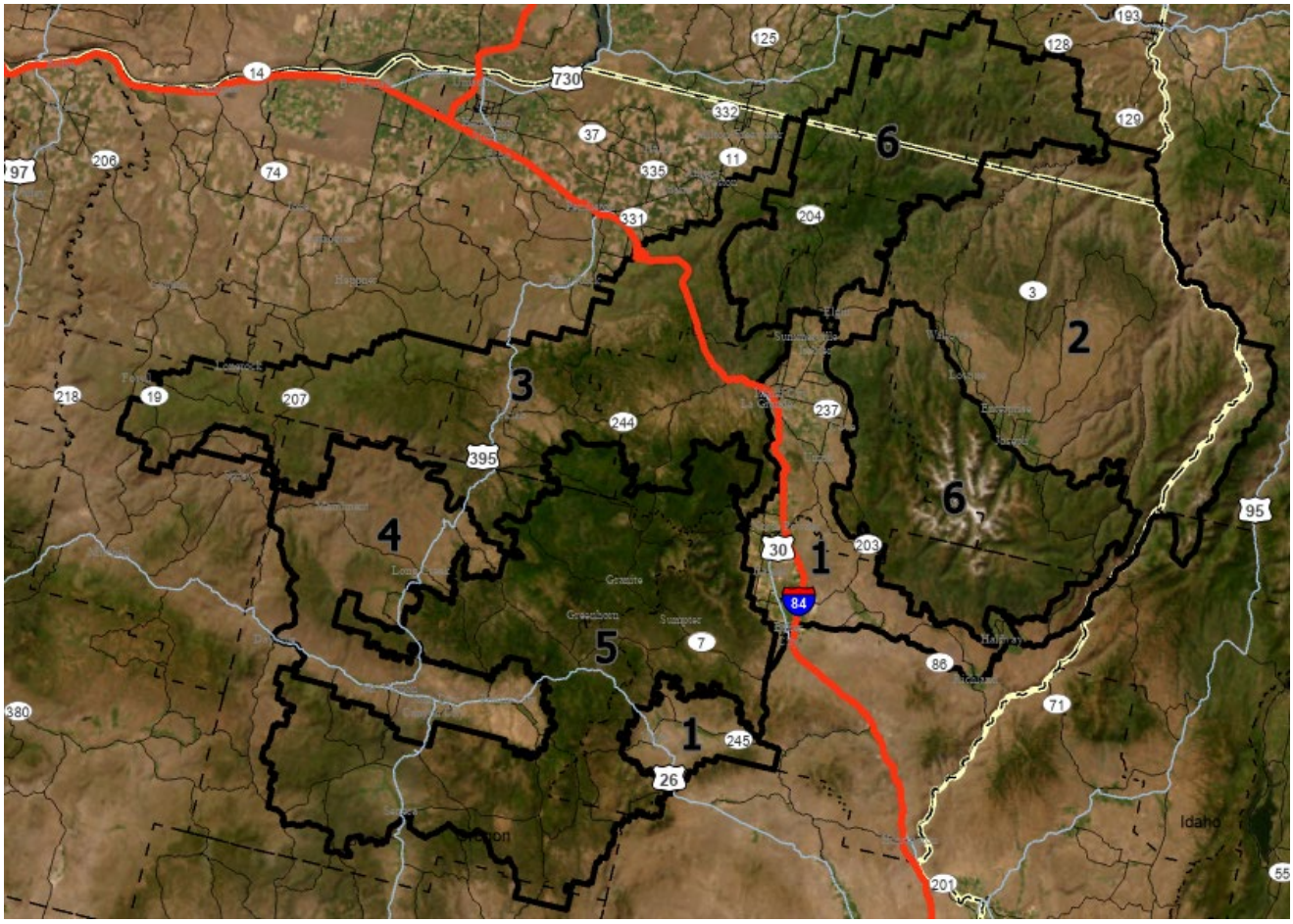
Blue Mountains Fire Danger Operating Plan

Interagency Fire Danger Operating Plan



MAY 1, 2024

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Interagency Fire Danger Operating Plan

Approved By: ***Fire Program Managers***

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1.0 *Introduction*

1.1 *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.

1.1.1 Fire Danger Operating Plan

Interagency policy and guidance require 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. The decision points are identified and documented in the Blue Mountain Fire Danger Operating Plan.

1.1.1.1 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. Staffing Plans are agency and/or unit specific and are in each unit's Fire Management Planning Documentation.

1.1.1.2 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. Preparedness Levels are identified and documented in *each unit's Fire Management Planning Documentation.*

1.1.1.3 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 Blue Mountain Fire Danger Operating Plan are documented in this Fire Danger Operating Plan. Prevention Plans and planned actions are in each unit's Fire Management Planning Documents.

1.1.1.4 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 and private lands. Decision points when restrictions and/or closures should be considered are identified and documented in the Blue Mountain Fire Danger Operating Plan, however the associated decisions and planned actions are Agency/Unit specific and are in *each unit's Fire Management Planning Documents.*

1.1.2 Wildfire Response

1.1.2.1 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 resources 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 Blue Mountain Fire Danger Operating Plan. The number and type of suppression resources dispatched to a reported fire is documented in the associated initial Dispatch / Response Plan located in each dispatch center's mobilization plan (Block Cards).

1.1.2.2 Local Mobilization Plan

The Blue Mountain Interagency Dispatch Mobilization Guide outlines procedures, which guide the operations of multi-agency logistical support activity. The Mobilization Guide 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. Mobilization Guides are available at each dispatch center.

1.2 *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
- Fish and Wildlife Service – Fire Management Handbook, Chapter 10 - Preparedness
- Bureau of Indian Affairs – Wildland Fire and Aviation Program Management Operations Guide

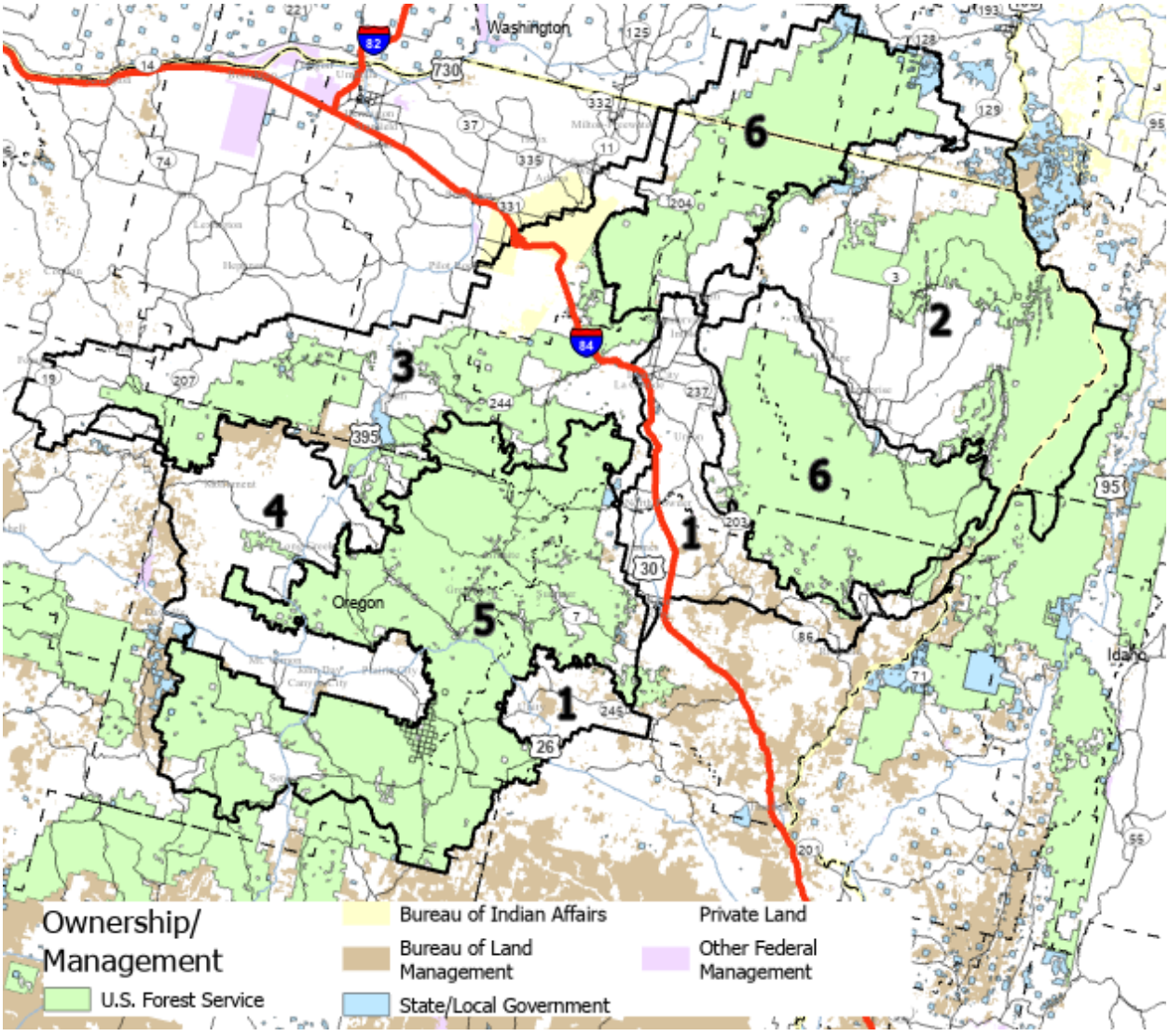
1.3 Operating Plan Objectives

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 areas.
2. Delineate fire danger rating areas (FDRAs) in fire danger planning areas 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/or fire business thresholds using the Weather Information Management System (WIMS), National Fire Danger Rating System (NFDRS), FireFamilyPlus software to analyze 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.

2.0 *Fire Danger Planning Area Inventory and Analysis*

2.1 *Administrative Units*

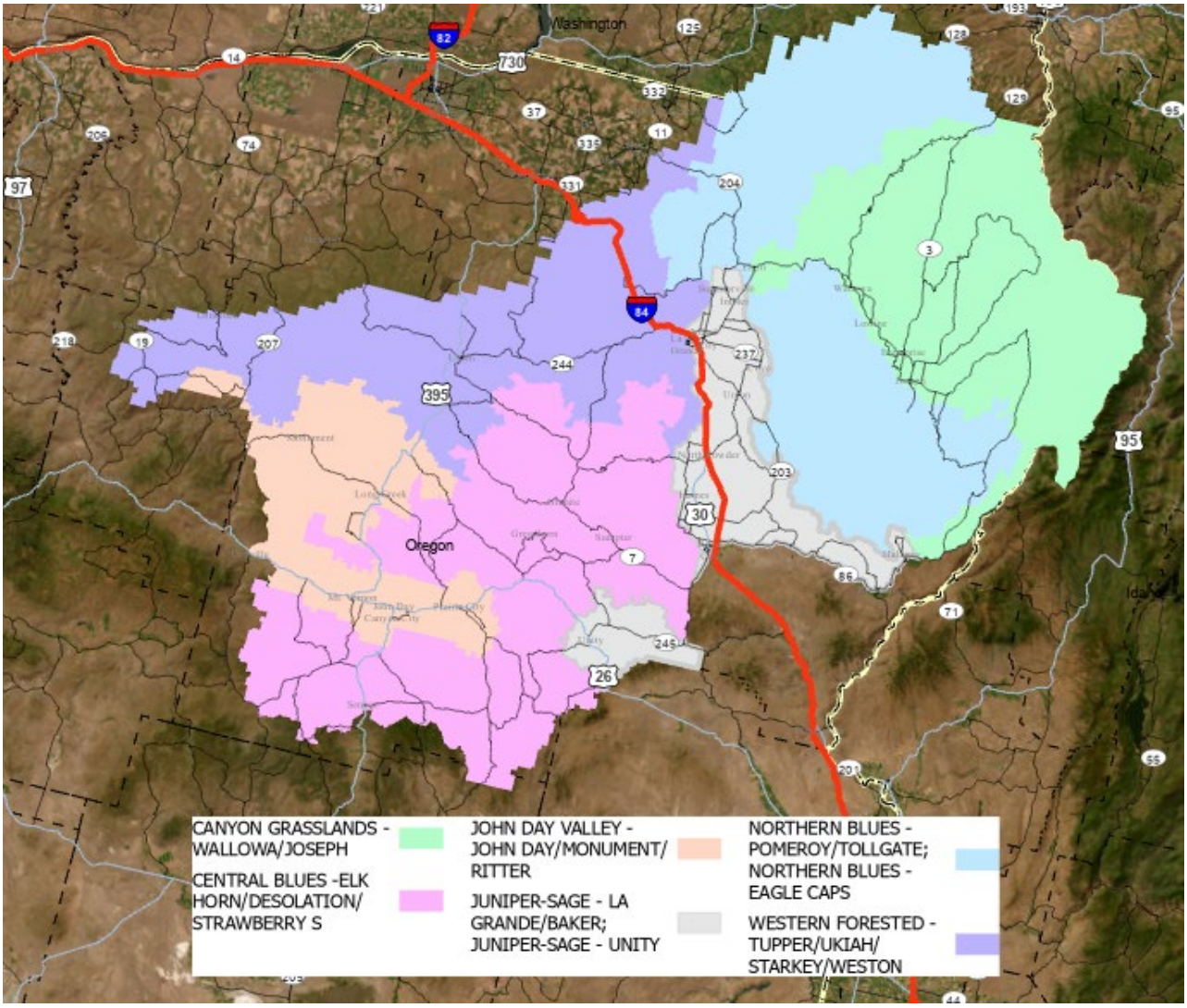
This document supports consistent application of fire danger decisions applied across multiple jurisdictional boundaries. Wildland fire management and suppression responsibilities are shared among Federal, State, and local cooperators. Administrative units participating in this plan can be found on the signature page.



2.2 *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, vegetation, and topography. 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.

