



Wildfire in a changing Climate

A Challenge for Forest Pedagogics

September 3, 2024

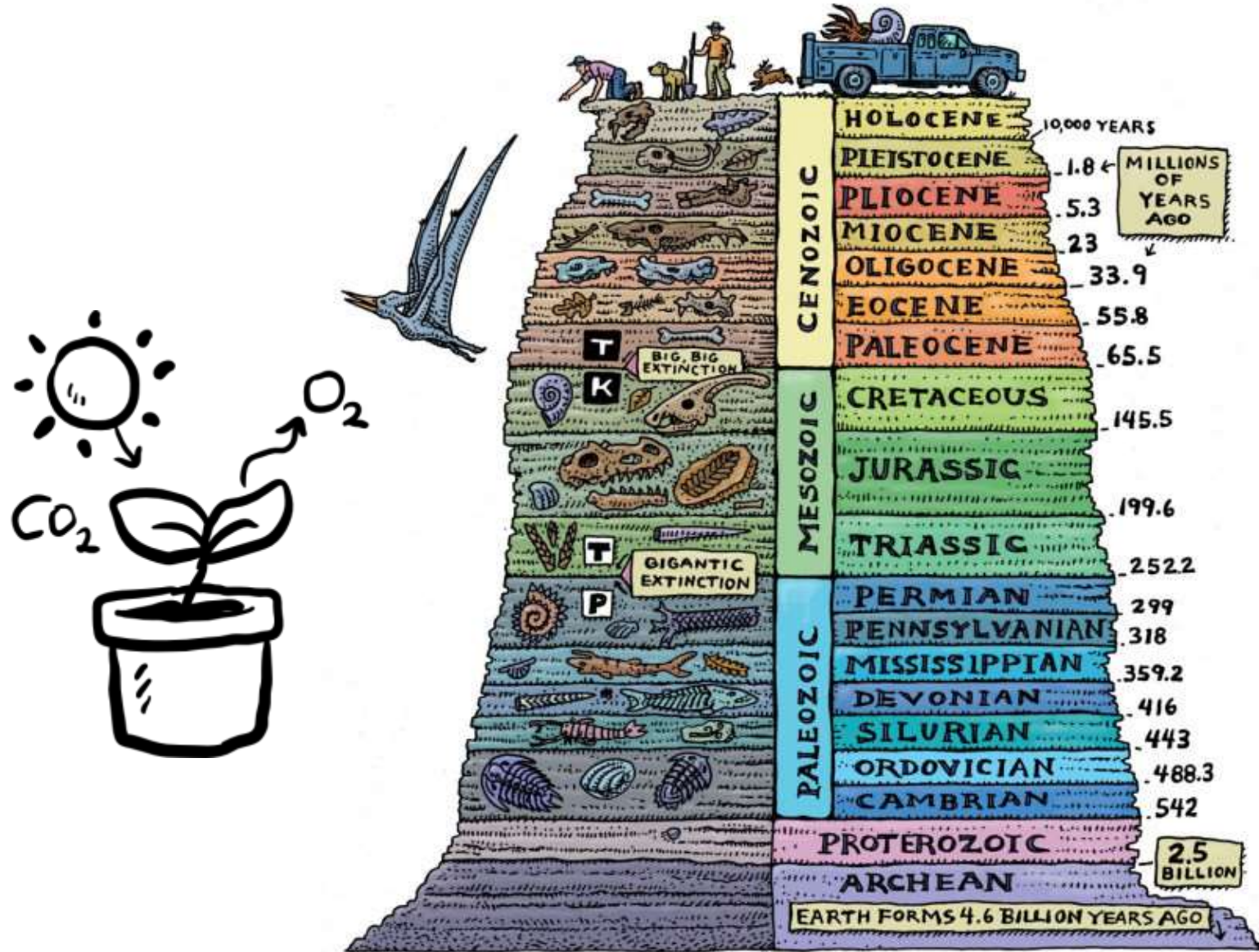


Forests are invaluable ecosystems

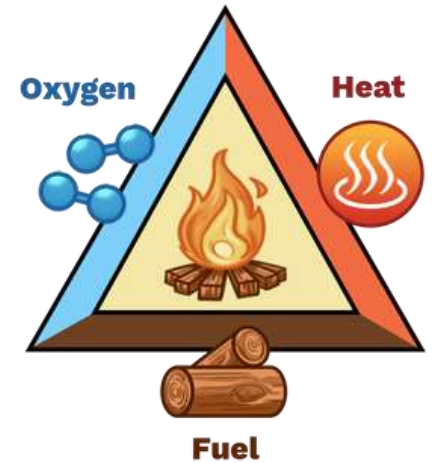


01

The Story of Fire



Ingredients of Combustion



https://theory.labster.com/pac_flammability/



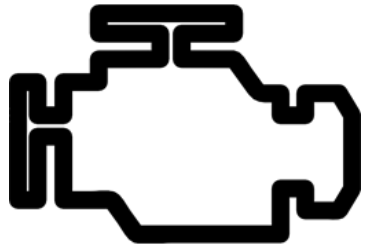
