IV. Fire Management Components

IV.A. Wildland Fire Suppression

IV.A.1. Fire Planning Unit Fire History

Fire History - Lightning caused fires have been an integral factor in the formation and arrangement of vegetation types in the Rocky Mountains. Ironically, while fire burned UCRs and rangelands, it also renewed them. There is growing recognition that land-use practices, combined with fire suppression, have altered the natural cycle and role of fire. These actions have resulted in; heavy accumulations of dead material (tree and shrub branches, leaves, and decaying organic matter), unnatural vegetative structure and composition, and often a continuous arrangement of fuels. Invasive species have been introduced in to some areas. Cheat grass and tamarisk are species that are fire adapted and tend to become monocultures when fires occur. The Ips beetle is causing a high level of mortality in the Pinon. Ecosystems are said to be out of balance or outside their natural range of variability. When this occurs, wildland fires may ignite more quickly, burn with greater intensity, and spread more rapidly and extensively than in the past.

Occurrence - During the period of 1980 – 2003 the UCR FPU averaged 180 fires per year, burning 167 acres annually. Approximately 99.7% of these wildfires are Size Class A, B, C and D incidents (less than 300 acres in size). On average, lightning accounts for approximately 66% of the annual number of fires while a variety of human caused fires accounts for the remaining 15%, and 19% are unknown cause. While the majority of fires are relatively insignificant in terms of size and fire intensity, periodic stand replacement events typically burn at high fire intensity levels (FIL 5 and 6). These fires can be several thousand acres in size. The Coal Seam Fire (2002) which burned 9,000 acres is the largest historic fire on BLM. The Big Fish WFU (2002) which burned 17,000 acres is the largest fire on the UCR FPU. Large fire (> 1,000 acres) occurrences for the UCR FPU can be found in Appendix G.

Table IV.A.1. Historical Fire Data for the UCR FPU

Area	Avg. # of Starts/Year	Average Total Acres Burned/Yr.	Average Annual % Fire Starts by Cause		
			Lightning	Human Caused	Unknown
GSFO:80-03	55	25	76	07	17
GJFO:80-03	82	40	68	12	20
WRNF:80-02	33	38	38	41	21
CNM:48-02	2	8	78	22	0
GVRD:80-02	8	56	58	20	22
FPU Total	180	167	66	15	19

Range of Potential Fire Behavior - During green-up and following seasonal precipitation events, fire behavior is normally characterized as smoldering or creeping with limited rates of spread. Lightning starts are usually confined to single trees or small clumps of trees and associated vegetation.

Prior to green-up and during peak seasonal burning periods, active fire behavior may be observed with higher rates of spread and intensities that exceed manual and mechanized suppression efforts.

During extreme burning conditions, such as those associated with seasonal drying and/or long duration drought conditions, significant stand replacement events may occur. These events are typically wind-driven and may cover hundreds to tens of thousands of acres during a single burning period.

The western slope of Colorado is experiencing a long-term drought that has led to water-stressed and/or insect-damaged vegetation. As drought conditions persist in the West, there is increased potential for large, high intensity wildland fires indicating the need for a progressive and complete fire management program.

The accumulation of fuels resulting from past management practices and fire protection activities, in addition to insect and disease stressed timber, create a high likelihood of stand replacing, high intensity fires (FIL 5 and 6). These fires could potentially be several thousand acres in size.

IV.A.2. Suppression/Preparedness Actions

Operational Roles - The operational roles of the BLM in the wildland/urban interface are wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, State, or local governments, as described in the Interagency Standards for Fire and Fire Aviation Operations.

Suppression - Following direction in the NPS and BLM's RMPs, the UCR FPU suppression strategy is to use Appropriate Management Response (AMR) on all fires in accordance with management objectives and based on current conditions and fire location. Every wildland fire will receive AMR to protect firefighter and public safety, values at risk, and minimize suppression costs. AMR can vary from aggressive initial action to monitoring. See detailed description of FMUs (section III D) for specific suppression objectives and fire management constraints.

Requirements for fire operations/suppression plans can be found in the "Interagency Standard for Fire and Fire Aviation Operations" (Red Book) (USDI and USDA 2004) and the Office of Fire and Aviation website at http://www.fire.blm.gov/. All plans for fire and resource personnel use can be accessed at the Dispatch Office. See Section V of this document for a complete summary of the preparedness organization including staffing, budget, equipment, etc.

Preparedness Levels - The UCR Operations Specialist or the designated acting will determine daily preparedness level using the processes outlined in the Unit Fire Danger Operating and Preparedness Plan (Appendix H). The two NFDRS components used in developing the adjective rating are energy release component (ERC) and ignition component (IC). Preparedness levels are tracked daily and over a rolling three day period. Guidelines for initiating appropriate management actions for each preparedness level are identified on the following pages. It should be noted that trends will be used to guide appropriate management actions to be undertaken by the UCR staff to avoid rapid changes in management actions in response to short term weather conditions.

Annual Preparedness Reviews - Zone preparedness resources undergo a readiness review by agency/interagency fire management specialists prior to June 15th annually. Readiness reviews may include; Dispatch Center, Helitack and staff management functions at the discretion of the Unit FMO and review team.

Review elements will examine those items on the checklists included in the Fire Readiness Review Guide (1998 as amended) at a minimum.

Employee Participation - Agency Administrators ensure employees are trained, certified and available to participate in wildland fire program locally, regionally and nationally as the situation demands, as described in the Interagency Standards for Fire and Fire Aviation Operations.

IV.A.3. Fire Prevention, Community Education, Community Risk Assessment, & Other Community Assistance Activities (Firewise).

IV.A.3.1 Prevention Program

Prevention activities are an integral part of the fire management program within the UCR FPU because a significant percentage of fires are human caused. This is due to population, the amount of intermingled private lands, the interest in outdoor recreation activities, and the large amounts of public land accessible by roads and rivers. The greatest risk for human caused fires exists in areas of high use and major travel corridors (roads, highways, and rivers). When warranted, prevention efforts such as posting signs, increased patrols, and public contact are focused on these areas.

Year round activities include normal fire prevention programs and public awareness of fire conditions. Details of the prevention program may be found in the existing Wildland Fire Prevention Plan for the BLM Grand Junction District available at the West Zone FMO office in Grand Junction. This plan was completed before the advent of the interagency organization and the BLM reorganization into FOs. The activities identified in the plan are still valid. A revised plan encompassing the other participating agencies is targeted for completion by September 2006. Fire prevention activities for the FPU are accomplished by the interagency fire management and visitor information staff groups. A typical range of program efforts is undertaken including signing, press releases and public service announcements, educational programs targeting school children and UCR visitors and coordination with local cooperators during periods of high fire danger.

Smokey Bear Program - The UCR FPU participates in the Smokey Bear Program to maintain public awareness of the need to prevent human caused wildfires. Smokey Bear related fire prevention materials are distributed at agency offices as well as through educational programs that focus on local school children. UCR employees dressed as Smokey Bear participate in local festivals and parades throughout the UCR.

Direct Contacts and Visitor Information – Office and field contacts with public land visitors across the FPU provide opportunities to share information regarding current fire danger and tips for camping and backcountry use. The FPU receives heavy visitor use in dispersed backcountry settings as well as at developed recreation facilities. High recreational use and the potential for human caused fire begins after Memorial Day and continues through the big game hunting seasons in October and November.

Media Contacts - These contacts are made through radio, television, newspapers, and signing. Press releases, informal contacts, and feature articles are also used to get the message to the public. The fire program relies heavily upon the expertise of the agency public affairs officers for professional interaction with the media. In addition a cadre of media liaisons and Type III Information Officers is used to give timely response to media inquiries.

Interagency Fire Prevention Programs - The FPU and Zone FMOs routinely coordinate fire prevention activities with Federal, State and local cooperators and communities.

Risk Assessments and Mitigation Plans - Community risks assessments and mitigation activities are conducted in partnership with the local communities each year. Preparation of a Community Wildfire Protection Plan (CWPP) is the logical next step after a county fire plan has identified communities-at-risk and set mitigation priorities. The CWPP assesses the wildfire threat to a neighborhood or community and the surrounding landscape. It locates values-at-risk in detail and determines the specific vegetation management, road improvements, water sources,

warning systems, evacuation routes, changes to buildings to make then less flammable, fire department preparedness, and other actions needed to reduce the threat of wildfire.

The Colorado State Forest Service takes the lead in community wildfire protection planning but the county fire mitigation specialist, sheriff, American Red Cross, rural fire department, or other organization may carry out the actual planning. In every case, the NPS, USFS, and BLM seek to collaborate as partners in the planning effort and provide technical advice and financial assistance in many cases. To the extent possible, the agencies involve interested community residents and other stakeholders in data collection and analysis for fire planning on neighboring public lands the agency manages and provides advice on fire ecology, vegetation management, and fire preparedness to communities.

Wildfire Investigations - All wildfires are investigated for cause. The FPU has had incidents of arson in the past, but it is not a regularly occurring problem. If human cause is suspected and sufficient evidence is available and/or the cost of the fire is significant, then a fire investigator is called in for investigation.

IV.A.3.2 Special Orders and Closures

Coordination and Authority - Restrictions may be imposed to reduce the risk of human-caused fire during periods of extended high fire danger. Emergency closures have a substantial impact on the public and are only used under the most severe conditions.

The UCR FPU coordinates fire restrictions, recommended by FMOs, and approved by the appropriate land managers, in coordination with local cooperators (primarily county sheriffs and county emergency planners). The County Wildland Fire Operating Plans guide fire restrictions and closures for the UCR FPU. This agreement outlines procedures for cooperative and uniform implementation of fire restrictions when Very High to Extreme fire danger is predicted to continue. A cooperative effort to revise and standardize the fire restriction implementation process was begin late in 2004. The draft process was tested during the 2004 fire season. A final version should be complete in time for implementation during the 2005 fire season.

Restrictions and closures are keyed to the National Fire Danger Rating System ERC Index trend. There are two fire restriction stages and one closure stage. Refer to the Fire Restriction Toolbox (2002) for further information.

Stage I	Restricts open fires to developed recreation sites or improved sites. Restricts smoking to an enclosed vehicle or building, a developed recreation site or while stopped in an area at least three feet in diameter that is barren or cleared or all flammable materials. Use of an approved spark arrestor for use of any internal combustion engine is required.
Stage 2	Stage two prohibits fires or campfires, smoking except within an enclosed vehicle or building, possession and discharge of any fireworks or pyrotechnic device, use of explosives, welding and use of any internal or external combustion engine without an approved spark arrestor. Chainsaw operations as well as other equipment powered by an internal combustion engine are prohibited between 1:00 PM and 1:00 AM. In addition, cross-country use of a motor vehicle off-route is prohibited except when parked in an area devoid of vegetation within 10 feet of the roadway or parked overnight in a developed campground or at a trailhead.
Stage 3	This stage is an area closed to all entry except for individuals carrying a written permit, Federal, State and local officers or members of organized search and rescue or firefighting forces performing official duties and resident landowners and lessees.

IV.A.3.3 Industrial Operations and Fire Precautions

Generally, contractors conducting business on public land are subject to the same provisions defined above for restrictions or closure. Situations or conditions may occur when specific activities may be exempted from restrictions or closures. The process for granting exemptions is clearly defined in the restriction or closure order. The order details when the restriction, closure, or exemption goes into effect, longevity of the restriction, and what activity or equipment is affected.

Structures and Improvements - The Zone fire management staff and/or facility managers or their appointed representatives make inspections of FPU facilities periodically. Measures to reduce the risks of and hazards from wildfire are taken immediately whenever problems are noted.

