated as Indian companies, even if they have foreign equity or partnership, thereby reducing the restrictions on them.
- vii. **Simplifying the IPR Process:**
 - The act specifies that approval of NBA is required before applying for IPR involving biological resources obtained from India, or (ii) sealing of patent.
 - The bill says that approval would be required before the approval of IPR instead of before the application itself.
 - It further differentiates between foreign and domestic entities.
 - Foreign entities will require approval from NBA whereas domestic entities will be required to register with NBA. However, at the time of commercialization of IPR, domestic entities will need approval from NBA.
- viii. The bill **decriminalizes all offences** under the act and provides for wide range on penalties. Further, it authorizes government officials to hold enquiries and determine penalties.
 - **Issue/Criticism:** Such discretion with government official may promote corruption/rent seeking.
- ix. The bill allows for foreign investment in research into biodiversity. However, this investment will necessarily have to be made through Indian companies involved in biodiversity research.
- x. A new section - 36(A) has been added emphasizing on the monitoring of the Biological Resources obtained from foreign countries for use in India as per the provisions of the Nagoya Protocol on access to benefit sharing.
- xi. Section 36(B) enables state government to develop strategies and plans for conservation and sustainable use of biological diversity.

2) BIODIVERSITY HERITAGE SITES (BHS)

- **About Biodiversity Heritage Sites**
 - They are well defined areas which have unique, ecologically fragile ecosystems - terrestrial, coastal, and inland waters and marine, having rich biodiversity comprising of any one or more of the following components:
 - i. Richness of wild as well as domesticated species or intra-specific categories
 - ii. High endemism
 - iii. Presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic cultivated species, or their varieties
 - iv. Past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical, or aesthetic values and are important for the maintenance of cultural diversity.
- Under Section 37 of the Biological Diversity Act, 2002 (BDA) the state government in consultation with local bodies may notify in the official gazette, areas of biodiversity importance as Biodiversity Heritage Sites (BHS).
- **Biodiversity Heritage Sites of India (As of Jan 2024)**
 - i. Arittappatti Biodiversity Heritage Site, Madurai, TN
 - This is the first BHS of TN.

- It has rich biological and historical significance, with the presence of around 250 bird species including 3 flagship raptors species - Laggar Flacon, Shaheen Falcon, Bonelli's Eagle and wildlife like Indian Pangolin, Python, and Slender Loris.
- ii. **Asramam, Kerala, Kollam**
 - It hosts a unique diversity of Mangrove species with diverse flora and fauna.
 - It also has rare and endangered heritage trees of *Syzygium travancoricum* which is listed as CR in the IUCN list.
- iii. **Nallur Tamarind Grove** in Devanhalli, Bengaluru, Karnataka
 - The area has some of the oldest tamarind trees, recorded age of the oldest one being 410 years.
 - The BHS is spread over 54 acres and comprises of nearly 300 trees.
 - The significant component of this popular structure is a group of old plants standing like ageless sentinels. The area has some of the oldest tamarind trees, some more than 400 years old.
- iv. **Hogrekan in Chikmagalur, Karnataka**
 - The shola vegetation is home to many unique medicinal species.
 - It also serves as a "Wildlife Corridor" between Kudremukh and Bhadra WLS.
- v. **University of Agricultural Sciences, GKVK Campus in Bengaluru, Karnataka.**
 - Large biodiversity -> 13 species of mammals, 10 species of reptiles, 165 species of birds and an impressive 530 species of plants.
- vi. **Ambaraguda** in Shimoga, Karnataka
 - A patch of primitive shola forest, known for many unique and endemic plant species.
- vii. **Purvatali Rai, Bicholim, North Goa**
 - Sacred grove
- viii. **Ameenpur Lake**, Sangareddy, Telangana
 - First water body to be recognized BHS.
 - A man-made lake more than 300 years old.
 - Home to many resident and migratory birds, such as flamingos, egrets, herons, cormorants etc.
- ix. **Glory of Allapalli** in Gadchiroli, MHA
 - First BHS of MHA
 - A patch of dense original forests. Forest is pristine and so dense that hardly any sunlight reaches the forest floor.
 - The forests dates back 100s of years.
- x. **Bambarde Myristica Swamps**, Dodamarg, Maharashtra
- xi. **Ganeshkhind Garden**, Maharashtra

xii. **Landorkhori**, Jalgaon, Maharashtra

xiii. **Schistura Hiranyakeshi** in Amboli, Sindhudurg district

- A species of fish – Schistura Hiranyakeshi – endemic to Amboli was recently recorded for the first time in the western ghats in the local temple pond.



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xiv. **Mandasuru, Kandhamal, Odisha**

- Mandasaru gorge is an abode of 1563 species of plants, animals and fungi spread over an area of 528 ha.

xv. **Mahendragiri Hill, Gajapati, Odisha**

- It is situated at an elevation between 700-15001 m above mean sea level in Gajapati district of Odisha.
- With increase altitude, the hill complex demonstrates several micro climatic conditions like tropical shola, tropical semievergreen, tropical moist-deciduous & tropical dry deciduous.
- The diversified vegetation with rich floral diversity representing 40% of the reported flora of Odisha.
- The ancient temples of Kunti, Shima, Arjuna and Yudhishtira at Mahendragiri have been declared as protected monuments under the Ancient Monument and Archaeological sites and Remains Act 1958 by the State Government. These monuments provide a sacred and holy background for receiving about one lakh devotees annually every year to worship the deities of the hill.

xvi. **Gandhamardan Hill, Bargarh and Balangir district, Odisha (March 2023)**

- An area of more than 18000 hectares of Gandhamardan Hill (Gandhamardan Reserve Forest) (In Bargarh and Balangir district) has been notified as BHS.
- The hill has high floral diversity with more than 1,000 species of plants.

- One angiosperm, Ficus conccina var dasycarpa and one spider, *Peucetia harishankarensis* are endemic to the hill.
- It is considered a treasure trove of medicinal plants and thus an Ayurvedic paradise of Odisha.
- The hill is home to two important temples - Nrusinghanatha Temple located on northern slope and Harishankar temple located on southern slope.
- The place is famous for highly successful people's resistance against bauxite mining there.

xvii. **Naro Hills, Satna Madhya Pradesh**

- It is a unique and varied geology and it supports a large number of ecosystem and species of flora and fauna.

xviii. **Patlakot, Chhindwara, Madhya Pradesh**

- It has a terrain of 1700 feet deep valley and ecosystem of estimated age of 6 million years and species of rare flora and fauna including rare Bryophytes and Pteridophytes.

xix. **Amarkantak, Anuppur, Madhya Pradesh:**

- It is situated in the Maikal mountain ranges which link the Vindhya and Satpura mountain ranges. It has a unique terrain of a 1700 feet deep valley and an ecosystem of the estimated age of 6 million years and species of rare flora & fauna including rare bryophytes and Pteridophytes.
- Amarkantak ecological system is the origin of three major rivers - Narmada, Johila, and Sone

xx. **Tonglu BHS, Darjeeling Forest Division, WB**

- 230 hectare site is a medicinal plant conservation area.
- Unchecked foot traffic is a major concern for protection here as the BHS borders Nepal border.

xi. **Dhotrey BHS, Darjeeling Forest Division, WB**

- Right next to Tonglu
- Rich in medicinal plants
- Threatened by human encroachment

xxii. **Baneshwar Shiva Dighi, Coochbehar, WB**

- It offers refuge to black softshell turtle listed under CR by IUCN.

xxiii. **Chilkigarh Kanak Durga** in Jhargram, WB

- Chilkigarh Kanak Durga is a small patch of forest ripe with traditional beliefs of local habitats.
- The site is home to 25 species of animals and more than 380 species of plants, out of which many have medicinal properties.

xxiv. **Char Balidanga (Nadia), WB (2023)**

- It is an island spread across 115 acres. It has tropical riverine vegetation with tall grasses and trees, along with swampy flat land covered with algal mats, which are periodically inundated with tidal ebbs.
- It is home to almost 100 species of birds, apart from golden monitor lizard, and golden jackals.

xxv. **Namthing Pokhari** (Darjeeling) WB (2023)

- It is a natural Himalayan Wetlands. It is home to the Himalayan Salamander.

xxvi. **Amkhoi Wood Fossil Park** (Birbhum), WB (2023)

- It has unique geological and paleo-botanical features.

xxvii. **State Horticulture Research Development Station** (Nadia), WB (2023)

- It hosts indigenous horticulture germplasm of orchard trees.

xxviii. **Birampur - Baguran Jalpai**, Purba Medinipur, WB (2023)

- It is a habitat of red crabs and sand bubbler crabs which are fast disappearing from Bengal coastline due to human encroachment.
- The bushes along side the coast have golden jackals, jungle cats and golden monitor lizards.

xxix. **Haldi Char**, Purba Medinipur, WB (2023)

- It is a wetland which is home to Swarna Godhika (Yellow monitor lizard) - a schedule -1 endemic species. The wetland is most conducive for the species to thrive.
- Note: With this WB has 10 BHS (highest in the country)

xxx. **Gharial Rehabilitation Centre**, Lucknow, UP

- Located in Kukrail reserve forest of Lucknow.
- Established for conservation and rehabilitation of CR species of Gharial.

xxxi. **Sacred Grove at Sural Bhatori Monastery**, Pangi Village, Chamba, Himachal

xxxii. **High Altitude Meadows, Hudan Bhatori, Chamba** Himachal

- It is a 108 Bigha high altitude meadow at Muhal Dhar Shinkal in Hudan Bhatori panchayat of Pangi is at an altitude of 3,850m.
- Dominant plants are cranberry, honeysuckle, whitebeam, slender false brome, hairy brome etc.

xxxiii. **Birch-Pine forest patch, Nain Gahar**, in Lahaul's Udaipur

xxxiv. **Tunkyong Dho, Dzongu, Sikkim (2023)**

- It is notified as Sikkim's first biodiversity heritage site.
- It is believed to be one of the oldest natural dho (lake), directly related to the Hee-Youngmingmoo clan of Lepcha community in Dzongu.
- Dzongu valley is a specially protected area for aboriginal/indigenous primitive tribes considered to be the original inhabitant of Sikkim called as Lepchas.

xxxv. **Majuli Island, Assam**

- World's largest river island.
- BHS because of unique ecological and cultural heritage. Home to Assamese - neo-Vaishnavite culture.

xxxvi. **Hajong Tortoise Lake, Dima Hasao, Assam:**

- The lake is a natural habitat of CR freshwater lake 'Black Softshell Turtle" and Endangered "Indian Peacock Softshell Turtle". The site also harbors threatened species like CR Chinese Pangolins.

xxxvii. **Borjuli Wild Rice site, Sonitpur, Assam:**

- This BHS has a good population of wild species of rice - Oryza rufipogon.
- Oryza rufipogon is the progenitor of present day cultivated rice, O. Sativa.

xxxviii. **Khaw Kur Syiem Kmieing, Meghalaya**

- It is a mosaic of natural habitats along with significant diversity of life forms. It is also an old sacred grove with monolith and religious spots.

xxxix. **Dialong Village** in Tamenglong, Manipur

- Home to the rare and endangered citrus indica, or the Indian wild orange. It is the most primitive ancestor to all cultivated citrus fruits in the world.

xl. **Baramura Waterfall, Khowai, Tripura**

- This is the highest natural waterfall in Tripura.
- Critical habitat for rare wildlife, Rich in floristic diversity
- Habitat for many stream water favored fauna

xli. **Unakoti, Tripura**

xlii. **Silarchari Caves, Gomati, Tripura**

- Only natural cave of Tripura.
- Unique habitat for several threatened cave bat species in Tripura

xliii. **Debbari or Chabimura, Gomati, Tripura**

- Unique habitat for threatened plants of Tripura like Dhup tree and cane resources of India

xliv. **Betlingship & its surroundings, North District, Tripura**

- It is the highest peak of Tripura on Jampui Hills, which is famous for a wonderful orange festival.

3) INDIAN FOREST ACT, 1927

- The act was passed to consolidate the then existing laws relating to forest, the transit of forest products, and duties that can be levied on forest product.

- The act provides for three categories of forests:
 - i. **Reserved Forest**
 - » The reserved forests can be notified by states on any forest land or waste land to which government has ownership or right.
 - » They are strictly protected. Many activities are such as fresh clearings, tree felling, burning, grazing, quarrying, manufacturing, hunting, shooting etc are prohibited in reserved forests.
 - ii. **Protected Forest**
 - » Protected forests are also notified on forest lands or waste lands owned by Government.
 - » They are less strictly protected. The state government can declare any portion of the protected forest as closed for a term not exceeding 30 years during which the rights of private person can be suspended and several activities can be prohibited.
 - » **Note: The key difference between reserved forests and protected forests**
 - Rights to all activities like hunting, grazing etc. are banned in reserved forests unless specific orders are issued otherwise.
 - Rights to activities like hunting and grazing are sometimes given to communities living on the fringe of the forest, who sustain their livelihood partially or wholly from forest resources or products.
 - iii. **Village Forest**
 - The State Government may assign to any village-community the rights of Government to or over any land which has been constituted a reserved forest, and may cancel such assignment. All forests so assigned shall be called village-forests.
 - These forests are managed by village community with the assistance of the government.
 - State governments may make rules for regulating the management of village forests, prescribing the condition under which the village community may be provided timber or other forest produce or pasture and their duties for the protection and improvement of forest.
- The act also gives **power to central government** to regulate timber production and its transportation.
- It has been criticized over the years as a:
 - » Tool for Colonial overtake of India's forests for exploitation (specially timber)
 - » Exploitation, Harassment, eviction and loss of livelihood of tribals.
- After independence, the same act (with slight changes) continued and the forest dwellers kept getting harassed, evicted and exploited.

A) 2017 AMENDMENT: EXEMPTION TO BAMBOO GROWN IN NON-FOREST AREAS (CLASS DISCUSSION)

4) FOREST CONSERVATION ACT, 1980 (2023 AMENDMENT)

- **Why in news?**
 - » MoEF&CC have published proposed amendments to the Forest Conservation Act, 1980 and have invited feedback from general public (Oct 2021)

- **Introduction**
 - » It was enacted to help conserve the country's forests.
 - » It strictly restricts and regulates de-reservation of forests or use of forest lands for non-forest purposes without the prior approval of central government.
 - In 1996, the **Supreme Court** in a verdict in **TN Godavarman Thirumulpad vs Union of India** had expanded the definition and scope of forest land to include all areas recorded as forest in government record, irrespective of ownership, recognition and classification. Before this, the act was primarily applicable to reserve forests and national parks.
 - The court also expanded the definition of forests to encompass the "dictionary meaning of forests", which would mean that a forested patch would automatically become a "deemed forest" even if it is not notified as protected, and irrespective of ownership. The order was also interpreted to presume that the act is applicable over plantations in non-forest land.
 - » The Act also covers
 - Requirement for declaring an area as a protected forest, Wildlife Sanctuary or a national park.
 - Maintenance of water supply in springs, rivers and tanks.
- **Forest Conservation Division**
 - » It is mandated to regulate the diversion of forest land for non-forestry purposes through effective implementation of Forest (Conservation) Act, 1980.

A) 1996 SUPREME COURT VERDICT AND EXPANSION OF THE CONSERVATION FUNCTION

- In 1996, the **Supreme Court** in a verdict in **TN Godavarman Thirumulpad vs Union of India** had expanded the definition and scope of forest land to include all areas recorded as forest in government record, irrespective of ownership, recognition and classification. Before this, the act was primarily applicable to reserve forests and national parks.
- The court expanded the definition of forests to encompass the "dictionary meaning of forests", which would mean that a forested patch would automatically become a "deemed forest" even if it is not notified as protected, and irrespective of ownership. The order was also interpreted to presume that the act is applicable over plantations in non-forest land.

B) EXEMPTION PROVIDED BY THE SCHEDULED TRIBES AND OTHER FOREST DWELLERS (RECOGNITION OF FOREST RIGHTS ACT, 2006)

- In this act, certain exemptions to forest clearance for the forest dwelling scheduled tribes and other forest dwelling communities have been provided.
 - Section 3 of the act provides that the Central government can provide diversion of forest and for providing certain facilities managed by the government such as for creation of schools, hospitals, anganwadis, fair price shops, roads, electric and telecommunication lines, tanks and other minor water bodies, minor irrigation canals etc.

- This clearance shall be subjected to the condition that the same is recommended by Gram Sabha.
- Thus, it can be understood that the 2006 Act brings in a balance between conservation of forest rights and protection of rights of forest dwelling communities and even this is achieved only by an elaborate procedure after seeking sanction of various communities.

C) FOREST CONSERVATION (AMENDMENT) ACT, 2023

- Adding of a preamble to the act.
- Changing the name to Van (Sanrakshan Evam Samvardhan) Adhiniyam, i.e. **Forest (Conservation and Augmentation) Act**.
- The bill provides that two types of land will be under the purview of the act:
 - i. Land declared/notified as a forest under Indian Forest Act, 1927 or under any other law, or
 - Note: The land which has not been notified will not be included under the purview of the act.
 - ii. Land notified as a forest on or after Oct 25, 1980 in a government record.
 - Note: Land which changed from forest use to non-forest use before Dec 12, 1996 will not be included.
- **Exempted Category of Land:**
 - » Under the 1927 Act, decisions regarding diversion of forest land for non-forest purposes are taken by the state government. The 1980 act requires additional prior approval from central government.
 - » The bill provides that such approval will not be required when forest land is diverted for constructing
 - i. **Strategic Linear Projects** (roads, railways) of national importance and concerning national security within 100 km of India's border.
 - ii. **Security related infrastructure** upto 10 hectares,
 - iii. **Defence related projects**, a camp for paramilitary forces, or public utility projects as specified by the central government, not exceeding five hectares in a left-wing extremism affected area.
 - » The bill also exempts certain type of land from the provisions of the act, such as forest land along a rail line or a public road maintenance by the government providing access to a habitation, or to a rail, and roadside amenities upto a maximum size of 0.10 hectare.
- **Assignment/Leasing of forest land:**
 - » The Original act restricts the de-reservation of forests for use of forest and non-forest purposes. Such restrictions can be lifted only with the prior approval of central government.
 - The act specifies certain activities that will be excluded from non-forest purposes, meaning that restrictions on the use of forest land for non-forest purposes will not apply. These activities include works related to the conservation, management, and development of forest and wildlife such as establishing check posts, fire lines, and wireless communication.

- » The **amendment adds** more activities to the list such as (i) zoos and safaris under WPA, 1972 owned by the government or any authority, in forest areas other than protected areas, (ii) ecotourism facilities, (iii) silviculture operations (enhancing forest growth), and (iv) any other purpose specified by central government.
- **Powers to issue directions:** The 2023 amendment adds that the central government may issue directions for the implementation of the act to any authority/organization under or recognized by Centre, State, or UT.
- **Significance:**
 - » **Increase Plantation in non-forest areas:** The environment ministry says that the application of the act on land covered under dictionary meaning of forests (or deemed forests) has resulted in a "declining tendency in plantations in non-forest lands owing to the apprehension among individuals, organizations, and authorities regarding such plantations being considered forests".
 - » **Removal of mandatory central government approval** for diversion of forests in certain cases is expected to reduce delays in the implementation of strategically important projects.
- **Criticism:**
 - » The amendment by providing blanket exemptions from the act for several types of lands and several types of projects is going contrary to the intent of the 1980 act which was enacted for prevention of de-reservation of forest lands and large scale deforestation.
 - » Such forest clearance activities will also violate rights of forest dwellers which were secured under the 2006 Act.
 - » The Apex Court in T.N. Godavarman Thirumulpad v. Union of India (UOI) and Ors (AIR 1997 SC 1228), has given a wider meaning to forest land to broaden the scope of their protection. However, the 2023 bill provides a much narrower interpretation to the term forest land by inserting section 1A to encompass only two types of land under its ambit.
 - » **Exemption near border area** would cover large parts of the north-eastern region, Uttarakhand and Himachal Pradesh and could lead to loss of biodiversity in biodiversity hotspots.
 - » **The purpose of allowing a zoo** inside a forest is not clear.
 - Even Supreme Court (2023) has remarked that they don't appreciate the necessity of having a zoo inside tiger reserves or national parks.
 - » There is also a lack of clarity on compensatory afforestation for this diverted land. Similarly, it doesn't provide for how rehabilitation/resettlement/livelihood opportunities etc. would be provided for tribals affected by this kind of diversion.

