

## IMPORTANT NEWS

### A Newly Discovered Fish Exhibits Chameleon-Like Color Change Abilities

#### Inside Story of the News:

The recently discovered species, **Badis limaakumi**, received its name in honor of Limaakum, who serves as an assistant professor and head of the zoology department at Fazl Ali College in Nagaland.

- The discovery, titled "Badis limaakumi: a novel badid fish species from Nagaland, Northeast India," has been documented in the Zootaxa journal.
- This species belongs to **the Badidae family**, a small type of freshwater fish typically inhabiting streams with slow to moderate water currents.
- Badis limaakumi is also commonly found in **stagnant water bodies and ditches** across various countries, including **India, Bangladesh, Nepal, Pakistan, Thailand, and Myanmar**.
- Distinguishing itself from other members of the Badis badis SG group (B. badis, B. kanabos, B. chittagongis, B. ferrarisi, B. soraya, B. rhabdotus, B. pallidus, B. dibruensis, B. tuivaiei, and B. kaladanensis), this new fish species stands out due to its larger size and distinct physical characteristics.
- Prior to this discovery, researchers had identified fourteen Badis species:
  - Six from the Brahmaputra in West Bengal,
  - B. badis in Pakistan, Bangladesh, Nepal, and Bhutan,
  - Seven species from the Brahmaputra and Kaladan rivers, and
  - One species, B. britzi, from the Sharavati river in the Western Ghats.
- The addition of this new fish species brings the **total count to fifteen**.
- Fish within the Badis family are often referred to as **chameleon fish** due to their remarkable ability to change color.
  - It helps them in blending with their surroundings when experiencing stress.

### Kalakkad-Mundanthurai Tiger Reserve

#### Inside Story of the News:

The Madurai Bench of the Madras High Court has recently **issued a notice to the State in response to a public interest litigation petition**. This petition seeks a directive to limit the access of outsiders and vehicles into the **Kalakkad-Mundanthurai Tiger Reserve**.

- It is situated in the **Southern Western Ghats within the Tirunelveli and Kanyakumari districts of Tamil Nadu**.
- KMTR (Kalakkad-Mundanthurai Tiger Reserve) was designated as the "**First Tiger Reserve of Tamil Nadu**" and the **17<sup>th</sup> Tiger Reserve** in the nation.

- The forests within this reserve showcase **abundant biodiversity and endemism**.
- KMTR is an integral component of the inter-state Agasthyamalai Biosphere Reserve, spanning both Kerala and Tamil Nadu.
  - The core area of KMTR within the Agastya Mala hills is recognized as one of India's five centers of biodiversity and endemism by the International Union for Conservation of Nature (IUCN).
- This reserve is often referred to as the "River Sanctuary" since it serves as the source for as many as 14 rivers.
- KMTR is home to at least **150 plant species** that are found exclusively in the region, along with **33 fish species, 37 amphibian species, 81 reptile species, 273 bird species, and 77 mammal species.**

#### Habitat Attributes:

- **Flora:**
  - Within the reserve, a diverse range of vegetation, ranging from arid thorny shrub jungles to thriving evergreen forests.
  - 448 species of angiosperms exclusive to this region have been documented, alongside 161 fern species.
  - Notable species among the flora include Sarcandra, Paphiopedulum, druryi, Hopea parviflora, Hopea utilis, Calophyllum elatum, Cullenia exarillata, among others.
- **Fauna:**
  - The reserve boasts an incredible diversity of wildlife, with approximately 84 species have been threatened (comprising 4 critically endangered, 24 endangered, and 56 vulnerable species).
  - Other notable animal residents within the tiger reserve encompass leopards, elephants, Nilgiri tahr, Nilgiri langur, wild boar, chital, sambar deer, leopard cat, jungle cat, and an additional 67 mammal species.
  - The aquatic habitats within the reserve, including reservoirs and rivers, provide sustenance for unique aquatic flora, water birds, amphibians, and various fish species.
  - The habitat is also characterized by the presence of aged plantations containing Teak, Eucalyptus, and various other miscellaneous tree species.