Right-of-Ways - Rights-of-way in the form of roads and power lines must be periodically reviewed to minimize the potential for fire starts. This is an integral part of the special use inspection process. Inspections and removal of hazardous vegetation may be required under the terms of the permit. (Refer to the Power Line Fire Prevention Handbook FSH 5109.21)

Roads - Public roads are numerous, offer many attractions, and are the primary means of public access into and through the UCR. Fuel loading along major roads is treated in accord with Land and Resource Management Plan direction.

Industrial Operations (Timber and Special Use Operations) – Compliance inspections are completed in accordance with contract requirements or per manual direction in the case of special use permits. Inspections are for the protection of the public land resources and the operators. Agency representatives enforce all requirements of the contract related to fire prevention precautionary measures.

Spark Arresters and Equipment - All internal combustion engines that operate on the UCR FPU must have properly working spark arresters. Spark arrester inspections may be conducted by agency personnel based on high fire danger indices.

IV.A.3.4 Community Education

The UCR FPU works to protect communities through prescribed fire and fuel reduction efforts around communities, and working to ensure adequate federal funding for these efforts. The UCR FPU helps to provide opportunities for education, training, and participation in fuel reduction projects for home and property owners.

The Colorado State Forest Service, Sheriffs, local Offices of Emergency Management, and local fire departments, organize educational programs for residents of the communities-at-risk to encourage fire hazard mitigation on private lands. The NPS, USFS, and BLM provide technical and financial assistance to support the community fire education.

Fire Wise - Fire staff from the UCR FPU, especially the Fire Mitigation Specialist, provide local communities with information about coexisting with wildfire along with mitigation information tailored to our specific area. The UCR Fire Staff, Colorado State Forest Service, American Red Cross, and local Fire Districts routinely make FireWise presentations to homeowners associations and the community at large. The wildland agencies within UCR FPU help communities identify and implement local solutions. The communities are encouraged to take the lead in assessing fire risk and creating a network of cooperating homeowners, agencies and organizations.

IV.A.3.5 Assistance Programs

Recognizing that UCR fire risk mitigation around communities needs to be a collaborative effort between agencies and local citizens, we focus our efforts in the wildland-urban interface and reduce fuel loads on public lands near communities.

In 2001, Colorado Counties, Inc. (An association of county commissioners and administrators) implemented a series of workshops with counties to encourage county-wide fire planning throughout the state. The workshops were funded in part by the BLM and the agency participated as part of the training cadre. The workshops were attended by representatives from most counties in the state. BLM through its community assistance grant program has provided grant funding to county fire planning efforts in all of the UCR counties, Mesa, Garfield, Pitkin, Eagle, and Summit.

IV.A.4. Fire Training and Fitness Activities

Recurring Training Activities - Agency Administrators ensure employees are trained, certified and available to participate in wildland fire program locally, regionally and nationally as the situation demands, as described in the Interagency Standards for Fire and Fire Aviation Operations.

Zone FMOs are the primary coordinators of training needs. All agency personnel having wildland fire qualifications in Command and/or Operations functions are required to attend an annual fire refresher. This refresher includes fire shelter deployment and recurrent safety topics such as Standards for Survival; Look Up, Look Down, Look Around; or similar safety oriented training. Attendance at refresher training along with successful completion of the appropriate level of work capacity testing is a pre-requisite for receipt of a red card prior to June 1st annually.

All employees with fire suppression support functions and Agency Administrators are encouraged to attend annual fire refresher training. Basic Firefighter training (S-130, S-190) is offered annually to new employees and interested members of local cooperating agencies and fire departments. Up to twenty-five 100 and 200 level courses are conducted locallyby UCR personnel in order to meet specific field office or crew training needs required in 310-1 or 5109.17.

A formalized UCR training committee with charter will be in place for FY 2005. The committee will consist of two employees (primary and alternate) from each zone and the GJ Air Center. This committee will survey UCR staff for needs and prioritize all local training courses. National training needs accessment request will also be documented by the training committee.

Guideance regarding the new 401 series standards in Biological Science is another topic which the training committee will be looking into for course ideas for UCR and BLM and FS.

Recurring Fitness Activities - Fitness requirements for all personnel involved in fire/suppression support can be found in the Interagency Standards for Fire and Fire Aviation Management. Successful completion of the appropriate level of work capacity testing is a prerequisite for issuance of a red card. Fire staff with a fireline duty or qualification are authorized one hour of physical training per day, when not on fire assignments, to maintain the level of fitness required for rigorous fireline duty.

UCR fire funded personnel are allotted one hour of physical fitness time daily. Each zone has developed their own PT program which promotes cardiovascular, strength training and calisthenics. These PT programs aid with firefighter safety and provide team spirit and unity. UCR Agency Administrators and Fire Management Staff are extremely supportive of fitness activities which promote the goal of" Firefighter and public safety is always the first priority."

IV.A.4.1 Qualifications

The UCR fire management organization will make every reasonable effort to have sufficient numbers of qualified wildland fire and support personnel available to meet current and anticipated fire management needs safely and efficiently. All personnel with fire program responsibilities will meet established agency competencies and associated qualifications, as identified in the Wildland and Prescribed Fire Qualification Systems Guide (NWCG PMS 310-1, and FSH 5109-17), BLM Manual 9214 Fire Training and Qualifications, the Interagency Standards for Fire and Fire Aviation Operations 2004, and other competency guides as applicable.

Agency Administrators and fire management staff will ensure that all able bodied employees are trained, certified and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency Administrators are responsible and will be held accountable for making employees available.

Critical Qualification and Position Needs for the FPU - The interagency (UCR) Red Card and Qualifications Committee meets annually or as needed to review Wildland Fire qualifications for all agency personnel. This committee reviews the list of personnel qualified by position to undertake assignments in support of wildfire or prescribed fire and identifies positions where insufficient personnel are qualified to meet short term management needs.

The needs assessment is forwarded to the Geographic Area Training Coordinator for discussion at the Area level. The red card/qualifications committee identifies individuals for priority classroom and on-the-job training assignments to address short-term needs by functional area.

Training Budget Needs for the FPU - Increases in training requirements for currency and qualification advancement have increased the training costs per person. The current budget is lagging in meeting these training requirements. FY 2004 budget is five hundred dollars annually per employee. Note: The dollar amount required to ensure a safe and efficient program which meets or exceeds national standards would be two thousand per employee.

IV.A.4.2 Fire Season Readiness

Wildland fire, prescribed fire operations, and aviation preparedness reviews are conducted annually in accordance with the Fire Preparedness Review Guide found in the Interagency Standards for Fire and Fire Aviation Operations, USDI and USDA. National Office reviews are conducted every three years by fire operations personnel in Boise.

Typical Fire Season Dates - The normal fire season start and stop dates for the Colorado National Monument, Grand Junction and Glenwood Springs Field Offices are from May 1st to October 15$^{th.}$ The fire season start and stop dates represent the period of time during which approximately 90% of the fires will occur. The seasonal analysis of fires utility in the Personal Computer Historical Analysis (PCHA) was used to determine these dates for initial attack planning purposes and calculation of the Fire Fighting Production Capability (FFPC) target. These dates are used as guidance for staffing initial attack resources. However, it must be noted that fires can occur any time of year and it is possible for large fires to happen outside of the established fire season. In these instances, permanent employees and local cooperator units will be used to suppress fires on the interagency staff unit pending the arrival of outside ground based and aviation resources.

IV.A.5. Detection

Detection Program - Detection and fire reporting follow state and local operating plans. Wildland fires outside the UCR protection jurisdiction are reported to the appropriate county or neighboring agency dispatch.

The FPU altered the aerial detection program in 1995 in order to save funding and to add flexibility to FMOs. Zone FMOs may request aerial detection services on an as-needed basis from the Grand Junction Interagency Dispatch Center. Currently an air attack platform (ASM) or smokejumper aircraft are requested to under take aerial detection missions subject to their availability.

IV.A.6. Fire Weather and Fire Danger

Climate - Because of the wide variations in elevation and topography, climatic conditions for the GSFO vary considerably. In the lower elevations the average total precipitation is nearly twelve inches, with 30-40 inches of snowfall. Temperatures will generally be cooler, frost-free periods shorter, and both precipitation and relative humidity greater at higher elevations north and south of the I-70 corridor. Climate data from Eagle, Colorado and Rifle, Colorado provides insight into average weather conditions in the Eagle River valley and Colorado River valleys.

Fire Weather - Typical weather patterns consist of hot/dry afternoon winds (10-15 mph) with gusts up to 45 mph near thunderstorms. Thunderstorms/dry lightning and warm unstable conditions are common. Cold fronts and storm squalls can bring sustained winds in excess of 50 mph. Thermal belts are very distinct in the mountainous and canyon country.

Temperatures

- 80-90s in high terrain
- 95-100+ in high desert and plateau areas.
- 45-50s at night

Relative Humidity

- 5%-20+% typical summer lows during burning periods in high desert and plateau areas; 10%-25+% typical lows in high terrain.
- 30%-50+% typical nighttime highs at all elevations
- During extremely hot days, many areas may experience little or no RH recovery

Fire weather is usually at its worst in early summer (mid June) up until monsoon moisture arrives in mid July. After monsoons retreat, a second drying period is common during the fall that runs from mid August up until September or even October in some years. Weather during the second season is typically cooler and days are shorter. While the potential for large fires exists in the fall, the first season has the greatest potential for hot/dry conditions that would sustain large fire spread.

Tables IV.A.6. Monthly Climate Summary

Monthly Climate Summary for UCR FPU at Eagle, Colorado

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean High Temp. (°F)	34	40	48	68	69	80	86	83	76	64	47	35
Mean Low Temp. (°F)	3	9	19	25	33	39	46	44	36	25	15	5
Avg Total Precip.			.80	.81	.85	.86	1.21	1.03	1.09	.94		
Avg. Low Relative Humidity (%)			25	20	17	12	14	15	15	15		

Monthly Climate Summary for UCR FPU at Rifle, Colorado

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean High Temp. (°F)	36	43	53	64	74	84	90	88	79	67	51	39
Mean Low Temp. (degrees)	9	16	24	31	39	45	52	50	41	31	21	12
Avg Total Precip.			.95	1.01	.98	.74	1.03	1.13	1.11	1.21		
Avg. Low Relative Humidity (%)			25	19	18	15	12	17	17	15		

Monthly Climate Summary for UCR FPU at Grand Junction, Colorado

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean High Temp. (°F)	37	44	53	65	79	86	93	89	81	68	51	39
Mean Low Temp. (°F)	17	23	31	39	49	57	64	62	53	42	29	19
Avg Total Precip.	.59	.58	.76	.74	.73	.44	.61	1.03	.89	.90	.59	.58
Avg. Low Relative Humidity (%)	59	25	24	22	20	12	23	20	22	25	49	52

Remote Automated Weather Stations - The BLM utilizes 13 Remote Automated Weather Stations (RAWS) (Table IV.A.6).

Table IV.A.6.a Remote Automated Weather Stations (RAWS) for UCR FPU

Name	NWS ID	NESS ID	Elevation	Latitude	Longitude
Deadhorse	051404	323603A4	8960	40° 04’ 43”	107° 22’ 05”
Dowd Junction	051606	3241B960	8998	39° 37’ 39”	106° 27’ 07”
Soda Creek	051703	323591C8	9600	39° 34’ 00”	105° 59’ 00”
McClure Pass	052810	3235B724	8980	39° 07’ 36”	107° 17’ 03”
Jacks Canyon	052409	325A137C	7660	38° 45’ 12”	108° 34’ 47”
Demaree	051507	3265F06C	7460	39° 27’ 36”	108° 52’ 48”
Carpenter Ridge	053808	323C241A	8088	38° 27’ 34”	109° 02’ 49”
Little Dolores	052410	326607E6	6796	38° 58’ 09”	108° 56’ 40”
Pine Ridge	052407	32778496	6600	39° 15’ 37”	108° 24’ 26”
Rifle	051504	324A7104	6120	39° 30’ 44”	107° 44’ 57”
The Crown	051506	325A9568	8303	39° 21’ 10”	107° 05’ 35”
Gypsum	051607	3259D16C	7340	39° 41’ 43”	106° 58’ 23”
Storm King	051508	324AA76C	8793	39° 33’ 45”	107° 25’ 12”

The UCR also has a portable RAWS station that can be installed to provide site specific weather information for projects where permanent RAWS information is not felt to reflect need site specific conditions. All weather stations use NFDRS fuel models along with the energy release component to develop fire danger ratings on a daily basis.

