

A modelling approach to evaluate different post-fire management scenarios at catchment scale.

Marta Basso*¹, Martinho Martins ¹, Dalila Serpa ¹, Jacob Keizer ¹, Diana Vieira²

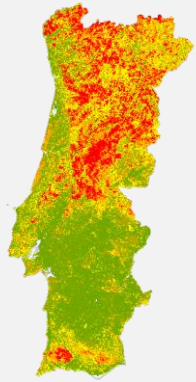
¹ Centre for Environmental and Marine Studies (CESAM), Department of Environment and Planning, University of Aveiro, Aveiro 3810-193, Portugal

² European Commission, Joint Research Centre (JRC), Ispra, Italy



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Wildfire impacts

- Destruction of vegetation cover
- Heat-induced changes in the soil
 - Increase in runoff and soil erosion
 - Mobilization of nutrients and contaminants to downstream waterbodies



Boialvo, Marta Basso photo.



Keizer et al. (2018).

Construction of bench terraces for eucalyptus reforestation

Application of mulch as a mitigation measure

Fire Hazard map 2020-2030 (ICNF, 2021)

Serra de Cima, Jacob Keizer photo.

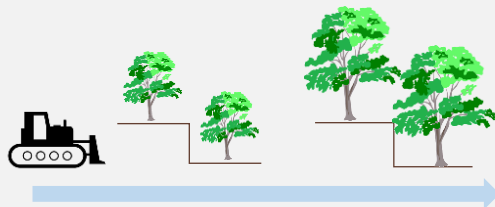
Post-fire spontaneous recovery SR



Post-fire mitigation scenario M



Terracing and eucalyptus cycle T

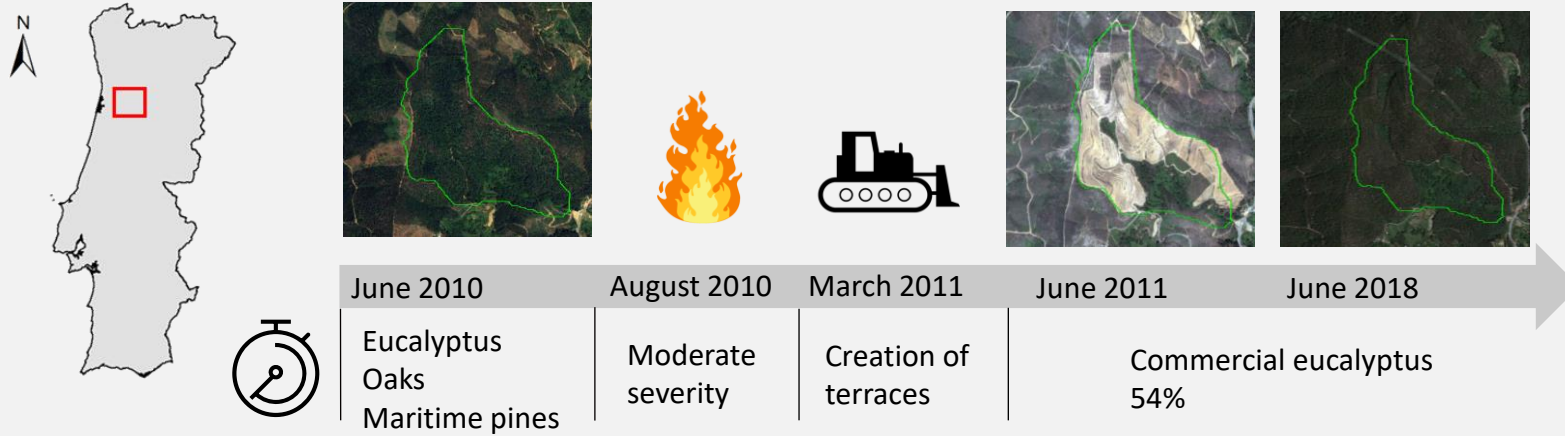


What is the best management option for a recently burned area?

