Prescribed fire, fire ignited under controlled conditions to achieve a particular set of objectives, is a modern forest management technique used to obtain a long-term healthy forest system. Although this technique is effective, there are many problems involved with prescribed fire procedures. Heat and humidity factors, precipitation, and uncertainties about fire behavior can cause the technique to be problematic. While prescribed fire can assist in eliminating forest residues and can enhance wildlife habitats, it also has the potential of destroying habitats due to uncontrolled or out-of-hand burning.

There are three major types of decisions that must be carefully made in the effective planning and execution of this policy. The first set of decisions deals with selecting the areas that are to be treated with prescribed fire. These decisions can be made several months or even years before the actual burning process. Secondly, various planning decisions are made several weeks or months before the actual burn. These decisions consider the overall objectives of the burn, fuel and residue conditions, fire-fighting techniques to be employed, scheduling, and deployment of equipment. Thirdly, execution decisions are made a few days prior to the burn and during the burning process itself. These decisions look at daily and hourly weather conditions and forecasts. In addition, the decision to initiate or delay the burn is made. Should the burn continue, be modified, or shut down? Is there a need for additional fire suppressing and retarding forces? These and related concerns are important execution decisions.

Decision tree analysis coupled with decision making under uncertainty have been used to assist in making effective prescribed fire decisions in areas of the Tahoe National Forest, the Prescott National Forest, and the Gifford Pinchot National Forest. Decision alternatives and possible states of nature were compared so total cost and potential losses could be reviewed. The result of decision analysis was a successful burning program for areas within these national forests.

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* Adapted from Cohan, D., Haas, S., Radloff, D., & Yancik, R. Using fire in forest management: Decision making under uncertainty. *Interfaces*, 1984, September-October, 8-19.