The **Grand Junction Interagency Dispatch Center** is responsible for recurrent daily activities in order to manage RAWS data and for the input of key dates to initiate seasonal data collection and termination. Dispatch response levels for the UCR FPU are based on the Burning Index (BI) for the day, which also determines the fire danger rating of low, moderate or high. These are utilized to set response levels in Wildland Fire Computer Aided Dispatch (WildCad), which identifies the needed response level and closest available forces for a particular wildland fire start. Dispatch response levels are set at the following break points:

Low	BI = 0 – 59
Moderate	BI = 60 – 75
High	BI = 75+

Fire Danger - Agency policies for both Bureau of Land Management and US Forest Service (see Standards for Fire and Aviation Operations, 2003; FSM 5120) require each dispatch unit to have a Fire Danger Operating and Preparedness Plan (FDOPP) (Appendix H). The Upper Colorado River Interagency Fire Management Unit has combined a Preparedness Plan with the FDOP into a FDOPP. This plan is the basis for the fire danger message provided to the public as well as the decision-making tool for agency administrators, fire managers, dispatchers, agency cooperators, and firefighters for setting planning and dispatch levels using the National Fire Danger Rating System (NFDRS). Activities, events, and fire operations affected by fire danger are identified and appropriate NFDRS components or indices are selected as decision guides.

The Fire Danger Operating and Preparedness Plan addresses fire danger levels and ratings and corresponding appropriate responses, with an emphasis on aggressive information and resource sharing between federal agencies, cooperating state and county agencies, private industry, and the public.

Energy Release Component - The Energy Release Component (ERC) chart, in general, is one of many charts wildland firefighters use to determine what kind of fire behavior that may be expected from a wildland fire, especially in heavier fuels. The chart is derived from data collected at weather stations. The ERC is based on the estimated potential available energy released per unit area in the flaming front of a fire. The day-to-day variations of the ERC are caused by changes in the moisture contents of the various fuel classes, including the 1,000 hour time lag class. The ERC is derived from predictions of; (1) the rate of heat release per unit area during flaming combustion and, (2) the duration of flaming. The 3-Day Average ERC Chart is used to look at the seasonal trends, and as a comparison tool against previous years.

Fire Severity / Severity Guide - Severity planning is done for both short and long duration situations. Short duration considers a period of 1 day to a couple of weeks when conditions are expected to subside. Long duration contingency planning is for an extended time period.

Short duration planning can be an appropriate strategy for conditions when adjective rating class is high or greater. Typical planning would include increased staffing, pre-positioning of local forces, close coordination with fire management partners, escalated interagency prevention efforts, etc. The objective is to get through a short duration critical period, with existing budgets.

Long duration severity planning involves requesting severity funding to supplement existing preparedness resources to increase staffing levels in response to long duration or uncharacteristic weather trends. Severity requests must be submitted two weeks in advance of planned needs.

Severity planning considers the following:

- Energy Release Component (ERC)
- sustained departure from normal long range weather forecasts
- observed fire behavior
- measured departure from normal in live fuel moisture conditions
- abnormal/unforeseen numbers of fire starts
- uncharacteristic fire sizes adjusted for seasonal norms.

Funding requests are based on anticipated needs and are only used if predicted conditions are realized. Severity funds do not make up the difference between the UCR funding level and the

Most Efficient Level (MEL), but rather provide for capability beyond the MEL staffing level identified in the UCR NFMAS analysis.

Severity Index - The Severity Index uses Energy Release Component values (ERC), 1000-hour fuel moisture, current KBDI and local drought conditions represented by percent of normal precipitation as monitored at UCR weather stations.

The following chart describes the Severity Indices and is to be used as a guide for severity planning. Three of the four weather stations must meet the criteria for the UCR to meet the specified severity level.

Table IV.A.6.b. Severity Index Levels

LEVEL	CRITERIA
LOW	ERC is within the 0-24 percentile range for the weather stations within the geographical area. 1000 HR. FUEL MOISTURES greater than 20%. YEARLY PRECIPITATION of weather stations at normal or above. KBDI 0 to 100.
MODERATE	ERC is within the 25-50 percentile range for the weather stations within the geographical area. 1000 HR. FUEL MOISTURES range between 16-20%. YEARLY PRECIPITATION at weather stations averages no more than 10% below normal. KBDI 100 to 300.
HIGH	ERC is within the 51-80 percentile range for the weather stations within the geographical area. 1000 HR. FUEL MOISTURES range between 13-15%. YEARLY PRECIPITATION at weather stations averages 10 to 25% below normal. KBDI 300 to 400.
VERY HIGH	ERC is within the 81-95 percentile range for the weather stations within the geographical area. 1000 HR. FUEL MOISTURES range between 8-12%. YEARLY PRECIPITATION at weather stations averages 25 to 45% below normal. KBDI 400 to 500.
EXTREME	ERC is greater than the 95 percentile range for the weather stations within the geographical area. 1000 HR. FUEL MOISTURES are less than 8%. YEARLY PRECIPITATION at weather stations averages more than 45% below normal. KBDI greater that 500.

Fire Weather Watch/Red Flag Conditions - Fire Weather Watches and Red Flag Warnings are issued to inform land management agencies of the possible development of or actual occurrence of Red Flag conditions. A Red Flag event occurs when critical weather patterns develop that could lead to large and dangerous fires.

Conditions that warrant Fire Weather Watch or Red Flag Warning, either alone or in combination are the expected or actual occurrence of:

1) General dry thunderstorm activity (LAL-6), i.e. considerable lighting but little or no measurable precipitation.
2) The combination of strong winds (usually 25 mph or more), low humidity (15% or lower), and high temperatures (usually 80 degrees and above).
3) Fire danger in the “Very High” or “Extreme” category.
4) In the judgment of the forecaster, weather conditions and fire danger combine to indicate a severe fire weather episode.

Fire Weather Watch – will be issued whenever the potential for Red Flag conditions exists. A watch will normally be issued 12 to 36 hours in advance of the expected onset of Red Flag conditions. If dry lightning is the only condition expected in the 0 to 12 hour time frame, a Fire Weather Watch may be issued or continued in place of a Red Flag Warning.

Red Flag Warning – will be issued whenever Red Flag conditions are imminent or occurring. A warning will generally be issued within 12 hours of the expected onset of Red Flag conditions, or whenever the forecaster becomes aware of an ongoing Red Flag event.

Fire Weather Watches will most likely be issued with the morning or afternoon forecast while Red Flag Warnings may be issued at any time. The Watch or Warning will be headlined in the forecast with information on the affected area, the valid time of the watch or warning, and a description of the expected severe fire weather conditions included. Both Watches and Warnings will continue to be highlighted in the routine fire weather forecast until threatening conditions cease.

Fire Weather Watches and Red Flag Warnings will be entered into WIMS and the affected agencies notified by telephone usually before, but always after a Watch or Warning has been issued. A Watch or Warning will be cancelled by the forecaster when the conditions are no longer expected to occur. During the off-season, if very warm, dry and windy conditions are expected, the NWS will notify the Rocky Mountain Area Coordination Center by phone.

The National Weather Service Fire Weather Watch/Red Flag Warning program is used to warn land management agencies of the onset or occurrence of critical fire weather conditions. The NWS does not make any management decisions as a result of the Fire Weather Watch or Red Flag Warning. Specific actions are determined by user agencies. Preparedness levels will be adjusted commensurate with the Red Flag Warning and Weather Watches based on existing local conditions.

Spot Weather Forecasts - Spot weather forecasts are required for prescribed burning and are commonly needed to assist with plans for wildfire suppression. The procedures for obtaining a spot forecast are as follows:

1) Fire (or prescribed fire) personnel take weather observations at site of fire
2) Observation data is forwarded directly to the Grand Junction Dispatch (GJC) who in turn forwards the information to the NWS.
3) NWS formulates a forecast and either sends a FAX copy to GJC Dispatch or puts the forecast onto the NWS spot weather forecast webpage.
4) GJC forwards the spot weather forecast to the Incident Commander or Zone FMO via FAX or radio. (Radio broadcast is preferred over cell phones to allow field personnel the opportunity to hear the weather forecast.)

Spot Weather Forecasts and other Fire Weather Information are provided through the National Weather Service Offices in Grand Junction for most of the UCR and the Denver office for the East Zone, Dillon Ranger District.

IV.A.7. Aviation Management

The UCR has a varied aviation workload and there is a steady need for agency, contract, and "Call When Needed" aircraft for fire and resource uses. Regional vendors are available to provide point-to-point transportation, aerial ignition platforms, and reconnaissance missions to support resource management activities.

All aviation operations will comply with the UCR Aviation Management Plan, the Air Tanker Base Plan, the Helicopter Operations Plan, and the UCR SEAT Operations Plan, all of which are available at the Grand Junction Dispatch Center.

Aviation resources available to the UCR include:

- Type III exclusive use helicopter and helitack crew from June 1st to September 30th in Rifle

- Type IV air tanker (SEAT) from May 10th to September 12th in Grand Junction
- Smokejumpers from mid-June through September in Grand Junction
- Aerial supervision resources (ASM, Lead plane, Air Attack) in Grand Junction

The Grand Junction Air Center/Air Tanker Base (ATB) located on the west end of the Grand Junction Airport can get extremely busy during fire season, June through September. It is not unheard of to have 20+ aircraft working fires across Colorado and surrounding states, including heavy air tankers to Wyoming, Utah, South Dakota, and New Mexico. Grand Junction ATB historically has dropped more retardant than any other ATB in the country.

Smokejumper operations can add an extra workload by adding up to four aircraft and fifty jumpers during high initial attack periods.

Single Engine Air Tankers (SEATs) and Helicopters (Types 1, 2, and 3) are staged in Grand Junction on a regular basis by Rocky Mountain Coordination Center in Denver throughout fire season for severity. State of Colorado Division of Forestry, Craig District, and Montrose District also utilize the Grand Junction ATB for extended attack and Type I & II Incidents creating an added workload for Air Center/ATB personnel.

IV.A.8. Initial Attack

Annual Operating Plans (AOPs) are in place for Delta, Eagle, Garfield, Mesa, Pitkin, Rio Blanco, and Summit Counties. Participants in the AOPs are the NPS, BLM, USFS, Colorado State Forest Service, and the county sheriffs. Initial attack of wildland fires within the UCR is consistent with the AOPs. The purpose of this FMP is to facilitate cooperation in fire management activities within the protection areas of the signatory parties of the AOPs. On UCR jurisdiction fires, the closest available federal resources will implement initial attack. There may be times when nonfederal cooperators are utilized due to resource shortages, and a federal resource will be dispatched at the earliest opportunity.

All fires on UCR federal lands will be managed with the appropriate management response consistent with preplanned dispatch protocols (agency run cards and preplanned dispatch plans) in conformance with resource management objectives identified in this plan. Tactics and strategies will be based on the current and predicted weather, fire behavior, and risk to Firefighter and public safety. Firefighter and public safety is always the first priority. Use the following information for determining initial attack priorities. For initial attack, FMUs within the UCR are ranked as High, Moderate, or Low (III.C.3).

Initial attack forces are made up of the first suppression personnel to arrive at a fire plus reinforcements arriving during the first burning period. A qualified individual on scene will undertake control of the incident and identify himself or herself as the Incident Commander (IC). This will be communicated over the radio to Dispatch as well as to the remaining initial attack personnel on scene.

