UPSC Daily Current Affairs| Prelim Bits 10-06-2025

Vithoot Programme

Why in News?

Prelims- Environmental ecology, Bio-diversity

Mains - conservation

Kerala's forest department launched an innovative afforestation effort, the Vithoot programme, coinciding with World Environment Day this year.

- Vithoot is the ***aerial distribution of thousands of seed balls*** across the state's woods and vacant land.
- **Aim** - It is designed to rehabilitate Kerala's natural ecology and mitigate human-wildlife conflicts.
- **Done by** – It is a community effort facilitated by the Kerala Forest Research Institute.
- The plan prioritises fruit-bearing trees, specific grass species such as bamboo, and seeds with potential for quick development.
- Initially, the effort will incorporate indigenous plants, shrubs, and herbs.
- In the forthcoming years, seeds of uncommon, endangered, and endemic species will be integrated.
- The plan emphasises the use of site-specific seeds aimed at rehabilitating the ecosystem.
- This project will initially concentrate on forest land but may subsequently expand to include paddy fields, agricultural lands, and other green areas.
- It relies on community engagement, meticulous planning, and the strategic application of technology, including drones and helicopters.
- **Advantages -** This effort mitigates human-wildlife conflict, addresses climate change, improves water security, and fosters forest health.
- Ultimately, these initiatives will guarantee food accessibility for both wildlife and humans.
- **Disadvantages -** Not all seed balls will germinate successfully and dispersing them can be challenging in certain situations.
- Moreover, they exhibit sensitivity to environmental variables, rendering seed distribution impracticable in some circumstances.

Reference

Down to Earth | Vithoot Programme

DRUM Web App

Why in News?

Prelims- General Science.

Mains paper 2 - e-governance- applications

Recently, IIT-Kharagpur created the Dynamic Route Planning for Urban Green Mobility (or DRUM) web app.

- **DRUM -** Dynamic Route Planning for Urban Green Mobility web app.
- It's like Google Maps but with the added feature of allowing users pick routes based on air quality and energy efficiency.
- DRUM gives users 5 route options
    - Shortest,
    - Fastest,
    - Least exposure to air pollution (leap),
    - Least energy consumption route (lecr), and
    - A combination of all four factors called the suggested route.
- These options are based on real-time air and traffic data.
- When applied to Delhi, the LEAP route reduced exposure by over 50% in Central Delhi while increasing commute time by 40%.
- LECR meanwhile helped reduce energy consumption by 28% in South Delhi.
- These tradeoffs may not work for everyone, especially given the added fuel costs of longer routes, but DRUM could make a difference for more vulnerable groups.
- DRUM determines routes using GraphHopper, a Java-based routing library that generates multiple options, while fetching real-time traffic updates from Mapbox. This setup allows the system to handle different vehicles and adapt to cities beyond Delhi.
- The team relied on data from the CPCB and the World Air Quality Index.
- **Working** - DRUM is a rank-based elimination method.
- A segment-wise interpolation approach was adopted to assess pollution levels in areas lacking direct sensor coverage.
- Routes were divided into segments to facilitate more accurate estimations.
- Nearby sensor data was utilized to fill in gaps where coverage was insufficient.
- To test the system, the team simulated Delhi's East, South, North, and Central corridors, accounting for different traffic, road quality, and pollution patterns.
- The results showed that shorter or faster routes often passed through polluted zones, offsetting time or distance gains.
- **Challenge** - Integrating real-time air and traffic data.

Reference

The Hindu | DRUM Web App

Delhi Zoo's new conservation plan

Why in News?

Prelims - Biodiversity, Environmental Ecology

Mains Paper 3- Conservation

The National Zoological Park (NZP) in Delhi is exploring the possibility of setting up an on-site wildlife biobank in collaboration with the Centre for Cellular and Molecular Biology (CCMB) in Hyderabad.

