

GIS APPLICATIONS TO FIRE MANAGEMENT IN YELLOWSTONE NATIONAL PARK

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ABSTRACT

Yellowstone National Park experiences as few as 4 to more than 81-wildland fire starts each year. Management decisions and evaluation of various alternatives must be done quickly. Fires allowed to burn as a wildland fire for resource benefit must be re-evaluated on a daily basis and any suppression activities must be supported by the best available support information in order to apply appropriate management responses. The development of GIS and a number of spatial data sets make these activities faster and much more informed. Once a fire start is reported and the location determined GIS maps are requested and supplied. These maps give the location of the fires in relation to fuel types and entities of special concern such as, trails, back-country campsites, front-country developments, archaeological, cultural resources and park boundaries. Until the fires are declared out, their progress must be monitored and projected into the future. The fuels maps are used to develop fire behavior forecasts and project fire growth. When combined with topographic spatial data, projections for longer time periods under different weather scenarios can be produced. Following fires any needed rehabilitation of firelines and other suppression activities can be facilitated using this technology. GIS has proven to be a valuable decision support system for fire management in Yellowstone National Park.