Should the fire complexity increase to a level exceeding the qualifications and capability of the Initial Attack IC, that individual will advise Dispatch via the radio that a more qualified Incident Commander is required along with recommendations for additional resources and overhead positions consistent with Incident Response Pocket Guide, and UCR Guidelines – Management of type III incidents complexity and resource requirements (See attachment).

For all initial attack incidents, the Incident Commander and/or Duty Officer shall review the incident organization complexity and complete the Incident Complexity Analysis found in the Interagency Standards for Fire and Fire Aviation Operations or UCR Incident Organizer. This analysis will determine the appropriate level of incident organization.

IV.A.9. Extended Attack and Large Fire Suppression

Extended attack efforts may also involve interagency cooperation and UCR Fire Staff direction for extended attack and large fire suppression is outlined in the Interagency Standards for Fire and Fire Aviation Operations.

A wildfire is considered to be in extended attack status when:

- Suppression efforts have not succeeded or are not expected to reach containment within 24 hours.
- The Initial Attack Incident Commander (ICT4 or ICT5) requests additional resources that result in fire complexity attaining Type III status within or following the first 24 hours following the arrival of the first suppression resources.

During extended attack fire suppression operations the appropriate Agency Administrator or delegated official and Zone FMO are notified, a Resource Advisor(s) identified, and a Wildland Fire Situation Analysis (WFSA) completed.

All fires will remain staffed until declared controlled or out. The Zone FMO will determine continued staffing procedures. At a minimum, regular checks will be made until the IC or Zone FMO declares the fire out.

IV.A.9.1 Wildland Fire Situation Analysis (WFSA) Development

The Agency Administrator is responsible to ensure that a Wildland Fire Situation Analysis (WFSA) is prepared for all wildfires that escape or are expected to escape initial attack. Preparation of the WFSA will be done with assistance from fire management staff and resource specialists.

The Agency Administrator is responsible to select the preferred management strategy for the incident. Selection of the preferred management strategy will not consider positive resource benefits resulting from wildfire as an objective.

Alternatives developed through the WFSA process must be consistent with the goals of the land use plan and must address the following:

- Firefighter and public safety
- The alternative can be implemented.
- Each alternative must be accompanied by a strategic plan of action.
- The probability of success and consequences of failure must be assessed and displayed.
- Each alternative will display the estimated numbers of acres burned, times for containment and control, suppression costs and resource damage.

Approval authorities and qualifications for unit Agency Administrators have been established for certifying a WFSA. In addition, training and experience requirements must be met for a agency administrators to certify a WFSA. The following list identifies qualified Agency Administrators and their respective levels of authority:

Field Manager (BLM) or Park Superintendent (NPS)	Approval authority up to $2,000,000
State Director (BLM) or Regional Director (NPS)	Approval authority from $2,000,000 to $10,000,000

Exceeding Existing WFSA - Selecting a New Strategy - A new WFSA is required when the objectives of the existing WFSA have been compromised (or are expected to be compromised).

The revised WFSA will include a new set of objectives and a range of alternatives and associated fallback strategies and worst case outcomes.

Given the inherent inaccuracies in developing estimated costs associated with each alternative, exceeding the cost estimate for the preferred alternative should not in and of itself generate a need to the revise the existing WFSA.

IV.A.9.2 Incident Management

Type III Incident Management - A Type III Incident Commander will manage incidents that reach a Type III complexity level and the associated overhead positions will be staffed as appropriate for the incident. The UCR maintains a list of local interagency personnel qualified at the Type III level and above. Individuals qualified and current at the Section Chief or Unit Leader level are included on the Type III cadre (Appendix I).

When a situation is beyond UCR capabilities, an overhead team is brought in at the request of the NPS Park Superintendent or BLM Field Manager to manage the incident. The type ordered depends on the complexity and severity of the situation.

Type I or Type II Incident Management - An incident complexity analysis (see appendices) is used to document the rationale of the fire management staff and responsible Agency Administrator in determining whether an extended attack incident is expected to, or has increased in complexity to warrant ordering a Type II or Type I Incident Management Team.

Transition Requirements for Incoming Incident Management Teams - The following elements will be completed prior to the arrival of a Type 2 or Type 1 Incident Management Team:

- Wildland Fire Situation Analysis (WFSA) complete with applicable incident objectives and a selected alternative to guide tactical suppression actions. The line manager will select the preferred alternative and certify the wildland fire situation analysis within their approval authority.
- Agency Administrator Briefing guide completed.
- Delegation of Authority completed and signed by the NPS or BLM Agency Administrator.

The ordering agency should also do the following prior to the arrival of the incoming team:

- Determine the fire camp location.
- Order supplies and equipment (pre-order), as directed by the Logistics Section Chief.
- Make an ample supply of topographic maps, base maps, etc.
- Determine transportation needs of incoming fire teams (from ordering unit mobilization point to fire, and on the fire).
- Determine Agency Administrator briefing time and location.
- Obtain necessary information for the Agency Administrator briefing.
- Order communication equipment for the fire.

The Agency Administrator and FMO will conduct two briefings for the incoming fire team. The first briefing should be by the Agency Administrator at a site away from the fire. The second briefing should be by the current Incident Commander and staff at the fire site.

The Agency Administrator briefing should be as soon as possible after the arrival of the command and general staff. It is impossible to list everything a team needs to know, however, as a minimum the Wildland Fire Situation Analysis and Agency Administrator Briefing Checklist should be completed.

The local Incident Commander briefing shall take place when the incoming team arrives at the fire. The incoming team will not assume responsibility for the fire until they are thoroughly briefed and comfortable with the situation. Both Incident Commanders shall determine the exact time of command change. After the briefing, the team should start phasing into their areas of responsibility, but shall not assume control until the predetermined time.

The local unit's suppression forces may continue to work on the fire in various functions but should be relieved as soon as possible so that they can be rested and ready for initial attack or as reinforcements on other parts of the UCR.

Dispatching Resources - Initial Attack remains an Interagency Dispatch Center responsibility. In most cases when an Incident Management Team has been ordered, the Dispatch Center Manager in consultation with the Unit FMO will initiate an expanded dispatch plan to support the incident management team.

Demobilization - Demobilization shall be carried out in an orderly manner to accomplish a cost effective program commensurate with efficient and effective organization practices. Planning for demobilization shall begin while the fire is being mobilized. Adequate records of personnel, transportation, and equipment used or being moved during mobilization are necessary. In many instances, demobilization occurs at the same time mobilization is occurring elsewhere. Communications for demobilization shall be through established dispatch channels. All release orders shall be recorded on the appropriate Resource Order Form.

The following are guidelines for release priorities. Special situations may exist that will change these priorities.

Crews	Out-of-Region agency regulars (Type II) Region 2 agency regulars (Type II) Out-of-Region Hotshot crews (Type I) Other organized crews (contract, AD, etc., Type II) Region 2 Hotshot crews (Type I)
Helicopters	"Call-when-needed" or rental agreement Within Region helicopters required for initial attack at home unit due to fire activity or potential thereof Out-of-Region helicopters Within Region helicopters **not** required home for initial attack
Radios	Assemble National Fire Cache Radio Systems and ship to Boise via air freight or charter aircraft as soon as possible. Coordinate with Regional dispatch on transportation. DO NOT hold radios on UCR. They must be returned to cache for refurbishing for next fire. RMA Radio Systems may be retained for mop-up and then sent to RMA Cache for refurbishing.
Fire Cache Equipment and Supplies	Local unit cache items Local cooperator cache items Regional cache items Out-of-Region cache items
Engines and Water Tenders	Local units needed for initial attack Local cooperators and other units needed for initial attack Out-of-Region engines Local cooperator and other units not needed for initial attack Local Units not needed for initial attack
Heavy Equipment	Same as Engines. National Guard equipment should be released as soon as local resources can handle or replace National Guard equipment.
Overhead	Overhead releases shall be as required by the fire team and the local unit's needs. Strive to consolidate overhead in groups of common destinations.

Release of Interagency Incident Team - The date and time must be approved by a Agency Administrator or a designated representative. The transition must be as smooth as possible and UCR fire team members should be assigned to start working with interagency team members at a predetermined time. The local fire team should be rested and off fire duty 24 hours prior to takeover.

The Interagency team should begin phasing in the UCR team as soon as demobilization planning is complete and implementation is started. Fire management activity should be at a level and workload that UCR personnel can reasonably handle.
Criteria to be considered before the release of an Interagency team:

- Fire must be controlled.
- Most line crews should be released that are not needed for patrol and/or mop up.
- Base fire camp shut down, reduced, or in the process.
- Plans Chief has prepared a narrative fire report and individual fire report as part of the final fire package.
- Finance Chief should have all known finance problems resolved. Contact made with UCR Budget and Finance personnel. (Finance and/or Logistics Chief may have to stay longer or return to resolve problems.)
- Fire rehabilitation work completed to agency's satisfaction or plan written to satisfaction.
- Overhead ratings completed and submitted to UCR as final package.

Debriefing - Agency Administrator should debrief the Interagency team and prepare evaluation before release. The Agency Administrator should give overall team performance evaluation in writing considering the following:

- Was the incident managed in a manner that provided for firefighter and public safety?
- Were incident operations conducted in a cost effective manner?
- Were other incident objectives met?
- Did the team keep the Agency Administrator and FMO informed of progress and developments?
- Identify outstanding or poor performance of individuals, crews, or others involved in the management of the fire.
- Were there any special problems or recommendations to be brought to the attention of the RMA Fire Coordinator?

IV.A.10. Other Fire Suppression Considerations

IV.A.10.1 Safety

Safety is the number one priority for all personnel engaged in or supporting fire management activities. Fire management work is one of the most hazardous jobs encountered by federal personnel. The Incident Commander and all supervisors will always put the safety of his/her personnel first. **There is no fire situation so serious that the life of anyone should be risked in order to get to the fire sooner, get the fire out quicker, or to keep the burned areas smaller.**

All employees will abide by the **'Safety First'** policy. Each employee has a responsibility for his/her personal safety and that of fellow employees. It is also everyone's responsibility to call attention to any unsafe practice that is observed.

1. All fire personnel will follow the 10 Standard Fire Fighting Orders, emphasize the principles of Lookouts, Communications, Escape Routes, Safety Zones (LCES) and insure mitigation of any of the 18 Watch-Out Situations encountered while taking suppression or prescribed fire actions. These basics of fire fighting survival are utilized as a checklist for supervisory personnel on the fire, and as a source for other

fire line personnel to pose questions to supervisory personnel whenever they have concerns about their personal safety.

2. All Type III and more complex incidents are staffed with a qualified safety officer.

3. Seat belts are used at all times while traveling in any vehicle. Speed limits and other traffic laws will be obeyed at all times.

4. Required personal protective equipment (PPE) will be worn at all times. Job Hazard analyses will dictate appropriate PPE to be utilized for fire management activities other than suppression. Fire shelters will be worn by all firefighters at all times on all wildland fires.

7. Safety rules, standards and accepted procedures will be adhered to at all times.

8. Personnel will be fully qualified and current for the position they are assigned to.

IV.A.10.2 Communications

Firefighters are responsible to maintain radio contact with Grand Junction Dispatch while suppressing fires, and will check in at regular intervals. If the fire is in a location with poor or no radio communications (a 'dead spot'), a relay will be set up and maintained while firefighters are in that area.

Cell Phones - UCR fire management staff and resources use cell phones for routine contacts and coordination. Cell phones should be used by initial and extended attack resources for lengthy conversations regarding operational tactics, logistical needs and coordination and other matters that would unnecessarily tie up available radio frequencies.

