Rainforests

Mains Syllabus: GS I - Salient features of world's physical geography, Distribution of key natural resources across the world (including South Asia and the Indian sub-continent) ; GS 3 - Conservation, environmental pollution and degradation, environmental impact assessment.

Why in the News?

World Rainforest Day is observed on 22 June.

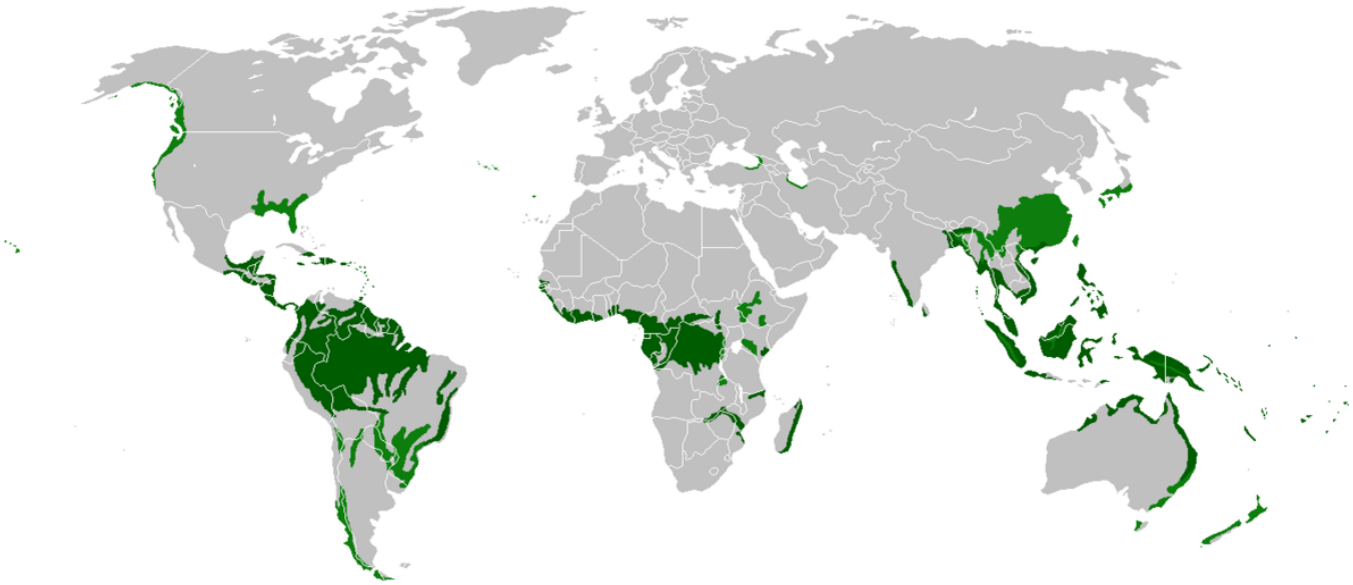
What are rainforests?

- **Rainforests** - It an area of tall, mostly evergreen trees that receives a high amount of rainfall.
- **Oldest Living Ecosystem** - Rainforests are likely Earth's oldest living ecosystems, with some surviving in their present form for at least 60 million years.
- **Coverage** - Tropical rainforests cover approximately 6% of the Earth's land surface thriving every continent except Antartica.
- **Rainforest Structure** - Most rainforests are structured in four layers as emergent, canopy, understory and forest floor.
- Each layer has unique characteristics based on differing levels of water, sunlight and air circulation.

The rainforest floor gets so little sunlight that plants have to stretch, climb, and even grow on other trees just to catch a few rays.

Types of Rainforests		
	Tropical Rainforests	Temperate Rainforests
About	• These grow near the equator, where it's warm and rains almost every day. • These are the greenest and most biodiverse places on Earth.	• These grow in cooler places where it still rains a lot, but the temperatures are lower.

Places	• Amazon Rainforest in South America – the largest rainforest in the world. • Congo Basin in Africa – home to gorillas, elephants, and ancient trees. • Southeast Asia – rich with orangutans, giant flowers, and thick tree canopies • The Western Ghats and Northeast India, especially places like Assam and Arunachal Pradesh, have patches of tropical rainforest	• Pacific Northwest in the USA • Chile in South America • New Zealand – with mossy forests that look like they're from a fairy tale.



What are the significances of rainforests?

- **Lungs of the Earth** - Rainforests absorb carbon dioxide and give us back clean oxygen.
- **Cools Earth** - They absorb vast amounts of carbon dioxide, a greenhouse gas, and their dense canopies reflect sunlight, reducing heat absorption.
- **Rainfall** – Rainforests release water vapour through transpiration and this vapour contributes to cloud formation.
- **Freshwater Storage** - They act as natural sponges, absorbing rainwater and releasing it slowly into rivers and aquifers, and also serve as areas for rainwater harvesting.

A well matured big tree in the Amazon can "drink" up to 1,000 litres of water a day.

- **Biodiversity** – They are home to more than half of all the plant and animal species.

Sloths in rainforests grow algae on their fur and this creates a tiny home for

insects and even giving sloths a bit of camouflage.

