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THEMATIC #3 CURRENT AFFAIRS

for IAS PRELIMS 2024

ENVIRONMENT

THEME # 1

Biodiversity Conservation & Management

- Soil Conservation
- Forest Conservation
- Grassland Conservation
- Species Conservation and Efforts
- Biodiversity Reports
- Biodiversity Heritage Sites
- Precautionary Principle for Biodiversity Conservation
- Government Initiatives

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Content

THEMATIC CURRENT AFFAIRS

UPSC CSE Prelims exam requires a candidate to link and interlink Current Affairs with the syllabus and the static concepts.

It's important to note that simply compiling current affairs won't suffice; it's crucial to learn how to utilize and link them effectively.

To aid in this process, we have categorized the entire UPSC prelims syllabus into actionable and easy-to-understand themes, and current affairs have been blended into these themes.

Thematic Current Affairs will help you in:

- Division of entire syllabus- theme wise
- Revision of concepts and current affairs together
- developing the skill to interlink theory and contemporary developments
- Concise and precise information for quick coverage

Join our Telegram Channel *for* Peer to Peer Discussion

Prelims Sampoorna 2024

UPSC CSE Current Affairs

1

Soil Conservation

1. GLOBAL SOIL BIODIVERSITY

CONTEXT

According to a new study, two-thirds of the world's biodiversity lives in the soil.

Key-highlights of the Study

- Coral reefs, the deep sea or the treetops of the rainforests are considered the main hotspots of biodiversity. However, they all trail behind the soils. According to the recent study, soils are the most species-rich ecosystems worldwide.
- **Two-thirds of all species live in the soil.** Approximately 59 percent of all known species, ranging from microscopic bacteria and fungi to massive redwood trees, live in (or on) soil.
- This is more than twice as high as previous estimates of soil species richness.
  - The group with the highest proportion of species living in the soil is fungi—90% of them live there.
  - They are followed by plants and their roots with 86%.
  - Earthworms and mollusks such as snails make up 20%.
  - Mammals came in last, with only about 3.8 percent of species relying on soil for their habitat

What is Biodiversity?

- Biodiversity refers to the variety of living species on Earth, including plants, animals, bacteria, and fungi.
- It can be used more specifically to refer to all of the species in one region or ecosystem.

Previous Estimates

- Historically, scientists have struggled to get a firm grasp of just how many species directly depend on soil.
- A previous global estimate, published in 2006, put the number at about 25 percent.

Threats to Soil	Conservation Methods
◉ A third of the planet's land is severely degraded and 24bn tonnes of fertile soil are lost every year through intensive farming alone. ◉ Pollution, deforestation and global heating all damages soil.	◉ Adopting less intensive agricultural practices ◉ Greater regulation of non-native invasive species ◉ Increasing habitat conservation ◉ Practices such as soil transplantations could also restore microscopic lifeforms in soil.

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2

Forest Conservation

1. DEEMED FOREST

CONTEXT

The issue of **deemed forests** is a contentious one in Karnataka, with legislators across party lines often alleging that large amounts of agriculture and non-forest land are "unscientifically" classified as such.

Deemed Forests:

- Deemed Forests are physical parcels that look to be forested but aren't listed as such in historical or official records.
- The Supreme Court ruled in the case of **T N Godavarman Thirumalpad (1996)** that governments must identify and categorise designated forests.
  - It covered all **statutorily recognised forests**, whether designated as reserved, protected or otherwise for the purpose of **Section 2 (1) of the Forest Conservation Act.**
  - The term 'forest land' occurring in Section 2 will not only include 'forest' as understood in the dictionary sense but also any areas recorded as forest in the government record irrespective of the owners said the court.

- In India, deemed forests account for about 1% of total forest land.

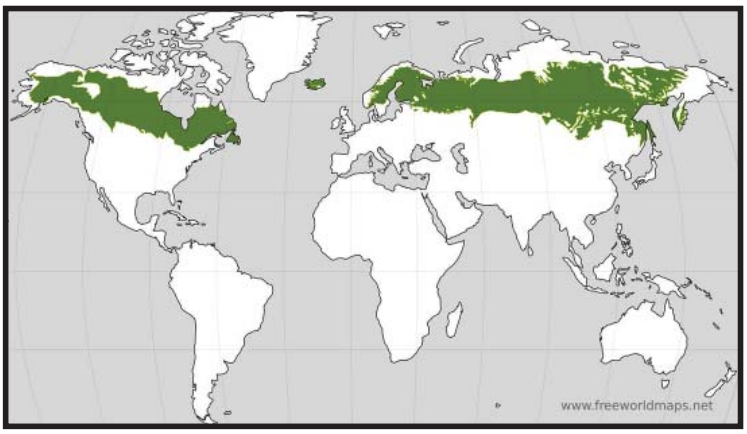
2. BOREAL FOREST

CONTEXT

The wildfires pose threat to **subarctic boreal forest**. In the boreal forest, the most prevalent type of fire is a **crown fire,** which spreads quickly from **treetop to treetop**.

About:

- **Boreal forests** (also known as **taiga**) make up the **world's largest biome** and account for around 30% of the world's forests.
- **Boreal Eco Zone**: It principally spans 8 countries: **Canada, China, Finland, Japan, Norway, Russia, Sweden and the United States.**
- It is typically comprised of **coniferous tree species** such as pine, spruce and fir with some broadleaf species such as poplar and birch.
- The circumboreal belt of forest represents **about 30% of the global forest area**, contains more surface freshwater than any other biome.



3. MIYAWAKI FORESTS, A SUSTAINABLE WAY FOR ECOLOGICAL RESTORATION

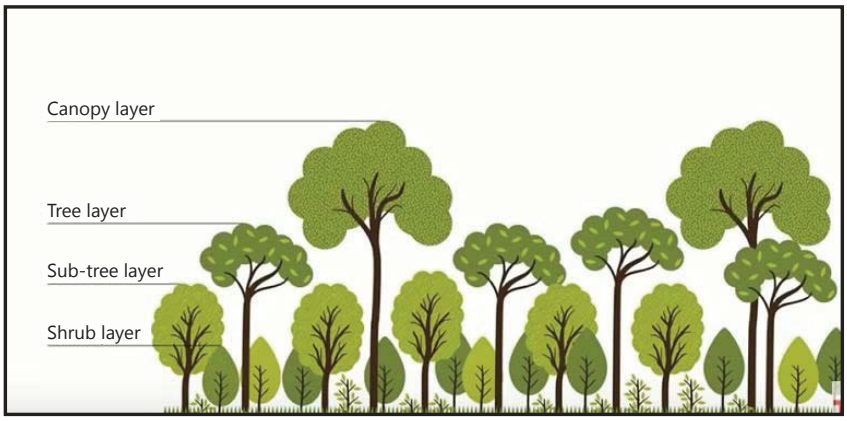
CONTEXT

There are hundreds of thousands of Miyawaki forest trees in India. Also, this method is quickly finding favour in government corridors and corporate boardrooms to restore urban spaces.

About Miyawaki Forest:

- Miyawaki is a technique **pioneered by Japanese botanist Akira Miyawaki**, which helps build dense, native forests.
- It is effective because it is based on **natural reforestation principles**, i.e. using trees native to the area and replicating natural forest regeneration processes.
- It has some significant benefits over more traditional forestry methods when used in smaller afforestation projects and is **particularly effective in the urban environment**.
- The trees planted by this method **grow much faster, jump starting the forest creation process and capturing more carbon.**

- The approach is supposed to ensure that plant growth is 10 times faster and the resulting plantation is 30 times denser than usual.
- It **involves planting dozens of native species** in the same area, and becomes maintenance-free after the first three years.
- Higher biodiversity has been recorded in Miyawaki forests than in neighbouring woodland, so it's an ideal method for creating diverse forest ecosystems quickly.



- Within the context of the current climate change emergency and stark warnings about the global loss of biodiversity, being able to create diverse, **healthy forests quickly could prove vital to meeting international targets and tackling these issues**.

