

DESIRE: Desertification mitigation and remediation of land - a global approach for local solutions



- WB4: Implementation and monitoring phase | Partner 18: Escola Superior Agrária de Coimbra
In collaboration with: Universidade de Aveiro and University of Swansea

Prescribed fire: use of fire to attain a pre-established goal

Description:

It's a tool to manage forest fuel through fire. The fire type depends on the local goal.

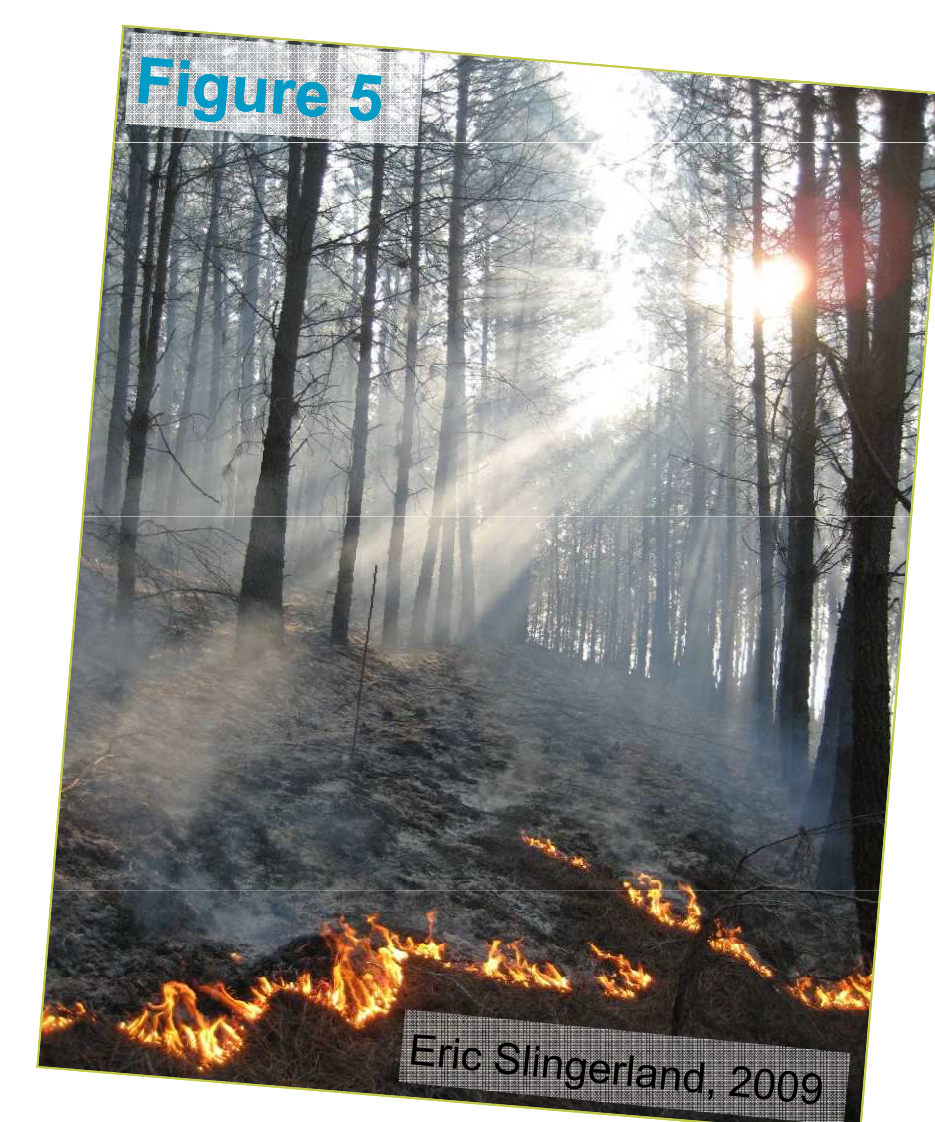
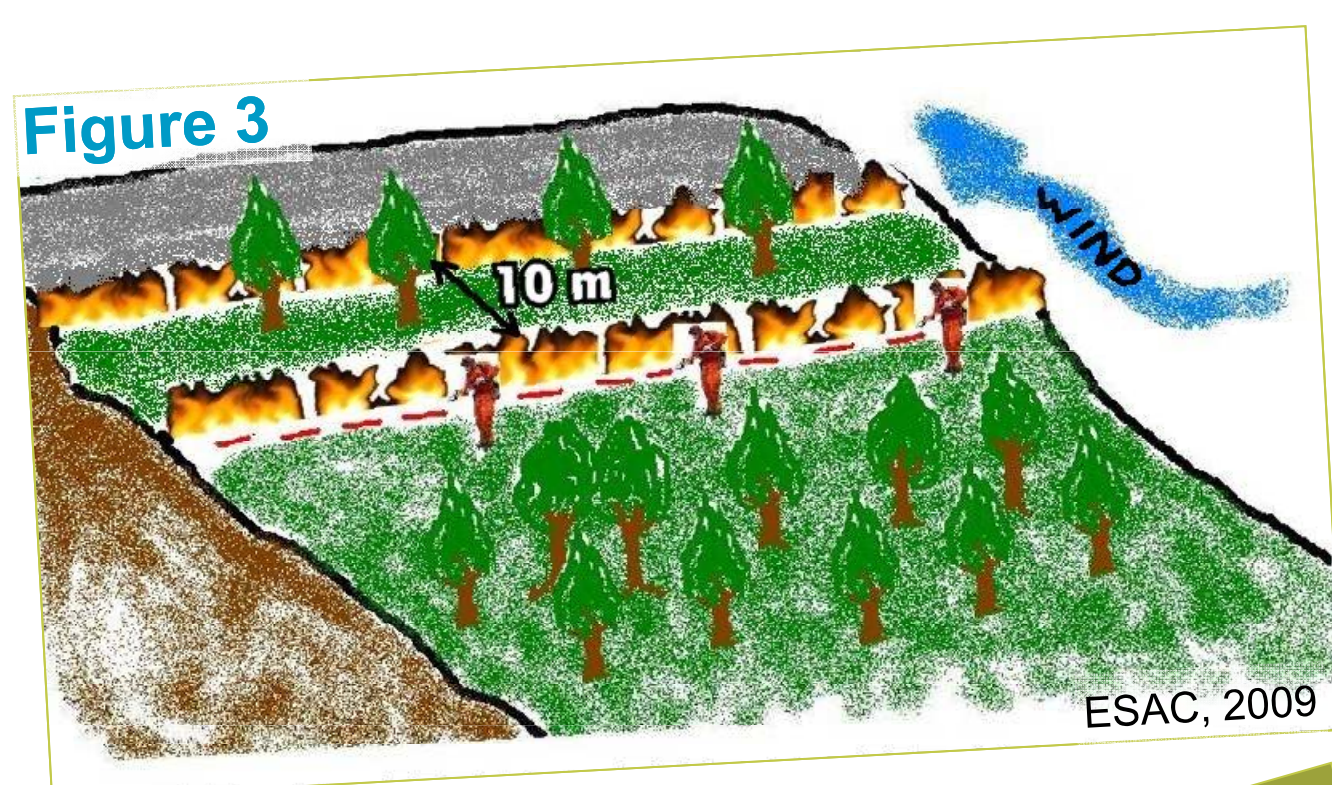
Security:

To create forest fire, an implementation plan is needed, as well as the presence of a technician with specific training and support teams (fire-fighters, forest fire-fighters, ...). These teams work with water and manual tools and are in charge of the prescribed fire.



Objectives:

- Pasture improvement;
- Reduction of the fuel load;
- Limitation of the forest fire progression.



Implementation:

At first, the meteorological conditions (temperature, wind and humidity) should be analysed as to evaluate if they comply with the burning's goal. On the fire day, the safety conditions are thoroughly verified and tasks are distributed to the team elements. The fire ignition should follow two main guidelines: counter-fire and counter-slope. By doing so, the teams are aligned and the burning lines that define the area to be burned are initiated. These lines may be spaced until 10m between themselves, being sequential in terms of the burn. The dimension of the team depends on the difficulty of the area to be treated with fire. The prescribed fire program is implemented during the winter season, when meteorology is favourable and the fuel load to burn dry or with a low humidity levels.

Natural/Human environment:

In the Mediterranean climate, fire is a natural landscape regeneration element. Its controlled introduction aims to minimize the impacts that large wildfires can produce. The adoption of prescribed fire techniques is well accepted by the population, that sees this procedure as a way to enhance their earnings.

Comments

The use of the prescribed fire technique in Valtorto was adapted to the study goals.

- An experimental fire was done, that is, contrarily to what is done in a prescribed fire, the whole catchment was burned and its flame intensity was higher.

Conclusion

The implementation was a success and the expectations on the impacts on erosion are considerable.

- The collaboration of the different Stakeholders was essential for the technique application, being these very interested in the final results. In comparison to wildfires, a reduction is expected on soil erosion and, even an improvement in its physical and chemical properties.

Legend:

Figure 1: forest fire-fighters testing the equipment before the prescribed fire.

Figure 2: fire chief briefing the team before the fire.

Figure 3: prescribed fire diagram, illustrating the prescribed fire procedure.

Figure 4: Valtorto (Góis, Portugal) catchment while burning a fire line downslope.

Figure 5: fire progression during a prescribed fire.

Ongoing work

After applying the technique in the study area, several parameters have been monitored, such as the soil infiltration capacity, vegetation development, erosion, etc.

- This monitoring task has been undertaken in straight collaboration with the development of the work of the PhD student from Wageningen University, Cathelijne Stoof.

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