2.2.1 FDRA Map



2.2.2 FDRA Acreage Table

Fire Danger Rating Area	Local Area	Acreage	% of Total
FDRA #1 - JUNIPER SAGE	Unity	173,866	8.5%
	LaGrande/Baker	605,387	
FDRA #2 - CANYON GRASSLANDS	Wallowa/Joseph	1,768,361	19.3%
FDRA #3 - WESTERN FORESTED	Fossil/Ukiah/Weston	1,708,453	18.6%
FDRA #4 - JOHN DAY VALLEY	John Day/Monument/Ritter	857,160	9.3%
FDRA #5 - CENTRAL BLUES	Elkhorns/Desolation/Strawberries	2,107,737	23.0%
FDRA #6 - NORTHERN BLUES	Eagle Caps	987,406	21.4%
	Pomeroy/Tollgate	974,086	
FDRA BOUNDARY TOTAL		9,182,456	100.0%

2.2.3 FDRA Description

2.2.3.1 FDRA 1 – Juniper Sage

General Location: FDRA 1 is primarily lands located around the Unity, Baker, and Grande Ronde valleys. Cities within the FDRA consist of LaGrande, Cove, Union, Baker City, Medical Springs, Keating, Unity, and Hereford, as well as others. Maps of this area shows large extents of agricultural grounds within the FDRA. These areas were not considered in analysis of the FDRA but were included to simplify mapping of the FDRA. The areas around and within the valleys that are not agricultural lands are the basis for the FDRA. These lands consist mainly of private ownership that are under Oregon Department of Forestry wildfire jurisdiction, but also contain state and federal managed grounds scattered throughout the FDRA. Primary features within the FDRA are the valleys themselves as well as the foothills around the valleys. Several larger rivers transect the valleys. The majority of the FDRA is within or adjacent to Wildland Urban Interface areas with residential areas and ranches/farms throughout the FDRA.

Vegetation: Within the FDRA, vegetation varies greatly depending upon location in relationship to agricultural lands and mountainous areas. Primary vegetation is Juniper and sagebrush in the foothills around the agricultural lands and lower elevations that are not agricultural and contain mostly fine fuel loadings. Most of the non-agricultural private lands are grazed by livestock throughout different times of the year. As elevations increase around the valley, timber patches become more prevalent and fuels transition to timber litter and/or timber-grass fuel models. The large blocks of agricultural area within the FDRA are included for convenience and not part of the analysis.

Climate: The area varies widely in temperature across the four seasons. This FDRA is characterized with warm summers, and cold winters with most of the precipitation occurring fall to late spring months. Temperatures range from max temperatures near 90 degrees in the summer to below freezing in the winter. Annual precipitation is estimated at < 15” per year but is highly variable dependent upon location related to nearby mountains, slope, and topography within the valleys.

Topography: FDRA 1 ranges in elevation 2,000 to 4,500 feet. valleys are generally low sloped or have minimal slope and tend to gain slope as you get closer to the valley edges or near the larger rivers either entering or leaving the valley floors. Steepest slopes are in general located on the edges of the FDRA near the largest mountain ranges, Elkhorn, and Eagle Cap Mountains.

2.2.3.2 FDRA 2 – Canyon Grasslands

General Location - FDRA 2 is in the northeast corner of Oregon. Cities within the FDRA consist of Wallowa, Enterprise, Joseph, Lostine, Troy and Imnaha, Oregon. Some agricultural lands are included within the FDRA boundaries but were not used in the analysis of the FDRA. These are mainly in the valleys around the larger towns in the FDRA. Lands within the FDRA consist of private lands under Oregon Department of Forestry wildfire jurisdiction, Wallowa Whitman National Forest lands, Hells Canyon NRA lands, and scattered parcels of Bureau of Land Management and State-owned lands. The prominent features include Snake River, Grand Ronde and Imnaha Rivers. This includes Hells Canyon National recreation area on both sides of the snake river, the majority of the Wallowa Valley Ranger District, large tracts of private lands throughout the multiple river canyonlands and the Zumwalt prairie. There are multiple areas of residents scattered throughout the FDRA within Wildland Urban Interface areas as well as numerous ranches/farms. This FDRA also includes the Hells Canyon Wilderness. Topography varies greatly throughout the FDRA from steep canyonlands to flatter rolling type terrain near the more populated areas of the FDRA.

Vegetation: Due to the high variation in topography and expanse of the vegetation varies greatly in the FDRA. In the lower elevations of the canyonlands (Snake River, Imnaha River, Joseph Canyon, etc.) vegetation consists of grasses with intermixed brush species in higher moisture areas and includes some strips of forested areas of Douglas-fir and ponderosa pine. As elevation increases across the FDRA, timber becomes more prevalent with large grass meadows being common in many areas (ridgetop prairielands) that consist of grasses intermixed with sagebrush. Fuels within the timbered areas are timber litter and timber-grasses. In the highest elevations of the FDRA, timber stands are the predominant fuel types.

Climate: Warm-hot and mostly dry summers and cold, wet winters in general. Normal summer high temperatures of around 85 degrees in the mountainous areas with higher temperatures in the lower canyonlands such as in Hells Canyon. Typically, in the summer, precipitation is accompanied with thunderstorms. Winter months are the primary times of precipitation with snow covering the higher elevation of the FDRA and primary precipitation at the lowest elevation being in the form of rain, with some snow accumulation occurring for short durations. Average precipitation < 16” with the majority occurring during the late fall through late spring months.

Topography: Elevation ranges from 1,100 feet within the Canyon Drainages to 6,700 feet within Hells Canyon Wilderness. Generally, elevation averages across the majority of the FDRA at 4,000 to 4,500 feet. Four prominent drainages: Hells Canyon, Imnaha, Joseph and Grande Ronde mainly run in a North to South alignment with many smaller drainages intersecting. Slopes range from flat broad ridges in the higher elevations with steep sloped canyons dropping into drainages. Within the Hells Canyon portion of the FDRA, steep slopes dominate the area with many areas having vertical cliffs several hundreds of feet in height. Slopes vary greatly throughout the FDRA depending upon both elevation levels and proximity to larger river drainages.

2.2.3.3 FDRA 3 – Western Forested

General Location: Western Blue Mountains of Oregon; containing the towns of Weston, Ukiah, Tupper, and Fossil. The FDRA contains the low to mid elevations of the central portion of the Blue Mountains. Minimal agricultural lands are included within the FDRA, mainly adjacent to town sites and the edges of FDRA. Lands within the FDRA are under the protection of multiple agencies primarily being the BIA,

USFS, and ODF. Other agencies such as the BLM and State have lands within the FDRA. Primary features include portions of the Grande Ronde River, Walla Walla River, and numerous other streams that flow into these systems and others that flow west into the Columbia basin area. Private lands within the FDRA contain ranches scattered throughout the area.

Vegetation: Lower elevations contain a mix of grass and brush along the western portion of the FDRA. These transition into grass and brush being dominant on the southern aligned slopes and timbered slopes on northern aligned slopes. As elevations increase, timber becomes more prevalent. as a ground cover and with it a change from grass and brush fuel types to timber litter fuel types. Timber species are Ponderosa Pine, and Douglas-fir in lower elevations that transitions to mixed conifer stands that include Grand Fire, Lodgepole, and other cool moisture tree species.

Climate: Warm summers and cool winters; precipitation < 15"; precipitation generally occurs in the Fall through Spring months; summertime precipitation generally occurs with thunderstorms. Snowfall covers most of the higher elevations of the FDRA during the winter months, with lower elevations having some snowfall, but generally precipitation is in the form of rainfall. Summer temperatures average 80 degrees in the mid to higher elevations of the FDRA. In the lower elevations on the western side of the FDRA, temperatures in the 90's are typical. It is not uncommon for temperatures to occur with several periods of hot days in the upper 90-degree range.

Topography: Elevations range from 3,000 to 5,500 feet. The FDRA is predominantly mountainous terrain dissected by drainages and valleys characterized by broad flat ridges. Slopes vary in steepness throughout the FDRA, but throughout most would be considered moderately steep with a few locations that would be considered highly steep. Aspects vary throughout with predominate slopes being generally of an westerly or northerly direction due to the alignment of the river drainages, but all aspects are present within the FDRA.

2.2.3.4 FDRA 4 – John Day Valley

General Location: This FDRA is in the southern foothills of the Blue Mountains and portions of the John Day River. Towns within the FDRA are Prairie City, John Day, Canyon City, Mt. Vernon, Monument, and Long Creek. The FDRA contains some agricultural lands primarily along the John Day River Corridor and within the valleys adjacent to the town locations. Within the FDRA, private lands comprise most of the landowners. The Oregon Department of Forestry as well as USFS, and BLM have primary responsibility for wildfire suppression. Primary features within the FDRA are the John Day River, North Fork John Day River, and Long Creek.

Vegetation: Lower elevations contain grass and shrubs with occasional pockets of scattered Juniper. As elevation increases within the FDRA, grass and shrubs intermix with trees consisting of open stands of Juniper with Sagebrush and patches of Ponderosa Pine. Throughout the majority of the FDRA, grass and shrubs primarily drive fire behavior during wildfire with pockets of trees and brush contributing to increased fire behavior where they exist.

Climate: Warm to hot summer temperatures and cold winters; average summertime high temperatures near 90 degrees although it is not uncommon to have days near 100 degrees. Winter temperatures are cold with average max temperatures in the mid-twenties. Average annual precipitation <14" with most precipitation occurring during the fall through spring months. It is not uncommon for the FDRA to be periodically covered in snow during the winter.

Topography: Elevations range from 1,000 feet along the John Day River to 5,000 feet at the highest point in the FDRA. Elevation averages 4,000 feet. The North Fork and Main Fork of the John Day River is the predominant topographic feature in the FDRA running west to east. The FDRA is predominately rolling mountain terrain with areas of steep slopes. Aspects vary throughout the FDRA with the main drainages flowing from West to East.

2.2.3.5 FDRA 5 – Central Blues

General Location: This FDRA encompasses much of the central and upper southern Blue Mountains. Boundaries of the FDRA are the edges of Baker Valley to the east, Unity Valley to the Southeast, John Day Valley to the southwest, and ties into adjacent FDRA's to the North at the mid elevations, north of the mountainous peaks of the Elkhorn Range. The FDRA includes North Fork John Day and Strawberry Mountain Wilderness areas and the Elk Horn Mountain Range. Major river features include the Powder River, Burnt River, Malheur River, John Day River Headwaters and North Fork John Day River Headquarters, and numerous streams that flow into these rivers. There is minimal agricultural land within the FDRA, but there are ranches scattered throughout the FDRA on private lands. The majority of the FDRA is USFS managed lands with private (ODF) and BLM parcels intermixed.

Vegetation: FDRA has a high variability in vegetation dependent upon elevation and aspect. Lower elevations are composed mainly of drier Ponderosa Pine forests intermixed with grass and sagebrush openings, transitioning to mixed conifer forests consisting of closed moist forests in the mid to higher elevations which includes mix-conifer Douglas-fir, Grand Fir, Ponderosa and Lodgepole pine. The highest elevations transition into Lodgepole Pine and sub-alpine fir with high elevation alpine meadow at the highest elevations.

Climate: Like the vegetation, climate within the FDRA varies by elevation and aspect. In lower elevations, summers are hot and dry with precipitation mainly occurring with thunderstorms. Mid to high elevations cool somewhat and precipitation mainly occurs with thunderstorms. Highest elevations within the FDRA contain snow coverage late into the spring and early summer and temperatures are generally cooler than that of the lower elevations. Temperatures in the lower elevations typically are in the upper 80's to lower 90's, dropping to the lower 80's in the mid elevations and into the 70's at the highest elevations. Winters throughout the FDRA are generally snow covered from late fall into mid spring. Precipitation amounts are <24" annually.

Topography: Elevations range from 4,000 to 9,000 feet along the highest mountain peaks; mountainous terrain dissected by river canyons and drainages. Aspects are variable with the Elkhorn Mountains aligning in a North to South alignment and the Strawberry Mountains aligning in an East to West alignment. Slopes vary from rolling mountains with wide-open ridges in the lower elevation to steep granite peaks in the highest elevations.

2.2.3.6 FDRA 6 – Northern Blues

General Location: The Northern Blues FDRA is two separate areas. The northern portion includes the Wenaha-Tucannon Wilderness and the areas adjacent to it. The nearest towns nearby are Pomeroy, WA, and Tollgate, OR. The Southern portion of the FDRA contains the Eagle Cap Wilderness and the lands adjacent to it. The nearest towns to it are Joseph, Wallowa, Union, Cove, and Halfway Oregon. Major features within the Northern portion are the Wenaha River, Mill Creek Watershed, and Grande Ronde River. The Southern Portion major features are the Minam River, Wallowa River, Imnaha River, Eagle

Creek, and the Mountain peaks of the Eagle Cap Wilderness. The majority of the FDRA is under USFS management with scattered parcels of private and BLM throughout both portions.

