UPSC Daily Current Affairs | Prelim Bits 12-06-2024

Huntington's Disease

Scientists develop new methods to detect Huntington's disease progression.

- **About-** Huntington's disease (HD) is a genetic disorder that causes the progressive breakdown of nerve cells in the brain.
- **Genetic Mutation-** Huntington's disease is caused by a mutation in the ***HTT gene***, which provides instructions for making a protein called huntingtin.
- **Types**
  - **Adult onset -** This is the most common form. Symptoms usually begin after age 30.
  - **Early onset (juvenile Huntington's disease)** - Early onset affects children and teenagers. It's very rare.

Huntington's disease affects an estimated 3 to 7 out of every 100,000 people, most often people of European ancestry.

- **Symptoms -** Huntington's disease affects you both physically and mentally.

Physical symptoms	Mental symptoms
• Uncontrolled movements like jerking or twitching (chorea). • Loss of coordination (ataxia). • Trouble walking. • Difficulty swallowing (dysphagia). • Slurred speech.	• Emotional changes like mood swings, depression and irritability. • Problems with memory, focus and multitasking. • Trouble learning new information. • Difficulty making decisions and reasoning.

- **Treatment-**Presently there is ***no cure*** for Huntington's disease, but treatments can help manage symptoms.

References

Mid Day| Huntington's Disease

4-Horned Antelope

A rare four-horned antelope has been sighted for the 1st time in Veerangana Durgavati Tiger Reserve.

- **Scientific name-** Tetracerus quadricornis.
- **Family-** Bovidae.
- It is also called as also called *chousingha*, one of the ***smallest Asian bovids.***
- It is diurnal (active mainly during the day) and typically solitary by nature.
- **Distribution -** It is endemic to India and Nepal, only bovid with four horns (only males have horns).
- It ranges from the foothills of the Himalayas in the north to the Deccan Plateau in the south.
- **Habitat-** It is found primarily in open, dry, deciduous forests of hilly areas in India.
- **Apperance-** They are *yellowish-tan, reddish or goldenrod coat* in colour with thin *legs and a short tail.*



- **Diet-** Feeds on grasses, herbs, shrubs, foliage, flowers and fruits.
- It is also found in the Nilgiri Biosphere Reserve and are confined to the Indian subcontinent.
- **Conservation status**
- **IUCN Red List**- Vulnerable
- **Wildlife Protection Act of 1972**- Schedule I
- **CITES-** Appendix III

Veerangana Durgavati Tiger Reserve
• It is the ***7th tiger reserve*** in ***Madhya Pradesh*** which was earlier known as Nauradehi Sanctuary. • A green corridor linking Panna Tiger Reserve (PTR) with Durgavati will be developed for the natural movement of the tiger to the new reserve. • **Vegetation-** Dry deciduous type. • **Rivers-** Parts of the reserve fall under the Narmada and Yamuna River basins. • **Flora-** Teak, Saja, Ber, Amla, Dhaora, etc. • **Fauna-** Nilgai, Chinkara, Chital, Sambhar, Black Buck, Barking deer, Tiger, leopard, wolf, jackal, Indian fox, striped hyena, etc.