What are the benefits?

- Trees in a Miyawaki forest **grow up to ten times faster** at around a metre per year, reaching a stable multi-layered forest community in **20 to 30 years instead of hundreds of years**
- The growing **trees absorb more carbon in a Miyawaki forest** than in a plantation or in standard afforestation projects because they grow more quickly and there are thirty times as many
- The Miyawaki method has been **successful where other planting projects have failed**, such as in arid Mediterranean habitats, due to high survival rates
- Native trees thrive in the conditions to which they are adapted and are **more resilient to environmental changes**
- Miyawaki forests have been found to have **far higher biodiversity**than neighbouring woodland, on average 18 times higher

4. SILVOPASTURE

CONTEXT

In light of the global deterioration of natural resources and forests, **silvopasture systems** offer a relevant solution to deforestation trends.

What is Silvopasture?

- Silvopasture is an **ancient and proven practice** that harmoniously integrates trees, forage and livestock on the same land.
- As silvopasture systems combine trees and livestock on the same land.
- Silvopasture can play a vital role in reversing the negative trend of deforestation for pasture land.

- By combining these elements, silvopasture brings numerous environmental advantages, including **improved local climate resilience**.
- Moreover, the trees on silvopasture lands act as **natural carbon sinks**, sequestering significantly five-10 times more carbon then pastures without trees, all while maintaining or enhancing productivity.

5. ANCIENT FORESTS FOUND IN SINKHOLE

CONTEXT

A cave exploration team has discovered an **ancient forest with trees** at the bottom of a **giant karst sinkhole in Leye County** in **South China's Guangxi Zhuang Autonomous Region.**

Guangxi

- **Location**: South China's Guangxi region that extends up to 630 feet deep and spans more than 176 million cubic feet.
- The Guangxi site is famous for sinkholes in Southern China and among the 30, it is the largest.
- The site reportedly had three caves in its walls and a well-preserved primitive forest at the bottom.

What are Sinkholes?

- In Mandarin, giant sinkholes are called **Tiankeng or "heavenly pit".**
- Sinkholes are **depressions** formed in the ground when layers of the **Earth's surface start collapsing into caverns.**
- They can **occur suddenly and without warning**, because the land under the surface of the Earth can stay intact for a period of time until the spaces get too big.

How are sinkholes formed?

- Sinkholes can be formed due to **natural processes or human activity.**
- Typically, sinkholes form in areas of **"karst" terrains**, where the rock below the surface of the Earth can be easily dissolved by groundwater.
- Karst terrain is created from the dissolution of soluble rocks, mostly limestone and dolomite and is characterised by distinctive landforms such as caves, sinkholes and springs.
- Sinkholes can also be formed due to human activity due to broken land drains, water mains and sewerage pipes, increased rainfall, storm events, underlying limestone and diverted surface water, among other reasons.

6. IMPORTANCE OF WETLAND CONSERVATION

CONTEXT

The recent Delhi floods are and urgent indication to improve the city's drainage systems. They also point to Delhi's diminishing natural line of defence — its water bodies and wetlands — against such hazards, without which the river cannot drain its water naturally.

What are wetlands?

- **India's Wetland Rules 2017**define wetlands **areas of marsh, fen, peat land or water, including lakes/ponds, oxbow lakes, riverine wetlands, tanks, lagoons and mangroves**, performing **critical ecological functions** for wildlife habitat, groundwater recharge, carbon storage and water regulation.
  - These ecosystems exist as **mangroves, marshes, peatlands, ponds, lakes, reservoirs, floodplains, and deltas.**
  - Many Indian cities are endowed with wetlands, such as **Kolkata (East Kolkata Wetlands), Mumbai (mangroves), Chennai (Adyar flood plains) and Guwahati (Deepor Beel Lake).**

India has over 757000 wetlands which cover 15.3 million hectares or about **4.7% of the geographical area of the country.**

Benefits of Wetlands

- **Climate resilience:** Wetlands are crucial to our defence against climate change.
- **Carbon storage:** With their thick canopies and aerial roots (especially mangroves), wetland floral species have an immense capacity to store carbon.
- **Buffer:** They act as buffers against storms, prevent flooding, control erosion, and store and purify water.
- **Biodiversity hotspots:** They also serve as biodiversity hotspots.
- **Tangible benefits:** They have **tangible environmental** and **economic benefits** through flood control, fish production and the treatment of wastewater (such as sewage).

Threats to Wetlands	Impact
Encroachment on wetlands in the form of haphazard real-estate development. The **disposal of untreated sewage.** **Climate Change** **Lack of proper classification and demarcation of wetlands**	**Immeasurable destruction:** The collapse of wetlands can expose cities to cyclones. **Threat to species:** Wetlands are home to several aquatic and terrestrial species and microorganisms. Due to threatened wetland, the species that depend on them are also lost. They have **negative impacts** on water quality, nutrient cycling, and climate regulation.

Government Initiatives to conserve wetland

- **Wetlands (Conservation and Management) Rules 2010**: In 2016, the **Wetlands (Conservation and Management) Rules 2010** was bought under the umbrella of the **Environment (Protection) Act 1986.**
- **Wetland management:** In January 2021, the **National Mission for Clean Ganga** formulated a local stakeholders-focused toolkit for wetland management in cities.
- **Census of waterbodies:** The **Department of Water Resources, River Development and Ganga Rejuvenation** launched the census of waterbodies in 2018-19, published as a Census Reportof pan-India waterbodies.
  - Out of the enumerated 24,24,540 water bodies, 97.1 percent (23,55,055) are in rural areas, while 2.9 percent (69,485) are in urban areas.
- **Amrit Sarovar Mission:** The Government of India launched the mission in 2022. Under the Mission, 75 water bodies will be developed and rejuvenated in each district of the country as a part of the celebration of Azadi Ka Amrit Mahotsav.

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3

Grassland Conservation

1. GRASSLAND CONSERVATION

CONTEXT

Currently, the world is facing the twin crises of biodiversity loss and climate change. Protecting grasslands in this regard are important for providing habitat for species at risk and storing carbon.

What are Grasslands?

- Grasslands are highly dynamic ecosystems that include vegetation that is mainly dominated by grass or grass-like plants.
- The UNESCO defines grassland as **"land covered with herbaceous plants with less than 10 percent tree and shrub cover"** and **"wooded grassland as 10-40 percent tree and shrub cover".**
- Grasslands make up **24 percent of the Indian landmass.**
- **Low rainfall:** Grasslands occur where rainfall is usually low and/or the soil depth and quality is poor.
- They range from the dry and semiarid grasslands of Central and Western India, to wet grasslands on riverbanks of the Himalayas, to high-altitude grasslands in the Western Ghats and cold desert grasslands in North India.

Major Categories

- Grasslands are usually divided into two categories—

Types of grasslands in India

The major types of grasslands in India are the

- **Alpine moist meadows** of the Greater Himalayas
- **Alpine arid pastures or steppe** formations of the trans Himalayas
- **Hillside grasslands** in the mid-elevation ranges of the Himalayas
- **'Chaurs'** of the Himalayan foothills
- **'Terai' grasslands** on the Gangetic and the Brahmaputra floodplains
- **'Phumdis'** or floating grasslands of Manipur
- **'Banni' and 'Vidis'** of Gujarat
- **Savannas** of western and peninsular India
- **Plateau and valley grasslands** in the Satpuras and Maikal hills
- **Dry grasslands** of the Andhra Pradesh and Tamil Nadu plains
- **'Shola' grasslands** of the Western Ghats

- **Tropical:** Grasslands located near the equator such as those in Africa, southern Asia, Australia and northern South America.
- **Temperate:** Grasslands located between the equator and the poles including those in North America, Europe, southern South America, Africa and Australia.

Grasslands cover about two-thirds of the landmass of the world and makeup about one-fourth of the earth's surface.