- The proposed facility is expected to collect and preserve genetic material DNA, tissues, reproductive cells from animals at the zoo.
- The initiative is part of a broader effort led by the Central Zoo Authority (CZA) to strengthen ex-situ conservation in Indian zoos.
- The Biobank is expected to follow a model already implemented at the Padmaja Naidu Himalayan Zoological Park in Darjeeling.
- The samples collected are intended strictly for research and regulated breeding purposes, under the supervision of the CZA and CCMB, as third-party usage requires explicit approval.
- Delhi zoo was among six zoos that had been identified by the CZA to join the Consortium of Indian Zoos for Biobanking of Wildlife Genetic Resources under a pilot project.
- The programme was built on a tripartite agreement signed in 2019 between the CZA, CCMB-LaCONES (Laboratory for the Conservation of Endangered Species), and the selected zoos.
- Under this agreement, zoos, including Delhi's NZP, have been encouraged to collect biological samples from deceased animals, as well as from live animals during health interventions.
    - It is for submission to the National Wildlife Genetic Resource Bank (NWGRB) at the CCMB's laboratory.
- **National Zoological Park -** It is home to several endangered species listed under ***Schedules I and II*** of the Wildlife Protection Act, 1972.
- These include the Asiatic Lion, Bengal Tiger, Indian Elephant, Indian Rhinoceros (Greater One-Horned Rhino), Sloth Bear, Lion-tailed Macaque, Indian Wolf, Indian Bison (Gaur), Dhole (Asiatic Wild Dog), Eld's Deer, Four-horned Antelope, Himalayan Black Bear, Marsh Crocodile, Gharial, Indian Rock Python, and Spectacled Cobra.

Reference

The Indian Express | Delhi Zoo's new conservation plan

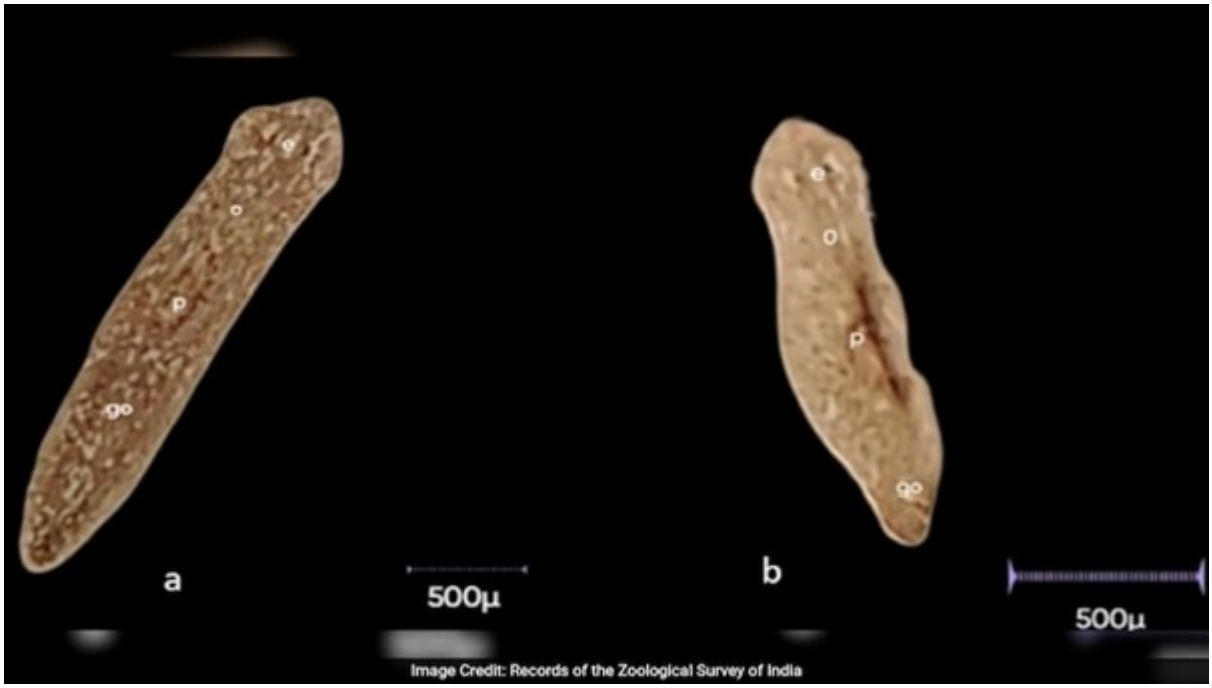
Dugesia punensis

Why in News?

