



UPSC &amp; STATE PCS CURRENT AFFAIRS · UJIYARI.COM

**EDITORIAL ANALYSIS**

# The Northeast's Hidden Wealth — How India's Most Biodiverse Region Remains Its Most Under-Researched

 **THE HINDU**

7 January 2026

**SUBJECTS COVERED****ENVIRONMENT****SCIENCE & TECH****GS PAPERS****GS3****CURATED & WRITTEN BY****Bharat Choudhary**

UPSC Educator &amp; Content Creator •

[linkedin.com/in/epicbharat](https://www.linkedin.com/in/epicbharat)

Free UPSC &amp; State PCS Resources

[ujiyari.com](http://ujiyari.com)

# The Northeast's Hidden Wealth — How India's Most Biodiverse Region Remains Its Most Under-Researched

 The Hindu 7 January 2026

GS3

**TH** The Hindu

MAINS RELEVANCE: GS Paper 3



## INTERVIEW ANGLE

*"A new snake species from Mizoram highlights Northeast India's status as a global biodiversity hotspot. Yet the region receives far less conservation attention than the Western Ghats. Why? What systemic changes in taxonomy funding, field research, and development policy are needed to protect Northeast India's biological heritage?"*

## WHY IN NEWS

The discovery of *Calamaria mizoramensis* — a new reed snake species from Mizoram — adds to a growing list of recent taxonomic discoveries from Northeast India. The region hosts three intersecting global biodiversity hotspots, 86% forest cover in Mizoram, and extraordinary endemism. Yet it receives less conservation funding, research attention, and policy focus than the Western Ghats. This asymmetry deserves examination.

## A REGION OF EXTRAORDINARY BIOLOGICAL WEALTH

Northeast India — Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim — occupies less than 8% of India's land area but contains an extraordinary proportion of its biodiversity.

### The numbers tell the story:

Over 50% of India's flowering plant species

Over 60% of India's orchid species (Arunachal Pradesh alone has 900+ orchid species)

~160 mammal species (including clouded leopard, red panda, snow leopard in upper reaches)

~760 bird species — one of the richest avifauna assemblages in Asia

300+ herpetofauna species (reptiles + amphibians)

200+ freshwater fish species

This richness arises from the region's unique biogeographic position — the meeting point of three global biodiversity hotspots:

**Eastern Himalayas:** Alpine meadows, glacial lakes, montane broadleaf forests; species from the Central Asian steppe mixing with tropical species pushing up valleys

**Indo-Burma:** The world's least-studied terrestrial biodiversity hotspot; encompasses humid broadleaf forests of Myanmar, Thailand, Yunnan, and Northeast India; exceptional freshwater fish diversity

**Sundaland (peripherally, through the Nicobar Islands):** Influences the coastal and island ecology at the eastern margins

## THE RESEARCH ASYMMETRY

Despite this richness, Northeast India receives disproportionately less taxonomic and conservation research than the Western Ghats. Several factors explain the gap:

**Accessibility and security:** Until the 1990s, much of the Northeast was closed to outsiders under the Protected Area Permit (PAP) system for security reasons. International researchers and even Indian scientists from outside the region faced significant bureaucratic hurdles. While many restrictions have been relaxed since 2010, the legacy of low research investment persists.

**Institutional capacity:** The Western Ghats has well-funded research institutions — Kerala Forest Research Institute, Salim Ali Centre for Ornithology and Natural History, Ashoka Trust for Research in Ecology and the Environment, Centre for Wildlife Studies. Northeast India's institutional landscape is thinner, with Mizoram University (now producing important discoveries), Wildlife Trust of India's Northeast programmes, and Aaranyak (Assam) doing valuable work with limited resources.

**Funding flows:** Government and international conservation funding has historically followed flagship species and media narratives. Tigers, elephants, rhinos (all present in Northeast) receive attention; the hundreds of less-charismatic species — herpetofauna, freshwater fish, invertebrates — do not.

**Media and policy attention:** The Western Ghats received a boost from the Madhav Gadgil Committee Report (2011), which proposed an Ecologically Sensitive Area framework for the entire Western Ghats. No equivalent policy framework exists for Northeast India's biodiversity.

## THE DEVELOPMENT-CONSERVATION TENSION

The Northeast's biodiversity faces specific pressures distinct from those in the Western Ghats or Deccan:

**Linear infrastructure:** The Government of India's connectivity push in Northeast India — justified by strategic and developmental objectives — has seen major road and rail projects cut through ecologically sensitive areas. The Trans-Arunachal Highway and the Four-Lane project in Assam have raised concerns from

wildlife ecologists about habitat fragmentation for elephants, tigers, and smaller species.

**Hydropower development:** Northeast India is targeted for large-scale hydropower development (estimated 63,000 MW potential). Projects on the Brahmaputra tributaries — the Dibang Multipurpose Project (2,880 MW), Subansiri Lower Hydro (2,000 MW), and others — alter river hydrology and fish migration routes in ways that are irreversible. Freshwater biodiversity, already under-studied, is particularly vulnerable.

**Jhum cultivation:** Traditional shifting cultivation continues across highland areas. While individually practiced at low density, jhum creates a mosaic landscape that some species depend on; but intensification and shortened fallow cycles reduce biodiversity value.

**Climate change:** Northeast India is experiencing accelerated warming and changes in the Brahmaputra flood pattern. Glacial retreat in Arunachal Pradesh and Sikkim is altering highland hydrology, affecting species dependent on cold, clean mountain streams — including endemic freshwater fish and amphibians.