5) FOREST SITUATION AND KEY STEPS TAKEN TO PROTECT FORESTS

- **Current Situation of forests in India:** As per Indian State of Forest Report 2021, India's total forest cover is 7.13 lakh sq km (21.71% of India's total area). When compared to 2011, there has been an increase of 3.14% in the total area under forest.
- **Concerns:**

- » **Decline in Natural Forests:** Though very dense forests have increased by 501 sq km, but it pertains to protected and reserve forests with active conservation activities.
- » **Decline in North-East India:** Five states in Northeast - Arunachal Pradesh, Manipur, Meghalaya, Mizoram, and Nagaland have all shown loss in forest cover. It's important for protecting the forest cover of NE as it is natural forest and with only 7.98% of the geographical area, it contributes to 23.75% of India's total forest cover.
- **Reasons:**
 - A spate of natural calamities; particularly landslides and heavy rains
 - Anthropogenic factors: Shifting agriculture, pressure of development activities and felling of trees.
- » **Vulnerability to Forest Fire:** Around 35.46% of the forest cover in India is prone to forest fires.
 - Between Nov 2020 to June 2021, 3.4 lakh forest fire hotspots were recorded, which is the highest recorded forest fire cases ever.
- **Why forests are crucial? Why is it important to protect forests:**
 - » **Controlling Global Warming:** Forest restoration will play a huge role in achieving Net Zero climate target. A study in 2017 showed that land-based sinks (natural climate solutions which also includes forests) can provide upto 37% of emission reductions.
 - » **Protecting Biodiversity**
 - » **Preventing Desertification**
 - » **Ensuring Soil Health** (by preventing soil erosion, increasing organic content of soil etc.)
 - » **Protecting micro-climate** of an area
 - » **Livelihood** for crores of tribals and forest dwellers
 - » **Water Security:** Forest restoration is must for water security.
 - » **Medicinal plants** from forests can solve a number of health issues
- **Key Initiatives in India to Conserve Forests:**
 - » Forest Conservation Act, 1980
 - » Compensatory Afforestation Regime
 - » Various Protected Areas - NP, WLS, Tiger Reserves, Biosphere reserves etc.
 - » **Green India Mission** launched in 2010 with three objectives:
 - Double the area to be taken up for afforestation/ eco-restoration in India in the next 10 years.
 - Increase the green house removal by India's forests
 - Enhance the resilience of forests/ecosystem.
 - » **Nagar Van Scheme**
 - » **Forest Fire Prevention and Management Scheme**
 - » **India's International commitments:**
 - India has committed to restore 5 million hectares of degraded and deforested land between 2021 and 2030.
 - India also targets creation of 2.5 to 3 billion tonnes of carbon sink by 2030 as part of its INDC. This would require India to increase its tree cover by 12% over the next 10 years.
- **Key International Initiatives:**
 - » **REDD+** under UNFCCC framework:

- » **New York Declaration on Forests** (NYDF) in 2014 by United Nations Climate Summit: Target of restoring 350 million hectares of forests by 2030.
- » **The span 2021-2030** is the UN Decade on Ecosystem restoration. It emphasizes on efforts to restore degraded terrestrial ecosystems including forests.
- » **Bon Challenge** launched in 2011 focuses on global goal of restoring 150 million hectares of degraded and deforested landscapes by 2020 and 350 million hectares by 2030.
- » **UN** has proclaimed 21st March as the International Day of Forests in 2012 to celebrate and raise awareness of the importance of forests.
 - The year 2022 marks a decade of IDF.

D) SAROJINI FOREST (SAROJINI VAN)

Odisha has named a forest after a tribal women Sarojini Mohanta as a tribute to this homegrown changemaker.



Hired for a Daily wage of Rs 315 as a watcher, she has gone beyond the call of duty to create a forest on a denuded path of land in just two years.

When the Principal Chief Conservator of Forest (PCCF) came for an inspection to Bonai, he was left dazed that the women's dedication led to the survival of 95% of saplings planted in four acres of land.

The PCCF suggested to name the plantation area after her and thus the place was named 'Sarojini Vana'.

Every plant in the area sprawled over three acres of land appears to be at Sarojini's fingertips; she would know which plant would die if it wasn't watered

6) THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT OF 1974

- It provides for the prevention and control of water pollution, and for the maintaining or restoring of wholesomeness of water in the country.
- The Act was amended in 1988.
- **The Water (Prevention and Control of Pollution) Cess Act** was enacted in 1977, to provide for the levy and collection of a cess on water consumed by persons operating and carrying on certain types of industrial activities.
 - This cess is collected with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974. The Act was last amended in 2003.

7) THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT OF 1981

- Main Objectives
 - To provide for the prevention, control and abatement of air pollution
 - To provide for the establishment of central and State Boards with a view to implement the Act
 - To confer on the Boards the powers to implement the provisions of the Act and assign to the Boards functions relating to pollution
- **Definitions**

- "Air Pollutants" means any solid, liquid or gaseous substance [(including noise)] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or properties or environment.

3. ENVIRONMENT (PROTECTION) ACT, 1986

- Why in news?
 - » MoEF proposes amendments in EPA, 1986 to decriminalize provisions (July 2022)
- Details about the Act:
 - » EPA, 1986 was passed under Article 253 of the Constitution, which empowers the centre to enact laws to give effect to international agreements signed by the country.
 - » The Act establishes "the framework for studying, planning, and implementing long-term requirements of environmental safety and laying down a system of speedy and adequate response to situations threatening the environment"
 - » It is an enabling act and empowers the Central Government to establish authorities [under section 3(3)] 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.
 - E.g. authorities created under EPA: Central Ground Water Authority (CGWA)
 - » The act defines terms such as environment, environment pollutant, and hazardous substances.
 - » It provides for imprisonment of upto 5 years and or fine of upto Rs 1 lakh for violator of the law.
 - » **Environment Protection Rules 1986**
 - The rules set the standards for emissions or discharge of environment pollutant.
 - Prohibitions and restrictions on the location of industries and the carrying on processes and operations in different areas.
 - Procedure of taking samples

4. WILDLIFE (PROTECTION) ACT, 1972

- Why in news?
 - » Wild Life (Protection) Amendment Act, 2022 came into force from 1st April 2023
- The Wildlife (Protection) Act, 1972 was enacted to provide for the protection of wild animals, birds and plants with a view to ensure the ecological and environmental security of the country.
 - » It defines wildlife to include any animals, bees, butterflies, crustaceans, fish, and moths; and aquatic or land vegetation, which form part of any habitat.
 - » The act, along with Wildlife Protection Rules, provides for the protection of wild birds, animals and plants and for all matters that are connected to it whether it be their habitat or the waterhole or the forest that sustain them.
- The Act provides for:

- » Prohibition of hunting
 - » Protection and management of wildlife habitats
 - » Establishment of protected areas and reserves such as national parks, wildlife sanctuaries, tiger reserves, conservation reserves, and community reserves.
 - » Management of zoos etc.
- It defines **five types of protected areas**
1. National Parks
 2. WLS
 3. Community Reserves
 4. Conservation Reserves
 5. Tiger Reserves
- It also provides for the formation of:
- » NTCA
 - » Central Zoo Authority
 - » National Board for Wildlife (NBW), an advisory body to help centre of policy decisions.
- **The six Schedules (Before the 2022 amendment)**
- » The act had **six schedules** with varied degree of protection to different kind of animals and plants.
 - **Schedule I and Part II of Schedule II** provided absolute protection and offences under these are prescribed the highest penalties.
 - The Penalties for Schedule III and Schedule IV were less and these animals are protected.
 - Schedule 5: Vermins includes animals which can be hunted.
 - Common crow, Fruits bats, mice and Rats only
 - Schedule 6 contains endemic plants, which are prohibited from cultivation and planting. The cultivation and trade of specified plants can only be carried out with prior permission of competent authorities. These plants are as follows:
 - Beddomes Cycad -> Medicinal, EN
 - Blue Vanda (Medicinal)
 - Kuth
 - Ladies Slippers Orchids
 - Pitcher Plant
 - Red Vanda
 - » **Permitted Hunting of Problematic Wild Animals**
 - Section 11(1)(a) of the WPA authorizes Chief Wildlife Warden to permit hunting of any problem wild animals only if it can't be captured, tranquilized or translocated.

E) WILDLIFE PROTECTION (AMENDMENT) ACT, 2022

- The amendment increases the number of species protected under the law and implement CITES effectively.
- » **Rationalizing Schedules:**
- Reduce the total number of schedules to four by:

- » **Schedule for Specially protected animal species:**
 - Schedule 1 (Species with highest level of protection);
 - It contains 600 species of vertebrates and hundreds of species of invertebrates.
 - Schedule 2 (Species with lesser level of protection);
 - It contains 2000 species (including 1,134 species of birds)
- » **Schedule for Plant Species:**
 - **Schedule 3 (Protected Plant Species);**
- » **Schedule for implementation of CITES:**
 - Schedule 4 (Specimen listed in the Appendices under CITES)
- » **Note:** There is no schedule for vermin species.

- **Implementing the obligations of CITES:** The central government will designate:
 - **Management Authority**, which grants export or import permits for trade of specimens
 - **Scientific Authority**, which gives advice on aspects related to impact on the survival of the specimen being traded.
- The amendment empowers central government to regulate or prohibit the import/trade/possession of invasive alien species.
- **Control of Sanctuaries: Increased role of centre.**
 - In the original act the sanctuaries are managed and controlled by Chief WildLife Warden who is appointed by the state government. But the amendment says that the action of the warden will be as per the management plans of the sanctuary which will be prepared as per the guidelines of the central government.
- **Sanctuaries in Special Areas:**
 - For sanctuaries falling under special areas (scheduled areas and areas where forest rights act is applicable), the management plan must be prepared after due consultation with concerned Gram Sabha.
- **Empowers central government to notify conservation reserve** (earlier only state government could do so).
- **Amends section 43 of the principal act** - To permit transfer or transport of a captive elephant for a religious or any other purpose by a person having a valid certificate of ownership.
- **New Section 42A has been added for surrender of captive animals:** Any person may voluntarily surrender any captive animals or animal products to the Chief Wild Life Warden. No Compensation will be paid for such items. The surrendered item becomes the property of state governments.
- **Increased fines and penalties** for violation of the law.

F) WILDLIFE (PROTECTION) LICENSING (ADDITIONAL MATTERS FOR CONSIDERATION) RULES, 2024

- The revised notification came into effect on 16th Jan 2024, the first revision since 1983.
 - » The 1983 rules, prohibited issuing license to trade in a wild animal categorized under Schedule-1 or Part II of Schedule II under the WPA, 1972. The license was granted in exceptional circumstances with previous approval of central government.
 - » New Guidelines says that "no license shall be granted if it related to any wild animals specified in the Schedule-I to the Act, except with previous consultation of the central government.
 - It mentions additional matters to consider granting of licenses, the authorized officers must consider the capacity of the applicant to handle the business concerned in terms of the facilities, equipment and feasibility of premises for the business.
 - » **Note:** The new guidelines doesn't have licensing restrictions for species listed in Schedule-II of the WPA, 1972. It may imply that the license for trading in Schedule - II species can be granted without consulting central government which was required earlier.
- **Analysis:**
 - » **Exclusion of Schedule-II**

5. ZOOLOGICAL PARKS

1) CENTRAL ZOO AUTHORITY

- **About Central Zoo Authority (CZA)**
 - CZA is a statutory body formed under the Wildlife Protection Act, 1972. It is chaired by the environment Minister.
 - » The authority is responsible for regulation of zoos in the country.
 - » It prescribes various standards for the functioning of the zoo and evaluates and assesses the functioning of the zoo.
 - » It is also the authority to recognize or derecognize a zoo.
 - » It makes rules and guidelines for various issues associated with zoos like transfer of animals among zoos including international transfer among zoos.
 - » It consists of a **Chairperson** and **10 members** and a **member-secretary**.
 - Most of the members are officials in environment ministry.
 - Non-government experts are those who are wildlife conservationists or retired forest officers.
 - **Main Objective:** To complement the national effort in conservation of wildlife.
- **Reconstitution of Central Zoo Authority (July 2020)**
 - The environment ministry has reconstituted CZA to include an expert from the School of Planning and Architecture, Delhi, and a molecular biologist.

2) NATIONAL ZOOLOGICAL PARK

- Set up in 1959, as per the decision of Indian Board of Wild Life, 1952 (now a statutory body National Board of Wildlife under WPA, 1971)
- Till 2019, it was directly managed by MoEF&CC.
 - From Sep 2019, the Delhi Zoo (i.e. National Zoological Park) is being administered directly by Central Zoo Authority.
 - » **Criticism of the move:** CZA is a regulating body. So there is a conflict of interest in this case, where a regulating body is managing the zoo as well.
- It was originally known as Delhi Zoo but in the year 1982 it was given the status of the National Zoological park with the idea of it being the model zoo of the country.

3) RELIANCE INDUSTRIES LIMITED WILL BUILD WORLD'S LARGEST ZOO IN JAMNAGAR (DEC 2020)

It will come up in 280 acres of land near Reliance's refinery at Moti Khavdi near Jamnagar. It will house 100 different species of mammals, birds, reptiles, and amphibians.

4) VANDALUR ZOO (ARIGNAR ANNA ZOOLOGICAL PARK) (AAZP)

- **Why in news?**
 - » TN government order to set up museum, theatre at Vandalur Zoo (June 2023)
- **About Vandalur Zoo:**
 - » The zoo is located in Vandalur, to southwest of Chennai.
 - » It was established in 1855 and was the first public zoo in India.
 - » It is spread over 602 hectares and includes a rescue and rehabilitation centre. It is also the largest zoo of India.
 - » The zoo is situated 7 kms from Tambaram.
- **Details of news:**
 - » The TN government has issued an order to set up a museum and a theatre at a cost of Rs 4.3 crores at the AAZP.

5) NANDANKANAN ZOOLOGICAL PARK (NZP)

- It is a large zoo and botanical garden, situated 15 km from Bhubaneshwar. It has been built right inside a forest and set in a completely natural environment.
- **Uniqueness of the zoo**
 - It is the first zoo in India to breed a white tiger and Melanistic tiger.
 - It is the only conservation breeding center of Indian Pangolins in the world.
 - It is the only zoological park in India to become an institutional member of World Association of Zoos and Aquarium (WAZA).
 - A train 'Puri-New Delhi Express' has been named after Nandan Kanan zoo as Nandan Kanan express.

- It is the only zoo to have an open top leopard enclosure.

6. VARIOUS PROTECTED AREAS IN INDIA

- Protected areas are those in which human occupation or at least exploitation of resources is limited. There are several kinds of protected areas, which vary by level of protection depending on the enabling laws of each country or the regulations of the international organization involved.

1) VARIOUS PROTECTED AREAS

Type	Number	Total Area (km ²)	Coverage of the country
National Parks	106	44,402	1.35%
Wildlife Sanctuaries	573	1,27,197	3.87%
Conservation Reserves	123	5585	0.17%
Community Reserves	220	1455	0.04%
Protected Area Total	1022	1,78,640	5.43%

- State with highest number of NP
 - Madhya Pradesh (11)

2) COMPARISON BETWEEN NP AND WLS

NP	WLS
They provide protection to <u>entire ecosystem</u> including fauna, flora, landscape and historical entities.	Known for <u>Wildlife conservation</u> . It focuses that population of wildlife and their habitats are maintained substantially
Highly Restricted and Protected <ul style="list-style-type: none"> Commercial exploitation of forest produce not allowed Activities like hunting, grazing, human settlement etc are prohibited Visit requires <u>official permission</u> from relevant authorities. Limited activities are allowed that too after the permission of Wildlife Warden. 	Relatively lower restriction and protection <ul style="list-style-type: none"> Commercial exploitation of forest produce not allowed Hunting is prohibited without permission in a sanctuary, <u>but Grazing and movement of cattle may be permitted</u> <u>No official permission</u> is required to visit a WLS
Boundaries are <u>clearly specified</u> in case of a National Park	Boundaries may not be specified
It corresponds to Category II of the IUCN protected areas	It corresponds to the Category IV of protected areas.

7. NATIONAL PARKS

8. LADAKH

1) HEMIS NATIONAL PARK

- It is a high altitude NP in the eastern Ladakh region.
- **Only NP of India north of Himalayas.**
- It is also the **largest notified protected area of India** (thus also the largest National Park). It is also the **largest NP in South Asia**.
- It is also the second largest contiguous protected area after the Nanda Devi Biosphere Reserve and the surrounding protected area.
- **Rivers**
 - Bound in the north by the banks of Indus river
 - Includes the catchment of Markha, Sumdah and Rumbak.
- **Fauna**
 - Best place to see snow leopard (VU) in the wild, it is believed to have **highest density of snow leopard in the world**.
 - Other famous species of animals include **Tibetan Wolf, Eurasian Brown bear (LC)**, and the **red fox (LC)**.
- **Flora**
 - The region lies in the **rain shadow area** of the Himalayas and doesn't receive much precipitation.
 - Hence, dry forests of Juniper, Populus-Salix forests, subalpine dry birch - fir are present at **lower altitudes**.



Cultural significance

The park houses numerous Tibetan Gompas and holy chortens within its boundary.

These include the famous 400 year old hemis monastery.

9. J&K – NPS

1) DACHIGAM NATIONAL PARK

- **22 km from Srinagar district**
- **Main Fauna**

- **Hangul**: the park is supposed to contain last viable hangul population in the world.
- Leopard, Red fox, musk deer, black bear, brown bear, yellow throated marten, Himalayan weasel

2) SALIM ALI NATIONAL PARK (ALSO KNOWN AS CITY FOREST NATIONAL PARK - LOCATED IN SRINAGAR DISTRICT).

- In honour of famous Indian ornithologist Salim Ali (some-times referred as bird man of India)
- Very small: 9 km²
- **Main Species**
 - Hangul, Musk deer, Himalayan black beer, leopard, Himalayan serow
 - Birds : Paradise flycatcher, Himalayan Monal, and Himalayan snowcock.

3) KISHTAWAR NATIONAL PARK

- **Main species**
 - Snow leopard
 - Markhor
 - Musk deer
 - Brown bear
 - Himalayan black bear

4) KAZINAG (QAZINAG) NATIONAL PARK

- It is a commissioned future national park in the Baramulla district in the Indian UT of J&K. It is part of a proposal for a Trans-Karakoram peace park with Pakistan.
 - It is located in the northern region of Kashmir and is located on the northern bank of Jhelum River.
- It was created after the Kargil War and based on the increasing pressure to protect the rare **Markhor** wild goat. The national park is being set up in J&K and is the fourth one in state.
- In India, Markhor is only found in J&K and Kazinag habitats the mammal's largest population.

10. HIMACHAL PRADESH NPS

1) GREAT HIMALAYAN NATIONAL PARK

It is a protected area located in Kullu region of Himachal Pradesh. It is spread over an area of 1,171 km square and an altitude between 15,00 and 6,000 meters.

In June 2014, GHNP was added to UNESCO's list of World Heritage Sites. The status was granted under the category of "outstanding significance of biodiversity conservation".

Important Fauna of the park includes some of the most exotic species of animals like snow leopard, blue sheep, Himalayan Brown Bear, Himalayan Tahr, musk deer, etc.



2) OTHER NATIONAL PARKS OF HIMACHAL

Inderkilla, Khirganga, Pin Valley and Col. Sherjung Simbalbara

11. UTTARAKHAND NPS

1) GANGOTRI NATIONAL PARK

- GNP is a national park located in Uttarkashi district Garhwal range. This is the fourth largest NP in the country (after Hemis, Desert, and Simlipal) with total area of 2390 km².
 - The Park provides majestic beauty of coniferous tree and grandeur of glacial world combined with lush green meadows.
 - The north-eastern boundary of the Gangotri National Park is along the international boundary with China.
 - **Important Fauna**
 - Snow leopard, ibex, tahr etc.