Prelims - General issues on Biodiversity, Environmental Ecology, & Climate Change

A PhD student and her research guide from Modern College of Arts, Science, and Commerce discovered a new species of planarian worm in Pashan Lake, Pune.

- It is a new species of planarian worm, named Dugesia punensis.
- This specimen was deposited at the Zoological Survey of India.
- Planarians are aquatic flatworms known for their regenerative capabilities.
- **Habitat -** They are found in stagnant water.
- This is the first time since 1983 that a new species of planarian was scientifically recorded in India.
- **Characteristics -** Even if their body is cut into pieces, each piece can regenerate into a complete organism.
- Hence, they are very important in stem research.
- The regenerative potential of this worm is 14 days, compared to others whose regenerative span is about 18 days or more.
- **Morphology** - The morphology is also different from others, was more delicate.
- The new species is characterised by its spotted appearance, slightly reduced auricles and elongated pharynx and gonopore.
- The body size ranges between 8mm-12mm in length.
- The dorsal side is spotted dark brown in appearance, with a light brown back. The ventral side looks pale.
- Eggs are circular and have a reddish appearance. Auricular grooves enclose two bright black eyes
- **Diet -** The flatworm feeds on chicken liver.



Reference

Times of India | Dugesia punensis

Thitu Island

Why in News?

Chinese ship runs aground off Philippines-occupied island in the disputed South China Sea.

- Thitu Island, also referred to as Pag-asa Island, is situated in the South China Sea and is part of the Spratly Islands archipelago.
- This region is a focal point of territorial disputes, with China, Taiwan, and Vietnam asserting full claims, while Malaysia and the Philippines claim portions of the area.
- It is the largest of the nine islands currently occupied by the Philippines and serves as a vital location for both civilian and military presence.
- **Bordered by** - North Danger Reef to the north, Subi Reef to the southwest, and Loaita and Tizard Banks to the south.
- It is home to a Philippine fishing village and Filipino forces.
- It serves as the administrative center (Poblacion) of the Kalayaan municipality.
- Thitu Island oversees nearly a dozen additional islets, cays, and reefs in the region.
- Since 1971, Thitu Island has been under Philippine administration, with civilian settlement beginning in the mid-1990s.
- The island boasts a permanent civilian population and features essential infrastructure, including a school, Rancudo Airfield, a sizable harbor, and a lighthouse to aid navigation.
- Its proximity to China's Subi Reef, located approximately 24–27 kilometers away, which is home to a substantial military base, further underscores its strategic significance in the region.

Reference

The Hindu | Thitu Island

One Liners 10-06-2025

History, Art and Culture

Pandya Dynasty

An 800-year-old Shiva temple from the later Pandya period was recently discovered in Udampatti, Madurai district, Tamil Nadu**.**

• **Pandya Dynasty -** Was an ancient Tamil dynasty that ruled parts of South India from at least the 4th century BCE until the 16th century CE. They initially ruled from Korkai, later moving to Madurai.

• **Revival -** After an eclipse by the Kalabhras, the dynasty revived in the 6th century under Kadungon.

• **Goldan Age** - The Later Pandyas (1216–1345) saw their golden age, expanding into Telugu country, conquering Kalinga and Sri Lanka, and maintaining extensive trade links.

• **Cultural Contributions -** The Pandyas we patrons of Tamil literature, with the legendary Sangams held under their patronage.

• They also made notable contributions to art, music, and dance, and built significant temples like the Meenakshi Temple.

• **Economic Prowess -** They excelled in trade, controlling the lucrative pearl fisheries off the South Indian coast and having diplomatic relations as far as Rome. Their symbol was the fish.

• **Decline -** Pandyas faced repeated conflicts with the Pallavas, Cholas, Hoysalas, and Muslim invaders.

Zyeth Atham: Kashmiri Pandit Festival

• Zyeth Atham, or Jyeshtha Ashtami, is a significant celebration for the Kashmiri Pandit community, observed in early June to venerate Goddess Kheer Bhawani.

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• **Goddess Kheer Bhawani's Significance -** Is an incarnation of Mata Durga, is the deeply cherished Kuldevi (family deity) of Kashmiri Pandits, primarily worshipped at Tulmulla**.**

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• **The Sacred Spring's Mystique** - The temple features a unique hexagonal spring whose changing colors are believed to reflect the fortunes of the Kashmir Valley, with darker hues indicating turmoil.