Cell phones should **not** be used to contact Dispatch or zone fire management staff during incident size up. Staff members are prohibited from making personnel calls on agency provided cell phones for other than emergency contacts with family members or within the guidelines of agency policy for extended assignments away from home and their duty station.

Radio Communications/Procedures - Fire size-up information shall be communicated to the Interagency Dispatch Center using the appropriate interagency frequency.

During an ongoing fire, interagency dispatchers may request that fire related radio traffic be prioritized over routine resource management traffic on specific agency repeaters.

A list of available radio frequencies is available from the Zone Fire Management staff.

IV.A.10.3 Wilderness Fire Suppression

Within the Colorado National Monument and Grand Junction Field Office, the fire suppression policy for wilderness areas is to conduct all fire management activities in a manner compatible with overall wilderness management objectives.

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The BLM Field Manager and NPS Superintendent are delegated the authority to approve the use of helicopters, and ground based mechanized equipment such as chainsaws and portable pumps within wilderness areas to respond to an emergency fire situation. The responsible Zone Fire Management Officer secures this approval on a case-by-case basis. There is a blanket authorization for the use of helicopter landings in the event of a medical emergency that requires firefighter medevac or transportation of medical personnel.

The UCR utilizes the concept of Minimum Impact Suppression Tactics (MIST) (Appendix E) to effectively achieve the fire management protection objectives consistent with land and resource management objectives.

IV.A.10.4 Critical Incident Management

Tragedies, deaths, serious injuries, hostage situations, and threatening situations are some of events that are critical incidents. In the event of a critical incident a critical incident debriefing team will be ordered through Grand Junction Dispatch. The purpose of this team is to assist managers responsible for dealing with critical incidents that may have long-term adverse effects on an individual, families, communities or the agency.

IV.A.10.5 Field Fatality/Serious Injury Plan

Purpose - The intent of this plan (Appendix J) is to list the steps that must be taken in response to fatalities or serious injury; to list the people/agencies with whom coordination must be maintained; where pertinent information is found.

Responsibility - Until delegated, the Line Officer has the responsibility for implementing the appropriate response(s) to address the situation when a fatality or serious injury occurs.

IV.A.10.6 Interagency Accident/Incident Reporting Guide

This guide was developed to assist first line supervisors, staff members and Agency Administrators in responding to incidents or accidents in the workplace on an interagency basis. Refer to the Guide in the Appendix K for further information.

IV.B. Wildland Fire Use

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IV.B.1. Description of the Wildland Fire Use (WFU) Opportunities for the GSFO

WFU refers to the management of naturally ignited wildland fires to accomplish specific, pre-stated resource management objectives in predefined geographic areas as defined in the agency's land use plan and outlined in this FMP.

Fire regimes may vary between vegetation types and different regions. Parameters for WFU or management ignited fires consider this natural range of variability. For example, if a natural fire regime included very frequent, cool burning surface fires, but also included an occasional long return interval stand replacement fire then that stand replacement fire is within the natural range of variability and will be considered when analyzing WFU.

The desired result is that the landscape should take on an appearance of what would exist naturally and historically. It should display a mosaic of complex vegetation patterns and types that would have evolved naturally with ecological and geological processes. There generally are less continuous, uninterrupted vegetation types, more openings, a variety of seral stages and different communities in a random patchwork.

On public lands managed by the BLM and the COLM within the UCR FPU, there are 10 FMUs where wildland fire maybe used to accomplish specific, pre-stated resource management objectives. These FMUs are:

Table - IV.B.1 - FMUs where wildland fire maybe used to accomplish resource objectives.

GJFO and COLM	GSFO
1.) D-01 Black Ridge 2.) D-02 Bangs Canyon 3.) D-03 Wagon Park/Nine Mile Hill 4.) D-04 Palisade 5.) D-05 Colorado National Monument 6.) D-06 Blue Mesa 7.) D-07 Demaree 8.) D-08 South Shale Ridge	1.) D-140-01 Roan Plateau 2.) D-140-02 Bull Gulch/Castle Peak/Hack Lake

Wildland fires in "D" FMZs receive a suppression response commensurate with values-to-be-protected, firefighter and public safety and cost efficiency or they may be managed to accomplish resource management goals as specified in Appendix B.

Two types of fires may be approved for use within the D FMZs:

1) Naturally Ignited Wildland Fires - Those allowed to burn under pre-determined conditions. *All ignitions determined to be human caused will be suppressed using an appropriate management response.*

2) Human Ignited Fires - Prescribed fires, with a pre-developed plan and EA, ignited by qualified agency personnel that are designed to reintroduce the type of fire that would be expected to occur naturally.

IV.B.2. Preplanned Implementation Procedures

Annual Activities Required to Implement the Wildland Fire Use Program - Annual activities required to designate and manage incidents for wildland fire use include:

- Wildland Fire Use management procedures must be reviewed and updated to reflect current policy as part of the annual UCR and county annual operating plan and GSFO Fire Management Plan reviews.
- Coordination with key agency staff and stakeholders, focusing on special use permittees, recreationists and public or communities that would be potentially affected by a wildland fire use incident.
- Coordination with agency public affairs staff to prepare pre-season news releases.
- Internal coordination with interagency staff members, particularly with respect to prescriptive elements and weather factors that may affect WFU implementation during the fire season.
- Preparation and receipt of an open burning permit from the Colorado State Department of Health and Environment, Air Pollution Control Division.
- Wildland fire use applications will follow the National Interagency Mobilization Guide direction when in preparedness level IV and V.

Decision Criteria for Wildland Fire Use - The following factors are considered in evaluating a candidate ignition for designation as a wildland fire use incident:

- Firefighter and public safety.
- The ignition must be lightning caused.
- Key management positions such as a fire use manager (FUMA) must be available and dedicated to management of the incident.
- Proximity to boundary of wildland fire use area and/or potential to exceed pre-established boundaries.
- Ability of the incident to meet resource management objectives.
- Potential to damage or destroy significant improvements, natural or cultural resource values.
- Projected scope and duration of impacts to air quality.
- Political considerations and impacts to social values.

- Projected duration of the incident and ability to provide management oversight and necessary implementation actions.
- Fire management activity at the National, Geographic Area and Unit level.
- Current and predicted fire behavior including expected spread into adjacent fuel types.
- Seasonal, current and predicted weather conditions (drought, time of year, probability of a season-ending weather event).
- Historic fire occurrence, historic weather and evaluation of past fire intensity, size and duration.

Wildland Fire Implementation Plan (WFIP) Implementation Stages - The Zone FMO or designee shall initiate a Wildland Fire Implementation Plan (WFIP) for all wildland fires determined to be candidates for management as wildland fire use incidents. Fire and resource managers, with agency administrators, shall then use the WFIP as an analysis tool to determine whether WFU management is the appropriate management response for these candidate wildland fires. The complete implementation process and standardized WFIP format developed by the National Wildfire Coordination Group can be found in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (USDA and USDI, 1998), Chapter 4. The WFIP format is also available as part of the WFSAPlusv4.3 software package, available on-line at http://www.fs.fed.us/fire/wfsa/.

The WFIP documents existing conditions, predicted conditions, decisions made, and trigger points for future decisions. Progressive development of the three WFIP stages will occur for wildland fires managed for resource benefits, where initial attack and aggressive suppression are not the selected responses. Most wildland fires will require completion of only stages I and II during their management; only long-term, more complex WFU incidents will require completion of all three stages. When the WFIP is complete, it becomes the WFU incident's strategic management plan.

Table IV.B.2. WFIP Documentation Process

Fire Name		
Fire Number		
Documentation Product	**Product Needed**	**Product Completed**
WFIP - Stage I: Initial Fire Assessment		
• Fire Situation		
• Initial GO/NO-GO Decision		
WFIP - Stage II: Short-Term Implementation Actions		
• Short-Term Fire Behavior Predictions And Risk Assessment		
• Short-term Implementation Actions		
• Complexity Analysis		
Stage III Need Assessment Chart		
WFIP - Stage III: Long-Term Implementation Actions		
Periodic Fire Assessment		
• Part 1, Re-validation		
• Part 2, Stage III Need Assessment		
Wildland Fire Situation Analysis		

Figure IV.B.2. - WFIP Implementation Stages

Stage 1	Initial Fire Assessment is completed by the Zone FMO or designee along with the responsible Agency Administrator/Manager within two hours of receipt of size up information that confirms that the ignition was started by lightning. The Stage I assessment provides the decision framework for selecting the appropriate management response. Operational management decisions are described in the WFIP
Stage 2	Short-term Implementation Actions are completed by the Fire Use Manager (FUMA) and staff within twenty-four (24 hours) following the completion of the Stage I assessment. Key components of the Stage II assessment include development of short-term fire behavior predictions, implementation actions required, and incident complexity analysis. Individual wildland fire use plans identify the responsible Agency Administrator who must approve the Stage II assessment. This responsibility is in large part based on the projected complexity of the incident, potential to affect multiple jurisdictions and projected duration of the incident.
Stage 3	Long Term Assessment and Implementation Actions include identification of the maximum manageable areas (MMA) and long-term risk assessment. In addition to the fire use manager (FUMA) a Long Term Fire Analyst (LTAN) or fire behavior analyst (FBAN) is required to complete applicable risk assessments and projections.

Key Considerations in Managing Wildland Fire Use - In addition to the factors listed above, the following considerations should be addressed in the Stage III – Longterm Implementation Actions:

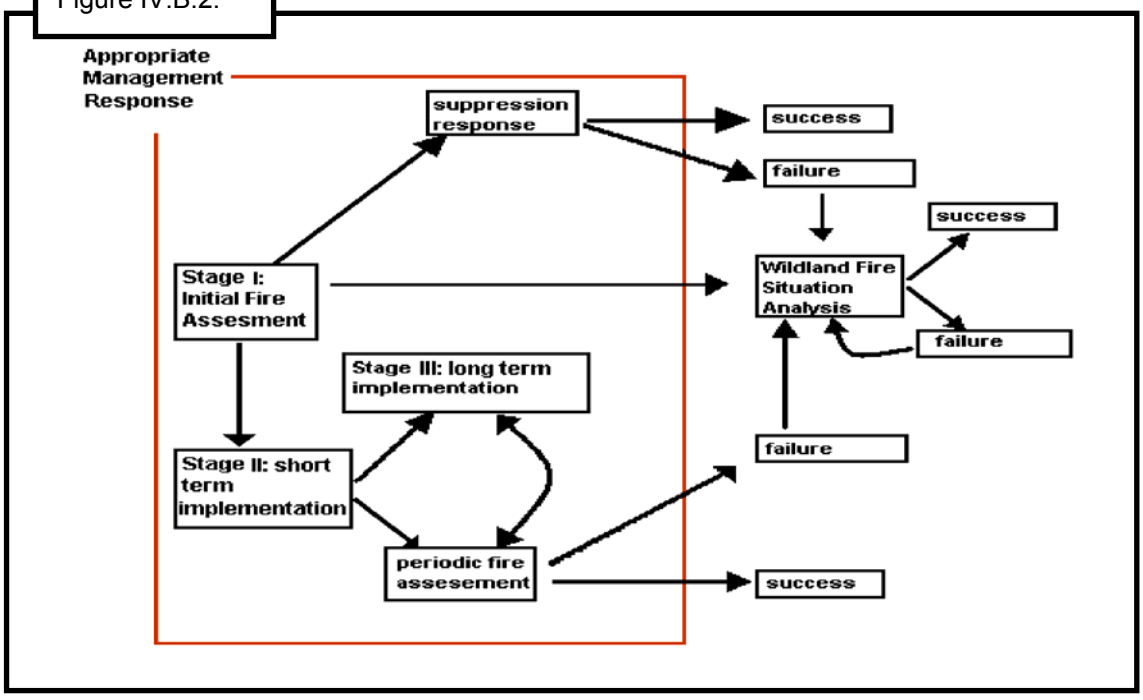
- The proposed maximum Manageable Area (MMA) should be highly defensible.
- The MMA should be large enough to reduce the need for resources to tactically implement management actions at selected trigger points.
- The MMA can be produced in electronic format and added to both the electronic and hard-copy WFU documentation packages.

