Forest Fire

Mains: *GS III – Disaster management*

Why in News?

Recently, Southwestern Europe is witnessing one of its worst wildfire emergencies in decades.

What is a forest fire?

- **Definition** – Forest fire also known as wildfire ,or bush or vegetation fire, can be described as any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brush land or tundra, which consumes the natural fuels and spreads based on environmental conditions (e.g., wind, topography).
- **Causes** – Wildfire can be incited by human actions, such as land clearing, Climate changes like extreme drought or in rare cases by lightning.
- **Types** - There are three basic types of wildfires:
  - **Crown fires** – They burn trees up their entire length to the top.
  - These are the most intense and dangerous wildland fires.
  - **Surface fires** –They burn only surface litter and duff.
  - These are the easiest fires to put out and cause the least damage to the forest.
  - **Ground fires** – They are sometimes called underground or subsurface fires and occur in deep accumulations of humus, peat and similar dead vegetation that become dry enough to burn.
  - These fires move very slowly, but can become difficult to fully put out, or suppress.
- **Notable Historical Wildfires**
  - **Peshtigo Fire (1871, USA) –** Deadliest wildfire in North American history, burned 1.2 million acres in Wisconsin and killed between 1,200 and 2,500 people.
  - **Great Fire of 1910 (1910, USA) –** Massive firestorm across 3 million acres in Idaho and Montana, killed 87 people (mostly firefighters) and led to modern U.S. forest service fire suppression policies.
  - **Black Dragon Fire (1987, China and Russia) –** Burned roughly 18 million acres along the Amur River; one of the largest single forest fires in modern history, killing 211 people.
  - **Black Summer Bushfires (2019-2020, Australia):** Scorched an estimated 47 million acres (19 million hectares), destroyed thousands of buildings, killed 33 people, and impacted an estimated one billion animals.

What are the recent forest fires around the world?

- **France Gironde/Bordeaux region)** - One of Europe's largest active wildfires is threatening areas near Bordeaux.
- More than 250,000 people have been evacuated as thousands of firefighters battle the blaze.
- **Spain** - Severe wildfires around Ávila, Guadalajara and Castellón have burned tens of thousands of hectares.
- Heatwaves and drought have made this one of Spain's worst fire seasons in recent years.
- **Canada** - Hundreds of wildfires continue to burn across Canada's forests, producing smoke that has spread into the northern United States and triggered widespread air-quality alerts.

India's worsening forest fire seasons (2026)

• India is experiencing one of its worst forest fire seasons in years, with **5,25,627 fire alerts recorded in 2026**, the second-highest annual total since 2012.
• Fire activity in the first two months of the year was **over 80% higher than the past decade's average**, with outbreaks becoming more frequent, intense, and longer-lasting.
• **Key trends –** Fires have spread across **Uttarakhand, Himachal Pradesh, Arunachal Pradesh, central India, and the north-east**.
• The fire season now begins earlier and lasts longer, with fires occurring even in **December**, unlike the traditional March start.
• Areas previously considered safe from fires are now increasingly affected.
• **Causes beyond climate change –** While **rising temperatures, reduced winter rainfall, and prolonged dry spells** linked to climate change make forests more vulnerable, experts say other factors are equally important:
- Poor forest management focused on plantations and timber rather than ecosystem restoration.
- Spread of **chir pine**, whose highly flammable needles increase fire risk.
- Invasive species and changing land use.
- Agricultural burning, unattended campfires, discarded cigarettes, and deliberate fire-setting.
- Decline of traditional community-based forest management.
• The weakening of **Van Panchayats** (community forest councils) in Uttarakhand has reduced local participation in fire prevention.
• Researchers argue that communities with stronger rights over forests are more motivated to protect them and that traditional ecological knowledge can improve fire management.

Why are these fires becoming more severe?

- **Climate change** – Higher temperatures, more frequent heatwaves, prolonged droughts and lower soil moisture create ideal conditions for fires to ignite and spread.
- **Fuel accumulation** – Years of fire suppression in some forests allow dead wood, dry leaves and shrubs to build up, making fires larger and more intense.
- **Land-use changes –** Agricultural expansion, deforestation and poorly managed plantations increase fire risk.
- **Human activities** – Agricultural burning, unattended campfires, discarded cigarettes, power-line failures and deliberate ignition remain common causes.
- **Extreme weather** – Strong winds and lightning can rapidly spread fires across large

areas.

What are the impacts of forest fires?

- **Habitat Destruction** – Kills wildlife and eliminates natural shelter.
- **Soil Degradation** – Removes protective plant cover, leading to heavy erosion and mudslides.
- **Climate Feedback** – Releases trapped carbon dioxide back into the atmosphere, worsening global warming.
- **Air Pollution** – Thick smoke raises fine particulate matter (PM 2.5) triggering asthma and heart problems.
- **Property Loss** – Destroys homes, infrastructure, and forces mass community evacuations.
- **Economic Strain** – Exhausts local and national resources for emergency response and recovery

What measures could be taken?

- **Clearing accumulations** – Safely clearing accumulated underbrush, dead wood, and pine needles during low-risk weather.
- **Fire Lines and Breaks** – Constructing cleared strips of land and rock barriers to block the crawling spread of surface fires.
- **Biomass Removal** – Collecting dry fallen wood and floor debris, sometimes utilizing local groups for eco-friendly management.
- **Satellite Tracking** – Using real-time satellite imagery to spot vegetation moisture loss and high-risk dryness indexes.
- **Ground and Aerial Patrols** – Deploying human fire watchers, mobile units, and drones in vulnerable zones during peak fire seasons.
- **Control Rooms** – Setting up dedicated coordination hubs for early alerts and fast response deployment.
- **Public Restrictions** – Banning open campfires, fireworks, and waste burning during dry, windy heatwaves.
- **Defensible Space** – Clearing a buffer zone of flammable brush and lower tree branches around homes and forest edges.

References

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2. UN.Org| Wildfires

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