



*For success in a changing world*

## **DAILY CURRENT AFFAIRS 05-02-2025**

### **GS-1**

- 1. Point Nemo**

### **GS-3**

- 2. Organophosphates**
- 3. 2023 OG40 Asteroid**
- 4. Sharavathy Lion-Tailed Macaque Sanctuary**
- 5. Kanha Tiger Reserve**

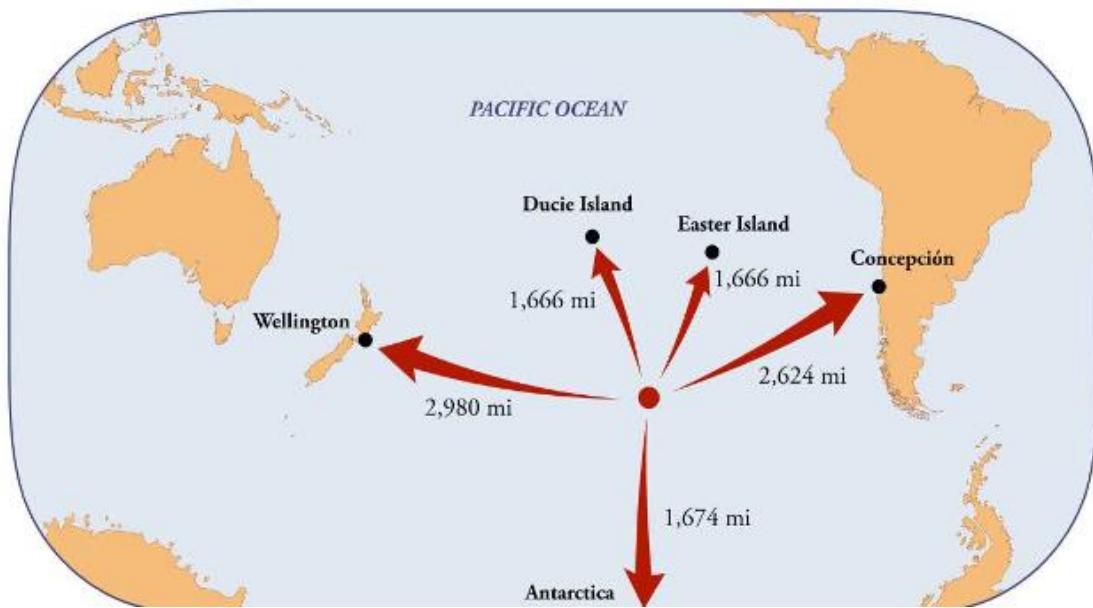
## Point Nemo

**Syllabus: GS-1; Geography**

### Context

- Two female officers from the Indian Navy touched a new milestone on Thursday as they crossed Point Nemo - the most remote location on Earth - aboard the Indian Naval Sailing Vessel (INSV) Tarini.

## Point Nemo



### About

- **Point Nemo** is the **oceanic pole of inaccessibility**, located in the South Pacific Ocean. It is the point farthest from any land on Earth.

### Geographical Location:

- **Coordinates:**  $48^{\circ}52.6'S$   $123^{\circ}23.6'W$
- It is approximately 2,688 kilometers (1,670 miles) from the nearest landmasses.
- The nearest land is **Ducie Island** (part of the Pitcairn Islands), followed by **Motu Nui** near Easter Island, and **Alexander Island** in Antarctica.

### Why It's Called the Oceanic Pole of Inaccessibility:

- Point Nemo is considered the most isolated place on Earth because it is the farthest from any land.
- The name "**Nemo**" comes from the Latin word for "no one," reflecting its extreme isolation.

### Surrounding Ocean:

- Point Nemo lies in the **South Pacific Ocean**.

### Importance in Space Exploration:

- **Spacecraft Disposal:** The area around Point Nemo is used as a **spacecraft cemetery** or "space junk" graveyard. Many spacecraft, including decommissioned satellites and space stations like **Mir**, have been deliberately deorbited and re-entered the Earth's atmosphere to burn up over this remote region.
- The reason for this is the remoteness of the area, ensuring that debris does not pose a risk to human life or populated areas.

### Environmental and Ecological Aspects:

- **Marine Life:** While Point Nemo itself is uninhabited, the surrounding ocean is home to deep-sea life, though it is difficult to study due to its inaccessibility.
- **No Direct Impact on Human Activity:** The area is remote, and no commercial or industrial activities are conducted in this part of the ocean, making it a less disturbed region.

