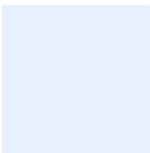
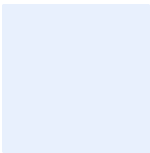


Montrose Interagency Dispatch Zone

Interagency Fire Danger Operating Plan



June 2016

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Montrose Interagency Dispatch Zone

Interagency Fire Danger Operating Plan

Approved By: Agency Administrators



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5/9/2016



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Division of Fire Prevention and Control, Steven D. Ellis

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Montrose Interagency Dispatch Zone

Interagency Fire Danger Operating Plan

Recommended By: *Fire Program Managers*



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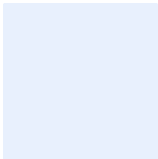
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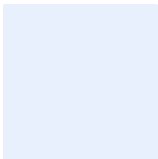
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Montrose Interagency Dispatch Zone

Interagency Fire Danger Operating Plan

Prepared By: *Technical Group*



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5/9/2016



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I. INTRODUCTION

A. PURPOSE

The public, industry, and our own agency personnel expect the interagency wildland fire management agencies to implement appropriate and timely decisions which ultimately result in safe, efficient, and effective wildland fire management actions. This plan is intended to document a decision-making process for agency administrators, fire program managers, fire operations specialists, dispatchers, agency cooperators, and firefighters by establishing interagency planning and response levels using the best available scientific methods and historical weather/fire data. An appropriate level of preparedness to meet wildland fire management objectives is based upon an assessment of vegetation, climate, and topography utilizing the National Fire Danger Rating System (NFDRS). This plan provides a science-based “tool” for interagency fire managers to incorporate a measure of risk associated with decisions which have the potential to significantly compromise safety and control of wildland fires.

1. Fire Danger Operating Plan

Interagency policy and guidance requires numerous unit plans and guides in order to meet preparedness objectives. Some of these plans and guides are inter-related; some plans and guides provide the basis for other plans/guides as shown in this schematic.

This Fire Danger Operating Plan (FDOP) guides the application of information from decision support tools (such as NFDRS) at the local level. This FDOP is supplemental to the Fire Management Plan; it documents the establishment and management of a fire weather station network and describes how fire danger ratings will be applied to local unit fire management decisions. The actual implementation of the fire business thresholds is described in the following supplemental action plans.



Figure 1: Preparedness Plan Relationship

The decision points are identified and documented in the Montrose Interagency Dispatch Zone Fire Danger Operating Plan.

a. Staffing Plan

The Staffing Plan describes escalating responses that are usually noted in the FMP. Mitigating actions are designed to enhance the unit's fire management capability during short periods (one burning period, Fourth of July or other pre-identified events) where normal staffing cannot meet initial attack, prevention, or detection needs. The decision points are identified and documented in the Montrose Interagency Dispatch Zone Fire Danger Operating Plan; the associated decisions and planned actions are located in *Appendix B*.

b. Preparedness Plan

Preparedness plans provide management direction given identified levels of burning conditions, fire activity, and resource commitment, and are required at national, state/regional, and local levels. Preparedness Levels (1-5) are determined by incremental measures of burning conditions, fire activity, and resource commitment. Fire danger rating is a critical measure of burning conditions. The Preparedness Levels are identified and documented in the Montrose Interagency Dispatch Zone Fire Danger Operating Plan; the associated decisions and planned actions are located in *Appendix C*.

c. Prevention Plan

Prevention plans document the wildland fire problems identified by a prevention analysis. This analysis will not only examine human-caused fires, but also the risks, hazards, and values for the planning unit. Components of the plan include mitigation (actions initiated to reduce impacts of wildland fire to communities), prevention (of unwanted human-caused fires), education (facilitating and promoting awareness and understanding of wildland fire), enforcement (actions necessary to establish and carry out regulations, restrictions, and closures), and administration of the prevention program. The analysis of fire problems and associated target groups in the Montrose Interagency Dispatch Zone are documented in this Fire Danger Operating Plan; the associated decisions and planned actions are located in *Appendix D*.

d. Restriction Plan

A Restriction Plan is an interagency document that outlines interagency coordination efforts regarding fire restrictions and closures. An interagency approach for initiating restrictions or closures helps provide consistency

among the land management partners, while defining the restriction boundaries so they are easily distinguishable to the public. Based on the fire danger, managers may impose fire restrictions or emergency closures to public lands. Decision points when restrictions and/or closures should be considered are identified and documented in the Montrose Interagency Dispatch Zone Fire Danger Operating Plan; the associated decisions and planned actions are located in *Appendix E*.

e. NWS Fuel Status

The Rocky Mountain Geographic Area Coordination Center and the National Weather Services have an Annual Operating Plan that states that we will change the fuel status for the Fire Weather Zones within our area weekly. This will indicate whether fuels are in a condition to support large fire growth. Combined with critical weather thresholds it drives whether fire weather zones receive Red Flag Warnings and Fire Weather watches. To address this, we created energy release component breakpoints associated with the weather zones to indicate when the fuel status should be toggled to yes. See Appendix L for details.

2. Wildfire Response

a. Initial Response Plan

Initial response plans, also referred to as run cards or pre-planned response plans, specify the fire management response (e.g. number and type of suppression assets to dispatch) within a defined geographic area to an unplanned ignition, based on fire weather, fuel conditions, fire management objectives, and resource availability. Response levels are identified and documented in the Montrose Interagency Dispatch Zone Fire Danger Operating Plan. The number and type of suppression resources dispatched to a reported fire is documented in the associated Initial Response Plan (*Appendix A*).

b. Local Mobilization Plan

The Montrose Interagency Dispatch Zone Mobilization Plan identifies standard procedures, which guide the operations of multi-agency logistical support activity throughout the coordination system. The Mobilization Plan is intended to facilitate interagency dispatch coordination, ensuring the timeliest and most cost effective incident support services available are provided. Communication between Units, GACCs, State, Regional Offices and other cooperative agencies are addressed. The Mobilization Plan is located on the Dispatch Center web site at,

http://gacc.nifc.gov/rmcc/dispatch_centers/r2mtc/Mobilization_Guide/MTC_Mobilization_Guide.htm).

B. POLICY AND GUIDANCE

Interagency policy and guidance regarding the development of Fire Danger Operating Plans can be found in the [Interagency Standards for Fire & Aviation Operations](#) (Red Book). Agency-specific direction can be found in:

- U.S. Forest Service – [Manual 5120 - Fire Management - Preparedness](#)
- Bureau of Land Management – [Manual 9211 - 1 - Fire Planning Handbook](#)
- [National Park Service – Manual 18, Chapter 5 – Preparedness](#)

C. OPERATING PLAN OBJECTIVES

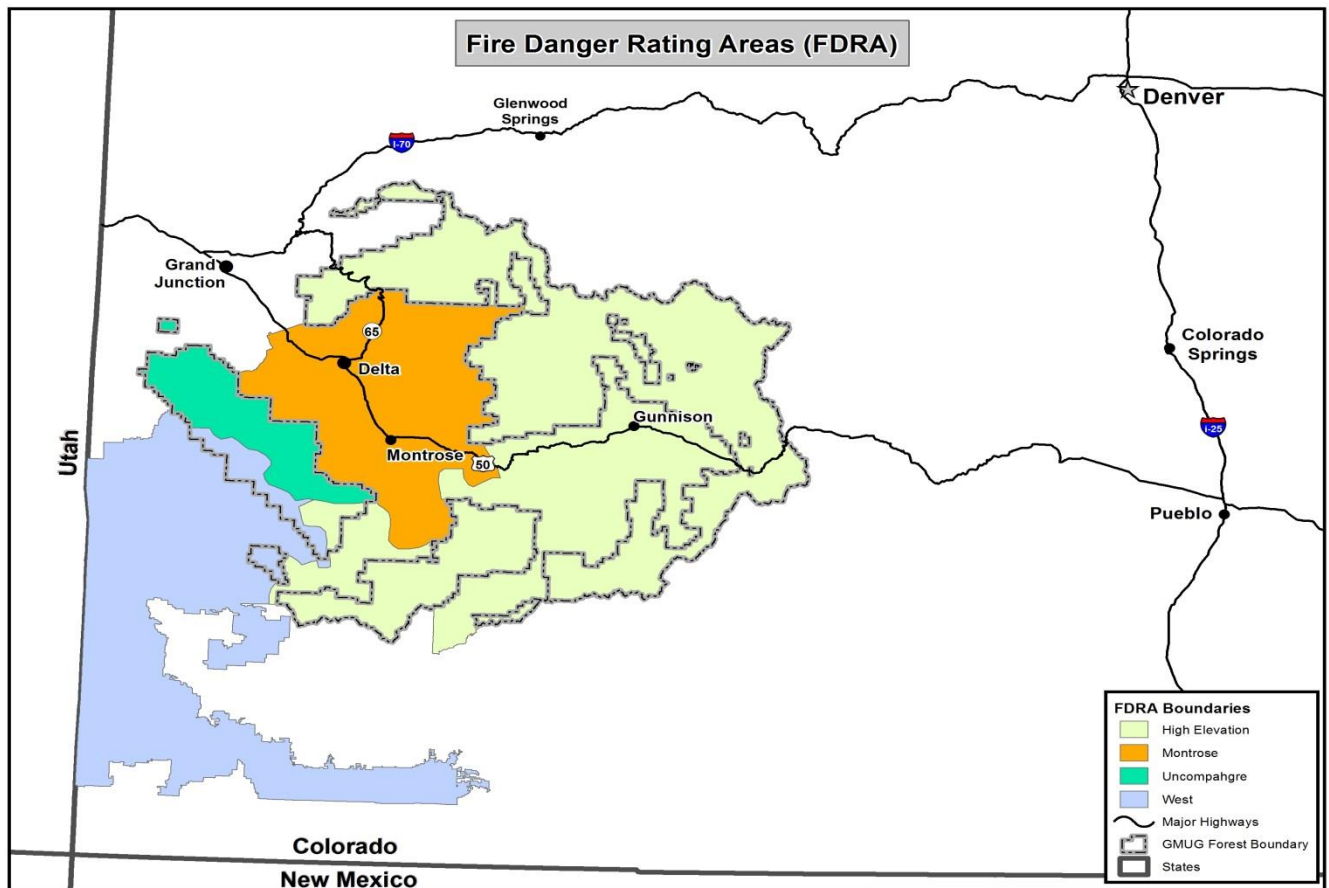
1. Provide a tool for agency administrators, fire managers, dispatchers, agency cooperators, and firefighters to correlate fire danger ratings with appropriate fire business decisions in fire danger planning area.
2. Delineate fire danger rating areas (FDRAs) in fire danger planning area with similar climate, vegetation, and topography.
3. Establish an interagency fire weather-monitoring network consisting of Remote Automated Weather Stations (RAWS) which comply with NFDRS Weather Station Standards (PMS 426-3).
4. Determine climatological breakpoints and fire business thresholds using the Weather Information Management System (WIMS), National Fire Danger Rating System (NFDRS), FireFamilyPlus software to analyse and summarize an integrated database of historical fire weather and fire occurrence data.
5. Define roles and responsibilities to make fire preparedness decisions, manage weather information, and brief fire suppression personnel regarding current and potential fire danger.
6. Determine the most effective communication methods for fire managers to communicate potential fire danger to cooperating agencies, industry, and the public.
7. Provide guidance to interagency personnel outlining specific daily actions and considerations at each preparedness level.
8. Identify seasonal risk analysis criteria and establish general fire severity thresholds.
9. Identify the development and distribution of fire danger pocket cards to all personnel involved with fire suppression within the fire danger planning area.
10. Identify program needs and suggest improvements for implementation of the Fire Danger Operating Plan.

II. FIRE DANGER PLANNING AREA INVENTORY AND ANALYSIS

A. FIRE DANGER RATING AREAS

A Fire Danger Rating Area (FDRA) is defined as a large geographic area relatively homogenous with respect to *climate, vegetation and topography*. Because of these similarities, it can be assumed that the fire danger within a FDRA is relatively uniform. Fire Danger Rating Areas were delineated based upon an analysis of these three factors: climate (Appendix H), vegetation (Appendix I), and topography (Appendix J). After these environmental factors were considered, the draft FDRAs were *edge-matched* to existing administrative boundaries using Response Areas. It is important that existing Response Areas are not split by FDRAs; a Response Area must not have two FDRAs to avoid additional workload and confusion for operational personnel. The final FDRA delineation is depicted here:

1. FDRA Map



Map 1: Fire Danger Rating Areas (FDRAs)

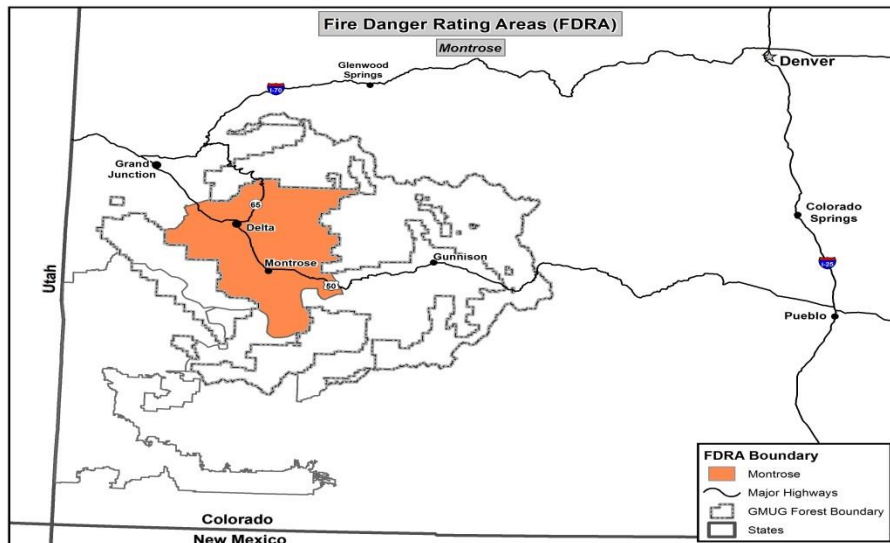
2. **FDRA Table**

Fire Danger Rating Area	Elevation Range (ft)	Acreage	% of Total
FDRA #1 Montrose	5000-9200	1,300,789	17
FDRA #2 Uncompahgre	9000-10600	412,711	5
FDRA #3 West	5000-9600	2,177,557	28
FDRA #4 High Elevation	9000-11000	3,910,831	50

Table 1: Fire Danger Rating Areas (FDRAs)

3. Detailed FDRA Descriptions

a. FDRA #1 Montrose



- General Location:

The Montrose FDRA is defined with the following Geographic boundaries: From the Mesa County and Delta County line it follows the GMUG NF boundary east along the south slopes of the Grand Mesa. Prior to Paonia reservoir the line moves south following the GMUG NF boundary along the west edge of the West Elk Mountains. The line crosses the Gunnison River 10 miles West of Blue Mesa Dam and continues south and west towards the town of Ridgeway at an elevation contour of around 9000feet. The line turns north just east of Dallas Divide Pass and follows the GMUG NF boundary along the east side of the Uncompahgre Plateau until it reaches the Mesa County and Delta County line. The Montrose FDRA primarily consists of the Uncompahgre, Gunnison, and North Fork of the Gunnison river valleys. Mesa's and slopes surround the river valleys rising up to 9000 feet in elevation within the FDRA. The dominant feature in the Southeast portion of the FDRA is the Black Canyon of the Gunnison NP with a deep canyon and high ridges on both sides. This FDRA encompasses approximately 1.3 million acres.

- Vegetation:

Vegetation and Fuels: The lower valleys of the Montrose FDRA are comprised of a mix of grass/forb and salt desert shrub rangelands with isolated stands of cottonwood and willow often with a high composition of tamarisk along the rivers and creeks. (18% of the FDRA) The mid to upper elevations consists of Pinyon and Juniper woodlands on shallow rocky soils and the deeper soils support a variety of shrub communities including sagebrush, serviceberry,

and Gamble's oak. (41% of the FDRA) Gamble's oak tends to be more dominant at the higher elevations of the FDRA. All shrub species are intermixed with pinyon juniper woodlands except in isolated areas where shrubs tend to dominate the landscape. The north rim of the Gunnison Gorge and the lower elevation mesa tops of the Uncompahgre Plateau are examples of where shrub dominance is most pronounced. Several non-native grasses are present in this FDRA with cheatgrass being the most common however jointed goat grass has begun to displace cheatgrass in the North Fork valley between Paonia and Hotchkiss. While found throughout the FDRA, cheatgrass is typically not continuous except in isolated areas that have experienced landscape level disturbances. Cheatgrass in wet years can be dominant to a level of supporting fire growth in the salt desert shrublands north and east of the town of Delta along highway 50.

- Climate:

Hot and dry weather patterns dominate the summer and early fall in this FDRA. Temperatures rise to the mid 90's and the relative humidity consistently drops below 15%. Wetting rains at this elevation range are scarce during the fire season, with the exception of the monsoon season which typically brings wetting rains during the months of July and August. Westerly and south westerly flow dominate the weather pattern and thunderstorm development is common due to orographic lifting associated with the surrounding high elevation mountains. When thunderstorms can produce enough lightning, after a dry period, combined with strong erratic winds, there is high potential for large fire growth. Spring wind events are common and combined with early drying, or a mild winter, also creates situations for large fire potential. The North Fork of the Gunnison, or the north half of the FDRA, is also known for thermal belt inversion layers at mid elevation levels that contribute to dryer fuels and unexpected night time fire activity. This FDRA is considered a Climate Class I (Arid/Semi-arid).

- Topography:

The Montrose FDRA consists of valley bottoms surrounded by slopes, mesas, and ridges with an elevation range between 5000 feet up to 9200 feet. Slopes less than 25% dominate the valley bottoms with typical slopes between 25 and 40% dominating the upper elevations of the FDRA. The Black Canyon of the Gunnison is a steep river drainage that is the dominant land formation in the FDRA. High elevation mountain ranges surround and are adjacent to the FDRA.

- Fire Occurrence:

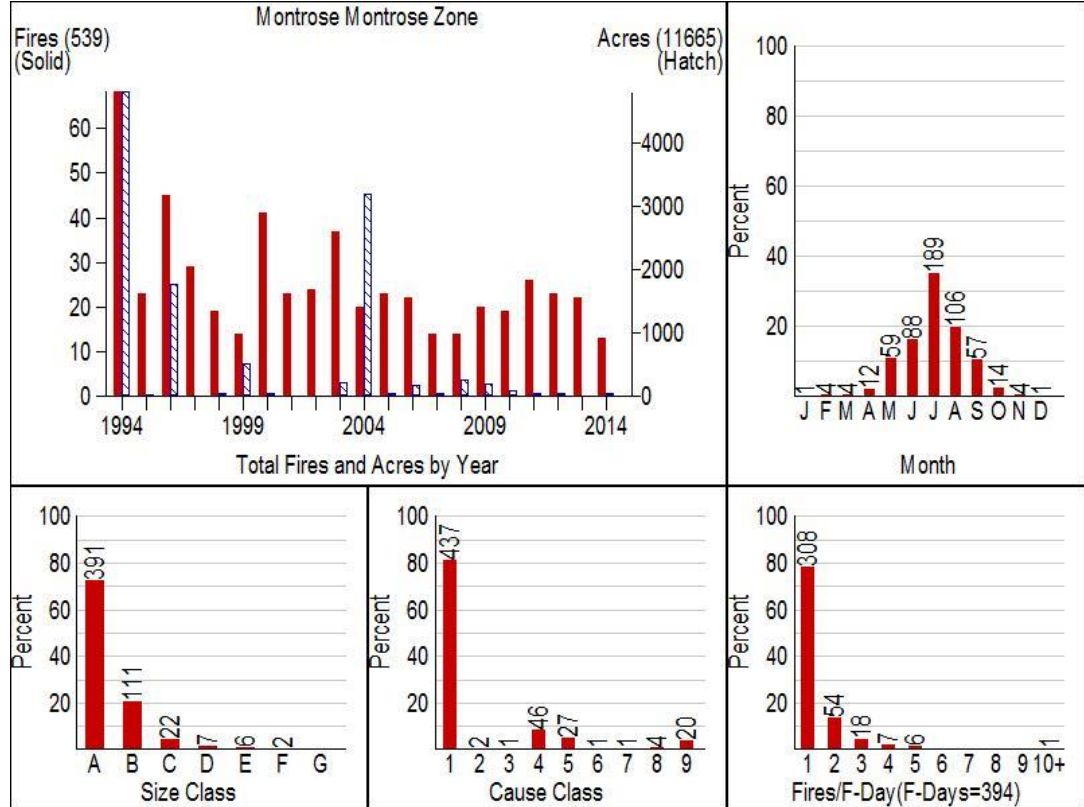
From 1994 to 2014 a total of 539 fires occurred in this FDRA burning 11,665 acres. 93% of the fires reported during this time remained below ten acres in

size. 81% of the starts were caused by lightning in this FDRA. The months of June, July, and August represent the largest percentage of fire occurrence.

- FDRA Parameter Summary Table:

FDRA	Slope Class	Climate Class	Herb Type
FDRA #1 Montrose	2	1	A

Figure 2: Fire Summary Graph



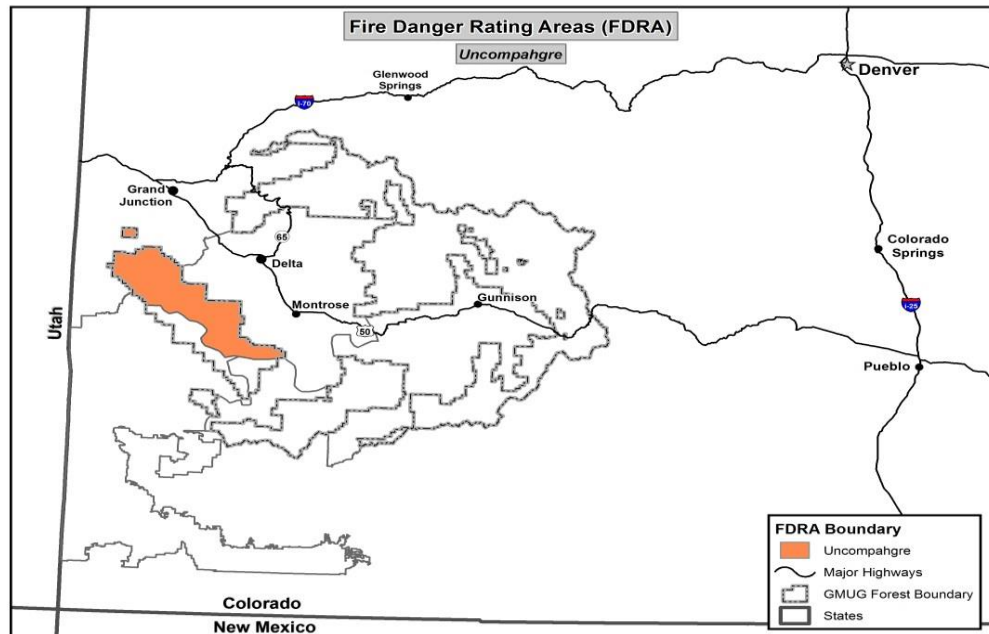
Size Class:

- A = 0 — .25 acres
- B = .30 — 9 acres
- C = 10 — 99 acres
- D = 100 — 299 acres
- E = 300 — 999 acres
- F = 1000 — 4999 acres
- G = 5000 + acres

Cause Class:

- 1 = Lightning
- 2 = Equipment
- 3 = Smoking
- 4 = Campfire
- 5 = Debris Burning
- 6 = Railroad
- 7 = Arson
- 8 = Children
- 9 = Misc

b. FDRA #2 Uncompahgre



- General Location

The Uncompahgre FDRA encompasses the higher elevations of the Uncompahgre Plateau, generally above 8,500-9,000'. General boundaries of the FDRA are the Forest Boundary on the northwest, north, and east sides and the Fire Weather Forecast Zone boundary (290 and 291) on the south and southwest sides. The FDRA is made up of portions of the Grand Valley, Ouray, and Norwood Ranger Districts.

- Vegetation:

The lower elevations of the FDRA have fairly extensive stands of pinyon-juniper (13% of FDRA) and grasslands (6% of FDRA). Throughout the FDRA at lots of different elevations there are extensive shrublands, consisting of oakbrush and mountain shrub communities (30% of FDRA). These 3 vegetation types are also very common in the adjacent lower elevation FDRAs (Montrose and West Side) surrounding the Uncompahgre FDRA and fires often burn from those lower elevation FDRAs into the Uncompahgre FDRA. Ponderosa pine forms a nearly continuous band around the FDRA (9% of FDRA). Above the pine successional or climax aspen stands dominate in many locations (16% of FDRA) while dry mixed conifer, consisting primarily of ponderosa pine and Douglas-fir, is found in other locations above the pine (5% of FDRA) Moist mixed conifer, containing Douglas-fir combined with spruce and fir species is scattered in many locations at the mid-upper elevations and on north slopes (4% of FDRA). The highest elevations contain

Engelmann spruce and sub-alpine fir, often mixed with successional aspen (14% of FDRA). Throughout the FDRA riparian areas are scattered, often linear in nature, consisting of willow, narrowleaf cottonwood, and aspen (2% of FDRA).

- Climate:

In the Uncompahgre FDRA summer temperatures rarely exceed 80-85 degrees. Humidity can drop into the single digits during dry periods at all elevations. Annual precipitation can range from as low as 20” in the lower elevations to 35” in the higher elevations. Most of the precipitation comes as snow in the cold winter months but the summer monsoon, typically in mid-July continuing into August, can contribute significant fire season ending precipitation as well in the form of late afternoon thunderstorms. Early in the monsoon dry lightning can occur before significant moisture pulses into the area. The late May through July, sometimes into early August, period is typically the driest season and is when most fires occur in this FDRA. Spring wind events are common and combined with early drying, or a mild winter, also bring potential for fire growth.

- Topography:

The Uncompahgre FDRA is a northwest to southeast trending uplift that is much steeper on the southwest side and less steep on the northeast side. General slopes on the southwest side range from 10-40%, while those on the northeast side range from 5-15%. Both sides of the FDRA are cut by numerous small drainages that create significant canyons, flowing generally southwest into the San Miguel and Dolores Rivers on the southwest side and flowing northeast into the Uncompahgre and Gunnison Rivers on the northeast side.

