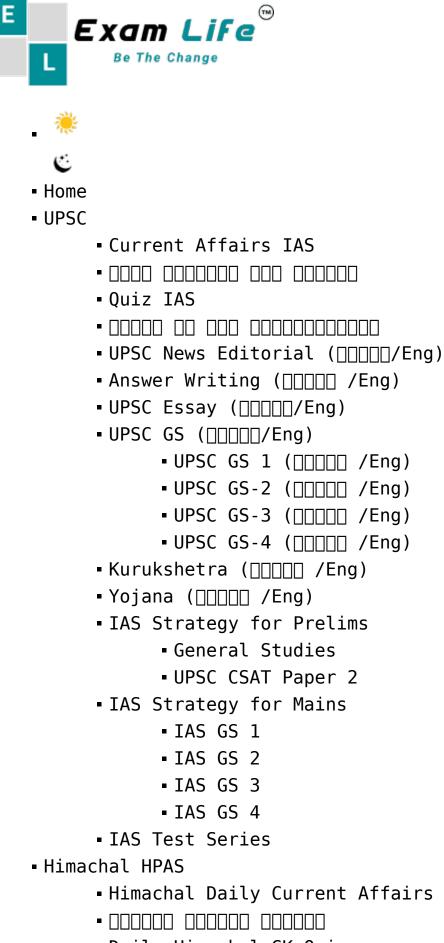
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Topics Covered

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Summary:

• What is the news?

- About Indian Star Tortoise
- Features:
- Conservation Status:
- Conservation Challenges:
- Genetic Divergence and Conservation:
- Implications of Genetic Divergence;
- Scientific Release Strategies:
- FAQs:
- Steps Towards Conservation
- Conclusion
- Key Takeaways from the editorial:
- QuizTime:
- Are you Ready!
- Read the Below Instructions Carefully:
  - Please Rate!

• Mains Questions:

- Question 1:
- Model Answer:
- Question 2:
- Model Answer:
- All Mains Questions: Read Here
  - Relevance to the UPSC Prelims and Mains syllabus under the following topics:

- Prelims:
- Mains:
- Interview (Personality Test):

#### Summary:

- Genetic Distinction: Two genetically distinct groups of Indian Star Tortoises have been identified.
- Conservation Focus: Releases should be geographically specific to maintain genetic diversity.
- Major Threats: Wildlife trafficking, habitat loss, and diseases threaten their survival.
- Legal Protection: The species is protected under national and international laws.
- Conservation Measures: Strategies include scientific releases, habitat restoration, and public awareness.

# What is the news?

 The discovery of two genetically distinct groups of the Indian Star Tortoise marks a significant step in conservation efforts for this vulnerable species.

 This editorial explores the implications of this research, shedding light on the species' characteristics, threats, and the way forward for sustainable conservation.

# About Indian Star Tortoise

 The Indian Star Tortoise (Geochelone elegans) is a captivating reptile native to the Indian subcontinent. Found in arid regions of northwest India, southern India, and Sri Lanka, this species is a vital part of its ecosystem.

#### Features:

- Appearance: Characterized by a striking obsidian shell adorned with sun-yellow star patterns.
- Sexual Dimorphism: Females are significantly larger than males.
- Size: They can grow up to 10 inches long.
- Diet and Behavior: Predominantly herbivorous, they feed on grasses, fruits, and flowers.

# Conservation Status:

- CITES: Listed in Appendix I, prohibiting international trade.
- **IUCN:** Classified as Vulnerable.
- Indian Wildlife Protection Act, 1972: Listed under Schedule I, granting the highest level of protection.
- Ethical Concerns: Owning these tortoises as pets is not only illegal in India but also unethical, given their declining populations.

#### **Conservation Challenges:**

#### Threats

- Wildlife Trafficking: High demand for Indian star tortoises as exotic pets in countries like the US and Canada fuels illegal smuggling.
- Habitat Fragmentation: Human activities such as agriculture and urbanization have led to the destruction of their natural habitats.
- Health Vulnerabilities: They are highly susceptible to diseases, including pneumonia and respiratory infections, often exacerbated in captivity.

# Genetic Divergence and Conservation:

Researchers from the Wildlife Institute of India and Punjab

University conducted genome sequencing on specimens from zoos, wildlife reserves, and protected areas. This study revealed two genetically distinct groups:

- Northwestern Group: Found in the arid regions near the India-Pakistan border.
- Southern Group: Residing in South India and Sri Lanka.

