

## Natural variability of lotic Mediterranean ecosystems or wildfire perturbations: who will win?

P. Pinto<sup>1</sup>, M. T. Ferreira<sup>2</sup>; R. Caraça; A. Pedro; M. H. Novais<sup>1</sup>; M. Morais<sup>1</sup>; C. T. Robinsons<sup>3</sup>

<sup>1</sup>Water Laboratory, CGE, University of Évora. Parque Industrial e Tecnológico, Rua da Barba Rala nº 1, P-7005–345 Évora, Portugal.

<sup>2</sup>Centre for Forest Research. Technical University of Lisbon

<sup>3</sup>Department of Aquatic Ecology, Eawag, 8600 Dübendorf, Switzerland and Institute of Integrative Biology, ETH-Zurich, Switzerland

email address of the corresponding: [ppinto@uevora.pt](mailto:ppinto@uevora.pt)

### **Abstract**

This study evaluates the impacts of wildfires in lotic Mediterranean ecosystems. It was carried out at Monchique ridge after big wildfires occurred during 2002 and 2003. Differential impacts were evaluated comparing historical results obtained before the wildfires (1999 and 2001), with the post fire ones (2006 and 2007). Physical and chemical parameters of the water, habitat morphology, diatoms, macrophytes, macroinvertebrates and fishes were evaluated at 10 collecting places, before and after wildfires. High recovering rates were observed to the vegetation, but it is still possible to find fire impacts over macrophytes and river morphology. Wildfires, contributed to canopy decrease and, consequently to the growth of plants that usually are controlled by shadow. As a result, vegetation biodiversity tend to increase. River banks tend also to be invaded by terrestrial plants. Higher post fires recover rates were observed to the more aquatic communities (diatoms, macroinvertebrates and fishes). For those communities, comparing spring situations before and after the fires no substantial differences were observed. Sometimes differences between consecutive years are even higher. So it can be concluded that magnitude of wildfire impacts is less than the natural inter-annual variability of Mediterranean rivers. Long-term effects of forest fires, resulting from large woody debries, were also detected by morphological alterations, like debries dams. Habitat diversity increase and impacts on aquatic communities are expected.

Oral presentation on TEMPRIP 2012 – International Conference on Temporary Rivers;

12/14 September | University of Évora | Portugal