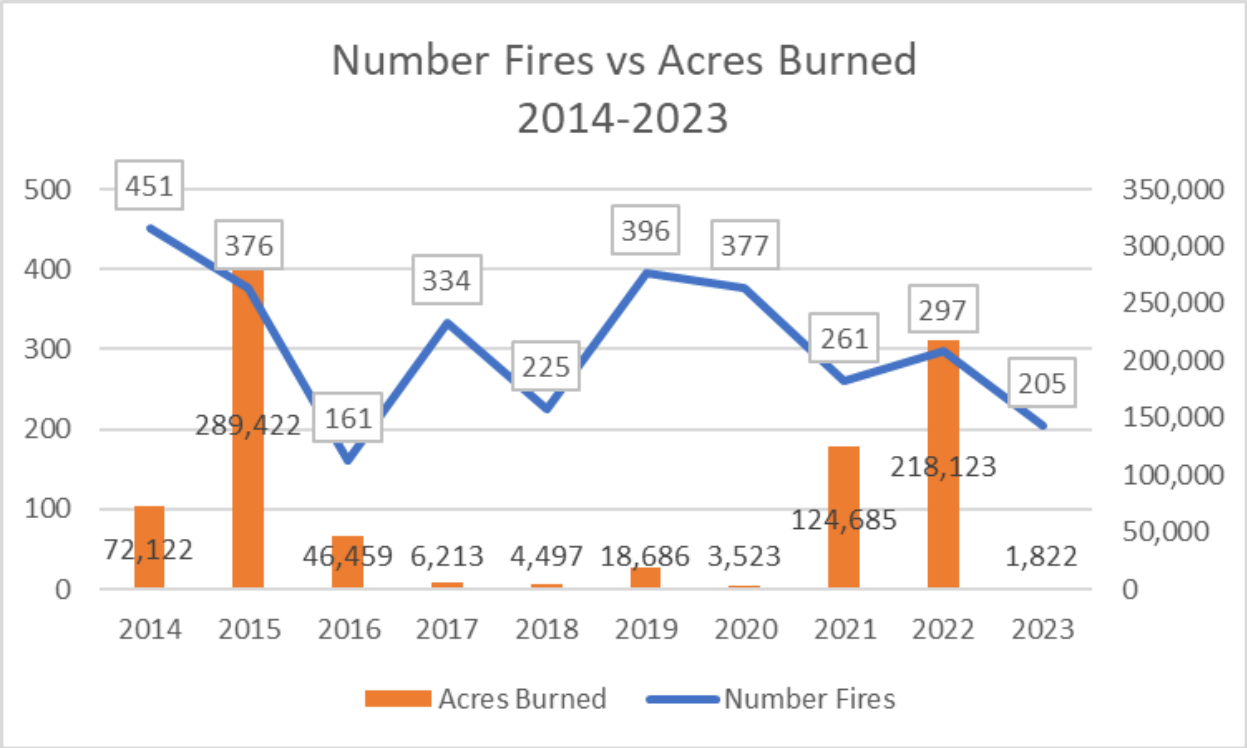
Vegetation: Lower elevations of the FDRA include Ponderosa Pine Forests with shrub and grasses; moist forest types with predominantly mixed conifer stands consisting of Douglas-fir, White-fir and Lodgepole Pine at mid-level elevations. At the highest elevations of the FDRA vegetation transitions to subalpine fire and lodgepole stands with subalpine meadows and pockets of non-vegetation at and around the highest elevations. Given the wide variation in elevation, topography, and slopes within the FDRA, vegetation type is highly variable dependent upon location.

Climate: The lowest elevations within the FDRA are in lower canyonlands that have hot dry summers and cool winters. Temperatures in the lowest elevations can reach into the lower 90's with 80 degrees being common. As elevation increases, the temperatures decrease with mid elevations being in the 80's and the highest elevations normally being in the 70's at the hottest times of the year. Winters are generally cold with temperatures being well below freezing for the winter months. Snow covers the majority of the FDRA from late fall until spring, with the highest elevations retaining snow well into the spring and early summer. Much of this FDRA experiences heavy snowfall in the winter months with annual precipitation occurring around 40" per year, mainly occurring during the fall, winter and spring timeframes in the form of snow.

Topography: Elevations Range from 3,500 to 9,800 feet elevation; mountainous terrain dissected by river canyons and drainages. Given the dramatic variation in elevation changes, slopes vary from mostly steep timber and grass covered canyons to extremely steep along the mountainous peaks. Aspects within the FDRA are also highly variable with the mountains and canyons not aligning in any specific direction. The majority of the FDRA has terrain features that make travel off road difficult if not nearly impossible. Most of the travel within the FDRA is restricted to Roads (where they exist) and trails with off trail/road travel requiring considerable effort to accomplish.

2.2.3.7 FDRA Fire Summary

The Charts below represent 10 years (2014 -2023) of historical data utilized for this analysis. Detailed fire summary information is displayed for each FDRA in Appendix D.

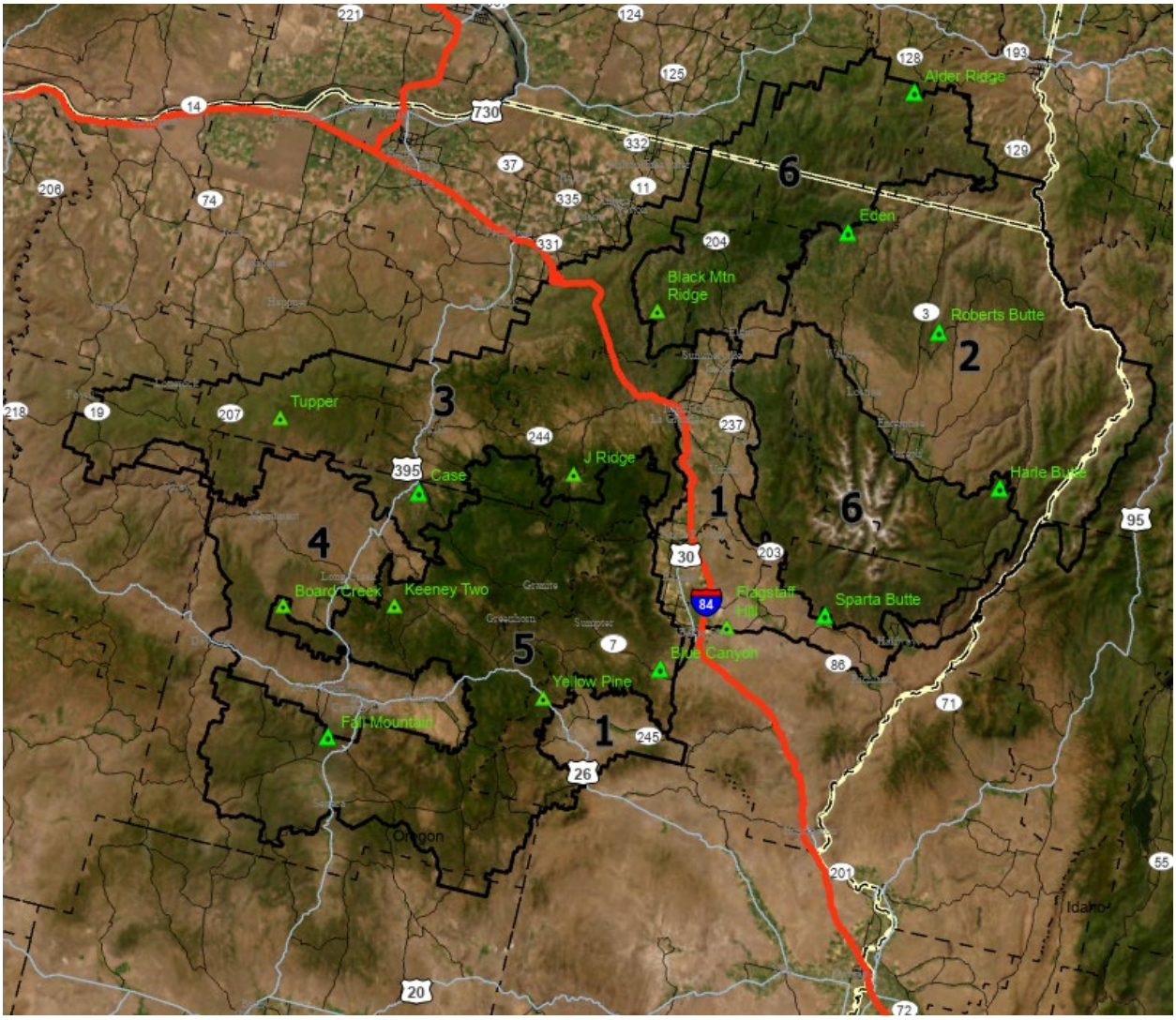


2.2.3.8 Weather Stations

All RAWS used in this plan to produce NFDR outputs comply with the National Wildfire Coordinating Group (NWCG) weather station standards and guidelines (PMS 426-3). Each RAWS receives, at a minimum, one annual on-site maintenance visit. All maintenance is now contracted through the RAWS Depot, to ensure sensors are within calibration standards and to verify site and station conditions. Further weather station information and parameters used in the analysis are in Section 4.4 and 4.5 below.

