

# THE ROLE OF THE MOSS LAYER IN CONTROLLING FIRE SEVERITY IN HEATHER MOORLAND PRESCRIBED BURNING



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# THE MOSS LAYER DURING A FIRE



The moss as an insulating layer

Vegetation regeneration

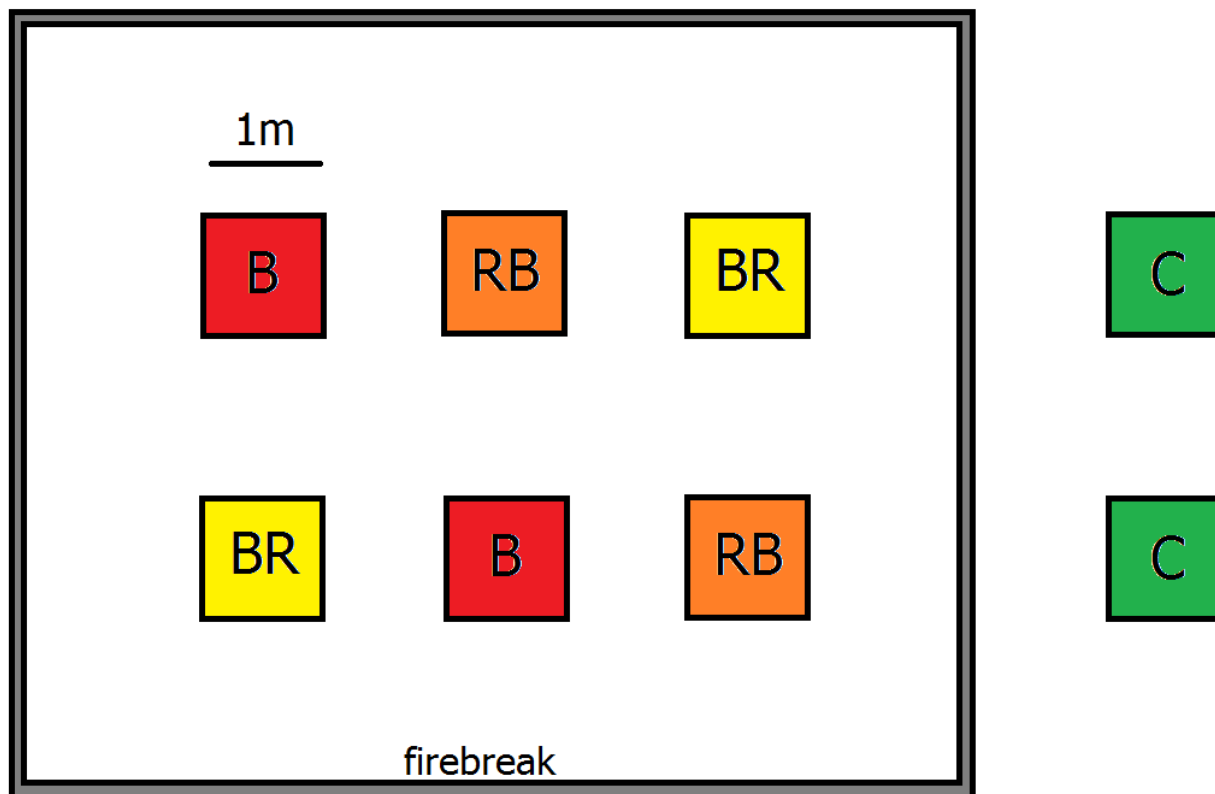
Peat degradation

Peat microclimate  
(temperature dynamics)





# EXPERIMENTAL DESIGN



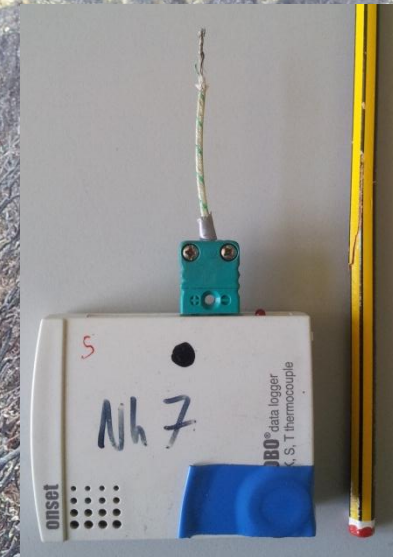
TREATMENTS : **Burnt (B)**  
moss Removed, then Burnt (RB)  
Burnt, then moss Removed (BR)  
**Control (C)**