2) VALLEY OF FLOWERS NATIONAL PARK

- It is a NP located in north Chamoli region of Uttarakhand. It is known for its meadows of endemic alpine flowers and the variety of flora.
- The area is also home to **fauna** such as **musk deer**, **snow leopard**, **Brown bear**, **blue sheep** etc.



3) NANDA DEVI NATIONAL PARK OR NANDA DEVI BIOSPHERE RESERVE

- It is a national park situated around the peak of Nanda Devi (7816 m) in the state of Uttarakhand.
 - It was declared World Heritage site by UNESCO in 1988. Later in 2005, the designation was enhanced to cover the Valley of Flowers too. So, the present UNESCO world heritage is **Nanda Devi and Valley of Flowers National Parks, 2005**.
 - **Both Parks** - Valley of Flowers and Nanda Devi are encompassed in the **Nanda Devi Biosphere** reserve.



4) RAJAJI NATIONAL PARK (TIGER RESERVE)

- Rajaji national park and tiger reserve is spread in **3 districts of UK: Haridwar, Dehradun and Pauri Garhwal**. It is nestled between the Shivalik ranges and the Indo-Gangetic plains.
- The Park has been named after **Rajagopalachari**, a prominent leader of the national freedom struggle and the second and last governor general of Independent India.
- In 2015, Rajaji became the second tiger reserve of UK.
- The Ganga and Song River flows through the park.
- Fauna: The Park is renowned for its elephants, sambar, barking deer, hog deer etc. Tigers and Leopards are prime predators of the park.

5) JIM CORBETT NP

- It is the oldest/first national Park in India and was established in 1936 as Hailey National Park to protect Bengal Tiger. It is in the Nainital district of Uttarakhand and has been named after Jim Corbett, a well-known hunter and naturalist. It was also the first park to come under Project Tiger initiative (i.e., declared a Tiger Reserve).
- It is also among the few tiger reserves in India which allows overnight stay in the lap of the National Park.



6) GOVIND PASHU VIHAR NATIONAL PARK

- Named after Gobind Ballabh Pant.
- Situated in Uttarkashi district and lies in higher reaches of Garhwal Himalayas.
- The **snow leopard project** started by Gol is being managed at this sanctuary.

12. HARYANA NPS

1) SULTANPUR NATIONAL PARK DETAILS

Details

- Sultanpur National Park (Formerly a bird sanctuary) is located at Sultanpur village (Gurgaon district) on Gurugram Jhajjar Highway, 15 kms from Gurgaon, Haryana.
- Sultanpur National Park is a major attraction for water birds and migratory birds.



2) KALESAR (YAMUNANAGAR DISTRICT)

- Kalesar National Park and the adjacent Kalesar WLS are protected areas in Yamunanagar district of Haryana state in India.
- It is located contiguous to Rajaji National Park in Uttarakhand.
 - » It is a popular destination for leopards, panthers, elephants, red jungle fowl and bird watching.
- Vegetation:** The forested area in the Shivalik foothills is covered primarily with Sal with smattering of Semul, Amaltas, and Bahera trees as well.



13. UTTAR PRADESH – NP

1) DUDHWA NATIONAL PARK (TIGER RESERVE)

- DTR is a protected area in Uttar Pradesh that stretches mainly across the Lakhimpur Kheri and Bagraich districts and comprises of **Dudhwa National Park, Kishanpur WLS, and Kataranighat WLS**.
- It's total area is more than 1,000 km².
- It shares the north-eastern boundary with **Nepal**, which in large extent is defined by Mohana river.
- Fauna:** Tigers, leopards, bear, swamp deer, rhinoceros, elephant etc.



14. BIHAR – NP

1) VALMINKI NATIONAL PARK, TIGER RESERVE AND WLS

- It's located on **Indo-Nepal Border** in West Champaran district of Bihar, on the **bank of Gandak**. It is the **only National Park** in Bihar.
- Nepal's Chitwan National Park** borders the VNP.
- Gandak and its tributaries** are known to flood the Valmiki Tiger Reserve



15. JHARKHAND – NP

1) BETLA NATIONAL PARK (TIGER RESERVE)

- It is located on the Chota Nagpur Plateau in the Latehar district of Jharkhand, India.
- It consists of Palamau Tiger Reserve and Mahuadar Wolf Sanctuary.
- **Floor:** Sal and Bamboo are the major floral component of the park.
- **Fauna:** Elephants, Sloth bear, Panther, Wolf, Jack etc.



16. WEST BENGAL NPS

1) SUNDARBAN NP

- It is a **national park, tiger reserve, biosphere reserve** in west Bengal.
- It is part of Sundarbans in Ganga Delta and adjacent to Sundarbans Reserve Forest in BD. The Sundarban have also been added to the list of Ramsar Sites.
- **Flora**
 - Mangrove forests - Sundari trees (pneumatophore)
- **Fauna:** Bengal Tiger, Saltwater crocodiles; Fishing cats, leopard cats, wild boar, Pangolin, Chital are also found in Abundance
- **Threatened Species:** Royal Bengal Tiger, Saltwater crocodile, river terrapin, Olive Ridley Sea Turtle, Ganges River Dolphin, Hawksbill turtle and mangrove horseshoe crab.



2) GORUMARA NP

- **Location:** Northern West Bengal Jalpaiguri district, in the Terai region of Himalayan foothills.
- **Physical Features**
 - Medium-sized Park (80 square Kms) with grasslands and forests and is known as Dooars in West Bengal.
 - The Park is located on the flood plains of Murti River and Raidak river. The major river of the park is the Jaldhaka river, a tributary of the Brahmaputra River system.
- **Zoological Features:**
 - Primarily known for its population of Indian Rhinoceros.
 - Other animals found here include Gaur, Asian Elephant, sloth bear, chital and Sambar deer.
 - Lack of carnivores, only big cat being leopard. Tiger occasionally spotted.
 - **Submontane forest birds** like scarlet minivet, sunbird, Asian paradise suncatcher, and Indian Hornbill.
- **Conservation Focus**
 - Maintain a viable breeding community of Indian Rhinoceros



3) JALDAPARA NP

It is a NP in the foothills of Himalayas in the Northern Bengal and is on the banks of Torsa river.
It has second largest rhino population (after Kaziranga (>2400 rhinos)

4) NEORA VALLEY NP

- Kalimpong district, West Bengal
- National Park, IBA site,
- **Fauna:** Red Panda; Civet; Black bear; Himalayan Flying Squirrel; Barking deer



5) SINGALILA NP

- Darjeeling district
- Located on the Singalila ridge at an altitude of 7,000 meters.
- **Flora**
 - Thick bamboo, oak, magnolia, and Rhododendron
- **Fauna:** Red Panda; Leopard Cat; Barking deer; Wild boar



6) BUXA NATIONAL PARK

- **Tiger reserve** located inside National Park.
- Notified as tiger reserve in 1983.
- Consists of moist deciduous and evergreen forests.
- **Other Species at Buxa**
 - Clouded leopard, jungle cats and fishing cats.
 - Elephants, gaurs, chital, sambar, barking deers and hog deer.



17. SIKKIM – NP

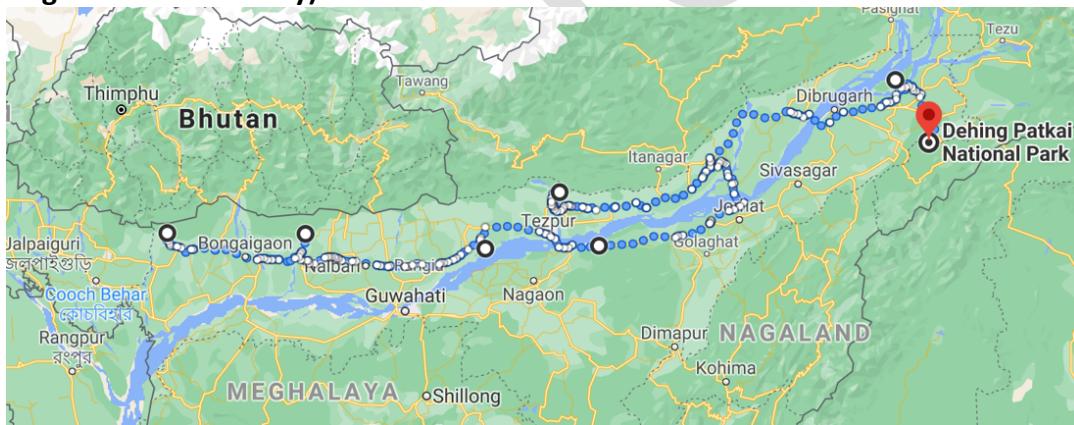
1) KHANGCHENDZONGA NATIONAL PARK (KHANGCHENDZONGA BIOSPHERE RESERVE)

- It is a national park and Biosphere reserve located in Sikkim, India. The total area of the park is 849.5 km². It forms the core of the Biosphere Reserves.
- It includes a unique diversity of plains, valleys, lakes and glaciers and spectacular snow-capped mountains covered with forests including the world's **third highest peak, Mount Khangchendzonga**.
- The National Park falls in the **Himalayan Global Biodiversity Hotspots** and displays an unsurpassed range of sub-tropical to alpine system.
- It was also inscribed to the **UNESCO World Heritage Sites list in July 2016**, becoming the first mixed heritage site in India.
- It was **recently included in UNESCO's MAB program**.
- **Cultural Significance**
 - There are few lepcha tribal settlements inside the park.
 - The Park contains Tholung Monastery, a gompa located in the park's buffer zone.
- **Neighbouring Protected Area**
 - In the **north** it adjoins the **Qomolangma National Nature Preserve** in Tibet and in the **West** the **Kanchenjunga Conservation** area in Nepal.
- **Important Fauna:** Musk deer, snow leopard, Himalayan Tahr, red panda, Himalayan Black Bear, Himalayan Blue Sheep etc.



18. ASSAM – NP

National Parks in Assam - After addition of two national parks in June 2021, Assam now has **7 National Parks (2nd highest in the country)**



1) RAIMONA NATIONAL PARK

- **Details**
 - It is a national park in Assam, India located in Gossaigaon subdivision of Kokrajhar district. It is located within the Bodoland Territorial Region.
 - The area includes the northern part of the notified Ripu Reserve Forest, which forms the western buffer to the Manas National Park.
- **Boundaries:**
 - Raimona is bounded in the **West** by the **Sankosh river** (along the Assam-WB border) running southwards from the India-Bhutan border.
 - **Saralbhanga river** on the east forms the eastern boundary.
 - **Pekua river** defines the NP's southern boundary.
 - It also shares the contiguous forest patches of the Phipsoo WLS and the Jigme Singye Wangchuk National Park in Bhutan creating a transboundary conversion landscape.
- Such secured transboundary ecological landscape will ensure the long-term conversation of endemic species like the golden langur, the mascot of Bodoland Territorial Council and the endangered species such as the Asian Elephants, the Bengal Tiger etc.



2) MANASA NATIONAL PARK

- Situated in the **foothills of the Himalayas and extended to Bhutan**, Manas National Park is one of the most sought after tourist destination in entire North East.
- **History**
 - Declared a sanctuary in 1928
 - **World Heritage Site by UNESCO in 1985**
 - World Heritage Site in danger in 1992 - due to poaching and other instability
 - Tag of World Heritage Site in danger removed - 2010.
- **Important Wild life species**
 - One horned Rhino, Wild Buffaloes, little known white winged duck, and Manipur Bush Quail, among others.
- **Pygmy Hog Conservation Program (PHCP)**
 - The Pygmy Hog Conservation Program (PHCP) is a collaboration among Durrell Wildlife Conservation Trust of UK, Assam Forest Department, Wild Pig Specialist Group of International Union for Conservation of Nature and MoEF&CC.
 - It is currently being implemented by NGOs Aaranyak and EcoSystems India.
 - Under this initiative six Hogs (two males and 4 females) were captured from the Bansbari range of Manas National Park in 1996 for starting the breeding program.
 - **The reintroduction** began in 2008 with Sonai Rupai WLS (35 Hogs), Orang National Park (59) and Barnadi WLS (22).



- With the June 2021 release, the total number of releases in wild under the PHCP program reached **146**, which is more than their total original global population.
- Conservation of Pygmy Hog was initiated by noted naturalist Gerald Durrell and his trust in 1971. Pygmy Hog was brought back from near extinction by the partnership effort, and the efforts are being made towards establishment of a population across the entire range.
- By 2025**, the PHCP plans to release 60 Pygmy Hogs in Manas.

3) ORANG NATIONAL PARK

- It is located on the northern bank of Brahmaputra in the Darrang and Sonitpur districts of Assam.
- Famous Fauna:**
 - Great Indian one-horned Rhino; Pigmy Hog; Elephants, wild buffaloes and tigers
 - Birds: Bengal Florican (CR)** also called Bengal Bustard is one of the flagship species of the park with a population of 30-40
- It is the only stronghold of Rhino on the northern Bank of Brahmaputra.



4) NAMERI NATIONAL PARK

- Nameri is located in Sonitpur district of Assam.
- Shares border with Pakhui WLS of Arunachal Pradesh.



5) KAZIRANGA NATIONAL PARK

- » Situated in the Golaghat and Nagaon district of Assam.
- » It is a **World Heritage site, a tiger reserve, an IBA** and is most famous for its **one-horned Rhinos**.
- » **Fauna**
 - Great one-horned Rhino:** It hosts 2/3rd of the world's one-horned Rhino population.
 - Tigers:** It has one of the highest density of tigers among protected areas in the world.
 - Elephant**, wild water buffalo, swamp deer, Golden Langur
 - Eastern swamp deer (Barasinga) (**VU**)
- » **Geographical feature**
 - It is situated on the banks of Brahmaputra (The river lies to its north and west)



- » It is crisscrossed by 3 other rivers

6) DIBRU SAIKHOWA NATIONAL PARK AND BIOSPHERE RESERVE

- At Tinsukia and Dibrugarh districts of Assam
- Rivers
 - Bounded by Brahmaputra and Lohit rivers in the north and Dibru river in the South.
- Fauna
 - **White winged duck (EN)**
 - The park was created to protect the white winged duck.
 - Water buffalo
 - Black breasted parrotbill
 - Tiger and capped langur
- Flora: The Forest type of Dibru Saikhowa comprises of semi-evergreen forests, deciduous forests, littoral and swamp forests and patches of wet evergreen forests. It is the largest swamp forest in north-east India.



7) DIHING PATKAI NATIONAL PARK

- The national park is a contiguous stretch of forests, starting from **Upper Dihing Forests in the east (under Digboi division of the Tinsukia district)** upto the **Jeypore RF (under the Dibrugarh Division, Dibrugarh district)**.
- It comprises of Pristine forests along the Assam-Arunachal interstate boundary, classified as **Assam Valley Tropical Wet Evergreen Forests**.
 - Dehing-Patkai is sometimes also referred as '**Amazon of the East**'. It is the only rain forest in Assam and also spreads into Arunachal Pradesh.
 - Note: Dehing Patkai forms the largest stretch of the lowland forests in India.



- Being a **completely virgin forest**, the NP is **very rich in biodiversity**. Rare faunae include Chinese Pangolins, Flying Fox, Wild Pig, Sambar, Barking Deer, Gaur, Serow, and Malayan Giant squirrels.
- It is the **only sanctuary in India** which is home to **7 species of wild cats** - Tiger, Leopard, Clouded Leopard, Leopard Cat, Golden Cat, and Marbled Cat.
 - It is a part of Dehing Patkai Elephant reserve.

19. ARUNACHAL PRADESH NPS

1) NAMDAPHA NATIONAL PARK (TIGER RESERVE)

- About
 - It is a protected area in Changlang district of Arunachal Pradesh and is a **biodiversity hotspot** in eastern Himalayas.
 - It is crossed from east-to-west by the **Noa Dihing** river that originates in Chaukan pass, located on the Indo-Myanmar border.
- Fauna
 - **Namdapha Flying Squirrel** was first collected from the park and is described as **endemic** to the park. It is critically endangered and has been recorded only in a single valley within the park.
 - **Dhole, Red Panda, Red Fox** etc are other important mammals found here.
- Important Tribal Groups within the park include **Lisu, Chakma, Tangsa, and Singpho**.



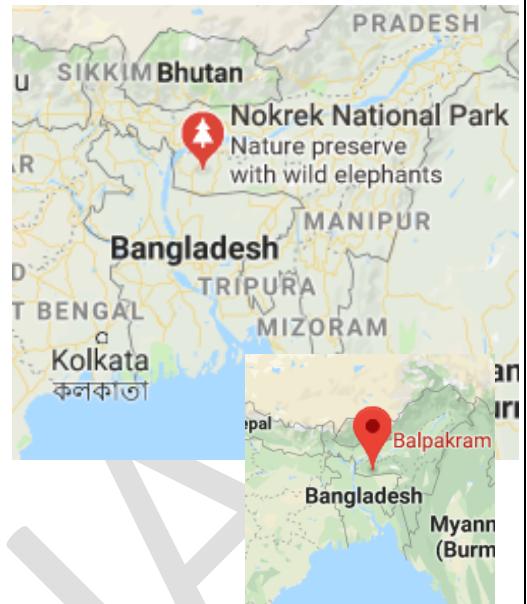
2) MOULING NP

- Spread primarily in upper Siang and East Siang districts
- The Mouling National Park and Dibang WLS are located fully or partly within **Dihang-Dibang Biosphere Reserve**.

20. MEGHALAYA

1) NOKREK NP, CHERRAPUNJI

- Nokrek National Park is the **core area of the Nokrek Biosphere Reserve** is located in West Garo Hills of Meghalaya, India.
- UNESCO added the NP to its list of BR in 2009.
- Along with Balphakram National Park it forms the hotspot of biodiversity in Meghalaya.
- **Important Fauna**
 - » Red Panda, Elephant etc.
- It is also an Important Bird Area.



2) BALPHAKRAM NATIONAL PARK

- It is NP near Garo Hills in Meghalaya. It is located at Extreme south of Garo Hills.
- **Fauna**
 - Red Panda, tiger, elephant etc.

21. MANIPUR NPS

1) KEIBUL LAMJAO NATIONAL PARK

- It is a NP in the Bishnupur district of the state of Manipur.
- Its area is 40 Km² and is perhaps the world's largest floating park.
- It is an integral component of the Loktak Lake. Loktak lake is also the largest freshwater lake of NE India.
- It has also been declared a **Ramsar wetland site.**
- **Important Fauna**
 - Brow Antlered Deer (flagship species), Hog Deer etc.



22. OTHER NPS OF NORTH EAST INDIA

Shiroi (Manipur), Murlen (Mizoram), Phawangpui (Blue Mountain) (Mizoram), Intanki (**Nagaland**), Clouded Leopard (Tripura), Bison (Tripura)

23. RAJASTHAN-NATIONAL PARKS

1) SARISKA NATIONAL PARK (TIGER RESERVE)

- **Location:** Sariska Tiger Reserve is located in the Aravalli Hills, 35 km from Alwar, 250 km SW of Delhi and 110 km NE of Jaipur. It lies in Alwar district of Rajasthan. It was declared as a Tiger reserve in 1978.
- It is a former hunting reserve of Maharaja of Alwar and is home to a variety of flora and fauna.
- The Park has population of tigers, leopards, Nilgai, Sambar, Chital etc.
- It is the **first globally successful reserve to relocate and rehabilitate the tigers.**
- **Other tourist attractions of the reserve**
 - The sanctuary is strewn with ruins of ancient temples dating back to the 10th and 11th centuries.
 - Some of the highlights are the ruins of the Kankwari Fort and the 10th century Neelkanth temples. The way to the temples is rough but the architecture and the Khajuraho-like carvings will simply leave the visitor in awe of the place.
 - Neelkanth Mahadeva, houses the ruins of over 300 Hindu and Jain temples constructed between the 8th and 12th Centuries.
 - Chand Baoli (step well) at Abhaneri is enormous with 3500 steep steps built by the Nikhumbha dynasty is one of the largest stepwells in the world.
 - Note: Alwar is a city dotted with heritage buildings, Forts, tombs and palaces. Some of the important sights not to be missed are Bala Qila, Vijai Mandir Lake Palaces, Fateh jung ki Gumbad, Moti Doongri etc.