2.2.3.8.1 RAWS Map

RAWS Utilized in 2024 analysis for the Blue Mountain Fire Danger Operating Plan

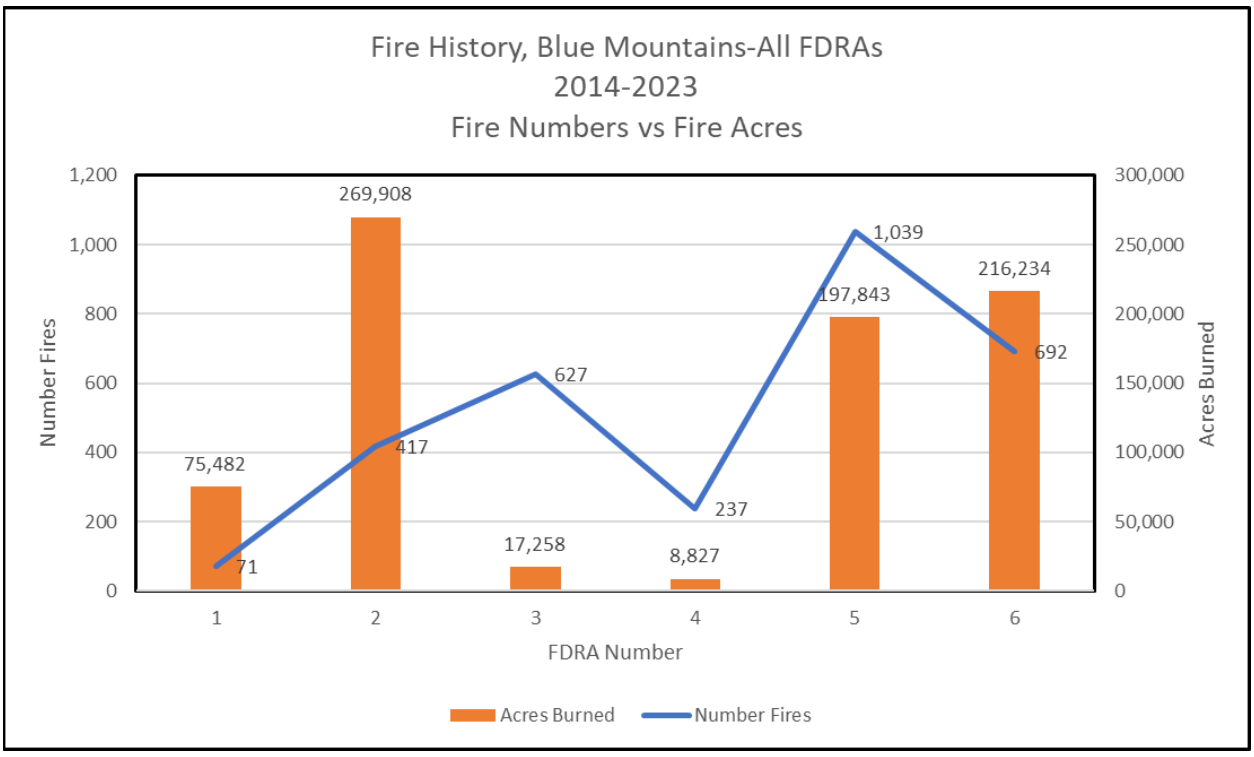


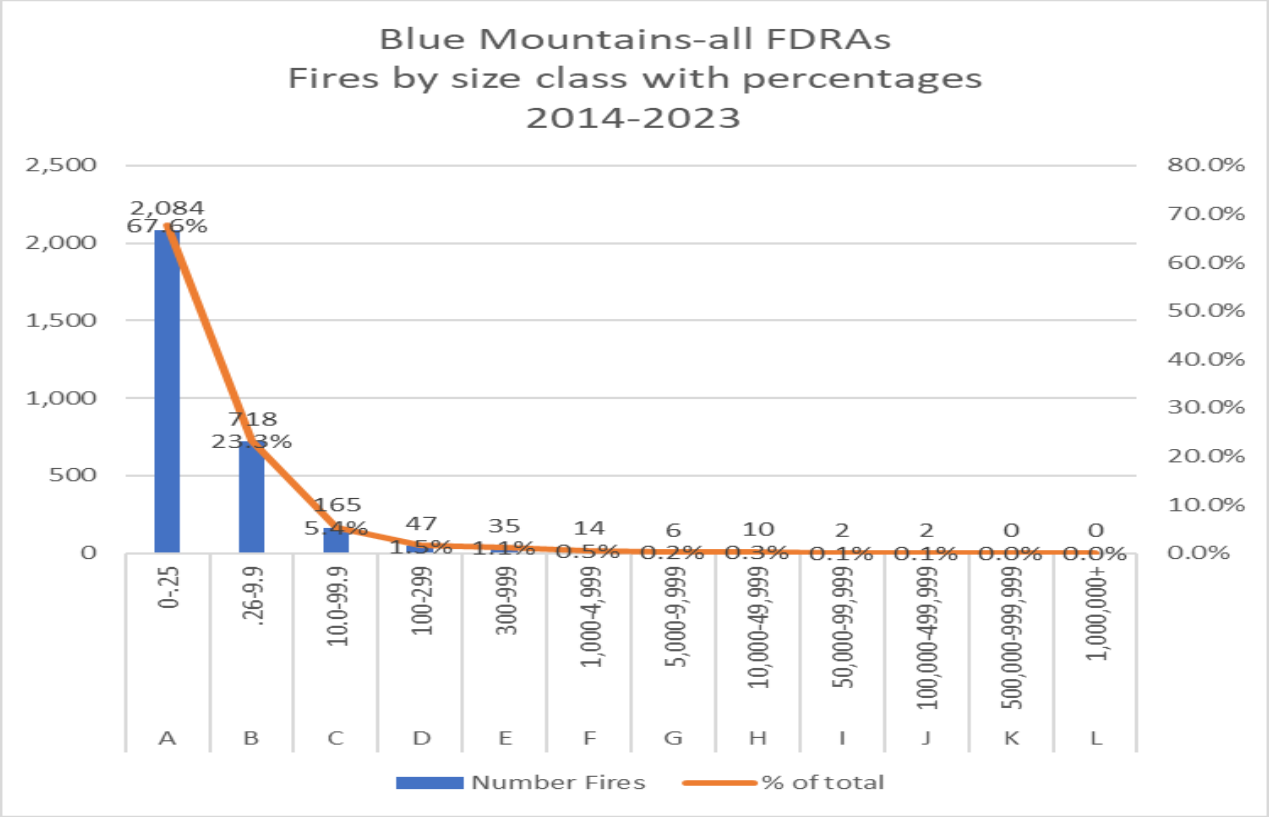
3.0 *Fire Danger Problem Analysis*

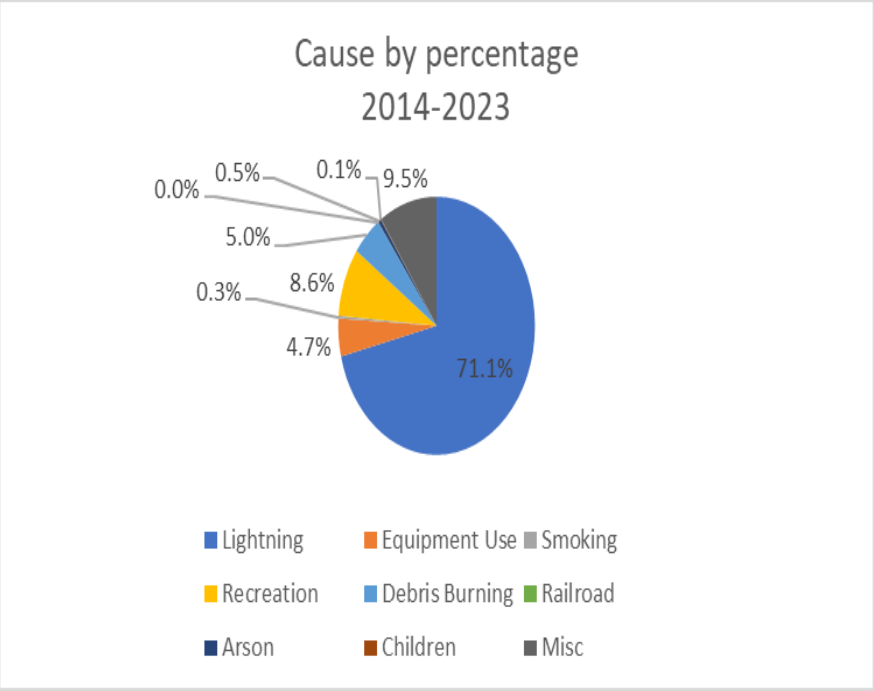
To apply a fire danger system that will assist managers with fire management decisions, ignition problems need to be identified, quantified, framed, and associated with a specific target group to determine the most appropriate fire danger-based decision "tool" to mitigate the given issue.

3.1 *Fire Occurrence*

Ten years (2014-2023) of fire data occurrence were used for the analysis in the FDOP. Data was obtained from *spatial wildfire occurrence data from the United States dataset* through 2020; additional fire history was collected through each agency's fire reporting systems for the years 2021-2023 which was merged into a single spreadsheet. The data within this spreadsheet was then converted into a ArcGIS dataset, clipped to FDRA boundaries, and reviewed for duplicate data entries. For the charts/tables shown within the document, discovery dates were utilized for analysis. However, for analysis completed utilizing FireFamilyPlus (breakpoint analysis), fire discovery dates for wilderness and other fires that did not experience large growth days on the discovery day were changed to dates that the fires first experienced large fire growth to better analyze when fires experienced large growth. Additional fire occurrence information for each FDRA is in Appendix D.







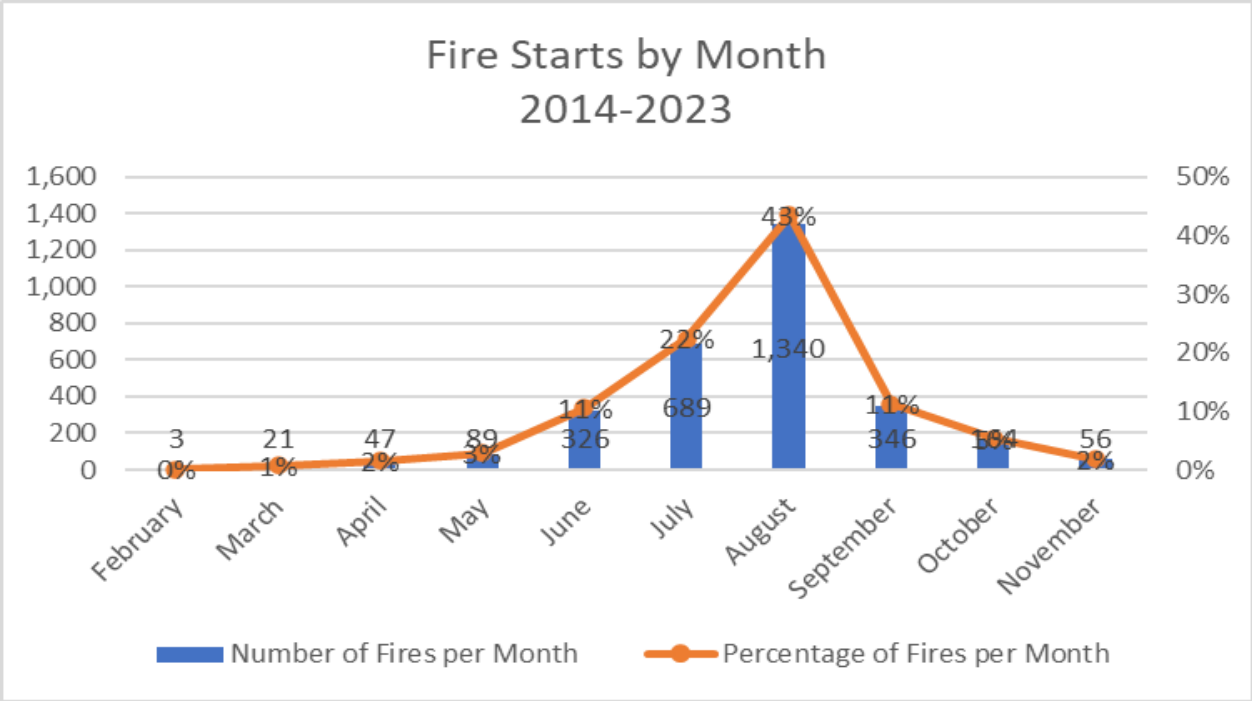
Top 5 Statistical Fire Causes:

Consist of 98.9% of all fires

1- Lightning (71.1%)
2- Miscellaneous (9.5%)
(data was not recorded or unknown)
3- Recreation (8.6%)
4- Debris Burning (5.0%)
5- Equipment Use (4.7%)

Within Fire Season
75% lightning cause
24% other causes/unknown

Outside Fire Season
17% lightning cause
84% other causes/unknown



Fire Season: June - October
Contains 93% of yearly fires on average from 2014.
Contains 99.91% of total acres burned from 2014-2023.

2014-2023		
Month	Total Fire Acres	% of Acres
February	15.35	0.00%
March	109.38	0.01%
April	185.27	0.02%
May	68.10	0.01%
June	14,302.56	1.82%
July	167,693.93	21.33%
August	575,093.93	73.16%
September	26,276.72	3.34%
October	2,050.16	0.26%
November	305.13	0.04%
TOTALS	786,101	100%

3.2 *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:

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).

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.

3.3 *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 illustrates the differences between target groups (Agency, Industry, and Public) and the associated fire cause.

The following table also 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.

TARGET GROUP		IGNITION CAUSE		RELATIVE DEGREE OF CONTROL	COMMUNICATION METHODS	PROBLEM DEFINITION
GENERAL	*SPECIFIC*	*GENERAL*	*SPECIFIC*			
Agency	**Fire Management Staff, Initial Attack Resources, Agency Administrators.**	1 - Lightning	**Lightning**	High	**Dispatch Centers – Communicate Weather Forecast(s) and fire danger indices; units monitor SL and PL.**	**Fire spread exceeds capacity of local unit staffing due to ignition location and/or fuel conditions, and/or weather conditions which contribute to problem/extreme fire behavior.**
Agency	**Fire Management Staff, Initial Attack Resources, Agency Administrators.**	1 - Lightning	**Abundant Lightning**	High	**Dispatch Centers – Communicate Weather Forecast(s) and fire danger indices; units monitor SL and PL.**	**Unstaffed fires due to the number of fires on the landscape; fires burn free for an extended period of time without resources.**
Industry	**Woods workers, industrial operations.**	2 - Equipment	**Unplanned ignition from industrial operations including,**	Moderate	**Dispatch Centers and Units communicate Precaution Levels on Websites and telecommunication**	**Unplanned ignition which becomes large fires resulting from equipment and/or smoking.**

TARGET GROUP		IGNITION CAUSE		RELATIVE DEGREE OF CONTROL	COMMUNICATION METHODS	PROBLEM DEFINITION
GENERAL	*SPECIFIC*	*GENERAL*	*SPECIFIC*			
			chainsaw, yarding, masticating, other equipment use.		**systems. Agency Personnel contacts with industrial operators.**	
Public	**Non-Commercial Woodcutting**	**2 - Equipment**	**Unplanned ignition from chainsaw, vehicle off-road or smoking.**	**Low**	**Dispatch and local units post fire danger adjective and woodcutting restrictions on websites and telephone recordings.**	**General Forest User at an unknown location in the forest igniting a fire.**
Public	**Overnight Camping or Day users in Developed/Dispersed Sites.**	**4 - Campfire**	**Unplanned ignition from abandoned campfires.**	**Low**	**Dispatch and local units post fire danger adjective levels. Units update Adjective signs (Smokey's Arm) at main entrance points to public land. PIOs communicate via Media outlets (broadcast news, newsprint, websites)**	**Campfires start during cold, dry, windy conditions. Occurs throughout the year, with highest occurrence being in the early fall/fall timeframe.**
Public	**Private landowners**	**5 - Debris Burning**	**Unplanned ignition from escaped debris piles**	**Low**	**Dispatch and local units post fire danger adjective levels. Units update Adjective signs (Smokey's Arm) at main entrance points to public land. PIOs communicate via Media outlets (broadcast news, newsprint, websites)**	**Escaped debris burns generally occur on the shoulders of fire season when agency resources are not at full capacity as a result of windy, dry conditions.**

4.0 *Fire Danger Decision Analysis*

Decision points can be based upon either:

- Climatological Breakpoints, or
- Fire Business Thresholds.

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

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.

4.1 *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 (June – October). Each agency will have a specific (and perhaps different) direction for use of climatological percentiles.

4.2 *Fire Business Analysis*

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

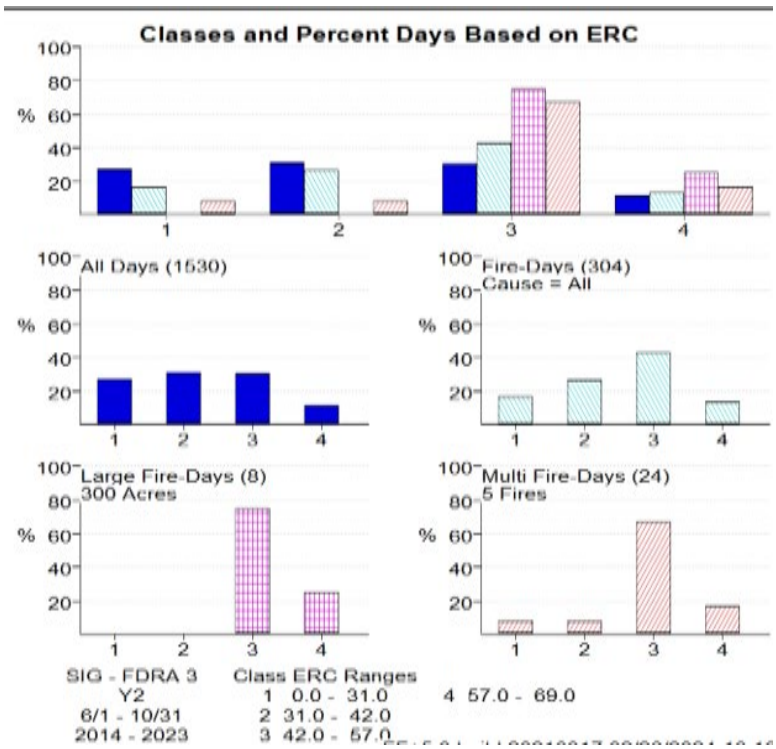
As much as possible the decision thresholds identified in this FDOP avoid climatological breakpoints and are based upon the statistical correlation of historical fire occurrence (initial growth dates) and weather data to determine fire business decisions.

4.3 *Comparison of Climatological Analysis and Fire Business Analysis examples*

The following tables show the difference when comparing ERC Climatological Breakpoints and Fire Business Thresholds for FDRA 3. These breakpoints correlate to the different Fire Adjective classes (Smokey's arm). The first table shows climatological breakpoints associated with 30th/60th/90th percentile weather and the associated ERC levels for each. The second table shows Fire Business Thresholds being utilized and the associated percentiles they correlate with. Increases in preparedness actions taken at each level for the climatological breakpoints have little potential to affect outcomes

since most of the fire problems (i.e. large fire days or multi-fire days) occur at Level 3 and changing between points has minimal change in effect.