## Comprehending Panchnama: A Vital Instrument in Criminal Investigations

### Inside Story of the News:

The Supreme Court has ruled that if 'panchnamas,' are prepared in a manner that violates Section 162 CrPC, they will be considered inadmissible in a court of law.

- A 'panchnama' is a legally significant document that records the observations, findings, and evidence noted by an officer at the scene of a crime or any related location.
- The term 'panchnama' finds its origins in the ancient Indian judicial system, where a **panel of five elected members (Panch) presided over disputes, and their proceedings were documented.**
- There are several types of Panchnamas prepared during an investigative process:
  - **Arrest Panchnama:** This document is generated when an individual is apprehended. It includes information regarding the circumstances and location of the arrest, the person's physical condition upon apprehension, and a list of their personal belongings, among other details.
  - **Inquest Panchnama:** This Panchnama comes into play when a person passes away under suspicious circumstances. It provides particulars about the cause of death, the individual's physical state at the time of demise, and related information. The guidelines governing inquest panchnamas are outlined in Section 174 of the CrPC.
  - **Test Identification Parade Panchnama:** Whenever a suspect is identified by witnesses in a test identification parade, a corresponding Panchnama is compiled. This document outlines the conduct of the identification parade, specifying who conducted it, the presence of witnesses, and other relevant details.
- These documents play a crucial role in providing evidence in both criminal and civil cases.
- The primary purpose of a 'panchnama' is to demonstrate to the court that the investigating officer has adhered to all the required procedures, whether it involves searches, seizures, or other actions mandated by the law.
- It serves as a vital document ensuring transparency and credibility in legal proceedings.
  - In criminal cases, it supports the evidence collected during the investigation, such as findings at the crime scene and the identification of suspects.
  - In civil cases, it serves as proof of the execution of decrees, especially in matters related to property possession.

## Kaimur District in Bihar to Welcome Second Tiger Reserve

### Inside Story of the News:

The eagerly anticipated second tiger reserve in Bihar is on track to be established by the end of 2023 or early 2024, as confirmed by officials from the Bihar Forest, Environment, and Climate Change Department.

- The Kaimur Wildlife Sanctuary is located in both the Kaimur District and Rohtas District of Bihar.
- This sanctuary comprises significant forest types, including **Tropical Dry Mixed Deciduous, Dry Sal Forests, Boswellia Forests, and Dry Bamboo Brakes.**
- Serving as a crucial catchment area, the sanctuary plays a vital role in **the Kav, Sone, and Durgawati river systems,** along with their important tributaries.

- It is connected to the **Chandraprabha Wildlife Sanctuary** in Uttar Pradesh, which in turn has connections to **the Sanjay Dubri Tiger Reserve** and **the Panna landscape in Madhya Pradesh** through intermediary forests like Marihan, Sukrit, Chunar ranges, and wildlife sanctuaries like Ranipur in Uttar Pradesh.
- The Kaimur Wildlife Sanctuary is inhabited by various notable wildlife species, including Bengal tigers, Indian leopards, Indian boars, Indian pangolins, sloth bears, sambar deer, Indian muntjacs, Four-horned antelopes, chitals, nilgais, as well as numerous species of reptiles, insects, and butterflies.
  - It serves as a year-round habitat for over 70 species of resident birds.
- The plant life in the sanctuary includes species such as Salai (*Boswellia Serrata*), Siddha, Indian Rosewood (*Sheesham*), Jamun, Teak, Koraiya, Saal, and Jheengara.

## Attosecond: The Nobel Prize-Winning Smallest Unit of Time in Physics

### Inside Story of the News:

The Nobel Prize in Physics for this year has been bestowed upon **three physicists: Pierre Agostini from Ohio State University in Columbus, Ferenc Krausz from the Max Planck Institute of Quantum Optics in Garching, Germany, and Anne L’Huillier from Lund University, Sweden.** They have been honored for their pioneering research concerning attosecond pulses of light.

- An attosecond is an astonishingly brief unit of time, equivalent to **one quintillionth of a second ( $1 \times 10^{-18}$  of a second)** or one billionth of a nanosecond.
- To provide some perspective, if you were to stretch a single second to encompass the entire age of the universe, which is approximately 13.8 billion years, **an attosecond would be an infinitesimal fraction of that second.**
- The profound significance of attoseconds in the realm of physics lies in their capacity to **illuminate phenomena that were previously concealed from our observations.**
- These exceedingly **brief time intervals hold relevance in the fields of ultrafast optics and laser physics**, especially when investigating the behavior of electrons within atoms and molecules.