2) KEOLADEO GHANA NATIONAL PARK (FORMERLY CALLED BHARATPUR BIRD SANCTUARY)

- **Introduction**
 - » KNP is spread over an area of 28.73 sq km and lies at the confluence of the Gambhir and Banganga rivers in Bharatpur district.
 - » This bird sanctuary hosts thousands of birds especially during winters.
 - » It is also a World Heritage Site.
 - » It is a man-made and man-managed wetland.
 - » Along with Loktak lake, Manipur, KNP is placed on the Montreux Record under Ramsar Convention.
- **Threats by Invasive Alien Species: Report published in Oct 2020**
 - » In a new study published in the journal Biodiversity and Conservation, researchers have categorized the site as facing 'high threat' from biological invasion.
 - » As many as 14 invasive alien species thrive in the park.
 - 9 plant species
 - 2 fish species (Common Carp and African Cat fish)
 - 2 Mammals (Bovine (Bos Taurus) and Rhesus Monkey (Macaca mulatta))
 - 1 moth species (Parapoynx diminutalis)



3) RANTHAMBORE NATIONAL PARK (TIGER RESERVE), SWAI MADHOPUR

- **Introduction**

- Ranthambore NP has an area of 392 km². It was declared as NP in 1980. It is also a tiger reserve.
- In 1985, adjacent forests were declared the **Sawai Man Singh Sanctuary** and **Keladevi Sanctuary**.
- In 1991, tiger reserve was expanded to include Sawai Man Singh and Keladevi sanctuaries.



- **Fauna**

- Ranthambore is most well-known for its **Bengal tigers** and is one of the best places in India to see these animals in their natural habitat.
 - » **Overpopulation of Tigers** in Ranthambore has continuously led to conflicts between tigers.
- Other fauna includes Indian leopard, nilgai, wild boar, sambar, striped hyena, sloth bear, gray langur, rhesus macaque, mugger crocodile and chital.

- **Flora**

- The NP is famous for the **largest banyan tree in India**.

4) DESERT NATIONAL PARK (DNP)

- Situated in Western Rajasthan near **Jaisalmer**. It is the second largest national park of India having an area of 3162 km².
- Sand dunes form around 20% of the park. The major landforms consist of craggy rocks and compact Salt Lake bottoms, intermedial areas and fixed dunes.
- **Abundance of bird life**
 - The region is a haven for migratory and resident birds of the desert.
 - **Gadsisar Lake** is among the tourist places in Jaisalmer. Thousands of migratory birds come to this place every year.
 - Many eagles, harriers, falcons, and vultures are found here.
 - **The great Indian bustard** is also available in fair numbers.



5) DARRAH NATIONAL PARK (MUKUNDARA NATIONAL PARK)/ TIGER RESERVE

- **Mukundra Hills** National Park is also known as **Darrah WLS**. It is located near the Kota town of Rajasthan. It consists of large tracts of forests formerly part of the Maharaja of Kota's hunting grounds.
- The national park is a **combination of 3 WLS**.
 - Darrah WLS
 - Chambal WLS
 - Jaswant Sagar WLS
- In 2013, it became the **third Tiger Reserve** of the Rajasthan.
- After the death of few tigers in 2020, the NP is left with only 1 tiger.



24. GUJARAT NATIONAL PARK

1) BLACKBUCK NATIONAL PARK, VELAVADAR

- Blackbuck National Park, Velavadar, is situated in the Bhavnagar District of Gujarat state, India.



2) MARINE NATIONAL PARK

- It is situated on the southern shore of Gulf of Kutch in the Devbhumi Dwarka district of Gujarat.
- The national park has 42 islands on the Jamnagar coast. Most of these islands are surrounded by reefs. Out of which 33 islands have coral reef. Some of the best-known islands are **Pirotan, Karubhar, Narara, and Poshitra**.



3) GIR NATIONAL PARK

- Gir National Park and WLS located in the Saurashtra Peninsula of Gujarat, is the only natural habitat of world popular Asiatic Lions.
- **7 major perennial rivers** pass through Gir - Hiran, Saraswati, Datardi, Shingoda, Macchundri, Ghodavadi and Raval.
- **Kamleshwar Dam** is a large water body in the Gir Forest, which is good for marsh crocodile, reptiles and birds.



4) VANSDA (BANSDA) NATIONAL PARK

- It is a protected area located in Navsari district of the state of Gujarat.
- There has seen almost no felling of trees since 1952 which has ensured dense forest.
- It is nestled in Western Ghats.



25. MADHYA PRADESH NATIONAL PARKS

1) MADHAV NATIONAL PARK

- It is in the Shivpuri district of Gwalior in NW Madhya Pradesh, India. It is named after Madhav Rao Scindhia, the Maharaja of Gwalior.



2) KUNO NATIONAL PARK

- It was established in 1981 as a Wildlife Sanctuary also known as **Kuno-Palpur WLS**. In 2018, it was given the status of National Park.
- It is part of Kathiawar-Gir dry deciduous forests region.
- In **1990s**, it was being considered for the **Asiatic Lion Reintroduction Program**, which aimed at establishing second lion Population in India.
 - Place of African **Cheetah reintroduction in India**.



3) PANNA NATIONAL PARK (PANNA TIGER RESERVE)

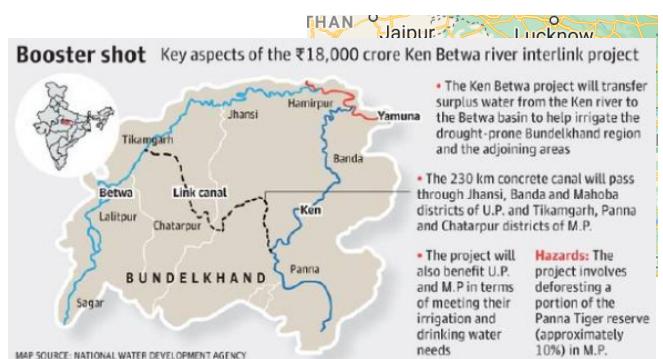
- **About Panna Tiger Reserve/National Park**
 - » It is a TR/NP located in the Panna and Chattarpur district of MP and has an area of 542 km².
 - » **Ken River** flows from South to North through the Panna tiger reserve.
- **Successful Tiger Relocation**
 - » **Background:** Panna tiger reserve was the second tiger reserve in India after Sariska to lose all its native tigers. Though tigers were repopulated in Sariska before Panna, but Panna presently had 3 times the tiger numbers.
 - » **Beginning of Relocation** of tigers started in 2009 when the **T1 tigress** was brought from the Bandhavgarh. Over the years group of 7 founder tigers have mated and produced more than 80 cubs making it a one of the major success stories.
- **River inter-linking and Impact on Panna**
 - » The plan of Gol, and state of MP and UP to interlink **Ken and Betwa** involves construction of 283m long Daudhan Dam. This is expected to inundate 400 hectares of Panna Tiger Reserve and environmentalists have raised concerns regarding this.



Location in Madhya Pradesh, India

4) VAN VIHAR NATIONAL PARK

- It is located in **Bhopal**, the capital city of Madhya Pradesh. It is very small around 4.45 km².
- It has a status of National Park, but it is managed as zoological park, following the guidelines of Central Zoo authority.
- Animals are kept in their natural habitats. Most animals are either orphaned or brought from other zoos. No animal is deliberately captured from the Wild.



5) SANJAY NATIONAL PARK (TIGER RESERVES)

- **About SNP**
 - Located in **Siddhi district** of Madhya Pradesh. The NP is part of Sanjay-Dubri tiger reserve.
- **Note:** Guru Ghasidas National Park is the part of Sanjay National Park which became part of Chhattisgarh on partition of MP. It was renamed to Guru Ghasidas National Park.



6) BANDHAVGARH NATIONAL PARK

- It is located in the Umaria district of MP.
- This park is known for its high tiger density (8 tigers / km²). It was declared a Tiger Reserve in 1993.



7) KANHA NATIONAL PARK (KANHA TIGER RESERVE)

- It is the largest NP of Madhya Pradesh and one of the important tiger reserves of India. Today it stretches over an area of 940 km² in two districts of Mandla and Balaghat.
 - Total Area: 1949 sq km.
 - Core Zone: 940 sq km
- It was declared a national park in 1955 by merging Hallon and Banjar WLS.
- **Important Fauna:** Tiger; Hard ground Barahsingha (*Cervus duvauceli branderi*); Gaurs
- **Major achievements**
 - Important national park for tiger tourism.
 - It is also the only natural habitat of highly endangered hard-ground Barasingha (*Cervus duvauceli branderi*)

8) SATPURA NATIONAL PARK (SATPURA TIGER RESERVE)

- Located in the Hoshangabad district of MP. Its name is derived from Satpura Ranges and its covers an area of 524 km².
- **Adjoining WLS**
 - **Bori WLS**
 - **Pachmarhi WLS**
- SNP also with Bori and Panchmarhi WLS provides an unique central highland ecosystem.
- **Biodiversity rich NP**
 - Leopard, Sambar, Chital, Nilgai, four horned antelope, black buck, mouse deer, Indian giant squirrel etc.
 - **Previous years** have seen rare sightings of tigers, dholes, Indian gaur, Barahsingha etc.



9) PENCH NATIONAL PARK

- It is in Seoni and Chhindwara districts of MP and includes Pench Tiger Reserve.
- It derives its name from **Pench river** that flows through the park from north to South dividing park into almost equal western and eastern halves.

10) OTHER NATIONAL PARKS OF MP

- Dinasour Fossils
- Fossil

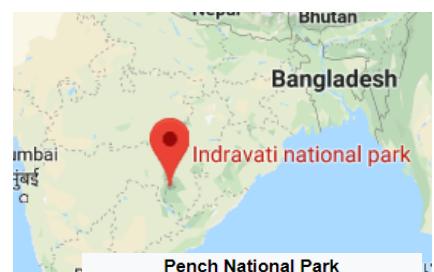
26. CHHATTISGARH NATIONAL PARKS

1) GURU GHASIDAS (SANJAY GANDHI) NATIONAL PARK

- This Park is the result of the carving of Chhattisgarh from Madhya Pradesh in the year of 2000. After Madhya Pradesh was divided in 2000, a large part of the then Sanjay National Park went to Chhattisgarh. Chhattisgarh government renamed this forest area, with an area of 1440.71 km² falling under its jurisdiction, as Guru Ghasidas National Park.
- **Tiger reserves in Chhattisgarh:** At present Chhattisgarh has three tiger reserves:
 - Achanakmar Tiger Reserve in Bilaspur
 - Udanti-Sitanadi Tiger Reserve in Gariaband
 - Indravati Tiger Reserve in Bijapur district
- State government is in the process of declaring Guru Ghasidas National Park into a tiger reserve.

2) INDRAVATI (KUTRU) NATIONAL PARK (TIGER RESERVE)

- » Indravati National Park is a national park situated in Bijapur district of Chhattisgarh state of India. It derives its name from the nearby Indravati River.
 - **Note1:** The Bijapur district is Maoist affected district.
 - **Note2:** The forests in the region are also affected by forest fires. Tribals set fire to forests as it makes it easier for them to collect mahua flowers during March-April.
- » **Fauna:** It is one of the last populations of **rare wild buffalo** (IUCN: EN)
- » **Flora:** Pre-dominance of sal, teak, bamboo, **Mahua** etc.



3) KANGER VALLEY NATIONAL PARK



Why in news?

Bird watchers recorded 200 bird species in Chhattisgarh's Kanger Valley National Park (Dec 2022)

Bird Species: Bird watchers, and forest department officials counted 200 types of birds in Chhattisgarh's first ever inter-state bird survey conducted in the National park from 25th - 27th Nov 2022.

- The survey unveiled that the valley can potentially host species found in the Himalayas, the Northeast, the Eastern and Western Himalayas.

About Bastar Hill Mynah: It is a subspecies of the common hill mynah which is protected under Schedule 1(b) of the WPA.

It is endemic to the Kanger valley National Park.

The jet black colored bird mimics the human voice exceptionally well. For this reason, it is often found in cages and sold as pets in the market.



It is a national park in the Bastar region of Chhattisgarh.

It is one of the densest national parks and is home to the **Bastar Hill Mynah**, the state bird of Chhattisgarh.

The park gets its name from **Kanger river** which flows along the length of the park

27. ODISHA NATIONAL PARKS

1) SIMLIPAL NATIONAL PARK (TIGER RESERVE)

- It is situated in Mayurbhanj district in the Indian state of Odisha. It is part of the Simlipal-Kuldiha-Hadgarh Elephant reserve popularly known as **Mayurbhanj Animal Reserve**, which includes three protected areas - Simlipal Tiger Reserve (2750 km²), Hadgarh Wildlife Sanctuary (191.06 km²) and Kuldiha Wildlife Sanctuary (272.75 km²).
 - Simlipal derives its name from** the abundance of Simul (red silk cotton trees) that bloom here.
 - It is **one of the largest** national parks in India.
 - It is also listed under **UNESCO World Network of Biosphere Reserve**.
 - Faunal Diversity:** Tigers, Elephants, Gaurs, Chousingha etc.
 - Issue of Non-declaration as full-fledged National Park**
 - Though the Simlipal has been accorded the status of National Park provisionally long back but is yet to be declared a full-fledged national.
 - Why not full fledged status?**
 - Families live close to the core area of the forest. Government haven't been able to shift them.



2) BHITARKANIKA NATIONAL PARK

- Introduction**

- It is a national park located in Kendrapara district of Odisha in eastern India.
- **Core area of 145 km²** of the Bhitarkanika WLS spread over 672 Km², has been designated as a National Park.
- **Gahirmatha beach Marine Sanctuary** lies to the east, and separates swamp region cover with canopy of mangroves from the Bay of Bengal.
 - The sanctuary is the second largest mangrove ecosystem in the country.
- It is also a Ramsar convention site.
- **Fauna**
 - **1671 estuarine crocodiles** (saltwater crocodile) were counted living along the Bhitarkanika water bodies.
 - **Other Fauna**
 - White Crocodile, Olive Ridley Sea Turtles, Indian python, King Cobra, black ibis, darters etc.
- **Flora**
 - Mangroves - Sundari, thespia,
 - Grasses like Indigo, Bush etc.
- **Rivers**
 - The NP and WLS is inundated by a number of rivers - **Brahmani, Baitrani, Dhamra, Pathsala** and others
- **3 Protected Areas**
 - The Bhitarkanika National Park
 - The Bhitarkanika WLS
 - The Gahirmatha Marine Sanctuary
 - **Recent Development:**
 - » The Orissa High Court constituted a three-member committee on February 26, 2021 which will submit a report on the conservation of sea turtles in Gahirmatha marine sanctuary. This action followed media reports saying 800 Olive Ridley turtles have died since Jan 2021 due to negligence of state's forest and fisheries department.



28. MAHARASHTRA NATIONAL PARKS

1) GUGAMAL NATIONAL PARK

- Located in Amravati District of Maharashtra, it is part of Melghat Tiger Reserve.



2) PENCH NATIONAL PARK AND TIGER RESERVE

- Pench Tiger reserve is one of the premiere tiger reserves of India and the first one to straddle across two states - Madhya Pradesh and Maharashtra.

- The tiger reserve consist of **Indira Priyadarshini Pench National Park**, the **Pench Mowgli Sanctuary** and a buffer.
 - It is the same forest area portrayed in the famous 'Jungle Book' by Rudyard Kipling.
- The tiger reserve derives its name from the **Pench river** which is its lifeline.

3) NAVEGAON NATIONAL PARK

- It is a national park located in **Gondia district** of Maharashtra.
- It's role as **Bird Sanctuary** is very significant. It is home to **almost 60% bird species** found in whole of Maharashtra.
 - The beautiful **Navegaon lake** is known for its pollution free water and attraction of birds.
 - The area around the lake is known as **Dr. Salim Ali Bird Sanctuary**.



4) TADOOA NATIONAL PARK (TADOOA ANDHARI TIGER RESERVE)

- **Details**
 - It is Maharashtra's **oldest and largest National Park**. It is also one of the 54 tiger reserves in India. It is located in Chandrapur district of Maharashtra.
- The total area of the tiger reserve is 1,727 km², which includes the Tadoba National Park, created in 1955.
 - The Andhari WLS was formed in 1986 and was amalgamated with the park in 1995 to establish the present **Tadoba Andheri Tiger reserve**. This is **most famous of MHA's six tiger reserves**.
- **Fauna**
 - **Keystone Species:** The Bengal tiger
 - Other Mammals: Indian leopards, sloth bears, gaur, nilgai , dhole, striped hyena, small Indian civet, jungle cats.
- **Vegetation of the park**
 - Southern tropical dry deciduous
 - Teak is the most common tree.
- **Two lakes and 1 river in the park**
 - Tadoba lake and Kolsa lake.
 - Tadoba river (also Andhari river (a minor river in Wainganga basin)) flows through the Andheri WLS)



5) SANJAY GANDHI NATIONAL PARK (SGNP) (BORIVALLI)

- It is located in Mumbai, Maharashtra. It is a rare example of a national park situated within a metropolitan and is also one of the most visited parks in the world.
- This is famous for the site of Ancient Kanheri caves.

6) CHANDOLI NATIONAL PARK

- It is a national park spread over Satara, Kolhapur, and Sangli district of Maharashtra. It was established in 2004.
- It is the southern portion of the **Sahyadri Tiger Reserve**.
- It is located near Chandoli dam. It lies between **Koyna WLS** and **Radhangiri WLS**.
 - Sahyadri Tiger Reserve**
 - It was created in 2007, by including all of **Chandoli Tiger Reserve** and **Koyna WLS**.
 - Chandoli Tiger Reserve** forms the southern portion of the reserve.
 - The tiger reserve is known for its population of Tigers and Leopards.



29. TELANGANA NATIONAL PARKS

1) KASU BRAHMANANDA REDDY NATIONAL PARK

- It is located in the Jubilee Hills and Banjara Hills of Hyderabad. It's a small park with a total area of 1.6 km^2 .
- The Park also houses the **famous Chiran palace**.
 - It was built in 1960. The entire palace complex is spread over an area of about 400 acres and was given to Prince Mukarram Jahan on his coronation by his Father Prince (Azam Jahan) in 1967.



2) MAHAVIR HARINA VANASTHALI NATIONAL PARK

- It is a deer national park located in Vanasthalipuram, Saheb Nagar, Hyderabad, Telangana.
- It is the largest green lung space in the city of Hyderabad.



3) MRUGVANI NATIONAL PARK

- Details:**
 - It is a small national park located in Hyderabad. Its total area is 3.6 sq km.



30. ANDHRA PRADESH NATIONAL PARKS

1) PAPIKONDA NATIONAL PARK

- The WLS was upgraded to the National Park Status in 2008.
- The river **Godavari** flows through the park.
- Important Fauna** include Tigers, Leopards, Sloth bear, small Indian Civet, nilgai, four-horned antelope etc.
- It is located in Papi Hills in the East Godavari and the West Godavari districts.
- It is also an important bird area.



2) RAJEEV GANDHI (RAMESHWARAM) NATIONAL PARK

- It is located in Rameswaram of **Kadappa district** of Andhra Pradesh, India. It is a small national park of 2.4 sq km and lies on the bank of Penna River.
- **Note:**
 - Few other national parks in the country have been named after Rajeev Gandhi
 - Mukundara Hills National Park in Rajasthan, Nagarhole National Park in Karnataka etc.



3) SRI VENKATESWARA NATIONAL PARK (PART OF SESACHALLAM BIOSPHERE RESERVE)

- Located in eastern ghats and spread over Seshachallam Hills of Chittoor district.
- It receives most of its rainfall from north-eastern monsoon.
- **Vegetation:** Dry Deciduous mixed forests with patches of moist deciduous forests.