- Some of the typical grasslands found in the world include **prairies, savannas, veldts, steppes, llanos, campos, downs, meadows, moors, pamir, pampas, pantanals, patanas, punas, pusztas, and sahel.**

Important initiatives

- **State's initiatives:**
  - In Gujarat, the state government's grass development project aims to remove the invasive tree, Prosopis juliflora, and restore 20,000 hectares (ha) of grassland in Kutch.
  - In Maharashtra, there is a proposal to restore about 33,200 ha of grassland under the state government's Forest Meadow and Fodder Area Development Program.
- **Community partnership:** Communities like the **Todas, the Phasepardhis, and the Idu Mishmi** people are protecting grasslands in India through collective action and local stewardship.

2. BANNI GRASSLANDS RESTORATION

CONTEXT

The Gujarat forest department plans to restore 10,000 hectares of the **Banni grasslands** in the coming year.

About Banni Grasslands:

- Banni Grassland is situated near the **Great Rann of Kutch** in Gujarat.
- it is a **protected wetland and grassland ecosystem** spread over 2,400 sq km in the **Rann of Kutch**.
- It is one of the **largest seasonal salt marshes** in the world.
- It is considered to be the **largest Grassland in Asia**. This grassland is a **high-biodiversity area.**
- It has a unique ecosystem with its own wildlife (wolves, jackals, foxes, desert cats, hyenas, and wild boars), salt-tolerant plant species, migratory birds, and pastoral communities.
- The grassland has been designated a **protected area** under **The Wetlands (Conservation and Management) Rules, 2010.**

- It is home to two major nomadic communities — **Jats, and Maldharis.**
- **Formation:** The land here was formed from the sediments that were deposited by the **Indus and other rivers** over thousands of years.
- **Ecosystem:** Two ecosystems, wetlands and grasslands are juxtaposed in Banni.
- **Vegetation:** The vegetation in Banni is **sparse** and highly dependent on rainfall.
  - ➤ It is dominated by **low-growing forbs and graminoids**, many of which are **halophiles (salt-tolerant),** as well as scattered tree cover and scrub.
- Besides having 40 species of grass and 99 species of flowering plants, Banni is also home to the **Indian wolf, jackal, Indian fox, desert fox, desert cat, caracal, hyena, chinkara, Nilgai, wild boar,** Indian hare, common monitor **lizard — and the cheetah** before it became extinct.

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4

Species Conservation & Efforts

1. 4TH ASIA MINISTERIAL CONFERENCE ON TIGER CONSERVATION

CONTEXT

The **Government of Malaysia and Global Tiger Forum (GTF)** has organized the **4th Asia Ministerial Conference** on tiger conservation to review progress towards the **Global Tiger Recovery Programme** and commitments to **tiger conservation**.

What is Project Tiger?

- After tiger was declared the national animal in 1973, the ambitious 'Project Tiger' was launched at nine prime habitats of the country.
- From nine, the number of tiger reserves have grown to 54.
- It is a centrally sponsored scheme of the Ministry of Environment, Forest and climate change.
- The project is administered by the National Tiger Conservation Authority (NTCA).

What led to the Project Tiger?

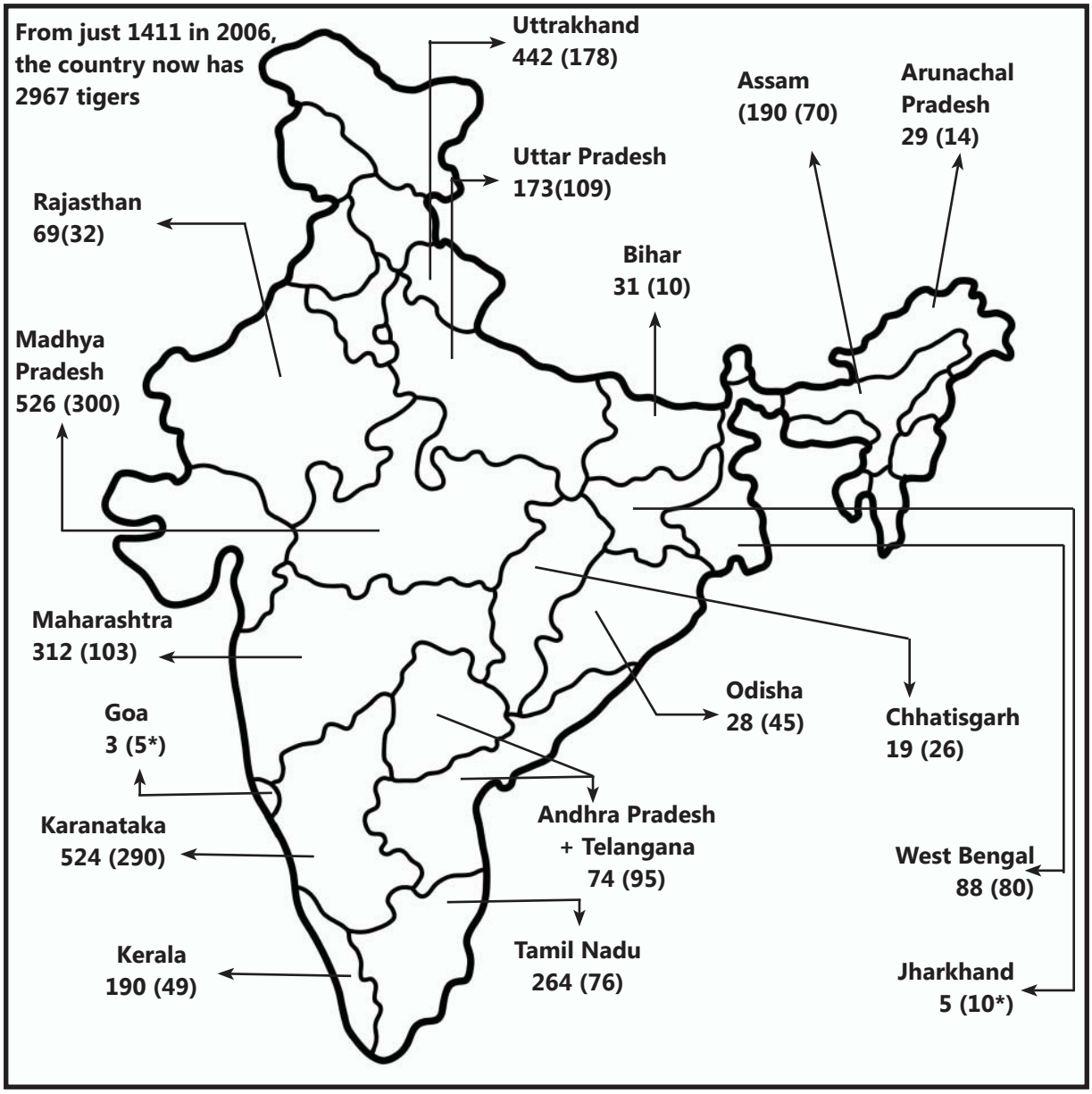
- In mid-1960s, it was found that the tiger population was on the brink of extinction in India due to hunting and habitat loss.
- As a result, **tiger hunting was banned in 1968.**
- The need for a **nationwide act for the protection** of wild animals, birds and plants and issues related to ecological and environmental security of the country was realised.
  - ➤ The **Wildlife (Protection) Act, 1972**, came into existence.

National Tiger Conservation Authority (NTCA)

- It is a statutory organization.
- It was established in 2005.
- It was given **statutory status** by the 2006 amendment of the **Wildlife (Protection) Act, 1972** for strengthening tiger conservation, as per powers and functions assigned to it.
- Functions under the **Ministry of Environment, Forests and Climate Change**

Tigers in India

- According to a 2018 report, there are **2,967 tigers** (increased by **6%** since the last census) in the country spread across **53 tiger reserves**.
  - The Census (2014) reported 2,226 tigers in the country, up from 1,706 in 2010.
- Every 4 years the **National Tiger Conservation Authority (NTCA)** conducts a tiger census across. The first was conducted in 2006.