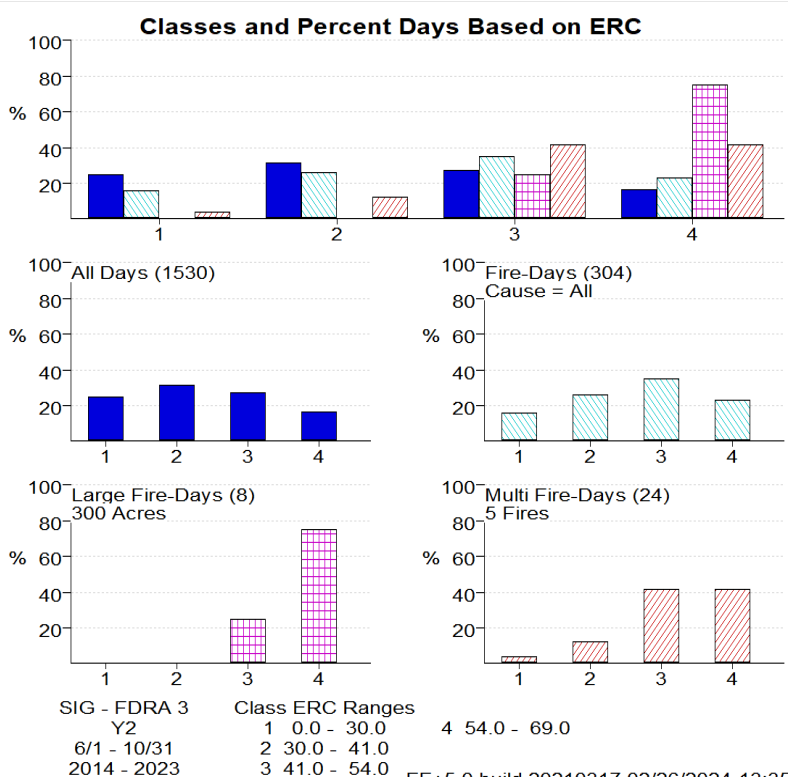
The following tables show the difference when comparing BI Climatological Breakpoints and Fire Business Thresholds for FDRA 3. These breakpoints correlate to the different Dispatch Levels on Block Cards. The first table shows climatological breakpoints associated with 50th/90th percentile weather and the associated BI levels for each. The second table shows Fire Business Thresholds being utilized and the associated percentiles they correlate with.



Climatological Breakpoints FDRA 3

	ERC	Percentile
Level 1:	0-29	
Level 2:	30-41	30 %
Level 3:	42-56	60 %
Level 4:	57+	90 %

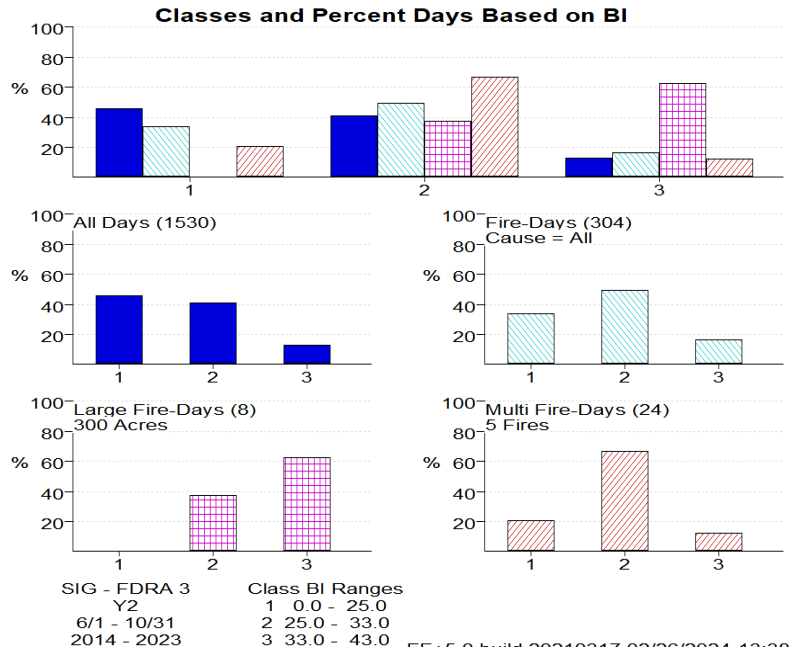
Notes on adjacent chart:
-Majority of Large Fire Days in level 3
-Majority of Multi-fire Days in level 3



Fire Business Thresholds FDRA 3

	ERC	Percentile
Level 1:	0-29	
Level 2:	30-40	32%
Level 3:	41-53	67%
Level 4:	54+	90%

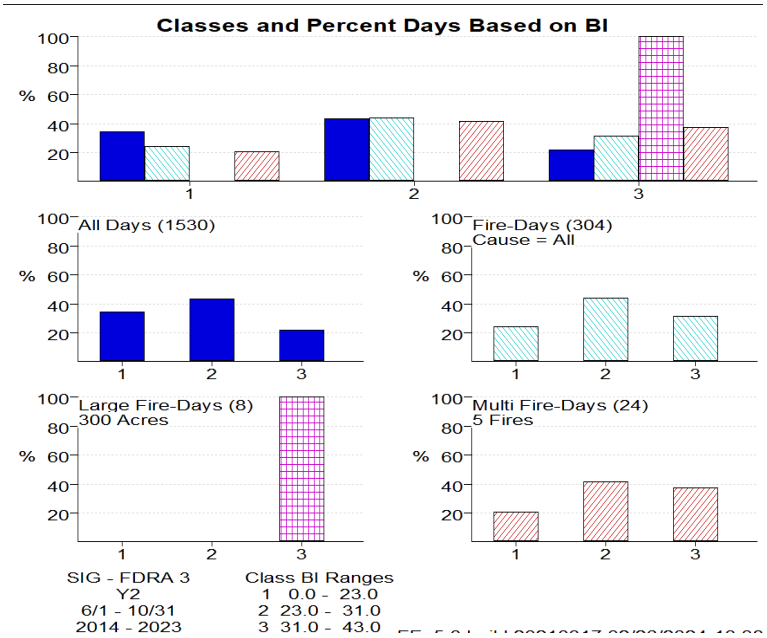
Notes on adjacent Chart:
-Majority of Large fire Days in Level 4
-Majority of Multi-fire Days split between Level 3 and Level 4.



Climatological Breakpoints FDRA 3

	ERC	Percentile
Level 1:	0-24	
Level 2:	24-32	50%
Level 3:	33+	90%

Notes on adjacent Chart:
-Large Fire Days occur in both level 2 and 3
-Majority of multi-fire days occur in level 2



Fire Business Thresholds FDRA 3

	ERC	Percentile
Level 1:	0-22	
Level 2:	23-30	42%
Level 3:	31+	85%

Notes on adjacent chart:
-Large Fire Days are all in Level 3
-Multi-fire days are split between Level 3 and 4

4.4 *Weather Station Analysis*

Remote Automated Weather Stations (RAWS) in different geographical locations with common sensitivity to NFDRS model inputs can be grouped to form a Special Interest Group (SIG). Appendix E and I contain further details on modeling parameters used and weather analysis and data. Weather observation data along with fire danger outputs were graphed for each weather station using excel. The graphical data provided the ability to review similar weather and fire danger variables for each weather station. SIGs were developed for each FDRA. Some weather stations were used in multiple FDRAs as these weather stations fit well in each area and were located near the FDRA Boundary.

Future updates should analyze any other adjacent or nearby RAWS as well as current RAWS for use within the various SIGs. RAWs within the below Table in Bold are utilized within the analysis for the Blue Mountain Fire Danger Operating Plan.

RAWS Catalog Table (Active Stations Only)

STATION NAME	WIMS ID	NESDIS ID	AGENCY | OWNER	ELEVATION	LATITUDE	LONGITUDE
ALDER RIDGE	**453803**	**3245E2F4**	**USFS | UMF**	**4,500**	**46.268333**	**-117.498333**
ANTELOPE	353524	32652604	USFS | MAF	6,460	44.039722	-118.416389
BLACK MTN RIDGE	**351319**	**327F70B4**	**USFS | UMF**	**4,965**	**45.573611**	**-118.238611**
BLUE CANYON	**352416**	**325DA2C6**	**USFS | WWF**	**4,200**	**44.67**	**-117.933611**
BOARD CREEK	**352330**	**325D4134**	**USFS | MAF**	**5,000**	**44.593333**	**-119.277778**
CASE	**352329**	**3245F182**	**USFS | UMF**	**3,800**	**44.971111**	**-118.929722**
CRANE PRAIRIE	**352305**	**32622430**	**USFS | MAF**	**5,500**	**44.157222**	**-118.471389**
EDEN	**351518**	**3246157E**	**USFS | UMF**	**4,200**	**45.876389**	**-117.616389**
ELK CREEK	**352126**	**323EB48C**	**USFS |WWF**	**6,576**	**44.757778**	**-117.971111**
FALL MOUNTAIN	**352327**	**3262F258**	**USFS | MAF**	**5,949**	**44.296944**	**-119.036944**
FLAGSTAFF HILL	**352123**	**3257D504**	**BLM | VALE**	**3,945**	**44.814167**	**-117.728889**
J RIDGE	**351414**	**3262673A**	**USFS | WWF**	**5,180**	**45.113889**	**-118.403889**
KEENEY TWO	**352332**	**326C6352**	**USFS | MAF**	**5,120**	**44.666111**	**-118.921944**
POINT PROM II	351419	326B7210	USFS | WWF	6,607	45.354722	-117.704444
ROBERTS BUTTE	**351520**	**3234D038**	**USFS | WWF**	**4,263**	**45.681667**	**-117.206389**
SLIDE MOUNTAIN	352207	32604422	USFS | OCF	5,682	44.462222	-120.294444
SPARTA BUTTE	**352418**	**3234E5A2**	**USFS | WWF**	**4,278**	**44.885**	**-117.338333**
TUPPER	**351202**	**3245D76E**	**USFS | UMF**	**4,260**	**45.066389**	**-119.491111**
YELLOW PINE	**352124**	**323E9260**	**USFS | WWF**	**4,600**	**44.526389**	**-118.323056**
HARL BUTTE	**351502**	**3262B152**	**USFS | WWF**	**6,071**	**45.319167**	**-116.8675**

4.5 *Parameters Used to Calculate Fire Danger*

The tables below list each FDRA and associated Special Interest Group (SIG) in which parameters for fire danger calculations are used. Each table provides the weather stations for each SIG and associated parameters used for setup in WIMS. A Default value of 100 for KBDI should be used.

FDRA #1 – Juniper Sage

Station Name	WIMS ID	Slope Class	Climate Class	Herb Type	Estimated Green-up	Estimated Freeze Data	SIG Station Weight	Large Fire Day	NFDRS Fuel Model
YELLOW PINE	352124	2	2	P	5/15	12/15	1	300	Y
BLUE CANYON	352416								
SPARTA BUTTE	352418								
FLAGSTAFF	352123								

FDRA # 2 – Canyon Grasslands

Station Name	WIMS ID	Slope Class	Climate Class	Herb Type	Estimated Green-up	Estimated Freeze Data	SIG Station Weight	Large Fire Day	NFDRS Fuel Model
EDEN	351518	2	2	P	5/15	12/15	1	300	Y
ROBERTS BUTTE	351520								
ALDER	453803								

FDRA # 3 – Western Forested

Station Name	WIMS ID	Slope Class	Climate Class	Herb Type	Estimated Green-up	Estimated Freeze Data	SIG Station Weight	Large Fire Day	NFDRS Fuel Model
TUPPER	351202	2	2	P	5/15	12/15	1	300	Y
J RIDGE	351414								
CASE	352329								

FDRA #4 – John Day Valley

Station Name	WIMS ID	Slope Class	Climate Class	Herb Type	Estimated Green-up	Estimated Freeze Data	SIG Station Weight	Large Fire Day	NFDRS Fuel Model
KEENEY TWO	352332	2	2	P	5/15	12/15	1	300	Y
BOARD CREEK	352330								
FALL MOUNTAIN	352327								

FDRA #5 – Central Blues

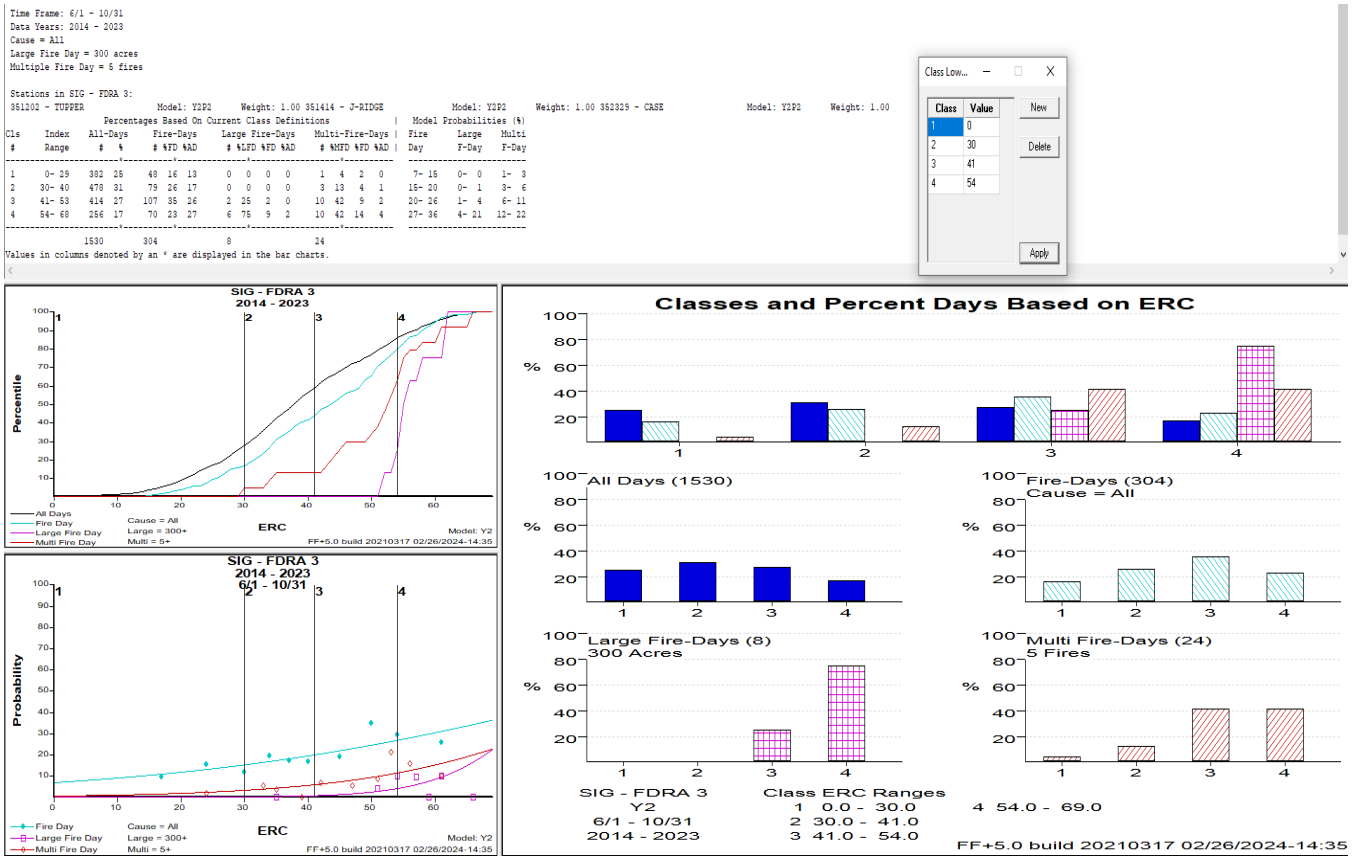
Station Name	WIMS ID	Slope Class	Climate Class	Herb Type	Estimated Green-up	Estimated Freeze Data	SIG Station Weight	Large Fire Day	NFDRS Fuel Model
J RIDGE	351414	2	2	P	5/15	12/15	1	300	Y
YELLOW PINE	352124								
FALL MOUNTAIN	352327								
BLUE CANYON	352416								

FDRA #6 – Northern Blues

Station Name	WIMS ID	Slope Class	Climate Class	Herb Type	Estimated Green-up	Estimated Freeze Data	SIG Station Weight	Large Fire Day	NFDRS Fuel Model
BLACK MTN RIDGE	351319	2	2	P	5/15	12/15	1	300	Y
HARL BUTTE	351502								
ALDER	453803								

4.6 ***Decision Points***

Using Fire Family Plus Software, NFDRS decision points have been identified where changes in fire business should occur. In the example provided below, ERC is used to establish thresholds for fire business decisions using historical fires to associate with weather and fire danger outputs. Fire Danger Threshold charts for all FDRAs are included in Appendix F. Dispatch Response Level Threshold charts for all FDRAs are included in Appendix G. These thresholds are utilized to support fire business in Section 5.0 below.