# DATA

## FIRE TEMPERATURE

Thermocouple loggers



Thermocouple logger

## PEAT TEMPERATURE DYNAMICS

iButtons



iButton

## CARBON DYNAMICS

Dissolved Organic Carbon

CO<sub>2</sub> and CH<sub>4</sub> gas flux

## VEGETATION REGENERATION

Seedling / Resprouting



# RESULTS

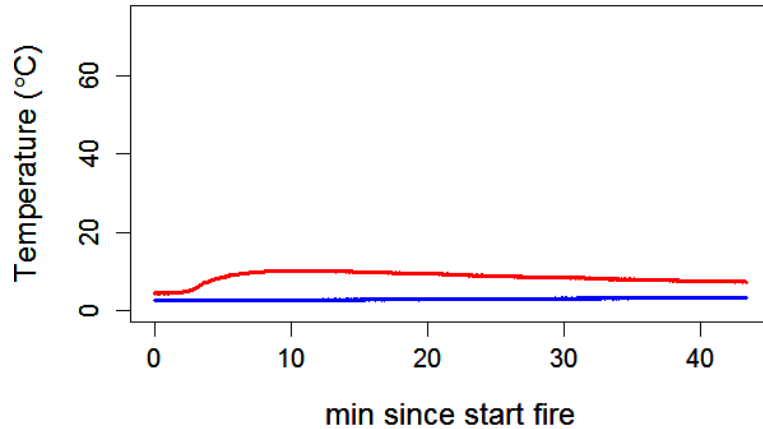
