

CHAPTER 5 – FIRE MANAGEMENT

5.1 INTRODUCTION AND RESOURCE OVERVIEW

The Moab District Fire Management Plan (Moab FMP) (BLM 1998) includes fire management directives for three BLM Field Offices: Moab, Monticello, and Price. For the purpose of this AMS, the term Moab Fire District refers to the 6.5 million acres of BLM-administered land in these field offices, which are located in Carbon, Emery, Grand, and San Juan Counties, Utah. This widely reaching management area includes many diverse landscapes with a range of fuel types such as salt desert shrub, sagebrush (*Artemisia* spp.), blackbrush (*Coleogyne ramosissima*), grasslands, pinyon pine (*Pinus edulis*)–juniper (*Juniperus osteosperma*), and high-elevation conifer forest. The Moab Fire District is responsible for all suppression, dispatch, prevention activities, and hazardous fuels treatments in the three field offices listed above. This chapter describes the fire management direction for the Monticello Field Office (FO) planning area.

The fire history of the Moab Fire District is closely tied to regional periods of drought. The current drought was preceded by two decades of greater than normal precipitation, which has set the stage for an increase in fire risk. In 1998 the average fire occurrence in the Monticello FO was 34. In 2003, the average had increased to 52 fires per year. Fire naturally plays an integral role in most vegetative ecosystems by reducing fuel accumulations and regenerating plant communities. In protecting human life and property, fire suppression has altered this successional trend, resulting in fuel build-ups and decadent shrublands and forests. In the Monticello FO planning area, current grazing practices and prehistoric episodes of deforestation have greatly contributed to the existing distorted fire regimes. Fire management direction now encourages incorporation of wildland and prescribed fire and mechanical thinning in an effort to restore overall ecological health to the landscape.

Other land management practices have attempted to mimic the ecological outcome of fires. From the late 1950s through the 1960s in San Juan County, approximately 50,000 acres of pinyon-juniper and sagebrush were either chained or railed, then seeded with crested wheatgrass. However, the lack of maintenance on many of these treatments has allowed for the conversion of natural and man-made grasslands into single-age class, woody stem vegetation communities that will only burn during extreme drought and fire conditions. When such fires do occur, they are often catastrophic and have serious detrimental effects on both cultural and natural resources. Because of such management practices, suppression now plays a secondary role to the conversion of grasslands and sagebrush to pinyon-juniper woodlands.

5.2 SPECIFIC MANDATES AND AUTHORITY

- Tribal Forest Protection Act (2004) (118 STAT. 868; Public Law 108-278 – July 22, 2004), authorizes the Secretary of Agriculture and the Secretary of the Interior to enter into an agreement or contract with Indian tribes meeting certain criteria to carry out projects to protect Indian forest land.
- Federal Wildland Fire Management Policy (1995), revised as Federal Fire Policy (2001) provides for firefighter and public safety first, while protecting and improving public lands through fire management activities. Reviewed in 2001, improvements to implementation actions were recognized as necessary to ensure adoption of the Federal Fire Policy (2001) by all federal agencies. The review concluded that while the 1995 Policy is still appropriate, the role of fire should be emphasized in land management to improve ecosystem health and sustainability. Also, more attention must be given to fire risk in the wildland urban interface (WUI), and

implementation of the Policy could be improved through better interagency and interdisciplinary coordination.