### Significance in Maritime Navigation:

- Despite its remoteness, Point Nemo is of interest to researchers and explorers because it represents the most extreme point on Earth in terms of isolation.

## Organophosphates

### Syllabus: GS-3; Science and Tech

#### Context

- Doctors treating patients from J&K's Baddal village said Monday that organophosphate, chemicals that are used in pesticides and insecticides, could

be behind the 17 deaths that had spread panic in the village and prompted experts from different parts of the country to look for the cause.

### What are Organophosphates?

- Organophosphates are chemical compounds formed through the **esterification process involving phosphoric acid and alcohol**.
- Esterification is a chemical reaction where two reactants, such as **alcohol and acid**, combine to create an ester as the reaction product.

### Key Characteristics:

- Efficiently absorbed through inhalation and ingestion.
- Work by disrupting the transmission of nerve signals in exposed organisms, which can be fatal.

### Common Applications:

- **Pesticides and Insecticides:** Widely used in agriculture to control pests and insects, protecting crops from damage.
- **Herbicides:** Utilized for effective weed control in various agricultural settings.
- **Chemical Warfare:** Certain organophosphates are employed as nerve agents, disrupting nerve signals, leading to paralysis or death.
- **Industrial Uses:** Extensively applied in the manufacturing of plastics, solvents, and other chemicals.

### Impact of Organophosphates on Human Health:

- Exposure to organophosphates can have severe health consequences.
- They interfere with nerve signal transmission, causing neurotoxicity.
- Some organophosphates can damage the afferent fibers of peripheral and central nerves, associated with the inhibition of an enzyme known as "neuropathy target esterase."
- This can result in long-term neurological disorders and even fatal outcomes in severe cases.

## 2023 OG40 Asteroid

**Syllabus: GS-3; Science and Tech**

### **Context**

- A 14-year-old boy from Noida, Daksh Malik, has discovered an asteroid through a NASA program.
- The asteroid is designated as 2023 OG40 and confirmed as a '**Provisional Discovery of a Main Belt Asteroid**' by NASA.



### **About Asteroids:**

- Asteroids, also known as **minor planets**, are rocky remnants from the formation of the solar system ~4.6 billion years ago.
- They **orbit the Sun in elliptical paths** and can rotate erratically.
- Most asteroids originate from the main asteroid belt between **Mars and Jupiter**.
- Some asteroids share orbital paths with planets, including Earth.
- Asteroids are much smaller than planets, with irregular shapes and cratered surfaces.
- Sizes range from hundreds of miles in diameter to as small as pebbles.
- Over 150 asteroids have small companion moons; some form binary or triple asteroid systems.

### **International Asteroid Discovery Programme (IADP):**

- Affiliated with NASA's **International Astronomical Search Collaboration (IASC)**.

- A citizen science program enabling participants to discover asteroids using software and datasets.
- Provides datasets from IASC for participants to analyze using **AstroMetrica software**.

## **Sharavathy Lion-Tailed Macaque Sanctuary**

### **Syllabus: GS-3; Biodiversity**

#### **Context**

- Pumped storage project in Sharavathy Lion-Tailed Macaque Sanctuary gets condition approval

#### **Location:**

- Situated in **Shivamogga district**, Karnataka.
- Lies in the **Western Ghats**, a UNESCO World Heritage Site and one of the eight "hottest hotspots" of biodiversity in the world.
- Named after the **Sharavathy River**, which flows through the region and forms the famous **Jog Falls**.

#### **Establishment:**

- Declared as a sanctuary in **2019** to enhance the protection of the Lion-Tailed Macaque (*Macaca silenus*) and its habitat.

#### **Area Covered:**

- Covers an area of around **315.64 square kilometers**.
- Includes parts of Sharavathy Valley Wildlife Sanctuary and surrounding reserve forests.

#### **Key Fauna:**

- **Flagship Species:**
  - **Lion-Tailed Macaque (*Macaca silenus*)** – an **endangered** primate species endemic to the Western Ghats.
- **Other Wildlife:**
  - Malabar Giant Squirrel
  - Slender Loris

- Indian Leopard
- Indian Gaur
- Sambar Deer
- Various species of birds, amphibians, and reptiles.

#### **Key Flora:**

- Dominated by **tropical evergreen** and **semi-evergreen forests**.
- Rich in **endemism**, with several plant species unique to the Western Ghats.

#### **Ecological Importance:**

- Acts as a critical **biodiversity corridor** within the Western Ghats.
- Vital for **watershed management** due to the presence of the Sharavathy River and its tributaries.
- The forest ecosystem supports the **hydrological cycle**, aiding in the sustenance of major hydroelectric projects like the **Sharavathy Hydroelectric Project**.