IV.B.3. Initial Action Procedures

All wildfires will be subject to an initial response. This response will include size up of the current fire situation, determination of probable fire cause and estimate of potential for fire spread. A suppression action will be initiated unless the fire is determined to be a candidate ignition for management as a wildland fire use incident. All candidate ignitions will be managed in accordance with the procedures and requirements outlined in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide. All ignitions determined to be human caused will be suppressed using an appropriate management response.

Before a wildland fire is managed for resource benefit, authorized and qualified personnel must follow a clearly defined decision making process. Figure IV.B.2 provides a brief overview of the full range of appropriate management responses and necessary steps for evaluation and management of wildland fires to accomplish specific resource management objectives in defined geographic areas.

Figure IV.B.2.



IV.B.4. Required Personnel

The UCR can usually manage wildland fire use incidents up to and including those requiring a FUM2. A Fire Use Management Team will be ordered for incidents exceeding this level of complexity. Current qualified staff members may act as interim fire use managers pending the arrival of a Fire Use Manager (FUMA) or Fire Use Management Team. A current list of all

personnel required and qualified to manage and/or assist in wildland fire use incidents is available in the Grand Junction Interagency Dispatch Center Mobilization Guide.

IV.B.5. Public Information

Public information/coordination should occur with agency public affairs staff to prepare pre-season news releases. Target audiences include: agency staff and stakeholders focusing on special use permittees, recreationists and public or communities that would be potentially affected by a wildland fire use incident.

The following agencies and media outlets are generally contacted.

Agency/Media Contacts	
Grand Junction Dispatch	US Fish and Wildlife Service
WRNF Supervisor's Office	CO State Forest Service
BLM - Glenwood Springs Field Office	Colorado Division of Wildlife
BLM – Grand Junction Field Office	Denver Post
NPS – Colorado National Monument	KCNC TV (Channel 4)
Colorado Highway Patrol	KMGH TV (Channel 7)
CO Department of Transportation	KUSA TV (Channel 9)
County Sheriffs	KWGN TV (Channel 2)
County Commissioners	Local Newspapers
County Health Departments	Local Radio Stations
Local Fire Departments	

IV.C. Prescribed Fire

Fire is an essential ecological process in many ecosystems. Protecting lives, property, and natural resources does not mean eliminating fire from the environment. The use of fire to accomplish land and resource management objectives is referred to as prescriptive or prescribed fire, *a management ignited fire that is used to alter, maintain, or restore vegetative communities to achieve desired resource conditions.* Prescribed burning allows fire to play a role in the environment under controlled conditions.

Prescribed burning is a well-established practice utilized by public and private land managers. Often, multiple fire protection and resource management benefits are achieved concurrently. Natural resource managers set "prescribed fires" for many purposes including:

- Reduce accumulated vegetation and hazardous fuels reduction,
- Restore natural conditions by re-introducing fire into the ecosystem,
- Improve ecosystem health,
- Maintain or restore healthy wildlife habitat,
- Create barriers for protecting high-value areas such as timber investments, private property or administrative sites,
- Control spread of noxious weeds,
- Increase water availability by eliminating encroaching plants,
- Stimulate grass/ forb growth in areas to decrease erosion potential, and
- Enhance soil pH and increase soil nutrients.

IV.C.1 Planning and Documentation

The prescribed fire program is supported by BLM and NPS planning documents, appropriate environmental documentation, and is implemented in accordance with NPS manuals and BLM manual sections 9214 and 9211 (USDI BLM 2000).

IV.C.1.1 Summary of Prescribed Fire Program for the GSFO

Planning and Analysis - Prescribed fires are identified by field office specialists and UCR staff to meet resource management objectives as outlined in the Resource Area plans. The proposed treatments have traditionally included wildlife and range habitat improvement, site preparation for artificial and natural regeneration, hazardous fuels reduction and the re-introduction of fire into the ecosystem. Proposals are put together to comprise a 5 year plan of projects. Projects are then reviewed and submitted for funding and implementation on an annual basis as determined by the Field Office Manager (FOM). The design of projects, conducting resource inventories, and writing the NEPA documentation will typically take one to two years in advance of implementation of the planned treatment.

Prior to conducting a prescribed fire, NEPA documentation is prepared and approved. NEPA documentation describes and documents the purpose and need, issues, conformance to Resource Area Plans (including the FMP), the proposed action and alternatives, impacts and mitigation, and public participation.

Priority Setting - Projects are listed on a five year plan located in Table IV.C.1.1. The five year plan and future project workloads will be maintained in the RAMS system.

Projects are selected and recommended to the FOM from the 5 year or new ones added through coordination meetings between the field office and UCR staffs. Prioritization of projects occurs on an annual basis for submittal as target units of accomplishment into the annual work plan for each field office.

Table IV.C.1.1 **-** Summary of 5 year Prescribed Burn Plan for the GSFO

	2004	2005	2006	2007	2008
# of prescribed fire projects proposed.	3	2	4	2	2
# of acres proposed for treatment.	2,162	620	970	320	400
# of projects implemented through local contractors.	0	0	0	0	0
Total acres treated in CC 2 moved to CC 1.	2,162	620	970	320	400
Total acres treated in CC 3 moved to CC 2 or 1.	0	0	0	0	0

Primary Burn Windows - The primary burn windows for UCR occur in the spring. Burning is also accomplished in the summer and fall. Pile burns are planned and implemented during the winter.

Development of Prescribed Fire Plans - The UCR has developed a format for burn plans (Appendix L) used on an interagency basis. Prescribed Fire plans are developed at the Zone level by fire management staff qualified as Level II Burn Bosses (RXB2) or subordinates for developmental training opportunities. Detail in the prescribed fire plan may vary with type and complexity of the job.

Review of Prescribed Fire Plans - All prescribed fire plans are subject to a peer review by other UCR staff members not involved with project planning or implementation. In addition, a technical review is conducted the Unit Operations Specialist and/or Fire Ecologist. This technical review focuses on development of prescription parameters, complexity analysis, risk assessment and smoke management mitigation activities. A subsequent operational review is conducted by the UCR interagency fire operations specialist focusing on project staffing and organization as well as

resource allocation and planning for instances where the fire may exceed planned treatment areas. The Unit Aviation Officer reviews and approves all plans proposing the use of aerial ignition or aviation resources.

Approval of Prescribed Fire Plans - Each prescribed burn plan requires approval by the appropriate Agency Administrator. Once the prescribed burn plan is approved by the appropriate Agency Administrator, the execution, including mop up, must follow that plan. The approving Agency Administrator must authorize any changes to the approved burn plan.

Agency Administrator approval has been delegated to the Field Office Managers for Level I, II and III projects. The Colorado State Office Fire Ecologist provides technical review for Level I (Complex) prescribed burning projects.

Documentation Requirements - Documentation requirements relative to burn plan preparation have been established by the UCR fire management staff. All prescribed fires are documented with the following information:

- Prescribed Fire Plan
- Map of project area and surrounding area
- Monitoring data, including weather, fire behavior, and fire effects observations
- Weather forecasts, spot, short and long-term
- Smoke dispersal information.

Reporting Requirements - Project level reporting and pre-burn notification requirements have been established for the UCR staff group. Separate reporting requirements also include submittal and annual reporting requirements for smoke emissions to the Colorado Department of Health, Air Quality Control Division.

Exceeding Existing Prescribed Fire Plan - Any prescribed fire that exceeds either the maximum manageable area (MMA) or available funding is declared an escaped fire. Following an escaped fire declaration, a Wildland Fire Situation Analysis (WFSA) is completed and approved by the responsible Agency Administrator. This process is the same as previously described for wildfires that escape initial attack.

Prescribed Fire Project Critiques - The burn boss, key subordinates, zone fire management officer or UCR staff representative will conduct and document an informal post-burn critique. Formal project reviews are not required except in the instance of an escaped fire.

IV.C.1.2 Level of Vegetation Treatments

When considering vegetation management goals along with anticipated funding, personnel, planning priorities and climatic conditions; the reasonable foreseeable vegetation treatment level (e.g. level of fuel treatment and amount of prescribed fire) for the GSFO is generally assumed to be no more than 10% of the Resource Area over a 10 year period.

IV.C.1.3 Vegetation Treatment Guidelines

The following guidelines will be considered in site-specific projects. Project-level environmental analyses may determine the need for additional considerations.

- Pile burning of mechanically cleared vegetation/debris is acceptable in “A” FMZs.
- Equipment used in vegetation treatments should be washed and weed-free before arriving onsite.
- Except where specific treatments are designed to control or manage vegetation within riparian areas, treatments will be designed to avoid riparian areas. Adequate buffer strips around water courses and drainages may be necessary to protect riparian areas. The

extent of the buffer strip depends on a number of factors such as: the slope, the type of treatment, acres treated, current vegetation condition, etc., and will be determined through a site-specific environmental analysis.

- Vegetation treatments conducted on uplands adjacent to the Colorado River will be designed and conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work, and salt cedar removal, intended to improve habitats. Where erosion potential is high, establish baseline water quality data prior to conducting vegetation treatments and conduct water quality studies until the site is revegetated and soils are stabilized to determine impacts of vegetation treatments on water quality.
- Consider visual qualities in Visual Resource Management (VRM) Class I and II areas where the classification goal is to preserve the landscape character. Landscape modifications should replicate a natural shape, form, color and texture found in the surrounding area.
- To help maintain the appropriate habitat components on big game ranges, attempt to provide a 40/60 split of forage to cover for mule deer and elk.
- To minimize large losses of key big game winter habitat on Public Lands, limit vegetation changes within localized severe big game winter ranges to 10% of the range per year over a 10 year period.
- Prescriptive treatments with the potential to disrupt visitors, should avoid high use areas and occur outside of high use seasons, such as the fall big game rifle hunting seasons

IV.C.1.4 Species Specific Vegetation Treatment Guidelines

Species	FMUs	Species Specific Vegetation Treatment Guidelines
		Federally Threatened, Endangered and Candidate Species
Big River Fishes (inc. Flannelmouth sucker & Roundtail chub)	B-140-02 C-140-01	• Vegetation treatments conducted on uplands adjacent to the Colorado River will be designed and conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work, and salt cedar removal, intended to improve habitats.
Bald eagle	A-140-01 A-140-02 A-140-03 A-140-06 A-140-07 B-140-01 B-140-02 B-140-03 B-140-05 B-140-06 B-140-07 C-140-01 C-140-03 D-140-02	• In order to minimize effects, both direct and indirect, to potential nesting bald eagles avoid vegetative treatments, within ½ mile of known bald eagle nest sites between December 15 and June 15. • To reduce indirect effects to bald eagles from potential modification of winter roost sites avoid vegetative treatments within ¼ mile of known roost trees from Nov 16 to April 15.
Greater sage grouse (potential Gunnison sage grouse in B-140-05)	A-140-05 B-140-05 B-140-06 B-140-07 C-140-03	• Vegetative treatments will avoid (1/4 mile radius) around known lek sites, and no activity will be allowed around active lek sites from March 15 to May 31. • Evaluate vegetation treatments to determine whether reseeding is necessary to achieve habitat management objectives as recommended in the *Guidelines to manage sage grouse populations and their habitats (Connelly, Schroeder, Sands and Braun 2000)*.