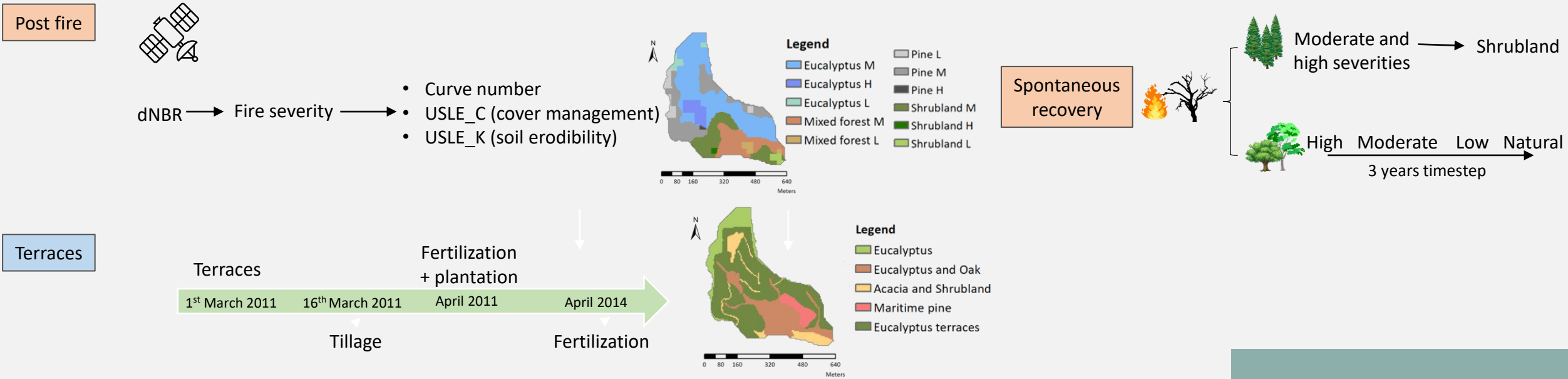
Will a catchment scale application of a post-fire mitigation practice greatly reduce the impacts?

Materials and Methods

Study area.

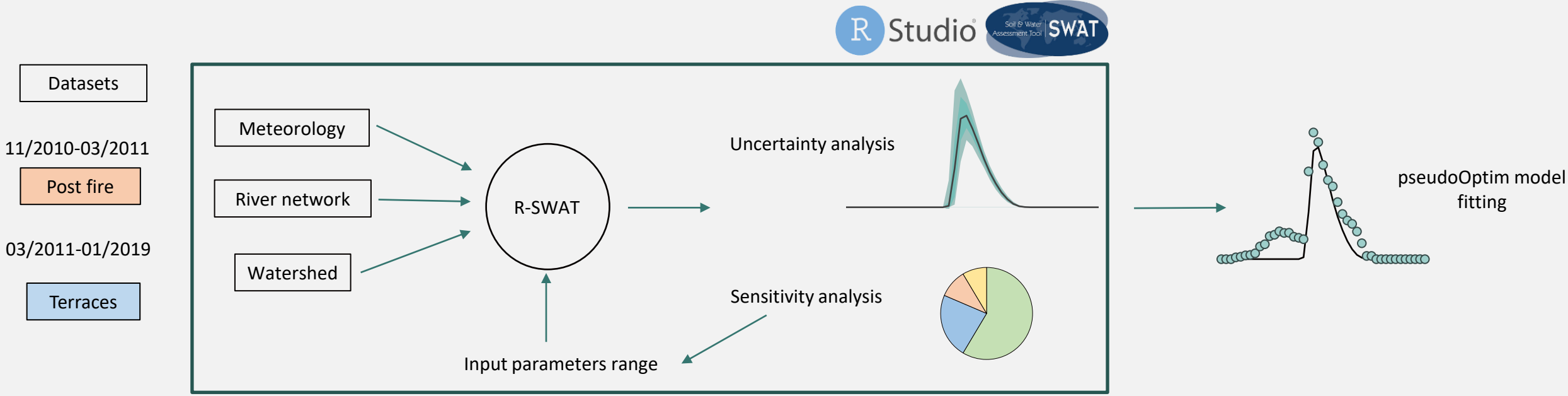


Implementation of the model.



Materials and Methods

Datasets calibration.



Mulch calibration.

Field data (Prats et al. , 2016)