4.7 *Decision Summary Table*

Target Group	Decision Points	Index	NFDRS Fuel Model	Plan Intended to Modify Target Group Behavior
Agency	TBD by Units	Energy Release Component	Y	Staffing/Drawdown Plan
Agency	3	Burning Index	Y	Dispatch Response Plan
Agency	TBD by Units	Energy Release Component	Y	Preparedness Plan
Public	4	Energy Release Component	Y	Fire Danger Adjective Rating
Public	TBD by Units	Energy Release Component	Y	Public Use Restrictions
Industry	TBD by Units	IFPL	Y	Industrial Operations Public Lands

5.0 *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 the 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.

1. **Response (Dispatch) Level** – Decision Tool agreed upon by all agencies to assign initial attack resources to a fire reported in a specific dispatch zone. Burning Index Indices are utilized to determine the thresholds for breakpoints (decision points) of increasing fire danger. Fire Managers for each agency within the dispatch zone will meet, at a minimum, annually to identify the kinds and number of resources to send at each threshold. It is important to note that Fire Managers may request a short-term variation from the Response level due to a number of factors such as a possible multi-fire event (i.e. abundant lightning).

2. **Staffing (Drawdown) Level** – Each administrative unit (Forest, Unit, Region) will coordinate their respective staffing plans within their Fire Management Reference System (Fire management Plan). Fire business decision points for ERC can be used to support staffing level plans.

3. **Preparedness Level** - Each administrative unit (Forest, Unit, Region) will coordinate their respective preparedness plans within their fire management reference system. Fire business decision points for ERC can be used to support an individual unit's decision matrix for determining Preparedness Levels.

4. **Adjective Rating** – Agencies agree to communicate fire danger to the public; each FDRA has associated ERC breakpoints for changes in Fire Danger Adjective Levels. Fire Managers from within each FDRA should communicate and decide when Fire Danger Levels need to change utilizing ERC breakpoints as a starting point for discussions.

5. **Public Use Restrictions** – will be used to minimize the threat of unintended human ignitions. Agencies and units are encouraged to coordinate activities to reduce public confusion where feasible.

6. **Industrial Fire Precaution Level** – Will be used to reduce ignition potential from industrial activities. Each agency/unit is responsible for their respective jurisdiction to implement Industrial Restrictions.

5.1 *Response (or Dispatch) 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.

FDRA	1		2		3		4		5		6	
FDRA Name	Juniper Sagebrush		Canyon Grasslands		Western Forested		John Day Valley		Central Blues		Northern Blues	
Station/SIG	Yellow Pine	Blue Canyon	Eden	Alder	Case	Tupper	Keeney Two	Board Creek	J-Ride	Yellow Pine	Harl Butte	Alder
	Sparta	Flagstaff	Roberts Butte		J- Ridge		Fall Mountain		Fall Mountain	Blue Canyon	Black Mountain Ridge	
Index	BI	% days	BI	% days	BI	% days	BI	% days	BI	% days	BI	% days
Low	0	28	0	26	0	35	0	30	0	23	0	42
Moderate	25	49	22	39	23	43	24	36	21	41	26	37
High	35	23	30	35	31	22	31	35	29	36	34	21

5.2 *Staffing (Drawdown) Level*

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. 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 is based on statistical correlation of weather AND fire occurrence. Staffing Level is determined by each agency and/or unit based on each Fire Management Plan and agency requirements.

5.3 *Preparedness Level*

The Preparedness Level is a five-tier (1-5) fire danger rating decision tool that is based on NFDRS output(s) and other indicators of fire business (such as projected levels of resource commitment). Preparedness Levels will assist fire managers with more long-term (seasonal) decisions with respect to fire danger. Preparedness Levels are determined by each agency and/or unit based on each agency's Fire Management Plan and agency requirements.

5.4 *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. Agencies within the Blue Mountain Fire Danger Operating Plan footprint have elected to utilize four levels instead of five.

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. 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, not climatological percentiles.

A coordinated adjective level based on fire danger will be utilized by all agencies within the Blue Mountain FDOP

FDRA	1		2		3		4		5		6	
FDRA Name	Juniper Sagebrush		Canyon Grasslands		Western Forested		John Day Valley		Central Blues		Northern Blues	
Station/SIG	Yellow Pine	Blue Canyon	Eden	Alder	Case	Tupper	Keeney Two	Board Creek	J-Ride	Yellow Pine	Harl Butte	Alder
	Sparta	Flagstaff	Roberts Butte		J- Ridge		Fall Mountain		Fall Mountain	Blue Canyon	Black Mountain Ridge	
Index	ERC	% days	ERC	% days	ERC	% days	ERC	% days	ERC	% days	ERC	% days
Low	0	29	0	27	0	25	0	25	0	24	0	43
Moderate	35	28	33	33	30	31	33	28	31	36	37	25
High	45	20	48	23	41	27	45	26	44	27	48	14
Extreme	53	23	61	18	54	17	55	21	55	14	56	18

6.0 *Fire Danger Operating Procedures*

6.1 ***Roles and Responsibilities***

6.1.1 Agency Administrators

Agency Administrators will use this plan to coordinate with fire management officers on fire business related decisions.

6.1.2 Fire Program Managers

Fire program managers will use these FDOP and NFDRS outputs as a tool to coordinate and to make informed fire business decisions. The fire program manager is ultimately responsible for ensuring this plan is maintained, utilized, and communicated.

Fire program managers will ensure that their stations are maintained to NFDRS standards.

6.1.3 Fire Danger Technical Group

Each participating agency will be responsible for providing an NFDRS technical specialist to participate in the maintenance, review, and update of this plan. The following are specific individuals by agency or dispatch center:

- USFS
    - Umatilla – Fire Planner or FMO appointed designee.
    - Wallowa Whitman – Fire Planner or FMO appointed designee.
    - Malheur – Fire Planner or FMO appointed designee.
- ODF
    - Northeast Oregon – Unit Forester appointed by District Forester
    - John Day Unit – Unit Forester
- WA DNR
    - Southeast Region, Snake River Unit – Unit Manager
- Dispatch Centers
    - BMIDC – Center Manager or designee
    - JDIDC – Center Manager or designee

Members of the Fire Danger Technical Group will coordinate with their local unit Fire Management Group to identify any needs and/or updates and communicate them to the Fire Danger Technical Group. The group will meet at minimum yearly to discuss the Fire Danger Operating Plan and its elements for any needed updates, monitor the thresholds to ensure accuracy/validity, coordinate/communicate with the group members any problems identified, review plan implementation, coordinate plan revisions as needed, and be available for NFDRS technical consultation. Updates to the Fire Danger Operating Plan should be scheduled no longer than 3 years between updates to ensure current weather and fire history are being utilized. Specific elements to monitor and coordinate are ensuring weather observations are monitored appropriately for errors (Observations, Solar Radiation, Wet Flag, Snow Flag), station management in WIMS (herb stat, catalog) has occurred, station maintenance (instrument errors, TX time) is occurring, and review RAWS stations for appropriateness and as needed propose new sites for analysis.

6.1.4 Fire Weather Station Owners/Managers

The station owners will coordinate maintenance and management of the RAWS with the contracted RAWS Depot. Personnel will watch for anomalies in data during routine data pulls in WIMS and notify the RAWS Depot of needed maintenance when they are discovered. RAWS station maintenance and updates are now contracted through the RAWS Depot. Each unit with responsibility for a RAWS station within the FDOP boundary will ensure that someone is available to assist with unplanned maintenance needs when they arise.

6.1.5 Dispatch/Communication Center

The Dispatch Centers will do daily NFDRS indices retrieval within the fire season. These indices will be communicated with each unit/agency within the Dispatch Centers footprint during fire season, June 1st through October or at an agreed upon season start/end. These indices will be used to determine daily dispatch levels, as well as communicated to units/agencies for assistance in determining staffing and preparedness levels, Fire Danger Rating Levels, and Industrial Fire Precaution levels.

The Dispatch Centers will monitor indices for unusual readings that may suggest an issue which would need attention and initiate contacts to arrange resolution and notify agency fire program managers of any errors in indices that are noted.

6.1.6 Duty Officers

USFS District Fire Management Officers (DFMOs)/ODF Unit Foresters and Wildland Fire Supervisors will assure that their personnel understand NFDRS outputs and how they are to be used. Duty officers are responsible for implementing this plan, and ensuring decisions are made consistent with the intent of the plan.

6.1.7 National Weather Service

Weather forecasts and products for the area are provided by the National Weather Service, Pendleton, and Boise office. The annual Northwest Fire Weather Operating Plan contains contact information and product listing (including NFDRS point, and trend forecast products) and can be found on the Northwest Coordination Center Website.

6.1.8 Geographic Area Predictive Service / Meteorologist

The NWCC conducted a season ending event analysis by predictive services area which can be found on their fire analysis page. Experience has shown locally that season ending analysis conducted in the traditional manner for individual fires or by FDRA come within a week or so either side of the NWCC analysis.

6.1.9 Seasonal Schedule

Each station needs to have seasonal conditions managed within the WIMS model. WIMS has been and is in the process of continually being updated to remove the need for user interface actions daily. Dispatches will review WIMS data periodically to ensure observations are recorded as well as to ensure the associated fire danger calculations are accurate.

6.2 *Daily Schedule*

Personnel at the Blue Mountain Interagency Dispatch Center (BMIDC) and John Day Interagency Dispatch Center (JDIDC) will access WIMS to obtain daily indices for stations in their respective dispatch area during fire season.

- Data – Quality Control
    - Indices will be visually checked for abnormal readings, potentially indicating an instrument error. if something points towards an error in the daily indices, hourly readings may be examined to better determine error source.
    - Minimal interaction within WIMS is required to maintain the RAWS data system as most functions needed have been automated in recent years.
    - Review of data should be accomplished prior to 1500 each day to ensure NWS trend forecasts can be entered allowing for next day forecasted indices to be available.

- Fire Danger Chart
    - DIDX and DOBS will be downloaded from WIMS daily to determine forecasted indices. Dispatches will then utilize these forecasted indices for determination of Dispatch levels and communicate them to the duty officers within the footprint.

7.0 *Weather Station Monitoring and Maintenance*

RAWS Maintenance and Monitoring is all automated and completed by the RAWS Depot through contracts. Dispatch Centers will assist in determining errors in data as previously discussed.

8.0 *Fire Danger Program Needs*

8.1 *Weather Stations*

Weather station siting, maintenance, and data management is to be evaluated at a minimum every three years or when the FDOP is updated to ensure the stations are meeting the intent and needs of the fire danger rating and weather forecasting. At a minimum prior to each fire season, stations should receive one (1) onsite visit to perform annual maintenance which includes, visual inspection of the station, changing appropriate sensors per maintenance schedule, and clearing vegetation from the station to ensure data observation integrity. This is completed by RAWS Depot through contract.

