

1. Maya Civilization

Why in News?

- Recently, study in Maya civilization may have had access to nearly 500 drought Resistant Edible Plants.

Highlights:

- The mystery behind Maya civilization's sudden fall from glory still eludes us. Scientists have long suspected that drought pushed its people towards starvation.
- The Maya people faced starvation because of their dependence on drought-sensitive crops such as corn, beans and squash.
- The Maya are an Indigenous people of Mexico and Central America who have continuously inhabited the lands comprising modern-day Yucatan, Quintana Roo, Campeche, Tabasco, and Chiapas in Mexico and southward through Guatemala, Belize, El Salvador and Honduras.
- The Maya civilization originated in the Yucatan Peninsula. Known for its monumental architecture and an advanced understanding of mathematics and astronomy.
- The rise of the Maya began about 250 CE, and what is known to archaeologists as the Classic Period of Mayan culture lasted until about 900 CE. At its height, Mayan civilization consisted of more than 40 cities, each with a population between 5,000 and 50,000.
- But then, suddenly, between 800 and 950 CE, many of the southern cities were abandoned. This period is called the collapse of the Classic Maya civilisations, puzzling modern-day scientists.
- As early as 1500 BCE the Maya had settled in villages and had developed an agriculture based on the cultivation of corn (maize), beans, and squash; by 600 CE cassava (sweet manioc) was also grown.
- They began to build ceremonial centres, and by 200 CE these had developed into cities containing temples, pyramids, palaces, courts for playing ball, and plazas.
- The ancient Maya quarried immense quantities of building stone (usually limestone), which they cut by using harder stones such as chert. They practiced mainly slash-and-burn agriculture, but they used advanced techniques of irrigation and terracing. They also developed a system of hieroglyphic writing and highly sophisticated calendrical and Astronomical Systems.

- The Maya made paper from the inner bark of wild fig trees and wrote their hieroglyphs on books made from this paper. Those books are called codices.
- The Maya also developed an elaborate and beautiful tradition of sculpture and relief carving.
- Architectural works and stone inscriptions and reliefs are the chief sources of knowledge about the early Maya.

2. Environmental DNA (e-DNA)

Why in News?

- DNA floating in the air (i.e. e-DNA) can boost biodiversity conservation efforts across the world.

Highlights:

- Researchers from two teams have independently shown that environmental DNA (e-DNA) can potentially identify and monitor terrestrial animals.
- Animals shed DNA through their breath, saliva, fur or faeces into the environment and these samples are called e-DNA.
- Airborne e-DNA sampling is a biomonitoring method that is rising in popularity among biologists and conservationists as it provides abundant information.
- It can help understand the composition of animal communities and detect the spread of non-native species.
- This method will work with the current techniques to monitor endangered species after some fine-tuning.
- Typically, biologists observe animals in person or by picking up DNA from animals' footprints or faeces, which demand extensive fieldwork.
- Spotting animals can be challenging, especially if they inhabit inaccessible habitats.
- It can aid in tracking long-distance migratory birds and other birds' flying patterns. It can also capture DNA from smaller animals including insects.
- Last year (2021), a proof-of-concept study used airborne e-DNA to monitor terrestrial Insects.
- As wildlife ecosystems become rapidly and extremely chaotic owing to the alarming effects of climate change, terrestrial biomonitoring techniques are expected to adapt and progress rapidly for accurate and Timely Monitoring.

- Environmental DNA (e-DNA) is nuclear or mitochondrial DNA that is released from an Organism into the Environment.
- Sources of eDNA include secreted feces, mucous, and gametes; shed skin and hair; and carcasses. eDNA can be detected in cellular or extracellular (dissolved DNA) form.
- In aquatic environments, eDNA is diluted and distributed by currents and other Hydrological Processes, but it only lasts about 7–21 days, depending on environmental Conditions.

3. Centre for Science and Environment (CSE)

Why in News?

- Recently, the analysis by the Centre for Science and Environment (CSE), a Delhi-based non-profit, 61% of the coal-based power plants located near million-plus population cities, which have to meet their emission standards by December 2022, will miss their deadlines.

Highlights:

- The Ministry of Environment, Forest and Climate Change (MoEF&CC) had in 2015 set new emission norms and fixed a deadline to meet it
- Category A: The power plants which have to meet the December 2022 target are those which are located within 10 km radius of the National Capital Region (NCR) or cities having million-plus population.
- There are 79 coal-based power plants in this category as per a categorisation list of a task force, constituted by the Central Pollution Control Board (CPCB).
- Category B and C: 68 power plants have been put in Category B (compliance deadline of December 2023) and 449 in Category C (compliance deadline of December 2024).
- The power plants which are located within 10 km radius of critically polluted areas or non-attainment cities fall under category B while the rest others (75% of total) fall in category C.
- Maharashtra, Tamil Nadu, Madhya Pradesh, Chhattisgarh and Andhra Pradesh.
- These defaulting stations are run largely by the respective State Governments.
- At least 17 Indian states have coal-based thermal power stations. A state-wise comparison highlighted the following:
- Except for Assam (AS), none of the other states among these 17 will 100% comply with the stipulated deadlines. This state has a 750-megawatt power station that makes it an insignificant per cent of total coal capacity.