

Characteristics and Flammability of French Mediterranean Dead Litter Fuels

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Abstract

Since more than a century, French Mediterranean areas evolved because of the decrease of agricultural and pastoral activities, and of the concomitant forest and urbanization extension. Urbanization develops at the boundary or inside forests which are no longer exploited, and thus exhibit high fuel amounts. These changes result in increasing wildland-urban interfaces (WUI), i.e. contact zones between natural areas and human activities. WUI have been proved important stakes to preserve human communities from fire, but also preferential ignition sources. As a consequence, improving our knowledge of fire hazard ignition at WUI is of major importance to improve fire prevention.

This paper deals with the estimation of litter flammability in maximal risk conditions for the major vegetation types in southern France.

Five vegetation types have been studied in calcareous Provence, among which three forest types : *Pinus halepensis* stands (which represents 4/5 of the coniferous which cover 24% of the French Mediterranean area), *Quercus* stands (31% of the surface) composed by *Quercus pubescens* on the one hand and *Quercus ilex* on the other hand, and mixed *Pinus-Quercus* stands (21% of the surface). A fourth type is composed of scrublands dominated by *Quercus coccifera*, which cover 20% of the area. A fifth type has also been described in *Pinus halepensis* shrub-cleared stands. Flammability assessment in this last type is an important stake because of forest regulation that recommend shrub-clearing in a 50m diameter around houses.

The main hypothesis is that stand structure characteristics (density, biomass...) lead to specific characteristics of litters (biomass, composition, coverage), in turn at the origin of different flammability. Samples of litters have been collected in the five vegetation types, following a transect. Flammability tests have been made in laboratory using a glowing wood cube. Various flammability parameters are measured such as time to ignition, flame height, ... Statistical tests such as variance analysis and linear regression allow to identify different behavior, in terms of flammability, according to the different stands types.

Poster session

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