



## Indian Tigers under Stress due to Tourism

A recent study conducted by the **Centre for Cellular and Molecular Biology (CCMB)'s Laboratory for Conservation of Endangered Species (LaCONES)** has revealed that **tourism induces stress in Tigers.**

- The study examined the relationship between **anthropogenic disturbance (pollution due to human activity)** and physiological stress levels among tiger populations of **Bandhavgarh Tiger Reserve (BTR)** and **Kanha Tiger Reserve (KTR) in Madhya Pradesh.**
- Researchers assessed concentrations of **fecal Glucocorticoid Metabolite (fGCM)** – a **marker of stress** in individual tigers.
  - Chronically **elevated fGCM levels can negatively impact** growth, reproductive success, immunity and cause muscular atrophy. Muscle atrophy is defined as a decrease in the mass of the muscle, which can be a partial or complete wasting away of muscle.
- They collected fecal samples from both the reserves during tourism and non-tourism periods and data on various anthropogenic disturbances, including tourism activities such as the number of vehicles and visitors.
  - It found significantly higher fGCM concentrations in tigers at both the reserves during tourism period compared to the non-tourism period.
- **Females** are known to **undergo more stress**, but this study shows that males were also under tremendous stress.
- Previous studies had shown that newly-introduced tigers in Sariska Tiger Reserve, Rajasthan, had **failed to reproduce effectively**, presumably due to high levels of stress caused by high anthropogenic disturbance.

### Recommendations

- Strict regulation of vehicular traffic,
- Sustainable tourism practices,
- Shifting of artificial waterholes away from tourist roads,
- Reducing other anthropogenic disturbances, including the relocation of villages from the core area of tiger reserves.

### Laboratory for the Conservation of Endangered Species

- The **Laboratory for the Conservation of Endangered Species (LaCONES)** is a dedicated facility of **CSIR's Centre for Cellular and Molecular Biology (CCMB) in Hyderabad** that uses modern biotechnologies for conservation of endangered wildlife.
- Project LaCONES was started in 1998, while the laboratory was established in 2007.
- It has **twin objectives:**
  - Conservation measures through **in situ habitat preservation, and species protection.**
  - **Ex situ conservation** (captive breeding in controlled environment to restock original wild populations).
- LaCONES is the only laboratory in India that has developed methods for collection and cryopreservation of semen and oocytes from wildlife.

▪ **Few achievements:**

- It has established the **Genetic Resource Bank for Indian wildlife.**
- Produced '**Spotty**', a **spotted deer fawn** and "**blacky**" a **black buck calf using artificial insemination.**

## **Centre for Cellular & Molecular Biology**

- The **Centre for Cellular & Molecular Biology (CCMB)** is a premier research organization which conducts high quality basic research and training in frontier areas of modern biology, and promote centralized national facilities for new and modern techniques in the interdisciplinary areas of biology.
- It was set up initially as a **semi-autonomous Centre on April 1, 1977** with the Biochemistry Division of the then Regional Research Laboratory (presently, Indian Institute of Chemical Technology, IICT) **Hyderabad.**
- During 1981-82, the CCMB was accorded the status of a full-fledged national laboratory with its own Executive Committee and Scientific Advisory Council.
- It is **located in Hyderabad** and operates under the **aegis of the [Council of Scientific and Industrial Research](#).**
- It is designated as "**Center of Excellence**" by the **Global Molecular and Cell Biology Network, UNESCO.**

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