

Bamboo mass flowering and die-off

Prelims: Current events of national and international importance | Environment

Why in News?

A study conducted by researchers from the Kerala Forest Research Institute (KFRI) warns that synchronous mass flowering (masting) and subsequent die-offs of bamboo trigger cascading ecological shocks.

Key Highlights

- **Canopy Collapse** - Normally, dense bamboo stands allow only **2%-5%** of solar radiation to reach the forest floor.
- Canopy collapse exposes the soil, enabling aggressive alien invasive species like ***Senna spectabilis*** to rapidly proliferate.
- Under the Novel Weapons Hypothesis, *Senna* releases toxic phytochemicals (phenolics, fatty acids, and terpenoids) that cause root damage to native plants.
- It suppresses natural seed banks and prevents bamboo seedling re-establishment.

Wildfire Risks

- Millions of metric tonnes of dead, hollow bamboo culms accumulate on the forest floor, creating immense fuel loads.
- Dry-season wildfires destroy emerging bamboo seedlings, volatilise topsoil organic matter, and lock degraded forests into invasive-dominated thickets.

Zoonotic Outbreaks

- Large-scale seed production provides a carbohydrate-rich food bonanza for granivorous rodents (*Rattus* and *Melomys* species).
- Similar to historical ***Mautam*** famines in Northeast India, rodent population spikes destroy crops and elevate risks of zoonotic diseases like scrub typhus and hantavirus among local communities.



Spike in Human-Elephant Conflict

- Bamboo serves as a crucial primary forage for Asian Elephants. Mass die-offs create immediate food scarcity.
- Elephants expand their ranges beyond protected reserves into human-dominated agricultural fringes, driving up crop damage and human-wildlife encounters.

Key Botanical Concepts

- **Gregarious Masting-** Synchronous flowering across an entire lineage or population of bamboo after long, species-specific intervals (ranging from 40 to over 120 years).
- **Monocarpic Lifecycle-** Plants that flower once in their entire lifecycle, set seeds, and immediately die off all together and in large numbers.

Reference

[The Hindu | Bamboo mass flowering and die-off](#)