References

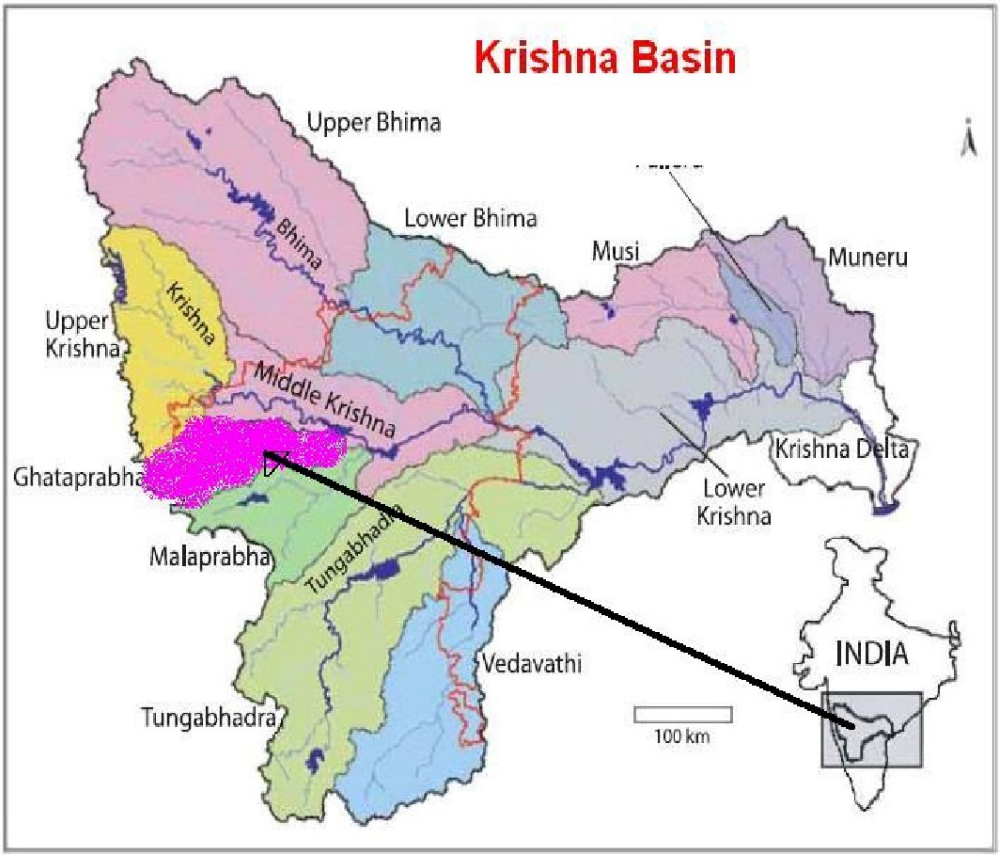
1. Free Press Journal | 4-Horned Antelope
2. Inaturalist | 4-horned antelope

Ghataprabha River

Recently 9 people who fell into the Ghataprabha River were rescued.

- **About-** It is an important ***right-bank tributary*** *of the Krishna River* that flows in ***Karnataka.***

  Krishna River *is the 2nd-largest river in peninsular India which rises in the Western Ghats near Mahabaleshwar in Maharashtra.*



- **Origin-** It originates in the Western Ghats and flows eastward before its confluence with the Krishna River.
- **River basin-** It is wide and stretches across *Maharashtra and Karnataka states.*
- **Tributaries-** The Markandeya and Hiranyakeshi rivers are tributaries of the Ghataprabha.
- **Bridges-** The river is crossed by a **suspension bridge** near the Gokak Falls.
- **Dams-** ***Hidkal Dam*** *also known as Raja Lakhamagouda Dam, is an earthen gravity dam* built across the river in Belagavi district.

Reference

Time of India| Ghataprabha River

Greater Adjutant Stork

The Greater Adjutant Stork, locally known as 'Garuda', is now limited to Assam, India.

- **Scientific Name**- Leptoptilos dubius
- **Family-** Ciconiidae.
- It is locally called ***'Hargila' in the Brahmaputra Valley*** in Assam, which harbours more than 80% of the global population of the species.
- **Habitat-** It is now restricted to a much smaller range with only 3 breeding populations, 1 in Cambodia and 2 in India (Assam and Bihar).
- **Appearance –** This large stork has a massive wedge-shaped bill, a bare head and a distinctive neck pouch.
- **Diet-** Carnivorous, mostly feeding on fish, frogs, snakes and other reptiles.
- **Scavenging hunter-** A Greater Adjutant Stork arrives to feed on a *garbage dumping site* near Deepor Beel wildlife sanctuary in Guwahati.



- **Protection Status**
  - **IUCN Red List-**Endangered
  - **Wildlife (Protection) Act 1972-** Schedule IV
- **Green Oscars-** Assam's renowned environmentalist Purnima Devi Barman has won the prestigious *Whitley Awards, also known as the Green Oscars,* for her efforts in conserving greater adjutant storks in association with Aaranyak.

Deepor Beel Wildlife Sanctuary

- The Deepor Beel Wildlife Sanctuary is a perennial freshwater lake on the outskirts of Guwahati, Assam.
- The state's only Ramsar site (declared in 2002), also the only central storm-water storage basin for Guwahati.

