



Theri Desert

Why in News?

There are couple of theories that are being debated regarding the formation of Theri desert , the most plausible being the role of [south west monsoonal winds](#).

What is the Theri Desert?

- It is a **small desert** situated in the state of **Tamil Nadu**. It **consists of red sand dunes** and is confined to **Thoothukudi district**,
- The red dunes are called **theri in Tamil**. They consist of sediments dating back to the **Quaternary Period** (began 2.6 million years ago) and are made of marine deposits.
- They **have very low water and nutrient retention capacity**. The dunes are susceptible to aerodynamic lift. This is the push that lets something move up. It is the force that is the opposite of weight.

What is the Mineral Composition of Theri?

- The petrographical study (petrography is the study of composition and properties of rocks) and X-ray diffraction analysis (a method used to determine a material's crystallographic structure) of the red sand dunes reveal the presence of heavy and light minerals.
- These include: Ilmenite, Magnetite, Rutile, Garnet, Zircon, Diopside, Tourmaline, Hematite, Goethite, Kyanite, Quartz, Feldspar and Biotite.
- The iron-rich heavy **minerals like ilmenite, magnetite, garnet, hypersthene and rutile present in the soil had undergone leaching by surface water** and were then oxidised because of the favourable semi-arid climatic conditions.
- It was **due to these processes** that the **dunes** near Tiruchendur, a coastal town of Thoothukudi district are **red-coloured**.

How Theri Dunes Were formed?

- Theri appears as gentle, undulating terrain. The **lithology** (the study of general physical characteristics of rocks) **that the area might have been a paleo (ancient) coast in the past**. The presence of limestone in many places indicates marine transgression.
- The present-day theris might have been formed by the confinement of beach sand locally, after regression of the sea. When high velocity winds from the Western Ghats blew east, they induced migration of sand grains and accumulation of dunes.
- **Another view is that these are geological formations** that appeared in a period of a few hundred years.
- There is a lot of red sand spread over these theris. The **red sand is brought from the surface of a broad belt of red loam in the plains** of the Nanguneri region (about 57 kilometres from this area in Tirunelveli district) **by south west monsoon winds** during May-September.
- Deforestation and absence of vegetative cover are considered to be the major causes of wind erosion.
- When the dry monsoon wind blows with high velocity, the red loam is churned and driven east in huge columns of red sand, till they are met by sea breeze near the coastal tract of Tiruchendur and get deposited there.

- These **processes of erosion, transport and deposit of sediments** that are **caused by wind** at or near the surface of the earth, are called **Aeolian processes**. They lead to continual sand redistribution.

Source: DTE

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