

1. **Astra Missile :** Recently, the Defence Research and Development Organisation (DRDO), in collaboration with the Indian Air Force (IAF), successfully flight-tested the **Astra Beyond Visual Range Air-to-Air Missile (BVRAAM).**
    - The missile, equipped with an indigenously developed **Radio Frequency (RF)** seeker, was launched from a Su-30 Mk-I fighter aircraft off the coast of Odisha.

- **About Astra Missile :** Specifically built for integration with Indian Air Force (IAF) fighter jets.
    - **Key Features: Range**: Over 100 km; capable of neutralizing targets without direct visual contact.
        - ✓ **Altitude**: Effective engagement up to 20 km.
        - ✓ **Speed**: Capable of reaching **Mach 4.5** (4.5 times the speed of sound).
        - ✓ **Weight & Dimensions**: Weighs 154 kg; length 3.6 m; diameter 178 mm.
        - ✓ **All-Weather Capability**: Operational in day/night and adverse weather conditions.
        - ✓ **Kill Probability**: High **Single Shot Kill Probability (SSKP)**.
    - **Propulsion**: Based on **Solid-Fuel Ducted Ramjet (SFDR)** engine technology.
    - **Targeting Modes**: Supports both **Lock-On Before Launch (LOBL)** and **Lock-On After Launch (LOAL)**. Enables "fire-and-forget" capability, enhancing pilot safety.
- **RF seeker** is a critical component of a missile's **guidance system** that helps it locate and lock onto its target using **radio waves** (typically in the radar frequency range).

2. **Maratha Military Landscapes :** Recently, the **'Maratha Military Landscapes'** received the prestigious recognition of being inscribed on the **UNESCO World Heritage List**, marking a significant milestone in honouring India's rich historical and cultural heritage.
    - **About Maratha Military Landscapes :** A **serial cultural property** comprising **12 forts** built between the **17th and 19th centuries CE**.
        - Represents the **military vision, architectural brilliance**, and **strategic planning** of the **Maratha Empire**.
        - Rooted in the military ideology of **Chhatrapati Shivaji Maharaj** around **1670 CE**, and continued until the **end of the Peshwa rule in 1818 CE**.

- **Geographical Spread:** The forts are spread across four major geographical zones: **Sahyadri Mountain Ranges**, **Konkan Coast**, **Deccan Plateau** and **Eastern Ghats**
- The nomination comprises **forts**, including **Salher, Shivneri, Lohgad, Khanderi, Raigad, Rajgad, Pratapgad, Suvarnadurg, Panhala, Vijaydurg, and Sindhudurg** in **Maharashtra**, along with **Gingee Fort** in **Tamil Nadu**.

- **About UNESCO World Heritage Sites :** Sites recognized by UNESCO for their "Outstanding Universal Value" to humanity.
  - **Aim:** Preserve cultural and natural heritage for future generations.
  - **Categories of WHS: Cultural Heritage** – Historical monuments, architectural works, urban landscapes.
    - ✓ **Natural Heritage** – Natural landscapes, ecosystems, biodiversity.
    - ✓ **Mixed Heritage** – Sites with both cultural and natural importance.
  - India ratified the Convention in **1977** and has **43 UNESCO World Heritage Sites**: **35 Cultural Sites**, **7 Natural Sites** and **1 Mixed Site** (as of 2025)

3. **Rhino DNA Index System (RhoDIS) :** Recently, a significant step in rhino conservation and wildlife crime forensics was taken in **Assam**, where a specialised team began the **genetic analysis of rhino horn samples**. This initiative is part of the **RhoDIS (Rhino DNA Index System) India** programme.



- **About Indian Rhino :** Also called as Greater One-Horned Rhinoceros (Rhinoceros unicornis)
  - Largest of the three Asian rhino species; among the largest of all rhinos alongside the African white rhino.
  - **Physical Features:** Recognized by a **single black horn** (8–25 inches long).
    - ✓ Possesses a **grey-brown hide** with deep **skin folds**, giving an **armor-plated** appearance.
    - ✓ Adult males weigh up to **2,200 kg** and measure about **368–380 cm** in length and **170–186 cm** in height.
    - ✓ Typically **solitary**, except for females with calves. Males have loosely defended territories.

- **Habitat:** Found in **India (Assam)** and **Nepal**, especially in the **foothills of the Himalayas**.
- **Global Rhino Species: Greater One-Horned Rhino** – India and Nepal.
  - ✓ **White Rhino** – Native to northern and southern **Africa**.
  - ✓ **Black Rhino** – Native to eastern and southern **Africa**.
  - ✓ **Javan Rhino** – Also called **Sunda or Lesser One-Horned Rhino**.
  - ✓ **Sumatran Rhino** – Smallest and **Critically Endangered**.

- **Conservation Status: IUCN Red List:** Vulnerable
  - **CITES:** Appendix I
  - **Wildlife Protection Act, 1972 (India):** Schedule I
- **About RhoDIS :** A **DNA-based forensic tool** to strengthen efforts against **rhino poaching**.
  - A **genetic database** will be developed to store and reference these profiles.
  - This system will support **investigations** and help in the **prosecution of suspects** involved in wildlife crimes.