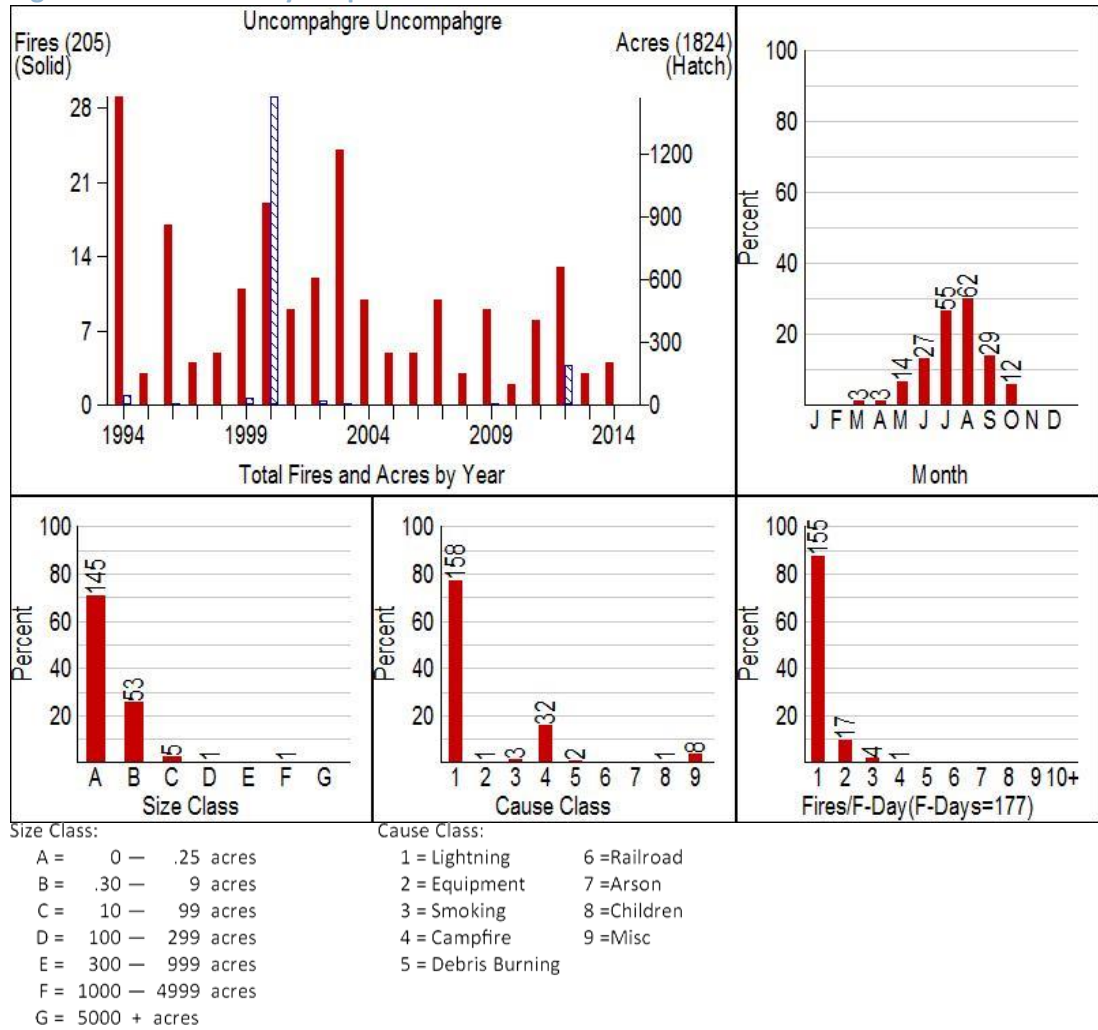
- Fire Occurrence:

From 1994 to 2014 a total of 205 fires occurred in this FDRA burning 1824 acres. 97% of the fires reported during this time remained below ten acres in size. 77% of the starts were caused by lightning in this FDRA. The months of June, July, August, and into September represent the largest percentage of fire occurrence.

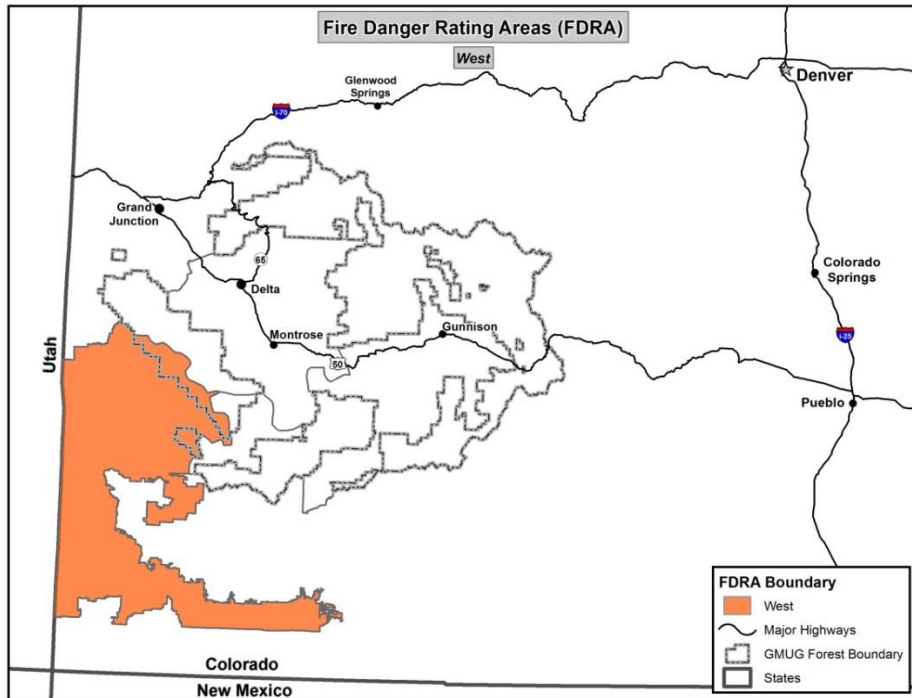
- FDRA Parameter Summary Table:

FDRA	Slope Class	Climate Class	Herb Type
FDRA #2 Uncompahgre	2	2	P

Figure 3: Fire Summary Graph



c. FDRA #3 West



- General Location:

The West Side FDRA is defined with the following Geographic boundaries: From the Montrose and Grand Junction Dispatch line, the FDRA follows the climate and weather zone boundary to the southeast. The FDRA encompasses most of the Norwood Ranger District and the Southwest aspect of the Uncompahgre plateau below 9500 feet in elevation. The boundary then crosses the San Miguel River drainage approximately nine miles East of Norwood. The FDRA boundary continues south and west at an elevation contour of below 8500 feet, to include most of the valley bottoms in San Miguel and into Dolores County. The boundary continues south and then east following the San Juan National Forest jurisdictional line to a mile east of Bayfield. The FDRA line then turns west following the BIA and NPS boundaries to the Colorado and Utah border. The FDRA boundary then follows the state line north until intersecting with the Montrose and Grand Junction Dispatch line once again. The West FDRA primarily consists of the San Miguel, Dolores, and Animas river valleys, in addition to the lower southwest aspect of the Uncompahgre plateau. This FDRA encompasses approximately 2.1 million acres. 142,169 acres are administered by the GMUG NF. 964,647 acres are BLM administered lands. 994,000 are state and private lands.

- Vegetation:

The lower valleys of the West FDRA are comprised of a mix of grass/forb, salt desert shrub, and sagebrush rangelands with isolated stands of cottonwood and willow often with a high composition of tamarisk along the rivers and creeks. (20% of the FDRA) The mid to upper elevations consists of Pinyon and Juniper woodlands on shallow rocky soils and the deeper soils support a variety of shrub communities primarily sagebrush at lower elevations, with serviceberry, and Gamble's oak at the highest elevations. (60% of the FDRA) The highest mesa tops often support ponderosa pine stands with gamble's oak and grass understories. The steep rocky canyons and shallow soiled mesa tops are dominated by pinion juniper woodlands and the deeper soils of the mesa tops and wider canyon bottoms are dominated by many small to large sagebrush parks. The Dry Creek Basin, Disappointment Valley, Big and Little Gypsum Valleys, and the Paradox Valley are examples of where shrub dominance is most pronounced. Several non-native grasses are present in this FDRA with cheatgrass being the most common. While found throughout the FDRA, cheatgrass is typically not continuous except in isolated areas that have experienced landscape level disturbances. Cheatgrass in wet years can be dominant to a level of supporting fire growth in the Paradox Valley. Annual grasses best describe the herbaceous type of this FDRA despite some perennials in the higher elevations.

- Climate:

Hot and dry weather patterns dominate the summer and early fall in this FDRA. Temperatures rise to the mid 90's and the relative humidity consistently drops below 15%. Wetting rains at this elevation range are scarce during the fire season, with the exception of the monsoon season which typically brings wetting rains during the months of July and August. Westerly and southwesterly flow dominate the weather pattern and thunderstorm development is common due to orographic lifting associated with the surrounding high elevation mountains. When thunderstorms can produce enough lightning, after a dry period, combined with strong erratic winds, there is high potential for large fire growth. Spring wind events are common and combined with early drying, or a mild winter, also creates situations for large fire potential. Climate class 1 or arid best describes the majority of this FDRA, however, the southwest aspect of the Uncompahgre plateau receives more annual precipitation than the rest of the FDRA.

- Topography:

The West Side FDRA consists of valley bottoms surrounded by slopes, mesas, and ridges with an elevation range between 5000 feet up to 9200 feet. Slopes less than 25% dominate the valley bottoms and mesa tops. Typical slopes between 25% and 40% occur between the valley floor and

mesa tops, as well as the upper elevations of the FDRA. Slope class of 2 best describes this FDRA.

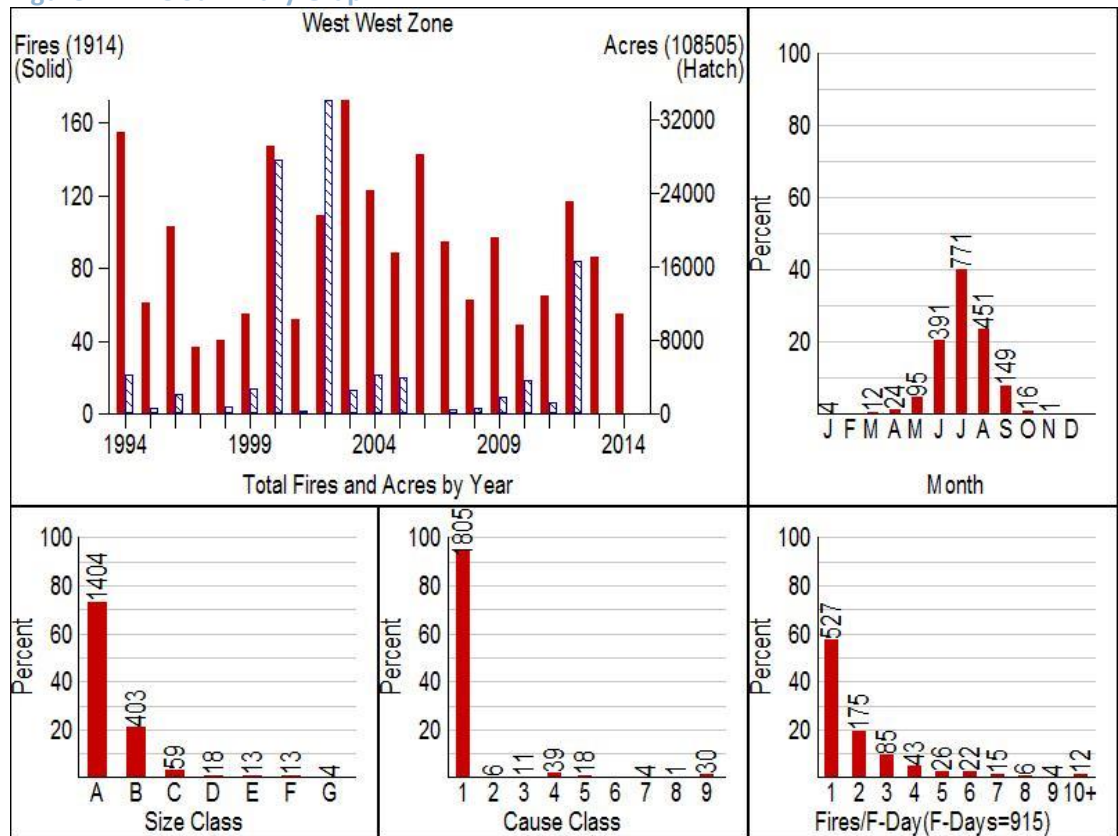
- Fire Occurrence:

From 1994 to 2014 1,914 fires occurred totalling 108,505 acres in this FDRA. 94% of the fires in this FDRA were caused by lightning. 94% of all fires remained less than 10 acres in size. The months of June thru August see the majority of fire activity. May and September also have moderate numbers of fire activity reported in this FDRA.

- FDRA Parameter Summary Table:

FDRA	Slope Class	Climate Class	Herb Type
FDRA #3 West	2	1	A

Figure 4: Fire Summary Graph



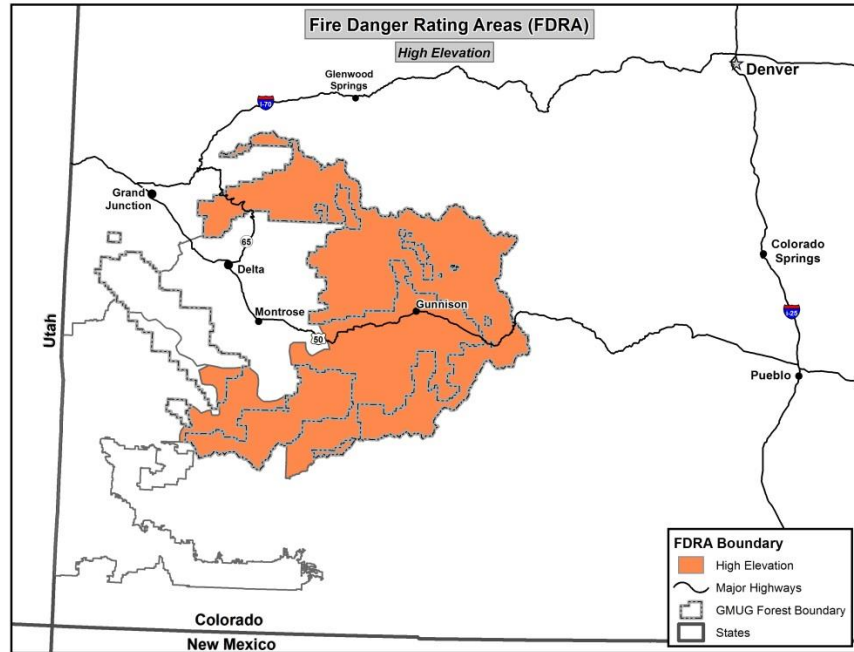
Size Class:

- A = 0 – .25 acres
- B = .30 – 9 acres
- C = 10 – 99 acres
- D = 100 – 299 acres
- E = 300 – 999 acres
- F = 1000 – 4999 acres
- G = 5000 + acres

Cause Class:

- 1 = Lightning
- 2 = Equipment
- 3 = Smoking
- 4 = Campfire
- 5 = Debris Burning
- 6 = Railroad
- 7 = Arson
- 8 = Children
- 9 = Misc

d. FDRA #4 High Elevation



- General Location:

The High Elevation FDRA is generally elevations above 8,500-9,000' ranging up to over 14,000' and creates a large horseshoe shape, open to the west, of these highest elevations around the north, east, and southern sides of the Unit. Starting near Paonia the general boundaries include: the Paonia and Grand Valley District Boundaries around the southern, western, and northern portions of the Grand Mesa as well as the Battlement Mesa finger to the north, then east along the boundary of the White River National Forest to McClure Pass and continuing east through the Raggeds, Maroon Bells-Snowmass, and Collegiate Peaks Wilderness Areas to the Continental Divide, then south along the Continental Divide to Monarch Pass, and continuing south and southwest along the Continental Divide through the Cochetopa Hills into the LaGarita Wilderness and then continuing west just south of Lake City and Silverton, then west along the boundary of the San Juan National Forest, then north and northeast at elevational and Fire Weather Zone Boundaries back towards US Hwy 50 and north along the Gunnison and Paonia District Boundaries back to near Paonia. The High Elevation FDRA primarily consists of the Paonia Ranger District, the eastern half of the Grand Valley Ranger District, the entire Gunnison Ranger District, the southeastern portions of the Norwood and Ouray Ranger Districts, the entire Gunnison Field Office, and the eastern three-quarters of Curecanti National Recreation Area. The dominate land features are the Grand Mesa, the Continental

Divide running along the Sawatch Range, the northern San Juan Mountains, and, further into the interior of the FDRA, the West Elk Mountains and the Gunnison Basin. The FDRA encompasses 3,910,831 acres.

- Vegetation:

In isolated locations throughout the FDRA there are scattered pinyon-juniper stands and mixed mountain shrubs but in this FDRA these 2 fuel types are very limited in extent (7% of FDRA). The lower elevations of the FDRA are primarily located in the Gunnison Basin and vegetation in this area consists largely of expanses of sagebrush and grass (20% of FDRA). Ponderosa pine is present in a band above the sagebrush in the Gunnison Basin and in a few other scattered locations in the FDRA (2% of FDRA). In the northern and eastern portions of the FDRA lodge pole pine is extensive at the mid-elevations (5% FDRA). Aspen is common in numerous locations and is particularly dominate throughout the West Elks, McClure Pass area, the south slopes of the Grand Mesa, and in the mid-elevations of the Sneffel's and San Miguel Ranges (17% of FDRA). Dry mixed conifer is scattered in many locations, primarily at the low-mid elevations or on south facing slopes throughout the FDRA and consists of mixtures of ponderosa pine, Douglas fir, lodge pole pine, limber pine, etc (5% of FDRA). Moist mixed conifer, containing lodge pole pine and limber pine combined with spruce and fir species is also scattered in many locations at the mid-upper elevations and on north slopes (2% of FDRA). The highest elevations with woody fuels consists of Engelmann spruce and sub-alpine fir, which extends upward to tree line (25% of FDRA). Throughout the FDRA riparian areas are scattered, often linear in nature; consisting of willow, narrow leaf cottonwood, and wet meadows (6% of FDRA). Above tree line the vegetation consists of unburnable alpine species mixed with extensive high elevation rock areas (11% of FDRA).

- Climate:

Depending on variations in elevation and aspect, coupled with variations in annual weather patterns, in this FDRA climate patterns can range from cool and moist to warm and dry. Temperatures rarely exceed 85 degrees in the Gunnison Basin and rarely 80 degrees at the higher elevations. Humidity can drop below 15% during dry periods at all elevations. Annual precipitation can range from as low as 10" in the Gunnison Basin, which is in the rain shadow of the mountain ranges to the south, west, and north, to more than 40" in the higher elevations. Most of the precipitation comes as snow in the cold winter months but the summer monsoon, typically in mid-July continuing into August, can contribute significant fire season ending precipitation as well in the form of late afternoon thunderstorms. Early in the monsoon dry lightning can occur before significant moisture pulses into the area. The late May through July, sometimes into early August, period is

typically the driest season and is when most fires occur in this FDRA. Spring wind events are common and combined with early drying, or a mild winter, also bring potential for fire growth.

- Topography:

The High Elevation FDRA consists primarily of a 3 sided horseshoe ring of high mesa's and alpine mountains ranging from 9,000 feet to just over 14,000' on several high points, along with the Gunnison Basin, which is located above 8,000', located in the center of the FDRA. In the Gunnison Basin slopes are generally less than 20% and all aspects are represented. In the higher elevations slopes range from 15% and 50% or more and all aspects are represented. Several thousand acres of the FDRA is above tree line.

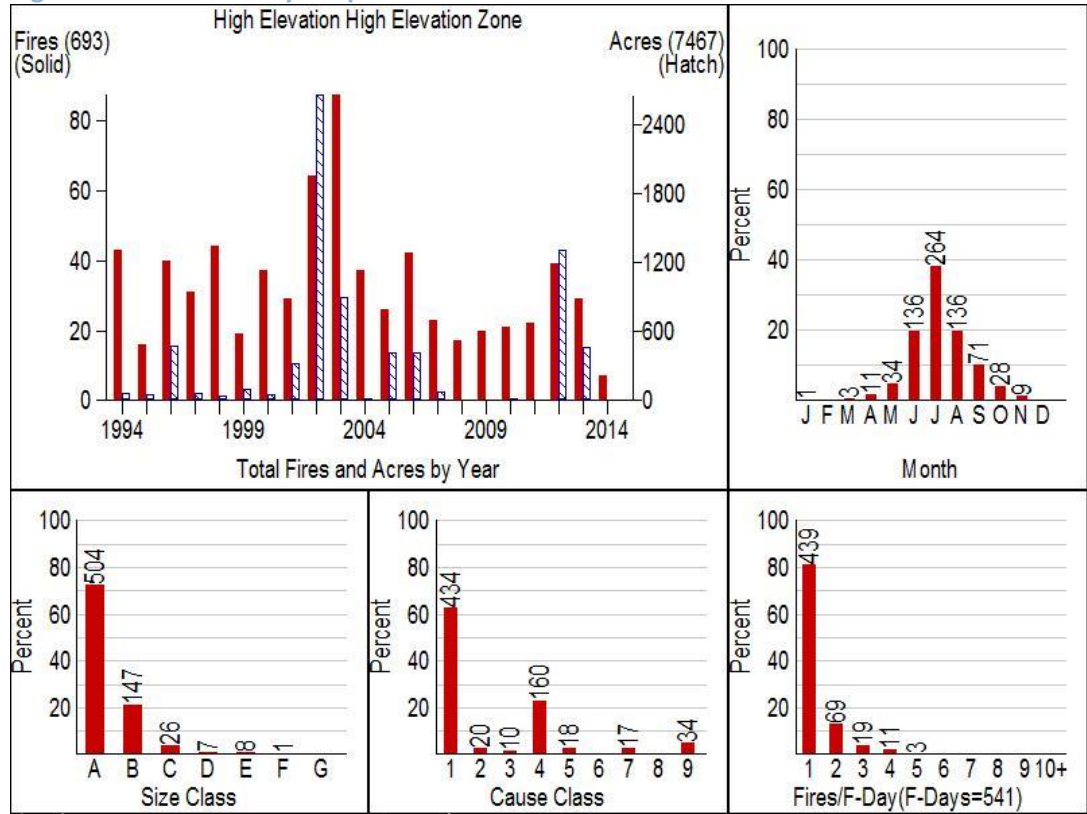
- Fire Occurrence:

From 1994 to 2014 693 fires occurred totalling 7467 acres in this FDRA. 63% of the fires in this FDRA were caused by lightning. 94% of all fires remained less than 10 acres in size. The months of June thru September see the majority of fire activity. May and October also have moderate numbers of fire activity reported in this FDRA.

- FDRA Parameter Summary Table:

FDRA	Slope Class	Climate Class	Herb Type
FDRA #4 High Elevation	3	3	P

Figure 5: Fire Summary Graph



Size Class:

- A = 0 — .25 acres
- B = .30 — 9 acres
- C = 10 — 99 acres
- D = 100 — 299 acres
- E = 300 — 999 acres
- F = 1000 — 4999 acres
- G = 5000 + acres

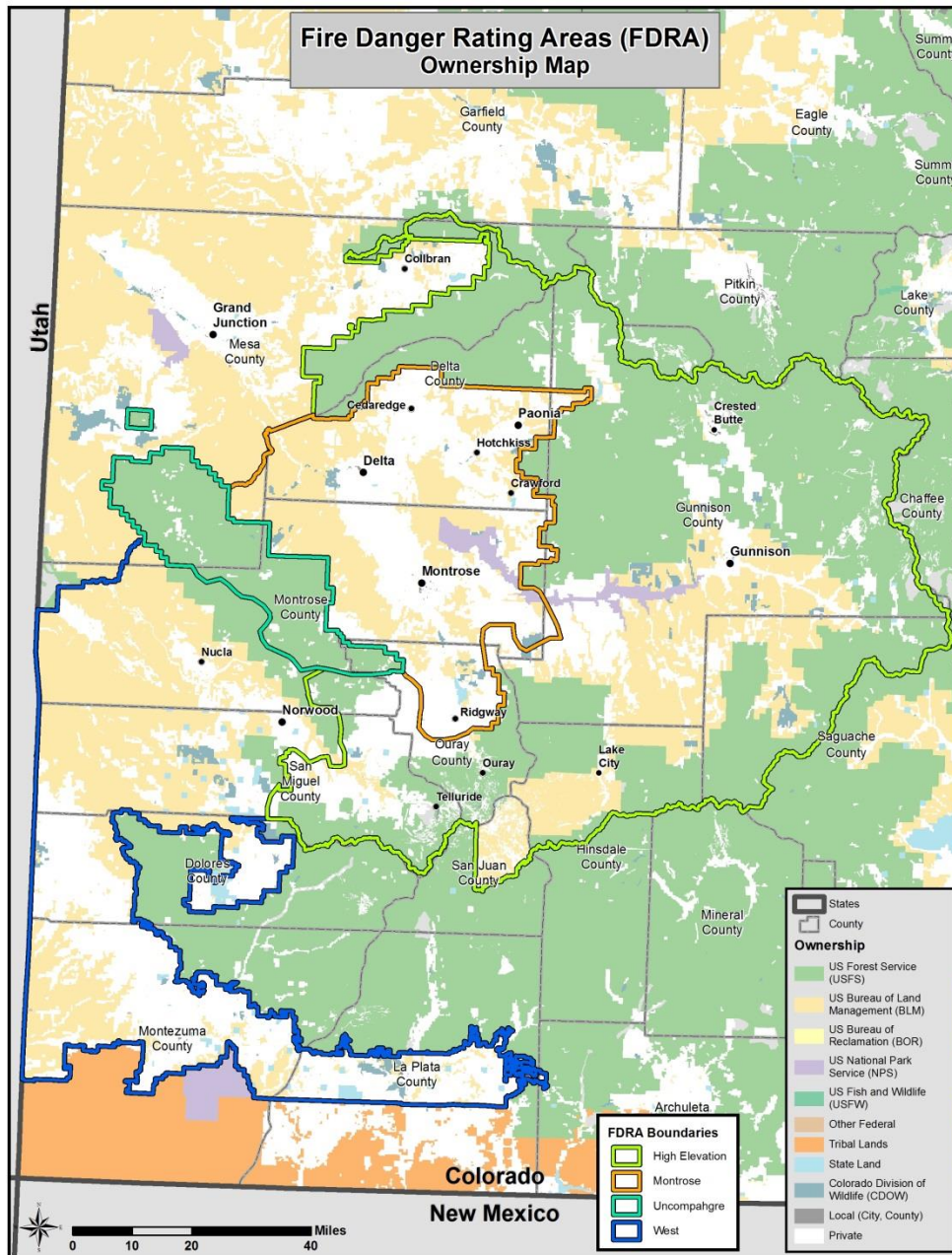
Cause Class:

- 1 = Lightning
- 2 = Equipment
- 3 = Smoking
- 4 = Campfire
- 5 = Debris Burning
- 6 = Railroad
- 7 = Arson
- 8 = Children
- 9 = Misc

B. ADMINISTRATIVE UNITS

This document serves as an example of consistent and effective application of fire danger decisions applied across multiple jurisdictional boundaries. Wildland fire management and suppression responsibilities are shared among Federal, State, and local cooperators.