#### **About Lion-Tailed Macaque (*Macaca silenus*)**



### Distribution:

- **Endemic to:** Western Ghats of India (Karnataka, Kerala, Tamil Nadu).
- Found in regions like:
  - **Silent Valley National Park** (Kerala)
  - **Sharavathy Lion-Tailed Macaque Sanctuary** (Karnataka)
  - **Anamalai Tiger Reserve** (Tamil Nadu)

### Diet:

- **Omnivorous** – primarily **frugivorous** (fruits), but also eats leaves, seeds, flowers, insects, and small vertebrates.
- Plays a key role in **seed dispersal**, aiding forest regeneration.

### Conservation Status:

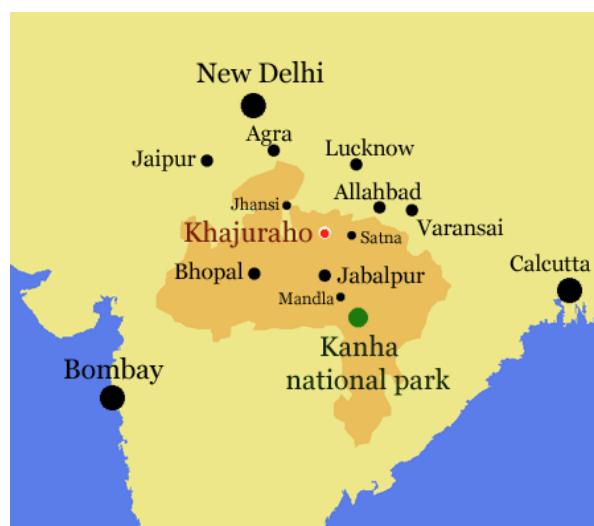
- **IUCN Red List: Endangered (EN)**
- **CITES: Appendix I**
- **Wildlife Protection Act (India), 1972: Schedule I** (highest level of protection)

## **Kanha Tiger Reserve**

### Syllabus: GS-3; Biodiversity

#### Context

A tigress, around 2 years old, was found dead in the Kanha Tiger Reserve in Madhya Pradesh.



### Location:

- Situated in the **Mandla** and **Balaghat** districts of Madhya Pradesh, India.
- It is the **largest national park** in Madhya Pradesh, covering **940 sq. km.**
- Located in the **Maikal Hills** to the east of the ancient **Satpura Range** in central India.

### History and Establishment:

- **Kanha National Park** was established on **June 1, 1955**.
- In **1973**, it was declared a **Tiger Reserve** under the **Project Tiger** initiative.
- One of the first tiger reserves in India and a significant part of wildlife conservation efforts.

### Geography and Habitat:

- Terrain consists of **forested shallow undulations, hills with varying slopes, plateaus, and valleys**.
- Dominated by **moist Sal and mixed deciduous forests**, with species like **Bamboo, Tendu, Sal, Jamun, Arjun, and Lendia**.
- Major rivers: **Banjar River** and **Hiran River** flow through the reserve, supporting wildlife and vegetation.

### Inspiration for The Jungle Book:

- The region is believed to have inspired Rudyard Kipling's famous novel **The Jungle Book**, with its dense forests and wildlife.

### Flora:

- The reserve is primarily composed of **Sal forests** and other mixed deciduous species.
- Notable species include **Sal, Bamboo, Tendu, Jamun, Arjun, and Lendia**.

### Fauna:

- **Royal Bengal Tiger**: The park is famous for its large population of Bengal tigers.
- Other species include **Leopard, Sloth Bear**, and the **Indian Wild Dog (Dhole)**.
- **Barasingha** (Swamp Deer): Kanha is known for saving this species from near extinction, now harboring the last viable population globally.

- Other wildlife includes **sambar**, **cheetal**, **barking deer**, and a variety of **bird species**.

### **Cultural Significance:**

- Home to ancient tribal communities, such as the **Gond** and **Baiga** tribes, who still live in the region, preserving traditional lifestyles.

### **Conservation Efforts:**

- **Project Tiger:** Kanha was one of the first reserves under this project, playing a key role in tiger conservation.
- **Mascot:** The reserve introduced "**Bhoorsingh the Barasingha**", a mascot symbolizing its conservation efforts.

### **Conservation Challenges:**

- **Poaching:** Though tiger poaching has reduced, illegal hunting remains a concern.
- **Human-Wildlife Conflict:** Expansion of human settlements around the reserve leads to conflicts with local communities.