- The 2000 National Fire Plan was developed under Presidential direction following the fires of 2000. The National Fire Plan calls for the continued development and support of firefighting resources, to restore damaged landscapes, and to rebuild communities, with economic assistance as necessary. It differs from the 2001 Federal Fire Policy in that it focuses more specifically on operational activities.
- The 2000 Cohesive Strategy aims to reduce wildland fire risk to communities and to restore and maintain ecosystem health by restoring vegetation to its historic fire regime (i.e., fire frequency and intensity) (Lavery and Williams 2000).
- The 2003 Healthy Forests Initiative focuses on expediting fire prevention projects involving fuels treatments, especially in the WUI. Its goal is to provide land managers with the ability to reduce hazardous fuels and restore wildfire-damaged areas (U.S.D.A. et al. 2002).
- The Clean Air Act and EPA's Interim Air Quality Policy on Wildland and Prescribed Fires (April 23, 1998 requires attainment/maintenance of National Ambient Air Quality Standards (NAAQS), and recommends implementation of Smoke Management Plans (SMPs).
- Categorical Exclusions 1.12 (hazardous fuels treatments) and 1.13 (post-fire rehabilitation) and revised Bureau policy regarding hazardous fuels treatments and post-fire rehabilitation projects as of June 5, 2003 (USDI 2003). Use of the categorical exclusions requires managers to prepare a decision memorandum documenting the implementation of a proposed project (USDI 2003).
- Southeastern Utah Annual Fire Operation Plan coordinates cooperation between other BLM districts, USFS, BIA, State of Utah, and NPS. The plan also includes procedures for initial attack of a wildfire.
- Instruction Memorandum No. 2003 re: Land Use Plan and Implementation Plan Interim Guidance for Wildland Fire Management, which supercedes BLM Handbook 1601-1 Appendix C, Section J, Fire Management. This interim guidance ensures that the Federal Wildland Fire Management Policy and the 10-Year Comprehensive Strategy guidance are incorporated into land use plans.
- BLM Manual Handbook H-1742-1 (and supplemental guidance 11/27/2002) outlines procedures for emergency stabilization and restoration.
- Final Environmental Impact Statement Vegetation Treatment on BLM Lands in the Thirteen Western States (1991 directs the appropriate use of vegetation management techniques.
- BLM Prescribed Fire Manual H-9214 directs planning and implementation of prescribed fire projects and associated prescribed fire plan content (BLM 2000).
- Interim Management Policy for Lands Under Wilderness Review H-8550-1 USDI, BLM 1995 Section J Fire Management provides direction for fire management activities in these specially designated areas.

5.3 CURRENT MANAGEMENT PRACTICES

The Moab Fire District is responsible for all suppression, dispatch, and prevention activities in the three field offices mentioned above. However, fire management projects involving hazardous fuels reductions, WUI issues, invasive and noxious weed treatments, rehabilitation, and emergency stabilization and restoration (ESR) are implemented at the field office level.

5.3.1 Fire Management Plan

The 1998 Moab FMP acts as the primary strategic document for fire management. It identifies land units in terms of vegetation and fuels, and specifies the necessary objectives and activities for the delineated management areas with the goal of restoring or suppressing fire while protecting firefighters, the public, and natural resources.

The Moab FMP divides the Monticello FO planning area into Fire Management Zones (FMZs), based on fuel type, to better identify resource goals and objectives at a more manageable scale and determine the most efficient organization of fire-related responsibilities and activities. (This step is consistent with planning guidance in BLM Handbook 1601-1 Appendix C.) Figure 5-1 shows FMZs across the Moab Fire District.

The following three FMZs were created to categorize areas of similar fuels and fire behavior. Within each FMZ, Representative Locations (RLs) were identified to represent a typical fire response, and to be used for future monitoring of management objectives. Two of the three FMZs occur in the Monticello FO planning area.

5.3.1.1 Zone 1 – Pinyon -Juniper

The vegetation in this FMZ is dominated by stands composed of pinyon and juniper, with some scattered pockets of grass, sagebrush, and, sometimes, ponderosa pine. Mesas and benches characterize the geography of this mid-elevation landscape. RLs in the Monticello FO planning area include the Montezuma Canyon area, the Grand Gulch area, and other pinyon-juniper stands around Monticello and Blanding.

5.3.1.2 Zone 2 – Brush/Sage/Grass

Sagebrush and grasses dominate this vegetation type in FMZ 2. This FMZ occurs in valleys and riparian areas at lower elevations across the district. RLs include a combination of areas to the north and south of Monticello.