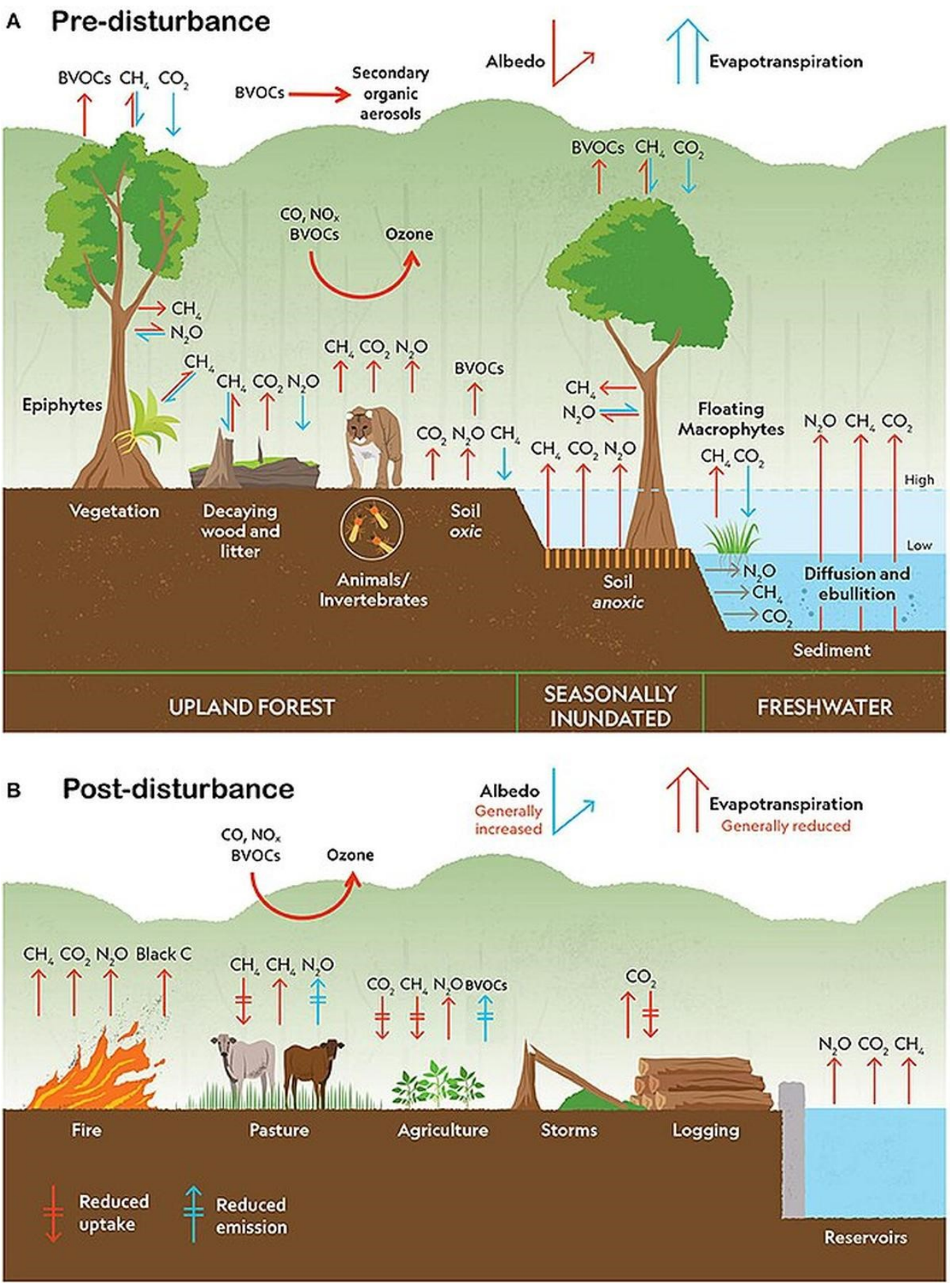
- **Global Climate Regulation** - Through carbon sequestration, moisture recycling, and heat absorption, they play a crucial role in earth climate regulation.
- **Medicines** - Approximately 25% of modern medicines derived from rainforest plants.
  - Example- Quinine, derived from the cinchona tree, found in the Andes, is a well-known treatment for malaria.
  - Anti-cancer drugs Vincristine and Vinblastine used for treating leukemia and Hodgkin's disease, are extracted from the Madagascar periwinkle.

What are the threats to rainforests?

- **Logging** - When too many trees are removed for timber, furniture, and paper, the forest can't grow back the same way.
- **Farming and Plantations** - To grow palm oil, soy, or to make space for cattle, large chunks of forest are cleared.
- **Climate Change** - Rising temperatures and shifting rain patterns make it harder for rainforests to survive.
- **Fires** - Many rainforest fires are started by humans — to clear land and these fires often get out of control and destroy more than intended.

What are the impacts of loss of rainforests?

- **Global Warming** – With loss of rainforests, more carbon dioxide stays in the air ,making the Earth hotter and speeding up climate change.
- **Health Impact** – As rain forest is the source of several existing medicines and potential future medicines, their loss will significantly affect the treatment of diseases.
- **Disease Spread** – With loss of rainforests ecosystem, the pathogens of rainforest will spread to new locations for their survival.
- **Economic Loss** – Rainforests provides valuable material resources and are one of the most favoured eco-tourism destinations.
- Their loss would significantly affect their contributions through goods and services.



What lies ahead?

- Rainforests don’t just belong to Brazil, Congo, or Indonesia — they belong to all of us.

- Every tree, every drop of rain, every breath of fresh air they give is a gift to the whole planet.
- When we protect rainforests, we're not just saving plants and animals — we're protecting the air we breathe, the water we drink, and the future we dream of.

References

The Hindu | Rainforests

