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## Nainital Forest Fire | Uttarakhand | 29 Apr 2024

### Why in News?

A large [wildfire](#) was spread across the **forests near Nainital** in Uttarakhand. The crisis prompted the [Indian Air Force](#) to dispatch personnel and [Mi-17 helicopters](#) to help control the intense blaze.

- The fire has allegedly **destroyed 108 hectares** of forests.

### Key Points

- The helicopters are gathering water and using jet-sprays to extinguish the fire in what is known as the **Bambi Bucket operation**.
- According to the **Uttarakhand's Forest Department**, 26 incidents of forest fire occurred in the **State's Kumaon region** in a few hours.
  - While **five incidents occurred in Garhwal region**, where 33.34 hectares of forest area was affected.
- As per a **2019 report** from the **Forest Research Institute (Dehradun)**, which comes under the Environment Ministry of India, **95% of forest fires are caused by humans**.
- There are **four forest-fire clusters in India**: the North-Western Himalayas, North-East India, Central Ghats, and Western and Eastern Ghats.
  - Fires in the **North-Western Himalayas** are attributed to the preponderance of **pine trees and the accumulation of thick flammable litter**.
  - In the summer, there is a large quantity of pine needles that gather on the forest floor, which is highly susceptible to fire.

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## Number of forest fires detected in Uttarakhand 2019-23\*

\*2019: until June 30

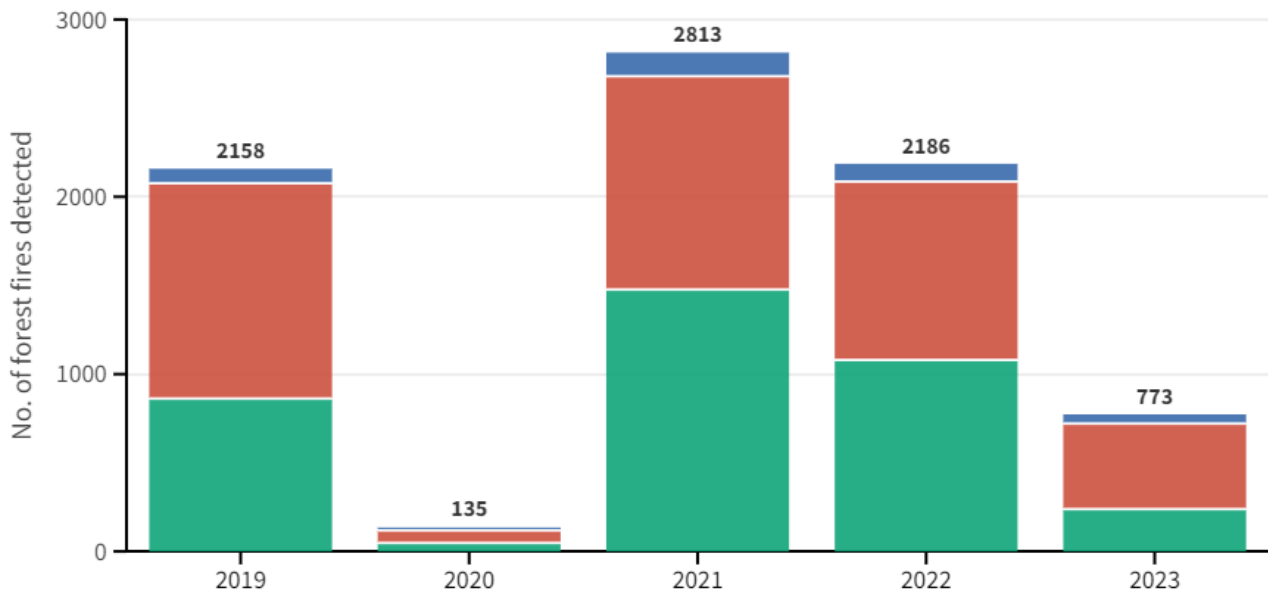
2020: until June 23

2021: until July 23

2022: until August 6

2023: until November 29

■ Garhwal ■ Kumaon ■ Admin, Wildlife



### Bambi Bucket operation

- The Bambi Bucket, also called a helicopter bucket or a helibucket, is a specialised container that is suspended by cable under a chopper, and which can be filled by lowering into a river or pond before being flown **above a fire and discharged aerially by opening a valve at the bottom of the bucket.**
- The Bambi Bucket is especially helpful in fighting wildfires that are difficult or impossible to reach from the ground. Around the world, helicopters are frequently commissioned to fight forest fires.

### Forest Fire

- Also called **bush or vegetation fire or wildfire**, it can be described as any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brushland or tundra, which consumes the natural fuels and spreads based on environmental conditions (e.g., wind, topography).
- A wildfire requires **three essential elements to sustain combustion** like Fuel, Oxygen, and a Heat source.
- Classification:
  - **Surface Fire:** A forest fire may burn primarily as a surface **fire, spreading along the ground as the surface** litter (senescent leaves and twigs and dry grasses etc) on the forest floor and is engulfed by the spreading flames.
  - **Underground Fire/Zombie Fire:** The fires of low intensity, consuming the organic matter beneath and the surface litter of the forest floor are sub-grouped as underground fires. In most of the dense forests, **a thick mantle of organic matter is found on top of the mineral soil.**
    - These fires usually **spread entirely underground** and burn for some meters below the surface.

- This fire spreads very slowly and in most cases it becomes **very hard to detect and control** such types of fires.
- They may continue to **burn for months** and destroy the vegetative cover of the soil.
- **Canopy or Crown Fires:** These occur when **fire spreads through the upper canopy of trees**, often fueled by high winds and dry conditions. They can be particularly intense and difficult to control.
- **Controlled Deliberate Fires:** In some cases, controlled deliberate fires, also known as **prescribed burns or bushfires**, are intentionally set by forest management agencies to reduce fuel loads, **mitigate the risk of uncontrolled wildfires**, and promote ecosystem health.
  - These controlled burns are carefully planned and executed under specific conditions to minimize risks and maximize benefits to the forest ecosystem.

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