5.3.1.3 Zone 3 – Timber

This FMZ, which contains the rugged and remote terrain of the Book and Roan Cliffs at the northern end of the District, does not occur in the Monticello FO planning area. Vegetation of the high-elevation, north-facing slopes is dominated by Douglas fir (*Pseudotsuga menziesii*). Mountain brush and Gambel's oak (*Quercus gambelii*) occur on the south-facing slopes, and pinyon pine generally occurs at the lower elevations.

Within the FMZs, the District is also divided into polygons based on fuel types, which are assigned one of the following four management categories to identify how fire would affect resources and desired outcomes within the area. Polygon descriptions also include fire suppression constraints specific to sensitive resources in each polygon.

- A – Wildfire is not desired at all.
- B – Wildfire is likely to cause negative effects, but these effects may be mitigated.
- C – Fire is desired, but there are constraints.
- D – Fire is desired and there are no constraints or areas where fire will not normally burn.

Acreage values of wildfire and wildfire use treatments were determined by polygon and representative location. Over a ten-year period, 58,500 acres were identified as desired to burn across the entire District, or 5,850 per year. Wildfires account for approximately 5,630 acres per year. Under the FMP, the remaining acres would be treated with prescribed fire/mechanical methods. Over the last 20 years, one prescribed burn every two years has been the average. Mechanical treatments have occurred even less frequently, as funding for these projects has been lacking. The FMP identified 43 projects over 57,000 acres, and projected an average of 12 treatments per year by the year 2002.

Actual acreage values planned for treatment and the necessary budget is recorded weekly through a government on-line program called National Fire Plan Operations & Reporting System (NFPORS). Currently, approximately 1,000 acres are treated each year across the Moab Fire District (Suwyn 2003).

Fire Regime Condition Class (FRCC) is a description of vegetation conditions based on the change from natural fire regime and includes effects of fire suppression (fuel loading and encroachment) and invasive species invasion. FRCC is being considered in the current draft FMP (2004).

There are three FRC classes:

1. within historical range for fire regime and vegetation attributes;
2. moderately altered from historical range for fire regime and vegetation attributes;
3. substantially altered from historical range and vegetation attributes.

Across Utah, major vegetation community type changes have occurred in grasslands, salt desert shrub, sagebrush, and pinyon – juniper woodlands.

Table 19.1 depicts the estimated percentage of woodland and forested lands within each Condition Class statewide, and the percentage of which the Condition Class is unknown.

Table 5.1 Utah Woodland and Forestland by Condition Class

	Condition Class 1 (%)	Condition Class 2 (%)	Condition Class 3 (%)	Condition Class Unknown (%)
Woodlands	25	23	35	17
Forestlands	29	32	15	24

Source: BLM 2002

5.3.2 San Juan RMP

In addition to direction from the Moab FMP, the current San Juan RMP also specifies wildfire suppression where necessary to protect life, property, and resources, or conditional suppression in areas under a special designation. Limited fire suppression is to be conducted in areas closed to OHV use. Prescribed fire is allowed for restoration purposes. General management guidance is in accordance with the Moab FMP.

Specific prescriptions include:

- Suppression – categories for protection include: high resource values (264,600 acres); developed recreation sites (250 acres); and aquatic/riparian habitat in SPNM- and SPM-class areas (1,210 acres).

- Conditional Suppression – a total of 1,453,530 acres, containing the ACECs, ROS class areas, and other resource values.
- Fire Use (prescribed fire) – maintain 59,600 acres of areas with prior seedings or new seedings.

5.3.3 Wildfire and Wildfire Suppression

By 1998, lightning caused 75 percent of the wildfires across the Moab Fire District, with the remaining 25 percent caused by humans. Approximately 135,000 acres burned in wildfires from 1980 to 2002 (50,000 of which occurred in 2002).

A policy of "appropriate management response" directs fire suppression in the current FMP. Depending on the FMZ and management category, a range of suppression options can be used to control a fire ranging from full suppression, containment strategies, or just monitoring. In general, direction for fire suppression given in the Moab FMP is still considered appropriate.

5.3.4 Rehabilitation and Restoration

Lands not likely to recover naturally from fire damage receive planned rehabilitation and restoration projects. Activities include reforestation and replanting, seeding, watershed and wildlife habitat restoration, road and trail rehabilitation, and invasive plant treatments.

