



SIT Report on Tigers Deaths in MP

[Source: IE](#)

Why in News?

Recently, a **Special Investigation Team (SIT)** report on the deaths of 43 tigers in Madhya Pradesh in **Bandhavgarh Tiger Reserve** and **Shahdol Forest Circle** between 2021 and 2023 has raised significant concerns regarding the effectiveness of wildlife protection measures in India.

- The report highlights serious lapses in investigations, insufficient evidence collection, and a lack of accountability among officials responsible for tiger conservation.

Tiger Mortalities in India:

- The **National Tiger Conservation Authority (NTCA)** reported a **rising trend in tiger deaths** over recent years, with totals of **96 in 2019, 106 in 2020, 127 in 2021, 121 in 2022**, and peaking at **178 in 2023**, marking the highest number of fatalities since 2012.
- A total of 628 [tigers](#) died in India between 2019 and 2024.
- The number of tigers in India stood at **3,682**, around **75%** of the global wild tiger population, in 2022.
- India launched **Project Tiger** in **1973**, to promote tiger conservation.
- Currently, India has **55 tiger reserves** covering more than **78,735 square km**, nearly **2.4%** of the country's geographical area, of tiger habitat.

Bandhavgarh Tiger Reserve (BTR)

- It is located in the Umaria district of Madhya Pradesh, within the Vindhya hills.
- The park consists of 3 distinct areas: '**Bandhavgarh National Park**', '**Panpatha Wildlife Sanctuary**' (the "**Core Area**") and the adjoining notified "**Buffer Area**" spread across the districts of **Umaria, Shahdol and Katni**.
- It was declared a **national park** in **1968** and a **tiger reserve** in **1993** under the **Project Tiger** Network, alongside the Panpatha Sanctuary.
- Wildlife species found here include **Tiger, Leopard, Dhole (Indian Wild Dog), Bengal or Indian Fox, Sloth Bear, Smooth-coated Otter, Indian Rock Python, Rusty Spotted Cat, Fishing Cat, Gaur, and Wild Elephant**.
- BTR is renowned for its high density of Royal Bengal Tigers, the highest in India and the world.

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HOW THE TIGERS DIED, ACCORDING TO SIT REPORT

Reason for death	Bandhavgarh Tiger Reserve	Shahdol forest circle
Electrocution	3	3
Infighting	17	0
Disease/illness	4	0
Senility	2	0
Body parts seized	2	0
Poisoning	0	1
Road accident	0	1
Unconfirmed	6	4
Total	34	9



Figures for 2021-2023 period

What are the Key Findings of the SIT Report?

- **Inadequate Investigations:** Insufficient probing into at least 10 cases of tiger deaths, with only two arrests for unnatural deaths. Authorities showed disinterest, leading to many missing body parts.
- **Absence of Vital Evidence:** Lacking mobile forensics and electric trip data in electrocution cases, and neglecting land ownership investigations relevant to poaching.
- **Misclassification of Death Causes:** Tendency to attribute deaths to infighting without proper investigation, potentially hiding poaching incidents.
- **Post-Mortem Issues:** Inadequate post-mortem procedures, with poor sample collection and documentation.
- **Negligence in Treatment:** Documented medical negligence, including failure to identify foreign objects during treatment, causing a tigress's death.

TIGER

Royal Bengal Tiger (*Panthera Tigris*) is the National animal of India.

Subspecies of Tiger

- * The continental (*Panthera tigris tigris*)
- * The Sunda (*Panthera tigris sondaica*)

Habitat

Tropical rainforests, evergreen forests, temperate forests, mangrove swamps, grasslands, and savannas



Countries Where Tiger Population Is Found

- Found only in 13 Tiger Range countries- India, Nepal, Bhutan, Bangladesh, Myanmar, Russia, China, Thailand, Malaysia, Indonesia, Cambodia, Laos, and Vietnam
- As per the latest report by IUCN, tiger has gone extinct in Cambodia, Laos, and Vietnam

Protection Status

- IUCN Red List: Endangered
- CITES: Appendix I
- WPA 1972: Schedule I

Threats

- Habitat loss
- Poaching and illegal trade
- Human-Wildlife conflict

Conservation Efforts

- International Big Cats Alliance (IBCA):** For conservation of seven big cats namely Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma (launched by India)
- Tx2 campaign:** Launched by WWF; stands for 'Tiger times 2' signaling the goal to double the tiger population by 2022
- National Tiger Conservation authority (NTCA):** Constituted under the WPA, 1972
- Project Tiger:** Launched in 1973
- Tiger Census:** Every 4 years

Tigers In India

- India has the largest population
 - As of 2022, India has 3167 tigers
 - Largest population has been found in Central Indian Highlands & Eastern Ghats Landscape
- Tiger Reserves:** India now has 55 tiger reserves
 - Dholpur-Karauli in Rajasthan is the latest
 - Nagarjun Sagar (Andhra Pradesh) is the largest while Orang (Assam) is the smallest (Core area)



Central Empowered Committee (CEC) of the SC - Recommendations for Sariska Tiger Reserve (STR) (2024)

- High Traffic Impact:** Significant vehicular traffic from temple pilgrims is degrading habitats and increasing pollution.
 - Recommendation:** Ban private vehicle entry by March 2025, and introduce electric shuttle buses. Explore tramways, elevated roads, or ropeways based on feasibility studies.
- Special Tiger Protection Force:** Establish a force to address man-animal conflicts and poaching risks due to the growing tiger population and nearby villages.