Species	FMUs	Species Specific Vegetation Treatment Guidelines
		• Develop vegetative treatments to minimize impacts and improve habitats as prescribed in the *Guidelines to manage sage grouse populations and their habitats (Connelly, Schroeder, Sands and Braun 2000)*.
Uinta basin hookless cactus	A-140-01	• Vegetative treatments will avoid known cactus populations. • Vegetative treatments will be designed to limit the spread of cheatgrass and enhance Uinta Basin hookless cactus habitat.
Canada lynx	A-140-02 A-140-03 B-140-01 B-140-02 B-140-03 B-140-04 B-140-05 B-140-06 B-140-07 C-140-01 C-140-03 C-140-04 D-140-02	Vegetation treatments within mapped potential Canada lynx habitats will be planned in a manner consistent with conservation measures outlined in the *Canada Lynx Conservation Assessment and Strategy* (2000) Chapter 7 – Pages 7-1 to 7-17. Considerations include: • Attempts will be made to keep linear openings (fire line, access routes and escape routes) out of mapped potential habitat and away from key components such as denning areas. • Avoid constructing permanent firebreaks on ridges or saddles in lynx habitat. • When planning vegetation treatments, minimize creation of linear openings (fire line, access routes and escape routes) that could result in permanent travel ways for competitors and humans. • Linear openings (fire line, access routes and escape routes) associated with fire suppression or vegetative treatments constructed within lynx habitat will be obliterated and reclaimed in order to deter future human and competitive species use. • Design burn prescriptions to regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine). • Planning of treatments will ensure that no more than 30% of lynx habitat within a Lynx Analysis Unit will be in unsuitable condition at any time. If the 30% threshold is already exceeded then no further reduction shall occur as a result of vegetation management. In addition, particular consideration will be given to amounts of denning habitat, condition of summer foraging, winter foraging and shrub-steppe habitats, and habitat linkages, to ensure that treatments do not negatively impact lynx.
BLM Sensitive Species		
Colorado river cutthroat trout	A-140-03 B-140-04 B-140-05 D-140-01	• Develop vegetative treatments to minimize impacts to cutthroat trout in consultation with the Field Office biologist and following guidelines outlined in the *Conservation Agreement and Strategy for Colorado River Cutthroat Trout in the States of Colorado, Utah, and Wyoming, April 2001.* • Vegetation treatments conducted on uplands adjacent to streams occupied by Colorado River cutthroat trout will be conducted in a manner that limits potential for soil erosion and sedimentation and increases vegetative ground cover. This includes riparian restoration work intended to improve habitats.
Northern goshawk	B-140-07 C-140-02 D-140-02	• Vegetative treatments will be designed to maintain dense tree canopies in nesting habitats while improving understory vegetation and maintaining foraging habitats. Large blocks of unroaded habitat will be protected or reclaimed. • Vegetation treatments should maintain a 1/4 mile buffer zone around known nest sites from February 1 to August 15.
Great Basin spade-foot toad	B-140-02 (west of Silt	• Vegetative treatments will consider the need for re-establishment of desired native species in order to minimize the invasion of cheatgrass.
Harrington's penstemon	A-140-05 A-140-06 B-140-03 B-140-05	• Protect Harrington's penstemon populations by treating sufficient acres of vegetation so as not to create small areas that would lead to concentrated grazing by big game and livestock. • Avoid treatments that create significant amounts of surface

Species	FMUs	Species Specific Vegetation Treatment Guidelines
	C-140-03	disturbances.
Debeque milkvetch	B-140-02 C-140-02 D-140-01	• Vegetative treatments will consider the need for cheatgrass control and/or reseeding. Reseeding should emphasize native species or short-lived introduced species that will not out compete the Debeque milkvetch.

** Consult the Oil and Gas Leasing and Development Record of Decision and Resource Management Plan Amendment, (March 1999) for timing limitation stipulations for other species.*

IV.C.1.5 Numbers and Kinds of Qualified Personnel Necessary to Plan and Execute the Prescribed Fire Program

Qualified personnel required to plan and execute the prescribed fire program are largely involved in the UCR interagency fire management program. At the zone level, a fuels specialist is responsible for project level planning as assigned by the zone fire management officer. The fuels specialist, zone fire management officer and assistant fire management officer typically split the workload on an annual basis. Each individual acts as the interdisciplinary team leader or subject matter specialist on assigned projects.

Several level I and II burn bosses (RXB1 and RXB2) are available from the UCR staff group to assist in project implementation. Subordinate positions may be filled by qualified employees on an interagency basis.

All personnel participating on a prescribed fire will be red-carded and will meet or exceed training and qualification standards.

IV.C.1.6 Short-term and Long-term Program Effectiveness Monitoring Objectives

Short term monitoring requirements include pre-burn fuel moisture sampling conducted by preparedness staff members or designated fuels crew members. Pre-burn monitoring may include vegetative transects or establishing permanent photo points depending on the specific project objectives. Post-burn monitoring conducted by fire management staff or resource specialists includes similar activities as required by the project monitoring plan.

Resource specialists and fire management staff with GIS specialist support conduct long term monitoring at the FPU level.

IV.C.1.7 Fuel Treatment - Past Accomplishments and Proposed Treatments

Past and planned treatment areas are depicted on vegetation maps in Appendix M.

IV.C.2 Air Quality and Smoke Management

Prolonged exposure to smoke can cause significant health problems, especially with the elderly and young populations and for people suffering from respiratory illnesses. Smoke also adversely affects the clarity of our air which impairs our views. Therefore, predicting smoke dispersion and concentration is a major component of wildland fire management and prescribed burn plans.

All prescribed fire and fire use activity shall conform to the state standard to minimize emissions using all available, practicable methods that are technologically feasible and economically reasonable in order to minimize the impact or reduce the potential for such impact on both the attainment and maintenance of national ambient air quality standards and achievement of federal and state visibility goals.

IV.C.2.1 Pertinent Air Quality Issues

Identification of smoke sensitive areas, Class I airsheds and proposed project mitigation actions are identified in the modeling and project permit submittal forwarded to the Colorado Department of Health and Environment.

Location of Class I Air Sheds and Clean Air Corridors - All designated wilderness areas on the White River National UCR and within Rocky Mountain National Park have been identified as Class I airsheds.

Description of Pre-Identified Smoke Sensitive Areas - Air quality across the FPU is generally good. The community of Aspen has been designated as a non-attainment area for PM10 in the past. Typically, non-attainment has occurred during the winter months and is not a factor in designing or implementing prescribed fire projects.

The following are considered sensitive to the impacts of smoke:

- Schools
- Hospitals
- Communities

Local and Regional Smoke Management Restrictions and Procedures – The UCR and COLM must apply for and obtain a permit for a planned ignition (e.g., human ignited) or unplanned ignition (e.g., lightning ignited) prescribed fire from the Colorado Department of Health and Environment, Air Pollution Control Division (http://apcd.state.co.us/smoke/prescribed/). The Division reviews and approves a smoke permit for each management ignition project prior to implementation. Annual reports on acres treated are submitted for upward reporting at the State level.

IV.C.2.2 Measures to Prevent or Mitigate Adverse Smoke Events

Project planning addresses and quantifies potential levels of emissions incurred through project implementation. The current acceptable smoke model used is SASEM (Simple Approach Smoke Emission Model). The original intent of SASEM was for it to be used as a screening model for exceedances and visibility impairment. As more sophisticated models become available, they will be used for planning purposes within this FMP.

Air Quality and Smoke Management Directive: All prescribed fire and fire use activity shall conform to the state standard to minimize emissions using all available, practicable methods that are technologically feasible and economically reasonable in order to minimize the impact or reduce the potential for such impact on both the attainment and maintenance of national ambient air quality standards and achievement of federal and state visibility goals.

When the UCR FPU or COLM manages wildland fires for resource benefit and conducts prescribed fires, areas affected by the smoke must still meet air quality standards to protect public health. Despite the FMP's anticipated increases in prescriptive fire, clean air and public health goals can be met through careful planning and cooperation among land managers, air quality regulators and local communities. Fire managers realize that suppressing all wildland fires with no preventative fuels treatments would improve air quality in the short term. However, preventing periodic fires has already contributed to unacceptable fuel loadings in many areas, which has increased the risk of larger, more intense wildland fires burning for longer periods. Large uncontrolled wildland fires typically cause greater air pollutant emission levels and more widespread air quality impacts.

The key to successfully balancing prescriptive fire and meeting air quality standards is a smoke

management program. The FMP allows proactive management flexibility to control smoke production and impacts in smoke-sensitive areas. In addition, mitigation measures have been built into the FMP to reduce potential negative impacts from smoke pollution. First and foremost, air quality is considered in the Prescriptive Criteria of the "Go/No Go Checklist" to determine the viability of implementing a prescriptive fire treatment. If the established federal and state standards for air quality cannot be met or mitigated in an acceptable manner, the project will not be implemented until conditions change. The Go/No Go Checklist is evaluated on a daily basis.

Secondly, even when these standards are met, the FMP also identifies smoke management techniques and procedures to mitigate the potential impacts of smoke. Application of these techniques will minimize air quality impacts (seeing, smelling, breathing). The techniques are described in the Smoke Management Guide for Prescribed and Wildland Fire 2001 Edition,PMS 420-2, NFES 1279, December 2001.

Best management practices from the Interagency Smoke Management Guide are incorporated into individual prescribed burn plans. Examples of smoke management techniques and procedures include:

1. Authorization to Burn
   - Consultation and approval by the State of Colorado is a continuing process. Interagency fire managers will cooperate with other land managers and the State of Colorado to minimize air quality impacts from smoke. The BLM will obtain all necessary air pollutant emission permits and approvals from the State of Colorado prior to initiating a prescriptive fire. The agency will follow and implement the terms of the Colorado Air Quality Control Commission Regulation No. 9 and the Interagency Colorado Smoke Management Plan and MOU as well as any site specific open burning permit.
2. Actions to Minimize Emissions and Enhance Dispersion
   - Each prescriptive fire has unique characteristics, but in general, smoke impacts can be greatly minimized by burning during weather conditions that provide optimal dispersion and wind conditions for the types of materials being burned.
   - Smoke impacts minimized by limiting the amount of materials and acreage burned at one time.
     Whenever feasible and necessary, mechanical thinning (such as selective timber thinning, pruning or cutting of small trees) used as a "pretreatment" to prescriptive burning.
     Burning with higher intensities when possible provides for more convection and greater dispersion of smoke.
3. Modeling
   - Interagency fire managers assess potential air quality impacts through the use of smoke dispersion modeling techniques (e.g.; SASEM, etc.) to predict particulate matter emissions, smoke plume characteristics, exposure and visibility impacts.
4. Monitoring
   - Once a prescriptive fire is initiated, the agency monitors weather, burning and smoke dispersion conditions to assure air quality impacts remain within prescribed smoke management levels. If monitoring indicates conditions are no longer within prescription, managers stop the prescriptive treatment or declare the fire an unwanted wildland fire and initiate the Appropriate Management Response.
   - Personnel stationed along roadways to visually monitor for smoke impacts and warn motorists of adverse conditions.
   - The field personnel maintain communications with the dispatch offices. The dispatch office acts as a clearinghouse, providing and maintaining daily information on burning projects throughout the region.
   - Particulate monitors used as a monitoring tool at sensitive receptors.
5. Public Notification and Awareness
   - Interagency fire managers inform the general public of the status of wildland fires, prescribed burns and smoke through local press, radio and television.

- Interagency fire managers establish and maintain close communications with State and local agencies regarding the status of prescriptive fire treatments and wildland fires When necessary managers notify concerned smoke-sensitive organizations (i.e. hospitals, schools, retirement centers) of management intentions and burning conditions.
- Implementing fire hazard awareness and mitigation programs for the public.

Air Quality and Smoke Management Personnel - The BLM and USFS have Air Quality Specialist available to assist in modeling projected emissions or monitoring emissions during project implementation.