5.3.5 Emergency Stabilization and Restoration (ESR)

ESR projects follow a wildland fire event. The burned area is evaluated for whether the existing resources are at further risk of degradation, and whether ESR treatments are necessary. Soil loss, revegetation challenges, and stream sedimentation are a few issues that must be addressed following wildland fires. A restoration plan is developed and implemented if necessary. ESR treatments vary depending on site-specific needs, but may include seed bed preparation, water retention structures, erosion control, or rest periods from livestock grazing.

5.3.6 Rangeland Improvements

Thousands of acres of pinyon-juniper woodlands treatments, including chaining followed by seeding with crested wheatgrass, and riling and chemical treatments followed by seeding in sagebrush communities have occurred. The initial investment in these areas was to be maintained; however, follow-up treatments have been limited (Dale 2003). Approximately 6,500 acres have had maintenance since the mid-1980s, the most recent being Salt Creek Mesa in 2002. Chaining is not currently used as a treatment in the Monticello FO planning area.

5.3.6.1 Pinyon-Juniper

The Southwest is currently experiencing high levels of pinyon mortality in pinyon-juniper stands. Pinyon is not drought resistant, leaving it stressed under the current climactic conditions and highly susceptible to insect infestations. The Ips bark beetle (*Ips confusus*) and black stain root disease combine to kill individual pinyon trees. The combination of drought conditions and Ips beetle outbreaks has killed 20 to 30 percent of the pinyon in San Juan County. Surrounding areas in Colorado (Montezuma County) have experienced up to 80 percent mortality. The overall decline in forest health and subsequent increase in fuels has increased the pressure to actively treat these stands, either with mechanical treatments (thinning) or prescribed fire. However, the lack of ground fuel under the dense pinyon-juniper stands, combined with the resulting matrix of dead individuals actually decreases the risk of catastrophic, crown-fires

(Romme 2003). The loss of individual trees mimics a thinning treatment, except that the amount of fuel increases during mortality events. Fires in live pinyon-juniper stands often develop into crown-fires, which are plume-dominated, fuel-driven fires. However, without a continuous live canopy to carry the flames, only individual trees will burn. Prescribed fire applied to these areas is labor intensive and difficult to maintain, and in some instances, individual trees must be lit. Thus, management prescriptions differ in live, dense stands of pinyon-juniper with continuous canopies compared to stands with some pinyon mortality.

5.3.6.2 Fire Use and Fuels

Under Moab Fire District direction, the Moab Fuels Team identifies hazardous fuels and implements fuels reduction projects across the three field offices (see Table 5.1 for Monticello FO projects). Team goals are consistent with direction from the National Fire Plan and the 2003 Healthy Forests Initiative, which are to manage fire and fuels to first protect human safety and property, to protect critical resource values, and to restore the natural role of fire to the ecosystem. The Fuels Team aims to implement approximately 5,000 acres per year of hazardous fuels and WUI projects within each field office (Suwyn 2003). The Monticello FO implements an average of three WUI fuels reduction projects each year.

The Moab FMP identified the following prescribed burn and mechanical treatment projects by field office.

- Moab FO – 22 projects over 110,000 acres.
- Monticello FO – 43 projects over 57,000 acres.
- Price FO – 19 projects over 8,600 acres.

The 1998 FMP also projected an average of 12 treatments per year by the year 2002. A list of recent fuels reduction activities in the Monticello FO area is included in Table 5.1.

5.3.6.3 Cultural Resources

Protection measures for cultural resources are site-specific and include avoidance of archaeological remains. Vehicles are not allowed within site boundaries. Hand thinning, using chainsaws, is often recommended. Re-introduction of low intensity prescribed fire is often recommended for fire-adapted sites. Slash piles resulting from thinning are not allowed within site boundaries.

Compliance with Section 106 of the NHPA and consultation with the SHPO and interested Native American groups are completed on a project-specific basis before decisions are made to carry out fire management activities that could affect cultural resources. Individual fire management activities are preceded by a complete review of known resources and a field survey, as appropriate, for identification of cultural resources that might be affected by the proposed activities. Based on these investigative findings, recommendations are made to protect sites from proposed activities.