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• **Rituals and Offerings** - Devotees perform hawan and offer kheer (rice and milk pudding). Flowers and leaves are scattered into the spring during this important cultural reunion**.**

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• **Ancient Legends** - Legends enhance the temple's sanctity, including tales of the Goddess's migration from Lanka with Lord Hanuman and a Brahman's divine discovery of the spring.

• **Historical** - The temple, renovated by Maharaja Hari Singh, is a historical and spiritual beacon, symbolizing the Kashmiri Pandit community's enduring resilience and faith.

Ancient Kutch Habitation Found

New archaeological research, led by IIT Gandhinagar, reveals human habitation in the Great Rann of Kutch dating back at least 5,000 years before the Harappan civilization.

• **Archaeological Discoveries** - Near Dholavira, researchers unearthed marine shells, stone tools, pottery, and remnants of house complexes, indicating a thriving prehistoric community.

• **Coastal Hunter-Gatherer Lifestyles** - These early communities were primarily hunter-gatherers, heavily reliant on the local mangrove environment for sustenance, showcasing skilled foraging techniques.

• **Tools and Trade Networks** - Discovered stone tools, made from local and non-local materials, suggest these communities engaged in trade with neighboring regions to acquire diverse resources.

• **Predating Harappan Era** - Radiocarbon dating places the Dholavira site's age between 3,300 BC and 1,400 BCE, firmly establishing human presence millennia before the Harappan civilization.

• **Environmental Adaptation & Future Research** - These communities effectively adapted to a once-coastal environment. Ongoing studies aim to further uncover their lifestyles, diets, and inter-regional connections.

Polity & Governance

New Election Commission of India (ECI) System for Election Data

Recently, ECI has implemented a new, technology-driven system for generating Index Cards and statistical reports post-elections.

• **Index Cards -** These are non-statutory, post-election statistical reports developed by the ECI to enhance accessibility of election data for all stakeholders.

• **Data Dimensions Covered -** Index Cards disseminate data across various dimensions, including candidates, electors, votes polled, party-wise vote share, gender-based patterns, and political party performance.

• **Statistical Reports -** Index Cards are crucial for generating approximately 35 statistical reports for Lok Sabha and 14 for State Assembly elections, detailing elector specifics, turnout, and party performance.

• **Improved Efficiency -** This new digital system replaces a time-consuming, manual process, reducing delays in data availability and dissemination.

• **ECI's Role -** The ECI manages elections for Parliament, State Legislatures, President, and Vice-President. Registered Unrecognized Political Parties (RUPPs) are newly registered parties or those failing to meet recognition criteria.

Economy

RBI Boosts Gold Loan Access

The RBI recently increased the loan-to-value (LTV) ratio for gold-backed loans up to Rs 5 lakh, offering relief to small borrowers.

• **Understanding LTV Ratio -** LTV is the percentage of an asset's value a lender will finance, calculated as (Loan Amount/Appraised Value) x 100.

• **Risk and Interest Rates -** Higher LTVs generally indicate higher-risk loans, which typically result in higher associated interest rates.

• **Small Loan LTV Increased -** For gold loans up to Rs 2.5 lakh, the LTV ratio has been raised from 75% to **85%**.

• **Mid-Range Loan LTV -** Gold loans between Rs 2.5 lakh and Rs 5 lakh now have a set LTV ratio of **80%**.

• **Larger Loan LTV Maintained -** For gold loans exceeding Rs 5 lakh, the central bank has kept the LTV at **75%**.

India Launches New Statistical Business Register (SBR) Ministry of Statistics and Programme Implementation (MoSPI) launches a Statistical Business Register (SBR) to enhance business data quality nationwide.
• **SBR's Aims** - It facilitates business surveys, GDP estimation, and market analysis, unifying data for policy decisions.
• **Primary Data Sources** - Inputs include EPFO, corporate affairs, GST, annual industry surveys, and Economic Census.
• **Frequent Updates** - SBR will update quarterly or monthly, ensuring current, relevant data for statistical insights.
• **Global Alignment** - Aligned with UN standards, SBR tackles data fragmentation, a model for developing countries.
• **Unified Data Benefits** - Centralized system improves data accuracy and accessibility, boosting India's overall business statistics quality.

