Prelim Bits 04-11-2023 | UPSC Daily Current Affairs

Nilgiri Tahr

Tamil Nadu has allotted Rs 25 crores to Project Nilgiri Tahr which was launched in 2022 to protect and conserve the animal.

- **Scientific name -** *Nilgiritragus hylocrius*
- It is the *only mountain ungulate* (large mammals with hooves) in southern India amongst the 12 species present in India.
- **Population estimates** - 3,122 individuals in the wild (as per a report released by WWF India in 2015)
- **Habitat** – It is a sure-footed (not likely to slip) ungulate that inhabits the *open montane grassland habitats* at elevations from 1200 to 2600 m of the South Western Ghats.
- **Distribution** – It is ***endemic to Western Ghats*** but currently large populations are found only in Nilgiris and Anamalais.
- Palani hills, Srivilliputtur, and the Meghamalai and Agasthiyar ranges holds smaller population.

*The **Eravikulam National Park** in Kerala is home to the largest population of the Nilgiri tahr, with more than 700 individuals.*

- **Threat** – Habitat loss and occasional hunting for its meat and skin.
- **Conservation status**
  - **IUCN status** – Endangered
  - **Wildlife (Protection) Act of India, 1972 -** Schedule I

*Nilgiri Tahr is **Tamil Nadu's State Animal** and the State celebrates **October 7 as Nilgiri Tahr Day** to honour hunter-turned-conservationist ERC Davidar.*

*Nilgiri Tahr finds mention in one of earliest Tamil epic **Silapathikaram as 'varai aadu'.***

Related links - Nilgiri Tahr Conservation Project

References

1. The Hindu| State animal of Tamil Nadu
2. WWF India| Nilgiri Tahr

World Food India 2023

The 2nd edition of the World Food India 2023 held at Bharat Mandapam in New Delhi.

- The 1st edition of the event was held in 2017.
- **Objective** – To showcase *India as 'food basket of the world'* and to celebrate *2023 as the International Year of Millets.*
- To provide a platform for different stakeholders to promote investments, partnerships and establishments.
- **Participants** - Over 80 countries, including CEOs of prominent food processing companies.
- **Food Street** - It will feature regional cuisines and royal culinary heritage of traditional Indian cuisine.
- **Pavilions for food processing industries** – It will showcase the innovations and focus on financial empowerment, quality assurance and innovations in machinery and technology.
- **Ayush Aahar**– Ayush products developed by Ayush Startups will also be showcased.
- **Reverse Buyer Seller Meet** – Over 1200 overseas buyers from more than 80 countries with Netherlands as the partner country and Japan will be the event's focus country.

  Reverse Buyer Seller Meet *provides an opportunity to prospective importers to interact with their Indian counterparts about the requirements and to increase the potential of India's exports.*

- **Strengthen SHGs** - Seed capital assistance for over 1 lakh self-help groups will be given for better price realisation in the market.

  Food processing industry *has emerged as the* ***sunrise sector*** *in India and the country stands at* ***7th position*** *with an overall export value of more than 50,000 million USD.*

References

1. Hindustan Times| Food Sector in India
2. PIB| World Food India 2023

Air Quality Index (AQI)

As the air quality in Delhi has plummeted to 'severe' category with the AQI breaching the 400 mark, the stage 3 of the Graded Response Action Plan (GRAP) was set in motion.

- **AQI** – It is a ***colour coded index*** showing the measure of air quality.
- **Launch** – In 2014, as part of the Swachh Bharat campaign.
- **Objective** – To communicate to the public and the government, the *current level and future projections of air pollution*.
- **Represented pollutants** – Around 6 to 8 air pollutants like ground level Ozone (O3), particulate matter (PM 10 and PM 2.5), carbon monoxide (CO), sulphur dioxide (SO2), nitrogen dioxide (NO2), etc.
- Each of these pollutants is given a weight based on the kind of impact it has on human health.
- Thus, AQI transforms air quality data of these pollutants into *1 number (index value), nomenclature and colour*.
- **Categories of AQI** – Good (0-50), satisfactory (50-100), moderately polluted (100-200), poor (200-300), very poor (300-400) and severe (400-500).
- The higher the AQI, the worse the air and large percentage of the population is likely to experience adverse health effects.

Graded Response Action Plan (GRAP) *is a set of emergency anti-air pollution measures that kick in when air quality deteriorates to certain threshold in the Delhi-NCR region which was notified in 2017.*

Reference

Indian Express| Air Quality Index

Environmental DNA (eDNA)

Recently, scientist estimated that the total taxonomic diversity of Chilika lagoon in Odisha is about 1,071 families across the tree of life using environmental DNA (eDNA) method.

Chilika lagoon in Odisha is the country's largest brackish water lagoon.

