

Coastal red sand dunes of Vizag

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In news– Scientists have urged Andhra Pradesh government to protect glacial-period coastal red sand dunes of Vizag.

About Coastal Red Sand Dunes-

- They are popularly known as 'Erra Matti Dibbalu'.
- The site is located along the coast and is about 20 km north-east of Visakhapatnam city and about 4 km south-west of Bheemunipatnam.
- This site spread across an area of about 20 sq km was **declared as a geo-heritage site by the Geological Survey of India (GSI) in 2014** and the Andhra Pradesh government has listed it under the category of '**protected sites**' in **2016**.
- Geologists say that this **site has much significance geologically, archaeologically and anthropologically** and it needs to be protected for further study and evaluation.
- Primarily this site needs to be protected to study the impact of climate change, as Erra Matti Dibbalu have seen both the glacial and the warm periods.
- According to geologists, the **site is about 18,500 to 20,000 years old** and it can be related to the last glacial period.
- Such sand deposits are rare and have been **reported only from three places in the tropical regions in south Asia such as Teri Sands in Tamil Nadu, Erra Matti Dibbalu in Visakhapatnam** and one more site in Sri Lanka.
- **They do not occur in equatorial regions or temperate regions** due to many scientific reasons.
- The **uniqueness of this site is that the red sediments are a part of the continuation of the evolution of the earth** and represent the late quaternary geologic age.

- With a height of up to 30 m, they **exhibit badland topography** with different geomorphic landforms and features, including gullies, sand dunes, buried channels, beach ridges, paired terraces, **the valley in the valley**, wave-cut terrace, knick point and waterfalls.
- It is a lively scientific evolution site, which depicts the real-time effects of climate change. About 18,500 years ago, the sea (Bay of Bengal) was at least 5 km behind from the present coastline.
- Since then it has been undergoing continuous active changes till about 3,000 years ago and still the changes are on.
- **The top light-yellow sand unit could not attain the red colouration as the sediments were geochemically unaltered.**
- These sediments are unfossiliferous and deposited over the khondalite basement. **The dunes consist of light yellow sand dunes at the top followed by a brick red sand unit**, a reddish brown concretion bearing sand unit with yellow sand at the bottom.
- **The earlier studies indicate that the bottom-most yellow sand unit is fluvial while the other overlying three units are aeolian in origin.**
- The site also has archaeological significance, as studies of artefacts indicate an Upper Palaeolithic horizon and on cross dating assigned to Late Pleistocene epoch, which is 20,000 BC.
- Scientists say that the **site was home to the pre-historic man as the excavations at several places** in the region revealed stone implements of three distinctive periods and also the pottery of the Neolithic man.

Note:

- **A sand dune is any accumulation of sand grains shaped into a mound or ridge** by the wind under the influence of

gravity.

- Sand dunes are comparable to other forms that appear when a fluid moves over a loose bed, such as subaqueous “dunes” on the beds of rivers and tidal estuaries and sand waves on the continental shelves beneath shallow seas.
- Dunes are found wherever loose sand is windblown: in deserts, on beaches, and even on some eroded and abandoned farm fields in semiarid regions.