Econometric Model for the Diagnosis and Evaluation of Costs in the Planning of Prescribed Fires in the Forest Landscape[1]

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Abstract

The increasing use of prescribed fires, as a fire management technique for preventing wildfires and reducing their impact, demands the development of tools that enable performing the necessary studies for determining application opportunities in the territory. The generation of interesting uses of this technique not only directed to the control of forest fuel loads, but also to the creation and maintenance of operational scenarios related to the extinction and suppression of forest fires, requires analysis of the landscape on the basis of the multiple variables that influence decision-making. In this sense and in relation to the planning of budgetary investments in space and time, the incorporation of prescribed fires in the framework of wildfire defense programs requires the corresponding cost analysis, in order to integrate this information into the total budget for the wildfire defense and fire management program. At present, there are no models available to forecast and estimate the economic cost levels involved in the use of prescribed fire in different forest scenarios.

The selection of the appropriate variables directly related to the planning, execution and evaluation phases that involve the use of prescribed fires in the forest landscape, enable, together with the costs incurred and the factors related to fire propagation, as well as the different ignition techniques, determining the set of factors that make it possible to undertake the econometric analysis directed to the predictive modeling of the costs per hectare, derived from the execution of the prescribed fire in the forest environments, in which it has been decided to apply prescribed fires as a forest management tool. Determination of the econometric model facilitates opportunities for planning the costs of applying this technique; moreover, the results obtained can even be extended towards geo-referencing in the landscape and be integrated with the effect of reducing extinction costs and increasing extinction safety by decreasing propagation intensities. Application of the proposed econometric model aids in budgetary decision-making in wildfire prevention management for the forest landscape.

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