8.2 *Computer / Equipment*

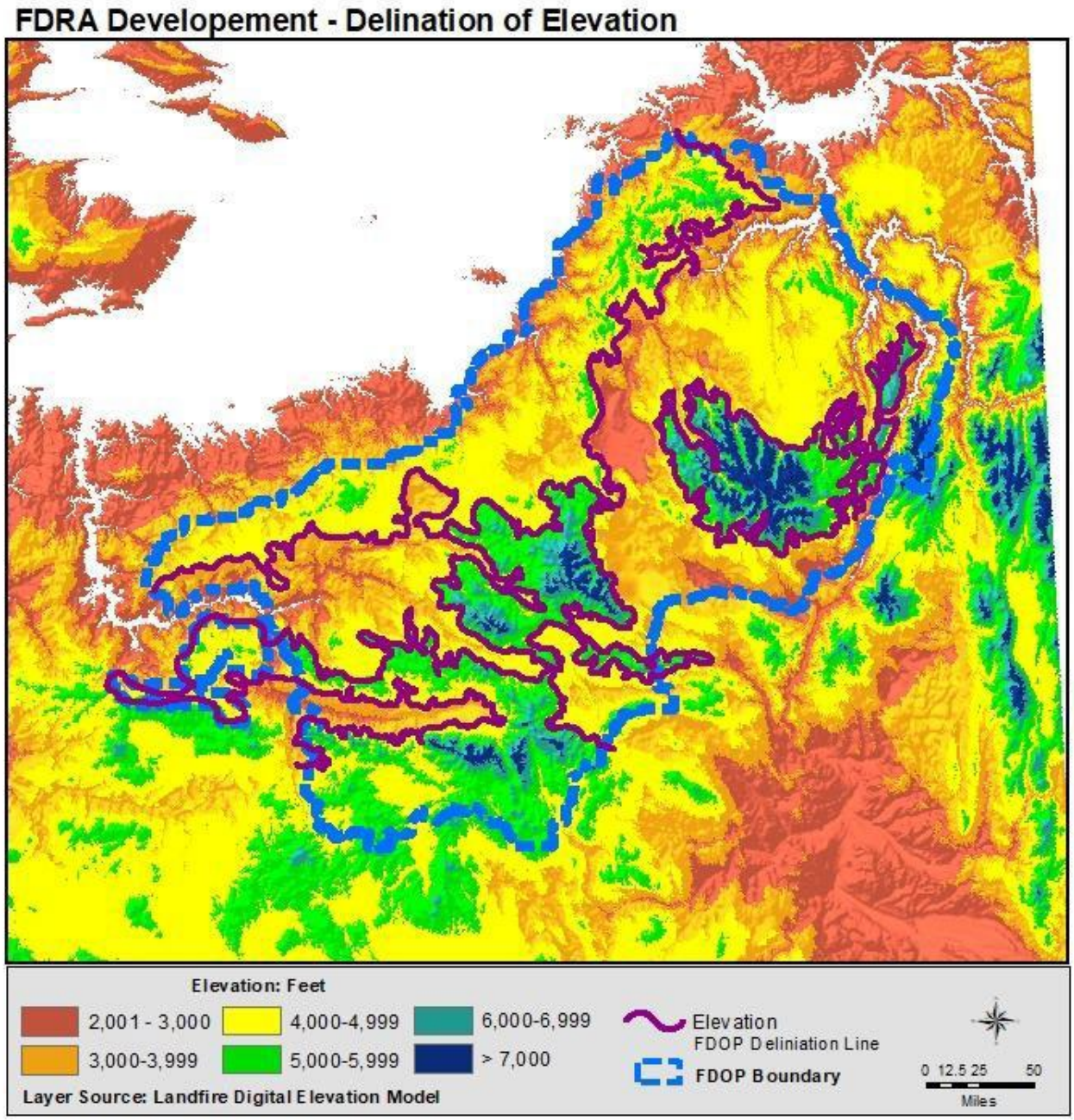
No equipment is required to maintain existing Weather Stations in the network. All RAWS stations in the network have hardware installed with the station to perform maintenance checks.

8.3 *Training*

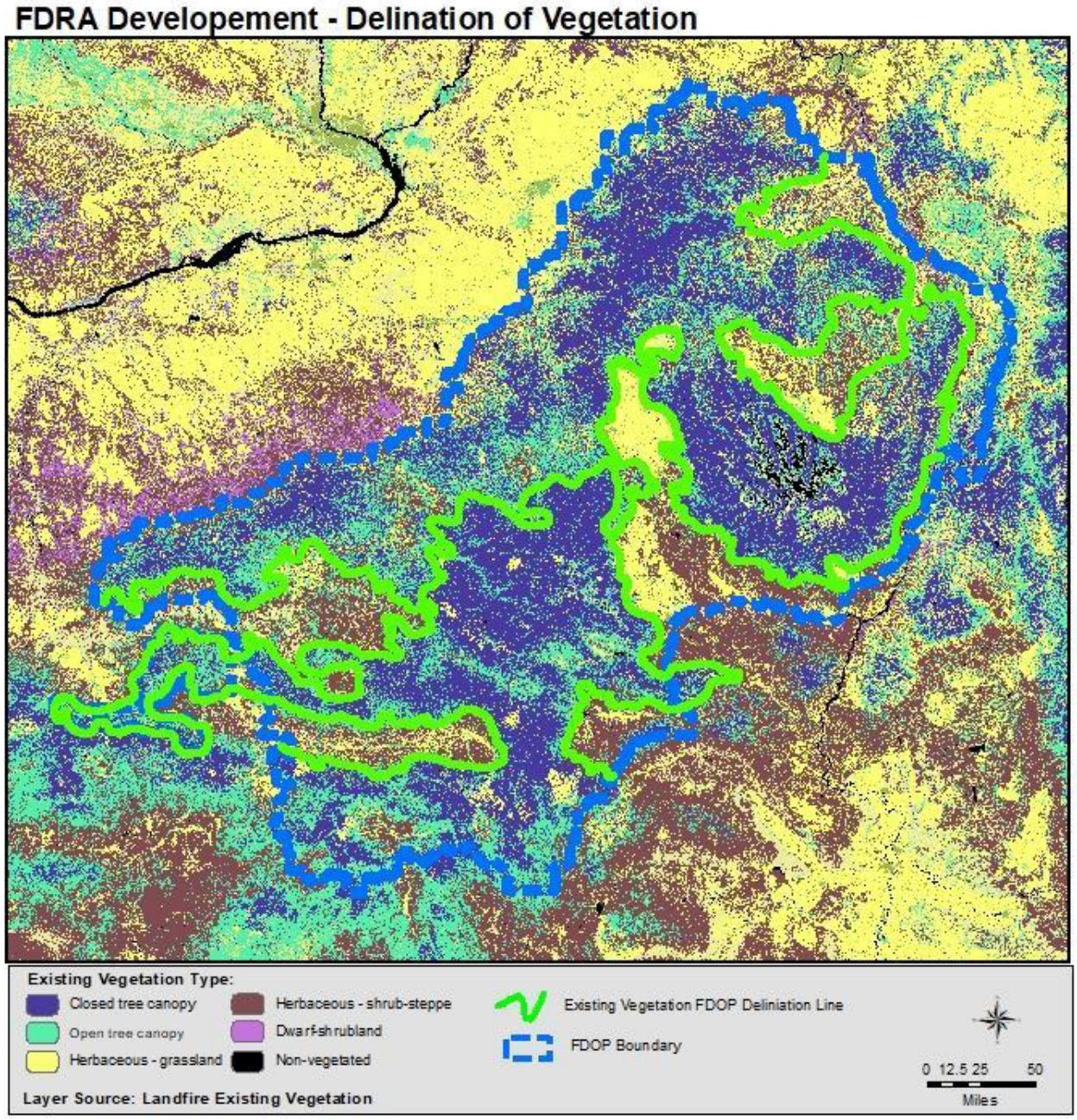
Fire managers – interpreting NFDRS data appropriately and utilizing NFDRS to make decisions within a fire program requires some understanding of NFDRS. S-491 is recommended for all area fire managers.

1. APPENDICES

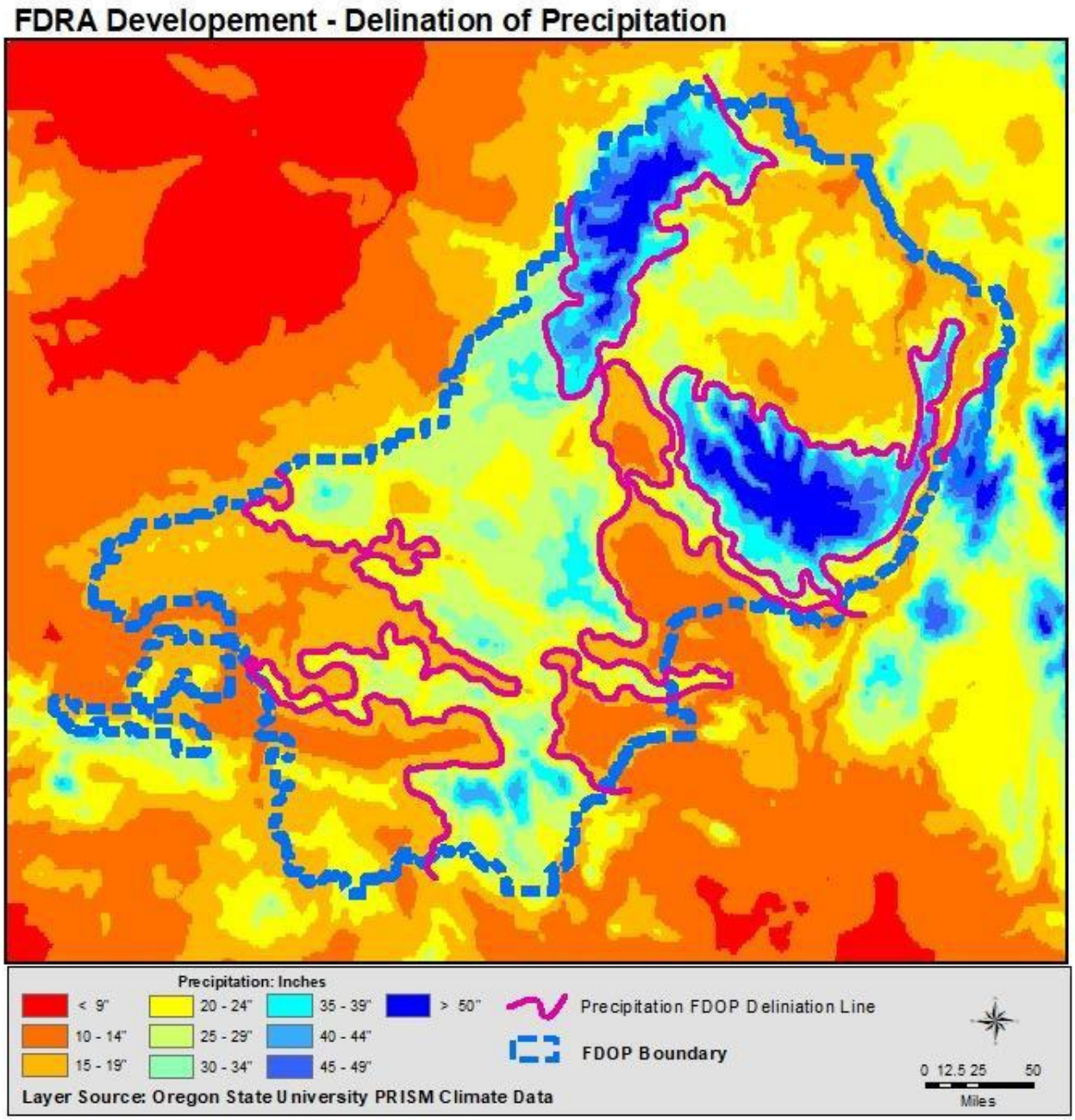
Appendix A: ***Topography***



Appendix B: ***Vegetation***

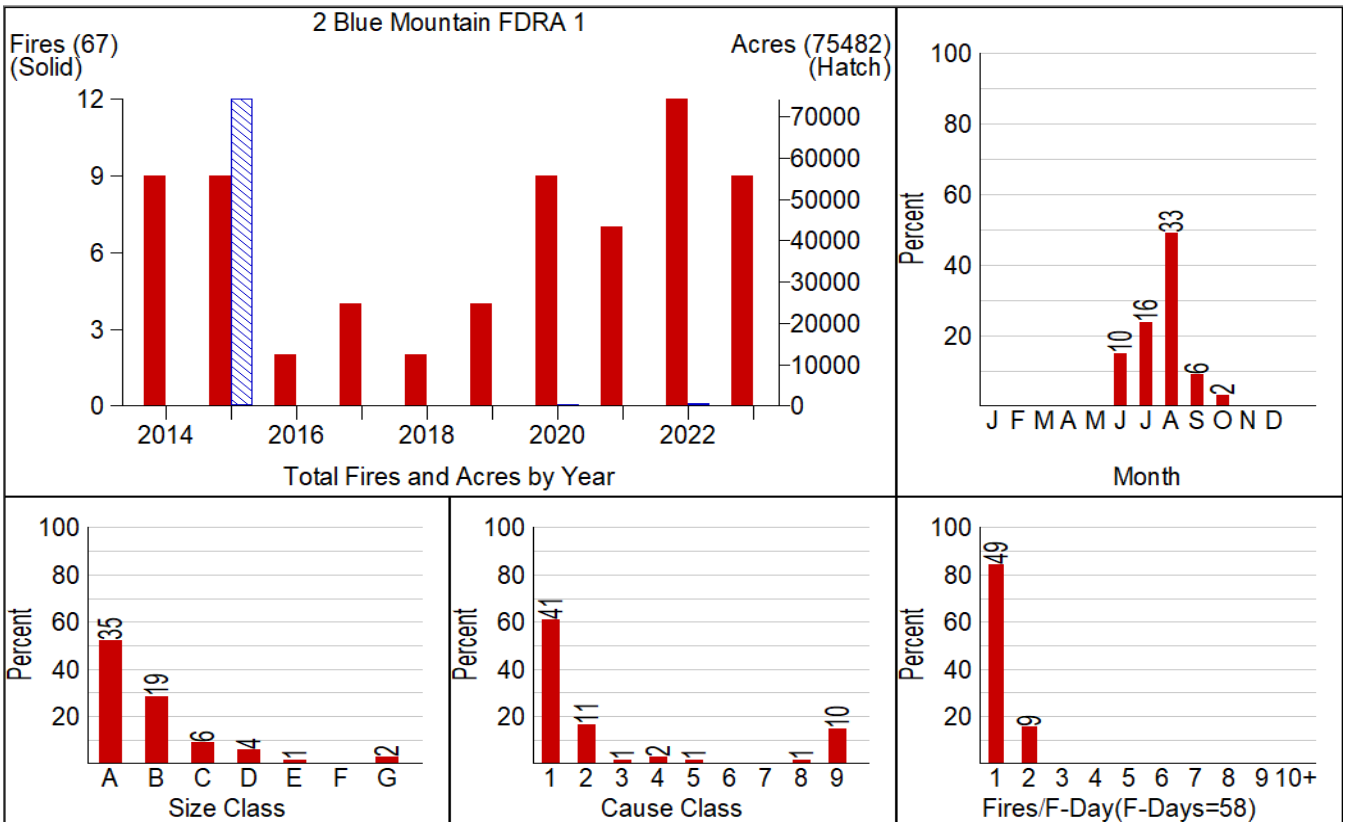


Appendix C: ***Climate***



Appendix D: ***Fire Summary (2014-2023) by FDRA***

FDRA #1 – JUNIPER SAGE – Fire Summary



Fires: 67
Acres: 75482.4
Primary Fire Cause: Lightning (60%)
Secondary Fire Cause: Equipment (18.6) %
Fire Size (acres) by Percentiles
8.9= 80th 83.8=90th 699.5=97th

