




## Prescribed Fire and Hazardous Fuels Reduction at Mesa Verde

An aerial photograph showing a prescribed fire burning in a desert landscape. A red fire retardant is being dropped from an aircraft onto the fire. The terrain is rocky and sparsely vegetated.

Each year the park receives numerous lightning strikes during the dry summer months. Most of these strikes result in a "single tree" spot fire which is quickly located and suppressed. However, given the right weather and fuel conditions, any one of these starts has the potential to spread. The Soda Canyon Fire of 2008 near the Balcony House cliff dwelling was one such fire. The fire came to life five days after the initial lightning strike, and quickly spread to 12 acres within three hours before being "boxed in" with fire retardant delivered from air tankers.

### Protecting Archeological Resources



A wildfire approached, but did not damage Long House in 2000.

Mesa Verde National Park was established in 1906 primarily to protect the rich archeological resources. As part of the fire program in the park, we use hazardous fuels reduction<sup>1</sup> along with prescribed fire<sup>2</sup> to protect archeological sites from wildfire.

### Protecting Park Infrastructure



A large brush pile consisting of debris from various fuel reduction projects within the park is ignited under optimum winter weather and smoke dispersal parameters.

Hazardous fuels treatment along with prescribed fire are also used to protect park infrastructure such as the park headquarters area offices and other buildings, employee housing, water treatment facilities, and power and phone lines. In these areas, brush and trees are cut away from the high value resources. The brush is then moved and piled in a safe area. When the winter snow arrives and smoke management prescriptions can be met, the large brush piles are burned.



Fuel reduction effectively protected the park headquarters, housing and research areas during the 2002 Long Mesa Fire.

The park's hazardous fuels reduction strategy was put to the ultimate test in July of 2002 when the Long Mesa Fire burned directly toward park headquarters, housing and research areas on Chapin Mesa. With hazardous fuel treatments completed, firefighters were able to protect nearly all of the buildings in the developed area.

## Protection and Management of Natural Resources

We also use prescribed fire to protect and manage the natural resources and vegetation in the park. Some of the objectives and goals of prescribed fire include:

- Reintroducing fire back into a fire dependant ecosystem.
- Restoring degraded habitat and eliminating invasive weeds.
- Reviving the natural role of fire into the mountain shrub ecosystem.
- Improving and protecting wildlife habitat and promoting the release of nutrients back into the soil.

## Managing Prescribed Burns

Prescribed burning is only done if specific weather, fuels, staffing and safety conditions listed in the prescribed fire plan can be met. Once the prescribed fire is ignited, it is monitored closely to assure that burning operations remain within prescription<sup>3</sup> and to detect changes in the weather that could affect fire behavior.

At least one qualified fire monitor is assigned to each prescribed fire. Their task is to observe, record and track changes in weather, fire behavior and smoke production. Some of the items that they observe and record include:

- Weather: wind speed and direction, air temperature, relative humidity and cloud cover.
- Fire Behavior: spread direction, rate of spread, flame length, flame zone depth, percent shading, percent slope, fuel changes and fine dead fuel moistures.
- Smoke: plume height and direction, plume type, smoke color, highway and fire line visibility, and any impacts to sensitive areas.



Fire managers use drip torches to “strip fire” the interior of a prescribed fire burn block.



The objective of this burn near Morefield Campground in 2008 was to reduce the flashy fine fuels adjacent to park residences and campground facilities, reduce the invasive grass smooth brome, and provide a seed bed for the natural regeneration of native Douglas fir and ponderosa pine trees in the area.



After the prescribed fire is out, the prescribed fire managers and monitors carefully revisit the area to make sure that the objectives and goals outlined in the prescription have been met. Measurements are taken on plots that were established before ignition and data is collected from the plots after the fire. This post fire monitoring enables fire managers to fine tune their prescriptions for future prescribed fires.

Fire effects monitors establish fuel loading and plant species composition plots prior to a prescribed burn project. The objective of this burn was to determine effects of fire on cheatgrass regeneration.

## Glossary

- <sup>1</sup> **Hazardous Fuels Reduction:** Removing and reducing natural vegetation in an area to lessen the possibility of catastrophic fire. The objective is to remove enough fuel so when a wildfire burns, it is less severe and can be more easily suppressed.
- <sup>2</sup> **Prescribed Fire:** A fire that is ignited by fire professionals under a set of conditions that must be met before ignition and which is carefully monitored. A prescribed fire is used to manage certain types of landscapes.
- <sup>3</sup> **Prescription:** A burn plan that indicates the acceptable fuel and weather conditions under which a fire should be set so that the blaze can be controlled.