Table 5.2 Complete and Proposed Fuels Reduction Projects on the Monticello FO Planning Area

Project Name	Location	Acres	Fire and Fuels Objectives	Resource Objectives
Salt Creek Mesa	T33S R20E	1,382	Hazard fuels project to reduce fire risk by treating fuels with mechanical and prescribed fire.	Restore natural vegetation, increase diversity, increase wildlife habitat and range for cattle; protect initial investment of chaining and seeding.
Eastland WUI	T34S R24E	240	WUI project to reduce fire risk by treating fuels with mechanical and prescribed fire.	Same as fire and fuels objectives.
Shay Mesa	T32S R22E	2,000 (proposed)	Hazard fuels project to reduce fire risk by treating fuels with mechanical and prescribed fire.	Restore natural vegetation, increase diversity, increase wildlife habitat and range for cattle; protect initial investment of chaining and seeding.
Monument Canyon WUI	T35S R25E	Unknown (proposed)	WUI project to reduce fire risk by treating fuels with mechanical and prescribed fire.	Same as fire and fuels objectives.
Peter's Canyon WUI	T32S R23E	150	WUI project to reduce fire risk by treating fuels with mechanical and prescribed fire.	Same as fire and fuels objectives.
Sand Island/ Indian Creek	T32S R22E Sec. 21/ T40S R21E Sec.33	20	WUI project to reduce fire risk by treating fuels with mechanical and prescribed fire. Also treats invasive species (tamarisk and Russian olive).	Same as fire and fuels objectives.
Snow Flats Road	Cedar Mesa (outside WSA)	Unknown (proposed)	Create shaded fuelbreaks along existing roads by thinning crown spacing to 40' and pile and burning debris in archaeologically approved areas. Use ground support for burnout operations along roads prior to a wildfire flame front.	Prevent wind and fuel driven fires from burning uncontrollably on Cedar Mesa.

5.4 RESOURCE DEMAND AND FORECAST

Of the programs under fire management, the fire use and fuels program is experiencing the most change. Personnel have increased from one to six in the last three years, and planned treatments are projected to change from 1,000 acres per year over the entire Moab Fire District, to 5,000 acres per year in each field office. The Moab Fire District has taken direction from the Federal Wildland Fire Policy and the National Fire Plan and increased the number of fuels reduction activities. The Moab Fire District requires fuel treatment options to meet current management needs.

5.5 CONSISTENCY WITH NON-BUREAU PLANS

Other federal agencies with land adjacent to the Monticello FO planning area include the National Park Service (NPS) and the US Forest Service (USFS). The Navajo Nation lands are managed by the Bureau of Indian Affairs (BIA). After federal and state managed areas, the remaining eight percent of San Juan County is under private ownership.

The three BLM field offices managed under the Moab Fire District provide fire fighting assistance to each other as well as other BLM districts, the USFS, the BIA, the State of Utah, and the NPS. All federal programs incorporate the National Fire Plan and Federal Fire Policy (2001). Fire suppression policy is consistent among the federal and state agencies. Interagency and intergovernmental coordination facilitates initial attack response.

A city fire department will initially respond to a fire within its jurisdiction, but primary firefighting responsibilities are typically passed over to the BLM and other federal agencies.

The Desert Edge Interagency Fuels Committee (DEIFC), a subcommittee of the State Fuels Committee, meets three times per year to discuss fire projects and opportunities.

5.6 ISSUES OR CONCERNS

Many locations within the Monticello FO planning area are at high risk for catastrophic wildfire. The potential for large, hot, uncontrolled crown fire that threatens these locations also threatens prehistoric and historic archaeological remains with abnormally high levels of fire effects damage such as scorching, charring, smoke-blackening, oxidation rinds, complete consumption of artifacts, alteration/contamination and destruction of potential dating samples, damage resulting from suppression activities, and extensive post-fire erosion.

