



Coastal Red Sand Dunes

For Prelims: Erra Matti Dibbalu, Geologic Time Scale, Quaternary Period, Geologic Time Scale.

For Mains: Significance of studying Coastal Red Sand Dunes.

Why in News?

Recently, geologists have suggested to protect the **site of Coastal Red Sand Dunes**, of Visakhapatnam, Andhra Pradesh.

What are the Key Points of the Sites?

▪ About:

- **The Coastal Red Sand Dunes** is also known as 'Erra Matti Dibbalu'. It is one of the many sites of Visakhapatnam, which have **geological importance**.
- 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 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.

▪ Distribution:

- 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.

What is the Uniqueness of these Sediments?

▪ Continuous Evolution:

- The **red sediments are a part of the continuation of the evolution of the earth** and represent the late **[quaternary geologic age](#)**.
 - The Quaternary Period is a period on the **[Geologic Time Scale](#)** that's known mainly for the spread of humanity and climate change. This period runs from about **2.6 million years ago to the Present Day**.

▪ Different Geomorphic Features:

- 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.
 - **Badland topography** is a dry terrain where softer sedimentary rocks and **clay-rich soils have been extensively eroded** by wind and water.

▪ Geochemically Unaltered:

- The top light-yellow sand unit, which is estimated to have been deposited around 3,000

- years ago, **could not attain the red colouration as the sediments were geochemically unaltered.**
- These sediments are **unfossiliferous (not containing fossils) and deposited over the khondalite basement.**
 - **Khondalite** is a regional rock with high-grade metamorphism and granulite rock formation. It was named after the Khond tribe of Odisha.

What is the Significance of Protecting this Site?

- It is significant to protect this site, because its study can help understand the impact of climate change, as **Erra Matti Dibbalu has seen both the glacial and the warm periods.**
- The site is about 18,500 to 20,000 years old and **it can be related to the last glacial period.**
- 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 site also has archaeological significance, as studies of artifacts indicate an **Upper Palaeolithic horizon and on cross dating assigned to Late Pleistocene epoch**, which is 20,000 BC.
- 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.**

[Source: TH](#)

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