1. Ownership Map



2. **Ownership Table**

Land Ownership Table	
Owner	Estimated Acreage
US Forest Service (USFS)	2,958,125
US Bureau of Land Management (BLM)	2,127,318
US National Park Service (NPS)	68,410
US Bureau of Reclamation (BOR)	4,144
US Fish and Wildlife Service (USFWS)	141
Other Federal	775
State	56,097
Colorado Division of Wildlife (CDOW)	65,089
Local (City, Town or County)	3,613
Private	2,518,175
Total Acreage	7,801,889

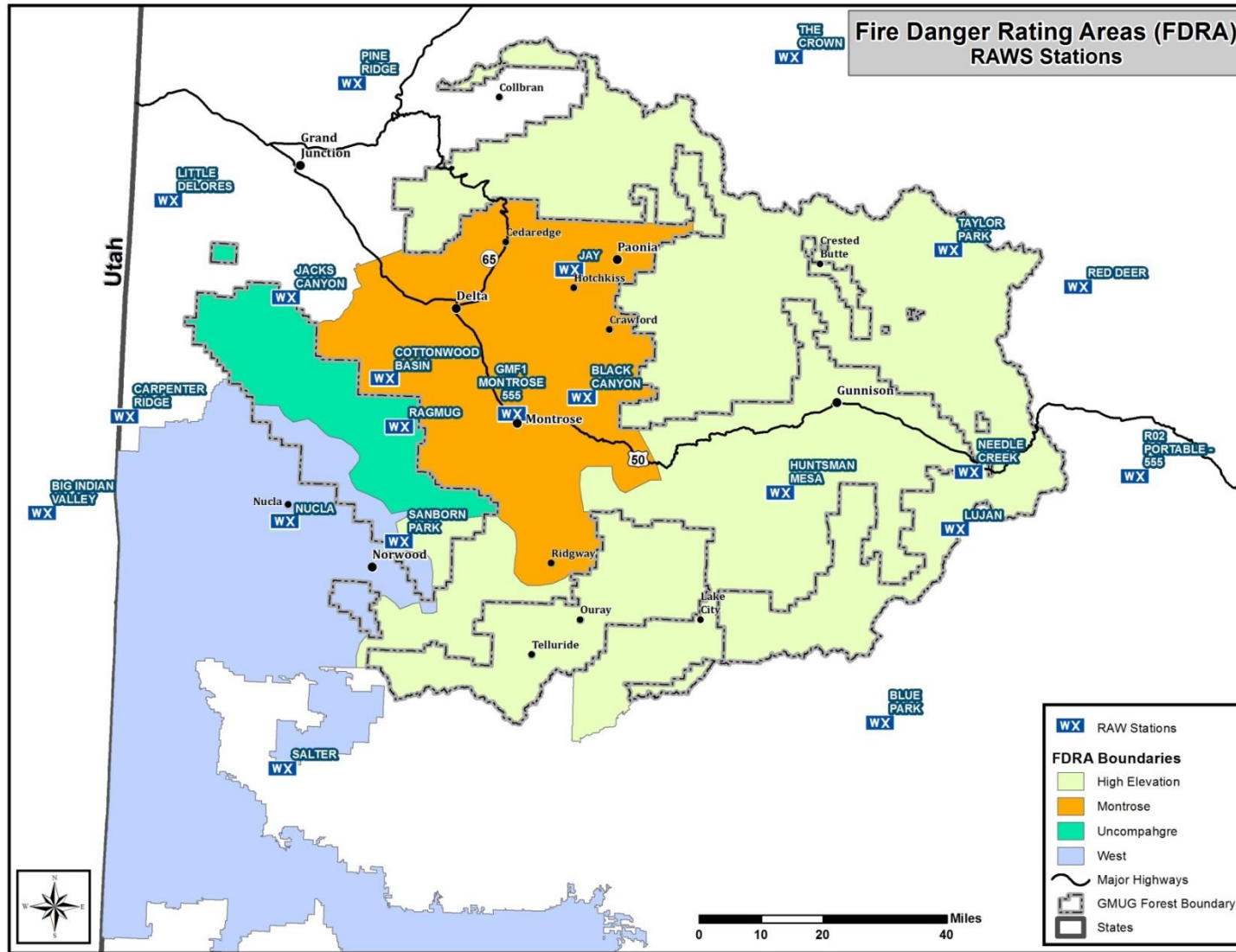
C. WEATHER STATIONS

All Remote Automated Weather Stations (RAWS) comply with the National Wildfire Coordinating Group (NWCG) weather station standards.

<http://www.nwcg.gov/pms/pubs/PMS426-3.pdf> .

Each RAWS receives, at a minimum, one annual on-site maintenance visit by either the local user or contracted personnel to ensure sensors are within calibration standards, and verify site and station conditions.

1. RAWS Map



2. RAWS Catalogue Table (Active Stations Only)

<i>Station</i>	<i>NESDIS</i>	<i>Station</i>	<i>Agency</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Elevation</i>
52409	325A137C	DOMINGUEZ/JACKS CANYON/JACKS CANYON	BLM	38.7530555	-108.5700000	7660
52704	324AC28A	JAY	BLM	38.8456240	-107.7384890	6257
52812	323547A0	TAYLOR PARK	USFS	38.9085749	-106.6027860	10410
52813	325A000A	HUNTSMAN	BLM	38.3319444	-107.0888888	9230
53804	3235A452	SANBORN PARK	USFS	38.1922540	-108.2168150	7930
53805	3259A7FC	COTTONWOOD	BLM	38.5730930	-108.2784940	7220
53806	325A5076	BLACK CANYON	BLM	38.5424979	-107.6860310	8560
53807	3251D5CA	NUCLA	BLM	38.2333710	-108.5617039	5820
53808	323C241A	CARPENTER RIDGE	USFS	38.4583333	-109.0458333	8188
54702	3240DOAE	LUJAN	USFS	38.2544444	-106.5677777	11154
54704	32405868	NEEDLE CREEK	USFS	38.3894444	-106.5308333	8990
55205	3235C1B4	SALTER	USFS	37.6511111	-108.5366666	8196
55601	3230101C	BLACK MOUNTAIN	USFS	37.8616666	-105.2841666	8982
55704	FA62F546	CHAPIN	NPS	37.1996444	-108.4894111	7126
55706	FA630738	MOREFIELD	NPS	37.2978222	-108.4145333	7825
55710	32939750	MOCKINGBIRD	BLM	37.4744444	-108.8841666	6420
55807	3276A080	BIG BEAR PARK	USFS	37.4961110	-107.7294443	10400

Table 2: RAWS Catalogue

3. Special Interest Groups (SIGs)

<i>Special Interest Group (SIG):</i> FDRA #1 Montrose	
<i>Station / WIMS Number</i>	<i>Station Name</i>
052704	Jay
053805	Cottonwood

<i>Special Interest Group (SIG):</i> FDRA #2 Uncompahgre	
<i>Station / WIMS Number</i>	<i>Station Name</i>
052409	Dominguez/Jacks Canyon/Jacks Canyon
053808	Carpenter Ridge
053806	Black Canyon
053804	Sanborn Park

<i>Special Interest Group (SIG):</i> FDRA #3 West	
<i>Station / WIMS Number</i>	<i>Station Name</i>
053807	Nucla
055704	Chapin

<i>Special Interest Group (SIG):</i> FDRA #4 High Elevation	
<i>Station / WIMS Number</i>	<i>Station Name</i>
054702	Lujan
052812	Taylor Park
054704	Needle Creek
052813	Huntsman Mesa

RAWS stations identified in each Special Interest Group were determined through analysis and pivot tables showing contrasts (See Appendix P for Pivot Tables)

III. FIRE DANGER PROBLEM ANALYSIS

In order to apply a fire danger system which will assist managers with fire management decisions, ignition problems need to be identified, quantified, framed, and associated with a specific target group to determine the most appropriate fire danger-based decision “tool” to mitigate the given issue.

A. IDENTIFICATION / DEFINITION OF THE FIRE PROBLEM(S)

The ability to regulate, educate, or control a user group will be based upon the interface method and how quickly they can react to the action taken. Consequently, the most appropriate decision tool would depend upon the sensitivity of the target group to the implementation of the action. In addition, each action will result in positive and/or negative impacts to a user group. In selecting a component and/or index, several factors must be considered:

1. **Affected Target Group:** The group of people commonly associated with the problem (Agency, Industry, or Public).
 - Agency: Employees of the federal, state, and local governments involved in the cooperative effort to suppress wildland fires. This includes Federal, State, and County land management employees, along with volunteer fire departments who share a similar protection mission to manage wildland fires.
 - Industry: Employees affiliated with organizations which utilize natural resources and/or obtain permits or leases to conduct commercial activities on federal, state, or private lands. These entities or activities could include ranchers, wilderness camps, railroads, mines, timber harvesting, filming, building construction, oil and gas, electric generation, guiding services, etc.
 - Public: Individuals who use public lands for non-commercial purposes such as off-highway vehicle (OHV) use, camping, hiking, hunting, fishing, skiing, firewood gathering, agriculture, mountain biking, general travel and recreation. This group also includes those living within the wildland/urban interface (WUI).
2. **Problem Definition:** This is the problem specific to the area of concern and includes ignition causes. The problem is “framed” to focus on the wildland fire management issue associated with a specific target group.

B. FIRE PROBLEM ANALYSIS TABLE

The ability to regulate, educate, or control a user group will be based upon the interface method and how quickly they can react to the action taken. In addition, each action will result in positive and/or negative impacts to the user groups. Consequently, the decision tool which would be most appropriate would depend upon the sensitivity of the target group to the implementation of the action. The following table provides a summary of the planning area’s fire danger problems and concerns. In addition, each problem is associated with a specific target group whose activities can be influenced through effective communication and implementation of specific control measures. The table also illustrates the differences between target groups (Agency, Industry, and Public) and the associated fire cause.

Table 3: Planning Area Fire Problems

TARGET GROUP		IGNITION CAUSE		RELATIVE DEGREE OF CONTROL	COMMUNICATION METHODS	PROBLEM DEFINITION
GENERAL	SPECIFIC	GENERAL	SPECIFIC			
Agency	Interagency and cooperator resources	1 - Lightning	Multiple or when at less than maximum staffing.	High	Communicated by Dispatch Center daily to agency personnel for implementation. Website design for better cooperator awareness of the areas fire danger and staffing needs.	Problem #1: We lack a consistent process which incorporates relevant Fire Danger criteria in decisions to boost Initial Attack (IA) capability in preparation for additional IA workload.
Agency	Interagency and cooperator resources	1 - Lightning	Multiple or when at less than maximum staffing.	High	Fire danger communicated daily by dispatch to agency personnel. Daily briefing awareness of staffing and draw down levels among all personnel. When fire danger approaches high, weekly LMAC calls	Problem #2: During periods of “high” fire danger, when more than half of the local Initial attack resources are unavailable, new fires tend to get large quickly.

					discussing resource availability.	
Public	Public Users	4 - Campfire	The primary concern is campers and recreational fires.	Moderate	Identification of upcoming wind events and improved communication thru media releases, web sites, and signage.	Problem #3: Fires occur in pre-season due to lack of public knowledge of pending spring high wind events.
Agency	Agency fire program, budget planning, personnel departments.	1 - Lightning	Lightning or human caused fires due to longer and changing fire seasons and early snow melt.	Low	Communications thru website, dispatch announcements, intelligence briefings, and interagency conference calls	Problem #4: Fires occur pre-season, or earlier activity at high elevations within season. Budget staffing levels are geared toward typical fire seasons
Public	County and protection district personnel who implement guidance and permitting	5 - Debris Burning	Ditch burners in the spring and other debris burning activities.	Low	Develop alternative indices and communicate thru website and education with the counties how to implement in place of Red Flag Warning.	Problem #5: Red Flag Warnings are being used for purposes not intended. Some counties use RFW as regulatory tool. Lacking an alternative to the RFW as a better decision tool for debris burning.
Agency	Decision makers, duty officers, and fire operations personnel	1 - Lightning	Lightning and propagation due to the availability of dead fuels caused by insect mortality.	Moderate	Communicate thru training and intelligence briefings daily on the risk as it relates to current fire danger. Educate and emphasize risk management for local firefighters.	Problem #6: Mortality of large stands of trees resulting in extreme resistance to control. The risk increases to fire fighters at the higher levels of fire danger; in addition, the risk to firefighters increases due to falling snags.

TARGET GROUP		IGNITION CAUSE		RELATIVE DEGREE OF CONTROL	COMMUNICATION METHODS	PROBLEM DEFINITION
GENERAL	SPECIFIC	GENERAL	SPECIFIC			
Agency	Interagency and cooperator resources	1 - Lightning	Multiple or when at less than maximum staffing.	Moderate	Consistent Adjective Ratings will be communicated thru a newly designed website that is easier to understand.	Problem #7: Communication of fire danger rating to the public has been very inconsistent. Some communities have their own signs. The placement or limited number of signs among various agencies is not coordinated.
Public	Public Use	4- Campfire	Camping, smoking, and other public use activities	Low	Additional signage may be advocated thru internal management.	Problem #8: Roadside Fires; primarily due to dispersed roadside recreational activities (camping, picnicking, etc.)
Agency	Interagency employees, Fire Managers, Dispatchers, and operations personnel	1- Lightning	All causes	High	More preseason internal training.	Problem #9: Understanding the application of Fire Danger Rating for decision support. Agency Administrators, Fire Managers, dispatchers, and operations personnel.

IV. FIRE DANGER DECISION ANALYSIS

Decision points can be based upon either:

- Climatological Breakpoints, or
- Fire Business Thresholds.

This Fire Danger Operating Plan will be used to support preparedness, staffing and response decisions which are made at specific decision points. A “decision point” is a point along the range of possible output values where a decision shifts from one choice to another. When the combination of events and conditions signal that it is time to do something different, a “decision point” has been identified for each Fire Danger Rating Level within each Fire Danger Rating Area.

A. CLIMATOLOGICAL ANALYSIS

Climatological breakpoints are points on the cumulative distribution curve of one fire weather/danger index computed from climatology (weather) without regard for associated fire occurrence/business. For example, the value at the 90th percentile ERC is the climatological breakpoint at which only 10 percent of the ERC values are greater in value.

It is equally important to identify the period or range of data analysis used to determine the agency percentiles. The percentile values for the calendar year (Jan – Dec) will be different from the percentile values for the fire season (May – Oct.). Each agency will have specific (and perhaps different) direction for use of climatological percentiles.

The decision thresholds identified in this Fire Danger Operating Plan are based upon the statistical correlation of historical fire occurrence and weather data and, therefore, do not utilize climatological (percentiles) for decision points.

B. FIRE BUSINESS ANALYSIS

In order to apply a fire danger system which will assist managers with fire management decisions, ignition problems should be identified, quantified, framed, and associated with a target group to determine the most appropriate fire danger-based decision “tool” to mitigate any given issue.

C. PARAMETERS USED TO CALCULATE FIRE DANGER

Table 4: FireFamilyPlus Parameters						
Large Fire Size (acres)	4		SIG: FDRA #1 Montrose			
Multiple Fire Day (fires/day)	2					
Weather Station Number →	052704	053805	RAWS #3	RAWS #4	RAWS #5	RAWS #6
Weather Station Name	Jay	Cottonwood				
NFDRS Fuel Model	G	G				
Data Years Used in Analysis	1994-2014	1994-2014				
Slope Class	2	2				
Climate Class	1	1				
Herbaceous Type	A	A				
Green-up Date (estimate)	4/23	4/23				
Freeze Date (estimate)	10/29	10/29				
Annual Precipitation (inches)	11.0	14.0				

Large Fire Size (acres)	2		SIG: FDRA #2 Uncompahgre			
Multiple Fire Day (fires/day)	2					
Weather Station Number →	052409	053808	053806	053804	RAWS #5	RAWS #6
Weather Station Name	Dominguez/Jacks Canyon	Carpenter Ridge	Black Canyon	Sanborn Park		
NFDRS Fuel Model	G	G	G	G		
Data Years Used in Analysis	1994-2014	1994-2014	1994-2014	1994-2014		
Slope Class	2	2	2	2		
Climate Class	2	2	2	2		
Herbaceous Type	P	P	P	P		
Green-up Date (estimate)	5/14	5/14	5/14	5/14		
Freeze Date (estimate)	10/21	10/21	10/21	10/21		
Annual Precipitation (inches)	16.0	15.0	15.0	14.5		

Large Fire Size (acres)	2	SIG: FDRA #3 West				
Multiple Fire Day (fires/day)	4					
Weather Station Number →	053807	055704	RAWS #3	RAWS #4	RAWS #5	RAWS #6
Weather Station Name	Nucla	Chapin				
NFDRS Fuel Model	G	G				
Data Years Used in Analysis	1994-2014	1994-2014				
Slope Class	2	2				
Climate Class	1	1				
Herbaceous Type	A	A				
Green-up Date (estimate)	4/19	4/19				
Freeze Date (estimate)	10/29	10/29				
Annual Precipitation (inches)	13.0	18.02				

Large Fire Size (acres)	2	SIG: FDRA #4 High Elevation				
Multiple Fire Day (fires/day)	2					
Weather Station Number →	054702	052812	054704	052813	RAWS #5	RAWS #6
Weather Station Name	Lujan	Taylor Park	Needle Creek	Huntsman Mesa		
NFDRS Fuel Model	G	G	G	G		
Data Years Used in Analysis	1994-2014	1994-2014	1994-2014	1994-2014		
Slope Class	3	3	3	3		
Climate Class	3	3	3	3		
Herbaceous Type	P	P	P	P		
Green-up Date (estimate)	5/30	5/30	5/30	5/30		
Freeze Date (estimate)	10/6	10/6	10/6	10/6		
Annual Precipitation (inches)	13.0	20.0	20.0	14.0		

D. CORRELATION WITH FIRE OCCURRENCE

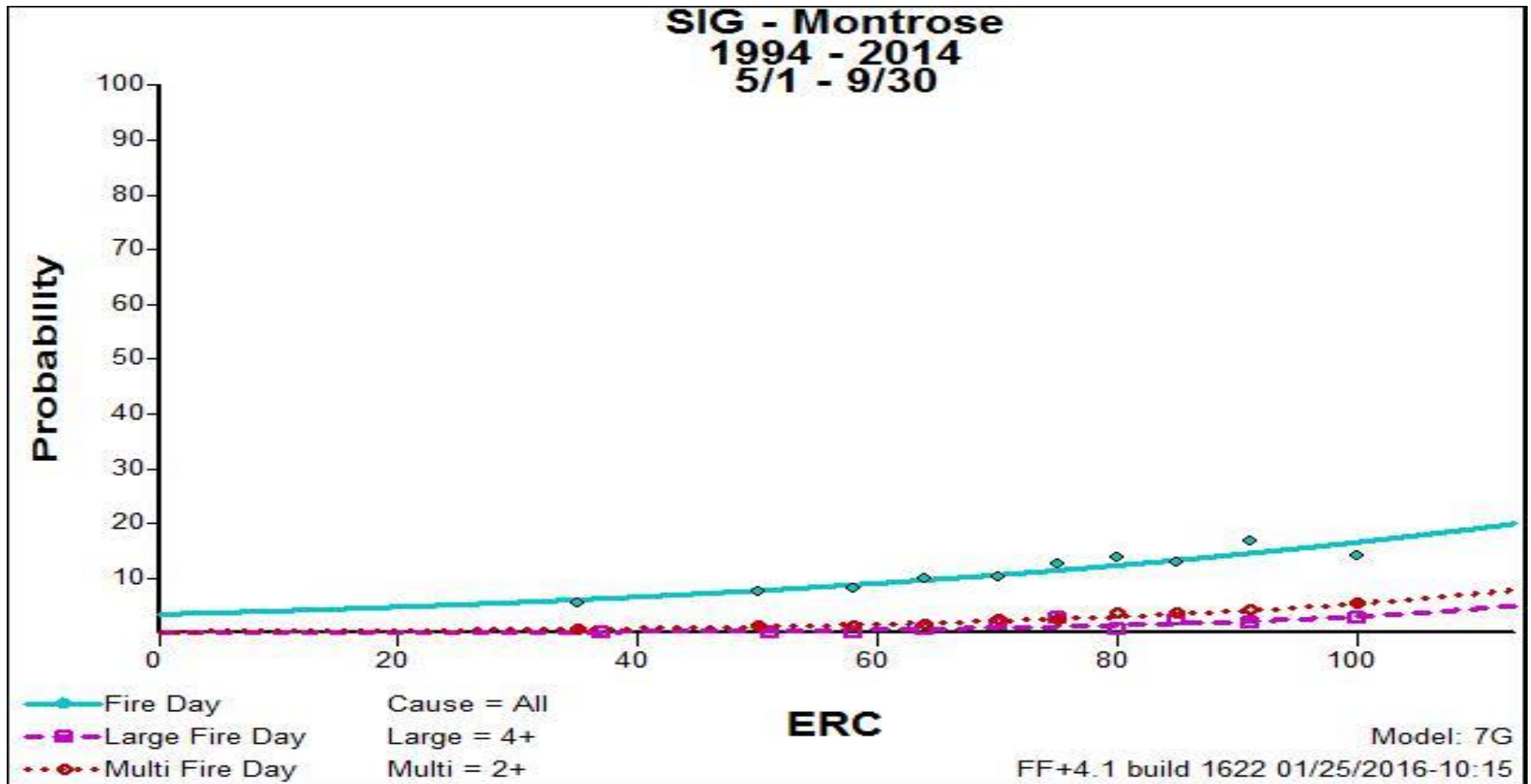
Statistical analysis was completed by the Montrose Dispatch Area Technical Group for all four of the FDRA's. Twenty years of fire occurrence data from 1994-2014 was used to establish and identify fuel model 7G as the best fuel model for the statistical analysis. The statistical correlations and other factors used by the technical group determined that fuel model 7G provided the best correlations of Chi squared, R squared, and P value for the fire indice ERC for each FDRA.

Table 6: Candidates List with Selected Indices and Model

SIG/Station	Years	Annual_Filter	Variable	Model	Greenup	Freeze	FD_Type	FD_R^2	FD_Chi^2	FD_P-Val	FD_P-Range	LFD_Acres	LFD_R^2	LFD_Chi^2	LFD_P-Val	LFD_P-Range	MFD_Fires	MFD_R^2	MFD_Chi^2	MFD_P-Val	MFD_P-Range
SIG - WestSig	1994 - 201.5/1 - 9/30	BI	7G	19-Apr	29-Oct	All		0.02	79.97	0	0.24 - 0.32	2	0.31	24.58	0.0018	0.02 - 0.12	4	0.12	26.78	0.0008	0.02 - 0.07
SIG - WestSig	1994 - 201.5/1 - 9/30	BI	7C	19-Apr	29-Oct	All		0	89.2	0	0.26 - 0.29	2	0.43	12.18	0.1434	0.02 - 0.11	4	0.04	29.68	0.0002	0.03 - 0.06
SIG - WestSig	1994 - 201.5/1 - 9/30	ERC	7G	19-Apr	29-Oct	All		0.65	26.59	0.0008	0.13 - 0.41	2	0.66	10.75	0.2162	0.01 - 0.10	4	0.8	10.27	0.2463	0.01 - 0.12
SIG - WestSig	1994 - 201.5/1 - 9/30	ERC	7F	19-Apr	29-Oct	All		0.01	50.02	0	0.26 - 0.28	2	0.46	20.32	0.0092	0.03 - 0.11	4	0.17	20.93	0.0073	0.03 - 0.07
SIG - HighElSig	1994 - 201.5/1 - 9/30	BI	7C	30-May	6-Oct	All		0.59	14.89	0.0614	0.10 - 0.33	2	0.68	7.94	0.4392	0.01 - 0.17	2	0.13	18.34	0.0188	0.02 - 0.06
SIG - HighElSig	1994 - 201.5/1 - 9/30	BI	7L	30-May	6-Oct	All		0.44	20.14	0.0098	0.11 - 0.26	2	0.74	9.6	0.294	0.00 - 0.12	2	0.08	15.55	0.0493	0.03 - 0.04
SIG - HighElSig	1994 - 201.5/1 - 9/30	ERC	7G	30-May	6-Oct	All		0.94	7.33	0.502	0.03 - 0.44	2	0.84	6.92	0.5452	0.00 - 0.15	2	0.89	5.29	0.7256	0.00 - 0.15
SIG - HighElSig	1994 - 201.5/1 - 9/30	ERC	7J	30-May	6-Oct	All		0.9	7.09	0.527	0.05 - 0.30	2	0.83	6.89	0.5484	0.00 - 0.11	2	0.62	8.99	0.3428	0.01 - 0.07
SIG - Montrose	1994 - 201.5/1 - 9/30	BI	7G	23-Apr	29-Oct	All		0.23	21.73	0.0054	0.08 - 0.17	4	0.66	8.72	0.3666	0.00 - 0.17	2	0.44	13.06	0.1099	0.01 - 0.09
SIG - Montrose	1994 - 201.5/1 - 9/30	BI	7A	23-Apr	29-Oct	All		0	17.98	0.0214	0.11 - 0.11	4	0.72	6.28	0.6162	0.00 - 0.08	2	0.05	11.11	0.1954	0.02 - 0.03
SIG - Montrose	1994 - 201.5/1 - 9/30	ERC	7G	23-Apr	29-Oct	All		0.89	4.13	0.845	0.04 - 0.20	4	0.56	13.36	0.1	0.00 - 0.05	2	0.96	1.02	0.9981	0.00 - 0.08
SIG - Montrose	1994 - 201.5/1 - 9/30	ERC	7T	23-Apr	29-Oct	All		0.44	10.43	0.2358	0.08 - 0.15	4	0.73	6.68	0.5718	0.00 - 0.05	2	0.47	7.56	0.4775	0.01 - 0.04
SIG - UncSig	1994 - 201.5/1 - 9/30	BI	7L	14-May	21-Oct	All		0.01	20.59	0.0083	0.04 - 0.06	2	0.5	7.83	0.4502	0.00 - 0.07	2	0.1	8.48	0.3881	0.00 - 0.01
SIG - UncSig	1994 - 201.5/1 - 9/30	BI	7C	14-May	21-Oct	All		0.04	16.34	0.0377	0.04 - 0.07	2	0.69	3.61	0.8908	0.00 - 0.10	2	0.07	8.92	0.3494	0.00 - 0.01
SIG - UncSig	1994 - 201.5/1 - 9/30	ERC	7G	14-May	21-Oct	All		0.54	14.16	0.0776	0.02 - 0.11	2	0.48	6.6	0.5807	0.00 - 0.03	2	0.1	11.68	0.1661	0.00 - 0.01
SIG - UncSig	1994 - 201.5/1 - 9/30	ERC	7L	14-May	21-Oct	All		0.1	23.73	0.0006	0.04 - 0.06	2	0.45	6.95	0.1385	0.00 - 0.02	2	0.11	10.65	0.0999	0.00 - 0.01