# Implications of Genetic Divergence;

 The genetic differences are not merely academic; they have tangible conservation implications:

# Scientific Release Strategies:

- Captive tortoises should be released in their respective genetic zones to maintain population integrity.
- Mixing populations through unscientific releases can depress breeding rates and reduce genetic diversity.
- Enhanced Conservation Planning: Understanding the genetic makeup can help formulate targeted strategies for habitat protection, disease control, and reducing trafficking.

# FAQs:

- Q1: Why are Indian star tortoises vulnerable?
  - A1: Habitat loss, wildlife trafficking, and diseases are the primary threats to their survival.
- •Q2: Is it legal to own an Indian star tortoise in India?
  - A2: No, it is illegal under the Wildlife Protection Act, 1972.
- Q3: How can the public help in conservation efforts?
   A3: By spreading awareness, avoiding the purchase of exotic pets, and supporting habitat conservation initiatives.

# Steps Towards Conservation

#### Policy and Enforcement

- Strengthen enforcement of anti-trafficking laws under CITES and the Wildlife Protection Act.
- Collaborate with international bodies to curb the illegal trade of tortoises.

#### Research and Monitoring

- Extend genetic studies to map the entire distribution and variations within the species.
- Monitor released populations to ensure their survival and adaptation.

#### Public Awareness

- Educate communities on the ecological importance of the Indian star tortoise.
- Discourage the ownership of exotic pets through campaigns and stricter regulations.

#### Habitat Protection

- Expand protected areas in the regions where the two genetic groups reside.
- Encourage afforestation and habitat restoration to counteract fragmentation.

# Conclusion

 The identification of genetic divergence in Indian star tortoises underscores the intricate interplay between biology and conservation. This finding not only highlights the species' uniqueness but also provides a roadmap for their survival. By adopting scientifically informed conservation strategies, India can safeguard this iconic reptile for future generations.

#### Key Takeaways from the editorial:

- Genetic Divergence: Researchers have identified two genetically distinct groups of Indian Star Tortoises, one in the northwestern and the other in the southern regions of India and Sri Lanka.
- Conservation Importance: Understanding these genetic differences is crucial for conservation, ensuring that tortoises are released back into their correct geographical regions to preserve genetic diversity.
- Threats to Survival: Major threats include wildlife trafficking, habitat destruction, and diseases, all contributing to the species' Vulnerable status.
- Legal Protection: The Indian Star Tortoise is protected under the Wildlife Protection Act, 1972, CITES Appendix I, and is listed as Vulnerable by the IUCN.
- Conservation Strategies: Effective conservation strategies include scientific releases, habitat protection, and public awareness campaigns to combat illegal trade and protect the species.





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- Attempt all questions (You can attempt or leave)
- After Attempting Last Question.
- Enter Name & Email
- Click on Check Result
- Scroll down Check out Solutions too. Thank you.

Loading ...

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1 / 6
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Category: General Studies

#### What is the primary diet of the Indian Star Tortoise?

<ul> <li>Carnivorous, feeding on small insects</li> </ul>
$\odot$ Omnivorous, feeding on both plants and small animals
<ul> <li>Herbivorous, feeding mainly on grasses, fruits, and flowers</li> </ul>
<ul> <li>Scavenger, feeding on decaying matter</li> </ul>
Prev Finish Next
2 / 6
Category: General Studies
<i>Category:</i> General Studies What major threat arises from unscientific release of captive Indian Star Tortoises?
What major threat arises from unscientific release
What major threat arises from unscientific release of captive Indian Star Tortoises?
What major threat arises from unscientific release of captive Indian Star Tortoises? <pre>O Overpopulation in a single habitat</pre>
What major threat arises from unscientific release of captive Indian Star Tortoises? • Overpopulation in a single habitat • Increased risk of predation

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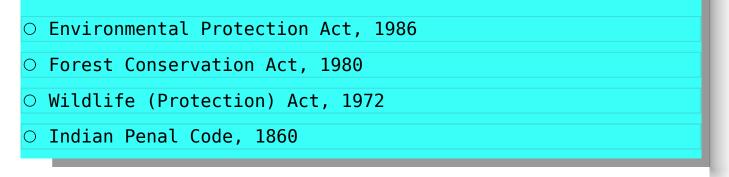
Category: General Studies

#### What is the IUCN status of the Indian Star Tortoise?

○ Endangered
○ Vulnerable
O Critically Endangered
○ Least Concern
Prev Finish Next
4 / 6
Category: General Studies

#### What is a distinguishing physical feature of Indian Star Tortoises that helps identify them?

Completely black shell
Star-shaped patterns on their shell
Irregular triangular patterns on their shell
Flat, smooth shell
Prev Finish Next
5 / 6
Category: General Studies
Which law in India provides the highest protection to the Indian Star Tortoise?