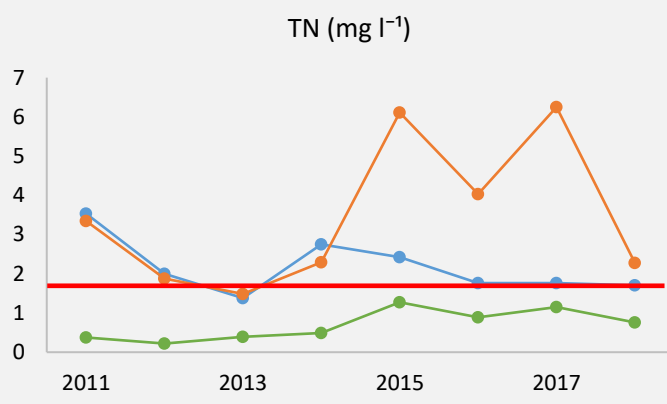
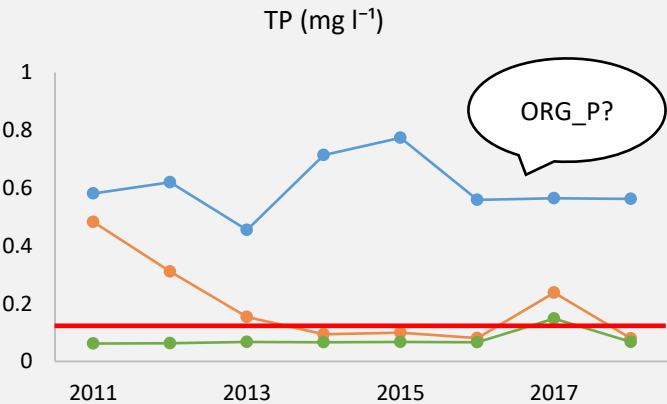
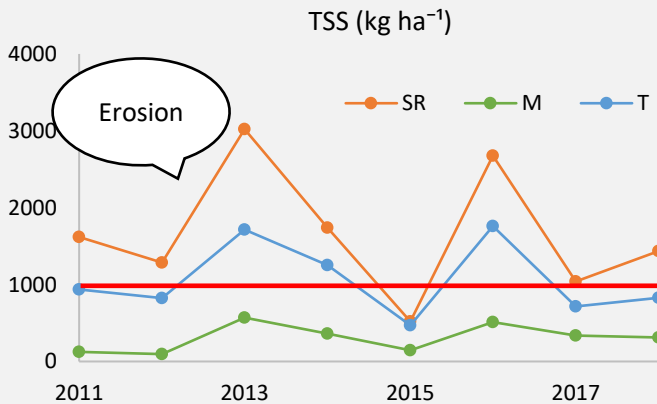
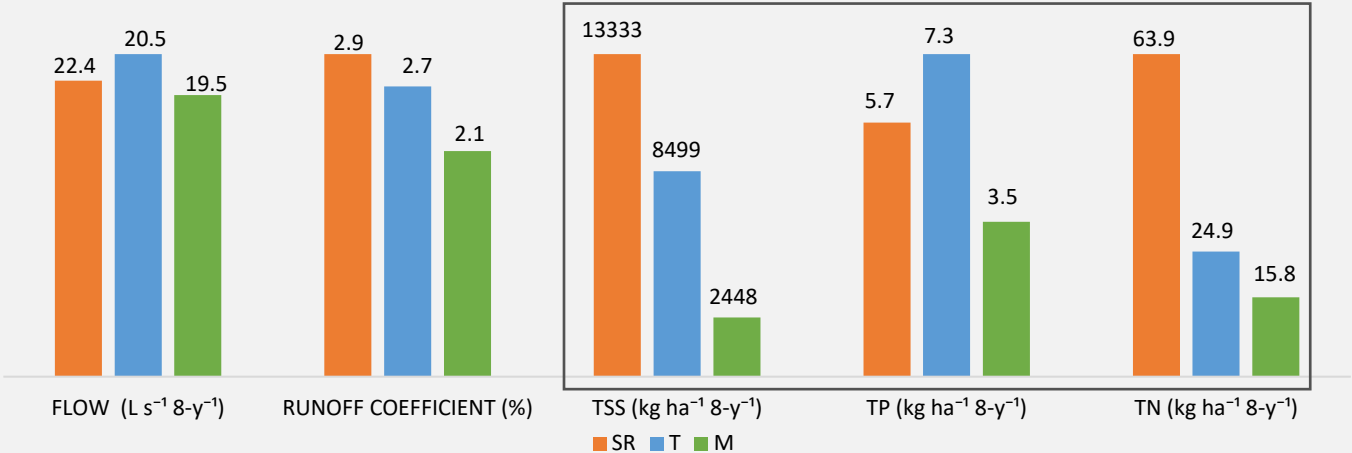
SWAT HRU

- Available water capacity
- USLE_P
- Curve number
- Filter strip



Results and discussion

Scenarios comparison.



Conclusions.



Implementation of the model.

Adaptation to post-fire conditions and implementation of two land management option at catchment scale.

Post-fire management practices.

- Persistence of wildfires impacts on soil along the 8 years simulated.
- High total phosphorous levels in the terrace simulation.
- Mulch application appears to be a successful management option.