- **eDNA** – It is the nuclear or mitochondrial DNA that is released from an organism into the environment through natural processes during their lifetime or after death.
- **Sources of eDNA**- Secreted feces, mucous, and gametes; shed skin and hair; and carcasses.
- **eDNA method** - A non-invasive method *to assess the total biodiversity* of any ecosystem by sequencing the DNA found in the environments.
- **Developed by** – Laboratory for the Conservation of Endangered Species (LaCONES), a CSIR-Centre for Cellular and Molecular Biology (CCMB) laboratory headquartered in Hyderabad.
- **Sample size** – Just a few litres of water, soil, or even air.
- **Working mechanism** – A molecular approach is applied to filter out eDNA from

environmental samples, read their sequences, and thus, identify the source of the eDNA.
- *Polymerase chain reaction (PCR)* is used to amplify DNA for sequencing while quantitative PCR (qPCR) is typically used to detect and quantify DNA.

- **Significance** – It is cheaper, faster, and highly scalable to large freshwater and marine ecosystems which can help in monitoring and conserving the rich biodiversity of our country.
- It can detect all kinds of organisms, including viruses, bacteria, archaea, and eukaryotes as well.
- eDNA can also reveal the presence of human remains.

Scientists have collected samples of seawater from the vicinity of a plane wreck of the 2nd World War to look for floating eDNA.

Reference

The Hindu Business Line| Environmental DNA (eDNA)

Mercury contamination

According to a study, Birds living within vicinity of gold mining were found to have over 4 times higher mercury concentrations than those living at other sites across the tropics of Central and South America.

- **Mercury contamination** – It is global as mercury emissions disperse widely in the atmosphere. They are
  - Highly **toxic to the nervous system**.
  - **Persistent** in the environment.
  - **Bioaccumulates** (higher concentrations in tissues of aquatic plants and animals than in water).
  - **Biomagnifies** (higher concentrations at increasingly higher levels in the food chain).

According to World Health Organization (WHO), mercury is one of the top 10 chemicals or groups of chemicals of major public health concern.

- **Mercury pollution** – It is emitted by *natural sources* like volcanoes, geothermal springs, geologic deposits, and the ocean.
- *Human-related sources* primarily include coal combustion, waste incineration, industrial uses, and mining.

During the last 150 years, human activities have more than doubled natural amounts of mercury in the atmosphere.

- **Complications** – It cause *neurological illness, immune diseases and reproductive failure* in humans and some birds.
- Mercury poisoning leads to *Minamata disease*.
- **Measures** – **Minamata Convention** is a global treaty to protect from the adverse effects of mercury and its compounds.
- **Phytoremediation**, allows plants to absorb and accumulate mercury from soil, water, or sediments.
- The **planetGOLD program**, led by UNEP seeks to eliminate mercury from artisanal gold mining.

Mercury (Hg) is also known as 'quicksilver', is the only elemental metal that is liquid at room temperature which is used by gold miners to separate the precious metal from sediment.

In 2023, for the 1st time, scientists observed that mammals were showing signs of mercury contamination near a Peruvian gold mining hotspot.

Reference

The Hindu| Mercury contamination in Birds

Other Important News
Operation Cactus • Operation Cactus was a military operation led by the Indian Armed Forces in the ***Maldives*** in 1988. • The operation thwarted a coup attempt against the Maldivian Government headed by *President Abdul Gayoom*.
DISHA • Diagnostic Services in Healthcare - Availability and Geo-mapping of Laboratory services in India (DISHA) is a portal that helps the public access nearby diagnostic healthcare facilities. • It was launched by the Indian Council of Medical Research (ICMR) - National Institute of Pathology (NIP). • The portal provides information on the type of facility, distance, test availability, test cost, and turn-around time.

Ross Sea

• A deep bay of the ***Southern Ocean***, the Ross Sea exists between Marie Byrd Land and Victoria Land of Antarctica.
• The majority of the Ross Sea Region MPA is fully protected under a General Protection Zone (GPZ).
• Around 72% of the MPA is a no-take zone, excluding areas under ice shelves.
• A no-take zone is an area set aside by the government where no extractive activity is allowed.
• Extractive activities include fishing, hunting, logging, mining, and drilling. Shell collecting and archaeological digging are also extractive.

Important Migratory Birds

• **Pied avocet -** A migratory bird species that breeds in Europe and Central Asia, arriving in Africa and southern Asia during winters.
• **Greater painted snipe** and **Slaty breasted rail**, **Brown crake** - spotted at Visakhapatnam.
• **Great crested grebe** - A winter migrant to India (found in all wetlands of Srikakulam and some places in Visakhapatnam).
• **Other species spotted in Andhra Pradesh -** Lesser florican, Terek sandpiper, Jerdon's courser and green munia, spot-billed pelicans.

Chanakya Defence Dialogue

• The 1st edition of Chanakya Defence Dialogue will be held in Manekshaw Centre, New Delhi.
• This is the first event of its kind being organised by the Indian Army in partnership with Centre for Land Warfare Studies (CLAWS).
• It will carry out a comprehensive analysis of security challenges in South Asia and the Indo-Pacific.

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