Tuning of Lemurs and Human opera singers

Mains: *GS III | Environment*

Why in News?

A study analyzed 83 video recordings of 19 wild indris using frame-by-frame motion tracking and field audio to absorb how vocal Tract Tuning Works in Indris and Singers.

What are wild indri lemurs (*Indri indri*) and formant tuning?

- It is the only known singing lemur species, native to the rainforests of Madagascar.
- It opens their mouths wider as the pitch of their songs rises, using a vocal adjustment similar to **formant tuning** practiced by trained opera singers.
- **Formant tuning** – It means shaping the mouth, jaw, and vocal tract so their natural resonance matches the pitch of the sound being produced, making the voice carry more clearly without needing extra strain.
- **Coordinating Mouth Opening with Pitch-** Frame-by-frame tracking of upper and lower lip movements showed that as the pitch of an indri's song increased, the lemur opened its mouth wider.
- **Projecting Sound through Dense Forests-** Indris sing long, complex calls in the thick rainforest canopy of eastern Madagascar to reinforce group bonds, coordinate when separated, and signal territory to neighboring groups.
- **A Parallel with Opera Singers-** Just as a trained soprano widens the mouth on high notes to amplify vocal resonance so sound reaches a large hall, wider mouth opening helps indris project calls across dense forest distance.

How does it converge evolution across 74 million years?

- Humans and indris last shared a common ancestor roughly **74 million years ago**.
- Because this vocal-body coordination appears in two distantly related primate lineages.
- It facing very different environments human concert halls versus Madagascar's rainforest canopy scientists point to **convergent evolution**, where separate species independently arrive at a similar functional solution over deep evolutionary time.

Comparing singing Indris and human opera singers

Dimension	Wild Indri Lemur (Indri indri)	Human Opera Singer
Primary Setting	Dense tropical rainforest canopy in Madagascar	Concert halls and opera stages
Vocal Behavior	Opens mouth wider as song pitch rises during group/territorial calls	Widens mouth and adjusts vocal tract resonance on high notes

Purpose of Amplification	Carries long-distance songs across thick forest and social groups	Projects unamplified voice clearly across large auditoriums
Evolutionary Origin	Independent adaptation in the wild (convergent with humans)	Deliberate human vocal training building on anatomical capacity

What are the conservation implications for Indris?

- Beyond acoustics, researchers emphasize the urgency of conserving indris in their natural habitat.
- Because indris have proven very difficult to keep and breed in captivity, their long-term survival depends directly on protecting Madagascar's remaining rainforest ecosystems.

What is the way forward?

- Safeguard contiguous rainforest corridors in Madagascar where wild indri groups live, forage, and communicate.
- Continue applying remote audio-visual and motion-tracking methods to study endangered wildlife behavior without disturbing animals in the wild.
- Use accessible stories like how a forest primate uses a trick familiar to opera singers to build public support for biodiversity protection.



Reference

[The Hindu | What do lemurs and opera singers share?]

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