Large-Scale Wildfires in Hawaii

For Prelims: Large-Scale Wildfires in Hawaii, Wildfires**,** Volcanoes**,** Climate Change**,** Hurricane**,** El Nino**, Council of Energy, National Action Plan on Climate Change.**

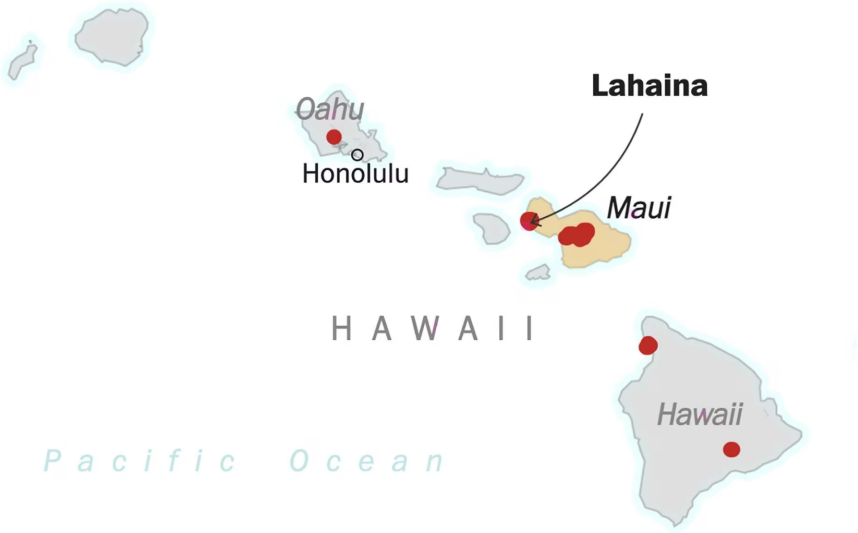
For Mains: Wildfires, Causes and Impact. Wildfire Mitigation Strategies.

Source: TH

Why in News?

Recently, Hawaii has been grappling with extensive **Wildfires** that have wreaked havoc across the state.

- The situation has highlighted the significance of hazard mitigation plans and the identification of **vulnerable areas, like Lahaina and West Maui communities,** where frequent wildfire ignitions and a large number of at-risk buildings were identified in Maui County's plan last updated in 2020.



What caused such a Severe Wildfire in Hawaii?

- **Flash Droughts:**
  - Dry weather combined with strong winds from a passing hurricane **played a significant role** in fueling the blaze. These conditions, known as "Flash Droughts," involve **rapid**

moisture evaporation from the atmosphere, creating ideal conditions for fire spread.
        - Maui is home to one of the **six active** Volcanoes **of Hawaii.** Most of Maui was **experiencing severe drought, so the dry land, with dry non-native grasses** and vegetation, was ready fuel for fires.
        - These fed the fires and helped them spread.
- **Anthropogenic and Climate Change:**
    - **Climate change** has increasingly been linked to **the rising occurrence of devastating forest** fires globally and Hawaii's wildfire outbreak is likely not an exception.
    - As temperatures rise and air becomes warmer **due to climate change, the conducive conditions for storms and wildfires** are amplified.
    - Furthermore, the historical **land use practices of cultivating** irrigated pineapples and sugar cane gave way to **invasive, fire-prone grass species** as these industries declined.
    - This transition has contributed to the vulnerability of the land to rapid fire spread.
- **The Winds of Hurricane Dora:**
    - The fire in Hawaii started in the wild and was carried by the **wind that was blowing at almost 100 kmph.**
        - The winds have their **origins in** Hurricane **Dora**, an unusually strong storm in the Pacific Ocean.
    - Hundreds of miles away from Hawaii, **Hurricane Dora did not hit Hawaii.** Instead, the islands **were caught between high and low pressure zones** due to the hurricane, which resulted in the **winds fanning the flames and making these difficult to control.**

What are the Key Facts About Hawaii?

- Hawaii sits over 2,000 miles west of California in the **Pacific Ocean,** comprising a diverse and unique ecosystem.
- It is the 50th and youngest state of the United States.
- Renowned for its stunning natural beauty, **Hawaii consists of eight main islands formed by volcanic activity.**
    - The state's capital is Honolulu.
- With a rich cultural heritage influenced by **Polynesian, Asian, and American cultures,** Hawaii boasts a **vibrant and diverse society.**
- The islands offer a variety of **landscapes, from lush rainforests to volcanic landscapes,** making it a haven for outdoor enthusiasts.
- The archipelago is famous for its **hula dance, luaus, and traditional ukulele music.** Hawaii's unique **flora and fauna include endangered species like the Hawaiian monk** seal and green sea turtle.

What are Wildfires?

- **About:**
    - Wildfires, also known as **forest fires or bushfires,** are uncontrolled fires that **rapidly spread across vegetation**, including forests, grasslands, shrublands, and other natural landscapes.
    - They can be caused by **both natural factors, such as lightning strikes, and human activities**, including discarded cigarettes, campfires, power lines, and intentional acts.
- **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:** Sometimes called underground or subsurface fires 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