Environment

World Oceans Day 2025: "Wonder: Sustaining What Sustains Us"
An annual UN-recognized event (since 2008) on June 8th, raising global awareness about ocean vitality and threats, mobilizing action from diverse stakeholders.
• **2025 Theme -** "**Wonder: Sustaining What Sustains Us"** encourages emotional and intellectual engagement to inspire marine conservation, exploration, and restoration.
• **Oceans in Crisis** - Record Ocean temperatures due to global warming, overfishing, pollution, and acidification threaten marine life and ecosystems.
• **Nice, France Event -** A flagship event on June 8, preceding the UN Ocean Conference 2025 (June 9-13), gathering leaders to discuss sustainable ocean economies and policies.
• **30x30 Goal** - An ambitious initiative aiming to legally protect 30% of oceans by 2030 through Marine Protected Areas and sustainable practices.
• **Ocean's Vital Role -** Oceans produce over 50% of Earth's oxygen, absorb 25% of CO_2, regulate climate, and support billions through food, employment, and transportation.

Kerala Seeks Culling Powers
Kerala proposes amending the Wildlife Protection Act, 1972, to cull wild animals threatening human life and property amidst escalating conflicts.
• **Severe Conflicts Surge** -From 2016-2025, 919 lives were lost and 9,000 injured due to conflicts. 273 villages are hotspots, involving elephants, tigers, and wild boars.
• **Factors Driving Conflicts** - Wildlife population shifts, habitat degradation, increased grazing, and agricultural changes fuel conflicts, particularly with wild boars and monkeys.
• **Current Legal Hurdles** - Existing strict culling regulations require chief wildlife warden verification, delaying crucial emergency interventions.
• **Targeting Specific Animals** - Kerala wants to classify wild boars as vermin and remove bonnet macaques from Schedule I for better management.
• **Management Difficulties** - Court orders and impractical guidelines, like pregnancy checks for wild boars, hinder effective wildlife population control.

Himachal Pradesh Launches Green Yojana

Himachal Pradesh Chief Minister launched the 'Rajiv Gandhi Van Samvardhan Yojana' in Hamirpur to boost green cover and enhance environmental conservation.

• **Scheme** - Aims to restore ecological balance by planting fruit-bearing trees in barren areas, generating local employment and income, particularly for women and youth groups.

• **Community & Corporate Roles** - Local mahila mandals and self-help groups will maintain plantations for five years. Corporations and NGOs are also encouraged to adopt barren land for afforestation.

• **'Van Mitras' -** Are appointed to address staffing shortages, tasked with forest protection, community engagement, and educating rural areas on conservation importance.

• **Towards a Green State** - This initiative aligns with the Himachal Pradesh government's broader vision of transforming the state into a 'Green State,' promoting forest wealth and sustainable practices.

• **Additional Initiatives** - Alongside the Yojana, wellness centers were opened, and a mobile application for Van Mitras' attendance was launched, reflecting a holistic approach to welfare and sustainability.

Science

Hakuto-R Lunar Mission Fails

Japan's private space mission, Hakuto-R, failed its lunar landing attempt, highlighting the challenges for commercial lunar exploration.

• **Mission Objective -** Launched by ispace in January 2025 on a SpaceX Falcon 9, the Resilience lander aimed to demonstrate private lunar landing capabilities at Mare Frigoris.

• **Communication Loss & Crash -** Communication was lost during the final descent from 100 km orbit. A laser rangefinder delay caused inadequate deceleration, leading to a crash landing.

• **Isolated Incident -**This is ispace's second failure, mirroring similar difficulties faced by other private and national lunar missions like Chandrayaan-2 and Luna-25.

• **NASA's CLPS Initiative -**NASA's Commercial Lunar Payload Services (CLPS) program actively encourages private companies, like Astrobotic and Firefly, in lunar exploration efforts.

• **Future Lunar Ambitions -** Despite setbacks, private companies remain determined to establish a Moon presence for research and habitation, learning from past failures for future success.

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