Dense, decadent pinyon-juniper stands are at a high risk for catastrophic fires. Cedar Mesa, a culturally rich area densely vegetated with pinyon-juniper, is one such area at high risk of burning. Heat and high winds on this southeast-tilting plateau create favorable conditions for a plume-dominated fire (Dale 2004). Also at risk are areas experiencing sagebrush die-off, estimated in the FO planning area to total 66,166 acres (data compiled by UDWR and BLM 2003). Severe wildfire events affect other resources such as air quality and Class I visibility restrictions, archaeological sites and artifacts, soils, wildlife habitat, rangeland productivity and vegetation regeneration, and water quality. Steps to prevent severe fire events would also prevent impacts to these other resources from fire.

Thousands of prehistoric archaeological sites representing at least 11,000 years of human occupation have been recorded on BLM-managed land in the Monticello FO planning area. Some of these sites have not previously experienced fire and are very sensitive to the effects of fire. Others have previously

experienced fire numerous times and have more or less reached stasis with fire. This concept is complicated by the well-established hypothesis that modern fuel loading is much higher than prehistoric loading, as a result of historic grazing practices, and more recently, modern fire suppression. Historic sites are generally more sensitive to fire, since they often have not yet experienced fire and contain a higher percentage of flammable artifacts. Site types include remnants of early homesteading, mining, logging, CCC camps and water control devices, among others.

While some vegetation treatments to improve rangeland conditions have occurred, monitoring is needed to protect this initial investment and ensure that resource management goals are met. The remoteness of much of the Monticello FO planning area has prevented fire suppression from being the dominant factor driving successional change. Influence from insect infestations, livestock management, increased recreation activities (OHV use) and the current drought conditions help determine the current vegetation condition.

Invasive and noxious weeds are an increasing concern. Halting the tamarisk invasion along waterways across the FO planning area poses a difficult challenge to vegetation managers. Tamarisk burns very hot and fast, resulting in a high risk for severe wildland fire events to occur.

5.7 MOAB DISTRICT FIRE MANAGEMENT PLAN

While the fire suppression policy in the current RMP is still considered generally appropriate, some changes are needed to update the FMP. The Moab FMP does not address Fire Condition Classes, or hazardous fuels, WUI, and ESR projects. These activities should be incorporated into fuels management planning. Also the old direction of using FMZs, RLs, and ABCD polygons is no longer used in new FMPs.

5.8 MANAGEMENT OPPORTUNITIES AND LIMITATIONS

By federal mandate, the current FMP will be updated this year to incorporate Fire Regime Condition Class (FRCC), and the fuels reduction and WUI components of fire management. National Fire Plan and Federal Fire Policy direction has made these aspects of fire management a priority. The RMP and FMP must be tightly coordinated; the tie between the two plans could be improved. The RMP should also allow for fire managers to adapt their program to the latest management directions and resource needs. As fire policy and resource conditions continually change, managers must be able to adapt projects to meet current management objectives.

While current FMP was not predicated upon protection of cultural resources, affording sites this protection is a major focus of the plan. In addition to calling for appropriate levels of archaeological inventory of areas to be treated for hazardous fuels and post-fire rehabilitation, the plan identifies specific types of treatments (i.e., hand tools vs. heavy equipment) to be used in areas of high archaeological sensitivity. These activities should be carried over into future FMP guidance.

Management actions to slow the pinyon mortality could be applied. Active options include prevention or direct control. Prevention includes insecticide spraying, selective thinning of damaged trees prior to infestation, or thinning dense stands. Direct control involves identifying infected trees and individually treating them by burning and removal.

Greater use of prescribed fire and mechanical treatments to protect and enhance watershed quality would help achieve desired future condition, and perhaps allow the natural role of fire to return. Such treatments

should be monitored with follow-up treatments planned as needed. Successful implementation of fuels reduction and restoration projects cannot occur without adequate funding.

Fire management objectives should remain consistent across field offices within the Moab Fire District. Planners have the opportunity to work with all field offices to increase management efficiency. Coordination between the field offices should increase.

5.9 REFERENCES

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