## PEAT HEATING DURING A FIRE



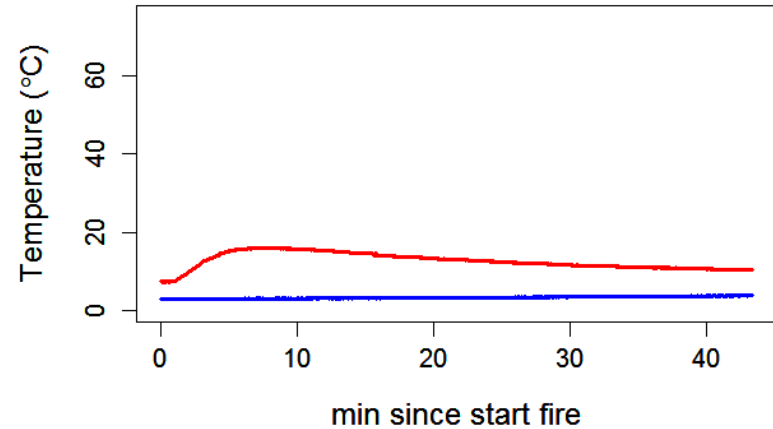
# RESULTS

## PEAT HEATING DURING A FIRE

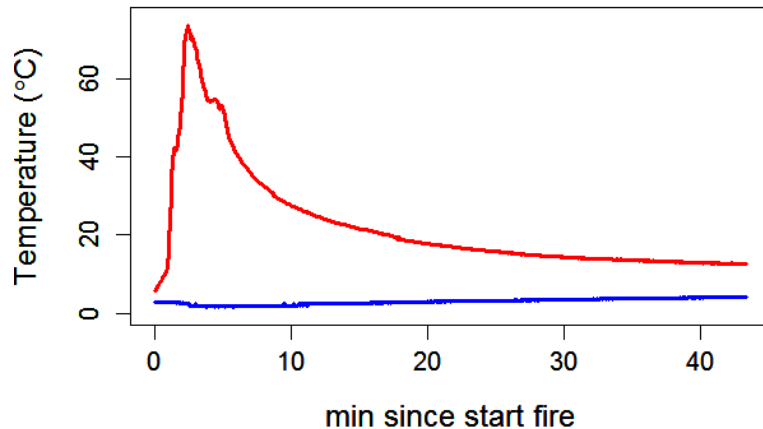
**B (Burnt)**



**BR (Burnt, Moss Removed)**

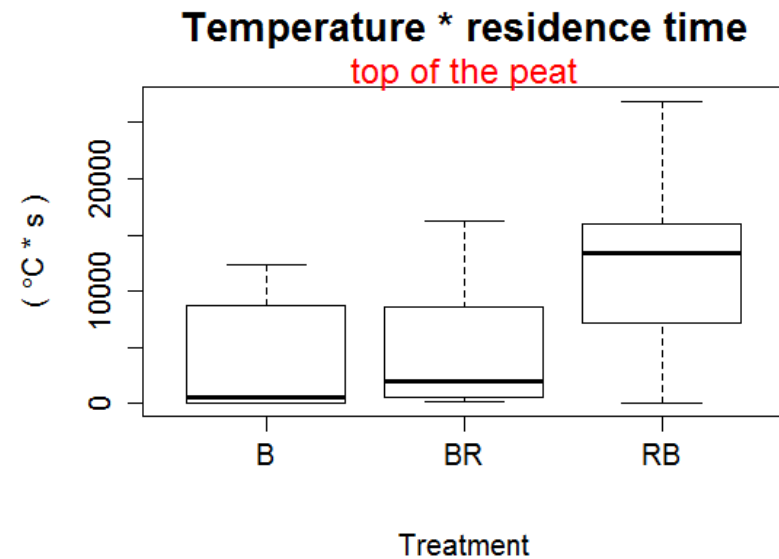
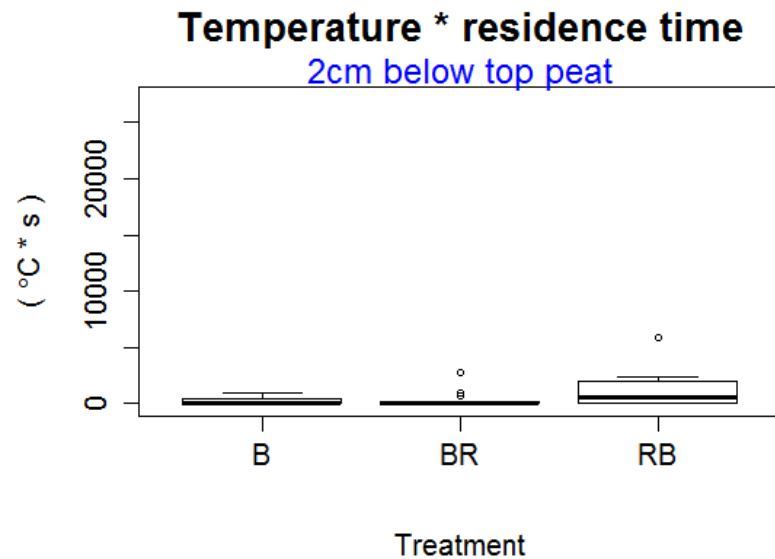
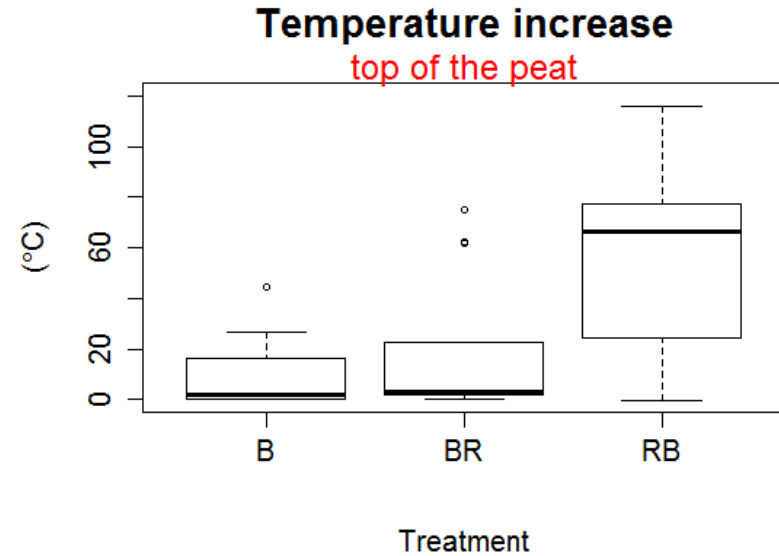
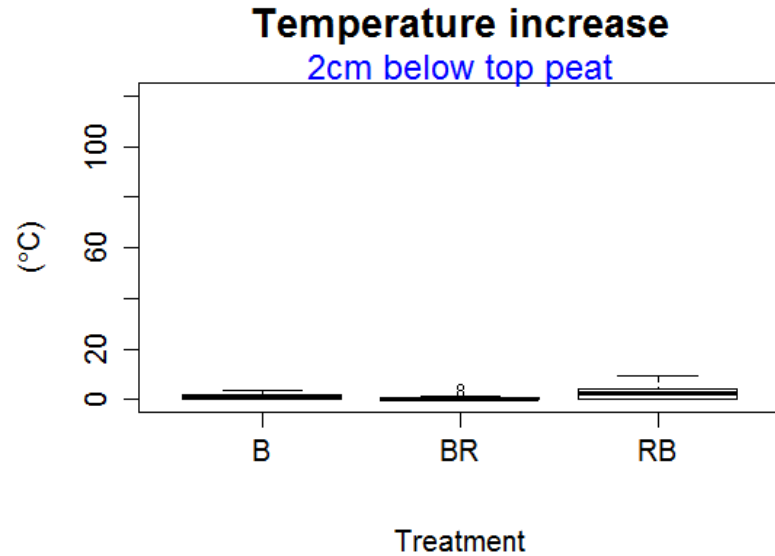


