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Sangai Deer at the Edge — Keibul Lamjao's Floating World and a Species Racing Against Extinction

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SUBJECTS COVERED

ENVIRONMENT GEOGRAPHY

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WHY IN NEWS

Reports in January 2026 highlighted the continued population collapse of the Sangai (*Rucervus eldii eldii*) — Manipur's state animal — with a fresh census scheduled for February 20–27, 2026 at Keibul Lamjao National Park. The effective breeding population is estimated at approximately 7.5 individuals — dangerously below the genetic diversity threshold. The primary driver is the degradation of phumdis, the unique floating meadow habitat of Loktak Lake, caused by the Ithai Barrage built in 1983.

THE SANGAI — INDIA'S DANCING DEER

The **Sangai** (*Rucervus eldii eldii*) is one of three subspecies of **Eld's Deer** (*Rucervus eldii*), named after British officer Percy Eld who documented it in the 19th century. It is known as the "**dancing deer**" because of its characteristic backward-curving antlers that appear to dance when the animal moves through tall grass.

Taxonomic and conservation status:

Class: Mammalia; Order: Artiodactyla; Family: Cervidae

Species: *Rucervus eldii*; Subspecies: *R. e. eldii* (Sangai — Manipur)

IUCN Red List: Endangered (EN)

CITES: Appendix I (strictest trade ban)

WPA 1972: Schedule I (highest protection; hunting = cognisable offence; minimum 3-year imprisonment)

Other subspecies: *R. e. thamin* (Thailand, Myanmar — Thamin) and *R. e. siamensis* (Indochina)

Manipur's state animal: The Sangai has been Manipur's state animal since 1989. It appears on the state emblem and is deeply embedded in Meitei cultural identity and mythology. The species exists **nowhere in the wild except Keibul Lamjao National Park** — making its extinction synonymous with the loss of Manipur's unique ecological identity.

Appearance: The Sangai stands approximately 115–125 cm at the shoulder; males carry large, backward-bowing pediculated antlers (the "dancing" silhouette). The coat is reddish-brown in summer, greying in winter. Hooves are broad and slightly splayed — an adaptation for walking on soft, floating phumdi surfaces.

THE WORLD'S ONLY FLOATING NATIONAL PARK

Keibul Lamjao National Park (est. 1977; 40 sq km) is the **world's only floating national park** — a fact so remarkable it merits careful explanation.

Loktak Lake: Located in **Bishnupur district, Manipur**, Loktak is the **largest freshwater lake in Northeast India** (covering approximately 287 sq km at full extent). It is a **Ramsar Wetland of International Importance** (designated 1990) under the Ramsar Convention.

Phumdis — the floating island habitat: Phumdis are **heterogeneous masses of vegetation, soil, and organic matter at various stages of decomposition**, clumped together into floating biomass islands. Phumdis:

- Form exclusively on Loktak Lake (unique globally to this ecosystem)
- Range from a few centimetres thick (saturated, semi-submerged) to over 2 metres thick (buoyant, able to support large animals)
- Drift with wind and current but remain anchored in certain areas by underwater vegetation
- Support diverse plant communities — reeds, grasses, sedges — that feed the Sangai and shelter other species
- The park itself is a phumdi — the national park literally floats on the lake

The Sangai-phumdi dependency: The relationship is absolute and irreplaceable:

- Sangai feeds exclusively on phumdi vegetation (grasses and sedges)
- Sangai moves across phumdis — it cannot survive on hard land (its splayed hooves are adapted for soft phumdi surfaces)
- There is no alternative habitat anywhere in India (or the world) where Sangai can survive
- If phumdis disappear, Sangai disappears

THE POPULATION COLLAPSE — TIMELINE AND NUMBERS

Year	Population	Effective Breeding Population
1975 (pre-NP)	14 (near-extinction low)	—
1990	80	—
2006	90	~15
2016	83	~12
2019	76	~10
2023	64	~7.5
2026 census target	?	critical threshold

The **effective breeding population** — the number of individuals that successfully reproduce — is more important than total count. A population with 64 individuals but an effective breeding population of 7.5 faces severe **inbreeding depression**: genetic diversity collapses, immune systems weaken, fertility declines, and susceptibility to disease increases.

Conservation geneticists consider populations with effective breeding populations below 50 to be at serious risk, and below 10 to be facing imminent genetic collapse.

THE ITHAI BARRAGE — INFRASTRUCTURE VS. BIODIVERSITY

The primary driver of Sangai's collapse is not poaching (which is actively combated) but a **hydropower infrastructure decision made 43 years ago**.