Prev Finish Next
Category: General Studies
According to recent research, how are the genetically distinct groups of Indian Star Tortoises distributed?
<ul> <li>Based on habitat size and altitude</li> </ul>
O Divided into coastal and inland groups
$\odot$ Split between northwestern and southern regions
O Defined by proximity to human settlements
Prev Finish
Check Rank, Result Now and enter correct email as you will get Solutions in the email as well for future use!
Check the Result
Your score is
0%
Restart quiz
Please Rate!
Send feedback

# Mains Questions:



# Question 1:

Discuss the conservation challenges faced by the Indian Star Tortoise and suggest measures to address them. (250 words)

# Model Answer:

The Indian Star Tortoise faces significant conservation challenges, including:

- Wildlife Trafficking: High demand as exotic pets drives illegal smuggling.
- Habitat Fragmentation: Agricultural expansion and urbanization destroy their habitats.
- Health Vulnerabilities: Captive tortoises are prone to diseases like pneumonia.

#### Measures to Address Challenges:

- Strengthen Enforcement: Ensure strict implementation of the Wildlife Protection Act and CITES regulations.
- Scientific Releases: Release rescued tortoises into their respective genetic zones to preserve diversity.
- Habitat Protection: Expand protected areas and restore degraded habitats.
- Awareness Campaigns: Educate the public on the ecological importance of the species and discourage exotic pet ownership.
- A coordinated approach involving research, law enforcement, and community participation is vital for effective conservation.

# **Question 2:**

Recent studies have identified two genetically distinct groups of the Indian Star Tortoise. Explain the significance of this finding for conservation strategies. (250 words)

# Model Answer:

 The identification of two genetically distinct groups of Indian Star Tortoises—northwestern and southern—holds critical implications for conservation.

#### Significance:

- Preserves Genetic Integrity: Scientific releases ensure captive tortoises are returned to their specific geographic zones, maintaining population diversity.
- Avoids Breeding Depression: Prevents mixing of genetically distinct populations, which can reduce breeding success.
- Targeted Conservation: Facilitates region-specific strategies to address habitat and health challenges.

#### **Practical Applications:**

- Researchers recommend genome-based approaches for managing rescued tortoises, strengthening population viability, and mitigating risks of unscientific releases. This finding underscores the need for conservation planning that respects genetic diversity, ensuring the long-term survival of the species.
- By integrating genetic insights into policy and

practice, we can enhance the effectiveness of conservation initiatives for the Indian Star Tortoise.

# *All Mains Questions:* Read Here

Remember: These are just sample answers. It's important to further research and refine your responses based on your own understanding and perspective. Read entire UPSC Current Affairs.

Relevance to the UPSC Prelims and Mains syllabus under the following topics:



# **Prelims:**

- General Studies Paper I (Environment and Ecology): Topics Covered:
  - Biodiversity: Details about Indian Star Tortoise as a species, including its habitat, features, and conservation status (IUCN, CITES, Wildlife Protection Act).
  - Threats to Wildlife: Wildlife trafficking and habitat fragmentation as key issues.
  - Conservation Strategies: Importance of scientific releases and genetic research for maintaining biodiversity

# Mains:

- General Studies Paper III (Environment):
  - Topics Covered:
  - Conservation: Challenges and strategies for conserving vulnerable species like the Indian Star Tortoise.
  - Biodiversity: The role of genetic studies in sustaining species diversity and preventing extinction.
  - Environmental Legislation: Analysis of national and international measures, such as the Wildlife Protection Act and CITES.
  - Wildlife Trafficking: Impacts on ecosystems and

# Interview (Personality Test):

#### • Topics Covered:

#### • Knowledge-Based Questions:

- Discuss the ecological importance of Indian Star Tortoises and the implications of genetic diversity.
- Ethical considerations of owning exotic pets like tortoises.

#### • Opinion-Based Questions:

Should stricter laws be enforced to tackle wildlife trafficking? How can community participation improve wildlife conservation efforts?

#### Analytical Questions:

How can genetic research be integrated into India's conservation policy?

What are the challenges in balancing biodiversity conservation with development?







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