Reference

The Hindu|Greater Adjutant Stork

safeEXO-Cas

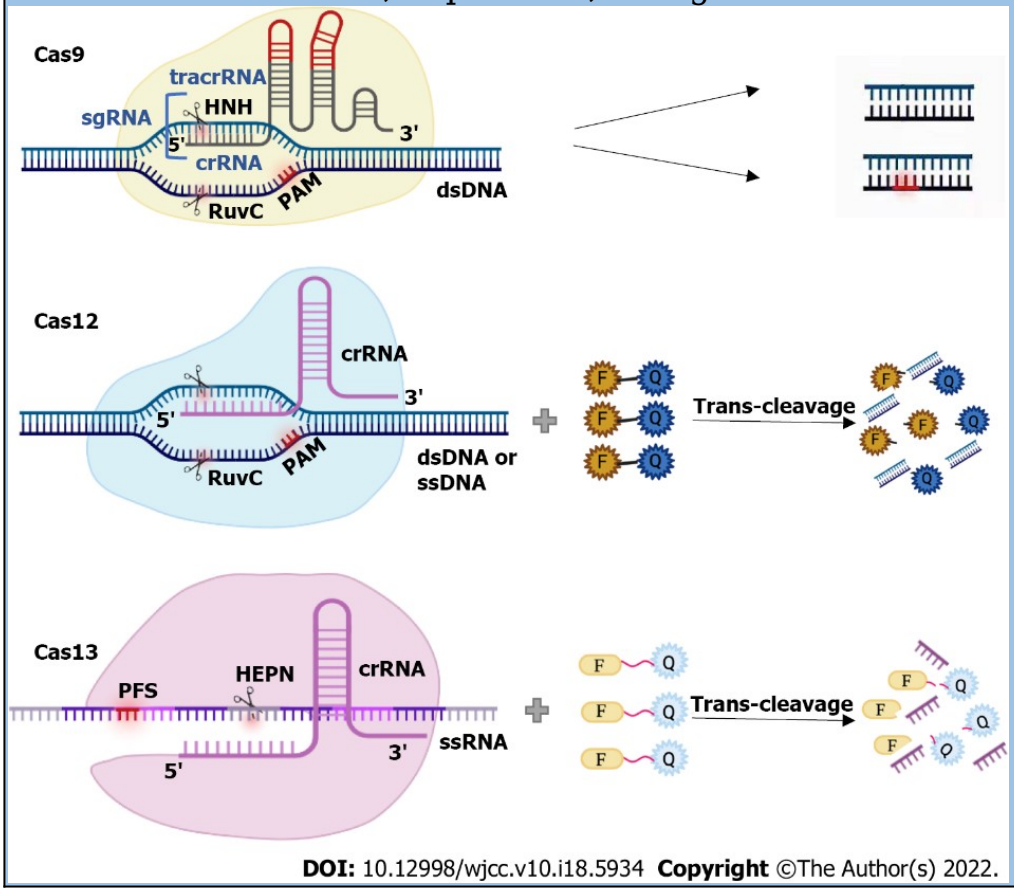
Recently, Columbia University Dental researchers unveiled "safeEXO-Cas," an exosome-based platform.

> ***Exosomes*** *are extracellular vesicles secreted by most eukaryotic cells and participate in intercellular communication.*

- **Objective-** The platform will boost **CRISPR/Cas9** delivery for *precise genome editing.*
- Researchers demonstrated that safeEXO-Cas effectively delivers CRISPR/Cas9 components, including *single guide RNA and single-stranded DNA templates.*
- This platform holds promise for on-demand in *vitro and in vivo gene editing.*

CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats)

• **About-** CRISPR/Cas9 (Clustered Regularly Interspaced Short Palindromic Repeats) is a unique technology to edit parts of the genome by removing, adding or altering sections of the DNA sequence.
• It is currently the simplest, most versatile and precise method of genetic manipulation.
• **Discovery-** CRISPRs were first discovered in archaea (and later in bacteria) by Francisco Mojica.
• **Working-** The CRISPR-Cas9 system includes:
• Cas9- An enzyme acting as molecular scissors, precisely cutting DNA strands at a specific location.
• Guide RNA (gRNA)- Comprising a short pre-designed RNA sequence within a longer RNA scaffold.
• **Applications-** It holds great potential for treating genetic medical conditions like cancer, hepatitis B, or high cholesterol.



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References

1. Mirage News | safeEXO-Cas
2. Your Genome

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