The Loktak Multipurpose Project and Ithai Barrage:

- In **1983**, the **Ithai Barrage** was constructed across the Manipur River (the lake's primary outlet) as part of the **Loktak Multipurpose Hydroelectric Project** — designed to generate 105 MW of power and provide irrigation for Manipur's farms
- The barrage raised the **average water level of Loktak Lake by approximately 1 metre**, flooding previously dry margins and submerging the thinner phumdis
- During monsoon season, the barrage prevents normal drainage, sending backflow into the lake — further raising water levels in the park
- Submerged phumdis lose buoyancy; they sink, fragment, or become waterlogged and unable to support large animals

Agricultural and domestic runoff from Imphal and surrounding settlements carries nutrients, pesticides, and untreated sewage into the lake — fuelling algae growth that smothers phumdi vegetation

The governance deadlock:

Draining the lake to pre-barrage levels would restore phumdi health and Sangai habitat — but would eliminate Manipur's hydroelectric generation capacity

The State Government has not been willing to reduce power generation; the Central Government has not imposed conservation requirements on state-operated hydropower

This is a classic **federalism-conservation conflict** — the state bears the economic cost of habitat restoration while the nation bears the conservation cost of inaction

CONSERVATION INTERVENTIONS — WHAT HAS BEEN TRIED

Legal protection:

Keibul Lamjao NP was established in 1977 specifically to protect Sangai habitat

Schedule I status under WPA 1972 — hunting, trapping, or injuring a Sangai is a criminal offence

Project Sangai (State initiative): patrols, anti-poaching, tourist regulation in the park

Captive breeding:

A small captive population (less than 15 animals) is maintained at Manipur Zoological Gardens (Sipahijala, Tripura also has some) for genetic preservation

No successful captive breeding and reintroduction programme exists yet — the species is notoriously difficult to breed in captivity

Habitat management:

Manual phumdi restoration: cutting and dispersing broken phumdis; promoting regrowth

Removal of invasive water hyacinth (*Eichhornia crassipes*) that smothers phumdi vegetation

Regulated fishing in the park area to reduce human disturbance

What has NOT been done:

No significant reduction in Ithai Barrage water levels

No large-scale ex-situ breeding programme with reintroduction planning

No translocation of individuals to establish a second wild population (as was successfully done for tigers at Panna and Sariska)

UPSC RELEVANCE

Prelims: Sangai (Rucervus eldii eldii; Endangered; CITES Appendix I; WPA Schedule I; Manipur state animal; “dancing deer” / “brow-antlered deer”); Keibul Lamjao NP (world’s only floating national park; Loktak Lake; Bishnupur district, Manipur); Loktak Lake (Ramsar 1990; largest freshwater lake NE India); phumdis (floating biomass; unique to Loktak); Ithai Barrage (1983; Loktak Multipurpose HEP; 105 MW).

Mains GS-3: Hydropower vs. wetland biodiversity — the Ithai Barrage case | Species conservation when the threat is infrastructure, not poaching — policy gaps | Captive breeding and translocation as conservation tools | Centre-state federalism in Protected Area management | Wetland governance: Ramsar Convention; National Wetland Conservation Programme.

📌 FACTS CORNER — KNOWLEDGEPEDIA

SANGAI DEER — CORE DATA:

Scientific name: Rucervus eldii eldii; Family: Cervidae

Common names: Sangai (Meitei), brow-antlered deer, dancing deer

IUCN: Endangered (EN)

CITES: Appendix I (strictest trade prohibition)

WPA 1972: Schedule I (highest protection; harming = minimum 3 years imprisonment)

Only wild population: Keibul Lamjao National Park, Loktak Lake, Manipur

Manipur state animal (since 1989)

Population: 64 (2023 census); effective breeding population ~7.5

Subspecies: Three — R. e. eldii (Sangai, Manipur), R. e. thamin (Myanmar/Thailand), R. e. siamensis (Indochina)

Adaptation: Broad splayed hooves for walking on soft phumdi surfaces

KEIBUL LAMJAO NATIONAL PARK:

Location: Bishnupur district, Manipur; on Loktak Lake

Established: 1977

Area: ~40 sq km

Distinction: World's only floating national park (rests on phumdis)

LOKTAK LAKE:

Size: ~287 sq km (largest freshwater lake in Northeast India)

Ramsar Wetland: designated 1990

Location: Bishnupur and Imphal West districts, Manipur

Phumdis: floating heterogeneous masses of vegetation, soil, and decomposing organic matter; unique to Loktak Lake

ITHAI BARRAGE — THE THREAT:

Constructed: 1983; Loktak Multipurpose Hydroelectric Project

Capacity: 105 MW

Effect: Raised lake levels by ~1 m; submerged phumdis; restricted monsoon drainage

Result: Phumdi degradation → reduced Sangai habitat and food supply

POPULATION DECLINE TIMELINE:

1975: 14 (lowest recorded; near extinction)

2006: 90

2019: 76

2023: 64

2026: fresh census February 20–27

OTHER RELEVANT FACTS:

Ramsar Convention: adopted 1971, Ramsar, Iran; 172+ contracting parties; protects wetlands of international importance

National Wetland Conservation Programme (NWCP): MoEFCC; supports Ramsar site management

Schedule I WPA species in crisis: Sangai, Ganges River Dolphin, Namdapha Flying Squirrel, Kondana Rat — each restricted to a single location globally

Sipahijala Zoo (Tripura): maintains ex-situ Sangai conservation programme

Inbreeding depression: genetic consequence of small population; reduces fertility, immunity, and survival; effective breeding population <50 = high risk; <10 = critical

Sources: IUCN Red List, MoEFCC, Imphal Times, Ramsar Convention

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