**RB (Moss Removed, Burnt)**



# RESULTS

## PEAT HEATING DURING A FIRE





# RESULTS

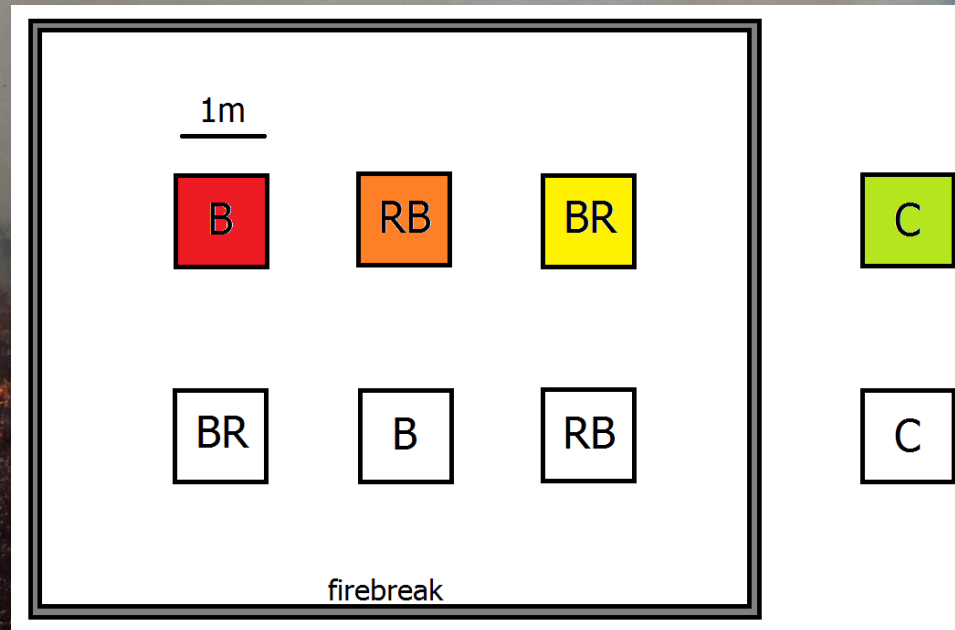
## POST-FIRE PEAT MICROCLIMATE

INFLUENCED BY:

Moss layer (presence / absence)

Peat surface (scorched / not scorched)

Heather canopy (live / burnt)