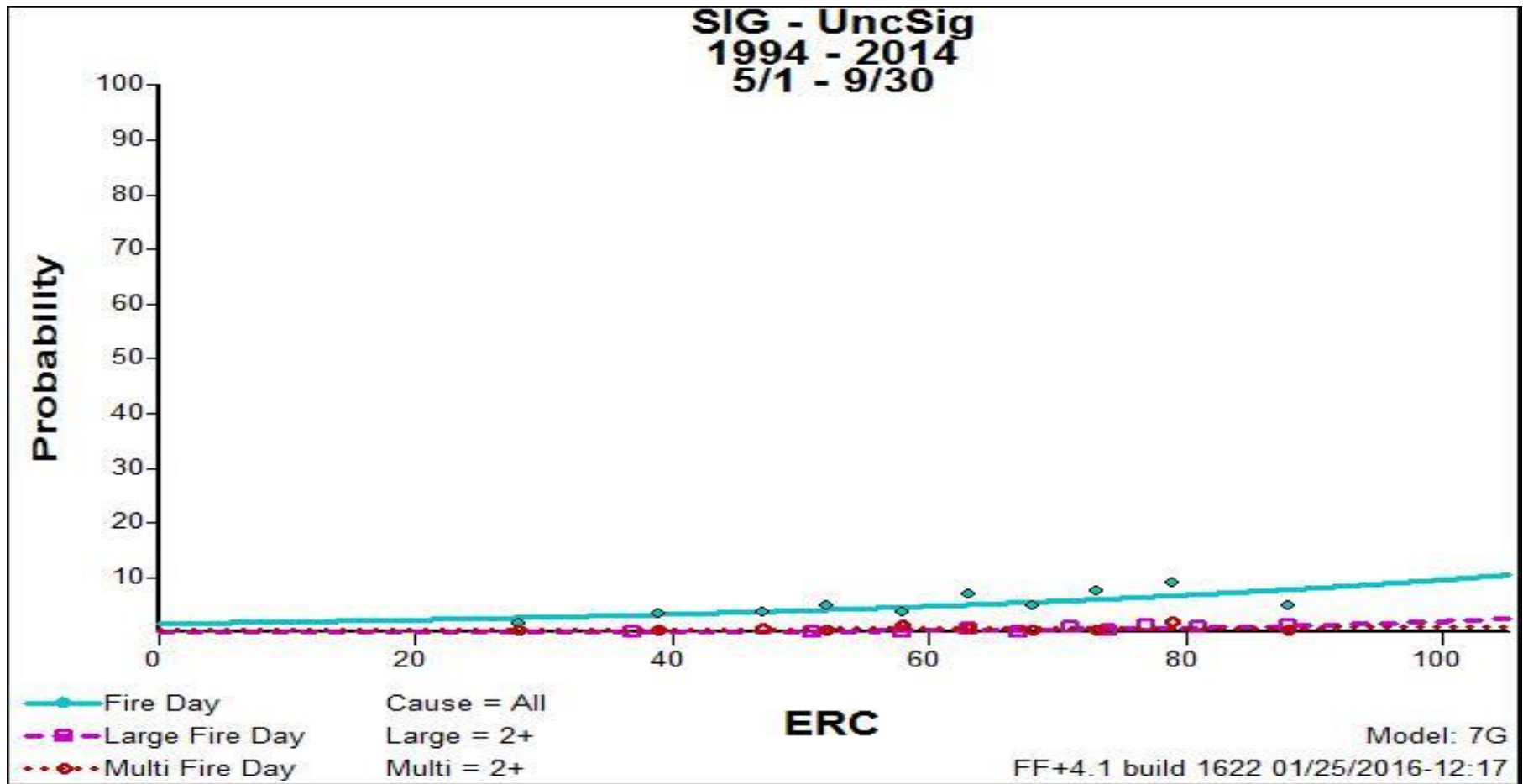
Montrose FDRA

Fire Probability Analysis	Fire Day	Large Fire Day	Multiple Fire Day
Chi Squared	4.1	13.4	1.0
P Value	0.8450	0.1	0.9981
R Squared	0.89	0.56	0.96



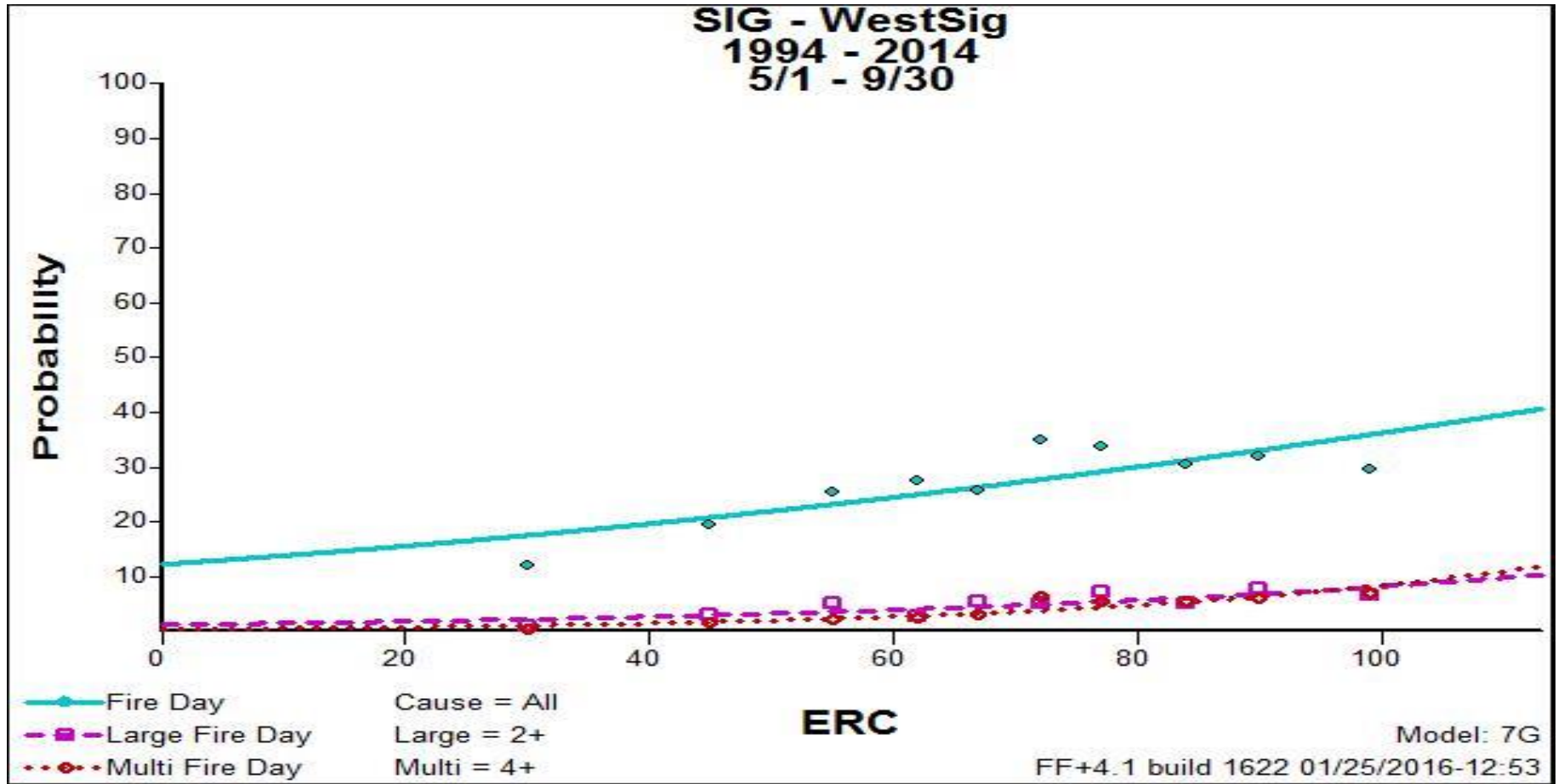
Uncompahgre FDRA

Fire Probability Analysis	Fire Day	Large Fire Day	Multiple Fire Day
Chi Squared	14.2	6.6	11.7
P Value	0.0776	0.5807	0.1161
R Squared	0.54	0.52	0.10



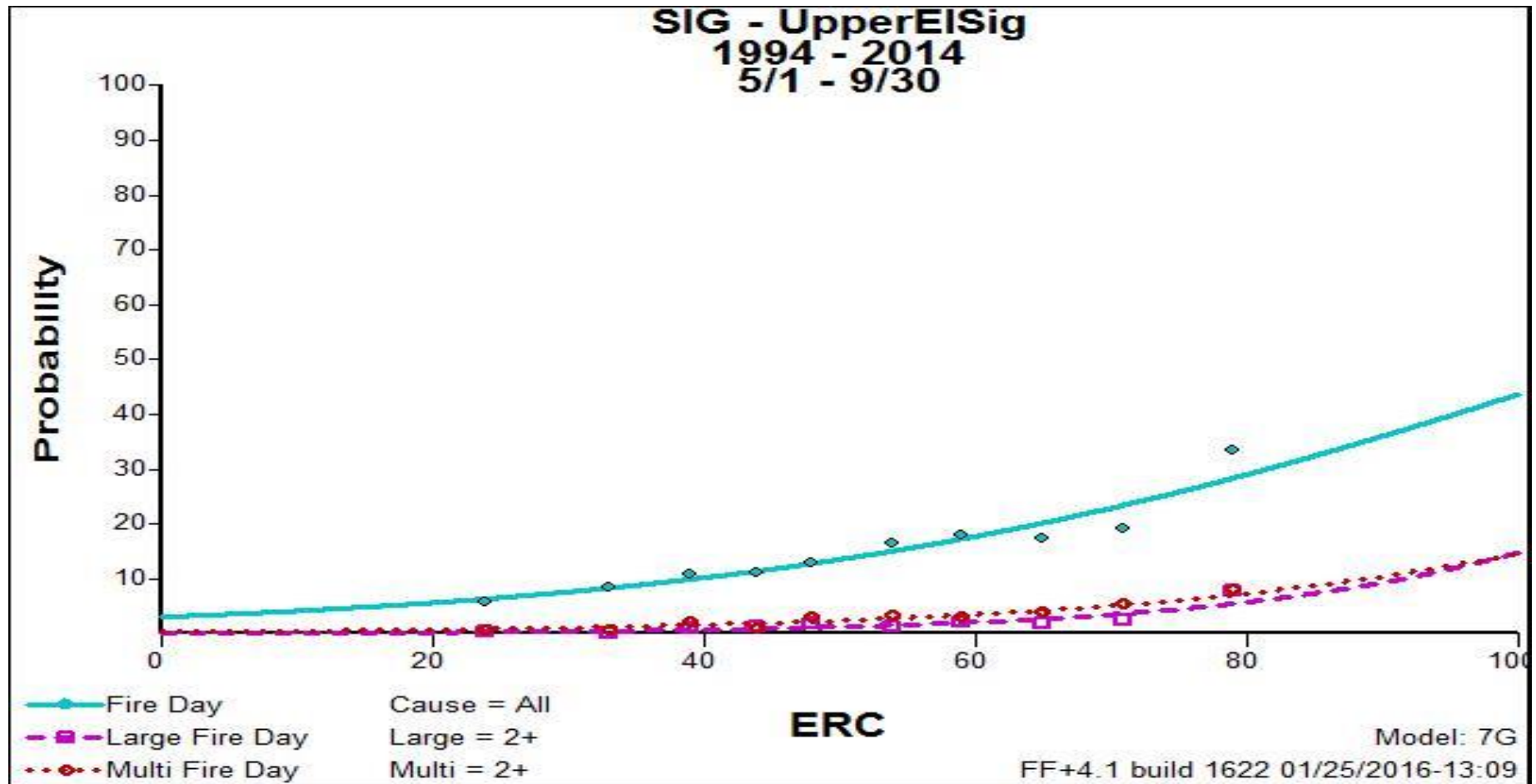
West FDRA

Fire Probability Analysis	Fire Day	Large Fire Day	Multiple Fire Day
Chi Squared	26.6	10.8	10.3
P Value	.0008	0.2162	0.2463
R Squared	0.65	0.66	.80



High Elevation

Fire Probability Analysis	Fire Day	Large Fire Day	Multiple Fire Day
Chi Squared	7.3	6.9	5.3
P Value	0.502	0.5452	0.7257
R Squared	0.94	0.84	0.89



E. DECISION SUMMARY TABLE

Problem #	Target Group	Fire Danger Rating Area(s)	Statistical Cause	Problem Definition	Climatological Breakpoints or Fire Business Thresholds	Number of Decision Points	Index / Comp.	Fuel Model	Preparedness Plan(s) Intended to Modify Target Group Behavior
1	Agency	1-Montrose 2-Unc. 3-West 4-High	1 - Lightning	IA capacity for additional workloads	Fire Business Thresholds	3	ERC	G	Response / Dispatch Plan
2	Agency	1-Montrose 2-Unc. 3-West 4-High	1 - Lightning	High fire danger- local resource availability	Fire Business Thresholds	5	ERC	G	Staffing / Draw-down Plan
3	Public	1-Montrose 2-Unc. 3-West 4-High	4 - Campfire	Preseason activity- High wind events	Fire Business Thresholds	5	ERC	G	Prevention Plan
4	Agency	1-Montrose 2-Unc. 3-West 4-High	1 - Lightning	Preseason- High elevation activity	Fire Business Thresholds	5	ERC	G	Preparedness Plan
5	Public	1-Montrose 2-Unc. 3-West 4-High	5 - Debris Burning	Red Flag warning alternative	Fire Business Thresholds	5	ERC	G	Prevention Plan

6	Agency	2-Unc. 4-High	1 - Lightning	Tree Mortality- Resistance to control	Fire Business Thresholds	3	ERC	G	Response / Dispatch Plan
7	Agency	1-Montrose 2-Unc. 3-West 4-High	1 - Lightning	Public awareness - Signage	Fire Business Thresholds	5	ERC	G	Preparedness Plan
8	Public	1-Montrose 2-Unc. 3-West 4-High	4 - Campfire	Roadside and dispersed camping	Fire Business Thresholds	5	ERC	G	Prevention Plan
9	Agency	1-Montrose 2-Unc. 3-West 4-High	1 - Lightning	Internal Agency Fire Danger awareness	Fire Business Thresholds	5	ERC	G	Preparedness Plan

F. CLIMATOLOGICAL BREAKPOINTS

Climatological breakpoints and fire business thresholds are established to provide NFDRS-based decision points for all appropriate management responses in a Fire Danger Rating Area (FDRA). Climatological breakpoints are points on the cumulative distribution of one fire weather/danger index computed from climatology without regard for associated fire occurrence/business. For example, the value of the 90th percentile ERC is the climatological breakpoint at which only 10 percent of the ERC values are greater in value. Climatological percentiles are used for budgetary decisions by federal agencies. Climatological percentiles do not incorporate the correlation of fire occurrence data. The climatological breakpoints have been established by each federal agency at the national level as identified Ch. 10 of the Interagency Standards for Fire & Aviation Operations (Red Book).

- BLM 80th and 95th percentile.
- USFS, FWS, and NPS 90th & 97th percentile

V. FIRE DANGER RATING LEVELS

The NFDRS utilizes the WIMS processor to manipulate weather data and forecasted data stored in the National Interagency Fire Management Integrated Database (NIFMID) to produce fire danger ratings for corresponding weather stations. NFDRS outputs from the WIMS processor can be used to determine various levels of fire danger rating to address the fire problems identified previously in the *Fire Problem Analysis Chart*. The system is designed to model worst-case fire danger scenario. NFDRS (along with other decision support tools) will be utilized to produce levels (thresholds) of fire business to address local fire problems by targeting public, industrial, or agency groups.

A. INITIAL RESPONSE LEVEL

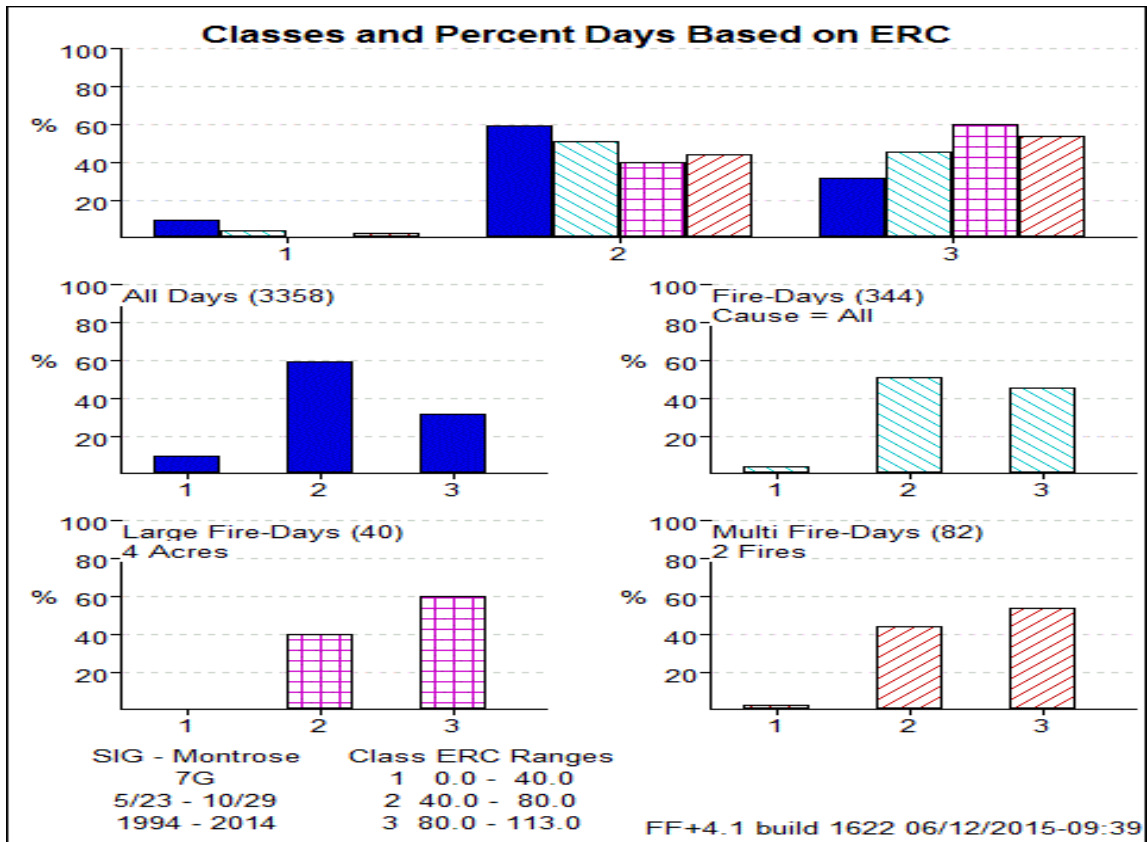
Response (or Dispatch) Levels are pre-planned actions which identify the number and type of resources (engines, crews, aircraft, etc.) initially dispatched to a reported wildland fire based upon fire danger criteria. Three levels of response were identified for each Fire Danger Rating Area. It was determined that the Response Zones could correspond with the FDRA for simplicity. These 3 levels of response will:

- Better represent the logical categories that represent a typical fire season in the Montrose Interagency Dispatch area.
- Provide greater flexibility for fire managers in their predetermined IA response for an incident within each FDRA.
- Correspond to a predetermined IA response, helping dispatch in mobilizing the necessary resources for each response polygon during normal operating hours.
- Use a calculated NFDRS ERC from the daily 13:00 weather obs from WIMS for each FDRA area SIG group.
- Be communicated to all personnel during daily radio weather, staffing, and fire information briefings at 10:00 thru posting on the Montrose Dispatch Webpage.

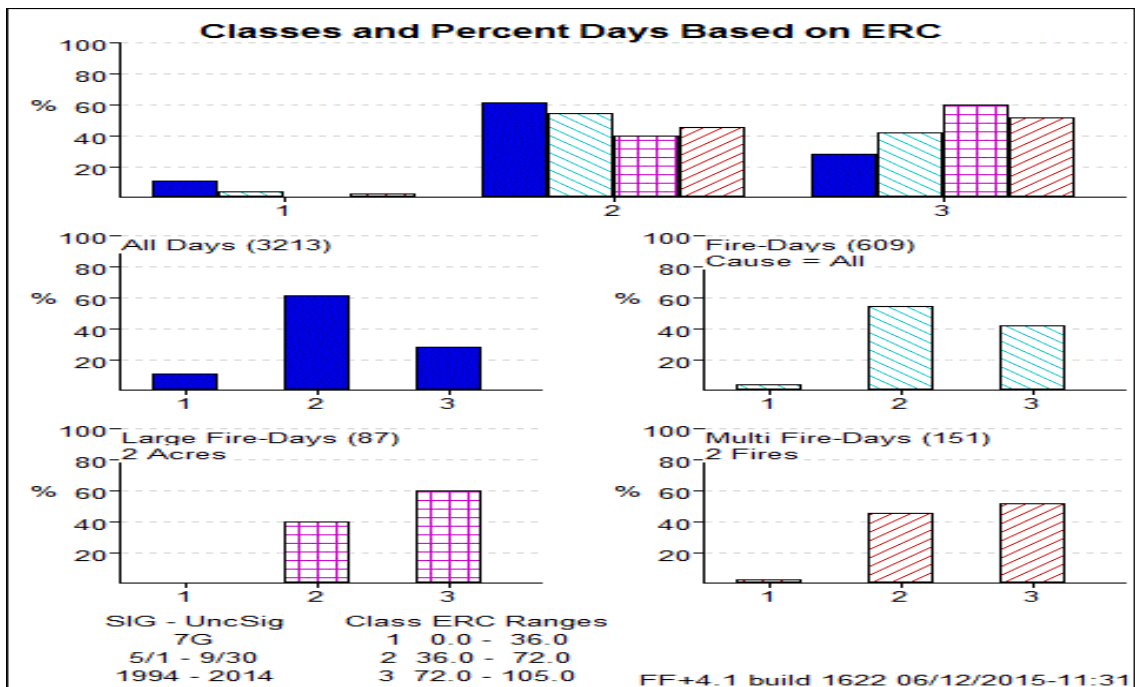
The FireFamily Plus software package was used to establish the fire business breakpoints. A statistical analysis based on historical weather adjusted for fire activity helped determined the appropriate dispatch/response level and associated break points for each FDRA. The Dispatch area technical group evaluated and adjusted the outputs from FireFamily Plus. The Montrose Dispatch area fire managers have agreed that that these final dispatch level breakpoint numbers represent a typical fire season in Southwest Colorado.

All breakpoints are shown in chart form for ease of understanding. A table format of breakpoint statistics can be found in Appendix L.

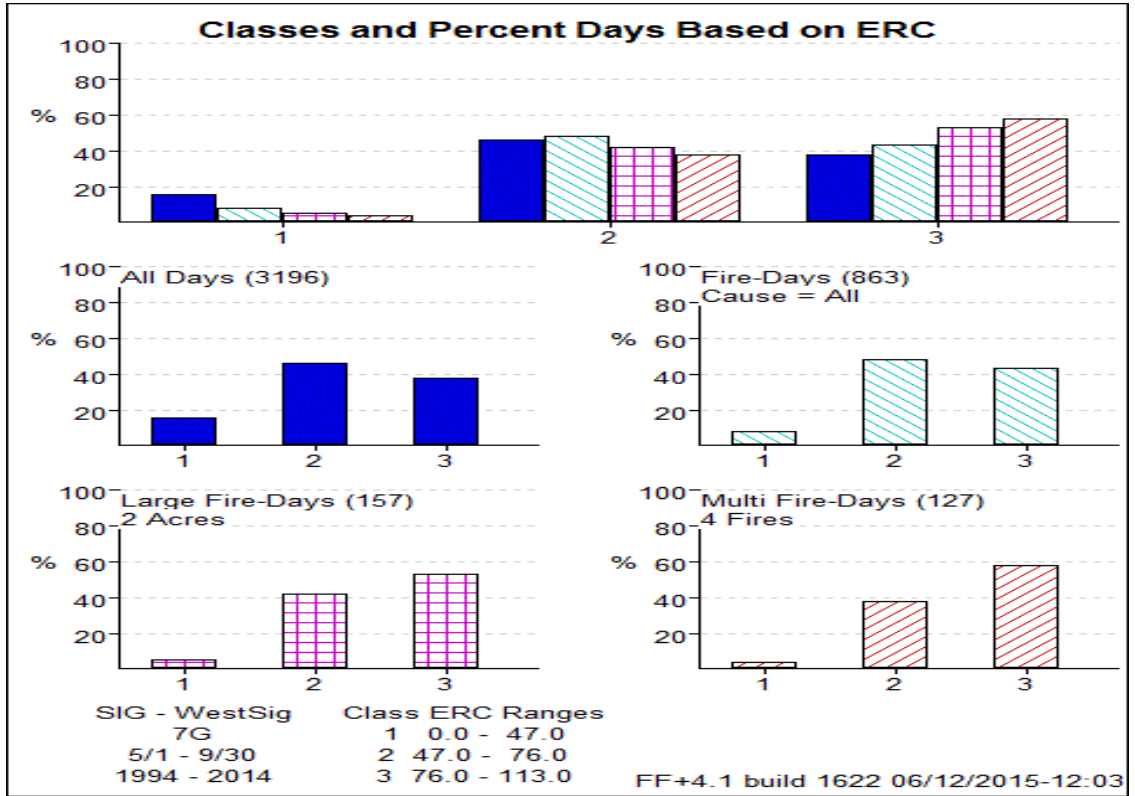
Montrose FDRA Dispatch Level Decision Planning



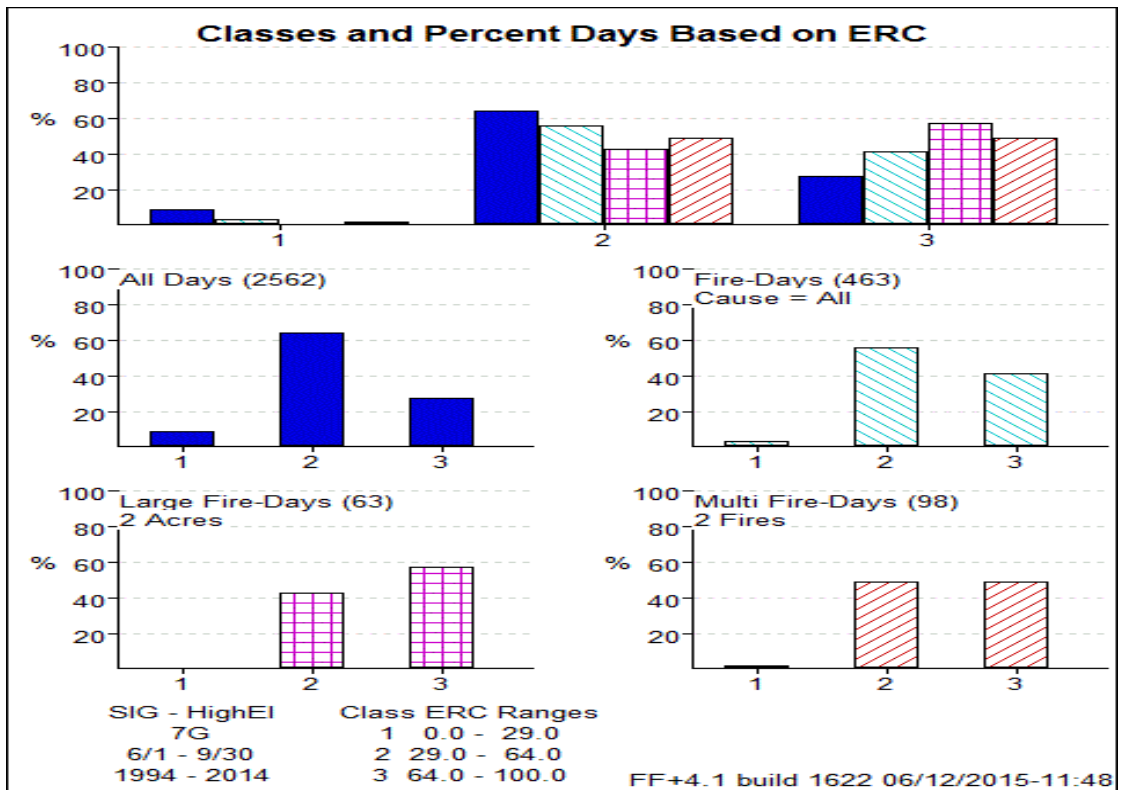
Uncompahgre FDRA Dispatch Level Decision Planning



West FDRA Dispatch Level Decision Planning



High Elevation FDRA Dispatch Level Decision Planning



The established levels are shown below for the four FDRA (Response Zones).

