

THE ROLE OF FOREST ROAD NETWORK IN FOREST FIRE PREVENTION AND SUPPRESSION: A CASE STUDY IN ITALY

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Abstract: *good forest roads are crucial to effective forest management and protection. The accessibility provided by a suitable road network is traditionally related to forest maintenance, wood harvesting, game control and recreation activities. However, in the last years the relation between forest road network and forest fire prevention and suppression is receiving more and more attention.*

A good forest road network simplifies fire prevention activities and is the key for efficiency and effectiveness of the ground extinction operations. In firefighting activities, mobility and quickness of the firefighter crews are guaranteed by the availability of land vehicles, but often the forest road network results inadequate. Forest roads are also essential for access to and maintenance of fire prevention infrastructures, like lookout towers, repeaters, water points and tanks, firebreaks. In this paper the main functions and features of forest roads in relation to forest fire prevention and suppression are described. Moreover, a method for forest road planning in fire-prone areas is suggested. The method is based on a GIS multicriterial approach and results in an Operational Difficulty Index in Firefighting (ODIF) and in a Decision Support System (DSS) able to visualize the effects of forest road planning on firefighting activities, in relation with the state or the improvement of other prevention/suppression infrastructures, such as water point, aerial mean allocation, firefighter bases distribution.