01 Natural Fire





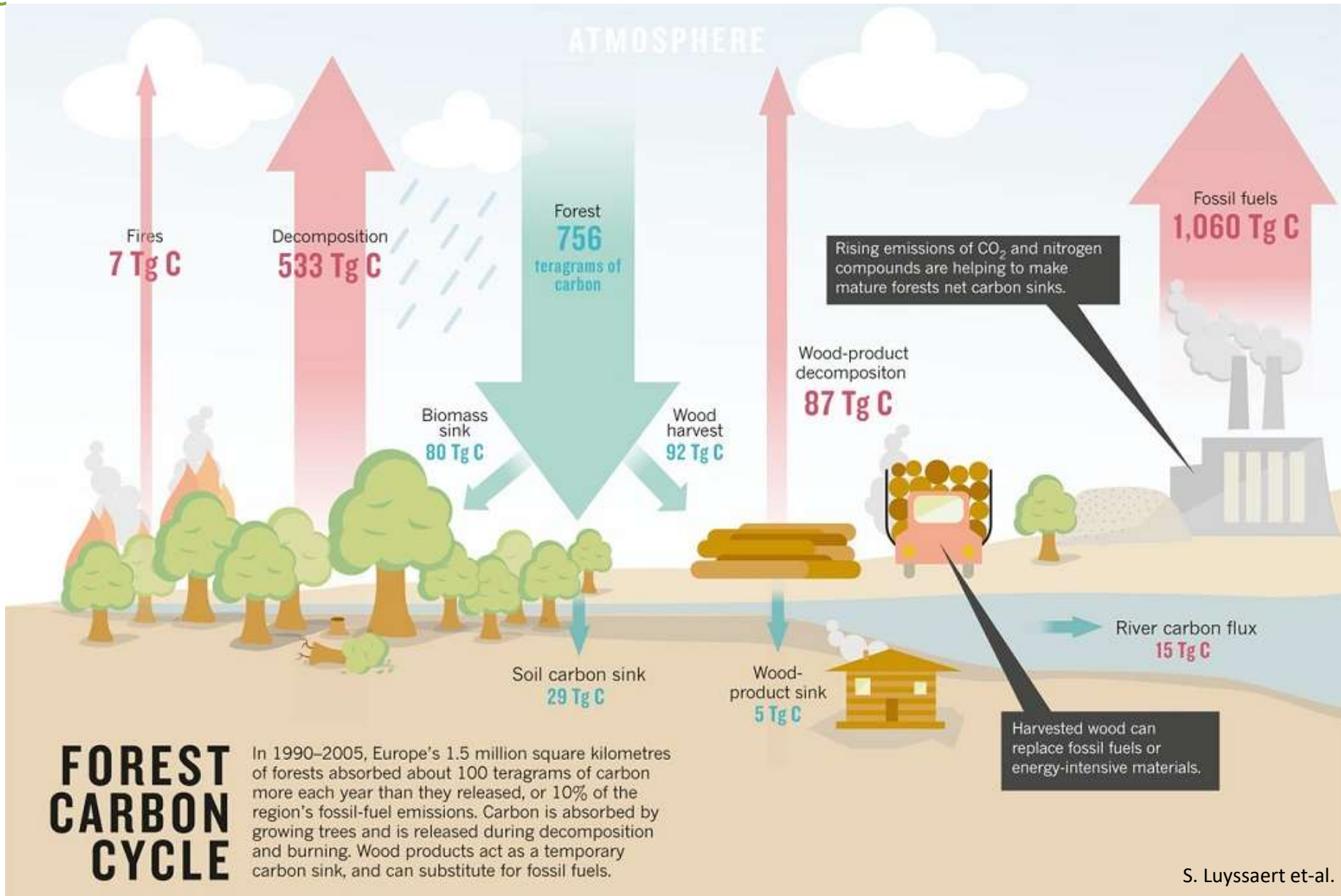
02 Human Fire





03 Lithic Fire





02

Wildfire Status

Quo

Article | [Open access](#) | Published: 29 January 2024

Europe faces up to tenfold increase in extreme fires in a warming climate

[Siham El Garroussi](#) , [Francesca Di Giuseppe](#), [Christopher Barnard](#) & [Fredrik Wetterhall](#)