IV.D. Non-Fire Fuel Treatments

Non-fire fuels treatments are an essential component of the GSFO fire management program. Where prescribed burning is not feasible to accomplish resource objectives, areas may be identified for non-fire fuels treatment. This would consist of manual, mechanical, biological and chemical treatments. Not all treatments are suitable for all vegetation types. Treatments will vary depending on factors including: the condition of the vegetation, vegetation management goals, proximity to development, time of year and various environmental circumstances. Often several types of treatments may be used in combination. For example mechanical treatments may be used to create fuelbreaks before a prescribed fire. Whenever possible, the treatment method will be designed to provide local economic benefits. Examples include post and pole harvesting, provision of firewood, and awarding contracts for the treatment of noxious weed infestations.

Types of treatments to be utilize include:
Manual **-** Non-powered hand tools and powered tools, including chain saws and motorized brushcutters, are used to cut, clear, thin or prune herbaceous and woody vegetation. Hand tools include axes, brushhooks, hoes, and hand clippers.

Mechanical **-** Mechanical methods include thinning and piling, crushing, cutting, chipping, lopping, cutting and chaining. Rubber-tired and treaded heavy equipment outfitted with blades or mowing attachments are most commonly used for mechanical treatments. Often fuelbreaks are created to help change the behavior of a wildland fire by modifying the fuel structure in an area immediately adjacent to or surrounding developments and sites to be protected in the wildland urban interface.

Thinning - Thinning reduces stand density by removing stems in the understory, mid-story and overstory. Once thinning is accomplished, the slash may be treated in several ways, including piling the material so it can be burned. Piles will be burned in the fall and winter season and potentially during the summer if conditions become suitable. The actual piling of the material may be accomplished by hand or machine piled. Equipment such as dozers and small tractors will haul the material to piles. Slash may also pushed or dragged into windrows. Some slash may be "rough-piled" or "jackpot piled" where heavier concentrations of fuel are left where they fell and burned on site. Material that is large enough to be of commercial value, usually > 6" may be removed to a landing using a rubber-tire skidder, or tracked vehicle. Both rubber-tire skidders and tracked skidders are used.

Crushing - Crushing involves dragging a large drum with spokes or spikes protruding over the vegetation, effectively breaking the fuel into smaller pieces.

Chipping - Chipping is a process where slash is forced through a chipping machine, reducing the larger pieces of slash to small chips that are left on site to naturally decompose. Tractors with attached discs, like the Hydro-axe, are also used to remove unwanted vegetation. Machines can either partially or totally clear a site.

Lopping - Lopping is where large cutting tools are attached to a "Bobcat" type tractor and trees are cut off at ground level. The trees can be left to lay where they fall, assisting in soil retention or piled and burned.

Chaining - Dozers can drag cable or chain systems to remove vegetation.

Chemical **-** Herbicides may be used to control competing and unwanted vegetation. These chemicals kill plants by disrupting biochemical growth processes. Herbicides are usually applied as liquids mixed with water or oil carriers. Some herbicides are applied in solid form, usually as granules placed on the soil surface to be absorbed by plant roots.

Four methods of applying herbicides may be considered:

- aerial application
- mechanical equipment, truck or ATV mounted sprayers
- backpack equipment, generally a pressurized container
- hand application, painting cut surfaces or application of granular herbicides to the soil.

Biological **-** Prolonged or forced grazing of cattle, sheep or goats may be used to control both noxious weeds and the composition or amount of vegetation. This differs from the typical grazing program in that vegetation control, rather than animal weight gain or forage utilization, is the primary objective.

IV.D.1 Non-Fire Fuel Treatments Activities for the GSFO

Level of Vegetation Treatments - When considering vegetation management goals along with anticipated funding, personnel, planning priorities and climatic conditions; the reasonable foreseeable vegetation treatment level (e.g. level of fuel treatment and amount of prescribed fire) for the GSFO is generally assumed to be no more than 10% of the Resource Area over a 10 year period.

Table - IV.D.1 **-** Non-Fire Fuel Treatment Summary for the GSFO

	2004	2005	2006	2007	2008
# of projects proposed.	4	3	3	3	3
# of acres treated by non-fire methods.	556	230	200	400	400
# of projects implemented through local contractors.	3	2	2	2	2
Total acres treated in CC 2 moved to CC 1.	556	230	200	200	200
Total acres treated in CC 3 moved to CC 2 or 1.	0	0	0	0	0

Guidelines - The guidelines found in section IV.C.1.3 Vegetation Treatment Guidelines and section IV.C.1.4 Species Specific Vegetation Treatment Guidelines will be considered in site-specific projects. Project-level environmental analyses may determine the need for additional considerations.

Monitoring Requirements - Monitoring requirements are developed in response to resource management and project objectives from interdisciplinary input.

IV.E. Emergency Stabilization and Rehabilitation

Rehabilitation and restoration efforts are undertaken to protect and sustain ecosystems, public health, public safety, and to help communities protect infrastructure. Rehabilitation is any action taken to restore an area to the pre-burn or natural condition. Historically the Emergency Stabilization and Rehabilitation (ESR) workload has been low.

Long-term Rehabilitation - All burned areas are evaluated by a Resource Advisor and if necessary by an interdisciplinary team review to determine whether post-incident rehabilitation is needed. *(i.e. Evaluate to determine whether seeding is necessary to prevent excessive erosion or the invasion of noxious weeds and to restore a native vegetative community.)* If the evaluation shows that post-incident rehabilitation is necessary, a rehabilitation plan is prepared and implemented in accordance with; the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook, supplemental guidance (http://fire.r9.fws.gov/ifcc/esr/handbook/), the fire management zone direction, and other applicable guidance.

Short-term Rehabilitation - Incident commanders and resource advisors are responsible for implementing short-term actions to mitigate the effects of fire suppression activities. The following action items will guide short-term rehabilitation of surface disturbing suppression impacts (including closing routes opened during fire suppression) prior to releasing fire crews and equipment following containment. These would be actions taken in addition to standard mop-up duties.

General Rehabilitation Action Items:

- Linear openings created by wildland fire suppression should be closed and rehabilitated in accordance with RA guidance.
- Washed and weed-free equipment should be used in rehabilitation activities.
- Remove all trash, debris, temporary road signing and flagging.
- Flush cut suppression-created tree stumps down to 2-3 " above ground level along recreational trails, around recreation areas, and within WSAs and ACECs. Cross-cut the top of all 8"+ diameter stumps to speed decay.
- Where fire lines cross or parallel streams, remove line construction debris from the channel and place debris sufficiently above the channel so it will not roll back down into the stream.
- Conduct a Class III cultural resource inventory of all ground disturbing rehabilitation activities and use non-ground disturbing techniques within known or newly identified cultural site boundaries.
- Evaluate road systems for damage and report damage to appropriate FO staff person.
- Evaluate and rehabilitate helispots, camps and parking areas.

Rehabilitation Action Items for Hand Lines/other trails:

- Scatter limbs/deadfall/rocks (weathered side up) to obliterate evidence of fire line.
- Weed-free seeding should occur prior to pulling organic matter back over hand lines.
- Hand lines should be seeded at rates specified for the particular region.
- Where a recreation foot trail was used for fire line, reconstruct the trail tread to 24 inches in width.
- Where fire lines cross recreational trails, discourage recreational use of fire lines, by camouflaging with rocks/debris.
- Block off fire lines to motorized access with rocks, natural woody material and signs.
- Remove hazards from along recreational trails.

Rehabilitation Action Items for Dozer Lines:

- Rip and disturb soil to a depth of 6-12 inches.
- Pull fire line berms onto hand line and blend organic matter with undisturbed soil contours.
- Pull trees/limbs/rocks and other organic material back into line perpendicular to slope.
- Block off dozer lines to motorized access using boulders/natural large woody material/signs.
- Dozer lines that were constructed across slopes will need to be fully obliterated with slash.
- Weed-free seeding should occur after pulling organic matter back over dozer lines.

Rehabilitation Action Items for Water Bars:

- Provide for drainage with water bars on constructed hand/dozer lines and impacted areas.
- Place water bars, 20-40 degrees perpendicular to the fall line, where natural drainage occurs.
- Hand line water bars should be 8" deep.
- Water bars for dozer lines should be 12"+ deep and 18-24" high for the berm.
- If soil is loose, augment water bar with woodydebris and/or rocks.
- Ensure that each water bar has a direct outlet and drains into a vegetation or rock filter.
- On slopes >30%, water bars should be installed perpendicular to the fall line and constructed as "cup trenches" rather than drainage features.
- Water bars on steeper slopes (> 50%) may be built from tree boles and should be alternated to opposite sides of the line.
- Water bar spacing and location should consider site-specific topography during installation.

GENERAL WATERBAR SPACING

Grade	Estimated Spacing
1 - 6%	300'
7 - 9%	200'
10-14%	150'
15-20%	90'
21-40%	50'
41% +	25'

Rehabilitation Action Items to Reduce Sedimentation:

- To reduce sedimentation, straw bale or log check dams are prescribed in areas where resource values are at risk.
- Specific sites where check dams should be considered include:
  - ephemeral and small intermittent channels,
  - areas where logs/branches created natural check dams and were burned out,
  - locations with less steep gradients that will naturally store large quantities of sediment,
  - where there are natural sediment catch basins.

Documentation - Documentation requirements have been established by the resource and fire management staff and are identified in the Normal Year Fire Stabilization and Rehabilitation Plan.

Monitoring - Short-term monitoring requirements include evaluation of treatment implementation and its initial effectiveness. Post-treatment monitoring may include vegetative transects or the establishment of permanent photo points depending on specific project objectives.

IV.F. Community Protection/Community Assistance

As a part of the National Fire Plan, Congress directed the development of a list of WUI communities that are at high risk from wildland fire to assist with hazardous fuel reduction and to promote community assistance. These are referred to as WUI Communities at Risk. The most recent list of Communities at Risk was published in the Federal Register on August 17, 2001 and contains 35 Communities at Risk within the COLM/UCR area. Following is a list of these communities designated Communities at Risk:

Aspen	El Jebel	Palisade
Avon	Frisco	Parachute
Basalt	Gateway	Redlands
Breckenridge	Glade Park	Silt
Carbondale	Glenwood Springs	Snowmass
Collbran	Gypsum	State Bridge
Copper Mountain	Kannah Creek	Unaweep Canyon
Debeque	Mack	Vail
Dillon	McCoy	Vega
Dotsero	Mesa	Ward Lake
Eagle	Mesa Lakes	White Water
Edwards	New Castle	

Rural Fire Assistance Grants - Rural fire assistance grants have been awarded to the following communities:

1. Aspen Fire Department (F.D.).
2. Basalt F.D.
3. Debeque F.D.
4. Gateway F.D.
5. Glade Park F.D.
6. Grand Valley F.D. (Parachute)
7. Mesa County Sheriff Office
8. Palisade F.D.
9. Plateau Valley F.D. (Collbran and Mesa)
10. Snowmass F.D.

The rural fire assistance grants were used for:

- Personal Protective Equipment (primarily fire protective clothing, hard hats, fire shelters, and gloves).
- Fire Suppression Equipment (radios, tools, and other equipment).
- Funding for Firewise and other public education meetings and projects.
- Fuels projects to provide a fuel break between public lands and the communities.

Community Assistance/Protection Protocols Common to all FMUs - Actions include:

- Work with other federal agencies, state, county and private entities to update county mitigation plans.
- Provide RFA, as identified in mitigation plans, to rural fire districts. Assess and increase suppression capabilities and effectiveness by providing RFA to local fire suppression organizations.

- Provide planning and implementation assistance to private landowners so hazardous fuels can be reduced as identified in mitigation plans.
- Provide funding to implement fire education projects identified in mitigation plans.
- Reduce fuel hazards and the threat of catastrophic fire events, including consideration of any local Community at Risk (CAR).
- Obligate adequate funding to the Mesa and Garfield County WUI Coordinators.
- Provide training to local fire protection agencies.