



Expert System for Prescribed Fire Planning-

A project underway at the University of Minnesota, Department of Forest Resources, involves the development of an expert system to be used by land managers. This expert system will aid managers in making prescribed burn prescriptions. The central feature of the system will be its ability to link predicted fire behavior and fire effects. The land manager will answer questions about fuel conditions, recent weather, and planning variables. The expert system will respond with a conclusion describing the prescription "window" necessary for conducting a burn that is likely to produce the desired effects without exceeding safety limitations. The expert system shell INSIGHT2+ is being used. The system is rule-based and uses backward chaining (inference starting with a goal and working backward through the rules to reach a conclusion). In this system, the goal is a certain fire objective. The subgoals written into the rules include fire behavior characteristics such as flame length, fireline intensity, and rate of spread. All the conclusions necessary to plan will be presented to the user. The system design is based on experience with prescribed burns conducted by experts from 1964 to 1986 at the Cedar Creek Natural History Area (CCNHA) in Anoka County, Minnesota. The fire management area of the CCNHA that will form the basis of this expert system application contains oak savanna and tall-grass prairie vegetation.

---Catherine Malave, Thomas Burk, and Frank Irving, Department of Forest Resources, University of Minnesota, St. Paul, Minnesota 55108 (612/624-4780)