[npj Climate and Atmospheric Science](#) **7**, Article number: 30 (2024) | [Cite this article](#)

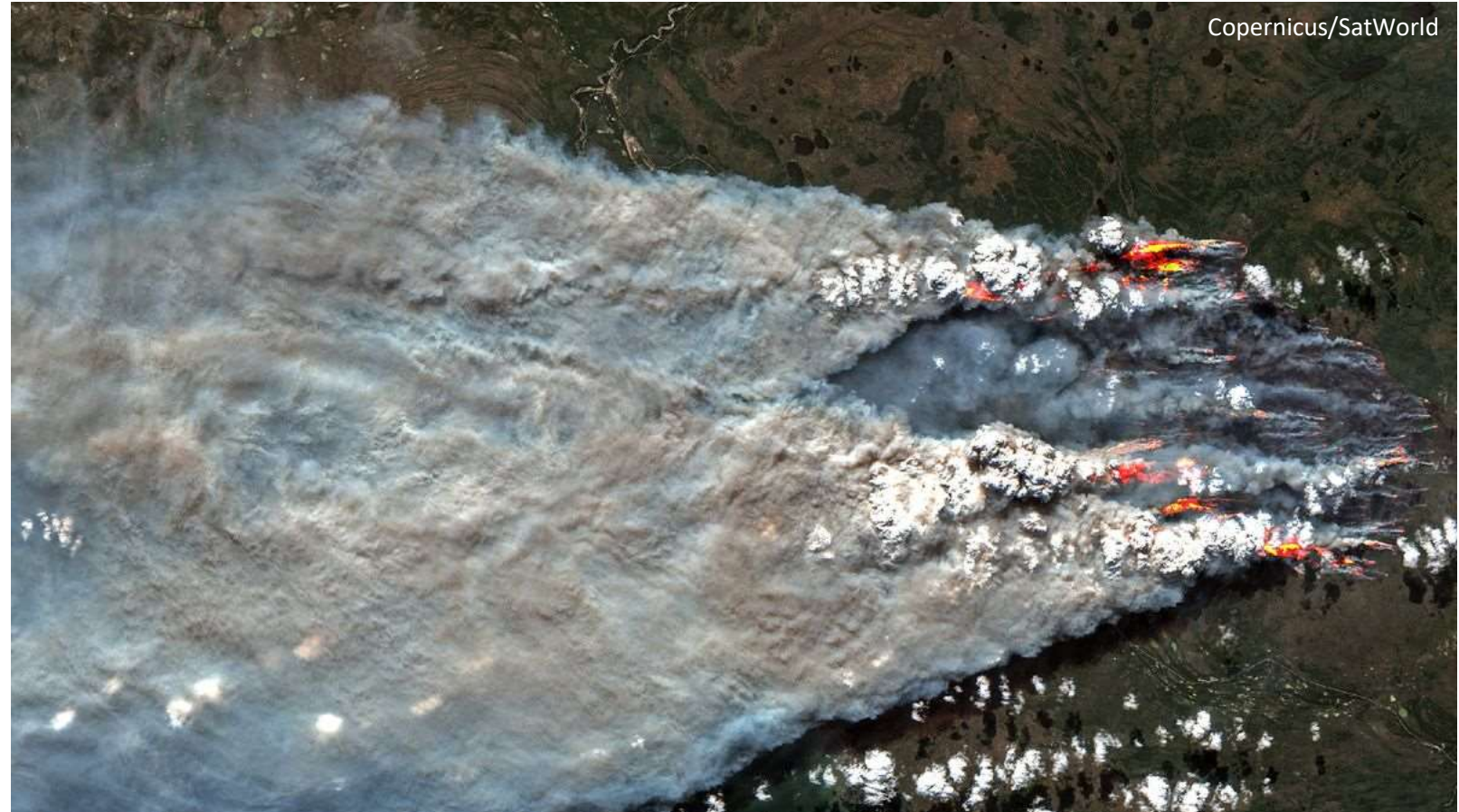
5223 Accesses | **8** Citations | **190** Altmetric | [Metrics](#)