31. GOA – NATIONAL PARK

1) MOLLEM NATIONAL PARK AND BHAGWAN MAHAVEER WLS

- Located in Western Ghats, Goa, along the eastern border with Karnataka.
- It contains several important temples dating to the Kadambas of Goa, and home to waterfalls, such as **Dudhsagar Falls** and **Tambdi Falls**.
- The park is also home to **nomadic buffalo herders** known as **Dhangar**.

32. KARNATAKA – NATIONAL PARK

1) KALI TIGER RESERVE (ANSHI NATIONAL PARK)

- It is a tiger reserve situated in Uttar Kannada district of Karnataka.
- The park is habitat of Bengal Tiger, Black Panther and Indian Elephants.
- The **Kali river** flows through the Tiger reserve and is the lifeline of the ecosystem and hence the name. The tiger reserve is spread over an area of 13,00 sq km.



2) KUDREMUKH NATIONAL PARK

- Dakshin Kannada district of Karnataka.
- Located in Western Ghats.
- NP divided into four ranges
 - Kudremukh, Kerekatte, Kalasa, Shimoga.
- **Flora**
 - Plantation of eucalyptus, casuarinas etc.
- **Fauna**
 - Tiger, leopard, wild dog, Malabar giant squirrel, common langur, sloth bear, gaur, Porcupine sambar, barking deer etc.
 - **Birds' species**
 - » Malabar Trogon, Malabar Whistling thrush, great pied hornbill, and the imperial pigeon
- **Other attraction**
 - Kadambi waterfall



3) BANNERGHATTA NATIONAL PARK

- Near Bangalore, Karnataka
In 2002, a portion of the park was made a **biological reserve**. It is a popular tourist destination with zoo, a pet corner, an animal rescue center, a butterfly enclosure, an aquarium etc

4) BANDIPUR NATIONAL PARK

- **About Bandipur Tiger Reserve**
 - Bandipur was established in 1974 as a tiger reserve under Project Tiger, is a national park located in Chamarajanagar and Mysore district of south Indian state of Karnataka. Bandipur is known for its wildlife and had many types of biomes, but dry deciduous forest is dominant.
 - It is about 80 km² from the city of Mysore on the route to a major tourist destination of Ooty. As a result, Bandipur sees a lot of **tourist traffic** and there are a lot of **wildlife fatalities** caused by speeding vehicles that are reported each year. There is a ban on traffic from the hours of dusk to dawn to help bring down deaths of wildlife.
- The national park spans an area of 874 sq km and protects several species of India's endangered species.
 - Together with adjoining Nagarhole National Park (KAR) (643 sq km), Mudumalai National Park (320 sq km), Wayanad WLS (344 sq km), it is part of Nilgiri Biosphere Reserve.
- **Dominant Flora:** Teak, Rosewood, Sandalwood etc.
- **Dominant Fauna:** Tiger, Elephant, Gaur, Sambhar, Chital, Deer, Antelope, Wild Boars etc.



5) NAGARHOLE NATIONAL PARK (TIGER RESERVE) (ALSO KNOWN AS RAJIV GANDHI NATIONAL PARK)

- Located in Kodagu and Mysore district of Karnataka. It is located on the north-west of Bandipur National Park.
- It is also part of Nilgiri Biosphere Reserve.
- It is also recognized as **Important Bird Area (IBA)**
- **Important Biodiversity:** **Tigers**, Gaur, Elephants, Indian Leopard etc.
- **Tribes Commonly found in the forest**
 - **Jenu Kurubas** - primary inhabitants - slowly disappearing



33. KERALA – NATIONAL PARKS

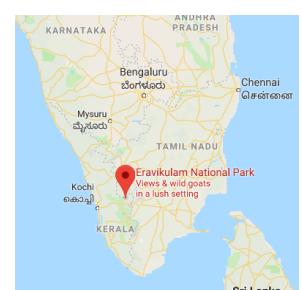
1) SILENT VALLEY NATIONAL PARK

- **Introduction**
 - It is the core of Nilgiri International Biosphere reserve and is part of Nilgiri Sub-Cluster (6000 km²), Western Ghat World Heritage Site recognized by UNESCO in 2007.
 - It consists of undisturbed tracts of Southwestern Ghats Mountain rain forests and tropical moist evergreen forests of India.
- **Location:** Nilgiri Hills, within the **Palakkad district of Kerala**, South India.
- **Important Water Bodies**
 - River **Kunthi** (Kunthipuzha) descends from the Nilgiri Hills above an altitude of 2000 m and traverses the entire length of the valley finally rushing down to the plains through a deep gorge.
 - It is a tributary of Thuthapuzha which in turn is tributary of Bharathapuzha river (second largest river of Kerala after Periyar River)
- **Important Animal Species**
 - Lion Tailed Macaque, Nilgiri Langur, Malabar Giant Squirrel, Nilgiri Tahr etc.
 - Silent valley Bush frog (Raorchestes silent valley), first described in 2016, is named after the park.



2) ERAVIKULAM NATIONAL PARK

- It is a 97 km² national park located along Western Ghats in the Idukki district of Kerala.
- It was the first National Park in Kerala (Now Kerala has 6 National Parks)
- It is a **UNESCO World Heritage Site**.
- It is the national park with **highest numbers of endangered Nilgiri Tahr**.
- **Other important species** found in Eravikulam National Park includes **Tiger, lion tailed macaque, gaur, leopard, Dhole** etc.
 - **Elephants** also make seasonal visit.



3) PAMPADUN SHOLA NATIONAL PARK

- Located in **Idukki** District, it is the **smallest National Park** of Kerala.
- The Park protects a moderate amount of montane evergreen forest that is associated with the wildlife rich Eravikulam National Park.
- **The keystone species** here are highly elusive and endangered, endemic small carnivore - the Nilgiri Marten, Leopards, and Indian Wild Dogs.



4) MATHIKETTAM SHOLA NATIONAL PARK

It is a small NP in Idukki district of Kerala state, South India.

5) ANAMUDI SHOLA NATIONAL PARK

It is a small NP in the Idukki District of Kerala.

It consists of Mannavan Shola, Idivara Shola, and Pullardi Shola, covering a total area of 7.5 km².

6) PERIYAR NATIONAL PARK AND WLS

- Also, an **Elephant Reserve and Tiger Reserve**
- Protected area in districts of Idukki and Pathanamthitta in Kerala, India.
- Area of **925 Km²**, Core area of 305 Km² was declared as the Periyar National Park in 1982.
- The park forms the **major watershed of two important rivers**, the **Periyar and the Pamba**.
- It is often called the **Periyar Wildlife Sanctuary or Thekkady**. It is located in the Cardamom hills and Pandalam hills or the South Western Ghats along the border of Tamil Nadu.

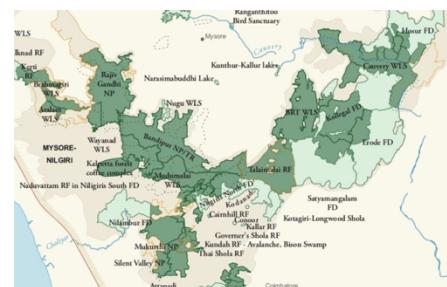
34. TAMIL NADU – NATIONAL PARKS

1) GUINDY NATIONAL PARK

- A very small national park (2.70 km²), located in **Chennai**.
- The park is an extension of the grounds surrounding Raj Bhavan, formerly known as the '**Guindy Lodge**' - the official residence of the Governor of TN.

2) MUDUMALAI NATIONAL PARK, WLS AND TIGER RESERVE

- It lies on the north-western side of the Nilgiri hills, **Nilgiri** district. It is located northwest of Coimbatore city in **TN**. It shares its boundaries with state of Karnataka (Bandipur) and Kerala (Wayanad WLS).
- It is part of the **Nilgiris Biosphere Reserve**
- The **Mysore Ooty Highway** runs through the park.
- **Moyer river** separates **Bandipur and Madumalai**. This river flows along the border of Kerala and TN.



- It is part of Nilgiri Biosphere reserves.

3) MUKURTHI NATIONAL PARK (EARLIER KNOWN AS NILGIRI TAHR NATIONAL PARK)

- It is a NP located in the western corner of the Nilgiri Plateau and north-western corner of TN.
- The Park was created to protect **its key stone species Nilgiri Tahr**.
 - Other important fauna of the park includes Tiger, Elephant etc.
 - Other threatened species of the park is Nilgiri Tahr, Nilgiri Marten, Nilgiri Langur etc.
- The park is characterized by **montane grasslands** and **shrublands** interspersed with Sholas in a high altitude area of high rainfall, near freezing temperature and high winds.
- Park is part of Nilgiri Biosphere Reserve and as part of **Western Ghats** it is also a UNESCO World Heritage site.
- **Culture**
 - **Toda tribe** of the region have harvested firewood from Shola and graze their hill buffaloes in the hill for centuries.



4) ANAMALAI TIGER RESERVE/ INDIRA GANDHI WLS AND NP

- Anamalai Tiger reserve, earlier known as Indira Gandhi WLS & NP is a protected area located in the Anaimalai hills of **Coimbatore district and Tiruppur district of Tamil Nadu**.
- **Important Mammals**
 - Bengal tiger, Indian Elephant, and Indian Leopard, Nilgiri Tahr and lion tailed macaque



5) GULF OF MANNAR NATIONAL PARK

- It is a NP which consists of 21 small islands and adjacent coral reefs in the Gulf of Mannar in the Indian Ocean.
- It is also the **core area of Gulf of Mannar BR** which also includes a 10 km buffer zone around the park, including the populated coastal area.

35. ANDAMAN AND NICOBAR ISLANDS

1) BASICS: UNDERSTANDING THE DISTRIBUTION OF ISLANDS IN A&N

- The **mains Islands** that come under the Andaman & Nicobar Islands are:
 - » **North Andaman, Middle Andaman, South Andaman, Little Andaman, Car Nicobar, Little Nicobar, and Great Nicobar.**
 - They are protruded parts of the oceanic fold mountains formed during tertiary epoch. Here are more than 350 islands of which only 38 are inhabited.
 - **Port Blair** - the capital of A&N Islands is situated in South Andaman.
 - **The Indira Point**, the southernmost point of India is the southern point of Great Nicobar Island.
 - **The Barren Island** which is India's only active volcano is situated in the east of Middle Island.
 - **Narcondam Island** (situated in north eastern part of North Andaman) is a volcanic island.
 - **10 degree channel** (10 degree N Latitude) separates Andaman and Nicobar Islands.
 - **Duncan Pass** is between South Andaman and Little Andaman.
 - **Coco Strait** - is between Coco Islands (Myanmar) and North Andaman.
 - **Saddle Peak** is the highest peak of A&N Islands (North Andaman, 738 m). It is followed by **Mt. Thullier** (Great Nicobar, 642 m)



2) MAHATMA GANDHI MARINE NATIONAL PARK

- It is national park on Andaman Island. It belongs to southern Andaman administrative district.
- **Two major island groups in the park:** Labyrinth Island and the Twin Island.

3) MOUNT HARRIET NATIONAL PARK

- **A national park in A&N islands**
 - **Mount Harriet** (383 m / 1,257 ft) is part of the park and is the third highest peak in the A&N archipelago next to saddle peak (in North Andaman - 732 m) and Mount Thullier (568 m in Great Nicobar).
 - **Important Faunal Species** are **Andaman Wild Pigs, Shrews** (Andaman and Jenkins), Saltwater Crocodile, turtles etc.
 - The park is also a butterfly hotspot.

4) OTHER IMPORTANT NATIONAL PARKS OF A&N ISLANDS

- Campbell Bay National Park
- Galathea Bay National Park
- Rani Jhansi National Park
- Saddle Peak National Park

36. WILDLIFE SANCTUARY

- The Wildlife (Protection) Act of 1972 provided for the declaration of certain areas by the state government as wildlife sanctuaries if the area was thought to be of adequate ecological, geomorphological and natural significance.
 - There are more than 500 WLS in India. Out of these Tiger reserves are governed by Project Tiger.
- In some cases central government can also declare an area to be WLS.
- **Human activities**
 - Some restricted human activities are allowed in WLS as specified in the Wildlife (Protection) Act of 1972.

1) CHANGTHANG WLS

The Changthang WLS (or the Changthang Cold desert WLS) is a high altitude WLS located in the Ladakhi adjunct of the Changthang plateau in the Leh district of the Union territory of Ladakh.

It is one of the few places in India with a population of Kiang or Tibetan Wild Ass, as well as the rare, Black-necked crane.

India's **first night sky reserve** is being developed here.



2) MAHARANA PRATAP SAGAR SANCTUARY

Introduction

- It is a lake sanctuary in the Kangra district of HP, spread over across 450 sq km.
- The sanctuary is locally known as Pong dam Lake and is located about 60 km southwest of Dharmshala.
- It is one of the **80** International Wetland sites declared in India by the **Ramsar Convention**.
- The reservoir is also leading source of fish in Himalayan states.
- **Birds**
 - The Lake is popular for the birds like Surkhabs, red necked grebes, terns etc.
 - Thousands of migratory ducks from Siberia come here every year.
- **Animal**
 - Barking deer, Sambar, wild boars, leopards and oriental small clawed otters.



3) NANDHAUR WLS

- About the WLS

- The sanctuary is located **near the Nandhaur river in Kumaon, UK** and spread over an area of **269.5 sq km**. It was created in 2012. The sanctuary is part of Terai Arc Landscape (TAL), a forest zone that stretches from Uttarakhand in India and extends in Nepal.
- **Flora**
 - » Primarily a **Sal** forest. Contain other 100 species of trees, over 30 species of shrubs etc. **Shisham, Bamboo, Teak and Chir pine** are important trees.
- **Fauna**
 - » Tiger, leopards, elephants, sloth bears etc.
- **Tiger Population in Nandhaur** is increasing and so is the demand for declaring Nandhaur as a **Tiger reserve**



4) TAL CHAPPAR SANCTUARY

Location: Churu district of Northwestern Rajasthan in the Shekhawat Region.

Important Features:

- Known for **Blackbucks** and is also home to variety of birds.
- It has almost flat tract and interpersed shallow low-lying areas. It has open grassland with scattered Aracia and Proposis which gives it appearance of a typical Sawana.
- **Tal:** The rain water flows through shallow low lying areas and collect in small seasonal water ponds.
- **Fauna:** It is famous for **blackbucks** and is home to a variety of birds.



Location in Rajasthan, India

Updates (Dec 2022): The Sanctuary got protection from plan to reduce its size.

- The Rajasthan government had planned to reduce the size of ESZ around it.
- But, **the Rajasthan High Court**, has intervened through a suo motu PIL to protect the sanctuary. It took into cognizance of reports that its area was going to be reduced to three sq km under pressure from mine owners and stone crusher operator. The court ordered a "complete prohibition" on any action to reduce the WLS area.

5) MAHANANDA WLS

- It is situated in the foothills of Himalayas between the **Tista and Mahananda River**, in the **Darjeeling district** of WB.

6) POBITARO WLS

- **Introduction :**
 - It is located in Morigaon district of Assam, 30 km east of Guwahati.
 - It is known for dense population of the Great-Indian one-horned Rhino and is also called **Mini-Kaziranga**.
 - » 102 rhinos in 16 km². Pobitora has the world's densest population of one horned Rhino. The WLS has exceeded its Rhino bearing capacity.
 - » **Rhino Breeding program** is running successfully within the sanctuary under the Indian Rhino Vision 2020.
 - It covers flat flood plains and a hillock (Raja Mayong).
- **Boundaries**
 - Its boundary is made by GrangaBeel on South and the river Brahmaputra on North.
- **Biodiversity**
 - One-horned Rhino, leopard, wild boar, Barking deer, wild buffaloes etc.
 - Home to 200 migratory birds and various reptiles.
 - It is also an Important Bird Area.



7) TALLEY VALLEY WLS

- Talley valley WLS is located in Arunachal Pradesh. It is also a biodiversity hotspot.
- Talley is a plateau with a height of 24,00 meters. It is covered with dense forest of silver fir, pine etc.
- Rivers like Pange, Sipu, Karing, and Subansiri flows through the reserved forest and WLS.



8) PAKKE TIGER RESERVE (PAKHUI TIGER RESERVE/WLS)

Pakke tiger reserve/ Pakhui Tiger reserve is located in Pakke Kasang district of Arunachal Pradesh.

It had won the India Biodiversity Award 2016 in the category of 'Conservation of threatened species' for its **Hornbill Nest Adoption Programme**.

Rivers: It is bound by Kameng river in the west and Pakke river in the east.



Adjoining Protected Areas: The sanctuary adjoins Nameri National Park of Assam in the South. West of Kameng river lies Sessa Orchid Sanctuary and Eaglenest WLS.

- **Pakke Paga Hornfill Festival (PPHF)**

- 9th edition of the PPHF was held in Jan 2024 in the town of Seijosa in Arunachal Pradesh's Pakke Kessang district. It gave a call for protection and conservation of hornbills.
 - » Theme for 2024: 'Domutoh Domutoh, Paga hum Domutoh', translates to 'Let Our Hornbills Remain' in Nyishi, emphasizing the critical need to preserve the iconic birds.
 - » Note: Seijosa is located near the Pakke tiger reserve, which is home to four species of hornbills - Wreathed, Great Indian, Oriental Pied, and Rufous Necked.
 - The area is traditionally homeland to the **Nyishi people**, the largest tribal group of Arunachal Pradesh.
 - The first ever PPHF was held on Jan 16-18, 2015 with the aim to recognize the role played by the Nyishi in conserving the hornbills. The aim was to recognize the role played by the Nyishi in conserving hornbill in PTR.
 - » Note: The Nyishi had formerly hunted hornbills and used their bills to craft traditional headgear. They had later turned into hornbill conservationists.
 - PPHF was declared a state festival by the then-Arunachal Pradesh CM Prem Khandu in 2019

9) DAMPA TIGER RESERVES

- It is the largest WLS in Mizoram and was notified in 1985. It was declared a tiger reserve in 1994.
- **Location**
 - It is situated in the western part of Mizoram state, at the international border with Bangladesh.
- **Important Fauna**
 - It is natural home of leopards, Indian Bison, barking deer, sloth bear, gibbons, langur, slow lorises, etc.



10) NATIONAL CHAMBAL SANCTUARY (OR THE NATIONAL CHAMBAL GHARIAL WLS)

- **About National Chambal Sanctuary**

- It is a tri-state protected area in northern India for the protection of the Gharial (CR), the Red Crowned Roof Turtle (CR) and Ganges River Dolphin (EN).

- It is located on Chambal river on the tripoint of Rajasthan, Madhya Pradesh and Uttar Pradesh.
- It has sanctuary status under the WPA, 1972.
- All three states have separately notified this for territories in their states.
- **Declaration of area around the Chambal Sanctuary as Eco-sensitive zone (March 2020)**
 - Central government has notified an area to an extent of zero to two kms around the sanctuary as Eco-Sensitive Zone.

11) HAZARIBAGH WLS

- In Jharkhand
- **Biodiversity**
 - The sanctuary and its fringe forests have more than 400 deer, mainly the large sambar and the Sprightly and spotted Chital species that are protected under Wild Life Law.
 - The sanctuary is also home to Hyenas, sloth bears, black bears, Nilgai, several types of monkeys, snakes and 180 species of birds.

12) SATKOSIA TIGER RESERVE

- **About Satkosia Tiger Reserve**
 - It is a tiger reserve located in the Angul district of Orissa, India covering an area of 988 km².
 - Satkosia Gorge WLS was created in 1976 with an area of 796 km².
 - Satkosia Tiger Reserve was designated in 2007, and comprise the Satkosia WLS and the adjacent Baisipalli Wildlife Sanctuary.
- **River**
 - It's located where the Mahanadi River passes through a 22 km long gorge in the Eastern Ghats mountains.
- **Forest type**
 - Eastern Highlands moist deciduous forests ecoregion. The major plant community includes mixed deciduous forests including Sal and Riverine Forest.



