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COMPOSITE ASSESSMENT OF PRODUCTIVE, PROTECTIVE AND RECREATIONAL FUNCTIONS IN FOREST PLANNING

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Abstract

Woodland covers about one third of Italy. No longer just a source of products for fuels and buildings, forests also have a protective function against natural disasters like landslides and they also serve as recreational areas for people.

Our primary goal was to define an overall method for assessing the possible uses of woodland areas to help those preparing forest planning instruments for evaluating the productive, protective and recreational functions of the woodlands. We quantified, using Geographical Information System (GIS) technology, three indices to evaluate separately these functions and then obtain the composite value for each area. We also used hierarchical analysis (AHP) as an instrument for integrating the preferences of local stakeholders in the assessment process. Three possible scenarios were created that simulated the possible preferences of the decision-makers, and different weights were assigned using a pairwise comparison method (on the basis of the Saaty scale) as envisaged by the hierarchical analysis. The method was applied to a mountainous municipality of northern Italy within the Lombardy Region. The application demonstrated that the method, being transparent and understandable, is helpful for decision-makers. Further development should include applying the methodology to a larger area, adding ecological value to the wood products and introducing an economic value to the wood functions.

Key words: analytical hierarchy process, forest assessment, forest functions, geographical information system

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