

## **SHORTNEWS:**

### **1.DISCOVERY OF NOTHOPEGIA PLANT FOSSIL IN ASSAM**

**NEWS:** Fossilized leaves of the *Nothopegia* plant genus were recently discovered in the coal beds of Assam's Makum Coalfield shedding new light on South Asia's ancient biodiversity.

#### **About the Study**

- **Subject:** The study aims to trace the journey of the *Nothopegia* plant from Northeast India to its current refuge in the Western Ghats.
- **Published in:** The study was published in the journal 'Review of Palaeobotany and Palynology'.
- **Discovered by:** The fossilised leaves were discovered by researchers from the Birbal Sahni Institute of Palaeosciences (BSIP) Lucknow (autonomous institute under the Department of Science and Technology).
- **Dating:** The fossilized leaves date back to the late Oligocene epoch (24–23 million years ago) and is the world's oldest known record of the *Nothopegia* plant genus.
- **Technique:** Advanced techniques like the herbarium comparison, cluster analysis, and the Climate Leaf Analysis Multivariate Program (CLAMP) were used to reconstruct the ancient environment of Northeast India
- **Findings:**
  - The study revealed a warm, humid climate in the Northeast region similar to the present day Western Ghats during the late Oligocene period.
  - **Climate Change:** Geological upheavals due to tectonic movements, triggered significant climate changes in the Northeast, altering temperature, rainfall, and wind patterns.
    - These shifts made the region inhospitable for tropical species like *Nothopegia*, leading to its disappearance from Assam
- **Significance:**
  - The research offers insights into how ecosystems adapt to environmental pressures and how some species endure dramatic shifts.
  - Understanding *Nothopegia*'s ancient migration underscores the need to preserve hotspots ecosystem like Western Ghats, which serve as sanctuaries for ancient plant lineages.

#### **About Nothopegia**

- **Family:** *Nothopegia* is a genus of flowering plants in the Anacardiaceae family.
- **Native:** The plant is native to India, Bangladesh, and Sri Lanka.
  - Except *Nothopegia heyneana* Gamble, all other species are restricted to the Western Ghats and SW India
- **Feature:** This genus is characterised by small deciduous trees with simple leaves, racemose inflorescence, unisexual tetramerous flowers and drupaceous fruits.

## **2.ENERGY TRANSITION INDEX 2025**

**NEWS:** India is ranked **71st** out of 118 countries **in the Energy Transition Index 2025** (Titled: *Fostering Effective Energy Transition 2025*) by the World Economic Forum (WEF) .

**What is the Energy Transition Index?**

- The Energy Transition Index (ETI) is a **global ranking system** that measures how well countries are moving towards a **cleaner, more secure, and fair energy system**.
- The WEF report measured countries **based on:**
  - **Security** – How reliable their energy systems are.
  - **Sustainability** – How green and eco-friendly their energy sources are.
  - **Equity** – How fairly energy is shared across different groups.
  - **Readiness** – Political will, money, innovation, infrastructure, and skilled people.

### **Key Findings of the Energy Transition Index 2025**

- **India's Rank and Performance**
  - India ranked **71st among 118 countries**.
  - Although the rank dropped **from 63rd in 2024**, India showed **strong improvements in energy efficiency and investment capacity**.
- **Top and Bottom Countries**
  - **Top 5 performers:** Sweden, Finland, Denmark, Norway, Switzerland.
  - China ranked 12th, USA 17th, Pakistan 101st.
  - Congo ranked **the lowest**.

## **3.WORLD CROCODILE DAY**

**NEWS:** Odisha Government celebrated **World Crocodile Day on June 17 for its 50 Years of Crocodile Conservation**.

**About World Crocodile Day**

- It was first observed in 2017 to promote **conservation efforts and responsible coexistence with crocodiles**.
- Started by the Crocodile Research Coalition (**Belize-based nonprofit, established in January 2016**) in partnership with the **Belize Zoo**.
- **Purpose:** Raising awareness about crocodile species and promoting their conservation.
- **2025 Theme:** “**Connecting crocodiles and communities**”

**About India's Crocodile Conservation**

- India started its **Crocodile Conservation Project in 1975**.
- Odisha led the efforts to save three **crocodile species** and it the **only state with all three species**
  - Gharial (fish-eating crocodile) – Mahanadi River

- Saltwater crocodile- Bhitarkanika Mangroves
- Mugger crocodile- Forested rivers near Ramatirtha
- **Breeding centres in Odisha: Tikarpada** for gharials and **Dangamal** for saltwater crocodiles.

Species of crocodile	Estimated Population	Key Locations in India
<b>Gharial</b>	~3,000	Chambal River (MP, UP, Rajasthan), Gandak, Mahanadi
<b>Saltwater</b>	~2,500	Bhitarkanika (Odisha), Sundarbans (WB), Andaman & Nicobar
<b>Mugger</b>	8,000–10,000	Ramatirtha (Odisha), Gir (Gujarat), Chambal, other rivers

#### Crocodile Species in India

- **Gharial (*Gavialis gangeticus*) –**
  - **Conservation status- IUCN Status:** *Critically Endangered*
  - **CITES:** Appendix I
  - **Wildlife Protection Act (India):** Schedule I
- **Saltwater Crocodile (*Crocodylus porosus*)**
  - **Conservation status – IUCN Status:** Least Concern
  - **CITES:** Appendix I (except some populations in Australia and Southeast Asia)
  - **Wildlife Protection Act:** Schedule I
- **Marsh Crocodile (*Crocodylus palustris*) –**
  - **Conservation status – IUCN Status:** Vulnerable
  - **CITES:** Appendix I
  - **Wildlife Protection Act:** Schedule I

#### 4.DISCOVERY OF BARYONIC MATTER

**NEWS:** A recent study **published in Nature Astronomy** reports the successful detection of the previously “**missing**” half of the universe’s **ordinary/Baryonic matter** using signals from **Fast Radio Bursts (FRBs)** originating.

#### Types of Matter in the Universe

- **Ordinary matter (15%):** Made of **baryons** (protons and neutrons), forms stars, gas, planets, people, etc.
- **Dark matter (85%):** Invisible, mysterious matter only known through its gravitational effects.

### **What is Baryonic matter ?**

- Composed of **protons and neutrons** (baryons) that form atoms.
- Includes all visible structures: stars, gas, dust, planets, and living beings.
- Differs from **dark matter**, which does not interact with electromagnetic forces and is only known via its gravitational effects.

### **Significance**

- This resolves a long-standing cosmological puzzle—while the total amount of ordinary matter was known theoretically from Big Bang calculations, **roughly 50% of it remained undetected** until now.

### **Fast Radio Bursts (FRBs)**

- Extremely brief but powerful pulses of radio waves from deep space.
- Last only milliseconds, but can release as much energy as the Sun does in a year.
- Their exact origin is uncertain; likely candidates include **magnetars** (highly magnetized neutron stars).
- Serve as tools to probe matter distribution in the universe by analyzing how their signals disperse across space.