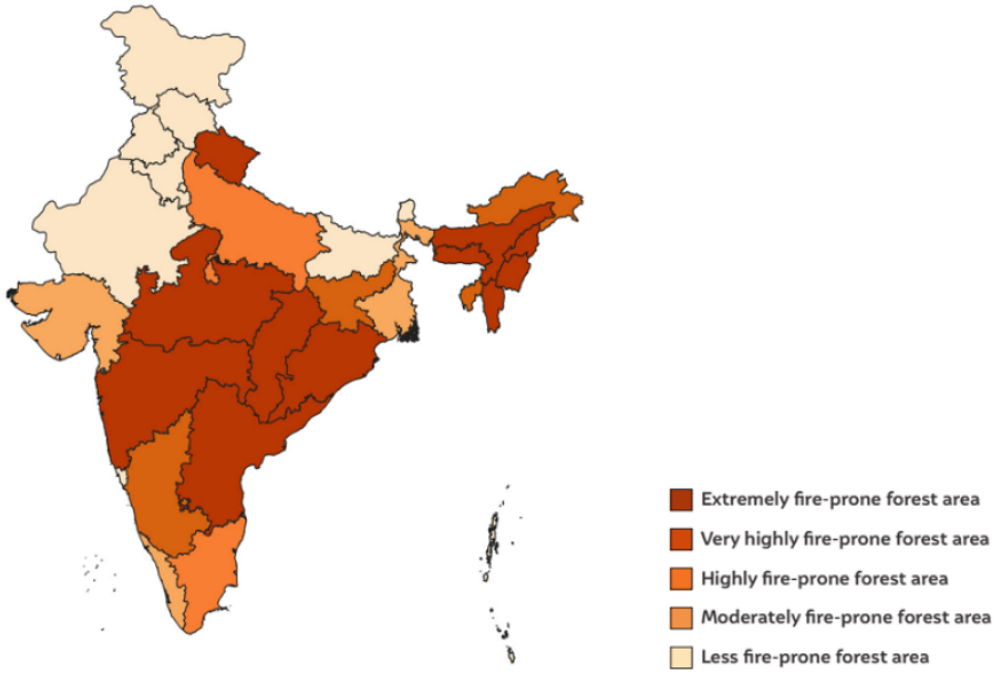
suppress. Occasionally, especially during prolonged drought, such fires can smoulder all winter underground and then emerge at the surface again in spring.

- **Causes of Wildfires:**
  - **Human Causes:**
    - Human acts of **carelessness such as leaving campfires** unattended and **negligent discarding of cigarette butts** result in wildfire disasters.
    - Accidents, deliberate **acts of arson, burning of debris, and fireworks** are the other substantial causes of wildfires.
  - **Natural Causes:**
    - **Lightning:** A fairly good number of wildfires are triggered by lightning.
    - **Volcanic eruption:** Hot **Magma** in the earth's crust is usually expelled out as lava during a volcanic eruption. The hot lava then flows into nearby fields or lands to start wildfires.
    - **Temperature:** High atmospheric temperatures and dryness offer favorable conditions for a fire to start.
    - **Climate change**: It is causing a gradual but highly significant increasing trend in surface air temperatures, and it leads to record-breaking extremes in many areas when it interacts with the normal periodic warming associated with an **El Nino**.

How Vulnerable is India to the Wildfires?

- The forest fire **season normally extends from November to June** in India.
- A report by the Council of Energy**, Environment and Water (CEEW)** has noted:
  - A tenfold increase in forest fires over the past two **decades and says more than 62% of Indian states** are prone to high-intensity forest fires.
  - Andhra Pradesh, Odisha, Maharashtra, Madhya Pradesh, Chhattisgarh, Uttarakhand, Telangana, and the Northeastern states are most prone to forest fires.
  - Mizoram has seen the highest incidence of forest fires over the last two decades, and 95% of its districts are forest fire hotspots.
- The ISFR (India State of Forest Report) 2021 **estimates that more than 36%** of the country's forest cover is prone to frequent forest fires, 6% is 'very highly' fire-prone, and almost 4% is 'extremely' prone.
  - Also, An FSI study has found that nearly 10.66% area under forests in India is 'extremely' to 'very highly' fire prone.

More than 62% of Indian states are prone to high-intensity forest fire events (2000–19)



What are the Government Initiatives to Tackle Wildfirtes?

- **National Action Plan for Forest Fires (NAPFF)**: It was started in 2018 with the goal of reducing forest fires by informing, enabling, and empowering forest fringe communities and incentivizing them to collaborate with state forest departments.
- **National Mission for Green India (GIM):** Launched under the **National Action Plan on Climate Change**, the GIM aims to increase forest cover and restore degraded forests.
    - It promotes the use of community-based forest management, biodiversity conservation, and sustainable forest practices, which contribute to preventing forest fires.
- **Forest Fire Prevention and Management Scheme (FFPM)**: FFPM is implemented by the FSI under the MoEF&CC. It aims to strengthen the forest fire management system by utilizing advanced technologies such as **remote sensing.**
    - It is the only government-sponsored programme dedicated to assisting states in dealing with forest fires.

What are the Wildfires Mitigation Strategies?

- **Create Fire Breaks:** Fire breaks are areas where vegetation has been removed, creating a gap that can slow or stop the spread of a fire.
- **Monitor and Manage Forests:** Monitoring **forests and managing them appropriately** can help prevent fires from starting or spreading.
- **Early Detection and Rapid Response:** Early detection **of a forest fire is critical** for effective mitigation.
    - The **Forest Survey of India (FSI)** is using satellite imaging technology (like MODIS) to analyse forest fire affected areas and boost prevention.
- **Fuel Management**: Reducing the **accumulation of dead trees, dry vegetation**, and other combustible materials through activities such as thinning and selective logging.
- **Firewise Practices:** Safe practices must be adopted in areas near forests viz. factories, coal mines, oil stores, chemical plants and even in household kitchens.
- **Practice Controlled Burning:** Controlled burning involves setting small fires in a controlled environment.

Conclusion

- The devastating wildfires in Hawaii, particularly on Maui island, are a consequence of a combination of climate-related factors, historical land use changes, and emergency response considerations.
- These fires underscore the **broader issue of the increasing frequency and severity of wildfires** around the world due to climate change.
- The destruction of **culturally significant sites adds another layer of tragedy,** as the loss of historical and ancestral connections resonates deeply with the affected communities.