FDRA/Response Area	ERC Fuel Model "7G" for all four FDRA's		
Montrose	0-39	40-81	82+
Uncompahgre	0-35	36-71	72+
High Elevation	0-28	29-63	64+
West	0-46	47-75	76+
	LOW	MODERATE	HIGH

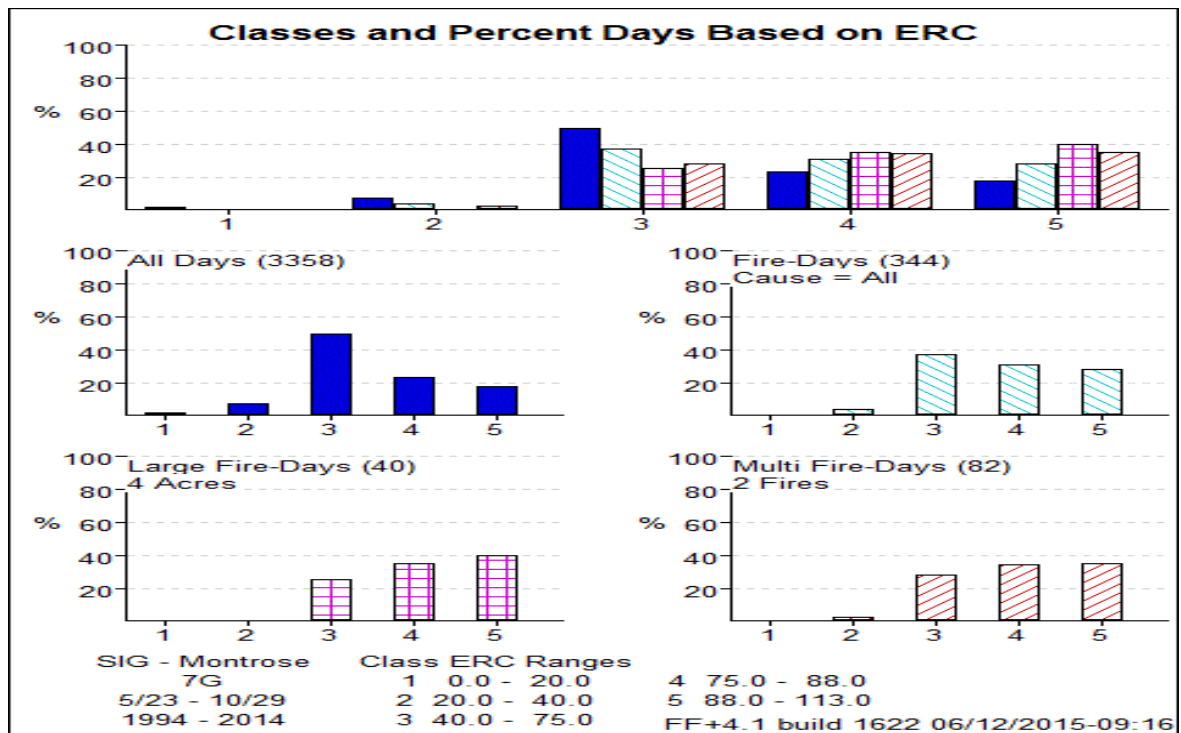
The associated pre-planned actions (Response Plan) to each level and a Response Areas map are located in Appendix A.

B. STAFFING LEVEL

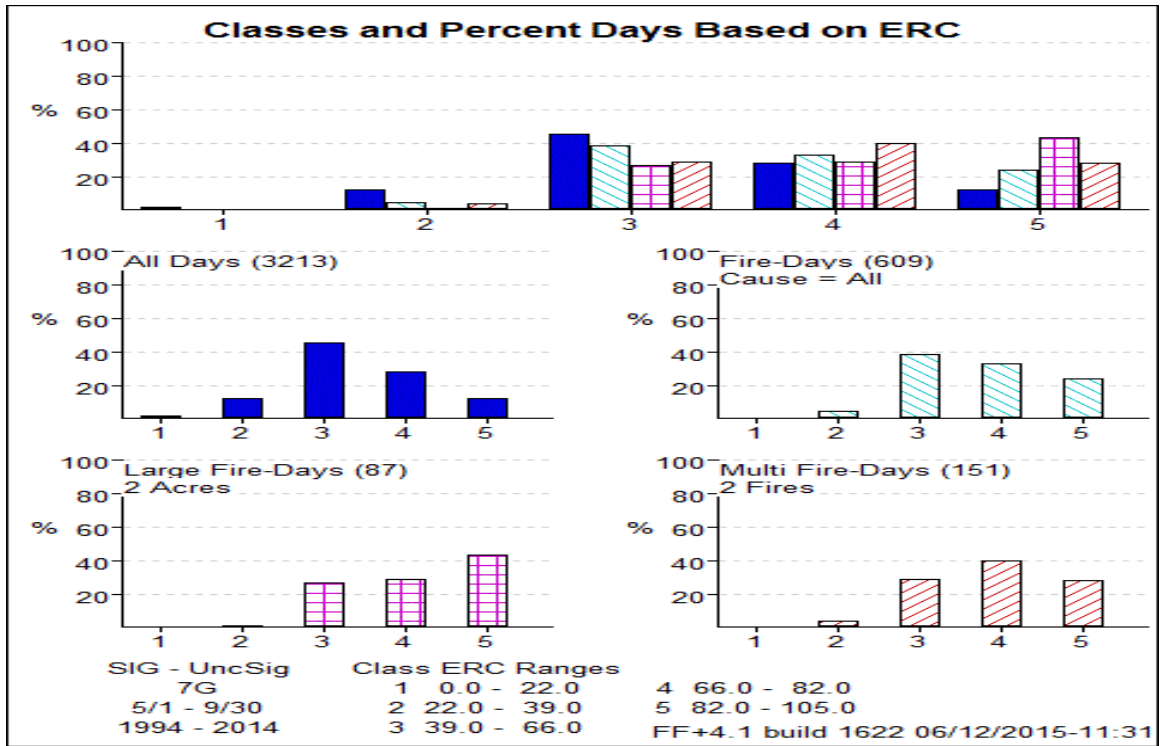
The Staffing and Preparedness Levels are five-tier (1-5) fire danger rating decision tools that are based on NFDRS output(s) and other indicators of fire business (such as projected levels of resource commitment and high risk triggers produced by Rocky Mountain Predictive Services)

The following bar charts show how the five tiered breakpoints were determined for each Fire Danger Rating Area

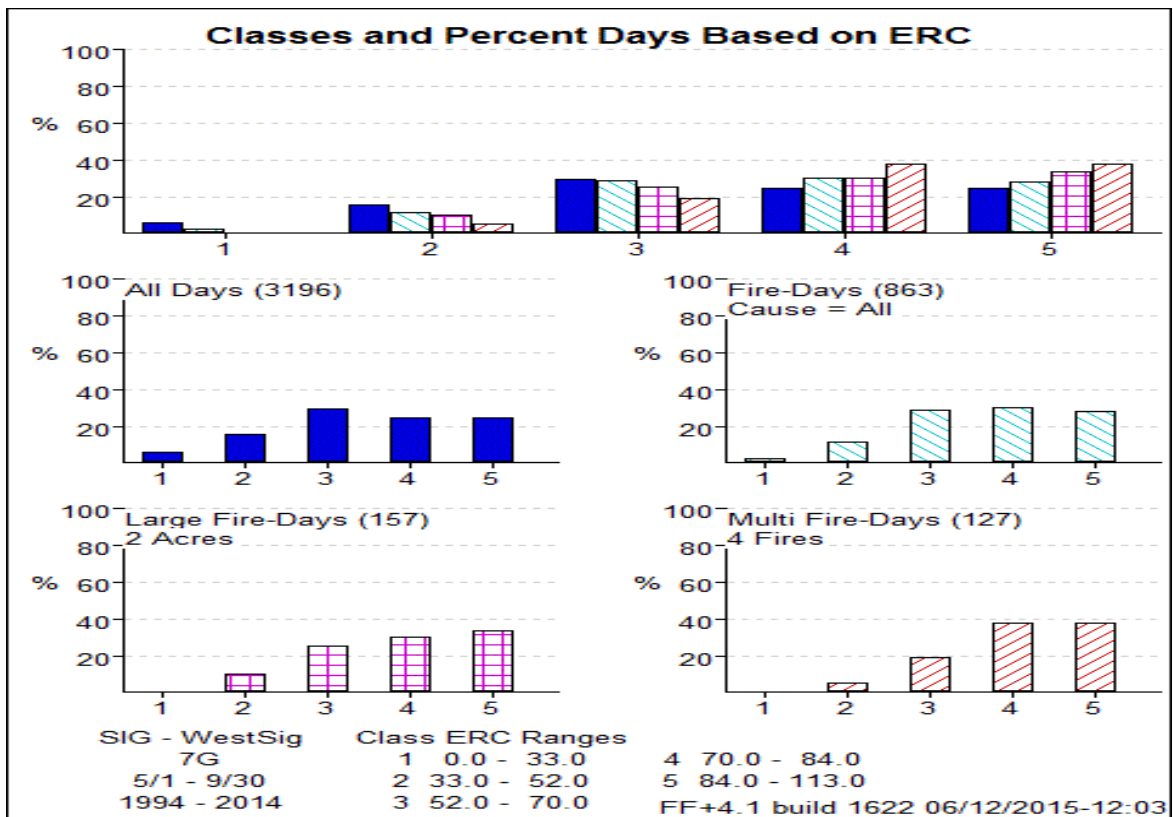
Montrose FDRA 5 tier decion breakpoints



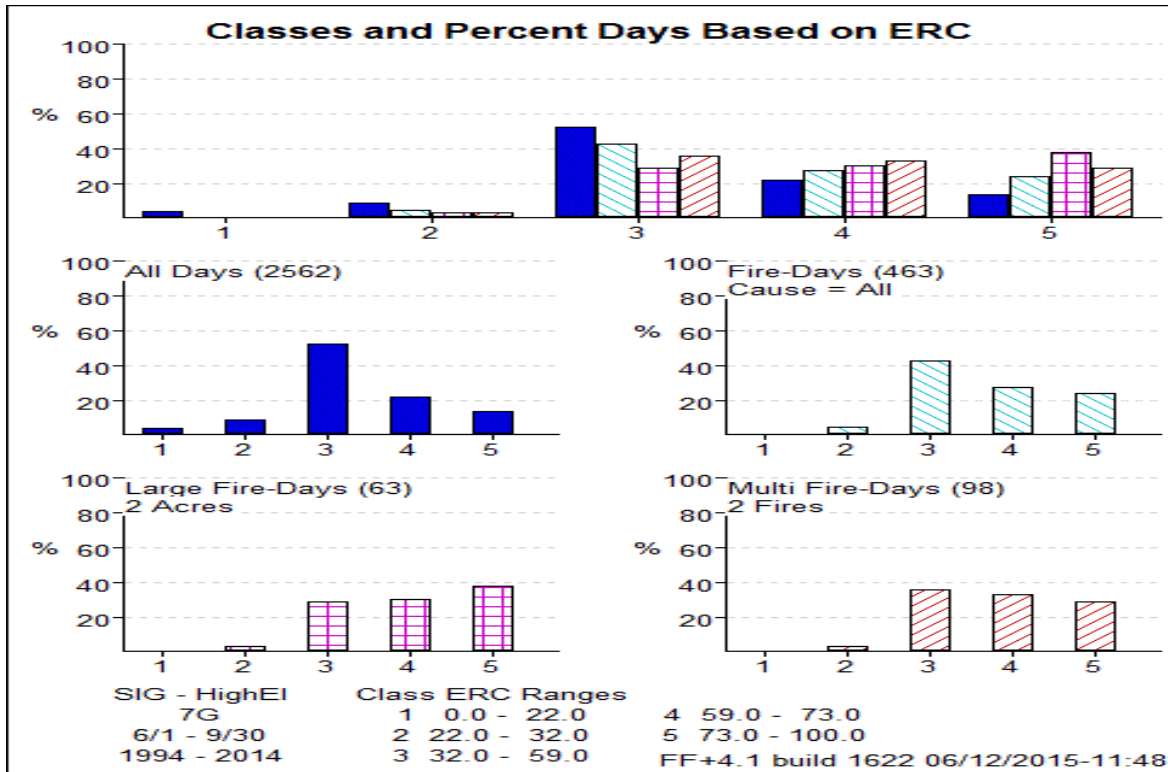
Uncompahgre FDRA 5 tier decion breakpoints



West FDRA 5 tier decion breakpoints



High Elevation FDRA 5 tier decion breakpoints



Staffing Levels will be used to make daily internal fire preparedness and operational decisions. At the protection unit level, the staffing level can form a basis for decisions regarding the “degree of readiness” for initial attack resources and support resources. Specific preparedness actions are defined at each staffing level (See Appendix B). Although Staffing Level can be a direct output in WIMS, the WIMS output is only based upon weather observations and climatological percentiles. The use of climatological percentiles for daily staffing decisions is optional. The preferred method to delineate Staffing Level thresholds based on statistical correlation of weather AND fire occurrence.

The following chart shows how the Fire Danger Calculator will derive each FDRA’s Staffing Level

#1 Establish the forecasted ERC for the next day for each FDRA special interest group.

#2 High Risk Event = Using the 7 day significant potential forecast on the Rocky Mountain webpage any High Risk Trigger designation within the next 3 days will initiate a yes response.

#3 Fire Resources Committed = If greater than 50 % of local IA resources are committed on or off unit, or a replacement hasn’t been identified, then answer yes. Montrose Dispatch area will consider 8 resources as 100% staffing capacity. (ie. When 3 resources remain on Unit for Initial Attack you are greater than 50% committed.)

See Daily Value Calculations on Page 53-54 for detailed instruction on how this is done using the Fire Danger calculator on the Montrose Dispatch website using the Fuels and Fire Danger link.

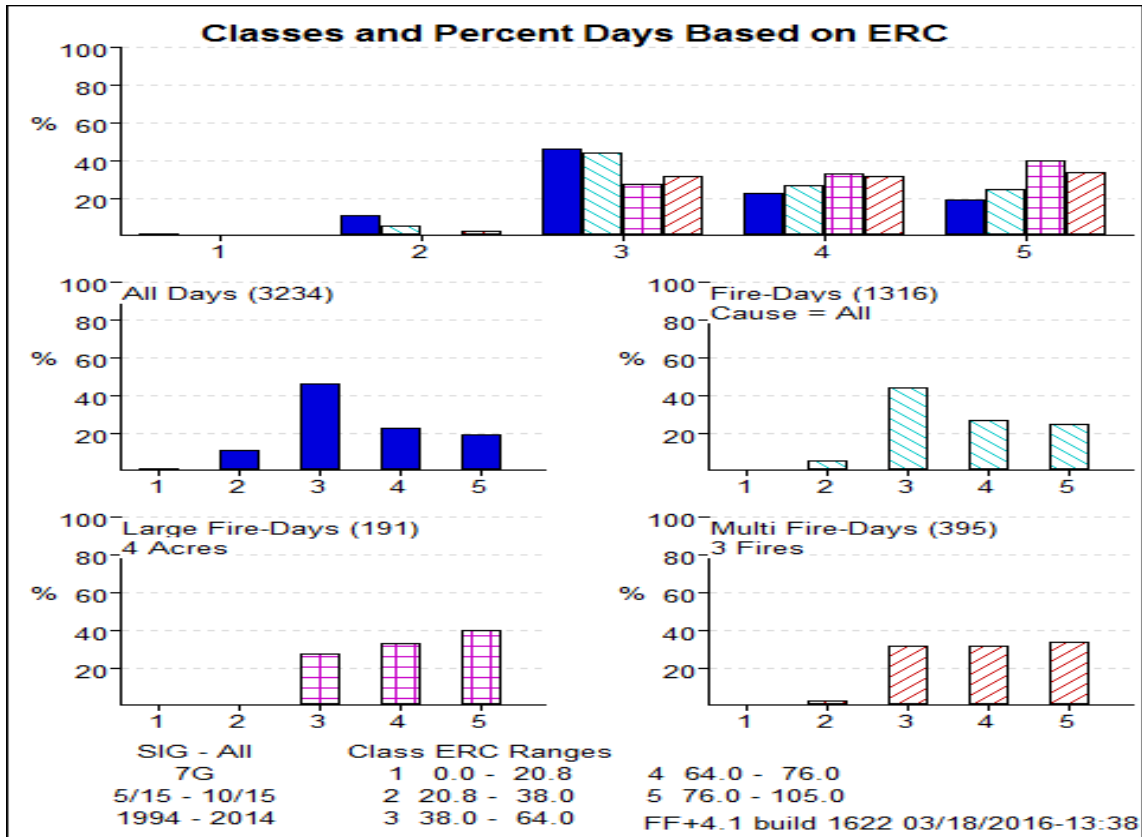
#1	Index	ERC	ERC	ERC	ERC	ERC			
	FDRA 1 – 7G - Montrose FDRA 2 – 7G- Uncompahgre FDRA 3 – 7G – West FDRA 4 – 7G – High Elevation	0-19	20-39	40-74	75-87	88+			
#2	Forecasted High Risk Event in the next 3 days ?	No	Yes	No	Yes	No	Yes	No	Yes
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
#3	Resources Committed (>50% of local resources committed?)	No	Yes	No	Yes	No	Yes		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Staffing Level		1	2	3	4	5			

C. PREPAREDNESS LEVEL

Preparedness Levels will assist fire managers with more long-term (seasonal) decisions with respect to fire danger.

The following bar chart shows how the five tiered breakpoints were determined for the entire unit needed for determining the Unit Preparedness level. The Preparedness level breakpoints were determined by using all the Special Interest Groups and will be identified by the Unit DAVG output from WIMS. The following chart shows the classes and percent days for all FDRA's.

SIG (All FDRA's in DAVG) 5 tier decion breakpoints for Preparedness Level Calculation



Preparedness levels will be sent to Rocky Mountain GACC as our Unit Preparedness Level. The Local Multi Agency Coordinating group will also use these levels to initiate certain functions within their Annual Operating Plan. Levels IV and V may trigger restriction discussions.

The following chart uses the Unit Sig (DAVG) ERC to establish a starting point of determining a Unit Wide Preparedness Level.

#1 ERC for the Unit Sig (DAVG) is established from the WIMs Processor.

#2 High Risk Event = Using the 7 day significant potential forecast on the Rocky Mountain webpage any High Risk trigger designation within the next 7 days will initiate a yes response.

#3 Fire Resources Committed = If greater than 50 % of local IA resources are committed on or off unit, or a replacement hasn't been identified, then answer yes. Montrose Dispatch area will consider 8 resources as 100% staffing capacity. (ie. When 3 resources remain on Unit for Initial Attack you are greater than 50% committed).

See Preparedness Plan in Appendix C for more detail.

#1	Index	ERC		ERC		ERC		ERC		ERC	
		0-21	22-38	39-64	65-76	76+					
	Unit SIG – 7G - DAVG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
#2	Forecasted High Risk Event in the next 7 days ?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
#3	Resources Committed (>50% of local resources Committed) ?	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparedness Level		1	2	3	4	5					


D. FIRE DANGER ADJECTIVE RATING LEVEL

In 1974, the Forest Service, Bureau of Land Management and State Forestry organizations established five standard Adjective Fire Danger Rating Levels descriptions for public information and signing.

As with Staffing Level, the Adjective Fire Danger Rating Level can be obtained as a direct output in WIMS; however, the Adjective Rating from WIMS is strictly based on weather and climatological percentiles (80th / 95th) with no regard to historical fire occurrence. The use of agency-specific climatological percentiles is not mandatory. Actually, the preferred method to determine Adjective Fire Danger Rating thresholds is based on

statistical correlation of weather observations AND fire occurrence. This FDOP will implement Adjective Fire Danger Rating based upon fire business thresholds for Energy Release Component; not climatological percentiles. Ignition Component breakpoints have also been locally established to avoid too much variation, be commensurate with local weather patterns, and consider minimal internal and public confusion. The Adjective Rating will also be able to be determined using the Fire Danger Calculator (See Daily Value Calculations on Page 52-53. See Prevention Plan in Appendix D for more detail on the Adjective Rating determination.

Fire Danger Class and Color Code	Description
Low (L) (Green)	Fuels do not ignite readily from small firebrands, although a more intense heat source such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.
Moderate (M) (Blue)	Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
High (H) (Yellow)	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are hit hard and fast while small.
Very High (VH) (Orange)	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long distance spotting and fire whirlwinds when they burn in heavier fuels.
Extreme (E) (Red)	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

Montrose	Uncompahgre	West	High Elevation	Adjective Rating				
0-19	0-21	0-32	0-21	L	L	L	M	M
20-39	22-38	33-51	22-31	L	M	M	M	H
40-74	39-65	52-69	32-58	M	M	H	H	VH
74-87	66-81	70-83	59-72	M	H	VH	VH	E
88 Plus	82 Plus	84 Plus	73 Plus	H	VH	VH	E	E
Ignition Component 				0-30	31-60	61-70	71-75	76-89

VI. FIRE DANGER OPERATING PROCEDURES

A. ROLES AND RESPONSIBILITIES

Agency Administrators

Ensure agency personnel are delegated, equipped and available to support incident needs. This includes Fire Management Staff, Operational Duty Officers, preparedness funded personnel, resource advisors, support staff and collateral duty suppression personnel. Approve plans, severity requests, fire restrictions and closures as appropriate. Approve plans and agreements within the scope and delegation of the position.

Fire Program Managers and Local Multi Agency Coordinating Group

Approve budget expenses to accommodate staffing, training, and equipment as appropriate. Coordinate incident and resource priorities. Program managers and Local Multi Agency Coordination Group should tier Annual Operating Plans to this plan. Consider increased meeting frequency during Preparedness Levels 4 and 5 and prompt restriction discussions with interagency partners.

Fire Danger Technical Group

Develop, maintain, and monitor the plan for accuracies and desired preparedness. Advise the Interagency Fire Program Managers of status. Review for Pocket Card updates every two years. Attend and stay current on NFDRS 16 rollout. An additional analysis will need to be done when NFDRS 16 is available to run congruently with this analysis and monitored for accuracy.

Fire Weather Station Owners/Managers

Ensure Weather Stations are maintained and monitor readings for accuracy. Coordinate “green up” and “freeze up” with interagency partners and the Montrose Interagency Dispatch Center.

Dispatch/Communication Center

Disseminate information of the current and predicted status of weather, preparedness incident status, resource status and coordinate the response to incidents. The Fire Danger Calculator will be calculated daily and results posted on the website in the Fire Danger Summary Table. Fuels for each weather zone will be toggled on the Fuels Status Webpage at a minimum every Monday per the NWS Rocky Mountain Coordination Center operating agreement for issuance of red flag warnings. See Fuel Tags Appendix L for more detail.

Duty Officers

Read and understand the Plans associated with this FDOP. Advise and assist Agency Administrator for fire related decisions. Ensure Daily Resource Status page is updated daily with staffing, qualifications, and resources (committed or available) commensurate with the Initial Response Plan and Staffing Plan.

Education / Mitigation / Prevention Specialists

Provide education and information to the public and interagency partners on the mission and general strategy of the agency. Coordinate community assistance. Maintain a consistent message of wildfire prevention.

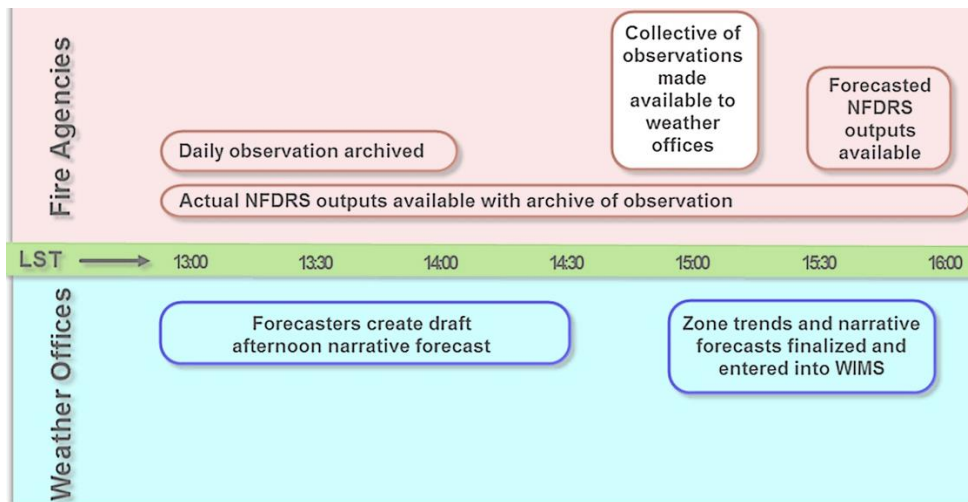
B. SEASONAL SCHEDULE

The Station Owner identified in WIMS is responsible to ensure station initialization; timing should be coordinated with the Fire Danger Technical Group. Annual cycle would be for stations to have the herb state at frozen during the winter. Approximately two weeks prior to the peak of greenness, set the herb state to green to trigger green-up. This point would typically be about May 15 for lower elevation stations and June 1 for higher elevation stations. Normalized Difference in Vegetative Index (NVDI) as well as professional judgment will be used to monitor greenness.

C. DAILY SCHEDULE

Montrose Interagency Dispatch (MTC) will access WIMS daily to insure that all stations are recording data properly, then save and publish the data for all station we are the owners of. The 1200 hr readings are used in our area due to transmission times from the station. Wet flags will be double checked to insure accuracy and manually changed as needed. States of the Weather readings are based on the solar radiation sensor on the station. Tasks associated with selecting an observation should be accomplished by 1500 hours each day, so that the observations will be available to the Grand Junction National Weather Service, so they can enter trend forecasts; therefore allowing forecasted indices to be available for the next day. All needed managers reports will be pulled and posted on the Montrose Dispatch web when complete.

Daily Timeline



D. WEATHER STATION MONITORING AND MAINTENANCE

Each agency is responsible for the annual maintenance and calibration of their RAWS. The Remote Sensing Laboratory located at the National Interagency Fire Center (NIFC) maintains and calibrates the BLM RAWS annually. The GMUG forest maintains their weather stations locally on an annual basis.

VII. FIRE DANGER PROGRAM NEEDS

WEATHER STATIONS

The current weather stations used to form the SIGs for Southwest Colorado will serve our needs for the foreseeable future. Currently Fire Weather Zone 291 within the High Elevation FDRA does not have a Weather Station. Future placement of an additional RAWS would be beneficial somewhere within this weather zone and improve the High Elevation FDRA analysis. The West FDRA uses Chapin RAWS owned and maintained by the National Park Service at Mesa Verde. The SWD BLM should consider an additional low elevation RAWS within the Durango Dispatch Area to better represent low elevations in that area.

COMPUTER / EQUIPMENT

We currently have the needed computers and equipment to manage the FDOP in the Montrose Interagency Dispatch Area.

To maintain the RAWS in the Dispatch Area, and those being used but not locally maintained, a protocol must be established for notifying the responsible party when a problem arises.

TRAINING

Interagency personnel will be provided a annual refresher training on the RAWS system in Western Colorado. This training should include the following:

- How SIGS are set up and why
- How to insure that the data retrieved from a RAWS is good data.
- Why it is important to have quality data
- Indicators that there may be a problem with a RAWS.
- General information about green up and freezing RAWS stations.

Host local FDOP training sessions for agency fire personnel.

Emphasize NFDRS S-491 training and RAWS training and maintenance for interested personnel to expand our ability to service our local RAWS.