Tiger Conservation Efforts:

- **TIGER RELOCATION PROJECTS:** The tiger relocation project was initiated in 2018 wherein two big cats, a male (Mahavir) from Kanha Tiger Reserve and a female (Sundari) from Bandhavgarh from Madhya Pradesh were relocated to Satkosia Tiger Reserve in Odisha, to shore up the tiger population in the
- **TIGER SPECIAL PROTECTION FORCE:** To check illegal human intrusion into the reserve through villages located on its fringes and serve as a second layer of protection for tigers

- **GLOBAL TIGER FORUM:** It is an Inter-Governmental international body working exclusively for the conservation of tigers.
- **GLOBAL TIGER INITIATIVE:** Global Tiger Initiative (GTI) was launched in 2008 as a global alliance of governments, international organizations, civil society, conservation, and scientific communities, and the private sector, with the aim of working together to save wild tigers.
- **INTEGRATED TIGER HABITAT CONSERVATION PROGRAM (ITHCP):** ITHCP was launched in 2014. It is a strategic funding mechanism that aims to save tigers in the wild, and their habitats.
- **PETERSBURG DECLARATION:** It aimed at promoting a global system to protect the natural habitat of tigers and raise awareness among people on white tiger conservation.
- **CATS:** Uttarakhand was first in the world to implement CATS [Conservation Assured Tiger Standers] to protect tiger in the Lansdowne Forest Division. This initiative is the WWF initiated effort to protect tiger outside tiger reserves.

2. REINTRODUCTION OF CHEETAH

CONTEXT

The Union Environment Ministry of India reintroduced the cheetahs from South Africa to **Madhya Pradesh's Kuno-Palpur National Park**.

How cheetahs went extinct in India?

- The cheetah is the only **large carnivore** to have gone extinct in India, primarily due to hunting and habitat loss.
- **India's last three cheetahs** were hunted by **Maharaja Ramanuj Pratap Singh Deo, King of Koriya (Chhattisgarh)** in 1947.
- In 1952, the Indian government officially declared the **Cheetah extinct** in the country.

Cheetah in Indian History:

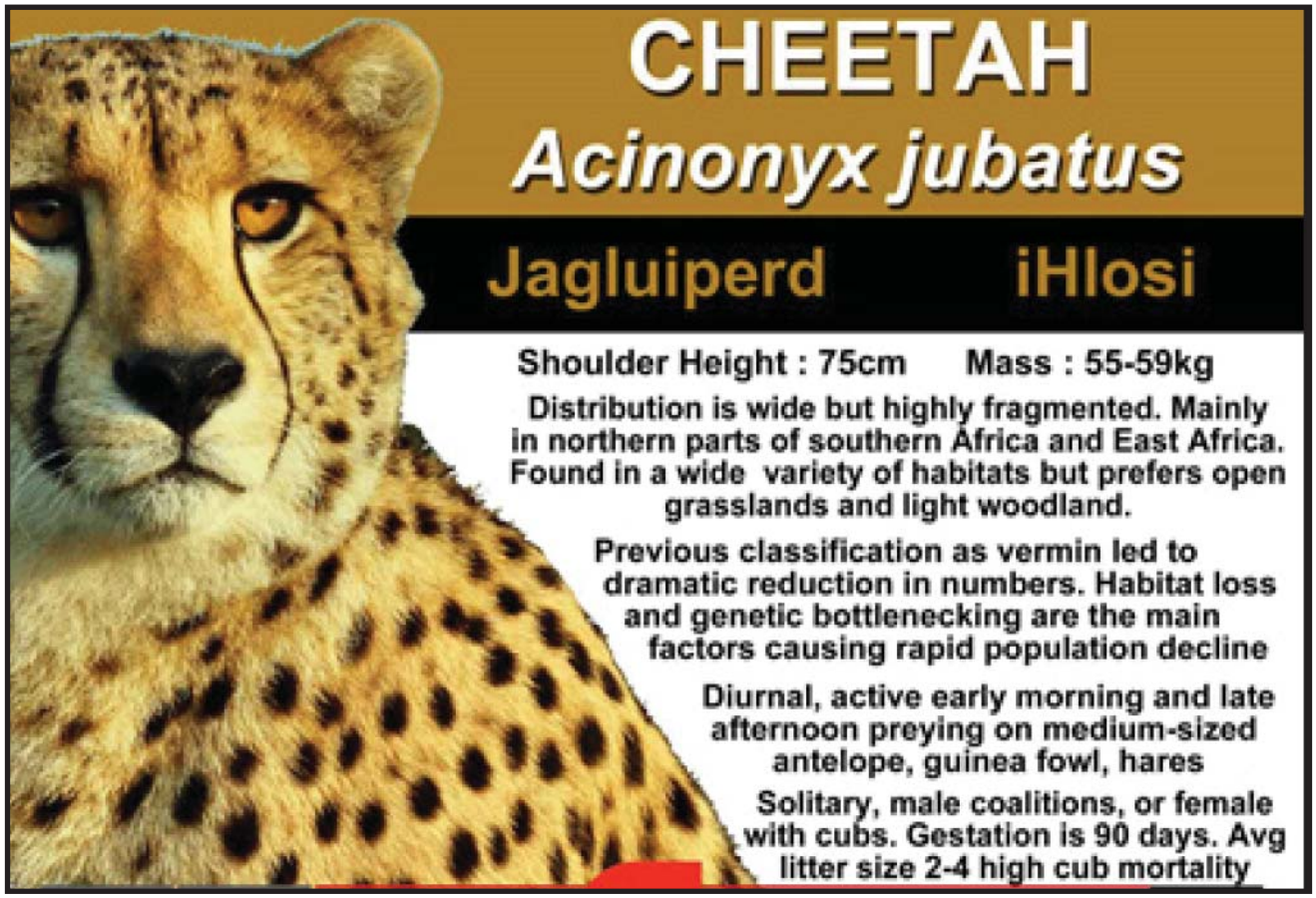
The **earliest available record for cheetahs being used for hunts** in India, comes from the 12th century Sanskrit text **Manasollasa**, which was produced by the **Kalyani Chalukya ruler**, **Someshvara III** (reigned from 1127-1138 CE).

Re-introducing Cheetah in India:

- The project to **translocate cheetahs from Africa to India** is a long-term one being implemented by the environment ministry with the help of the Wildlife Institute of India.
- The **Supreme Court** appointed an expert panel, which **approved Kuno Palpur as the possible location for cheetah relocation.**
- In the past six months, the Madhya Pradesh forest department has relocated villagers from Kuno and has prepared an enclosure with round-the-clock surveillance for reintroduction of cheetahs.

About Cheetah:

- The Cheetah (*Acinonyx jubatus*), is one of the **oldest of the big cat species**, with ancestors that can be traced back more than five million years to the Miocene era.



- The cheetah is also the **world's fastest land mammal**.
- It is listed as **vulnerable** in **IUCN red listed species**.
- The country's last spotted feline died in Chhattisgarh in 1947. Later, the cheetah — which is the fastest land animal — was **declared extinct in India in 1952.**
- **The Asiatic cheetah is classified as a "critically endangered**" species by the IUCN Red List, and is believed to survive only in Iran.

Kuno National Park

- Kuno National Park is a national park in the Sheopur district of MP established in 1981 as a wildlife sanctuary.
- In 2018, it was given the status of a national park.
- It is part of the Khathiar-Gir dry deciduous forests.
- One of the main tributaries of the Chambal River, the Kuno River, cuts across the whole length of the National Park division.

Progress so far

Nine Cheetah in Madhya Pradesh's Kuno National Park died due to Maggot Infection.

- **Reasons:** Chronic renal failure, cardiopulmonary failure, traumatic shock, heatstroke, septicaemia, Maggot infection.

