FE
SP 9
NL2023

Program FESP9

Date: 20-22 June 2023

Venue: Wageningen Campus

Droevendaalsesteeg 3 (Gaia Building)

Wageningen, The Netherlands

Wageningen university is at the forefront of soils research in The Netherlands

Foreword

With a steady-state growth of the population of 0.28 % yearly, close to 18 million inhabitants in 41543 Km^2, The Netherlands has one of the highest population densities in the world with 520 inhabitants per Km^2. However, the urban population and the concentration of the population in the western part of the country allows the forest land to expand in provinces such as Genderland where the **Fire Effects on Soil Properties (FESP)** Congress is held.

In 2019, 386600 ha of the land was covered by forest in **The Netherlands**, which accounts for 8.9 % of the country, which means that there is only 0.02 ha of forest per inhabitant. This is the lowest rate in Europe and of this, half (48.5%) of the forest is public. Maybe because of the scarcity, the forest cover is a much appreciated national heritage by the citizens as a recreational area. Moreover, forests contribute to key ecosystem services such as filtering water, sinking CO_2, and improving the health of the population. **Forests** contribute to a healthy ecosystem for the benefit of humans and nature. However, some threats affect the forest in The Netherlands. The abuse of nitrogen for decades, the deforestation in the past, the urbanization today, and a century of afforestation with the purpose to produce timber resulted in forests that must be improved to be biodiverse and sustainable. In addition, climate Change will affect the forest in The Netherlands. Global warming will change the flora and fauna, and the forest in The Netherlands and therefore forest management must be adapted to face the new challenges. A key factor in the process of adaptation will be the soil. The edaphic characteristics of the forest system show very young soils in The Netherlands due to the recent formation of the soils because of the glaciations, being a delta that has been continuously changing, and especially due to human disturbances since the Romans and later along the Medieval times and through to today. Many of the forest soils in The Netherlands are young and will evolve under the changing climatic conditions and the human pressure of today. And fire will be a new actor in the forest evolution in The Netherlands. **Fire** was used in the past by farmers and shepherds to open the land for pasture and crops. Today, forest fires are seen as a risk for the population and for the forest itself. However, wildfires are growing in intensity, number, and burnt area. And with the Climate Change models, it is expected that fire will be more present in our forests and soils.

You are welcome to contribute with your scientific knowledge to understand better the interaction of fire and **soils**, and this will shed light to achieve better management in a world under Global Change. The Netherlands is facing environmental issues that will determine the health and wealth of the country. To manage fire in a sustainable way will contribute to a more sustainable country and your scientific knowledge will be decisive.

Welcome to The Netherlands

Welcome to Wageningen

On behalf of the FESP9 organizational team.

Saskia Keesstra

Day 1 20 June	Venue: campus of Wageningen University and Research: Gaia Building, room Gaia 1
9.00-9.50	Registration
9.50-10.00	Opening by Saskia Keesstra
10.00.-10.30	Opening and keynote by Xavier Úbeda: SOIL DISTURBANCES & RECOVERY CAPACITY WITH DIFFERENT SOIL MANAGEMENT FACING WILDFIRES IN CATALONIA, SPAIN
10.30-11.00	Bertram de Rooij: Water and Soil leading in spatial planning for a healthy, adaptive, and resilient society
11.00-12.00	Visit to ISRIC soil museum
12.00-13.00	Lunch campus Forum building
13.00-17.00	Visit to Veluwe area to see the changing fire conditions in the Netherlands: Guide: Betram de Rooij ●Understanding challenges in the Netherlands and the Veluwe area ●Visit different burn sites and nature areas
19.00	Dinner at H41 in Wageningen (own expenses, Heerenstraat 41, Wageningen)

Forests are recovering on barren sandy soils in many regions in The Netherlands

Fire in The Netherlands affect forest

Fire in The Netherlands affects grasslands and scrublands. Vliegveld Terlet, Arnhem, Gelderland, The Netherlands.

Day 2 21 June	Venue: campus of Wageningen University and Research: Gaia Building, room Gaia 1
Session Effects of Pre and Post-fire management	
9.00-9.30	Keynote talk: Antonio Girona-García: The state of the art of post-fire soil erosion mitigation treatments
9.30-9.45	Yetkin Usta : The effects of prescribed fire on soil properties and seedling dynamics in pure Anatolian black pine and scots pine stands
9.45-10.00	João Pedro Nunes Assessing fire impacts on soil burn severity using satellite imagery in Portugal
10.00-10.15	Antonio Peñalver /Mayra Astrid Figueroa-Velasco: Effects of prescribed fire in a Mediterranean environment: a case study in the Montgrí Massif (Girona, Spain).
Effects of Climate on Fire	
10.15-10.30	Marco Turco : Advancing Knowledge of Fire Response to Climate Change: The ONFIRE Project
10:30-11:00	Coffee break
11.00-11.15	Cecilia Smith-Ramírez: Increasing of mega forest fires in Chile: how to prevent and mitigate the soil damage in forestry plantations and in the endemic native forest?
11.15-11.30	Yunzhu Qin: Interaction between Snow Layer and Smoldering Peat Fire under Extreme Environment
Fire effects on soils properties	
11.30-11.45	Edivaldo Thomaz: Does ash cover really matter to soil hydrological response?
11.45-12.00	Veronika Jílková: Post-fire forest floor succession in a Central European temperate forest depends on organic matter input from recovering vegetation rather than on pyrogenic carbon input from fire
12.00-12.15	Francisco Escriva Saneugenio/Artemi Cerda: The immediate impact of forest fire on soil infiltration rates. The Pinet forest fire in Eastern Spain
12.15-12.30	Jesús Rodrigo-Comino: Surveying key soil hydrological properties and the activation of soil erosion processes in the 2022 Guájares forest fire
12:30-13:30	lunch in Forum Building