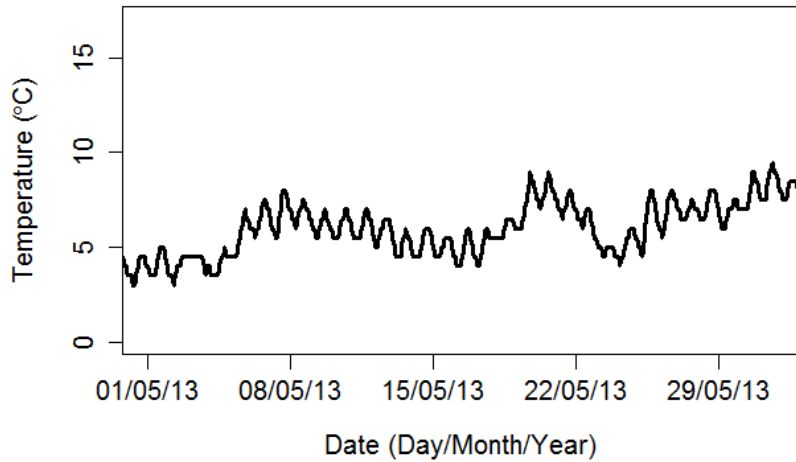




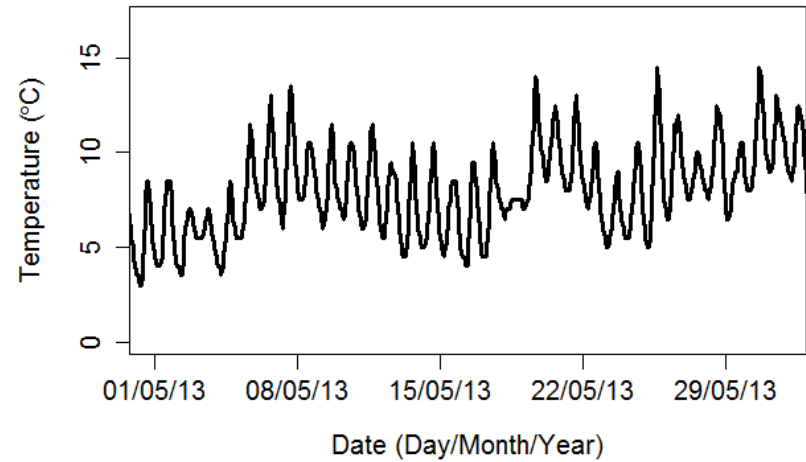
# RESULTS

## POST-FIRE PEAT MICROCLIMATE

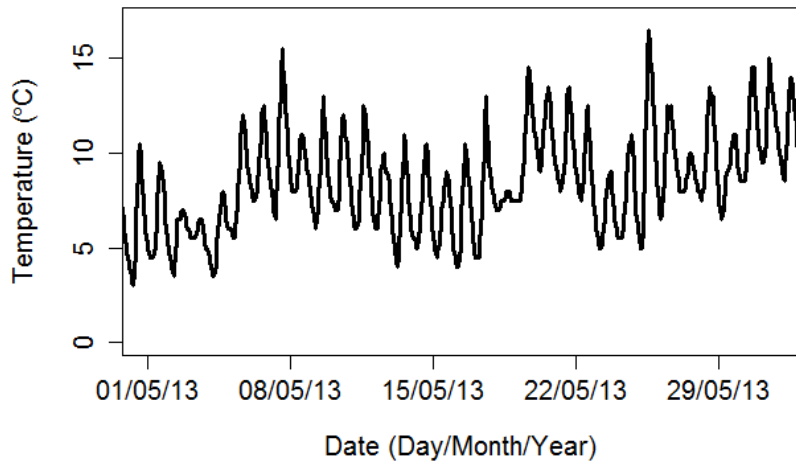
**Control**



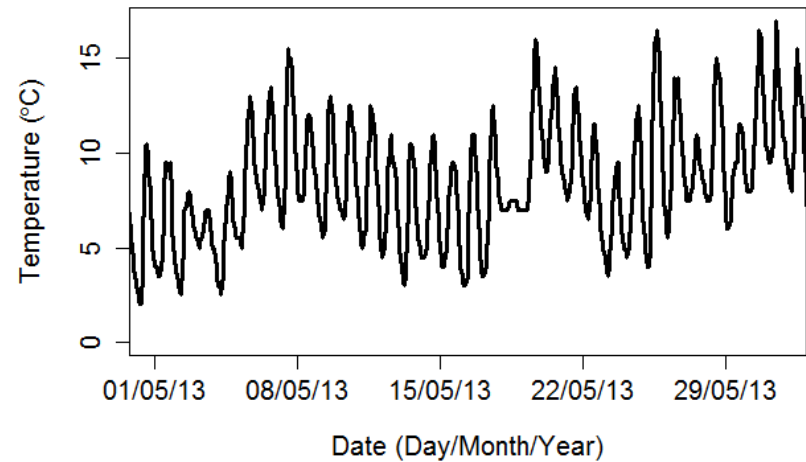
**B (Burnt)**



**BR (Burnt, Moss Removed)**



**RB (Moss Removed, Burnt)**

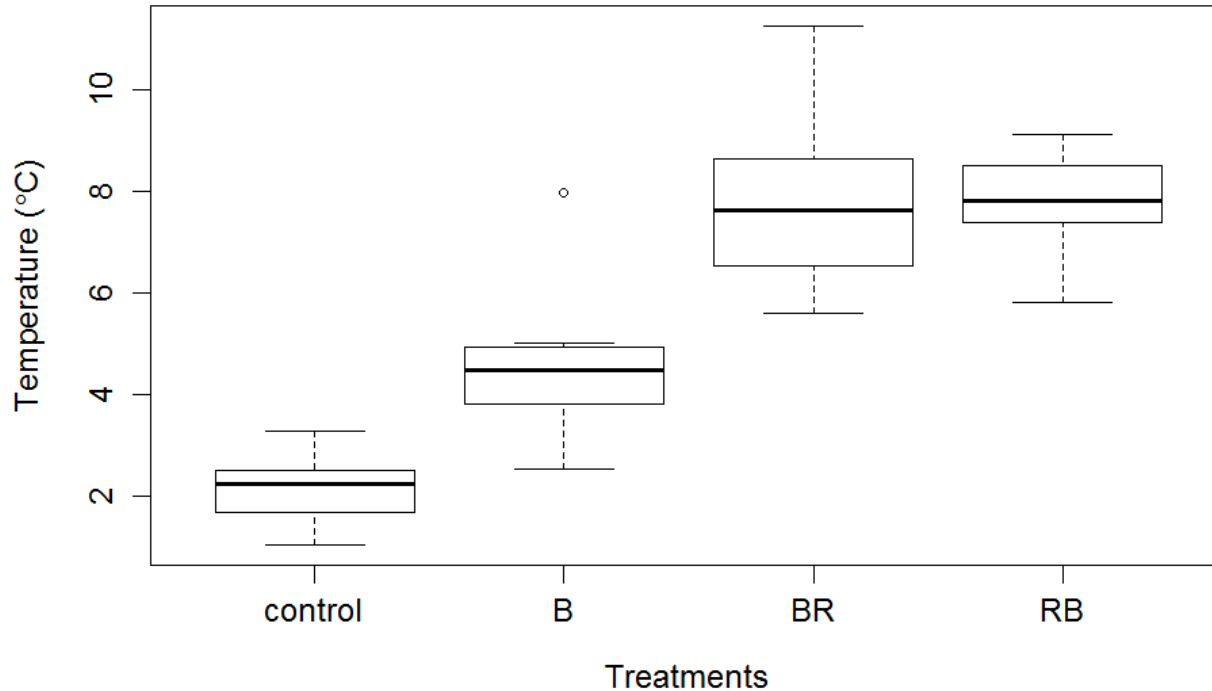




# RESULTS

## POST-FIRE PEAT MICROCLIMATE

### Mean Daily Temperature Fluctuation



TREATMENT	CANOPY	MOSS	PEAT	FLUCT (°C)	MEAN T (°C)
Control	Live heather	Present	Unaltered	2.1	10.1
B	Burnt	Present	Unaltered	4.7	11.4
BR	Burnt	Removed	Unaltered	7.8	12.4
RB	Burnt	Removed	Heated	7.8	12.3



# CONCLUSIONS

## PEAT HEATING DURING PRESCRIBED BURNING

- Moss insulates peat from significant heating.
- Important differences at the top of the peat.
- Little effect of the moss 2cm below the top of the peat.

## POST-FIRE PEAT MICROCLIMATE

- Burning (B) increases peat temperature fluctuation
- Moss removal (BR) increases temp fluctuation
- Peat surface heating (RB) had no effect
- Mean temperature slightly up with burning