## WHAT A POLICY FRAMEWORK SHOULD INCLUDE

The *Calamaria mizoramensis* discovery is scientifically significant. Its policy implications are equally important:

**Systematic biological surveys:** India's Zoological Survey of India (ZSI) and Botanical Survey of India (BSI) both maintain Northeast offices, but survey coverage remains incomplete. A systematic programme modelled on the Western Ghats biodiversity assessment — covering all major taxonomic groups in all Northeast states — is overdue.

**Taxonomy capacity building:** Discovery depends on taxonomists. India has a significant shortage — estimated fewer than 200 active taxonomists for a country of extraordinary biodiversity. Universities like Mizoram University, which produced *C. mizoramensis*, need dedicated taxonomy faculty positions and specimen collection infrastructure (natural history museums).

**Environmental Impact Assessment reform:** EIA processes for infrastructure projects in Northeast India should require comprehensive biodiversity baseline surveys before project approval — not superficial assessments that miss unknown species. The discovery of a new species after a project destroys its habitat is not conservation.

**Recognition of community knowledge:** Indigenous communities across Northeast India possess detailed knowledge of local flora and fauna, accumulated over generations. Structured collaboration between researchers and communities — under frameworks like the Biological Diversity Act 2002's ABS (Access and Benefit Sharing) provisions — can both accelerate discovery and ensure communities benefit from scientific knowledge derived from their lands.

## UPSC RELEVANCE

**Prelims:** Indo-Burma biodiversity hotspot (Eastern Himalayas + Northeast India; least-studied terrestrial hotspot); ZSI (Zoological Survey of India; Kolkata; 1916; faunal surveys); BSI (Botanical Survey of India; 1890); ICZN (International Code of Zoological Nomenclature); Protected Area Permit system; Biological Diversity Act 2002 (ABS — Access and Benefit Sharing); Madhav Gadgil Committee Report 2011 (Western Ghats ESA); Dibang Multipurpose Project (2,880 MW; Arunachal Pradesh); *Calamaria mizoramensis*.

**Mains GS-3:** Northeast India's biodiversity — significance, threats, and policy gaps | Environmental impact of linear infrastructure in ecologically sensitive areas | Freshwater biodiversity conservation — India's challenges | Indigenous knowledge and biodiversity conservation | Hydropower vs ecology in the Eastern Himalayas | Jhum cultivation: ecological impact and community rights.

## ★ FACTS CORNER — KNOWLEDGEPEDIA

### NORTHEAST INDIA BIODIVERSITY:

- Land area: ~8% of India; biodiversity share: 50%+ flowering plants, 60%+ orchids
- Mizoram forest cover: ~86% (among India's highest)
- Herpetofauna: 300+ species across Northeast; 169 in Mizoram alone
- Three hotspot intersection: Eastern Himalayas + Indo-Burma + peripheral Sundaland (Nicobar)

### GLOBAL BIODIVERSITY HOTSPOTS (INDIA):

- Western Ghats + Sri Lanka: ~8,000 plants; 77% endemic; GH + Sri Lanka
- Eastern Himalayas: ~9,000 plants; Sikkim, Arunachal, parts of Northeast
- Indo-Burma: ~13,500 plants; Northeast India, Myanmar, Thailand, Yunnan; freshwater fish diversity
- Hotspot definition (Norman Myers, 1988): >1,500 endemic plant species AND <30% original vegetation remaining

### KEY NORTHEAST CONSERVATION AREAS:

- Kaziranga NP (Assam): UNESCO WHS; one-horned rhino; 68% of world's population; 500+ elephants
- Manas NP (Assam): UNESCO WHS + Biosphere Reserve; Project Tiger; Golden Langur
- Namdapha NP (Arunachal): India's 3rd largest PA; Snow Leopard, Tiger, Leopard, Clouded Leopard (four big cats)
- Loktak Lake (Manipur): India's largest freshwater lake in NE; Keibul Lamjao NP (floating NP)
- Dzukou Valley (Nagaland): seasonal flowers; lily species

### TAXONOMY INSTITUTIONS:

- ZSI: Kolkata; est. 1916; 11 regional stations; Animal Discovery India programme; annually documents 400+ new species
- BSI: Kolkata; est. 1890; plant surveys; issues Red List for plants
- WII (Wildlife Institute of India): Dehradun; training + research; autonomous under MoEFCC
- ATREE (Ashoka Trust for Research in Ecology): Bengaluru; Western Ghats focus

### NORTHEAST DEVELOPMENT PROJECTS:

- Dibang Multipurpose Project: 2,880 MW; Arunachal Pradesh; on Dibang River; EIA clearance pending as of 2026
- Subansiri Lower HEP: 2,000 MW; Assam-Arunachal border; Subansiri River; long-delayed
- Trans-Arunachal Highway: 1,100+ km highway connecting Arunachal border points

### BIOLOGICAL DIVERSITY ACT 2002:

- Establishes: National Biodiversity Authority (NBA), State Biodiversity Boards, Biodiversity Management Committees
- ABS: Access and Benefit Sharing — communities must benefit from commercial use of biodiversity
- People's Biodiversity Registers (PBRs): document local biodiversity and traditional knowledge

### OTHER RELEVANT FACTS:

- India's taxonomist count: estimated <200 active taxonomists (severe shortage vs. biodiversity)
- Natural History Museum deficit: India has very few dedicated natural history museums with reference collections

India's new species count: ~400-500 per year (2021-2025)

Clouded leopard: found in Northeast India; IUCN Vulnerable; Schedule I WPA

Sources: The Hindu, ZSI, MoEFCC, PIB

---

CURATED & WRITTEN BY

# Bharat Choudhary

UPSC Educator & Content Creator

 [linkedin.com/in/epicbharat](https://www.linkedin.com/in/epicbharat)

---

Published on [ujiyari.com](http://ujiyari.com) · Free UPSC & State PCS Current Affairs