- **Radio Collars:** Two cheetahs died of suspected septicaemia and maggot infection due to neck wounds caused by radio collars.
- If there is constant rainfall then the skin under the collar becomes infected due to constant moistness resulting in a systematic infection brought on by flies and maggots, eventually causing death.

About Maggots

- Maggots are the **larvae of flies** and are typically found in **decaying organic matter**.
- They are **small and worm-like with pointed heads** and **no limbs.**
- Although they are typically no longer than 1 inch, as maggots feed and grow, they can become quite large.
- At first, they are soft and white in color, but as they mature, they turn gray or black and their bodies harden.

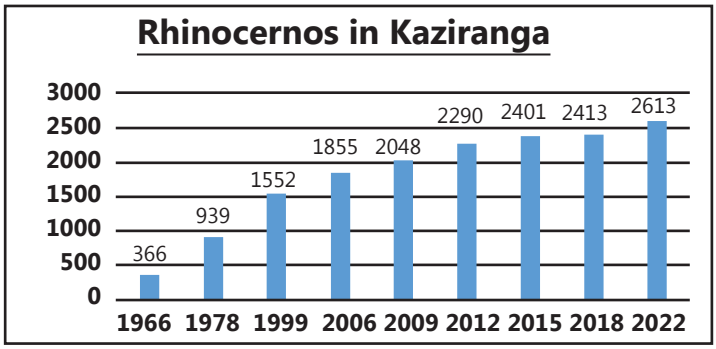
3. RHINO CONSERVATION

CONTEXT

From just 366 rhinoceroses in 1966, the Kaziranga National Park is now home to at least 2,613 rhinos.

About Kaziranga National Park

Kaziranga National Park was formed in 1908 and in 1985 it was declared a **World Heritage Site** by UNESCO.



- Home to the highest population of **great one-horned rhinoceroses**, and the highest density of tigers among protected areas in the world, the park is located in **Assam's Golaghat and Nagaon districts.**
- **Census:** As per the **14th Rhino census** conducted in 2022, there are 2,613 rhinos in the park including 1,670 adults, according to the official website of the Kaziranga National Park.

Rhino Population

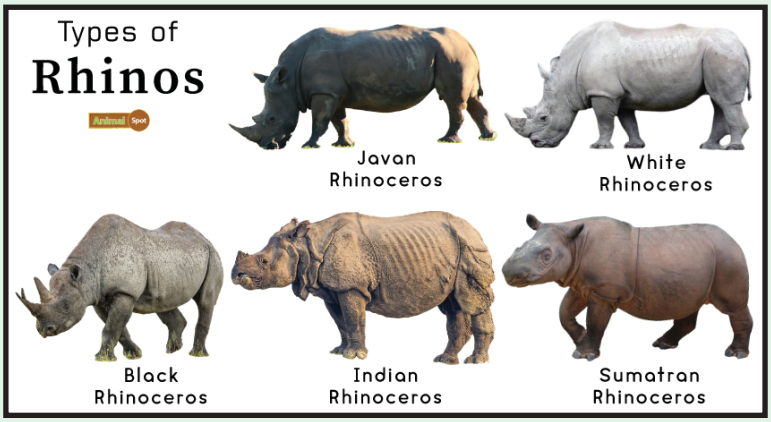
- In India, there are only seven such places that are the natural habitats of rhinos. Out of these,
  - Four sites are in **Assam (**Kaziranga National Park, Pobitara Wildlife Sanctuary, Orang National Park, Manas National Park**)**
  - Two in **West Bengal** (Jaldapara National Park and Gorumara National Park)
  - One in Dudhwa in **Uttar Pradesh (**Dudhwa National Park**)**
- The Indian state of Assam is home to the largest population of greater-one horned rhinos, with more than **90% in Kaziranga National Park.**

About Greater One-Horned Rhino

- The greater single-horned rhinoceros *(Rhinoceros unicornis)* is commonly known as the **Indian rhinoceros.**
- The Indian rhinoceros falls under the **"vulnerable" category** of species in the **Red List of threatened species of the IUCN.**

About Rhino

- There are five species and 11 subspecies of rhino.
- **White, Black, Indian, Javan, and Sumatran** make up the five species of rhino in the world.
  - **White and black rhinoceros** are native to Africa.
  - **Indian, Javan and Sumatran** can be found in India and Asia.



- **Habitat:** The animal is primarily found in the Himalayan foothills — India and Nepal.

IUCN Red list

- **Javan and Sumatran Rhino** are **critically endangered.**
- Greater one-horned (or Indian) rhino is **vulnerable.**

CITES

- All three listed under **Appendix I**.
- **Wildlife Protection Act, 1972- Greater one-horned rhino** is listed under the **Schedule I of the Act.**

Conservation Method

- Indian Rhino Vision 2020: In 2005, Indian Rhino Vision 2020 was launched to protect one-horned rhinos. It was a collaborative effort between various organisations, including the:
  - International Rhino Foundation
  - Assam's Forest Department
  - Bodoland Territorial Council
  - World Wide Fund – India
  - US Fish and Wildlife Service
- **K9 Unit:** In 2011, India's first dog squad for wildlife crimes, the 'K9 unit' was established in Assam to sniff hunters.
- **Special Rhino Protection Force:** In 2019, the Assam government constituted a Special Rhino Protection Force to stop rhino poaching at the **Kaziranga National Park.**

- **Zero-tolerance policy:** In 2021, the Assam government established a 22-member task force and followed a zero-tolerance policy.
  - It helped Assam achieve the target of zero poaching of one-horned rhinos during 2022.

4. 'SHARP' DECLINE IN VULTURE POPULATION: STUDY

CONTEXT

Jatayu Conservation and Breeding Centre (JCBC) in Uttar Pradesh's Maharajganj district, the world's first conservation and breeding centre built and designed exclusively for the conservation of Asian king vulture.

The need

- The red-headed vulture (*Sarcogyps calvus*), also known as the **Asian king vulture**, is found primarily in northern India.
- In 2004, the species was listed as **'near threatened',** whereas in 2007, it was listed as **'critically endangered'** in the **IUCN Red List.**
- The widespread use of the **NSAID diclofenac** in veterinary medicine in India has been the cause of its population decline in recent years.
- As of now, veterinary usage of diclofenac has been banned in India.

Diclofenac

- **Diclofenac** is a **veterinary non-steroidal anti-inflammatory drug (NSAID),** which is used to treat pain and inflammatory diseases such as gout in carcasses that vultures would feed off.
- Uncontrolled veterinary usage of NSAID, including **Aceclofenac, Ketoprofen and Nimesulide** are toxic to vultures if they feed on carcasses within 72 hours of the drugs' administration to such livestock.

Vultures in India

- Vultures are **scavenging birds** of prey. They are nature's most efficient scavengers.
- India shelters about **nine species** of vultures, but most of them face the danger of extinction.
  - The nine recorded species of vultures in India are – **the oriental white-backed, long-billed, slender-billed, Himalayan, red-headed, Egyptian, bearded, cinereous and the Eurasian griffon.**
  - The Indian vulture (*Gyps indicus*) is an **Old World vulture** native to India, Pakistan and Nepal.

S. No.	Name of of Vulture Species	IUCN Status	Pictorial Representation
1.	Oriental White-backed Vulture (Gyps Bengalensis)	Critically Endangered	
2.	Slender-billed Vulture (Gyps Tenuirostris)	Critically Endangered	
3.	Long-billed Vulture (Gyps Indicus)	Critically Endangered	
4.	Egyptian Vulture (Neophron Perenopterus)	Endangered	
5.	Red-Headed Vulture (Sarcogyps Calvus)	Critically Endangered	
6.	Indian Griffon Vulture (Gyps Fulvus)	Least Concerned	
7.	Himalayan Griffon (Gyps Himalayensis)	Near Threatened	

8.	Cinereous Vulture (Aegypius Monachus)	Near Threatened	
9.	Bearded Vulture or Lammergeier (Gypactus Barbatus)	Near Threatened	

- **Significance:** Vultures feeding on dead animals help **areas getting rid of carcasses** that, otherwise, would provide foul smells and scenery for a much longer period hence also known as **nature's cleanup crew**.
  - Vultures also play a valuable role in keeping wildlife **diseases in check**.