SEASONAL FIRE DANGER RISK ASSESSMENTS

Products to improve seasonal risk assessments and understanding will continue. Until those products are finalized the Pocket Cards and Predictive Services Area ERC graphs will be used to track and monitor seasonal risk. See Crosswalk on Page 53 for PSA to FDRA comparisons.

Pocket cards will be distributed to all local fire personnel and orientation will be given. Incoming resources will be provided copies of the pocket cards. Current pocket cards will be uploaded to the national pocket card website, [HTTP://FAM.NWCG.GOV/FAM-WEB/POCKETCARDS/DEFAULT.HTM](http://FAM.NWCG.GOV/FAM-WEB/POCKETCARDS/DEFAULT.HTM).

FIRE DANGER SIGNS

Currently the Uncompahgre Fire Danger Rating Area does not have a Fire Danger Sign associated to it. Future sign locations could be upon entrance to the forest on Hwy 90, Davewood Road, and/or 25 Mesa Road.

VIII Daily Value Calculations

To obtain the needed daily information to calculate the levels and indices needed for display, MTC will develop, in WIMS, several Special Interest groups and have outputs displayed (Display Average Format; DAVG) for each of the Fire Danger Rating Areas plus the Unit (all combined). The forecasted outputs (ERC's and IC) will then be entered into the Fire Danger Calculator to produce needed Fire Danger levels for planning the following day.

Fire Danger Calculator (Plinko table) example located on the Montrose Dispatch Website in the Fuels/Fire Danger link.

Montrose Interagency Preparedness and Dispatch Level Calculator

Montrose FDRA	Uncompahgre FDRA	Upper Elevation FDRA	West FDRA
ERC Value: <input type="text"/>	ERC Value: <input type="text"/>	ERC Value: <input type="text"/>	ERC Value: <input type="text"/>
IC Value: <input type="text" value="Select"/>	IC Value: <input type="text" value="Select"/>	IC Value: <input type="text" value="Select"/>	IC Value: <input type="text" value="Select"/>
High Risk: <input type="text" value="Select"/>	High Risk: <input type="text" value="Select"/>	High Risk: <input type="text" value="Select"/>	High Risk: <input type="text" value="Select"/>
Fire Activity: <input type="text" value="Select"/>	Fire Activity: <input type="text" value="Select"/>	Fire Activity: <input type="text" value="Select"/>	Fire Activity: <input type="text" value="Select"/>
<input type="button" value="Calculate"/>	<input type="button" value="Calculate"/>	<input type="button" value="Calculate"/>	<input type="button" value="Calculate"/>
Preparedness Level: <input type="text"/>	Preparedness Level: <input type="text"/>	Preparedness Level: <input type="text"/>	Preparedness Level: <input type="text"/>
Dispatch Level: <input type="text"/>	Dispatch Level: <input type="text"/>	Dispatch Level: <input type="text"/>	Dispatch Level: <input type="text"/>
Staffing Level: <input type="text"/>	Staffing Level: <input type="text"/>	Staffing Level: <input type="text"/>	Staffing Level: <input type="text"/>
Adjective Level: <input type="text"/>	Adjective Level: <input type="text"/>	Adjective Level: <input type="text"/>	Adjective Level: <input type="text"/>

High Risk Event or Triggers - For both the following 3 days and 7 days will be identified by going to the Rocky Mountain 7-day Significant Fire Potential at:

<http://psgeodata.fs.fed.us/forecast/#/outlooks?state=map&gacId=7>

For table format click on the side-by-side function or use map. If a lettered High Risk Trigger appears within our FDRA's the next 3 days enter "Yes" for FDRA calculation. If a lettered High Risk Trigger appears within any FDRA in the next 7 days enter "Yes" for the Unit preparedness calculation as well. A crosswalk table is shown on the next page to assist in applying Predictive Service Area (PSA's) triggers to associated FDRA's.

The following are the High Risk Trigger Criteria used for the lettering:

- **B** – BEN 4 – Very dry fuels (generally above 85th percentile for that PSA in combination with atmospheric conditions that have historically resulted in a significantly higher than normal chance for a new large fire if ignition occurs or for significant growth on existing fires. Instability is considered.
- **L** – Increased Lightning Levels with 15% or greater coverage in combination with dry to very dry fuels and other atmospheric considerations.
- **W** - Non-convective wind gusts 25 mph greater combined with a dry airmass (determined by RH or Vapor Pressure Deficit), and dry fuel conditions. Or, Non-convective wind gusts 25 mph following a lightning event, where fuel conditions support holder-overs and increased chance of emergence.
- **R** or when **Predictive Services are not producing products** - Local managers will monitor local conditions (including outside typical fire season or when predictive services do not typically post the forecast). With concurrence managers can initiate a "yes" on the High Risk Triggers

thru Dispatch. Typically, this will occur when an event is forecasted with dry fuels outside the typical fire season or when increased human caused potential exists with dry fuels (R=Recreation. Ie. Fourth of July Weekend or other known high recreational use periods).

Resources Committed - Fire Resources committed will be determined by looking at the Dispatch Resource Status page and considering how many resources out of a total of 8 (100% fully staffed) are actually currently available. This will be done prior to end of shift the day before for the following day. Replacement resources for those committed can either be posted to the Daily resource status, or could also be called in by Duty Officers if current and future locations are known. If resources are not changed till the following morning they will not be part of the level determination. Resources must meet the definition of a resource; two qualified individuals with IC, together and available for Initial attack.

When the levels are produced with the calculator they will be transferred into the Current Fire Danger Summary table that is posted on the Montrose Dispatch website. The table is shown below.

<u>Forecasted Indices/Levels for Today</u>	Energy Release Component	Fuel Tags	Initial Response Level	Staffing Level	Adjective Rating	Ignition Component	Preparedness Level	Burning Index
#1 Montrose FDRA	35	If ERC >=58 then yes for FWZ 292	Moderate	3	High	25		
#2 Uncompahgre FDRA	46		High	2	Extreme	23		
#3 West FDRA	69	If ERC >=48 then yes for FWZ 290	Low	4	Moderate	23		
#4 High Elevation FDRA	41	If ERC >=40 then yes for FWZ 291 and 293	Moderate	5	Very High	62		
SIG All Dispatch Area	58					25		

The following crosswalk will help identify which Predictive Services area, RM graphs, and Fire Weather Zones are associated with each Fire Danger Rating Area.

FDRA	PSA	Fire Wx Zone	RM WIMS SIG group for ERC graphs
Montrose	RM 32 Montrose/Black Canyon	FWZ 292	RM 16
Uncompahgre	RM 31 Uncompahgre	FWZ 292	RM 16
West	RM 31 Uncompahgre	FWZ 290	RM 16
High Elevation	RM 28 San Isabel Gunnison	FWZ 293	RM 17

APPENDICES

Appendix A: **INITIAL RESPONSE PLAN**

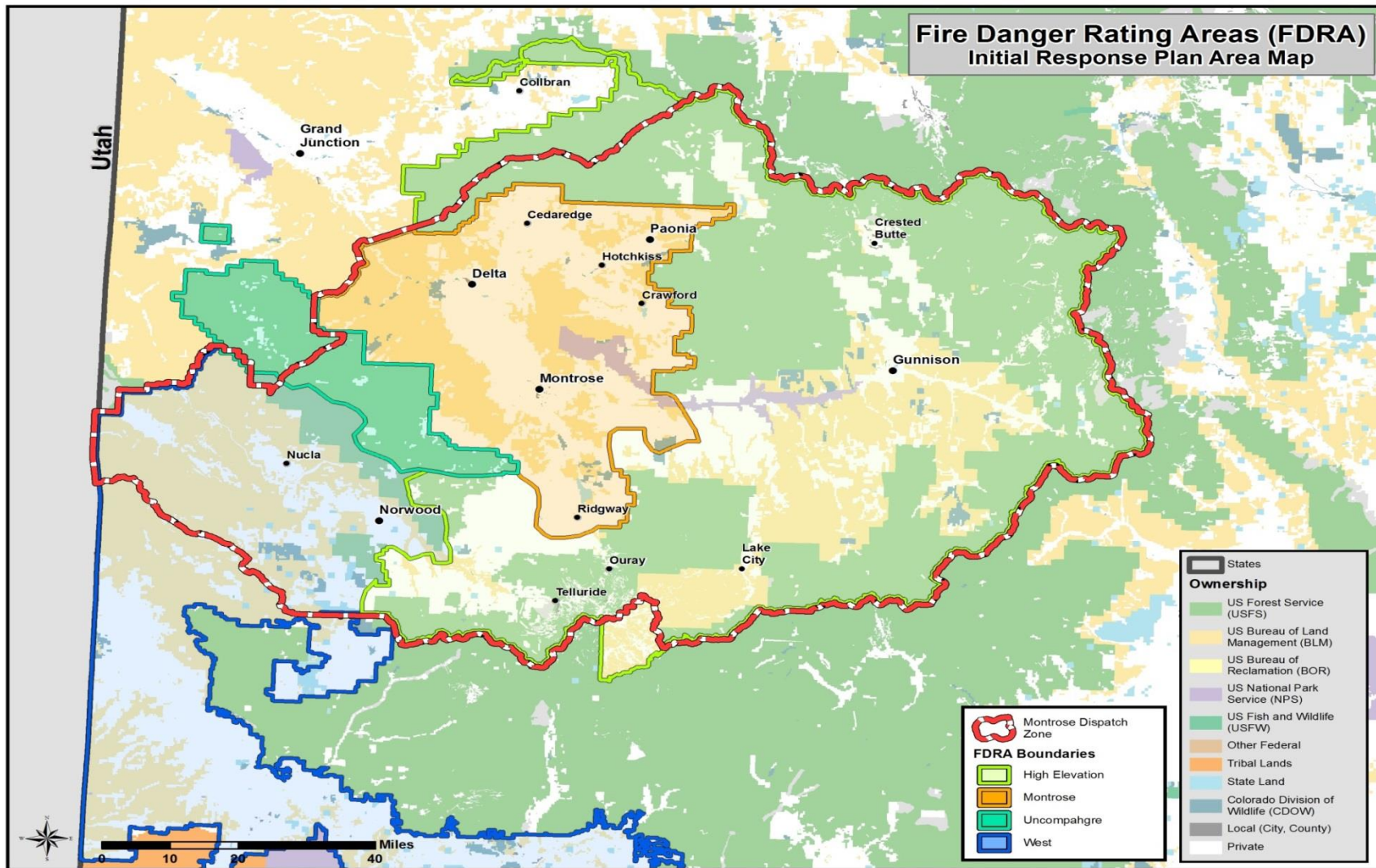
Montrose FDRA	0-39	40-81	82+
Uncompahgre FDRA	0-35	36-71	72+
Upper Elevation FDRA	0-28	29-63	64+
West FDRA	0-46	47-75	76+
	LOW	MODERATE	HIGH

Utilizing the Dispatch Daily Status reporting and established tracking processes MTC will respond closest forces during business hours until the minimum response level criteria are met. **Once resources are contacted the Duty officer will immediately be contacted and may modify the response based on specific fire reporting information.** A Resource is defined below for different response levels, they will be together, readily available, and shown on the Daily Resource Status Report for that day.

Response Level	LOW	MODERATE	HIGH
Resources (Minimum)	<ul style="list-style-type: none"> • ICT5 • 2 personnel minimum 	<ul style="list-style-type: none"> • 1 resource • 3 personnel minimum • ICT 4 contacted 	<ul style="list-style-type: none"> • 2 resources • 5 personnel minimum • Aviation assets availability acquired • ICT-4

Resource – Any (Engine company, Wildland Fire Module, Initial Attack Squad, Helitack, Smoke Jumpers, etc.)

Appendix A-1: Initial Response Plan Area Map



Appendix B: **STAFFING PLANS**

#1 Will be calculated daily for the following day by MTC personnel , using the Preparedness Calculator on the Montrose Interagency Dispatch Website.

#2 High risk day is any forecasted event in the next 3 days on the Rocky Mountain Predicted Services 7 day forecast. During periods where predictive services are not producing products Unit FMO's will determine High Risk Events.

#3 Fire Resources Committed = If greater than 50 % of local IA resources are committed on or off unit then answer yes. Montrose Dispatch area will consider 8 resources as 100% staffing capacity. (ie. When 5 resources are committed and 3 resources remain on Unit for Initial Attack you are greater than 50% committed)

#1	Index	ERC	ERC	ERC	ERC	ERC
	FDRA 1 – 7G - Montrose	0-19	20-39	40-74	75-87	88+
	FDRA 2 – 7G- Uncompahgre	0-21	22-38	39-65	66-81	82+
	FDRA 3 – 7G – West	0-32	33-51	52-69	70-83	84+
	FDRA 4 – 7G – High Elevation	0-21	22-31	32-58	59-72	73+
<input checked="" type="checkbox"/> ⇒		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
#2	Forecasted High Risk Event in the next 3 days ?	No	Yes	No	Yes	No
		No	Yes	No	Yes	No
		No	Yes	No	Yes	No
<input checked="" type="checkbox"/> ⇒		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
#3	Resources Committed (>50% of local resources committed?)	No	Yes	No	Yes	No
		No	Yes	No	Yes	No
		No	Yes	No	Yes	No
<input checked="" type="checkbox"/> ⇒		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Staffing Level		1	2	3	4	5

USFS Staffing Plan / Draw-Down Levels

- Uses Preparedness Calculator to establish FDRA staffing levels **(GMUG will use worst case between either UNC or High Elevation FDRA)**

Staffing Level	Authorized Preparedness Actions	Additional Funding Source	Minimum Draw-Down Levels
1	1. Normal staffing	1. Follow work-plan	1 Resource
2	1. Normal staffing 2. A/D hiring	1. Follow work-plan 2. WFSU	2 Resources
3	1. Extended staffing at the approval of zone D/O, Floor Coordinator or Forest D/O. 2. A/D hiring 3. Detection flights (zone or forest level)	1) WFSU or GMUG support code (whichever is appropriate**). 2) See #1 3) See #1	3 Resources
4	1. All actions in S/L 3 (above) 2. Preposition resources (Forest D/O) 3. Short term staging (Forest D/O)	WFSU or GMUG support code (whichever is appropriate**). Additionally, Severity may be used for any of these activities.	4 Resources
5	<ul style="list-style-type: none"> • All actions in S/L #4 (above) • Long term staging (Forest D/O, LMAC) • Daily detection flights (D/O discretion) 	WFSU, GMUG support code or severity (Whichever is most appropriate**).	5 Resources

** See R2 guidance on the use of support codes and FS guidance for use of incident Job Codes.

BLM Staffing Plan / Draw-Down Levels

Uses Preparedness Calculator to establish FDRA staffing levels (**BLM will use worst case from either Montrose or West FDRA**)

Staffing Level	Preparedness Actions That May Be Authorized	Potential Funding Source	Draw Down Levels # Resources Available to IA
1	<ul style="list-style-type: none"> No emergency preparedness actions should be needed. Normal staffing during identified fire season No AD's or backfill authorized 	BLM Preparedness	1 Resource
2	<ul style="list-style-type: none"> Normal staffing during identified fire season No AD's may be authorized Extended Staffing during rare events for purposes of move up and cover. Unit Preparedness funding will likely need to be used . 	BLM Preparedness State Director Severity in rare Events	1 Resource
3	<ul style="list-style-type: none"> Extended staffing may be approved by Unit FMO and /or Unit DO for IA and Dispatch staffing Unit FMO and/or Unit DO may order additional outside of area IA resources to backfill for committed local resources. AD's may be authorized for staffing shortages. Unit FMO and/or DO may request fire detection flights if there has been or is expected to be multiple fire occurrence. Aircraft should only be extended when DO assumes a strong likelihood of fire activity occurring. 	BLM Preparedness State Director Severity	2 Resources
4	<ul style="list-style-type: none"> DO may extend aviation resources staffing when deemed necessary Extended staffing and pre-position of outside resources to enhance IA capability is authorized. Local resources may be authorized to work adhering to work rest guidelines 	State Director Severity BLM - National Severity	2 Resources
5	<ul style="list-style-type: none"> Consider Fire Restrictions Detection flights are strongly encouraged with any type ignition source. Unit FMO and/or DO may order additional outside of area IA resources to enhance IA capability. 	BLM - National Severity	3 Resources

National Park Service (NPS) Staffing Plan / Draw-Down Levels

Uses Preparedness Calculator to establish FDRA staffing levels (**NPS will use Montrose FDRA**)

Note:
Neither Black Canyon of the Gunnison National Park nor Curecanti National Recreation Area have any dedicated wildland fire staff. The need for bolstering local IA capabilities through step-up or severity accounts will require coordination with the NPS FMO located at Dinosaur National Monument.

Staffing Level	Preparedness Actions That May Be Authorized	Potential Funding Source	Draw Down Levels # Resources Available to IA
1	<ul style="list-style-type: none"> No emergency preparedness actions should be needed. Normal staffing during identified fire season 	<p>ONPS NPS Preparedness</p>	<p>NPS Militia 1 -2 militia firefighters</p>
2	<ul style="list-style-type: none"> Normal staffing during identified fire season Extended Staffing during rare events, request through NPS fire coordinator, Step-up account must be approved by NPS FMO at DINO. 	NPS Step-up account	<p>NPS Militia 1 -2 militia firefighters</p>
3	<ul style="list-style-type: none"> Request extended staffing through local NPS fire coordinator. Step-up account must be approved by NPS FMO at DINO. Engine could be relocated from DINO for use within the dispatch area. 	NPS Step-up account	<p>NPS Militia 1 -2 militia firefighters</p>
4	<ul style="list-style-type: none"> DO may extend NPS militia resources staffing when deemed necessary Extended staffing and pre-position of outside resources to enhance IA capability is authorized. (to include dispatch) Local resources may be authorized to extend shifts adhering to work rest guidelines. Consider Fire Restrictions 	<p>NPS Step-up account NPS Severity account</p>	<p>2 NPS Milita 1 Step-up/Severity Type 6 Engine as necessary w/ type 4/5 IC +IA Dispatcher if necessary</p>
5	<ul style="list-style-type: none"> Initiate Fire Restrictions, if not already in place Detection flights are strongly encouraged with any type ignition source. NPS FMO may order additional outside of area IA resources to enhance IA capability. 	NPS Severity account	<p>1 Step-up/Severity Type 6 Engine or IA module + 1 type 4 IC + 1 IA Dispatcher</p>

Colorado Division of Fire Prevention and Control (DFPC) Staffing Plan / Draw-Down Levels

Uses Preparedness Calculator to establish FDRA staffing levels (DFPC will use Montrose FDRA)

DFPC will utilize the Tactical Aircraft Deployment Decision Support System (TADDSS) to position resources throughout the State of Colorado. The local staffing levels and associated actions will be used as a guide to supplement TADDSS for the local area response when applicable. Resources can be any number or type that will contribute to the local area staffing.

Staffing Level	Preparedness Actions That May Be Authorized	Potential Funding Source	Draw Down Levels # Resources Available to IA
1	<ul style="list-style-type: none"> No emergency preparedness actions should be needed. Normal staffing during identified fire season 	DFPC Preparedness	0 Resources
2	<ul style="list-style-type: none"> Normal staffing during identified fire season Extended Staffing during rare events for purposes of move up and cover. Unit Preparedness funding will likely need to be used . 	DFPC Preparedness	0 Resources
3	<ul style="list-style-type: none"> Extended staffing may be approved by Regional FMO and /or Unit DO for IA and Dispatch staffing Regional FMO and/or Unit DO may order additional outside of area IA resources to backfill for committed local resources. AD's may be authorized for staffing shortages. Regional FMO and/or DO may request fire detection flights if there has been or is expected to be multiple fire occurrences. Aircraft should only be extended when DO assumes a strong likelihood of fire activity occurring or by co-operator request. 	DFPC Preparedness Federal resource orders on as needed basis	1 Resource
4	<ul style="list-style-type: none"> DO may extend aviation resources staffing when deemed necessary Extended staffing and pre-position of outside resources to enhance IA capability is authorized. Local resources may be authorized to work adhering to work rest guidelines 	Consider other State funding sources Consider Federal resource orders	1 Resource
5	<ul style="list-style-type: none"> Consider Fire Restrictions Detection flights are strongly encouraged with any type ignition source. Regional FMO and/or DO may order additional outside of area IA resources to enhance IA capability. 	Consider Governor executive order or emergency declaration Federal resource orders	2 Resources

Montrose Dispatch Center (MTC)

Uses Preparedness Calculator to establish FDRA staffing levels (**MTC will use worst case out of all FDRA**)

Staffing Level	Preparedness Actions That May Be Authorized	Potential Funding Source	Draw Down Levels # Resources Available for IA
1	<ul style="list-style-type: none"> No emergency preparedness actions should be needed. Normal staffing during identified fire season No AD's or backfill authorized 	Agency personnel specific Preparedness	2 Dispatchers
2	<ul style="list-style-type: none"> Normal staffing during identified fire season No AD's may be authorized Extended Staffing during rare events for coverage purposes. Unit Preparedness funding will likely need to be used . 	Agency personnel specific Preparedness	2 Dispatchers
3	<ul style="list-style-type: none"> Extended staffing may be approved by Dispatch Center Manager and /or DO for Dispatch staffing. AD's may be authorized for staffing shortages. 	Agency personnel specific Preparedness Agency Regional or State directed Severity Agency Support Codes	3 Dispatchers
4	<ul style="list-style-type: none"> Ordering a dedicated Aircraft dispatcher Extended staffing to enhance IA dispatching capability is authorized. Local resources may be authorized to work adhering to work rest guidelines 	Agency Regional or State directed Severity	4 Dispatchers
5	<ul style="list-style-type: none"> Order more IADP and ESDS Dispatchers Order dedicated Aircraft Dispatcher Open mini Expanded in preparation for large incident. 	Agency Regional or State directed Severity	5 Dispatchers

Appendix C: **PREPAREDNESS PLAN**

The Unit daily preparedness level will:

- Help fire managers determine an appropriate state of readiness for suppression forces and communicate these efforts to all agency personnel.
- Outline possible actions that could be taken to meet increasingly complex fire situations or fire potential.
- Be published daily for the Montrose Dispatch area beginning on May 1st thru October 30th annually unless extenuating circumstances occur that would necessitate beginning earlier.

#1	Index	ERC		ERC		ERC		ERC	
	Unit SIG – 7G - DAVG	0-21	22-38	39-64	65-76	76+			
	<input checked="" type="checkbox"/> →	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
#2	Forecasted High Risk Event in the next 7 days ?	No	Yes	No	Yes	No	Yes	No	Yes
	<input checked="" type="checkbox"/> →	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
#3	Resources Committed (>50% of local resources Committed) ?	No	Yes	No	Yes	No	Yes	No	Yes
	<input checked="" type="checkbox"/> →	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparedness Level		1	2	3	4	5			

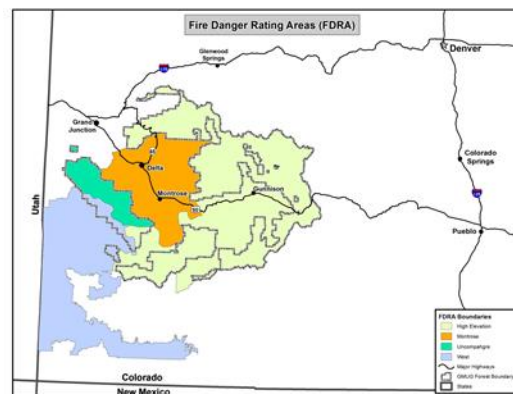
Appendix D: **PREVENTION PLAN**

Adjective Fire Danger Rating Determination

Although NFDRS processors (i.e. WIMS) will automatically calculate the adjective class rating, Montrose Dispatch area will manually determine Adjective Fire Danger Rating based upon fire business thresholds. The actual determination of the daily adjective rating is based on the forecasted ERC and Ignition Component using the tables below. Each FDRA takes it's 5 tier breakpoints established for ERC and adjusts for the next days forecasted Ignition Component as shown in the chart below. The Ignition Component breakpoints were established using local weather conditions while considering how it might cause too much internal and public confusion.

Agencies agreed to use the FDRA adjective rating to set Public fire danger information signs across the Montrose Interagency Dispatch area. The Fire Danger signs located within each FDRA will be set at the appropriate five level adjective danger rating for the day.

Montrose	Uncompahgre	West	High Elevation	Adjective Rating				
0-19	0-21	0-32	0-21	L	L	L	M	M
20-39	22-38	33-51	22-31	L	M	M	M	H
40-74	39-65	52-69	32-58	M	M	H	H	VH
74-87	66-81	70-83	59-72	M	H	VH	VH	E
88 Plus	82 Plus	84 Plus	73 Plus	H	VH	VH	E	E
Ignition Component →				0-30	31-60	61-70	71-75	76-89



Each agency or agency office has developed prevention plan documents that provide fire managers guidance. The following is a list of prevention plans that will be used during the fire season: BLM has a SWD Fire Prevention Plan, this plan covers the entire Southwest District and used some of the same criteria as this analysis.

Appendix E: **RESTRICTION / CLOSURE PLAN**

When weather factors or fire suppression impacts become a concern, the following guidelines will be used to determine if Restrictions/Closures should be considered:

Montrose Interagency Dispatch Response Area at Preparedness Level 4 or Above, **and**:

	Local fire activity is impacting local agencies' suppression resources; making adequate initial attack difficult.
	Local area is receiving a high occurrence of human-caused fires, or the human caused risk is predicted to increase.
	Adverse fire weather conditions and risks are predicted to continue.
	Implementation of existing fire restrictions is not adequately reducing human-caused fires.

Consider initiating **STAGE I Fire Restriction** if:

- Preparedness Level is 4, and
- one of the above conditions is met.

Consider initiating **STAGE II Fire Restriction** if:

- STAGE I Fire Restriction has been in effect,
- Preparedness Level is 4 or above, and
- all of the above conditions are met.