13) NALABANDA BIRD SANCTUARY

- **About Nalabanda Bird Sanctuary**
 - The Nalabanda island is part of the Chilika Lake, India's largest brackish water lagoon. The island gets partially submerged during Monsoon. As the monsoon recedes in winter, water levels decrease, and the island is gradually exposed.
 - Birds flock to the island in large numbers to feed on its extensive mudflats. It is the largest wintering ground for migratory waterfowl found anywhere on the Indian sub-continent.
 - Some rare and endangered species listed in the IUCN Red List inhabit the lagoon for at least part of their life cycle.



- It was declared a bird sanctuary in 1973 under the **Wildlife Protection Act**.
- It is also core of the **Ramasar** designated wetlands of Chilika lake.
- **About Chilika Lake:**
 - » It is the largest brackish water lake and largest wintering ground for birds in India.
 - » As per the **bird status survey-2022** conducted in the Chilika, a total of 10,74,173 birds of the 107 water bird species and 37,953 individuals of 76 wetland dependent species were counted in the entire lagoon.
 - » **Last year**, the count in Chilika was over 12 lakhs.
 - » **Who conducted the census:** Chilika Development Authority and BNHS.
 - » Chilika lake is the largest wintering ground in Indian subcontinent.



14) THANE CREEK FLAMINGO SANCTUARY

- In 2015, Thane Creek was declared as Flamingo Sanctuary by the Maharashtra government under Section 18 of the WPA 1972.
 - It was Maharashtra's second marine sanctuary after Malvan Sanctuary (Sindhudurg district).
 - By November, about 30,000 birds come to this sanctuary, 90% are lesser flamingos. They stay here till May, then migrate to Kutch in Gujarat.
 - **Other bird species**
 - » About 200, including the globally threatened species like the Greater Spotted Eagle (VU)

15) MHADEI WLS

- **Why in news?**
 - The Goa bench of Bombay High Court has directed Goa government to notify the Mhadei WLS and other areas, referred to in National Tiger Conservation Authority communications and plans prepared by the Goa forest department, as a tiger reserve under the WPA within three months (July 2023: Source - IE)
 - It also said that the state government should take all the steps to prepare a tiger conservation plan and forward it to the NTCA within three months of notifying the reserve.

About Mhadei WLS:

It is a protected area in the Indian state of Goa in Western Ghats. It is located in North Goa district.

The sanctuary is an area of high biodiversity, and is being considered to become a Project Tiger's tiger reserve because of the presence of Bengal Tiger.

The NTCA has suggested on multiple occasions that a tiger reserve be carved out from the uninhabited core zone of Goa's protected area and has requested the state to speed up the process of notifying the Mhadei sanctuary and certain contiguous areas as a tiger reserve.



16) BHADRA WLS (TIGER RESERVE)

- It is a protected area and a tiger reserve as part of Project Tiger. It is located in Chikkamangaluru town in Kar.

17) BUKKAPATNA CHINKARA WLS

- Bukkapatna Chinkara WLS was notified recently in 2019 only. The proposal was approved by the State Board of Wildlife.
- **More Details**
 - Bukkapatna happens to be only the second protected habitat for the rare antelope in the state after Yedehalli in Bagalkot district.
 - Bukkapatna is larger than Yedehalli and it will also be the southernmost tip of the distribution range of Chinkara in India.

18) DANDELI WLS

- It is in Uttara kannada district of Karnataka and covers an area of 866.14 Km².

19) RANGANATHITTU BIRD SANCTUARY (PAKSHI KASHI OF KARNATAKA)

- **About Ranganathittu Bird Sanctuary**
 - Ranganathittu Bird Sanctuary, also known as **Pakshi Kashi of Karnataka**, is a bird sanctuary located in Mandy district of Karnataka. It is located only 3 km away from the historic town of Srirangapatna.
- **Geography**
 - It is the largest bird sanctuary in the state (about 40 acres in area) and comprises of six islets on the banks of Kaveri river.
- **Bird Species**
 - The park is known for roughly 170 bird species including painted stork, Asian openbill stork, common spoonbill, Woolly necked stork, black headed ibis, lesser whistling duck etc.

20) THATTEKAD BIRD WLS

- **About Thattekad WLS**
 - The Thattekad bird Sanctuary, with an area of 25 km² is a small bird sanctuary, located in Kothamangalam, Kerala.
 - It was the first bird sanctuary of Kerala and has been described by Salim Ali (one of the best known ornithologist of India) as the richest bird habitat on peninsular India.
 - It is an evergreen low-land forest located between the branches of Periyar River, the longest river in Kerala.

Key Species

- The bird sanctuary is known for Sri Lankan Frogmouth and other bird endemic to the region. There are 330 bird species in the region, 300 of them endemic to the area.
- The important bird species include Orange headed thrush, large billed leaf barber, Jerdon's nightjar, Oriental Darter, Yellow browed bulbuls etc.

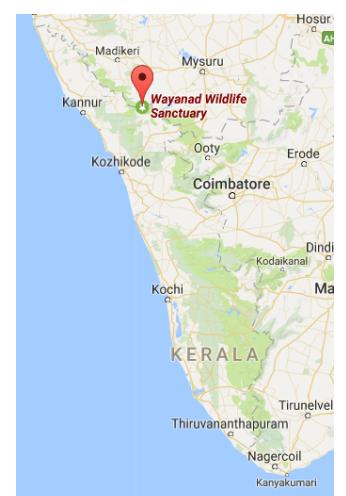
21) CAUVERY WLS

- **Location**
 - The Cauvery WLS is a protected area located in the Mandya, Chamaraja and Ramanagaram districts of Karnataka, India.
- **Physical features**
 - **Largest Protected area in Karnataka**. The sanctuary, is spread over more than 1000 km². It's northern and southern boundary limited by Cauvery river, which drains from west to east.
 - It's eastern and north eastern borders are bounded by the TN state.
 - Cauvery river flows through it for a distance of 101 kilo meters
- **Biodiversity**
 - **Flora**
 - » The dominant species of trees found in the sanctuary are Terminalia arjuna and jambul.
 - **Fauna**
 - » Elephants, wild boar, leopard, dhole, spotted deer, barking deer, sambar, four horned antelope, black naped hare, Malabar giant squirrel, Grizzled giant squirrel which is under the highly endangered category in the state, smooth coated otter.
 - » **Reptiles**
 - Mugger crocodile, Indian mud turtle, Indian Rock Python, Cobra, Russel's viper etc.
 - **Birds**
 - » The sanctuary is listed as an Important Bird Area by Birdlife International.
 - » CR species of White rumped vulture and Indian vulture are found here.



22) WAYANAD WLS

- **Intro:**
 - It is an animal sanctuary in Wayanad Kerala, India.
 - It is an extent of 344.44 km² with four ranges namely Sulthan Bathery, Muthunga, Kurichiat and Tholpetty.
 - Second largest WLS in Kerala.
 - It is now an integral part of Nilgiri BR.
 - It is bounded by protected area network of Nagarhole and Bandipur in Karnataka in the north-east, and on the **South-east** by the Madumalai of Tamil Nadu.
 - **Note:** The sanctuary is separated into two disconnected parts known as the **North Wayanad WLS** and **South Wayanad WLS**. The area in between the two parts was originally a forest region, is now occupied majorly by plantation.



- **Wayanad WLS becomes a migratory destination** for animals from other NP and WLS in the region due to availability of water & fodder in the sanctuary.
 - Mammals such as gaurs migrate to sanctuary from the adjacent Bandipur and Nagarhole national parks in Karnataka and the Mudumalai NP in TN.
- **Proposal of Wayanad WLS as Tiger Reserve:**
 - The attempt of the Kerala forest department to push forward a proposal for notifying the sanctuary as the third tiger reserve in the state was **rejected by the State Wildlife Advisory Board** on account of the public resistance against the proposal.
 - **Arguments supporting the Tiger Reserve Status:**
 - » Highest number of tigers in the state
 - » Tiger reserve status will ensure better financial aid from the Centre and the NTCA which will also lead to better conservation and management of the tiger population and help generate more employment opportunities.
 - **Why the board rejected the demand?**
 - » **Public Protests:** Cattle lifting by the ailing tigers and their straying into human habitats had often triggered widespread public protests in the district.
 - » **Restriction on development activities** which will be brought by the notification have also become an issue.

23) IDUKKI WILD LIFE SANCTUARY

This sanctuary extends over the Thodupuzha and Udumpanchola taluks of Idukki district spreading over 105 Sq. Km. at 450 - 748m above sea level.



- The Idukki reservoir formed by three dams-Cheruthoni, Idukki and Kulamavu-extends to 33 sq km.
- **Common Animals**
 - Elephants, Porcupine, Sambar Deer, Wild Dogs, Jungle Cats, Malabar Giant Squirrel, Wild boar etc.
- **Common Birds**
 - Jungle fowl, Myna, Laughing thrush, Black bulbul, Peafowl, Woodpecker, Kingfisher etc.

24) CHINNAR WILDLIFE SANCTUARY

- **Location:** It is located 18 km north of Marayoor on SH 17, in the Idukki district of Kerala.
- It is under the jurisdiction of and contiguous with Eravikulam National Park to the South.
- Indira Gandhi Wildlife Sanctuary is to the north and Kodaikanal Wildlife Sanctuary is to the east.
- **Roads crossing:** The Munnar - Udumalpet road SH 17 passes through the sanctuary for 16 km and divides it into nearly equal parts.
- **Rivers:** Chinnar and Pambar rivers are the major perennial water resource in the sanctuary.
- **Settlements and crops:**

- 11 tribal settlements inside the Chinnar WLS, each is well demarcated by temporary stone walls
- The main inhabitants are Muthuvas and Pulayars.
- Cultivation of Maize, ragi and lemongrass is carried out
- Madhuvas carry out small scale ganza cultivation for their religious purposes.

25) SATHYAMANGALAM WLS (SATHYAMANGALAM TIGER RESERVE (STR))

- The core or critical tiger habitat in STR is 793.49 sq. km while the buffer or peripheral area is 614.91 sq km. It has a significant population of tiger, elephant, leopards, black buck, gaur, four horned antelope striped hyena, birds, reptiles, amphibians etc.
- It is the largest protected area of TN. It is in the eastern ghats in the Erode district of TN.
 - It acts as gateway to eastern ghats and acts as a significant ecosystem and a wildlife corridor in the Nilgiri Biosphere Reserve between Western Ghats and rest of the Eastern Ghats.
- Also, there are 9 tribal settlements and 18 tribal revenue settlements in STR which are not part of the tiger reserve.



26) SRIVILLIPUTHUR WLS AND MEGAMALAI WLS

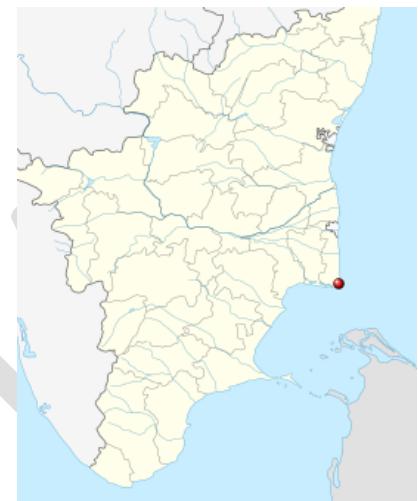
- **Why in news?**
 - In Feb 2021, the Srivilliputhur-Megamalai Tiger Reserve (SMTR), was jointly declared by the Central Government and Tamil Nadu Government.
- **Details**
 - The new tiger reserve (SMTR) is spread over 1016.57 sq km and it has been formed by clubbing Srivilliputhur WLS and Megamalai WLS.
 - Now, they would be eligible for funds from National Tiger Conservation Authority (NTCA).
- **Note:**
 - Megamalai region acts as a catchment for Vaigai river.
 - Vaigai river had faced a lot of problems in the past and it was revived when the water from Periyar river was brought to it after formation of the Periyar dam. Today, Vaigai gets around 80% of its water from Periyar dam. The remaining 20% is got from the watershed of the Megamalai region during the north-eastern Monsoon season.



27) POINT CALIMERE WILDLIFE AND BIRD SANCTUARY

- **About Point Calimere WBS**
 - **Geography**
 - It is a WLS located in Nagapattinam district of TN and is spread across an area of 30 sq m.
 - It comprises of sandy coastal, saline swamps, backwaters, and thorn scrub forests around the backwater.
 - It is located along the Palk Strait where it meets the Bay of Bengal at point Calimere at the south-eastern tip of Nagapattinam.
 - It is also a **Ramsar wetland site**.

- **Important Fauna**
 - **Black buck** (now LC) is the flagship specie of the WLS.
 - It is also famous for large congregation of waterbirds, especially **greater flamingo** (LC).
- **Key Problems faced by the Sanctuary**
 - **Pollution** from surrounding chemical companies.
 - **PH and salinity** of water have exceeded the permissible levels.
 - **Ecological disturbance** by fish farmers
 - **Climate change** has led to an increase in temperature which is negatively affecting the eggs during the pre-incubation period. The higher temperatures are providing better growth conditions for micro-organisms around eggs.
 - There are also high chances of antibiotic resistance among the coliform bacteria.
- **Decrease in number of migratory birds to the WLS**
 - From thousands of birds in the past, now, the numbers have gone down to a few hundred. The birds have started to avoid the sanctuary.



28) KALAKAD WLS AND MUNDANTHURAI WLS

- These were both established in 1962.
- In **1988**, **Kalakkad Mundanthurai Tiger Reserve** was created by combining the two sanctuaries.
 - It is located in the Southern Western Ghats in Tirunelveli district and Kanyakumari district in the southern state of TN.
 - It is the **second largest protected area in TN** (after the Sathyamangalam WLS) in Erode district.
 - It is part of the **Agasthyamalai Biosphere Reserve**.
 - It is also **India's southernmost tiger reserve**.
- The area acts as catchment of Thamiraparani river.



37. CONSERVATION RESERVES AND COMMUNITY RESERVES

- Conservation reserve and community reserves are the outcome of amendment to WPA in 2003.
- They are protected areas, which typically act as buffer zones or connectors and migration corridors to established NPs, WLS, and reserved and protected forests.
- It also provides mechanism to provide recognition and legal backing to the community initiated efforts in wildlife protection.
 - It provides for flexible methods wherein wildlife conservation is achieved without compromising the community needs.

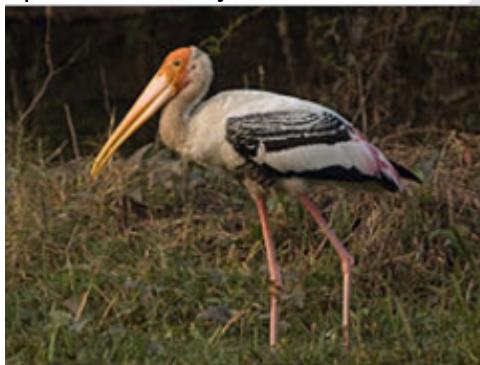
1) CONSERVATION RESERVES

- The area is owned by state government.
- Managed by Conservation Reserve Management Committee.
- **Who declares an area as conservation reserve?**
 - » State government may, after having consultations with the local communities, declare any area owned by the government as conservation reserve.
- When area is marked as conservation reserve, it becomes mandatory for any development projects to get approval of the National Board for Wildlife, and State Board of Wildlife.

A) TIRUPPADAIMARATHUR CONSERVATION RESERVE

- » It was the first conservation reserve established in India.
- » It is an IUCN Category V protected bird nesting area in the 2.84 hectares (7.0 hectares) compound of Siva temple, in Tiruppadaimarathur village, Tirunelveli District, TN.
- » On Feb 14, 2005 it became the first conservation reserve established in India.
- » The reserve is 10 kms from Kalakkad Mundanthurai Tiger Reserve.

Over 400 little egrets, pond heron, and near threatened painted stork nest in the grove of 20 huge, century old marutha, mahwa, neem and illuppai trees and feed in many agricultural fields, a few ponds and the Tamiraparani River adjacent to it



Painted stork



Little egret

B) THREE NEW WILDLIFE CONSERVATION RESERVES IN RAJASTHAN (APRIL 2023)

- **Sorsan** in Baran, Khichan in Jodhpur, and Hamirgarh in Bhilwara
- **Sorsan in Baran:**
 - The grasslands of Sorsan in Baran is a safe home for the Great Indian Bustard, Blackbucks (the state animal of Rajasthan).
- **Khichan in Jodhpur:**

It hosts thousands of migratory Demoiselle cranes. It will be safe home for these birds and will be the first conservation reserve in India for Demoiselle cranes.



IUCN: LC

- With these three additions, there are 26 wildlife conservation reserves in Rajasthan.

2) COMMUNITY RESERVE

- The state government may notify any community land or private land as a community Reserve, provided that the members of the community or individual concerned are agreeable to offer such areas for protecting fauna and flora, as well as their traditions, cultures and practices.
- The reserve is managed through Community Reserve Management Committee.
- No change in the land use pattern shall be made within the community reserve, except in accordance with a resolution passed by the management committee and approval of the same by state government.

A) SINGCHUNG BUGUN VILLAGE COMMUNITY RESERVE

- **Why in news?**
 - Arunachal Pradesh showcased its Singchung Bugun Village Community Reserve, a 17 sq km biodiversity hotspot during the Republic Day parade (Jan 2024)
- **Location:** The village is located in West Kameng district of Arunachal Pradesh and is located about 130 km from Tejpur in Assam. It lies adjacent to Eaglenest reserve.
- **What was the need of creating a community reserve?**
 - Environmentalists and forest department realized that area outside the eagle nest sanctuary was equally diverse and needed protection. This followed multiple rounds of discussions with the villagers over the years to explain what community reserve would mean and most importantly they would retain the land rights. In case the villagers needed to use some of the land for cultivation, they could get it de-reserved through the management committee.
 - Finally the villagers were convinced and they decided to make 17 sq. km of their land into community reserve. The community reserve came into being in 2017 when the state government approved it.
- **In the short time since, the reserve has won the India Biodiversity Award given jointly by the Centre and the UNDP.**



- Reserve has also become a model, with new batches of IFS officers visiting Singchung every year to understand how the reserve was created.
- **Note:** The Buguns are an indigenous community with a population of about 2,000 people, spread across 12 villages that are dotted outside the forests of Eaglenest Wildlife Sanctuary.

B) GOGABEEL COMMUNITY RESERVE AND CONSERVATION RESERVE

- Notified by State of Bihar in Aug 2019.
- **About Gogabeel:**
 - It is an ox-bow lake in Bihar's Katihar district. It is formed from the flow of rivers Mahananda and Kankhar in the north and the Ganga in the South and east. It is a permanent water body though it shrinks to some extent in the summer but never dries up.
 - It is the 15th protected area (PA) in Bihar.
 - It is an important Bird Area. More than 90 bird species have been recorded from this site, of which, about 30 are migratory.
 - » Among the threatened species, the Lesser Adjutant Stork is listed as Vulnerable by the IUCN while the Black Necked Stork, White Ibis and White-eyed Pochard are 'Near Threatened'.
 - The water body was notified as a 57 hectare Community Reserve and a 30 Hectare 'Conservation Reserve'. It is Bihar's first community reserve.
- It is a **big win for conservationists** who had been trying for long to convince both local residents as well as the authorities to declare the important birding site as a Protected Area

C) TILLARI CONSERVATION RESERVE

- In June 2020, the Maharashtra government declared the Tillari Forest Area in the Dodamarg and Sawantwadi range in the coastal Sindhudurg district as a Conservation reserve area.
 - » The reserve covers 9 villages in the forest range and is known to serve as a corridor and even as a habitat for the population of tigers and elephants moving between the three states of Goa, Karnataka and Maharashtra.
- Tillari is the 7th Corridor in Maharashtra which has been declared as a 'Conservation Reserve'.
- **Note:**
 - » The 38 km-long Dodamarg wildlife corridor connects Radhanagri WLS in MHA to Bhimgad WLS in Karnataka. This corridor frequently witnesses elephant and tiger movement.

38. CONSTITUTIONAL PROVISIONS

There are few provisions in Indian constitution which directly or indirectly call for biodiversity conservation.

1. Article 21 (Right to Life and Personal Liberty)

- The Supreme Court on many occasion has interpreted this fundamental right to encompass within its ambit the protection and preservation of environment.