Important Government Initiatives

- **Vulture Conservation 2020-2025**: A Vulture Care Centre (VCC) was set up at Pinjore, Haryana in 2001 to study the cause of deaths of vultures in India.
- **Jatayu Conservation Breeding Centre** in Pinjore is the world's largest facility within the state's Bir Shikargah Wildlife Sanctuary for the breeding and conservation of Indian vulture species.
- **SAVE (Saving Asia's Vultures from Extinction):** The consortium of like-minded, regional and international organizations, created to oversee and coordinate conservation, campaigning and fundraising activities to help the plight of south Asia's vultures.
- **Ramadevarabetta Vulture Sanctuary**: The vulture sanctuary was officially set up in 2012, but the long-billed, Egyptian and white-backed vultures have been roosting in the hills of Ramanagara for several decades. These are the three species found in Ramanagara out of the nine found in India.

5. RED PANDAS TO MAKE A HOME IN THE FORESTS

CONTEXT

The **Singalila National Park**, the highest protected area in West Bengal, launched programme that aims to release about **20 Red Pandas** in a period of five years.

Important facts about the species

- The red panda is a small **arboreal mammal** found in the forests of **India, Nepal, Bhutan,** and the northern mountains of **Myanmar and southern China.**

- In India, this elusive species is found in **Sikkim, Arunachal Pradesh, Darjeeling and Kalimpong districts of West Bengal.** It is the **state animal of Sikkim.**
- The three major national parks with known Red Panda population are **Khangchendzonga National Park, Neora Valley National Park and Singalila National Park.**

- They belong to the phylum **Chordata** and the family **Ailuridae.**
- **IUCN Status**: Endangered
- **Subspecies:** Red pandas are made up of two subspecies—
- **Himalayan red panda (*Ailurus fulgens fulgens*),** which resides in the mountains of northern India, Tibet, Bhutan, and Nepal
- **Chinese red panda (*A. fulgens styani*),** which lives in China's Sichuan and Yunnan provinces

In India, the largest suitable habitat for the Red Panda is in Kangchenjunga National Park, Sikkim.

Singalila National Park

- Singalila National Park is located on Singalila Ridge in the Eastern Himalayan region.
- Sandakphu and Phalut, the two of the highest peaks in West Bengal, are located right inside the park.
- There are two rivers flowing through the park; River Rammam and River Sirikhola.

6. 5% OF BIRDS IN INDIA ARE ENDEMIC: REPORT

CONTEXT

A publication, titled '**75 Endemic Birds of India'**, which was released on the **108th foundation day of the Zoological Survey of India (ZSI),** points out that about **5% of birds** found in the country are **endemic** and are not reported in other parts of the world.

India's bird species:

- India is home to **1,353 bird species**, which represents approximately **12.40%** of global bird diversity.
- Of these **1,353 bird species**, **78 species**, which is around 5%, are endemic to the country.

About the Publication:

- The publication highlights the importance of **endemic bird species** in the country.
- The details of endemic bird species contained in the publication include **etymology (meanings**

of scientific names) and their **historical relevance** along with vital facts such as **subspecies' differences, distinguishing traits, preferred habitats, breeding habits, and food preferences.**

- **Objective**: The publication is aimed at making information about endemic birds of the country available to everyone, and highlighting the **efforts to conserve species** that are found only in restricted areas**.**

As, endemic species are **restrictive in nature**, it is important that their habitats need to be conserved.

Highlights from the Publication:

- Around 75 bird species belong to **11 different orders, 31 families, and 55 genera, and exhibit remarkable distribution patterns** across various regions in India.
- The highest number of endemic species has been recorded in the **Western Ghats**, with 28 bird species.
- Some of the rare species recorded in the country's **bio-geographic hotspot** are;

The Malabar Grey Hornbill (Ocyceros griseus) • This hornbill is endemic to India, and found in the Western Ghats of south-west India.	
Malabar Parakeet (Psittacula columboides) • It is restricted to the forests of India's Western Ghats.	
Ashambu Laughing Thrush (Montecincla meridionalis) • It is a species of bird in the family Leiothrichidae. It is found in the Western Ghats in southern Kerala and southern Tamil Nadu.	
The White-bellied Sholakili (Sholicola albiventris) • It is endemic to the Shola forests of the higher hills of southern India.	

- Amongst them **25 bird species** are endemic to the **Andaman and Nicobar Islands**. Bird species which are only found in the Andaman and Nicobar Islands are;
  - ➤ Nicobar Megapode (Megapodius nicobariensis);
  - ➤ Nicobar Serpent Eagle (Spilornis klossi);

- Andaman Crake (Rallina canningi); and
- Andaman Barn Owl (Tyto deroepstorffi).

- Four species of birds are endemic to the **Eastern Himalayas**, and one each to the **Southern Deccan plateau and central Indian forest.**
- Of the 78 endemic species, 25 are classified **as 'Threatened'** by the IUCN.
  - Three species are listed as '**Critically Endangered'**.
  - Five of the endemic birds in India are categorised as '**Endangered'**, and
  - 17 as **'Vulnerable'**,
  - While 11 are categorised as '**Near Threatened'** on the IUCN Red List.

Bird Sanctuaries in News:

BIRD SANCTUARIES IN NEWS		
Bird Sanctuaries	**State**	**Description**
• Bharatpur Bird Sanctuary (Keoladeo National Park)	Rajasthan	• It is one of the most important bird sanctuaries in India and a **UNESCO World Heritage Site**, known for its migratory bird species and being a critical breeding ground for several bird species.
• Sultanpur National Park	Haryana	• It is a popular bird watching destination near Delhi and is important for the conservation of bird species like the **Siberian Crane.**
• Salim Ali Bird Sanctuary	Goa	• Named after India's most famous ornithologist, it is a biodiversity hotspot for several endemic bird species and a **crucial habitat for migratory birds.**
• Chilika Lake Bird Sanctuary	Odisha	• It is the largest coastal lagoon in India and a vital habitat for a variety of migratory and resident bird species, including the **endangered Irrawaddy dolphin.**
• Nal Sarovar Bird Sanctuary	Gujarat	• It is a wetland sanctuary that supports a variety of migratory and resident bird species and is an important stopover for birds on the **Central Asian Flyway.**

7. PANAMARAM HERONRY

CONTEXT

Due to the intervention of the **Kerala State Biodiversity Board (KSBB)** and **the Panamaram grama panchayat, Panamaram heronry** is set to get a fresh lease of life.

What is Panamaram heronry?

- Panamaram heronry is the **largest breeding ground** of different species of herons in the **Malabar region.**

- The heronry, formed on a sandbank on the **Panamaram River**, is a breeding ground for nine species of waterbirds.
- The tiny islet is a haven for globally threatened waterfowls, including the black headed-ibis, purple heron, large egret, median egret, little egret, pond heron, night heron, and little cormorant.
- The site is also the only location in State where the cattle egret breeds.

Heronry

- It is the breeding grounds of herons.
- The herons are long-legged, long-necked, freshwater and coastal birds in the family Ardeidae

Panamaram river:

- The river joins the Kabini river at Koodalkadavu village near Payyampally in Wayanad district of Kerala.
  - **Kabini river:** River Kabini is a tributary of river Kaveri. River Kabini joins river Kaveri at Tirumakudalu Narasipura in Karnataka.

Malabar region

- The Malabar region, is an area of southern India lying between the **Western Ghats** and the **Arabian Sea.**
- Malabar covers the geographical area, north of the **Bharathapuzha,** stretching over parts of **Thrissur, Palakkad, Malappuram, Kozhikode, Wayanad, Kannur and Kasaragod** districts of Kerala.