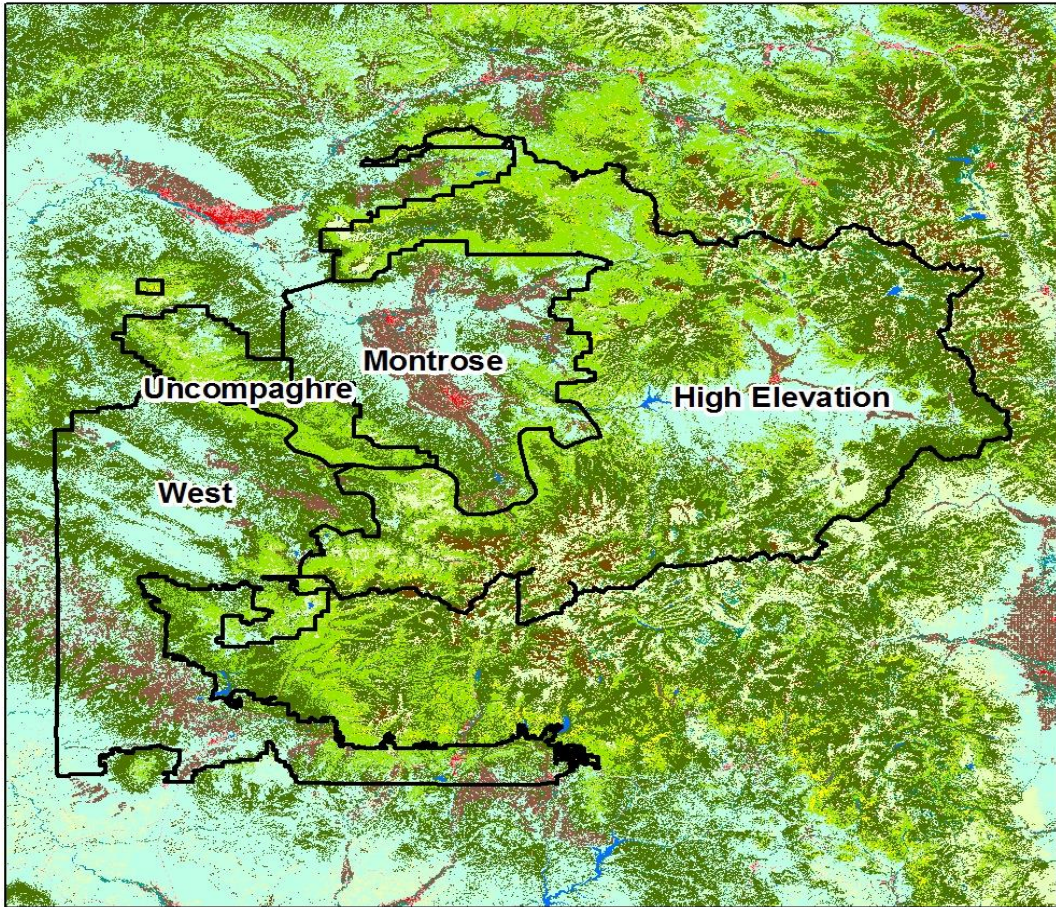
Consider initiating **STAGE III Closure** if:

- STAGE II Fire Restriction has been in effect, and
- Preparedness Level is 5, and
- all of the above conditions are met.

Closures are extremely rare events, and will only be implemented in extraordinary situations, after significant interagency coordination, and when there is a very high risk to human life or property and the ability to manage those risks using Stage I or Stage II Fire Restrictions is no longer viable. Closures should be implemented only in situations where the public's safety cannot be guaranteed.

Appendix F: **VEGETATION**

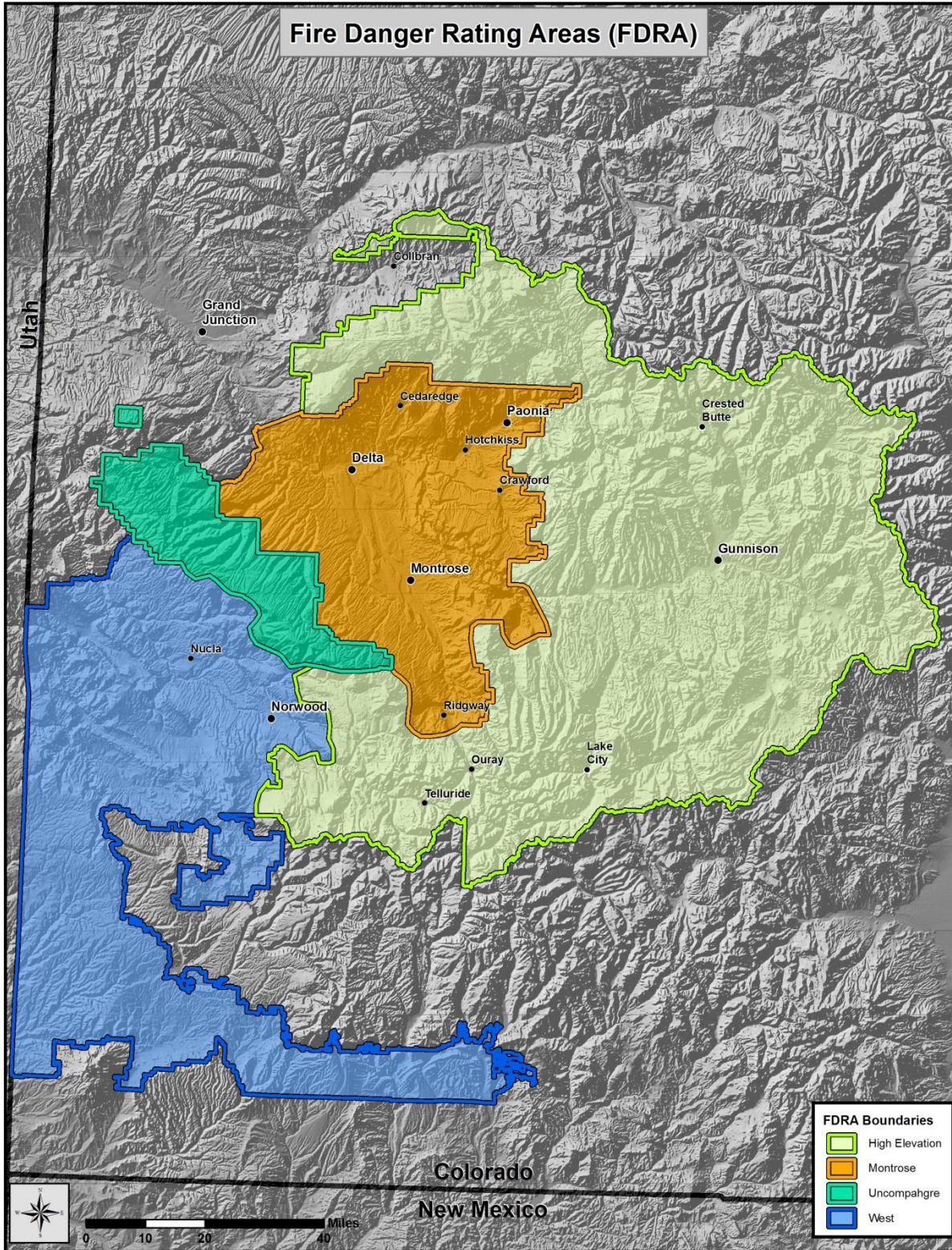
National Landcover Database



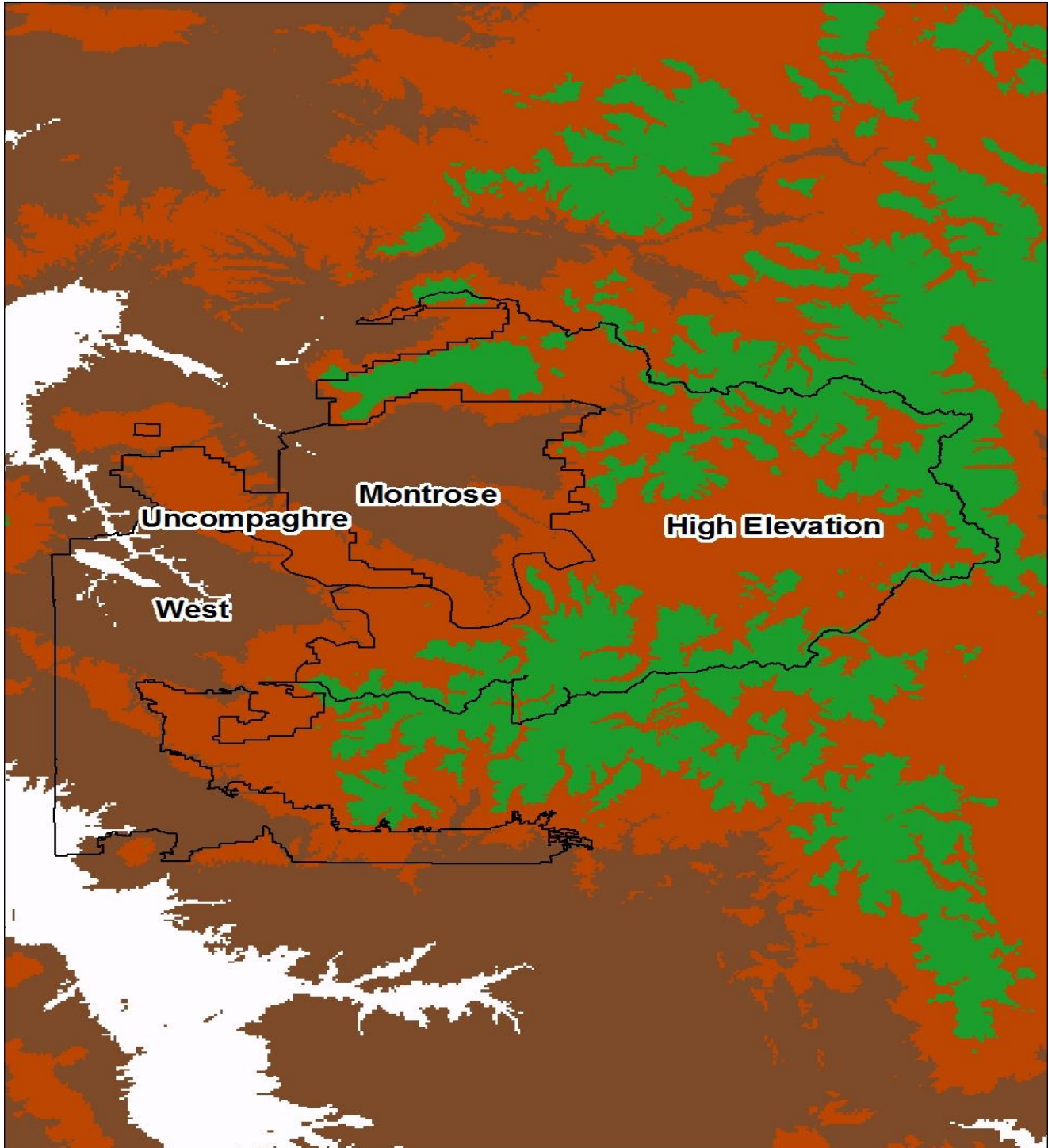
Legend

Open Water	Developed, Medium Intensity	Evergreen Forest	Pasture/Hay
Perennial Snow	Developed, High Intensity	Mixed Forest	Cultivated Crops
Developed, Open Space	Barren Land	Dwarf Shrub	Woody Wetlands
Developed, Low Intensity	Deciduous Forest	Grassland/Herbaceous	Emergent Herbaceous Wetlands

Appendix G: **TOPOGRAPHY**



Mean Maximum Vapor Pressure Deficit

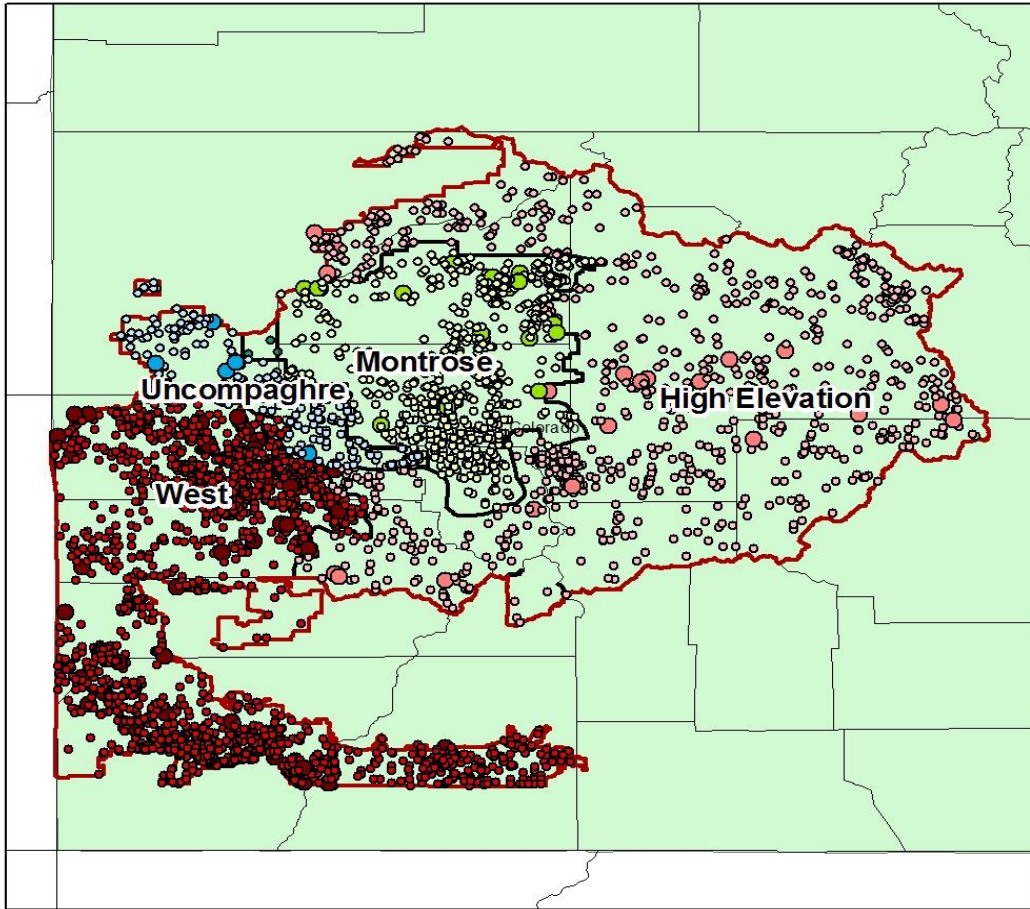


Legend

Vapor Pressure Deficit 2.3 - 5 5.1 - 10 10.1 - 15 15.1 - 20 20.1 - 50.2

Appendix I: **FIRE OCCURRENCE**

Fire Occurrence Data

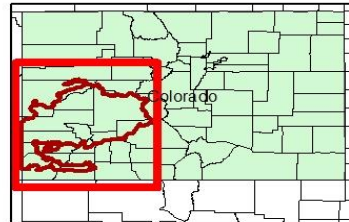


Legend

Fire Occurrence Data

Fires by FDRA and Size Class Groups

- High Elevation, A-C
- High Elevation, D-G
- Montrose, A-C
- Montrose, D-F
- Uncompaghre, A-C
- Uncompaghre, D-F
- West, A-C
- West, D-G



Appendix J: **FireFamilyPlus Analysis**

Montrose FDRA

FireFamily Plus Decision Points

SIG - Montrose

Variable: ERC

Time Frame: 5/23 - 10/29

Data Years: 1994 - 2014

Cause = All

Large Fire Day = 4 acres

Multiple Fire Day = 2 fires

Stations in SIG - Montrose:

052704 - JAY Model: 7G3AE2 Weight: 1.00

053805 - COTTONWOOD Model: 7G1AE2 Weight: 1.00

Percentages Based On Current Class Definitions											Model Probabilities (%)						
Cls #	Index Range	All-Days #	%	Fire-Days #	%FD	%AD	Large Fire-Days #	%LFD	%FD	%AD	Multi-Fire-Days #	%MFD	%FD	%AD	Fire Day	Large F-Day	Multi F-Day
1	0- 39	305	9	12	3	4	0	0	0	0	2	2	17	1	2- 5	1- 3	7- 13
2	40- 79	1986	59	175	51	9	16	40	9	1	36	44	21	2	5- 12	4- 12	13- 24
3	80-112	1067	32	157	46	15	24	60	15	2	44	54	28	4	12- 22	12- 27	25- 38
		3358		344		40		82									

Values in columns denoted by an * are displayed in the bar charts.

Percentages Based On Current Class Definitions											Model Probabilities (%)						
Cls #	Index Range	All-Days #	%	Fire-Days #	%FD	%AD	Large Fire-Days #	%LFD	%FD	%AD	Multi-Fire-Days #	%MFD	%FD	%AD	Fire Day	Large F-Day	Multi F-Day
1	0- 19	54	2	0	0	0	0	0	0	0	0	0	0	0	2- 3	0- 0	0- 0
2	20- 39	251	7	12	3	5	0	0	0	0	2	2	17	1	4- 5	0- 0	0- 1
3	40- 74	1670	50	128	37	8	10	25	8	1	23	28	18	1	5- 11	0- 1	1- 2
4	75- 87	778	23	107	31	14	14	35	13	2	28	34	26	4	11- 14	1- 2	2- 4
5	88-112	605	18	97	28	16	16	40	16	3	29	35	30	5	14- 22	2- 6	4- 8
		3358		344		40		82									

Values in columns denoted by an * are displayed in the bar charts.

Uncompahgre FDRA

FireFamily Plus Decision Points

SIG - UncSig

Variable: ERC

Time Frame: 5/1 - 9/30

Data Years: 1994 - 2014

Cause = All

Large Fire Day = 2 acres

Multiple Fire Day = 2 fires

Stations in SIG - UncSig:

- 052409 - DOMINGUEZ/JACKS CANYON Model: 7G2AE2 Weight: 1.00
- 053804 - SANBORN PARK Model: 7G2PE3 Weight: 1.00
- 053806 - BLACK CANYON Model: 7G2AE2 Weight: 1.00
- 053808 - CARPENTER RIDGE Model: 7G1PE2 Weight: 1.00

Cls #	Index Range	Percentages Based On Current Class Definitions												Model Probabilities (%)						
		All-Days		Fire-Days			Large Fire-Days			Multi-Fire-Days			Fire Day	Large F-Day	Multi F-Day					
		#	%	#	%FD	%AD	#	%LFD	%FD	%AD	#	%MFD	%FD	%AD						
1	0- 35	348	11	22	4	6	0	0	0	0	4	3	18	1	3-	9	0-	1	0-	2
2	36- 71	1967	61	331	54	17	35	40	11	2	69	46	21	4	9-	23	1-	3	2-	6
3	72-104	898	28	256	42	29	52	60	20	6	78	52	30	9	24-	46	3-	15	6-	18
		3213	609	87			151													

Values in columns denoted by an * are displayed in the bar charts.

Cls #	Index Range	Percentages Based On Current Class Definitions												Model Probabilities (%)						
		All-Days		Fire-Days			Large Fire-Days			Multi-Fire-Days			Fire Day	Large F-Day	Multi F-Day					
		#	%	#	%FD	%AD	#	%LFD	%FD	%AD	#	%MFD	%FD	%AD						
1	0- 21	61	2	4	1	7	0	0	0	0	0	0	0	0	3-	6	0-	0	0-	1
2	22- 38	389	12	28	5	7	1	1	4	0	6	4	21	2	6-	10	0-	1	1-	2
3	39- 65	1463	46	233	38	16	23	26	10	2	43	28	18	3	10-	20	1-	2	2-	5
4	66- 81	908	28	199	33	22	25	29	13	3	60	40	30	7	20-	29	3-	5	5-	8
5	82-104	392	12	145	24	37	38	44	26	10	42	28	29	11	30-	46	6-	15	9-	18
		3213	609	87																

West FDRA

FireFamily Plus Decision Points

SIG - WestSig

Variable: ERC

Time Frame: 5/1 - 9/30

Data Years: 1994 - 2014

Cause = All

Large Fire Day = 2 acres

Multiple Fire Day = 4 fires

Stations in SIG - WestSig:

053807 - NUCLA Model: 7G2AE2 Weight: 1.00

055704 - CHAPIN Model: 7G1AE2 Weight: 1.00

Percentages Based On Current Class Definitions													Model Probabilities (%)		
Cls #	Index Range	All-Days # %	Fire-Days # %	FD %AD	Large Fire-Days # %	LFD %FD	%AD	Multi-Fire-Days # %	MFD %FD	%AD	Fire Day	Large F-Day	Multi F-Day		
1	0-46	508 16	71 8	14	8 5	11 2	5 4	7 1	12-21	1-3	0-2				
2	47-75	1481 46	415 48	28	66 42	16 4	48 38	12 3	21-29	3-5	2-4				
3	76-112	1207 38	377 44	31	83 53	22 7	74 58	20 6	29-40	5-10	4-12				
		3196	863	157	127										

Values in columns denoted by an * are displayed in the bar charts.

Cls #	Index Range	All-Days # %	Fire-Days # %	FD %AD	Large Fire-Days # %	LFD %FD	%AD	Multi-Fire-Days # %	MFD %FD	%AD	Fire Day	Large F-Day	Multi F-Day
1	0-32	190 6	19 2	10	1 1	5 1	0 0	0 0	12-18	1-2	0-1		
2	33-51	490 15	96 11	20	16 10	17 3	7 6	7 1	18-22	2-3	1-2		
3	52-69	954 30	248 29	26	40 25	16 4	24 19	10 3	23-27	3-5	2-4		
4	70-83	783 24	258 30	33	47 30	18 6	48 38	19 6	27-31	5-6	4-5		
5	84-112	779 24	242 28	31	53 34	22 7	48 38	20 6	31-40	6-10	5-12		
		3196	863	157	127								

Values in columns denoted by an * are displayed in the bar charts.

High Elevation FDRA

FireFamily Plus Decision Points

SIG - HighEI

Variable: ERC

Time Frame: 6/1 - 9/30

Data Years: 1994 - 2014

Cause = All

Large Fire Day = 2 acres

Multiple Fire Day = 2 fires

Stations in SIG - HighEI:

052812 - TAYLOR PARK Model: 7G2PE3 Weight: 1.00

054702 - LUJAN Model: 7G2PE2 Weight: 1.00

052813 - HUNTSMAN Model: 7G1PE2 Weight: 1.00

054704 - NEEDLE CREEK Model: 7G2PE2 Weight: 1.00

Percentages Based On Current Class Definitions | Model Probabilities (%)

Cls #	Index Range	All-Days # %	Fire-Days # %FD %AD	Large Fire-Days # %LFD %FD %AD	Multi-Fire-Days # %MFD %FD %AD	Fire Day	Large F-Day	Multi F-Day
1	0- 28	230 9	15 3 7 0	0 0 0 0	2 2 13 1	4- 9	0- 1	1- 1
2	29- 63	1637 64	258 56 16	27 43 10 2	48 49 19 3	10- 22	1- 3	2- 5
3	64- 99	695 27	190 41 27	36 57 19 5	48 49 25 7	22- 44	3- 15	5- 14
		2562 463	63	98				

Values in columns denoted by an * are displayed in the bar charts.

Cls #	Index Range	All-Days # %	Fire-Days # %FD %AD	Large Fire-Days # %LFD %FD %AD	Multi-Fire-Days # %MFD %FD %AD	Fire Day	Large F-Day	Multi F-Day
1	0- 21	101 4	3 1 3 0	0 0 0 0	0 0 0 0	4- 8	0- 0	1- 1
2	22- 31	214 8	22 5 10	2 3 9 1	3 3 14 1	8- 10	0- 1	1- 2
3	32- 58	1335 52	198 43 15	18 29 9 1	35 36 18 3	10- 20	1- 2	2- 4
4	59- 72	567 22	128 28 23	19 30 15 3	32 33 25 6	20- 27	2- 5	4- 6
5	73- 99	345 13	112 24 32	24 38 21 7	28 29 25 8	27- 44	5- 15	6- 14
		2562 463	63	98				

Values in columns denoted by an * are displayed in the bar charts.


Appendix K: **POCKET CARDS**

FIRE DANGER -- Montrose


Maximum, Average, and 90th Percentile, based on 21 years data

Fire Danger Area:

- ◆ Montrose
- ◆ FWZ 292
- ◆ 052704 & 053805
- * Meets NWCG Wx Station Standards



Fire Danger Interpretation:



- EXTREME** -- Use extreme caution
- (Caution)** -- Watch for change
- Moderate** -- Lower Potential, but always be aware

Maximum -- Highest Energy Release Component by day for 1994 - 2014
 Average -- shows peak fire season over 21 years (3485 observations)
 90th Percentile -- Only 10% of the 3485 days from 1994 - 2014 had an Energy Release Component above 94

Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior:
 20' Wind Speed over 15 mph, RH less than 15%,
 Temperature over 90

Years to Remember: 1994 2012

Fuel Model: G - Short-Needle (Heavy Dead)

Remember what Fire Danger tells you:

- ✓ Energy Release Component gives seasonal trends calculated from 2 pm temperature, humidity, daily temperature & rh ranges, and precip duration.
- ✓ Wind is NOT part of ERC calculation.
- ✓ Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- ✓ Listen to weather forecasts -- especially WIND.

Past Experience:

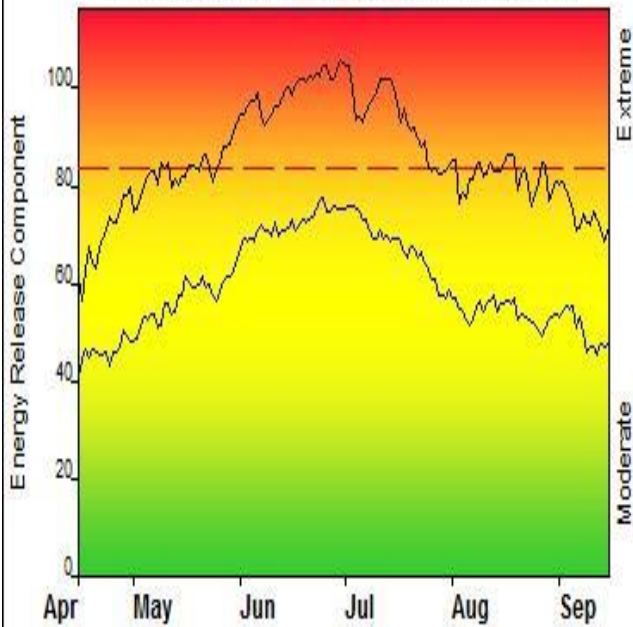
NFDRS Fuel Model G trends best with historical fire danger. Large Fire can occur during 3-5 day wind event when ERC values are considered average. Example Beaver-2010 and Sundance-2012 both over 2000 acres. Oakbrush can exhibit extreme fire behavior when live moistures are <95%. Watch for periods of drought or areas of frost kill damage.

Responsible Agency: Unknown
 FF+4.1 build 1622 06/23/2015-14:41 (C:\FireFamily\NewestCharts4_27_2015)

Design by NWCG Fire Danger Working Team

FIRE DANGER -- Uncompahgre FDRA

Maximum, Average, and 90th Percentile, based on 21 years data



Fire Danger Area:

- ◆ Uncompahgre
- ◆ FWZ 292/203
- ◆ 52409/53804/53808/053808
- * Meets NWCG Wx Station Standards



Fire Danger Interpretation:



- EXTREME** -- Use extreme caution
- (Caution)** -- Watch for change
- Moderate** -- Lower Potential, but always be aware

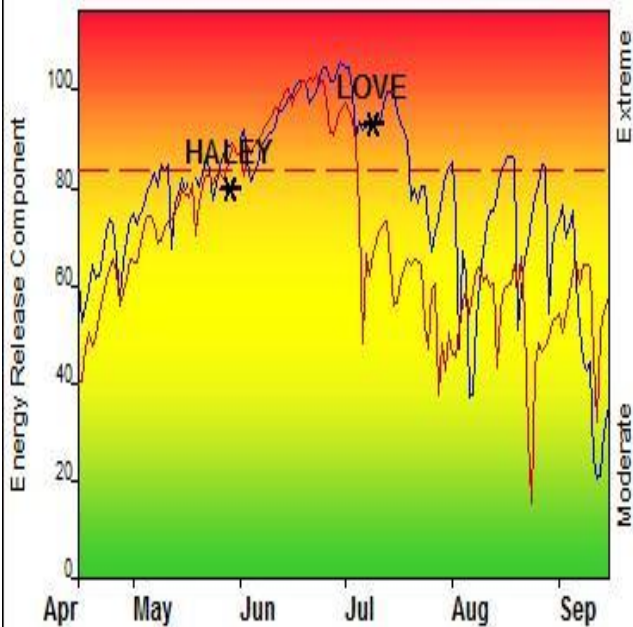
Maximum -- Highest Energy Release Component by day for 1994 - 2014

Average -- shows peak fire season over 21 years (3226 observations)

90th Percentile -- Only 10% of the 3226 days from 1994 - 2014 had an Energy Release Component above 83

Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior:
 20' Wind Speed over 15 mph, RH less than 20%,
 Temperature over 85

Years to Remember: 2002 2012



Fuel Model: G - Short-Needle (Heavy Dead)

Remember what Fire Danger tells you:

- ✓ Energy Release Component gives seasonal trends calculated from 2 pm temperature, humidity, daily temperature & rh ranges, and precip duration.
- ✓ Wind is NOT part of ERC calculation.
- ✓ Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- ✓ Listen to weather forecasts -- especially WIND.

