Combining tree physiology, fire science and forest management principles to predict tree survival and damage in burned forests

Marina Peris Llopis, University of Eastern Finland (UEF), Finland
Visit: Forest Sciences Center of Catalonia (CTFC), Spain

The aim of this project is to develop new modelling approaches that can be applied at both stand and tree level in order to predict damage and tree mortality in burned forest in Eastern Spain; the ultimate objective is to integrate these models to serve as a tool for forest planning at landscape level. Through the compilation of NFI and fire data, the models will be built based on the work previously produced by González et al. (2007), expanding the approach to derive ecological effects. These new additions will entail, for instance, morphological traits of the species, and an explicit assessment of species mixture will provide a new identity to the manuscript and fill relevant gaps of knowledge.

Current research indicates that the projected anthropogenic warming will result in a dramatic increase of forest fires in several European areas. The proposed project is strongly linked to the II.a. priority research subtopic of EFI, analyzing fire risk on forest socioecological systems and seeking to provide scientific evidence for the development of fire prevention strategies that aim to minimize and mitigate the effects of fires in forests and in their capability to provide ecosystem services and products (carbon sequestration, water regulation, etc.).

The project will be done in collaboration with José Ramón González-Olabarria, Senior Researcher in the host organization. The stay will last 11 working days, during which most of the effort will be allocated to the development of the models and the methodology. Discussion of ideas and content will take part at the beginning of the stay, in order to establish the scope of the models and the methodologies applied.

González, J. R., Trasobares, A., Palahi, M., & Pukkala, T. (2007). Predicting stand damage and tree survival in burned forests in Catalonia (North-East Spain). *Annals of Forest Science, 64*(7), 733-742.