### The Applications of Attosecond Technology:

- Attosecond physics provides scientists with **the capability to examine the tiniest particles on the shortest timescales imaginable.**
- At this minuscule timeframe, researchers are now **able to capture the intricate dynamics of electrons within atoms and molecules.**
- It affords them the opportunity to witness the remarkably swift processes that govern chemical reactions and electronic behavior.

### Attosecond Pulses: An Ultrafast Phenomenon:

- Attosecond pulses offer a means to investigate the internal workings of matter and distinguish between different events.

- One of the most groundbreaking applications of attosecond science is the capacity to generate and **manipulate extreme ultraviolet (XUV) and X-ray pulses**, which play a critical role in imaging ultrafast phenomena at the atomic and molecular levels.
- These pulses are generated using high-intensity laser systems that produce bursts of light lasting mere attoseconds.
- With the aid of these attosecond pulses, scientists can effectively "freeze" the motion of electrons within atoms and molecules, **providing a real-time glimpse into the movement of electrons during chemical reactions.**

## Ralamandal Wildlife Sanctuary in Indore, Madhya Pradesh, Undergoes Butterfly Survey

### Inside Story of the News:

The Forest Department, in collaboration with the Wildlife and Nature Conservancy (WNC), recently conducted a **comprehensive butterfly survey within the confines of Ralamandal Wildlife Sanctuary, situated in Indore, Madhya Pradesh.** The primary objective of this survey was to gain insights into the presence of various butterfly species in the sanctuary and to promote conservation efforts in the area.

- Ralamandal Wildlife Sanctuary, **established in 1989 in Indore**, Madhya Pradesh, is a designated protected area spanning approximately five square kilometers.
- During the survey, two rare butterfly species were discovered within the sanctuary, marking their first documented presence in this particular region.
- Some of the noteworthy, rare species encountered include the **Red Flash, Plains Royal Blue, Tricoloured Pied Flat, Painted Lady, and Rice Swift.**
- The survey documented approximately **50 butterfly species within the sanctuary**, indicating the potential existence of **over 75 butterfly species across the entire sanctuary.**
- This rich diversity underscores the sanctuary's significance in terms of butterfly conservation.
- Beyond their aesthetic appeal, butterflies serve as vital pollinators, facilitating the transfer of seeds and pollen between plants, thereby contributing to vegetation growth and the overall ecosystem.
- This pollination process plays a crucial role in ecosystem health and food production.
- Butterflies also fulfill a critical role in preserving natural habitats and ecosystems, making them essential contributors to biodiversity and ecosystem equilibrium.
- The sanctuary hosts a diverse array of fauna, including leopards, black bucks, sambar deer, chital (spotted deer), blue bulls, Jarak, Bhedki (barking deer), rabbits, and more.
- These various species collectively **enhance the sanctuary's rich biodiversity.**
- Furthermore, the sanctuary features a wide range of flora, including prominent tree species like Teak, Saja, Chandan (sandalwood), Eucalyptus, Babul, and Bamboo.

- These plant species support the sanctuary's ecosystem and provide essential resources for its wildlife inhabitants.

## Geographical Recognition for Jammu and Kashmir's Renowned Pashmina with GI Tag

### Inside Story of the News:

The traditional art of crafting **Basohli Pashmina**, a highly regarded textile tradition hailing from the picturesque region of **Jammu and Kashmir**, has achieved a significant milestone by obtaining the **Geographical Indication (GI)** tag.