2. Article 48A directs the state to protect and improve the environment and to safeguard forests and wildlife (Article 48A)
 - This was added by 42nd Constitutional amendment in 1976.
3. Article 51A(g) makes it a 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

39. INSTITUTIONS

1) NATIONAL GREEN TRIBUNAL (NGT)

- **National Green Tribunal Act, 2010**
 - An act to provide for the establishment of a National Green Tribunal for the effective and expeditious disposal of cases relating to environment protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incident thereto.
- It is expected to provide **speedy environmental justice** and help **reduce burden of litigation** in higher courts.
 - The tribunal is mandated to make and endeavour for **disposal of applications or appeals** finally **within 6 months** of filling of the same.
- **Other Facts Useful for Pre**
 - **Branches:** The Principle Bench of the NGT has been established in the National Capital - with **regional benches** in Pune, Bhopal, Chennai and Kolkata.
 - **Chairperson** of NGT is a retired judge of the SC.
 - **Other Judicial Members** are retired judge of the High Courts.
 - **Each Bench** -> At least 1 judicial member and one expert member
 - **Expert Members** should have a professional qualification and a minimum of 15 years of experience in the field of environment/forest conservation and related subjects.
- **Powers**
 - The NGT has the power to hear all civil cases relating to environmental issues and questions that are linked to the **implementation of laws listed in Schedule I of the NGT Act**. These include the following:
 - i. The Water (Prevention and Control of Pollution) Act, 1974;
 - ii. The Water (Prevention and Control of Pollution) Cess Act, 1977;
 - iii. The Forest (Conservation) Act, 1980;
 - iv. The Air (Prevention and Control of Pollution) Act, 1981;
 - v. The Environment (Protection) Act, 1986;
 - vi. The Public Liability Insurance Act, 1991;
 - vii. The Biological Diversity Act, 2002.
 - This means that any violations pertaining to these acts only, or any other decisions order taken by government under these laws can be challenged before NGT.

- **Important Note:** The NGT has not been vested with powers to hear any matter relating to the **Wildlife (Protection) Act, 1972**, the **Indian Forest Act, 1927** and various laws enacted by States relating to forests, tree preservation etc. Therefore, specific and substantial issues related to these laws **cannot be raised before the NGT**. You will have to approach the State High Court or the Supreme Court through a Writ Petition (PIL) or file an original suit before an appropriate civil judge of the Taluk.
- **Principles of Justice adopted by NGT**
 - The tribunal not guided by the Code of Civil Procedure, 1908, but shall be guided by **principal of natural justice**.
 - Further, the NGT is not bound by rules and evidence enshrined in the Indian Evidence Act, 1872.
 - » This ensures that it will be relatively easier for conservation groups to show facts and figures before the NGT.
- **Review Appeal** can be made to NGT
- If the review appeal fails, the **NGT order can be challenged** before the Supreme Court within ninety days.

40. COMPENSATORY AFFORESTATION

- **Introduction**
 - Forest land can be diverted for non-forest developmental activities like infrastructural project with approval of state and central government. For this diversion **afforestation must be done as compensation** for diversion of forest and is called compensatory afforestation.
 - Compensation must be paid for loss of forest, including for loss of ecosystem and biodiversity i.e., both tangible and intangible losses. The total valuation of this is called **Net Present Value**. This cost has to be borne by agency responsible for diversion of the state land.
 - In India, according to the Forest Conservation Act, 1980, and the rules and guidelines formed under it, in case of diversion of forest land for non-forestry purposes.
 - The equivalent non-forest land has to be identified for compensatory afforestation.
 - Funds for raising compulsory afforestation has to be imposed.
 - For certain activities additional conditions are imposed.
 - For e.g. in case forest land is being converted for mining purposes - additional conditions like maintaining a safety zone area, fencing and regeneration etc are stipulated.
- **MoEFCC is the nodal agency**
 - Application for clearance (land conversion) must be made to MoEF&CC through the concerned forest department of the state government.
 - The application/proposal should include details of non-forest/degraded forest identified for afforestation purposes, year wise phased targets, species to be planted and a suitability certificate from afforestation/ management point of view.
 - If clearance is given, the **compensation for the lost forest land** is also decided by Ministry and regulators.
- **Criteria for identifying non-forest land for compensatory afforestation.**
 - It should be identified contiguous to or in proximity of reserved forest or protected forest.

- In case the non-forest land is not available in the same district then it should be identified within the same state/UT.
 - If land is unavailable in entire state, funds for raising the CA in double the area in extent of forest land diverted need to be provided by the user agency. And this non-availability of the suitable non-forest land for CA in the state/UT would be accepted by central government only on the certificate of Chief Secretary to the state/UT.
- **Who implements afforestation and development work?**
 - After receipt of the money, State Forest department is to accomplish the afforestation for which money is deposited in the Compensatory afforestation fund within a period of one year or two growing seasons.
 - **How many saplings have to be planted?**
 - In Raghunath Jha vs Ministry of Urban Development Judgment, the National Green Tribunal said that permission to cut tree can be obtained only on the condition that "if any tree is fell or permitted to cut in place thereof **at least, 10 trees** shall be planted.
 - **Advantages of Compensatory afforestation**
 - Balances development with environmental requirements
 - Can help in increasing the tree cover as the compensatory forestation is larger than the fell tree

41. COMPENSATORY AFFORESTATION FUND ACT, 2016

1) BACKGROUND: FORMATION OF CAMPA (COMPENSATORY AFFORESTATION FUND MANAGEMENT AND PLANNING AUTHORITY)

- **Background**
 - In July 2009, the Supreme Court of India issued orders for the formation of **CAMPA** (Compensatory Afforestation Fun Management and Planning Authority) as National Advisory Council under the chairmanship of Union Minister of Environment and Forest for monitoring, technical assistance and evaluation of compensatory afforestation activities.
- **Objectives of CAMPA**
 - Promote afforestation and regeneration activities as a way of compensating for forest land diverted to non-forest uses.
 - National CAMPA Advisory Council has been established as per the orders of the Hon'ble Supreme Court with following mandates
 - » Lay down broad guidelines for state CAMPA
 - » Facilitate scientific, technological, and other assistance that may be required by state CAMPA
 - » Make recommendations to state CAMPA based on their plans and programmes
 - » Provide a mechanism to state CAMPA to resolve issues of an inter-state or Center-state character.

- **State CAMPA**
 - » Would receive the funds
 - » Administer the amount received from Adhoc CAMPA and utilize the funds collected for undertaking compensatory afforestation, assisted natural regeneration, conservation and protection of forests, infrastructural development, wildlife conservation and protection and other related activities.
 - » Would provide an integral framework for utilizing multiple sources of funding and activities relating to protection and management of forests and wildlife.
 - » **In sum, the prime task of State CAMPA would be regenerating natural forests and building up institution engaged in the task in the state forest department.**

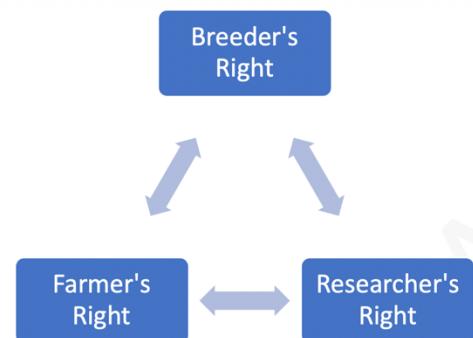
2) COMPENSATORY AFFORESTATION FUND ACT, 2016

- **Main Provisions of the Act**
 - **Statutory Backing to Funds and Authorities**
 - » The act provides legal backing to centre and state funds and regulate how this money will be utilized
 - » The funds would be created under Public Account of India and Public Account of State respectively
 - **What kind of payment would come into fund?**
 - » Payment for compensatory afforestation
 - » Payment for loss of forest ecosystem (Net present value)
 - » Payment for violation and diversion of forest land guidelines
 - » Additional payment for specific projects.
 - **How the funds will split between centre and state**
 - » The state would get bulk of the money (90%) and 10% would go to centre.
 - » The funds will go to Public account of State and Centre.
 - This will bring these funds within the overall oversight and control of parliament and state legislatures.
 - **How the money would be utilized**
 - » **State funds**
 - Compensatory afforestation
 - Regeneration of forests
 - Infrastructure development
 - Forest and wildlife protection
 - » **National Fund**
 - Monitoring purposes and approved schemes of forestry and wildlife
 - **How the fund will manage**
 - » **National CAMPA**
 - Core committee responsible for broader policy and day to day working
 - Specific group of experts from environment, science, economics and other fields responsible for monitoring
 - » **State CAMPAs**

- Responsible for managing state level funds
- **Auditing**
 - » The act also provides for annual audit of the account by CAG.
- **Expected Impact**
 - End of era of Ad Hocism
 - » The statutory authorities at centre and state levels.
 - Expedited Utilization
 - Employment Generation in backward and tribal areas:
 - Increase availability of timber and other forest products:
 - Improving quality of forest
- **MoEF&CC Modifies Compensatory Afforestation Rules for ease of business (May 2019)**
 - States with over 75% forest cover looking to divert forest land for non-forestry projects, can now carry out compensatory afforestation in other states.
 - It will promote ease of business and will give a push to projects stuck for want of non-forest land.

42. PROTECTION OF PLANT VARIETIES AND FARMERS RIGHTS ACT, 2001

- **Need of the law:**
 - Encourage plant breeding activities so that new varieties could be developed. Attract more investment in biotechnology.
 - Protect farmers' rights and interests.
 - Fulfilling the mandate of TRIPS:
 - Article 27.3(b) says that members may exclude plants from patentability - but requires protection for plant varieties in the form of an effective 'su-generis system' or through patents or both.
 - Fulfilling mandates of International Agreements like UPOV (International Union for Protection of Plant Varieties)
 - UPOV- International Union for the Protection of New Varieties of Plants
 - India has initiated the process of joining UPOV, but still not a member. India doesn't follow UPOV and has its own su-generis system.
 - Patent Act, 1970 excluded agriculture and horticulture methods of production from patentability.
- **About the Act**
 - The law was enacted in 2001 to grant IPRs to plant breeders, researchers and farmers who develop any new or extant plant varieties i.e., it has granted rights and protection to all three pillars of agriculture sector.



- **Objectives:**
 - » **Simulate investment for R&D** - both in public and private sector towards development of new plant varieties.
 - » **Facilitate growth of seed industry** in the country by making available high-quality seeds and planting material in the country.
 - » **Recognize the role of farmers** as cultivators and conservers and **contribution of traditional, rural, and urban tribal communities** to the country's agro-biodiversity by **rewarding them for their contribution** through benefit sharing and protecting the traditional right of the farmers.

- **Key Provisions**
 - » **Varieties which are open for registration** - Novel Variety, Extant Variety, Farmer's variety, essentially derived varieties.
 - » **Criterias to be satisfied for registration** - a variety should be **new, distinct, uniform, and stable**.
 - » The IPR granted is a **dual right** - one is for the variety and the other is for denomination assigned to it by the breeder.

 - » **Rights of Farmer's:**
 - Entitled to save, use, sow, re-sow, exchange or sell his farm produce.
 - But farmers can't sell the branded seed of the variety protected under the act.
 - **Farmer's right to register traditional varieties**
 - The act allows the registration of traditional or farmers' variety. Farmer can get Plant breeder rights and the act allows exclusive legal right to PBR-holding farmers.
 - Note: in case of registration of a traditional variety, it is important to involve all communities associated with its conservation. Similarly, in case of farmers' variety, it is important to recognize spousal contribution under joint ownership.
 - Exemption from Payment of fee either for registration or renewal of registration.
 - Farmers right for Reward and Recognition.
 - As per the act, a National Gene Fund is to be created to facilitate reward and recognition to eligible individual farmers and communities. This recognizes farmers who have been contributing in conservation of varietal wealth of crop plants.
 - **Farmers right of benefit sharing**
 - The act provides for equitable sharing of the benefit earned from the new variety with farming or tribal communities that had contributed varieties used as parameters. The benefit share may be reimbursed from the National Gene Fund.
 - **Farmer's right to get compensation for the loss suffered** from the registered varieties
 - **Farmer's right to receive Compensation for undisclosed use of traditional varieties**
 - If the breeder uses Farmers' variety as source material
 - **Farmer's right for the Seeds of Registered Varieties**
 - Seeds of registered varieties should be available to farmers **at affordable prices**. If this doesn't happen within three years of registration, the farmer can raise the matter with PPVFR -Authority.
 - **Protection against innocent infringement.**
 - This protection is only available for the first offence and the farmer is punishable for subsequent offences.

» **Rights of Breeders**

- Right for Production, Sale, Marketing, Distribution, Export and Import
- Penalties for infringement of Breeder's Right.

» **Rights of Researchers**

- Use of registered variety for conducting experiment, as initial source for creating new varieties.
- Free and complete access to protected materials for research use in developing new varieties of plant.
 - However, authorization of the breeder is required "whose repeated use of such variety as parental line is necessary for commercial production of such other newly developed variety".

- **UPOV and India's situation:** Other countries subscribe to the Union for the Protection of Plant Varieties (UPOV), an international agreement with several versions, which offers limited rights to farmers. India has been under constant pressure from the US to join UPOV, an inter-governmental organisation based in Geneva. Several international bodies have warned India against joining UPOV, as they feel it upholds only commercial interests. According to Gol, Indian law is in compliance with UPOV-1978.
- **Significance of the act**
 - » **Recognizes and protects the rights of farmers** in conserving, improving and making available plant genetic resources.
 - » **Enhances agri-growth** by promoting more R&D towards development of new plant varieties.
- **Problems with the law:**
 - » **Lack of proper enforcement:** Seed industry feels that there must be a mechanism to catch and punish those who illegally sell the variety.
 - Unique protection given to farmers can also act as a loophole as an aggregator may also own a small land and call herself a farmer.
 - » **Slow turnaround time for registration of varieties**

1) PEPSICO CASE AND DEC 2021 JUDGMENT

- **Background:**

- » **PEPSICO has sued three Gujarat potato farmers** for growing its proprietary varieties without authorization. The commercial court had stayed farmers from growing and selling the potatoes. But after a lot of protest, Pepsico withdrew the case in May 2019.
- » PEPSICO India holding Pvt limited has informed the court that it uses the registered variety of potatoes called **FL 2027** (of FC5 variety), which is a hybrid of **FL 1867** and **Wischip** varieties, for manufacturing of chip for its brand.
- » The company is registered breeder of the FL 2027 under the protection of Plant varieties and Farmers' Rights Act, 2001.

- **In Dec 2021**, the Protection of Plant Varieties and Farmer's Right Authority (PPV&FRA) revoked PepsiCo India's registration of its potato variety used in Lays chips.

- » In the process, the authority has indicted itself by listing a series of procedural lapses by the registrar in approving the registration despite omissions and fudging in the application submitted by PepsiCo.
- » The argument of farmer's rights and public interest was also used for revocation.
 - The judgment said that **farmers had been put to hardship** including the looming possibility of having to pay huge penalty on the purported infringement they were supposed to have been committing noting that Pepsico had claimed damages of more than Rs 1 crore each from small farmers. This **violated public interest**.
- **Significance:**
 - » After this judgement, the process of registration is expected to get more streamlined as the authority has identified several procedural flaws

43. THE SCHEDULED TRIBES AND OTHER TRADITIONAL FOREST DWELLERS (RECOGNITION OF FOREST RIGHTS) ACT, 2006

- **Background: Need of the law -> Ending the Exploitation under the Indian Forest Act, 1927**
 - Under the **Indian Forest Act, 1927** areas were often declared to be "**government forests**" without recording who lived in the areas, what lands they were using, what uses they made of the forests and so on.
 - **Consequences**
 - » **End of pre-existing traditional rights**
 - » **Eviction, Harassment, exploitation and loss of livelihood**
 - » **Destruction of forests**
 - The loss of more than 90% of India's grasslands to commercial Forest Department plantations
 - Destruction of large areas of forest for mines, dams and industrial projects
 - » **Community management system was destroyed**
- **Introduction**
 - The 2006 law concerns with rights of forest dwelling communities to land and other resources, denied to them over decades as a result of the continuance of colonial forest laws in India.
- **Main Objectives of the 2006 act**
 - i. Grant **legal recognition to the rights of forest dwelling communities**, partially correcting the injustices caused by the forest laws.
 - ii. To address the adverse living conditions of many tribal families living in forests.
 - iii. Make a beginning towards giving communities and the public a voice in forest and wildlife conservation.
- **Nodal agency** for implementing the act: The Ministry of Tribal Affairs
- The main **Provisions** can be summarized as follows
 1. **Individual Forest Rights/ Land Ownership** to land that is being farmed by tribals or forest dwellers as on 13 Dec 2005, subject to maximum of 4 hectares.
 - **Three steps in recognizing land ownership rights under the**
 - Section 6 of the act provides a transparent 3 step procedure for deciding who gets the rights

- » **First**, the gram Sabha (full village assembly, NOT gram Panchayat) makes a recommendation - i.e., who has been cultivating land for how long, which minor forest produce is collected etc.
 - » **Two stages of screening committee**
 - Gram Sabhas recommendation goes through two stages of screening committees at the Taluka and district levels.
 - The district level committee makes the final decision.
2. **Community Rights -> Resource Use Rights** - to minor forest produce (also including ownership), to grazing areas, to pastoralist routes, etc.
 3. **Forest Protection and Management Rights** - to protect forest and wildlife
 - This include right to protect, regenerate, or conserve or manage any community forest resources which they have been traditionally protecting and conserving for sustainable use.
 4. **Relief and Development Rights** - to rehabilitate in case of illegal eviction or forced displacement, and to basic amenities, subject to restrictions for forest protection.
 5. **Powers to Gram Sabha**
 - The act provides for diversion of forest land for public utility facilities managed by Government, such as schools, dispensaries, fair price shops, electricity and telecommunication lines, water tanks etc. with the recommendation of Gram Sabhas.
 6. **Rights of conversion of forest villages into revenue villages** -> Adjudicated by the Gram Sabha, Sub divisional level committee and the District level committee.

- **Significance of the Act**

- i. **Sense of Security:** Individual Forest Rights give forest dwellers a sense of security against future eviction.
- ii. **Huge Potential** to further the goals of:
 - **Grassroot democratization of forest governance -> Empowerment**
 - Communities in different parts of the country have successfully used the FRA to protect forest and their biocultural habitats as illustrated in the examples of Dongria Kondh's campaign to protect Niyamgiri hills.
 - **Sustainable Development and Conservation**
 - **Area:** In terms of area, potentially, up to 85.6 million acres or 34.6 million hectares of forests could be recognized as Community Forest Reserves (CFRs) in the country.
 - **Population:** In terms of potential beneficiaries, an estimated 200 million scheduled tribes and other traditional forest dwellers (OTFDs) in over 1,70,000 villages are the users of potential area, and could, therefore, gain collective rights over forests under the CFR provisions of the FRA.
- iii. **Alleviate poverty in forest heartlands**
 - By ensuring that benefits from forest product harvests and enterprises, and from reforestation, carbon sequestration, and provision of ecological services, go directly to the right-holding gram sabhas and their members.
 - For instance, several tribal and OTFD gram sabhas in Gadchiroli district of Maharashtra and Narmada district of Gujarat have earned tens of lakhs of rupees from the sale of bamboo and tendu leaves from their CFRs.

- iv. **Land Reform:** FRA if properly implemented can become the largest land reform in India's history
- v. **Internal Security:** Potential to deal with Left Wing Extremism

44. OTHER NATIONAL EFFORTS

1) NATIONAL MISSION ON BIODIVERSITY AND HUMAN WELL-BEING

- In 2018, the Prime Minister's Science, Technology and Innovation Advisory Council (**PM-STIAC**) in consultation with the MoEF&CC. and other ministries approved an ambitious **NMBHWB**.
- A Bengaluru based Biodiversity Collaborative is working with the National Biodiversity Authority to hold consultation and prepare roadmap for the mission that will be steered by a core of the country's leading biodiversity science and conservation organizations, from public, academic, and civil society organizations.
- **The mission will:**
 - Strengthen the science of restoring, conserving, and sustainably utilizing India's natural heritage.
 - Embed biodiversity as a key consideration in all developmental programs, particularly in agriculture, ecosystem services, health, bioeconomy, and climate change mitigation.
 - Establish a citizen and policy-oriented biodiversity information system
 - Enhance capacity across all sectors for the realization of India's national biodiversity targets and UN SDGs.
- The mission will also allow India to emerge as a leader in demonstrating linkages between conservation of natural assets and societal well-being.
- **Other advantages of the mission**
 - **Increase natural assets** by millions of crores
 - **Fight climate change**
 - **Increase agri-production**
 - **Restoration activities** across India's degraded lands, which amount to almost a third of our land area.
 - Meet the commitments of **international conventions and agreements** like CBD, SDGs etc.