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5

Biodiversity Reports

1. INDIA STATE OF FOREST REPORT- (ISFR) 2021

CONTEXT

The **India State of Forest Report** is an assessment of India's forest and tree cover, published every two years by the Forest Survey of India under the Ministry of Environment, Forests and Climate Change. The first survey was published in 1987, and ISFR 2021 is the 17th.

About the India State of Forest Report

- **The India State of Forest Report** is an assessment of **India's forest and tree cover,** published every two years by the **Forest Survey of India** under the **Ministry of Environment, Forests and Climate Change.**
  - The first survey was published in 1987, and ISFR 2021 is the 17th.
- India is one of the few countries in the world that brings out such every two years, and this is widely considered comprehensive and robust.

Key-highlights of India State of Forest Report-2021

- Forest and tree cover in the country increased by 2,261 square kilometre since the last assessment in 2019.
- India's total forest and tree cover was 80.9 million hectares, which accounted for 24.62% of the geographical area of the country.
- 17 States and Union Territories had more than 33% of their area under forest cover.
  - Madhya Pradesh had the largest forest cover, followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
- The top five States in terms of forest cover as a percentage of their total geographical area were
  - Mizoram (84.53%)
  - Arunachal Pradesh (79.33%)
  - Meghalaya (76%)

- Manipur (74.34%)
- Nagaland (73.90%)

India's Target to increase forest cover

- **National Mission for a Green India (GIM)** is one of the eight Missions under the **National Action Plan on Climate Change.**
  - It aims at protecting, restoring and enhancing India's forest cover and responding to climate change.
  - The target under the Mission is **10 million hectares (Mha)** on forest and non-forest lands for increasing the forest/tree cover and to improve the quality of existing forest.

2. FIRST-EVER WATERBODY CENSUS

CONTEXT

The Ministry of Jal Shakti has released the report of the first census of water bodies.

Key highlights of the Census

- India has 24.24 lakh water bodies like ponds, tanks and lakes, with West Bengal accounting for the most (7.47 lakh) and Sikkim the least (134).
- The report states, "24,24,540 waterbodies have been enumerated in the country, out of which 97.1% (23,55,055) are in rural areas and only 2.9% (69,485) in urban areas."
- As per the report,
  - 5 per cent (14,42,993) of waterbodies are ponds
  - tanks (15.7 per cent i.e. 3,81,805)
  - reservoirs (12.1 per cent i.e. 2,92,280)
  - water conservation schemes/percolation tanks/check dams (9.3% i.e. 2,26,217)
  - lakes (0.9% i.e. 22,361)
  - others (2.5% i.e. 58,884)

What is a water body?

- The census defines a waterbody as "all-natural or man-made units bounded on all sides with some or no masonry work used for storing water for irrigation or other purposes (for example industrial, pisciculture, domestic/drinking, recreation, religious, groundwater recharge etc)".
- Waterbodies are usually of various types known by different names like tanks, reservoirs, ponds and buddies etc.
- A structure where water from ice melt, streams, springs, rain or drainage of water from residential or other areas is accumulated or water is stored by diversion from a stream, Nala or river will also be treated as a waterbody.

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6

Biodiversity Heritage Sites

1. GANDHAMARDAN HILLS BECOME 3RD BIODIVERSITY HERITAGE SITE IN ODISHA

CONTEXT

The Odisha government has declared the Gandhamardan hill as the third biodiversity heritage site of the state by giving it the status of a unique, ecologically fragile ecosystem having rich biodiversity.

About

- The hill spans **18,963.898 hectare** over Bolangir and Bargarh districts.
- **Flora:** The floral diversity of Gandhamardan hills comprises of 1,055 plant species that include 849 angiosperms, 56 pteridophytes, 40 bryophytes, 45 lichens and 2 gymnosperms and 63 species of macrofungi.
- **Fauna:** The faunal diversity comprises 500 species of animals that include 43 species of mammals, 161 species of birds, **44 species of reptiles**, **16 species** of amphibians, 118 species of butterflies, 27 species of dragonflies, 7 species of damselflies and 83 species of spiders.
  - **One angiosperm:** ficus conccina var. dasycarpa and one spider: peucetia harishankarensis are endemic to this hill.

Historical Significance:

- The hills have historical monuments such as the **Nrusinghanath temple** located on the northern slope and **Harishankar temple** on the southern side.
- These two shrines are big pilgrimage sites of Odisha.

- With this announcement, Gandhamardan has become **the 37th biodiversity heritage site of India**, along with the Majuli island of Assam, Nallur Tamarind grove of Bangalore, Khlaw Kur Syiem KmieIng sacred grove of Meghalaya and Naro Hills of Madhya Pradesh.
- The **Mandasaru gorge in Kandhamal district** was notified as the first such site in Odisha in 2019, followed by **Mahendragiri hills in 2022.**

What are Biodiversity Heritage Sites?

- Biodiversity heritage sites are well-defined areas under the **National Biodiversity Authority** that are unique, ecologically fragile ecosystems – **terrestrial, coastal and inland waters and, marine** – having a rich ecosystem comprising any one or more of the following components:
  - richness of wild as well as domesticated species or intra-specific categories
  - high endemism
  - presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/ cultivated species or their varieties
  - past pre-eminence of biological components represented by fossil beds
  - having significant cultural, ethical or aesthetic values
  - important for the maintenance of cultural diversity, with or without a long history of human association with them

2. THE WORLD NEEDS TO SHIFT TO A CIRCULAR ECONOMY: UNEP

CONTEXT

Global plastic pollution can reduce by 80 per cent by 2040 if countries and companies make deep policy and market shifts using existing technologies and shift to a circular economy, according to a new report launched by United Nations Environment Programme (UNEP).

Key-highlights of the Report

- **Title:** *Turning off the Tap: How the world can end plastic pollution and create a circular economy*
- **Circular economy approach**: The report urged governments and businesses alike to adopt a **circular economy approach** for tackling the problem of plastic pollution.
- **Cut down on plastic:** Countries need to eliminate unnecessary and problematic plastic uses.
- **Shift:** They need to make three market shifts — reuse, recycle, and reorient and diversify.
- Even with the above measures, 100 million tonnes of plastics from single-use and short-lived products will still need to be safely dealt with annually by 2040 — together with a significant legacy of existing plastic pollution.
- However, any delays in executing the necessary shifts will mean higher costs and an additional 80 million tonnes of plastic pollution by 2040.

What is Circular economy?

- Circular economy is an economic model that aims to minimize waste and maximize resource efficiency by keeping products, materials, and resources in use for as long as possible.
- It is a departure from the traditional linear economy, which follows a "take-make-dispose" pattern.

- In a circular economy, resources are kept in circulation through strategies such as recycling, reuse, remanufacturing, and sharing, creating a closed-loop system.

How would this shift benefit the economy?

- **Savings:** Overall, the shift to a circular economy would result in $1.27 trillion in savings, considering costs and recycling revenues.
- **Reduced expenditure on externalities:** A further $3.25 trillion would be saved from avoided externalities such as health, climate, air pollution, marine ecosystem degradation, and litigation-related costs.
- **Increased employment opportunities:** This shift could also result in a net increase of 700,000 jobs by 2040.

Government recent initiative to promote circular economy and sustainable growth

The Union Budget 2023-24 has put the focus on sustainable development and a circular economy

- **GOBARdhan:** The scheme aims to promote a circular economy by setting up 500 "waste-to-wealth" plants across the country, including 200 compressed biogas (CBG) plants and 300 community-based plants. The goal is to convert waste into valuable resources, reducing the country's carbon footprint and promoting sustainability.
- **Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI):** MISHTI aims to preserve and restore the mangrove ecosystem and provide livelihood opportunities for local communities.
- **Promoting Conservation Values: Amrit Dharohar:** It aims to promote the conservation of wetlands in the country.
- **Plastic Waste Management (Second Amendment) Rules, 2022:** They mandate to increase in the thickness of plastic carry bags to over 120 microns, and the phase-out of some single-use plastic products.

