

DEVELOPMENT OF AN INTEGRATED FOREST MANAGEMENT  
DECISION SUPPORT SYSTEM: INTEGRATING THE LANDIS  
MODEL AND ARCGIS

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ABSTRACT

Forest management is an important field for Decision Support System (DSS) application, but most of the current DSSs for forest management are not fully successful because: 1) the user interface is not friendly, or 2) GIS functions are not fully integrated into the system. These limitations unnecessarily reduce the use of DSS planning tools by forest managers, and decrease practical feedback from managers that could aid in further development of the landscape models.

This research presents a universal method to develop a Forest Management Decision Support System (FMDSS) by integrating the LANDIS 4.0 model with the ESRI ArcGIS platform. FMDSS was developed with Visual Basic, ESRI ArcObjects libraries and Microsoft Access database. FMDSS eliminates the time-consuming parameter editing work necessary for the LANDIS model, simplifies the technical operations of running the model, and allows managers to focus on evaluating their management plans. A case study is presented, applying FMDSS to data from the Mark Twain National Forest. This demonstration illustrates how the decision-making process is simplified by FMDSS, using the example of creating a new management area for fuel and harvest treatments.