Assessing fire behavior for a Maritime pine Portuguese forest area with landscape management scenarios

Wildfires had a substantial impact in the forested landscape composition and constrain the economic viability of maritime pine (*Pinus pinaster* Ait) in commercial Portuguese forestry. This study aims at modeling fire behavior on Leiria National Forest, a public forest (539 plots, 10 881 ha) to provide information to enhance the effectiveness of methods for integrating stand-level fuel treatment with explicit landscape-level management planning.

Wildfire spread parameters were calculated with FlamMap system according to four management scenarios (young, old, regular and the current forest area are called normal) in terms of percentage of area cover by stands of four age class (<20, 20 – 40, 40 – 60 and > 60). A fixed set of weather conditions collected along the summers of 2002 - 2005 and fuel moistures were used to represent 99th percentile and 75th weather conditions, combined with three wind speeds (8km/h, 12km/h and 18km/h). The potential for occurrence of crown fires estimated will be compared with CFIS software system.

For each management scenario, the identification of different levels of wildfires risk will support decisions that decrease fire hazard, such as fuel modification and stand structure to modify fire behavior (reduce surface fuels, increase the canopy base height, decrease crown density).