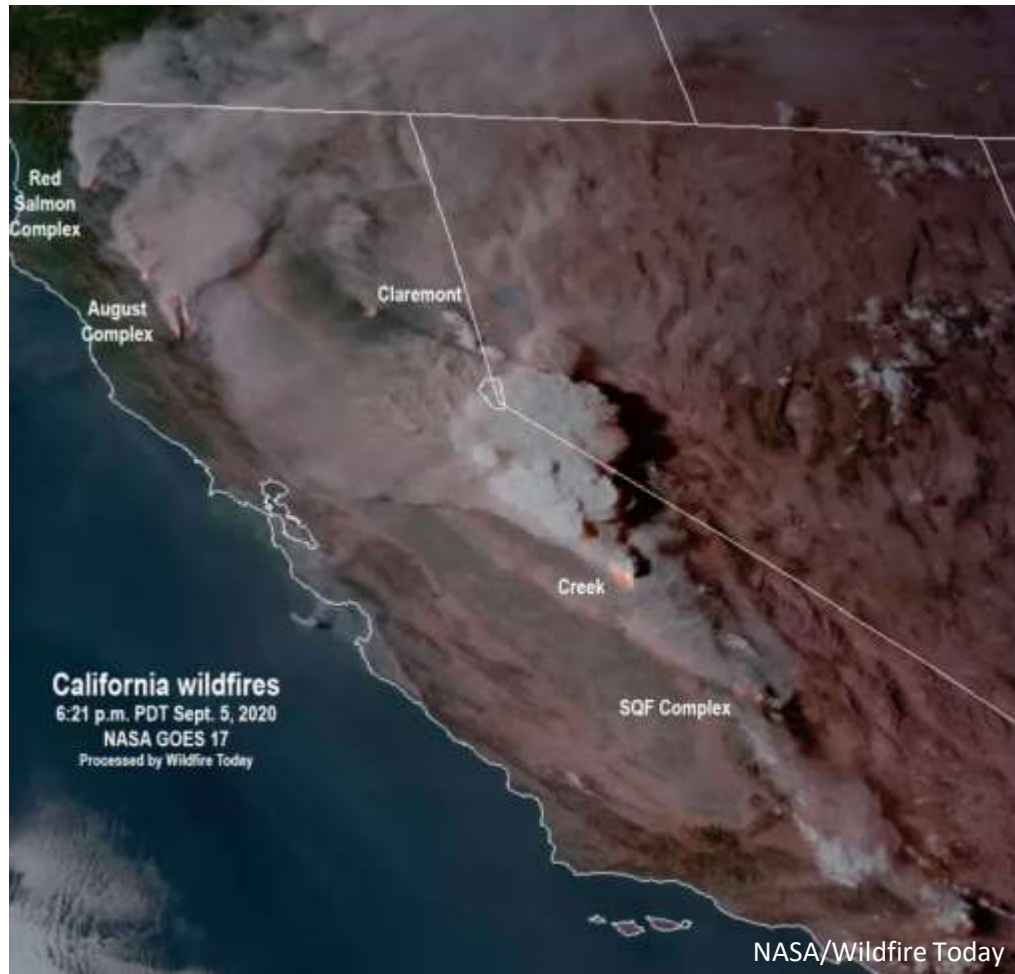
Canada - 2023

Ca. 15 Million Hektare

Smoke shrowded the NE of North America for weeks – smoke even reached Europe.



