Prescribed Fire

Fighting Fire with Fire

Prescribed Burns Reduce Wildfire Risk

Abstract: Prescribed burns are an effective way to combat the threat of destructive wildfire. Since 1996, the Flagstaff Fire Department has been successfully engaged in this activity in an urban setting.

The Flagstaff Fire Department (FFD) Fuel Management Program began in 1996 with the objective of reducing wildfire risk and improving forest health in-and-around the City of Flagstaff. Support from City Council and Flagstaff residents, the program's innovative approach, and actual on-the-ground accomplishments, have drawn national attention over the last six years.

Flagstaff is one of very few communities actively involved in reducing wildfire risk. Life and property are at very real risk. Wildfire also threatens many other community values such as the economy, recreation, watersheds, wildlife habitat and aesthetics. Paul Summerfelt, Fuel Management Officer, as said that "to protect all community values at risk, hazard mitigation must be comprehensive in scope. We work one-on-one with home and business owners to reduce risk on individual properties. We partner with City Planning and Development to implement firewise construction standards. Collaboration with the State Land Department, U.S. Forest Service and Greater Flagstaff Forest Partnership extends our firewise environment well beyond actual city boundaries. Our Fuel Crew works year-around to reduce hazardous fuel accumulations by thinning dense stands of pine trees and conducting prescribed burns".

Photo 1: Selective thinning in Thorpe Park, Summer 2002

FFD's fuel management treatments are based on the recognition that three primary factors influence fire behavior: fuel, weather and topography. Fuel is the only factor that can be managed by fire professionals. Selective thinning and prescribed burns reduce the amount of material available to burn in a wildfire which decreases fire severity, causes less environmental damage and increases probability of rapid control.

Prescribed burns are categorized as either "slash pile" or "broadcast" burns. Slash pile burns eliminate branches and treetops produced during selective thinning and usually occur during winter when snow inhibits fire spread. Broadcast burns usually occur during spring or fall. Surface fuels such as pine needles, leaves, branches and small logs are ignited in a gradual, systematic manner. Experienced firefighters monitor fire activity and adjust ignition patterns as necessary.

Photo 2: Firefighters monitor a prescribed burn within the City of Flagstaff

Many factors are considered prior to initiating a broadcast burn. A written burn plan is completed which outlines objectives and methods along with number and type of resources required to safely implement the project. Qualifications of personnel, range of acceptable weather conditions, safety, communication, and medical plans are also included. Control Lines are constructed around the perimeter of the burn unit to protect homes and other resources. Pine needles and duff are scraped away from snags and downed and dead trees to protect wildlife habitat. Weather is monitored constantly to determine general trends and identify time frames: conditions must be neither too wet nor too dry.

Photo 3: Low-moderate intensity ground fire consuming needles, branches, and grass

Smoke management is a high priority for FFD when any prescribed burn is planned and implemented. Every effort is made to mitigate possible health and aesthetic impacts associated with the inevitable production of smoke. Information contained in weather forecasts is used to predict probable direction and height of rising smoke. If predictions are not accurate, ignition is terminated. Large diameter fuels, such as branches and logs, are concentrated in piles prior to ignition to encourage rapid, complete consumption and eliminate smoldering that would otherwise occur if fuels remained dispersed throughout the burn unit. Ignition begins early in the morning, and ends by early afternoon, allowing adequate time for smoke dispersal before most people return home for the evening. Individual notification of planned burns is done upon request.

Visual impacts associated with prescribed burning include charred ground surface and scorching, or yellowing, of needles in tree canopies. The aesthetic value of the area is temporarily altered. However, visual impacts are usually mitigated fairly soon. If a broadcast burn is conducted in the fall, grasses and other surface vegetation are typically present the following spring or summer. Ponderosa pines can survive scorching to branches and needles on the lower half of the tree although the yellow needles may take up to two years to fall to the ground.

Wildfire is inevitable. Prescribed fire is an effective tool used by FFD to improve forest health and reduce the threat of destructive wildfire. For more information on wildfire risk reduction, call the Flagstaff Fire Department at (928) 213-2500 or visit the Wildland Fire Management web-site at ***www.flagstaff.az.gov/wildlandfire***.