- The Department of Industries and Commerce, in collaboration with NABARD Jammu and Human Welfare Association, Varanasi, has successfully secured this milestone.
- The renowned **Basohli painting and Chikri wood**, originating from the Rajouri district in the Jammu division, have been awarded the GI tag.
- The GI tag is a symbol utilized for products originating from a specific geographical area and possessing qualities or a reputation inherently connected to that place of origin.
- **Pashmina** specifically denotes a superior type of cashmere that is spun from the soft, downy undercoat of the Changthangi, a breed of mountain goats (Capra hircus) inhabiting the Changthang Plateau in Tibet and parts of Ladakh.
- Pashmina products encompass a variety of items, including shawls for both men and women, mufflers, blankets, and baskets.
- **Basohli Pashmina**, a hand-spun product celebrated for its exceptional softness, fineness, lightweight nature, insulating properties, and long lifespan, is truly distinctive due to these attributes.
- Basohli Pashmina carries a rich heritage deeply entwined with the history of the Kathua district in Jammu and Kashmir.

## Indian Navy to Showcase New Autonomous Boat Swarms and AUVs at Swavlamban Seminar

### Inside Story of the News

The Indian Navy has recently granted **approval for the acquisition of 12 autonomous weaponized boat swarms, a development undertaken by Sagar Defence Engineering based in Pune.**

- An agreement has been formalized between **the Indian Navy and Sagar Defence Engineering Pvt. Ltd** for the development of Autonomous Weaponized Boat Swarms.

- Sagar Defence Engineering Private Limited emerged as **the victor in the iDEX (Innovations for Defence Excellence) DISC-7 program**, specifically within the **SPRINT framework**.
- This agreement signifies the 50<sup>th</sup> contract awarded under the SPRINT program.
- These swarms have been strategically designed for naval tactics, employing the coordinated deployment of multiple small, unmanned boats to overwhelm an adversary's naval defenses.
- They are equipped with a variety of weapons and sensors, capable of remote or autonomous operation.
- These swarms feature an integrated system that can execute a range of naval and security missions, including littoral/ODA Patrol, High-Speed Interdiction, Coastal Surveillance, Local Naval Defence, Constabulary Operations, C4ISR, Medium-Sized Unmanned Surface Vessel, and Low-Intensity Maritime Operations (LIMO).
- The Naval Innovation and Indigenisation Organisation (NIIO), in collaboration with the Defence Innovation Organisation (DIO), aims to induct a minimum of 75 new indigenous technologies/products into the Indian Navy as part of the Azadi ka Amrit Mahotsav celebration.
- iDEX is the flagship initiative launched by the Ministry of Defence (MoD) in April 2018.
- iDEX has partnered with leading incubators in the country to provide guidance, technical support, and mentorship to the winners of iDEX challenges.
- The primary goal of iDEX is to
  - achieve self-reliance,
  - stimulate innovation, and
  - promote technology development in the Defense and Aerospace sectors by engaging industries, including MSMEs, startups, individual innovators, R&D institutes, and academia.

## Glacial Lake Outburst Flood Occurrence in Sikkim

### Inside Story of the News

Flash floods struck northern Sikkim when the **South Lhonak Lake burst due to continuous rainfall**. For a considerable time, various studies have underscored the lake's escalating size, categorizing it as prone to glacial lake outburst floods.

- Glacial lakes are large bodies of water situated in front of, on top of, or beneath receding glaciers.
- Their growing dimensions amplify their perilous potential since these lakes are typically dammed by unsteady ice or sediment consisting of loose rocks and debris.
- If the boundary restraining them ruptures, substantial volumes of water surge down the mountainsides, leading to downstream flooding, known as glacial lake outburst floods or GLOFs.
- GLOFs can be triggered by multiple factors, including **seismic activity, exceedingly heavy precipitation, and ice avalanches**.

- These lakes are frequently located in steep, mountainous terrains, which means landslides or ice avalanches can sometimes directly impact the lakes, displacing water and causing it to overflow the natural dam, resulting in downstream inundation.
- With the escalating global temperatures, glaciers in the Sikkim Himalayas have been rapidly melting, giving rise to numerous glacier lakes and expanding the preexisting ones in the region.
- According to the **Sikkim State Disaster Management Authority, there are currently more than 300 glacial lakes in the Sikkim Himalayas.**
- Among these, **10 have been identified as vulnerable to outburst floods.**

## Hakki Pikkis Trapped Amidst Sudan Conflict

### Inside Story of the News

The Hakki Pikki tribe, which primarily resides near forest areas in several western and southern states of India, has over **181 members from Karnataka currently trapped in violence-stricken Sudan.**