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7

Precautionary Principle for Biodiversity Conservation

1. PROTESTS IN HASDEO ARANYA

CONTEXT

For more than a year now, locals, largely from the **Gond tribe**, in Hariharpur, Ghatbarra, and Fattepur villages, have been holding a sit-in at the entrance to Hariharpur against mining.

Background

- Protests against mining in the Hasdeo Aranya region have been going on since the area was first granted clearance for this purpose by the Chhattisgarh government in 2010. However, there are no positive results.
- In March 2022, the Chhattisgarh government had granted expansion approval for the project to open the Parsa Coal Block, which would dig under Hariharpur.
- Here, about 2 lakh trees have been marked for felling. The mines will expand into Fattepur and Ghatbarra.
- Mining will lead to the loss of about 8 lakh trees of the Sal forests in Hasdeo Aranya, which will end up affecting the catchment of the Hasdeo river.

About the Hasdeo Aranya forests region

- The Hasdeo Aranya forests are called the **lungs of Chhattisgarh.**
- The Hasdeo Aranya (Aranya means forest) lies in the catchment area of the Hasdeo river and is spread across 1,878 sq km in North-Central Chhattisgarh.
- The **Hasdeo river** is a tributary of the **Mahanadi river** which originates in Chhattisgarh and flows through Odisha into the Bay of Bengal.
- **Home to vulnerable population:** Hasdeo Arand region is **home to a large and vulnerable population**,

most of them being Adivasis and other traditional forest dwellers. **Over 90% of the residents are dependent on agriculture cultivation and forest produce for their livelihoods.**

- The implementation of **Forest Rights Act** has remained extremely poor till date leaving the population extremely vulnerable to abuse and exploitation.

Coalfield

- Underneath the Hasdeo Aranya is a coalfield that comprises of 22 coal blocks. In 2010, the Centre categorised Hasdeo Aranya to be a "no-go" zone for mining. It ruled out mining in any of these blocks.
- However, only a year later, the Ministry of Environment, Forest and Climate Change (MoEF) granted clearance for the mining for one coal block.
- At present, of the 22 blocks, seven blocks have been allotted to different companies, says the resolution.

How significant is this region?

- **Forest land:** Around 80% of this is covered by **good quality forest**(approximately 1176 sq km has a canopy cover of over 40% while an additional 116 sq km has a canopy cover of over 70%).
- **Biodiversity:** Besides, the forests are ecologically sensitive due to the rich biodiversity. It is also **part of a large elephant corridor** stretching from supporting the migration of wild elephants from Gumla district in Jharkhand to Korba district of Chhattisgarh.
- **Hasdeo Bango reservoir**: It is also the **watershed of the Hasdeo Bango reservoir** on the Hasdeo River, which is a tributary of the **Mahanadi River** and one of the most important rivers of Chhattisgarh.
  - The **Hasdeo Bango Dam built** across the Hasdeo river irrigates six lakh acres of land, crucial to a State with paddy as its main crop.

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8

Government Initiatives

1. MISHTI SCHEME TO CONSERVE MANGROVE IN INDIA

CONTEXT

The **Union Budget for 2023-24** announced an initiative for mangrove plantation along the coastline and on salt pan lands, under **MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes).**

What are Mangroves?

- Mangroves are **salt-tolerant plant communities** found in **tropical and subtropical intertidal regions**.
- They are important **refuges of coastal biodiversity** and also act as **bio-shields** against extreme climatic events.
- They can survive the limiting factors imposed by **lack of oxygen, high salinity and diurnal tidal inundation.**

- Mangroves are included in **Type Group-4 Littoral & Swamp Forests.**

Mangroves in India

- About **40% of the world's Mangrove Cover** is found in South East Asia and South Asia.
- The mangrove cover in India is **4,992 sq km**.
  - Among the states and UTs, **West Bengal has the highest percentage of area** under total Mangrove cover followed by **Gujarat and Andaman Nicobar Islands.**

About MISHTI Scheme

- MISHTI is a new programme that will facilitate mangrove plantation along India's coastline and on salt pan lands.
- It will be implemented through convergence between the **MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme), CAMPA (Compensatory Afforestation Fund Management and Planning Authority)** Fund and other sources.

Mangrove Forests

GSSCORE Datastory

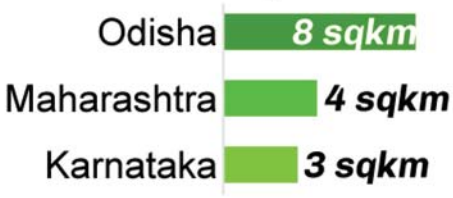
Total area of Mangrove forests: 14.79 million hectare

- Indonesia 19%
- Brazil 9%
- Nigeria 7%
- Mexico 6%

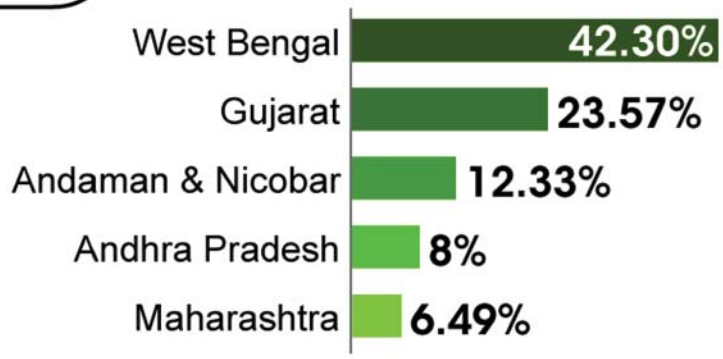
India has about 3% of the total Mangrove cover in South Asia

Mangrove in India:

Top three states showing increase in mangrove cover:



Mangrove cover in different states/UTs:



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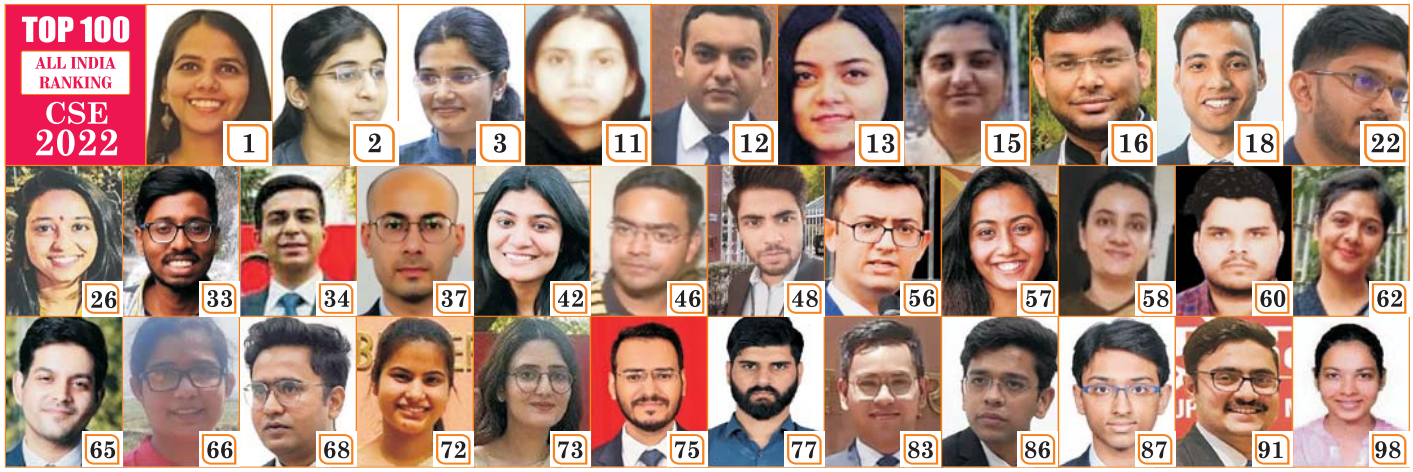

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