Fire effects on biota	
13.30-13.45	Miloslav Devetter : Soil fauna in the post-fire chronosequence: the effects of the simultaneous evolution of soil properties and carbon
13.45-14.00	Shudong Zhang: Disentangling how the parasitic fungus Armillaria and other biotic drivers affect the flammability of coarse deadwood in exotic pine plantations
1400-14.15	Rayo Pinto: Short-term behaviour of soil fungal and bacterial communities after a wildfire in a *Pinus sylvestris* ecosystem
14.15-14.30	Tharaniya Srikanthasamy: Short-term impact of fire on the total soil microbial and nitrifier communities in a wet savanna
14.30-14.45	Michala Tůmová: Changes in soil microfaunal communities during the first 110 years after a wildfire in Central European pine forest
14.45-15:15	coffee break
Open Session	
15.15-15.30	Invited talk: Ana Gorostiza: Understanding the role of photography in the field of wildfires. Aesthetics of catastrophe and aesthetics of prevention.
15.30.-15.45	Saulo Folharini: Analysis of sub-watersheds burnt área using machine learning models
Soil formation due to fire	
15:45-16.15	Invited talk: Lea Wittenberg: Hydrological modeling of the potential impact of wildfire on runoff in a Mediterranean catchment
16.15-16.30	Nurit Shtober-Zisu: Wildfires as a Weathering Agent of Carbonate Rocks
Poster presentations and discussion	
16:30-17.30 • Ana Yetkin USTA: Economical analysis of the use of prescribed fire in natural generation studies • Jesús Rodrigo-Comino: Using soil profile descriptions to describe the impacts of human management in Mediterranean burned forest and agriculture fields. • Christos Bountzouklis and Dennis Fox: Characterizing Forest Fire-Affected Soils in SE France • Antonio Girona-García: The role of post-fire erosion in the Carbon cycle • Johan A. Eckdahl: Physicochemical drivers of postfire boreal community assembly in a changing climate • Jorge Novais: Impact of Climate Change and Temperature Increase on Increased Forest Fire Risk in Protected Areas in Northwest Portugal	

- Sara Siva: Impact of the risk of forest fires on nature tourism in protected areas of Northwest Portugal
- Carmen Sánchez-García: Chemical characteristics of wildfire ashes across the globe and their relationship to soil properties (oral if possible)
- Saskia Keesstra: Introducing the Global Fire Partnership
- Javier Cerdà-Benito: Soil, Water and Fire concepts at the Degree in Agrifoods and Rural Environmental Engineering. Universitat Politècnica de València.

Online posters (3 min presentation each one)

- Ana Pérez-Albarracín: Burning against chipped pruned branches in citrus plantations. Their impact on soil infiltration rates.
- Mar Cerdà-Benito: Soils and Fire concepts in the Spanish primary education system
- Francisco Escriva Saneugenio: Soil water repellency changes in Pinet fire-affected land. Western Mediterranean
- Enric Terol Esparza: Fire against chipped pruned branches. A long-term research on soil organic matter, bulk density, infiltration rates and water repellency in citrus plantations.
- Antonio Giménez Morera: Fire against chipped pruned branches. An economic approach.

Next steps

17:30-17.45	Discussion on where will be FESP 10?
19.00	Conference dinner at H41 in Wageningen (Heerenstraat 41, Wageningen)

Day 3: 22 June	Excursion
9.00	convene at the campus of Wageningen University and Research: in front of Gaia Building
9.00-15.00	Visit to the Peel region to visit the nature area that was burned in 2021 (lunch in the field). Peel area: address: Natuurpoort, Leegveld 8A Deurne Ton Driessen: fire prevention Liza van Velzen: GIS system for fire prevention Martin Carree: State forest management: Fire Wise: Fire management in Nature areas: historical perspective and climate change challenges 14.00 departure
15.00-17.00	visit Eijkelkamp grounds and InnoFields Living Lab
Around 1800	Return to Wageningen

The today recovery of the soils in The Netherlands shows evidence of the destruction of forest and soils in the past

We need more research on soils and the interaction of plants, soils and fire in The Netherlands

Fire is a soil factor formation and we need to learn more