- The Hakki Pikkis, with "Hakki" meaning 'bird' and "Pikki" signifying 'catchers' in Kannada, traditionally belong to a semi-nomadic tribe that historically engaged in bird catching and hunting.
- This tribe is one of the prominent indigenous communities in Karnataka and can also be found in various forested regions across Western and Southern states of India.
- Originating from Northern India, primarily Gujarat and Rajasthan, the community has gradually concentrated in districts such as Shivamogga, Davanagere, and Mysuru in Karnataka.
- They hold the status of a Scheduled Tribe in India.
- Following the enforcement of more stringent wildlife regulations, the tribe transitioned from hunting to trading in spices, flowers, Ayurvedic formulations, and herbal oils.
- Scholars have designated their native language as '**Vaagri,**' and **UNESCO** has recognized '**Vaagri**' as **one of the endangered languages.**

## The Fifth Schedule of the Indian Constitution

### Inside Story of the News

The recent Supreme Court ruling highlights that Paragraph 5(1) of the Fifth Schedule confers **authority upon the Governor to issue directives regarding the application of parliamentary or state laws to Scheduled Areas,** specifying whether these **laws shall not apply or shall apply with specific exceptions and modifications.**

- This pertains to provisions concerning the governance and oversight of Scheduled Areas and Scheduled Tribes in any State, **excluding Assam, Meghalaya, Tripura, and Mizoram.**



- These areas are distinct due to their population of indigenous communities, who face social and economic disadvantages, necessitating special efforts to uplift their condition.
- **Article 244(1)** of the Constitution of India empowers the President to designate an area as a Scheduled Area.
- The President can alter the size of a Scheduled Area in a State, following consultation with the State's Governor, including changes to its boundaries, but solely for boundary rectification purposes.
- **Article 244(1)** of the Fifth Schedule of the Constitution of India mandates the establishment of Tribes Advisory Councils (TAC) in each State containing Scheduled Areas.
- If directed by the President, this also applies to any State with Scheduled Tribes but lacking Scheduled Areas.
- The TAC consists of no more than twenty members, with three-fourths representing Scheduled Tribes in the State's Legislative Assembly.
- The TAC offers counsel on matters pertaining to the welfare and progress of Scheduled Tribes in the State as referred by the Governor.
- The Governor holds the authority to establish regulations governing the Council, including
  - the number of members,
  - their appointment procedures,
  - the appointment of the Council's Chairman and staff,
  - meeting protocols, and
  - general operational procedures.

## Punjab's Proposal to Prohibit Cultivation of PUSA-44 Paddy Variety

### Inside Story of the News:

**Punjab Chief Minister Bhagwant Singh Mann** announced that starting from the next year, **the state will enforce a ban on the cultivation of the PUSA-44 paddy variety.**

- This decision has raised inquiries into why such a popular paddy variety is being prohibited and what consequences it may have for the state's agriculture.
- At one point, this variety accounted for 70 to 80 per cent of the total paddy cultivation area in the state, and Punjab's farmers were highly content with its substantial yield.
- PUSA-44, **originating in 1993**, was developed by the Indian Council of Agricultural Research (ICAR) based in Delhi.
- By the close of the 2010s, it had gained widespread favor among farmers in Punjab, encompassing **approximately 70 to 80% of the paddy cultivation area.**
- Farmers assert that PUSA-44 yields nearly **85 to 100 mann** (equivalent to 34 to 40 quintals) per acre, whereas **other varieties yield an average of 28 to 30 quintals per acre.**

- The enhanced yield leads to increased income, potentially exceeding the Minimum Support Price (MSP) by Rs 15,000 to 22,000 per acre.

**Why the Ban Was Imposed:**

- PUSA-44 necessitates approximately 160 days to reach maturity, significantly longer than other varieties, requiring an additional 5-6 cycles of irrigation.
- Given Punjab's critical groundwater depletion and the availability of shorter-duration paddy varieties, the government's aim is to conserve one month's worth of irrigation water by prohibiting this variety.
- Furthermore, this variety is known to exacerbate the persistent issue of stubble burning in the state.
- Stubble burning contributes to severe air pollution in Northern India during the winter, posing a threat to public health.