Past Experience:

- Fuel Model G tracks with historical large fire events best.
- Watchout for bugkill, Mistletoe, heavy dead and down, or long range spotting during higher ERC's.
- Warm spring temperatures can lead to early snow melt well before greenup.

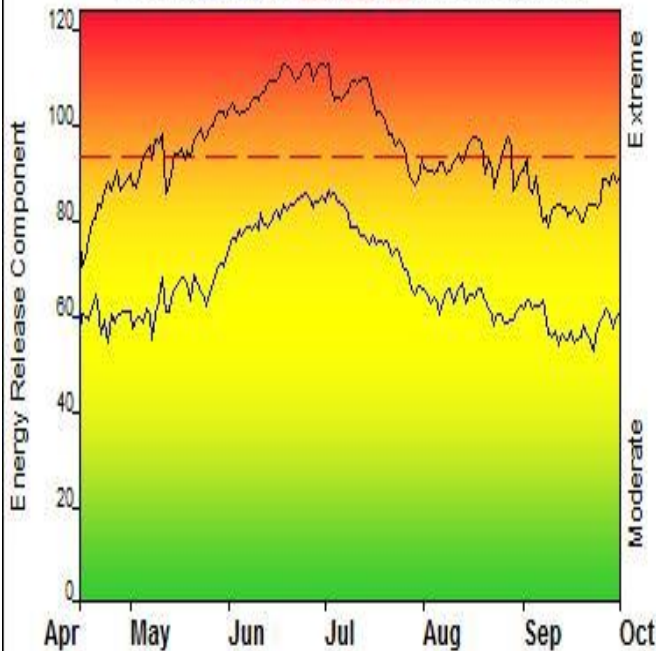
Responsible Agency: USFS

FF+4.1 build 1622 06/23/2015-15:03 (C:\FireFamily\NewestCharts\4_27_2015)

Design by NWCG Fire Danger Working Team

FIRE DANGER -- West FDRA

Maximum, Average, and 90th Percentile, based on 21 years data



Fire Danger Area:

- ◆ West FDRA
- ◆ 290,207
- ◆ Nucla/Chapin
- * Meets NWCG Wx Station Standards



Fire Danger Interpretation:



- EXTREME** -- Use extreme caution
- (Caution)** -- Watch for change
- Moderate** -- Lower Potential, but always be aware

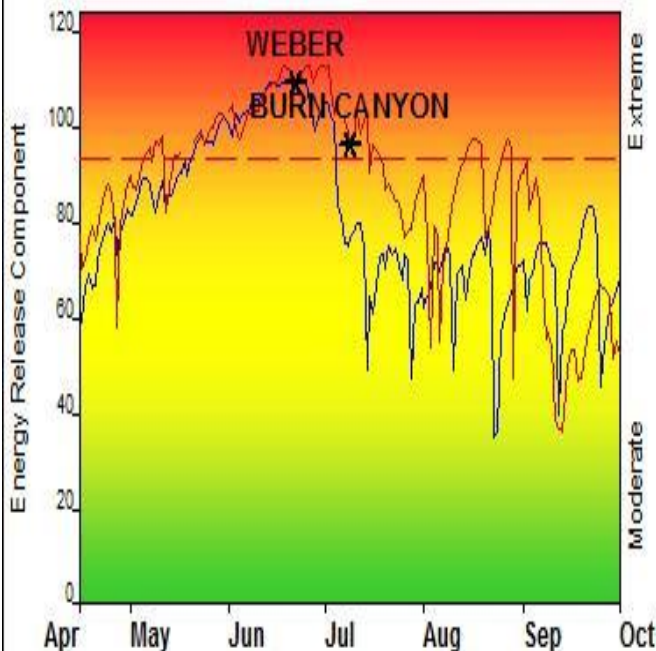
Maximum -- Highest Energy Release Component by day for 1994 - 2014

Average -- shows peak fire season over 21 years (3443 observations)

90th Percentile -- Only 10% of the 3443 days from 1994 - 2014 had an Energy Release Component above 93

Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior:
 20' Wind Speed over 15 mph, RH less than 15%,
 Temperature over 90

Years to Remember: 2012 2002



Fuel Model: G - Short-Needle (Heavy Dead)

Remember what Fire Danger tells you:

- ✓ Energy Release Component gives seasonal trends calculated from 2 pm temperature, humidity, daily temperature & rh ranges, and precip duration.
- ✓ Wind is NOT part of ERC calculation.
- ✓ Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- ✓ Listen to weather forecasts -- especially WIND.

Past Experience:

NFDRS Fuel Model G trends best with historical Fire Danger.

Large Fires can occur during 3-5 day wind events when ERC levels are considered average.

Oakbrush can exhibit extreme fire behavior when live moistures are <95%. Watchout for periods of drought or areas of frost kill.

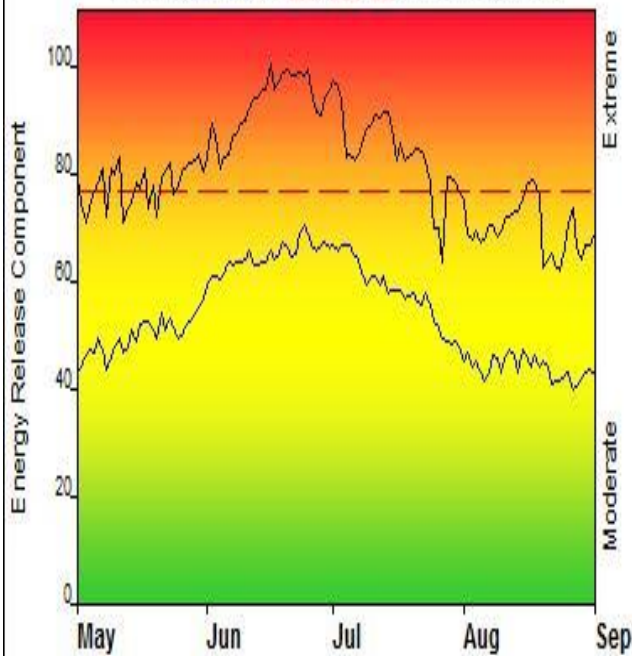
Responsible Agency: BLM

FF+4.1 build 1622 06/23/2015-14:49 (C:\FireFamily\NewestCharts\4_27_2015)

Design by NWCG Fire Danger Working Team

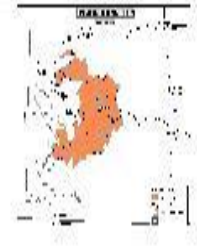
FIRE DANGER -- High Elevation FDRA

Maximum, Average, and 90th Percentile, based on 21 years data



Fire Danger Area:

- ◆ High Elevation FDRA
- ◆ FWZ 291 & 293
- ◆ 52812/52813/54702/54704
- * Meets NWCG Wx Station Standards



Fire Danger Interpretation:



- EXTREME** -- Use extreme caution
- (Caution)** -- Watch for change
- Moderate** -- Lower Potential, but always be aware

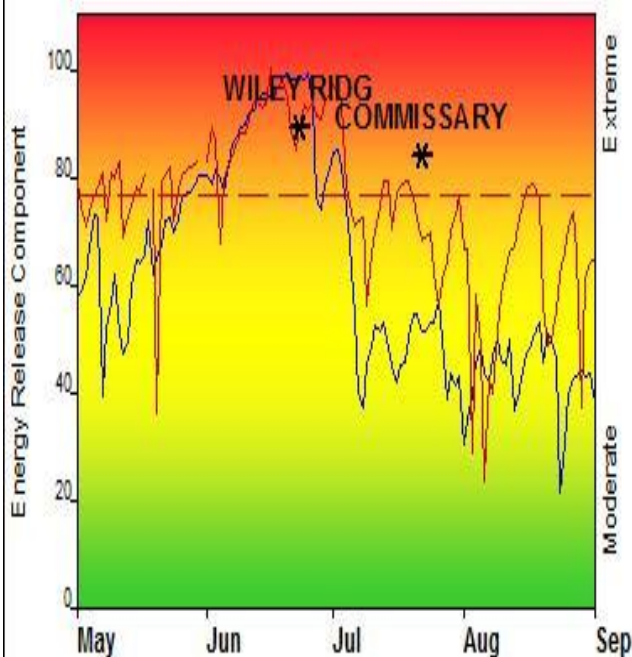
Maximum -- Highest Energy Release Component by day for 1994 - 2014

Average -- shows peak fire season over 21 years (2593 observations)

90th Percentile -- Only 10% of the 2593 days from 1994 - 2014 had an Energy Release Component above 78

Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior:
 20' Wind Speed over 15 mph, RH less than 25%,
 Temperature over 85

Years to Remember: 2012 2002



Fuel Model: G - Short-Needle (Heavy Dead)

Remember what Fire Danger tells you:

- ✓ Energy Release Component gives seasonal trends calculated from 2 pm temperature, humidity, daily temperature & rh ranges, and precip duration.
- ✓ Wind is NOT part of ERC calculation.
- ✓ Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- ✓ Listen to weather forecasts -- especially WIND.

Past Experience:

- Fuel Model G tracks with historical large fire events best.
- Watchout for bugkill, Mistletoe, heavy dead and down, or long range spotting during higher ERC's.
- Warm spring temperatures can lead to early snow melt well before greenup.
- Commissary Fire occurred in late July 2005.

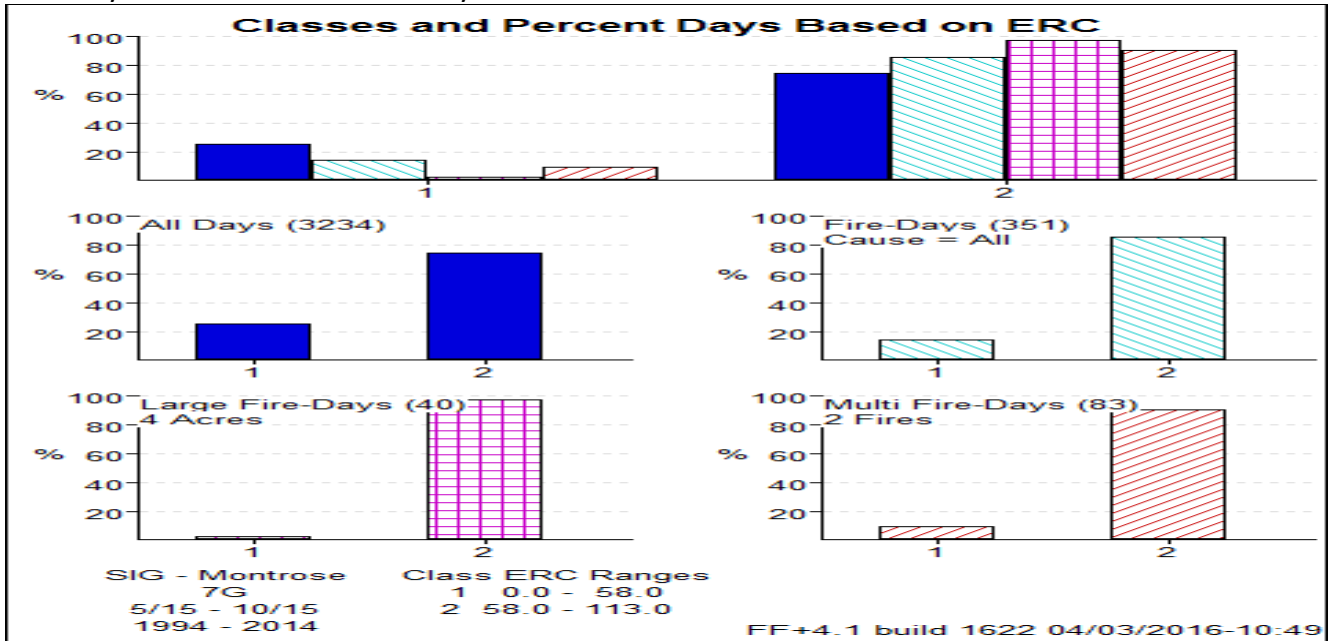
Responsible Agency: USFS

FF+4.1 build 1622 06/23/2015-15:23 (C:\FireFamily\NewestCharts\4_27_2015)

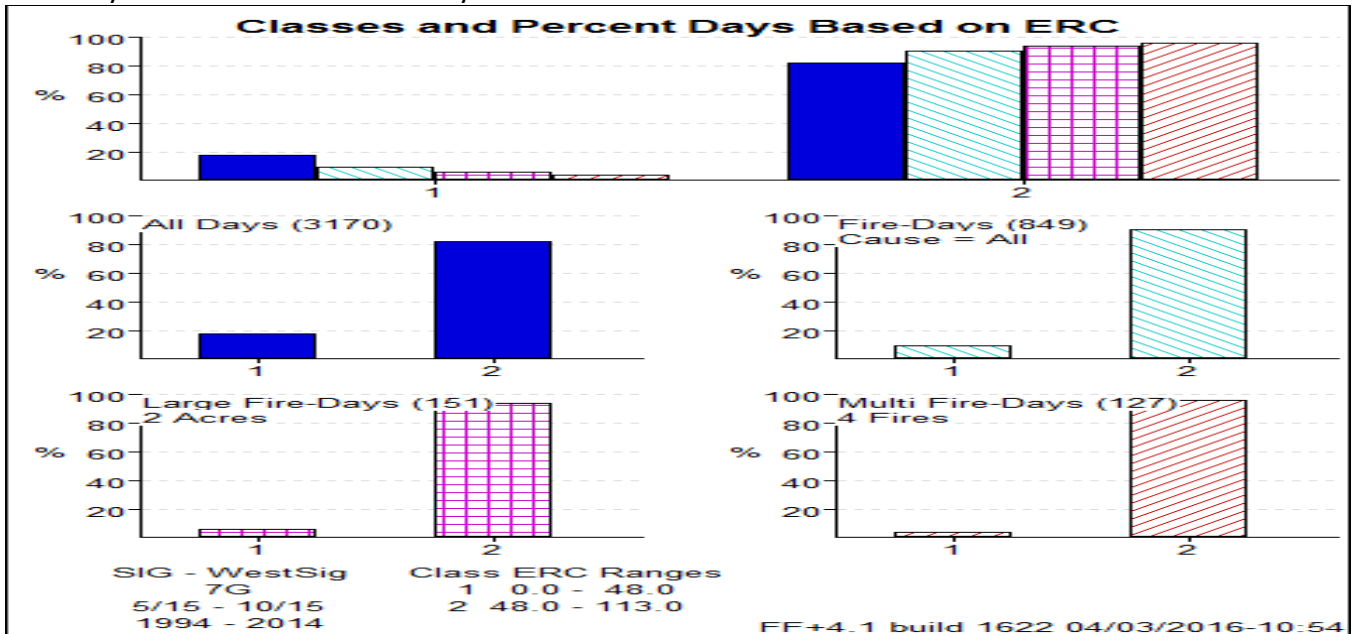
Design by NWCG Fire Danger Working Team

Appendix L: **NWS FUEL TAG PROCEDURES**

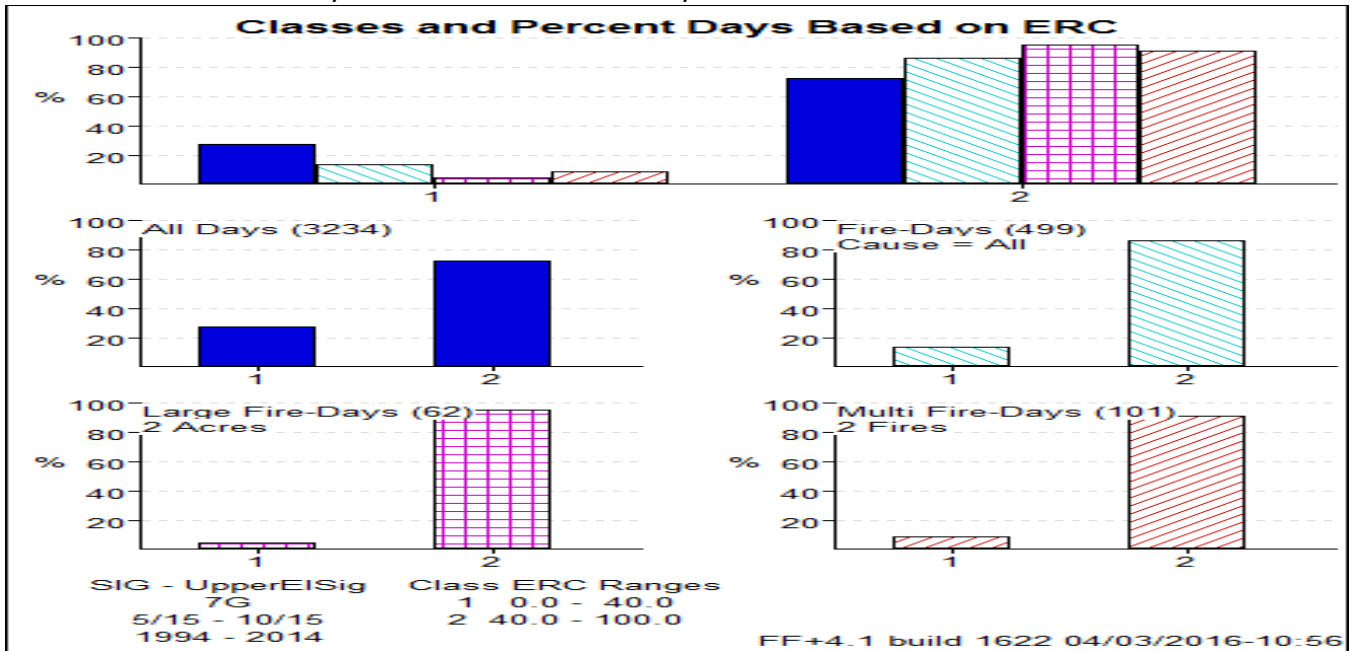
Threshold to be used to for **Fire Weather Zone 292** every Monday. Montrose SIG with **ERC 58 or above** answer yes to Fuels Status on Rocky Mountain Website.



Threshold to be used to for **Fire Weather Zone 290** every Monday. West SIG with **ERC 48 or above** answer yes to Fuels Status on Rocky Mountain Website.



Threshold to be used to for **Fire Weather Zone 291 and 293** every Monday. High Elevation SIG with **ERC 40 or above** answer yes to Fuels Status on Rocky Mountain Website.



Appendix M: **SEASONAL RISK/TERM REPORTING**

Seasonal Risk will be done by monitoring the ERC graphs produced by the Rocky Mountain predictive services and the Pocket Cards for historical reference. Products will soon be on line to track indices real time graphs for our Fire Danger Rating Areas.

Files were established and Fire Family Plus analysis was done to determine, based on historic weather, when season ending events may occur. The high and low elevation results are shown below.

High Elevation (Uncompahgre and High Elevation FDRA's) Season End Probabilities	
25%	<i>September 17th</i>
50%	<i>September 28th</i>
75%	<i>October 7th</i>
90%	<i>October 14th</i>
99%	<i>October 24th</i>

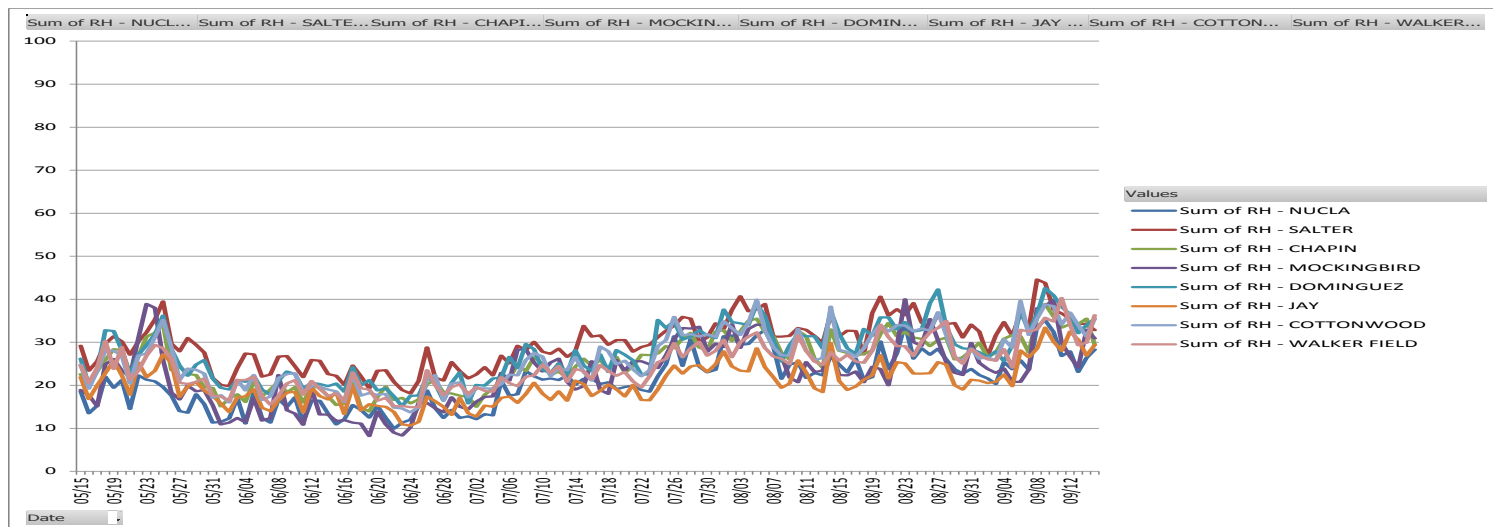
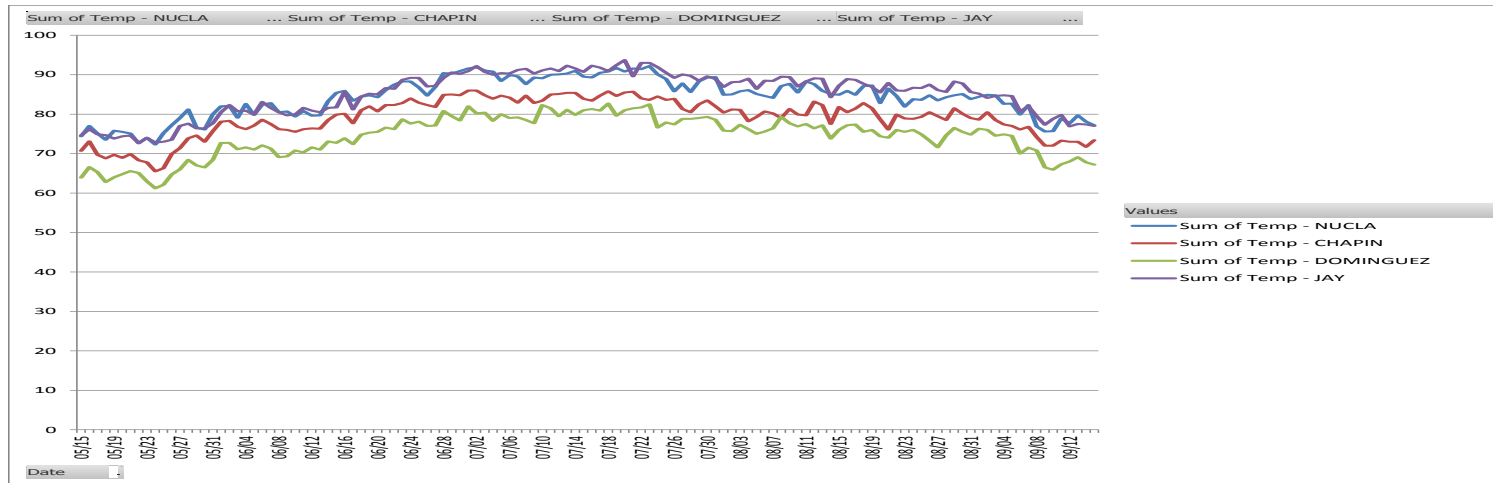
Low Elevation (Montrose and West FDRA's) Season End Probabilities	
25%	<i>September 16th</i>
50%	<i>October 3rd</i>
75%	<i>October 18th</i>
90%	<i>October 30th</i>
99%	<i>November 16th</i>

An analysis was done to identify the time period the monsoonal flow typically arrives based on historic weather. The monsoonal term probability results are shown below. The detailed term worksheet can be found in appendix I.

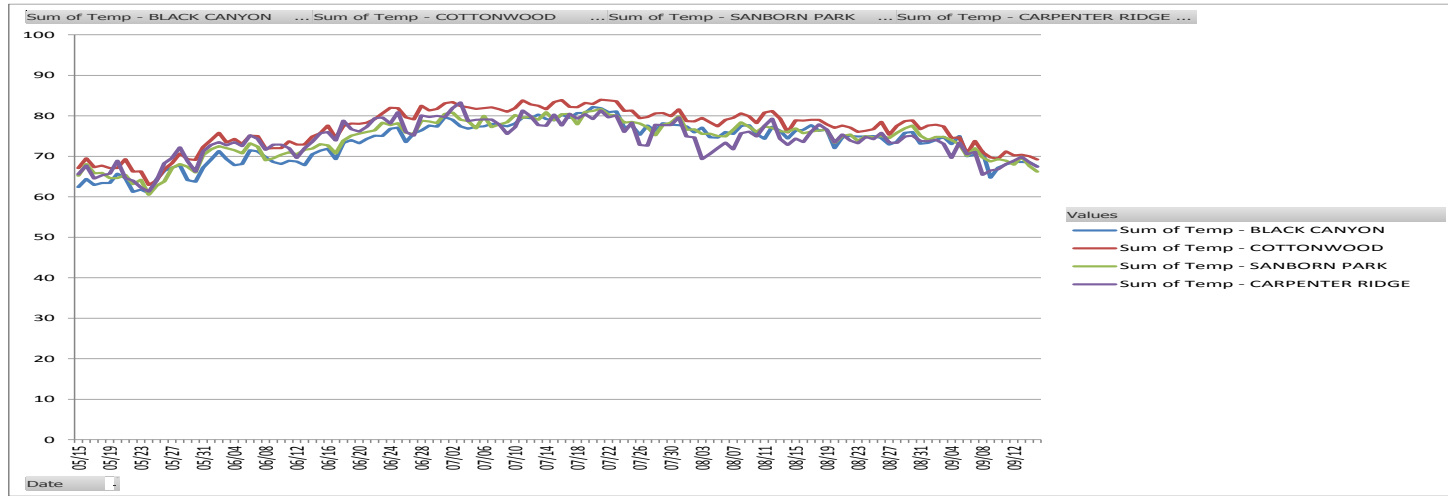
Mid-Season Monsoonal Probabilities (Entire Unit)	
25%	<i>June 27th</i>
50%	<i>July 10th</i>
75%	<i>July 22nd</i>
90%	<i>August 1st</i>
99%	<i>August 18th</i>

Appendix N: PIVOT TABLES

Montrose and West FDRA's Temperature



Uncompahgre FDRA



High Elevation FDRA