UPSC Civil Services Examination Previous Year's Questions (PYQs)

Prelims

Q. Among the following Tiger Reserves, which one has the largest area under "Critical Tiger Habitat"? (2020)

- (a) Corbett
- (b) Ranthambore
- (c) Nagarjunasagar-Srisaillam
- (d) Sundarbans

Ans: (c)

Q. From the ecological point of view, which one of the following assumes importance in being a good link between the Eastern Ghats and the Western Ghats? (2017)

- (a) Sathyamangalam Tiger Reserve
- (b) Nallamala Forest
- (c) Nagarhole National Park
- (d) Seshachalam Biosphere Reserve

Ans: (a)

Q. Consider the following protected areas: (2012)

1. Bandipur
2. Bhitarkanika
3. Manas
4. Sunderbans

Which of the above are declared Tiger Reserves?

- (a) 1 and 2 only
- (b) 1, 3 and 4 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

Ans: (b)

Evolution of Timekeeping Devices

[Source: TH](#)

Why in News?

Recently, researchers have made significant developments in [nuclear clocks](#) by developing a laser for **thorium-229** nuclei stimulation and linking it with an optical clock.

- The world has evolved from keeping time with the **Sun** and the **moon** to **atoms** and their nuclei.

How Timekeeping Devices Evolved Over History?

- **Historical Timekeeping Devices:**
 - **Sundials:** Ancient devices that indicated time by [casting shadows](#) from **sunlight**.
 - **Water Clocks:** Measured time through the gradual **filling** of a vessel with water.
 - **Hourglasses:** Used sand instead of water to measure time.
- **Development of Mechanical Clocks:**
 - **Early Mechanical Clocks:** Improved water clocks included additional tanks, **gears**, and

pulleys.

- **Astrarium (Medieval Astronomical Clock):** A sophisticated instrument to track celestial movements.
- **Pendulum Clock:** Spring-driven clocks replaced weights with **coiled springs**.
- **Modern Clocks:**
 - **Electric Clocks:** Emerged in the 19th century, using **batteries** or electric motors instead of springs or weights.
 - **Quartz Clocks:** Use a quartz crystal that **oscillates** when electrically charged. These clocks are affordable and widespread, leading to the popularity of quartz watches and wall clocks.
- **Atomic Clocks:**
 - **Operation:** Use **lasers** and **atoms** of the same **isotope** to measure time. The frequency of radiation emitted when atoms transition between energy states defines the time.
 - India is setting up **atomic clocks nationwide** to make sure that the time on **digital devices** matches **Indian Standard Time (IST)**, as part of the **One-Nation, One-Time initiative**.
 - **Caesium Atomic Clocks:** Utilize **caesium-133** atoms and are highly accurate, maintaining the IST.
 - IST is a cesium atomic clock used at the National Physical Laboratory (NPL), New Delhi.
 - Council Of Scientific And Industrial Research–National Physical Laboratory (CSIR–NPL) maintains the IST.
 - **Next-Generation Optical Clocks:** Use atoms like **strontium or ytterbium** to achieve even greater precision of time.
- **Future Developments in Timekeeping:**
 - **Nuclear Clocks:** Focus on the nuclei of atoms for even higher precision. The emission frequency of these **nuclear clocks** is around 2,020 terahertz, indicating ultra-high precision.

How Clocks Evolved Over History In India?

- The development of clocks in Indian history reflects a rich blend of **indigenous ingenuity** and **external influences**.
- **Ancient India** utilised various timekeeping methods, such as **water clocks (known as ghatika yantra)** and **sundials**, which were used in temples and for daily activities.
 - Ancient Indians tracked time using the stars and **planetary positions (Nakshatras)** to accurately record significant events.
 - Timekeeping linked to planetary positions led to the development of **astrology** and exploring the **influence of planets** on human life.
 - Despite the advanced system, daily time was often measured in **hours** or **pahars**, and **simple clock** towers were sufficient for general public use.
- With the arrival of **Islamic rulers**, more **advanced water clocks** and astronomical instruments were introduced, blending with local traditions.
- The **colonial period** saw the introduction of **mechanical clocks** and **pocket watches**.