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Long term monitoring of reforestation activities in Liguria: social and environmental impacts

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From late XIX to the second half of XX century, in order to increase the income deriving from silvicultural practices, some areas of Liguria Region (Italy) have been subjected to afforestation and reforestation interventions. Albeit their socio-economic importance, many of these areas have been frequently damaged by wildfires; some of them are currently amongst the most vulnerable districts for forest fires in the entire Region. This work seeks to define a possible causal link between forestry operations and the evolution of the risk of forest fires in the last century.

A recent census and cataloging of historical archives preserved by State Forestry Corps (SFC) in Savona (Italy), has brought to light a conspicuous cartography of these interventions. These historical documents allowed to precisely locate the perimeters affected by forestry operations. Moreover, the analysis of annual reports, to which the maps were annexed, permitted to date back the evolution in terms of variation of plant species present on the territory. These new information have a great importance in the study of the evolution of forest fires dynamics since data until now used account for about two decades. This new historiographical approach has extended the observation time horizon, depicting an essential long-term frame of reforestation and land management practices.

The analysis took into consideration seven areas within Savona province. Maps relative to reforestation practices in these zones have been digitalized and converted into GIS layers. The obtained data has been linked with the static forest fire risk maps, used in the latest regional Forest Fire Risk Plan, produced by CFS, Region Liguria and CIMA. Subsequently the documentation contained in the annual reports, for the time interval 1930 -1970, has been analyzed obtaining the time series of the occurred forest fires. Additional information was gathered on the typology of planting techniques, on the social impacts of silvicultural activities in postwar Italy and, furthermore, on the development in time of an experimental approach for the utilization of different essences in forestry operations.

The methodology used for the analysis of these series has been predominantly a GIS analysis. The considered variables where: the morphological configurations of the reforested areas, proximity to residential areas, crops and other clusters of vegetation. The results, as well as having increased the evidence supporting the phenomenological study of the risk of forest fires, can provide a new basis for an improved planning of forest operations.