



INDIAN STAR TORTOISE; ENVIRONMENT

NEWS: Study ups oft-smuggled Indian star tortoise's conservation prospects

WHAT'S IN THE NEWS?

The Indian star tortoise (*Geochelone elegans*), despite legal protections under CITES and India's Wildlife Protection Act, faces threats from illegal trade and unethical pet ownership. Recent genetic studies highlight the need for targeted conservation by avoiding the mixing of its distinct northern and southern populations.

Conservation Challenges and Genetic Insights of the Indian Star Tortoise

1. Overview of the Species

- **Scientific Name:** *Geochelone elegans*.
- **Distinctive Appearance:**
 - Striking obsidian shell adorned with yellow star patterns.
 - Domed shell grows up to 10 inches in length.
 - Strong legs adapted to navigate dry scrubland habitats.
- **Diet:** Herbivorous.
- **Habitat:** Endemic to northwest India, South India, and Sri Lanka.
- **Conservation Status:**
 - Vulnerable to illegal wildlife trade and unethical pet ownership despite its high legal protection.

2. Legal Framework

- **CITES Appendix I Listing:** Prohibits international trade of the species except for scientific research.
- **India's Wildlife Protection Act, 1972:**
 - Listed under Schedule I, ensuring the highest level of legal protection.
 - Despite these laws, hundreds are trafficked globally each year, highlighting enforcement challenges.

3. Challenges in Conservation

Illegal Wildlife Trade



- Indian star tortoise is highly sought after as an exotic pet in countries like the U.S. and Canada.
- Trafficking networks pose a significant threat to its survival in the wild.

Unscientific Release Practices

- Confiscated tortoises are often released into non-native environments without scientific validation.
- This can disrupt local ecosystems and reduce the survival chances of the released tortoises.



4. Insights from Genetic Research

Study Objective:

- To understand the genetic diversity and natural distribution of the species through genomic sequencing of samples from different regions.

Key Findings:

- **Two Genetically Distinct Groups:**
 - **Northwestern Group:** Genetically stable, with less diversity.
 - **Southern Group:** Higher genetic diversity, important for conservation.



- **Evolutionary History:**

- Species spread across the Indian subcontinent after it separated from Gondwana.
- Northern and southern groups diverged approximately 2 million years ago.

Conservation Implications:

- Avoid mixing genetically distinct groups during releases to preserve diversity and breeding success.
- Recognize these groups as **evolutionary significant units (ESUs)** for targeted conservation.

5. Strategies for Conservation

- Strengthen enforcement against illegal trade through stricter monitoring at borders and airports.
- Develop scientifically sound release protocols, considering genetic and ecological factors.
- Enhance public awareness about the ethical implications of owning exotic pets.
- Promote international collaboration for research and conservation under CITES.

Source: [https://www.thehindu.com/sci-tech/energy-and-environment/study-brings-indian-star-tortoise-to-evidence-based-conservation/article68961578.ece#:~:text=Researchers%20have%20identified%20two%20distinct,nearby%20forests%20could%20be%20unscientific&text=The%20Indian%20star%20tortoise%20\(Geochelone,yellow%20star%20patterns%20adorning%20it.](https://www.thehindu.com/sci-tech/energy-and-environment/study-brings-indian-star-tortoise-to-evidence-based-conservation/article68961578.ece#:~:text=Researchers%20have%20identified%20two%20distinct,nearby%20forests%20could%20be%20unscientific&text=The%20Indian%20star%20tortoise%20(Geochelone,yellow%20star%20patterns%20adorning%20it.)