4. **Yamuna River :** Recently, the Union Home Minister urged the Delhi government to increase its sewage treatment capacity to 1,500 million gallons per day (MGD) by 2028.
   - This move is a key part of the ongoing efforts to clean the Yamuna River by curbing the flow of untreated sewage and improving the river's overall water quality.
- **About Yamuna River :** Also known as **Jumna**, is the **largest and most significant tributary of the Ganges River**.
  - Originates from the **Yamunotri Glacier** in the **Himalayas**, located at an elevation of **4,421 meters**.
  - The source lies on the **southwestern slopes of the Banderpooch peaks** in **Uttarakhand**.
- **Course and Flow:** The river travels a total length of **1,376 km**, flowing **entirely within India**.
  - Flows through the states of Uttarakhand, Himachal Pradesh, and Haryana, enters Delhi, and eventually merges with the Ganga at the Triveni Sangam in Allahabad (Prayagraj).
- **Religious Significance:** The **confluence (Sangam)** of the Yamuna and Ganga at Prayagraj is considered **sacred** in Hinduism.
  - It is the site of important religious events, including the **annual Magh Mela** and the **Kumbh Mela**, held every 12 years.

- **Major Tributaries :** Tons (largest tributary), Chambal, Hindon, Sarda, Giri, Betwa and Sindh.

5. **Donkey Route :** Recently, the **Enforcement Directorate (ED)** conducted a fresh round of searches in connection with the **"U.S. Donkey Route" case**.
    - The searches were carried out at **seven locations** — including **Mansa** in Punjab, and **Kurukshetra** and **Karnal** in Haryana.
    - **About Donkey Route :** Refers to a **long , illegal and dangerous path** taken by **illegal migrants** to reach countries like the **United States** or the **United Kingdom**.
        - The term originates from a **Punjabi idiom**, symbolizing a **grueling, unstructured journey**.
    - **Key Risks : Multiple Border Crossings**: Migrants often cross **several international borders**, usually without valid documentation.
        - **Indirect Pathways**: These routes are **non-linear** and involve **stopovers in multiple countries** to bypass immigration checks.
        - **Treacherous Terrain**: The journey often includes **risky landscapes**, such as dense forests, deserts, or oceans.
        - **False Promises**: Migrants are misled by **agents and traffickers** promising **legal entry and employment** abroad.
        - **High Charges**: Agents demand **large sums of money**, sometimes up to **₹30–60 lakh or more**, depending on the route.
        - **Fake Documentation**: Services include **forged passports, visas**, and **false job or college admission letters**.
        - **Risky Smuggling Methods**: Includes being hidden in **shipping containers**, or crossing borders in **unsafe boats or trucks**.
6. **e-Truck Incentive Scheme:** Recently, the Government of India officially launched the country's **first incentive scheme for electric trucks (e-trucks)** under the **PM E-DRIVE initiative**, with the aim of transforming the landscape of **freight transportation** in the country.
    - **About e-Truck Incentive Scheme :** Demand incentives will be provided for electric trucks falling under the **N2 and N3 categories**, as specified in the **Central Motor Vehicle Rules (CMVR)**.
        - The **N2 category** includes trucks with a **Gross Vehicle Weight (GVW)** of **more than 3.5 tonnes and up to 12 tonnes**.

- The **N3 category** comprises trucks with **GVW exceeding 12 tonnes and up to 55 tonnes**.
- For **articulated vehicles**, the incentive will be applicable **only to the puller tractor** of the N3 category.

- **About PM E-DRIVE** : A **flagship initiative** of the Government of India aimed at accelerating the shift towards **electric mobility**.
  - It focuses on providing **demand-side incentives** and **charging infrastructure** to support widespread adoption of electric vehicles (EVs).
  - The scheme is designed to reduce **carbon emissions**, improve **urban air quality**, and enhance **energy security** by minimizing dependence on fossil fuels.

7. **Sharavathi Valley Lion-Tailed Macaque Wildlife Sanctuary :** Recently, the Standing Committee of the National Board for Wildlife (NBWL) granted in-principle approval for the diversion of **142** hectares of forest land in **Karnataka's Sharavathi Valley Lion-Tailed Macaque Wildlife Sanctuary**, despite existing ecological concerns and the lack of forest clearance**.**

- **About Sharavathi Valley Lion-Tailed Macaque Wildlife Sanctuary:** Lies within the **Western Ghats**, a **UNESCO World Heritage Site**.
  - Covers an area of approximately **431.23 sq. km**, including the **Linganamakki reservoir**
  - **Flora and Fauna:** It supports diverse plant species such as **Dhoopa, Gulmavu, Surahonne, Mavu, and Nandi**
    - ✓ Lion-Tailed Macaque , tigers, leopards, wild dogs, jackals, sloth bears, deer species (spotted, sambar, barking, mouse), wild pigs, common langurs, bonnet macaques, and the Malabar giant squirrel, making it a crucial zone for wildlife conservation.
- **About Lion-Tailed Macaque :** It is a Old World monkey species that is arboreal and diurnal, with an omnivorous diet primarily consisting of fruits.
  - Named for its **lion-like tail** – long, thin, and tufted.
  - Found in the evergreen forests of **Karnataka, Kerala, and Tamil Nadu**.
  - It is one of the smallest macaque species, distinguished by a grey mane encircling its face.
  - **Conservation Status**: **IUCN Red List**: Critically Endangered
    - ✓ **CITES**: Listed in Appendix I,
    - ✓ **Wildlife Protection Act, 1972** (India): Schedule I