California 2020



Paradise, CA – 2018



Paradise, CA - Technical Discussion 141 from NIST Report

03

**What causes
Wildfire?**

Climate change and its influence on wildfire



Temperature



Drought



Wind



Longer Season

Fire triangle



Open Access

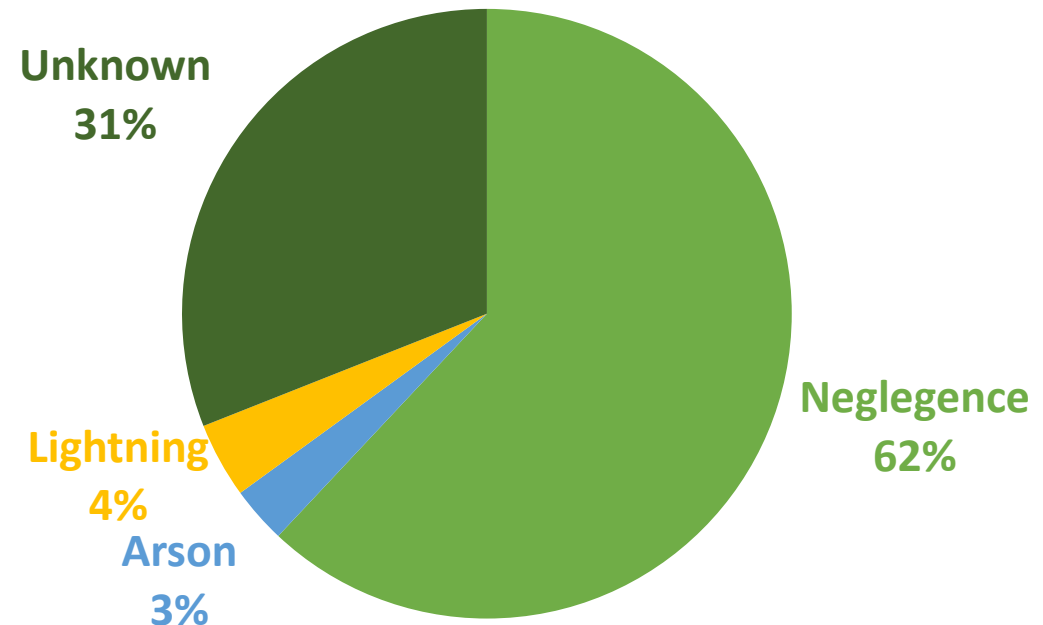
Article

Anthropogenic and Lightning Fire Incidence and Burned Area in Europe

by Jasper Dijkstra ^{1,*}  , Tracy Durrant ² , Jesús San-Miguel-Ayanz ³  and Sander Veraverbeke ¹  

Causes of wildfire in Bulgaria

Source: EFFIS 2022



Conditional drivers for human caused wildfire

Urban Sprawl



Visitor Pressure



04

What can we do?

Wildfire Suppression

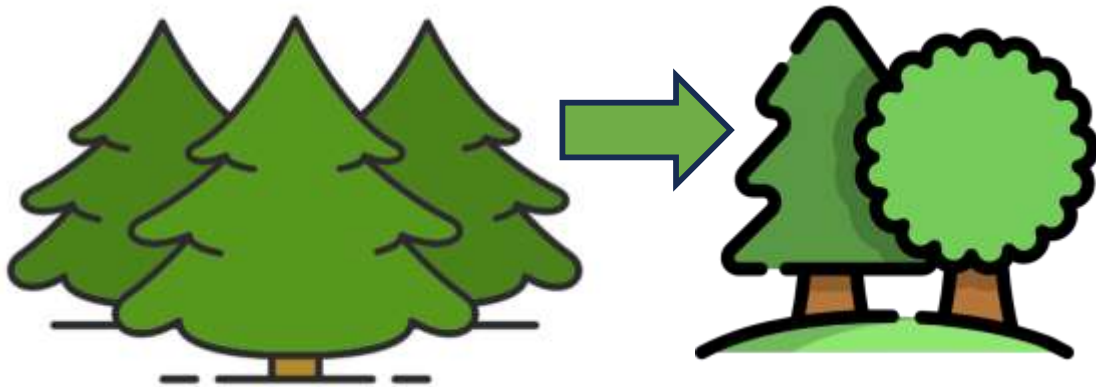
Although state-of-the-art... it's at its limits

- **Monitoring with an array of satellites, now with geostatic, and low orbit. Providing real-time and ultra-high resolution information**
- **Advances in ariel Suppression Tactics – fixed wing aircraft and helicopters deliver more water and fire retardant to hard-to-reach wildfires.**
- **Constant innovation in ground tactics, with heavy machinery, fire engines and ground crews. Accumulated knowledge of more than 100 years of state sponsored wildfire suppression**

Forest Restructuring for Fire Resilience



- **Transition from pure conifer forests to include more deciduous tree species**



- **Manage fuels strategically by removing or reducing fuel loading in critical areas**



What can we do?

Forest restructuring for fire resilience

More deciduous species

**3 y. o. Planting of Red Oak and
Winter Linden in a former Norway
Spruce stand.**



What can we do?



Forest restructuring for fire resilience

Fuel management

Burning the understory along a highly frequented path in a national forest to reduce fuel loading



Cecilio Ricardo / U.S. Forest Service

05

**Education is
Essential**

The spark that starts it all!

- Raising awareness
- Promoting responsible behaviour
- Empowering individuals to act



Sources of wildfire negligence

A lack of knowledge or awareness...



How fire functions and how to handel it properly



The risks of wildfire and its consequences



An understanding and/or value for nature and our dependancy to it



Education for preventing wildfire needs forest Pedagogics!



Thank you for your attention!

Smokey Bear



- US Forest Service wildfire prevention campaign
- Since 1944 – 80 years – adapting with the times
- Strongly anchored in the American consciousness
- Simple message “Only you can prevent wildfires!”