2) ECO-SENSITIVE ZONES (ESZS) AROUND PROTECTED AREAS

- **Introduction**
 - Eco-sensitive zones are buffer zones around protected areas (NP, WLS etc) where only regulated activities for specialized eco-system are allowed.
 - **Why?**
 - » They protected against damages caused by developmental activities and act as shock absorbers.
 - » They also act as transition zone from areas of high protection to areas involving lesser protection.
- **SC Judgment 2006**
 - » In December, 2006, the Supreme Court had ordered all states and Union territories for sending proposals to the MoEF for demarcation of ESZs.
 - » In case no ESZ proposal is sent, ESZ of 10 km shall apply around Protected Areas.

- **MoEF guidelines for creating Eco-Sensitive Zones:**
 - In 2011, MoEF came out with **new guidelines to create eco-sensitive zones**.
 - **Activities Prohibited**
 - » Commercial mining, saw mills, polluting industries, commercial use of fire wood, major hydro power projects etc.
 - » Tourism activities like flying over protected areas in an aircraft or hot air balloon, and discharge of effluents and solid waste.
 - **Activities restricted with safeguards**
 - » Felling of trees, drastic change in agriculture systems and commercial use of natural water resources, including ground water harvesting and setting up of hotels and resorts, are the activities regulated in the area.
 - **Activities Permitted**
 - » Ongoing agriculture and horticulture practices by local communities, rainwater harvesting, organic farming, adoption of green technologies, use of renewable energy resources.
 - **Width of ESZs**
 - » May vary from protected area to area
 - » As a general principle, the width could go up to 10 Kms around the protected area.
- **Controversy over Eco-Sensitive Zone for the Western Ghats**
 - In 2010, MoEFCC set up the **Western Ghat Ecology Expert Panel (WGEEP)** under the **chairmanship of Prof. Madhav Gadgil**.
 - The **Main recommendations** of WGEEP were:
 - i. **Entire Western Ghat** (1,29,037 sq km) should be designated as Ecologically Sensitive Area (ESA).
 - ii. **Three levels of Ecological Sensitivity:** Assign three levels of Ecologically Sensitivity to different regions, termed as ESZ1, ESZ2 and ESZ3.
 - iii. **No new dams based on large scale storage** be permitted in ESZ1.
 - iv. **Restrictions on Mining:**
 - Indefinite moratorium on new environmental clearances for mining in ESZ1 and ESZ2
 - Phasing out of mining in ESZ1 by 2016, and continuation of existing mining in ESZ2 under strict regulation.
 - v. **No New polluting industries**, which would include coal-based power plants, should be permitted to be established in ESZ1 and ESZ2.
 - vi. Establish a **national level Western Ghats Ecology Authority (WGEA)** for the protection of the region.
 - **The report met with resistance** from the governments of all six stakeholder states and could not be implemented. **Key Criticisms** were on the grounds of practicality, energy, and development needs of the region.
- The Delhi High Court directed the government to take action on the recommendations which led to MoEF&CC setting up another High-Level Working Group (HLWG) under the chairmanship of Dr.

Kasturirangan, to suggest an all-round and holistic approach for sustainable and equitable development while keeping in focus the preservation and conservation of ecological systems in Western Ghats.

- **HLWG made the Following main points of recommendations** which were seen as watering down of the Gadgil committee recommendations.
 - **37% of the Western Ghats as ESZ:**
 - It broadened the definition of Western Ghats to include 1,64,280 sq km. Out of the estimated 1,64,280 sq. km of the Western Ghats area, the natural landscape constitutes only 41%. The remaining area was cultural landscape where, where human settlements, agriculture and plantations existed.
 - The area identified as ecologically sensitive is about 37%, (around 60,000 sq km) i.e., about 90% of the natural landscape.
 - **Prohibitory and Regulatory regime in ESA** for those activities with maximum interventionist and destructive impact on the ecosystem.
 - Complete ban on mining, quarrying and sand mining in ESA.
 - No new thermal power projects should be allowed in ESA. Hydropower projects may be allowed but subject to conditions
 - All "Red" category industries should be strictly banned.
 - **Strengthening of existing framework of environment clearance** and setting up of state of art monitoring agency.
- **Non-implementation of Gadgil/Kasturirangan Committee recommendations and impact on Kerala Floods of Aug 2018**
 - According to experts if the recommendation of these committees would have been properly implemented the damages due to flood in Kerala would not have been too severe.

3) URBAN FOREST SCHEME (NAGAR VAN SCHEME)

- **Details**
 - The program is aimed at developing 200 Urban forests across the country in next five years.
 - » Wajre Urban Forest in Pune and Gurgaon's Aravalli Biodiversity Park, may act as a model for the scheme.
 - In this initiative there will be a renewed focus on people's participation and collaboration between forest departments, municipal bodies, NGOs, Corporates and Local Citizens.
 - These will primarily be on forest land in the City or any other vacant land offered by local urban bodies.
- **Funds:**
 - CAMPA
- **Significance of Urban forests**
 - Lungs of the cities
 - Moderates temperature
 - Reduces level of ozone, SO₂ and PM
 - Fights Climate change - removes CO₂ and supplies oxygen

- Space for nature and wildlife

- **Note:**

- The theme for World Environment Day (5th June), 2020 was '**Biodiversity**'.
- India organized WED celebrations virtually in view of the COVID-19 crisis with this year's theme with focus on **Nagar Van** (Urban Forests)

4) HERITAGE TREES

- **Why in news?**

- Maharashtra Legislative Assembly and Legislative Council i.e. both houses, cleared an amendment that protects old trees and provides them 'heritage tree tag'. (July 2021)

- **Details**

- The Maharashtra Legislative Assembly has passed an amendment to the Maharashtra (Urban Areas) Protection and Preservation of Trees Act, 1975, which allows classification of 50 year old trees as "heritage" trees with an aim to increase the forest cover.
 - » The amendment not only conserves old trees in urban areas but also tightens the rules for felling of trees for development works.
- The act also provides for the **formation of the Maharashtra State Tree Authority** and **tree authorities in local civic bodies and councils**.
 - » The tree authority is tasked with increasing the tree cover in urban areas.
 - » The permission for felling of more than 200 trees should come from the state tree authorities.
- The amendment makes it mandatory to plant trees equivalent in numbers to the age of the tree in years, in case felling of trees is allowed for development projects.
 - » The planted trees should be 6-18 feet in height and the survival of such trees should be ensured by geo-tagging.
- In case the compensatory plantation is not possible, the tree feller has to pay compensation for the economic valuation of the trees being felled.
- It also provides for census of trees every five years with the use of new technologies such as GIS etc.
- The amendment also increased the fines for illegal felling of trees from a maximum of Rs 5,000 to Rs 1 Lakh.
- **Extra: Determining the age of a tree:**
 - » The most common method for determining the age of the tree is **Dendrochronology** - or tree ring dating also called growth rings.
 - » A tree, roughly every year adds to its girth. The new growth is also called a tree ring.
 - » By counting the ring of a tree, the age of the tree can be estimated.
 - » **However**, the process is **invasive**.
 - To extract core samples, a borer is screwed into the tree and pulled out. This brings out a straw-size sample of wood. Then, the hole in the tree is sealed to prevent disease.

5) SACRED GROVES

- Introduction

- Sacred groves comprise of patches of forests or natural vegetation – from a few trees to forests of several acres – that are usually dedicated to **local folk deities** (Example – Ayyanar and Amman) or **tree spirits** (Vanadevatais).
- These spaces are **protected by local communities** because of their religious beliefs and traditional rituals that run through several generations.
- The degree of sanctity of the sacred forests varies from one grove to another.
 - In some forests even the dry foliage and fallen fruits are not touched. People believe that any kind of disturbance will offend the local deity, causing diseases, natural calamities or failure of crops.
 - For example, the Garo and the Khasi tribes of northeastern India completely prohibit any human interference in the sacred groves.
- In other groves, deadwood or dried leaves may be picked up, but the live tree or its branches are never cut.
 - For example, the Gonds of central India prohibit the cutting of a tree but allow fallen parts to be used

- Classification of sacred groves

- **Traditional Sacred Groves** – It is the place where the village deity resides, who is represented by an elementary symbol
- **Temple Groves** – Here a grove is created around a temple and conserved.
- Groves around the burial or cremation grounds.

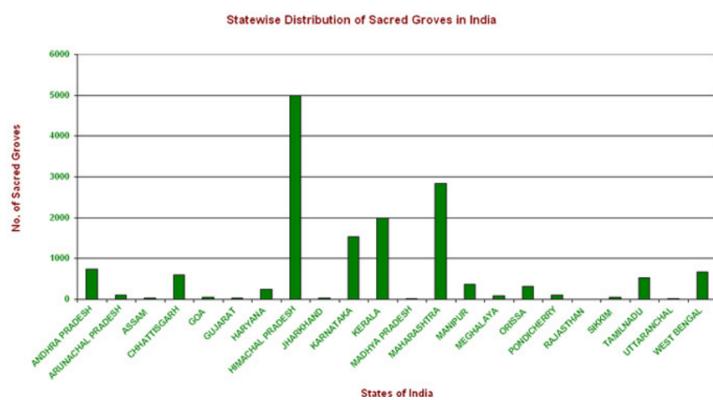
- Ecological Significance

- i. Conservation of Biodiversity
- ii. Recharge of aquifers
- iii. Soil conservation

- Distribution of Sacred Groves in India

- In India, sacred groves are found all over the country and abundantly along the western Ghats. Although, there has been no comprehensive study of sacred groves in the entire country, experts estimate that the total number of sacred groves in India could be in the range of 1,00,000 - 1,50,000.

(Source: "Cultural and Ecological Dimensions of Sacred Groves in India" by Malhotra, K.C., Gokhale, Y., and Chatterjee, S., 1998)



- Threats to Sacred Groves in India

The threats vary from one region to the other and even from one grove to the other. But the common threats identified are:

- **Disappearance of the traditional belief systems**, which were fundamental to the concept of sacred groves. These systems and their rituals are now considered mere superstition.
- Sacred groves in many parts of our country have been destroyed due to **rapid urbanization** and **developmental interventions** such as roads, railways tracks, dams including commercial forestry. Encroachment has led to the shrinkage of some of the largest groves in the country.
- Many groves are suffering due to '**Sanskritisation**' or the transformation of the primitive forms of nature worship into formal temple worship.
- **Invasion by exotic weeds** such as Eupatorium odoratum, Lantana camara and Prosopis juliflora is a serious threat to some groves.
- Pressures due to **increasing livestock** and **fuelwood collection**.

• Local Terms used for Sacred Groves in the country

Sl.No.	State	Local term for Sacred Groves	No. of documented sacred groves
1	Andhra Pradesh	Pavithravana	580
2	Arunachal Pradesh	Gumpa Forests (Sacred Groves attached to Buddhist monasteries)	101
3	Goa	Deoral, Pann	55
4	Jharkhand	Sarana	29
5	Kerala	Kavu, Sara Kavu	299
6	Maharashtra	Devral, Devrahati, Devgudi	1559
7	Manipur	Gamkhab, Mauhak (sacred bamboo reserves)	166
8	Meghalaya	Ki Law Lyngdoh, Ki Law Kyntang, Ki Law Niam	101
9	Puducherry	Kovil Kadu	108
10	Rajasthan	Orans, Kenkris, Jogmaya	255
11	Tamil Nadu	Swami shola, Kolkkadu	527
12	Uttarakhand	Deo Bhumi, Bugyal (sacred alpine meadows)	18
13	West Bengal	Garamthan, Harithan, Jahera, Sabitrihan, Santalburithan	39

45. INTERNATIONAL EFFORTS

1) MARINE PROTECTED AREAS

- **Why in news?**
 - Marine protection falls short of the 2020 target to safeguard 10% of the world's oceans
- **How much of Marine Protected Areas are there in the world?**
 - In 2010, world leaders updated an earlier pledge to establish a network of marine protected areas (MPAs) with a mandate to protect 10% of the world's oceans by 2020.
 - But, by 2020, MPAs only cover 7.66% of the ocean across the globe.
 - Most protected sites are in national waters where it's easy to implement and manage protection under the provision of a single country.

- In more remote areas of the high seas, only 1.18% of marine ecosystems have been gifted sanctuary.
 - Of this, southern Ocean account for a large portion, hosting two MPAs.
 - The South Orkney Islands Southern Shelf MPA covers 94,000 square kms, while the Ross Sea region MPA stretches across more than 2 million square kilometres, making it the largest in the world. CCAMLR is responsible for this achievement.

- MPAs in India

- MPAs in marine environment in India are primarily classified into following three categories:
 - **Category 1:** This covers National Parks and Sanctuaries and having entire areas in intertidal/subtidal or mangroves, coral reefs, creeks, seagrass beds, algal beds, estuaries, lagoons.
 - **Category 2 :** These include Islands, which have major parts in marine ecosystem and some part in terrestrial ecosystem
 - **Category 3A:** They include sandy beaches beyond the inter-tidal line but occasionally interacting with the seawater.
 - **Category 3B :** This include evergreen or semi evergreen forests of Islands.

▫ Important MPAs of India in Peninsular India

Name of MPA	State	Category	Year of establishment
Marine (Gulf of Kutch)	Gujarat	NP	1995
Bhitarkanika	Odisha	NP	1998
Gulf of Mannar Marine	TN	NP	1980
Sundarbans	WB	NP	1984

▪ Important MPAs of India in Islands of India

Name of MPA	State	Category	Year of Establishment
Campbell	A&N	NP	1992
Galathea	A&N	NP	1992
Mahatma Gandhi Marine	A&N	NP	1983
Middle Button Island	A&N	NP	1987
Mount Hariette	A&N	NP	1987
Rani Jhansi	A&N	NP	1996
Saddle Peak	A&N	NP	1987
South Button Island	A&N	NP	1987

46. MAJOR POLICIES, PROGRAMS, PROJECTS

1) NATIONAL FOREST POLICY, 1988

- **Basic Objectives of the 1988 Policy**
 - Maintenance of **environmental stability** through preservation and restoration of the ecological balance.
 - **Conservation of natural heritage** of the country.
 - **Checking soil erosion and denudation** in the catchment areas of rivers, lakes, reservoirs in the "interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs
 - **Checking the extension of sand-dunes** in the desert areas of Rajasthan and along the coastal tracts
 - **Increasing substantially the forest/tree cover** in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands
 - **Meeting the requirements of fuel-wood, fodder, minor forest produce and small timber** of the rural and tribal populations.
 - **Increasing the productivity of forests to meet essential national needs**
 - **Encouraging efficient utilisation of forest produce** and maximising substitution of wood.
 - **Creating a massive people's movement with the involvement of women**, for achieving these objectives and to minimise pressure on existing forests
- **Key Concerns**
 - **No official definition of 'Forests'**. This had led to every state government having their own definition.
 - It doesn't cover provision for **protection of degraded land**.
- **Draft National Forest Policy, 2020**
 - **Why in news?**
 - A GoM has approved Forest Policy, 2020 and have sent it to the PMO and the Cabinet Secretariat for consideration (June 2020)
 - The new policy has been pending since 2016.
 - It is an overarching policy for forest management. This will be **third National Policy on Forests** (after 1952 and 1988).
 - While the NFP of 1952 was focused on production and revenue generation , NFP of 1988 was focused on environmental stability and maintenance of ecological balance, the **draft NFP** will focus on **water conservation** followed by **climate change mitigation** through carbon sequestration and finally to **secure livelihood**.
 - **Target of 33% of India's geographical area under forest and tree cover** and in the hills **2/3rd of area under forest and tree cover** has been continued from the previous policy.
 - **Key sticking Points**
 - Undermining the rights of traditional forest dwellers, roping in of the private players for afforestation, and rather than focusing on forest preservation, it talks about raising plantation.

2) NATIONAL WILDLIFE ACTION PLAN (NWAP), 2017-2030

- **Introduction**

- NWAP is India's roadmap to conserving wildlife for next 15 years. This is the **third** NWAP (first in 1982 and the second in 2002)
- It was **launched Oct 2017** during the Global Wildlife Program (GWP) conference.
 - **Note:** GWP, initiated in 2015, is a World Bank led partnership of 19 countries to promote conservation and sustainable development by combating trafficking in wildlife.
- It focuses on preservation of genetic biodiversity and sustainable development.

- **Key Highlights**

- The plan adopts a "landscape approach" in conservation of all wildlife - uncultivated flora and undomesticated fauna - that has an ecological value to the ecosystem and to mankind irrespective of where they occur.
 - I.e. rather than focusing only on national parks and sanctuaries, the new strategies would be based on landscape of the region that may be limited to a reserve forest system alone.
- The plan integrates climate change into wildlife planning. This is the **first time** that India has recognized concerns relating to climate change's impact on wildlife and stressed on integrating actions that need to be taken for mitigation and adaptation into wildlife management planning process.
- The NWAP has five components, 17 themes, 103 conservation actions and 250 projects.
- **The five components are:**
 - Strengthening and Promoting the integrated management of wildlife and their habitats
 - Adaptation to climate change and promoting integrated sustainable management of aquatic biodiversity in India
 - Promoting eco-tourism, nature education and participatory management;
 - Strengthening wildlife research and monitoring of development of human resource in wildlife conservation
 - Enabling Policies and resources for conservation of wildlife in India.
- **Other thrust area in the planning**
 - Man-Animal conflict mitigation
 - Ensuring public participation in conservation
- The plan will help in mainstreaming wildlife conservation in development planning processes.
- The plan calls for increasing role of private sector in wildlife conservation. The plan lays down that the centre would ensure adequate and sustained funding including CSR funds are made available for NWAP implementation.
- The plans calls for forest rights of people living in tiger reserves and protected areas to be determined by 2020 in accordance with the forest rights act, 2006.

3) SECURE HIMALAYA PROJECT

- **About Secure Himalaya: Need of the Project**
 - Himalayan ecosystem is facing increasing degradation, fragmentation of area etc, which is further increasing due to high dependence of the local communities on the natural resources and unplanned infrastructure.
- **Details of Secure Himalaya:**
 - Launched in Oct 2017.
 - The Project **Securing Livelihoods, Conservation, Sustainable Use and Restoration of High Range Himalayan Ecosystems** (SECURE Himalaya) - is being implemented by **MoEF&CC, GoI and UNDP** with financial support of GEF.
 - It is a six year project aimed at conservation of locally and globally significant biodiversity, land and forest resources in the High Himalayan ecosystem.
 - It is part of **Global Wildlife Programme**.
 - **The key components of the project are**
 - i. Protection of **Snow Leopard and other endangered species** and their habitats
 - ii. Securing livelihood of people in the region.
 - iii. Enhancing enforcement to reduce wildlife crime.
 - iv. Strengthening community institutions
 - v. Improving knowledge, advocacy and information system for promoting landscape based conservation approaches.
 - The project is meant for **specific landscapes**. It includes Changthang (J&K), Lahaul - Pangi and Kinnaur (HP), Gangotri - Govind and Darma - Byans Valley in Pithoragarh (**Uttarakhand**) and Kanchenjunga - Upper Teesta Valley (Sikkim).
 - The project will contribute to Global Snow Leopard and Ecosystem Protection Program (GSLEP), an effort to protect the species in 12 range countries, including India.
 - **Financing**
 - It received a GEF grant of \$11.5 million, and will receive \$60 million in co-financing through the Indian government.

