

2. SAIEE 2025 – Environment

India's wild elephant numbers drop by 18%, first DNA-based count shows. The All-India Synchronous Elephant Estimation (SAIEE) 2025, India's first DNA-based elephant census, has revealed a decline of about 18% in the country's wild elephant population since 2017. This innovative survey combines dung DNA analysis, satellite mapping, and mobile tracking to improve accuracy and conservation planning.

About SAIEE 2025

Full Form – All-India Synchronous Elephant Estimation 2025

Nature – India's first-ever DNA-based elephant census

Objective – To provide an accurate estimation of the wild elephant population using genetic identification methods instead of traditional visual/dung count methods.

Conducted by –

1. Ministry of Environment, Forest and Climate Change (MoEFCC)
2. Project Elephant Division
3. Wildlife Institute of India (WII), Dehradun

Timeline – Conducted between 2021 and 2025, delayed due to complex genetic data validation.

Survey Methodology

Phase/Component	Details
Dung DNA Sampling	21,056 dung samples collected from 6.7 lakh km of forest trails and 3.1 lakh dung plots.
Genetic Identification	DNA fingerprinting used to identify 4,065 unique elephants; population estimated using mark-recapture model .
Technology Integration	Used M-Stripes app for ground surveys, satellite-based habitat mapping, and DNA analysis.
Innovation	Combines molecular ecology with geospatial tools, ensuring minimal duplication and greater accuracy.

Key Findings of SAIEE 2025

Estimated Population –

Total wild elephant population – 22,446

Range estimate – 18,255 – 26,645

Comparison with 2017 Estimate –

2017 population – 27,312 elephants

Decline of about 18% in eight years.

Regional Distribution –

Western Ghats – 11,934 elephants (largest population)

Northeast & Brahmaputra Floodplains – 6,559 elephants

Shivalik Hills & Gangetic Plains – 2,062 elephants

Central India & Eastern Ghats – 1,891 elephants

State-Wise Distribution

State	Elephant Population (2025)
Karnataka	6,013 (Highest in India)
Assam	4,159
Tamil Nadu	3,136
Kerala	2,785
Uttarakhand	1,792
Odisha	912
Chhattisgarh & Jharkhand	650+
Meghalaya	677
Arunachal Pradesh	617

Nagaland	252
Tripura	153
Madhya Pradesh	97
Maharashtra	63 (fragmented herds)

Scientific Significance

First DNA-Based Count – Replaces traditional block count and dung density methods with genetic fingerprinting. Greatly improves accuracy and eliminates duplication errors.

Baseline for Conservation – Establishes a reliable benchmark for future population monitoring and policy formulation under **Project Elephant**.

Integration of Advanced Technology – Combines remote sensing, mobile data collection, and molecular ecology. Enhances real-time tracking, mapping, and population modelling.

Conservation Concerns

Habitat Loss – Encroachment, infrastructure development, and deforestation fragment elephant corridors and migration routes.

Human–Elephant Conflict (HEC) – Habitat shrinkage pushes elephants toward human settlements, increasing crop raids and fatalities.

Population Fragmentation – Central and Eastern India have smaller, isolated herds → leads to genetic bottlenecks and lower breeding success.

Global Importance – India hosts over 60% of the world’s remaining Asian elephants, making its conservation crucial for global biodiversity balance.

About Asian Elephants (*Elephas maximus*)

Aspect	Details
Subspecies	Indian (<i>Elephas maximus indicus</i>), Sumatran (<i>E. m. sumatranus</i>), Sri Lankan (<i>E. m. maximus</i>)
Global Population	Estimated 20,000 – 40,000
Habitat	Tropical forests of South and Southeast Asia – India, Sri Lanka, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, Laos, Cambodia, Vietnam, Malaysia, Indonesia
Physical Traits	Smaller ears, arched back, convex or twin-domed head
Social Structure	Matriarchal herds with strong family bonds
Diet	Herbivorous – grasses, fruits, bark, roots
Threats	Habitat loss, fragmentation, poaching, and human–elephant conflict

About the Indian Elephant (*Elephas maximus indicus*)

Feature	Details
Distribution	Widely distributed in India; also found in Bangladesh, Bhutan, Nepal, Cambodia, China, Laos, Malaysia, Myanmar, Thailand, and Vietnam
Habitat	Grasslands, dry and moist deciduous forests, evergreen forests
Cultural Status	Declared India’s National Heritage Animal
IUCN Status	Endangered
CITES	Appendix I
Wildlife (Protection) Act, 1972	Schedule I species (highest legal protection)

Overall Significance of SAIEE 2025

Establishes India as a global leader in wildlife monitoring using genetic tools. Strengthens conservation planning under Project Elephant and future corridor connectivity initiatives. Enhances the scientific understanding of elephant ecology, demography, and human–wildlife coexistence. Calls for integrating conservation with local livelihoods to reduce conflict and ensure ecosystem sustainability.

Source – <https://www.thehindu.com/sci-tech/energy-and-environment/indias-wild-elephant-numbers-drop-by-18-first-dna-based-count-shows/article70163088.ece>