Large Fire data:
First 100 acres +: MT Harris (165 acres) 10/4/2014
First 300 acres +: CORNET (56,331) 8/10/2015
First 2,000 acres +: CORNET (56,331) 8/10/2015
Largest Fire: CORNET (56,331) 8/10/2015
Fires Larger than 1,000 acres: 2

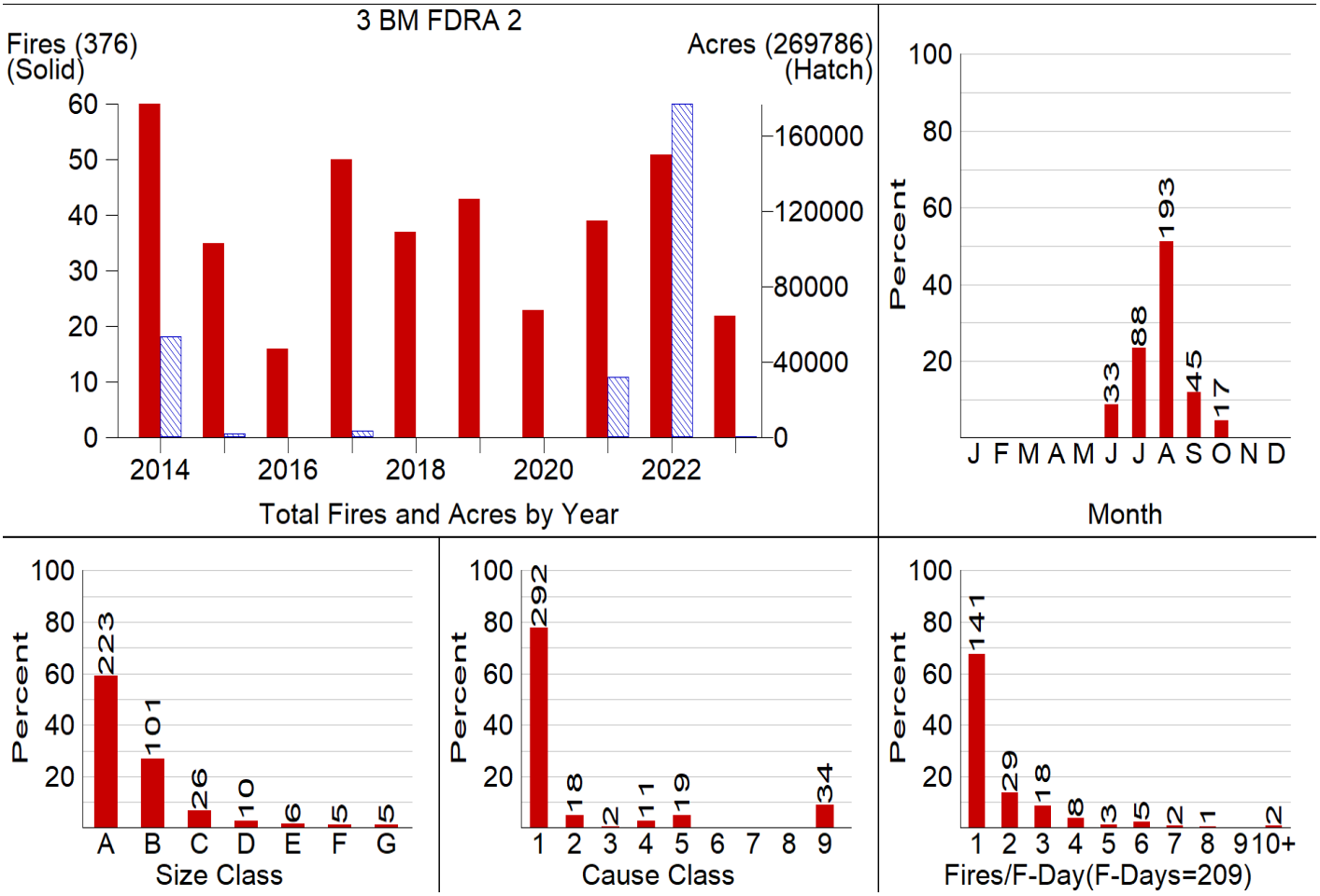
Size Class:

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

FDRA #2 – CANYON GRASSLANDS – Fire Summary



Fires: 376
Acres: 269786
Primary Fire Cause: Lightning (72.3%)
Secondary Fire Cause: Equipment (4.6%
Fire Size (acres) by Percentiles
3.0= 80th 28.8=90th 617.5=97th

Large Fire data:
First 100 acres +: Christmas Creek (157) 6/25/2014
First 300 acres +: Pittsburg (8,287) 7/14/2014
First 2,000 acres +: Pittsburg (8,287) 7/14/2014
Largest Fire: Double Creek (175,937) 8/30/2022
Fires Larger than 1,000 acres: 10

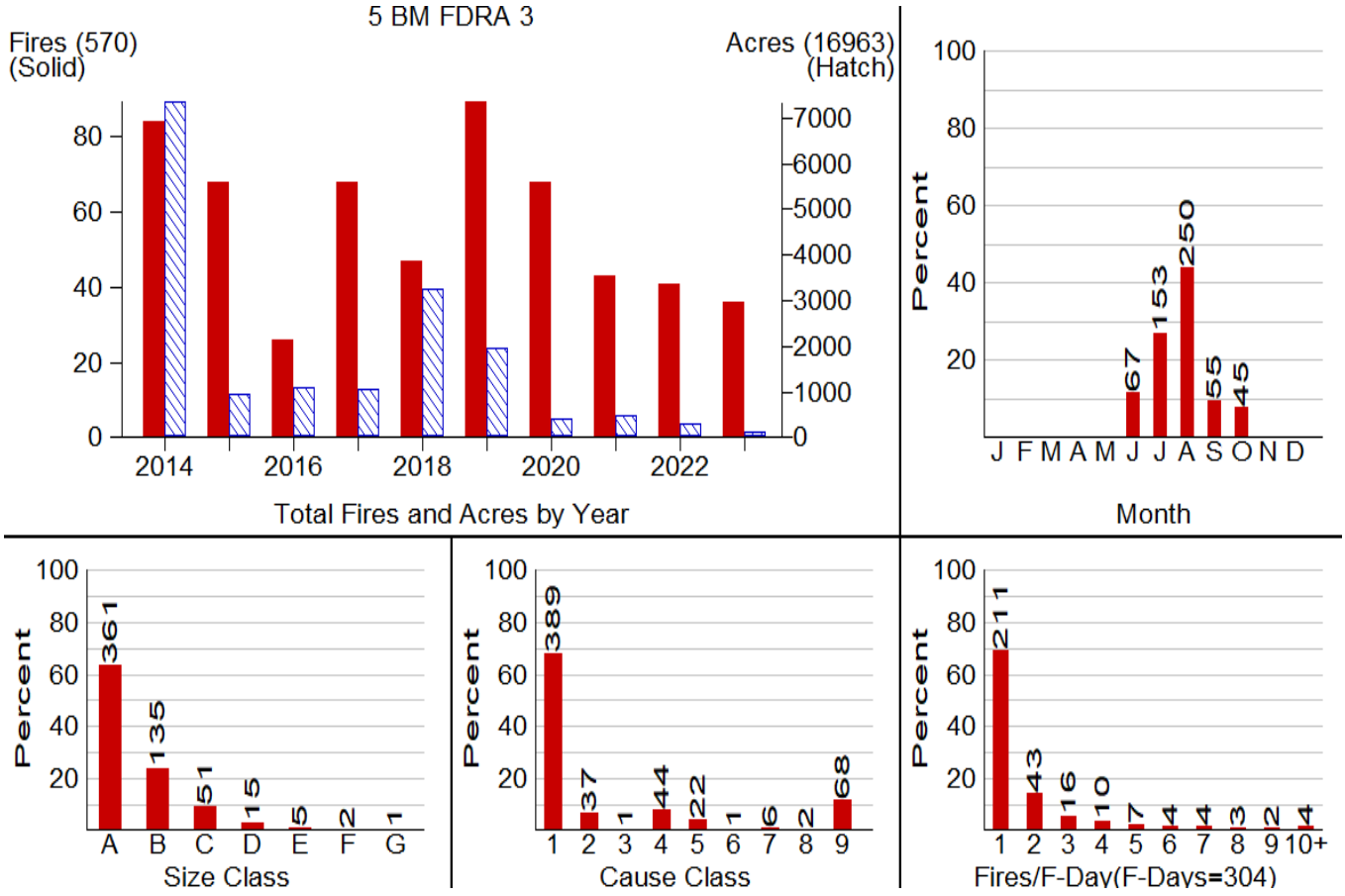
Size Class:

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

FDRA #3 – Western Forested Fire Summary



Fires: 570
Acres: 16,963
Primary Fire Cause: Lightning (64.3%)
Secondary Fire Cause: Recreation (10.6%)
Fire Size (acres) by Percentiles
2.5= 80th 19=90th 130.9=97th

Large Fire data:
First 100 acres +: Sunflower (7,175 acres) 7/14/2014
First 300 acres +: Sunflower (7,175 acres) 7/14/2014
First 2,000 acres +: Sunflower (7,175 acres) 7/14/2014
Largest Fire: Sunflower (7,175 acres) 7/14/2014
Fires larger than 1,000 acres: 3

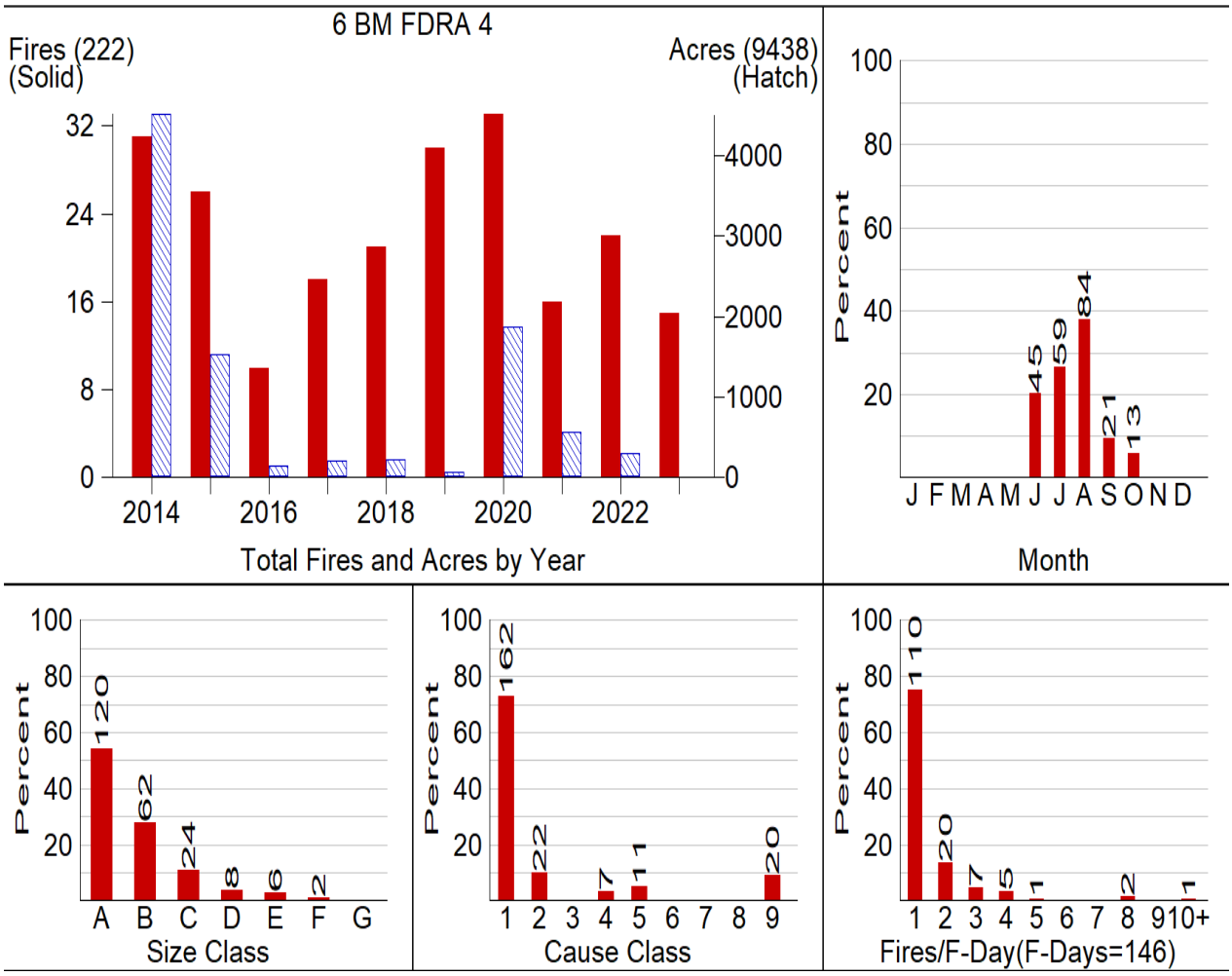
Size Class:

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

FDRA # 4–John Day Valley Fire
Summary



Fires: 222
Acres: 9438
Primary Fire Cause: Lightning (71.3%)
Secondary Cause: Equipment Use (10.1%)
Fire Size (acres) by Percentiles
7.1= 80th 55=90th 338.4=97th:

Large Fire data:
First 100 acres +: Haystack (1,121) 7/29/2014
First 300 acres +: Haystack (1,121) 7/29/2014
First 2,000 acres +: Lost Hubcap (2,712) 8/29/2014
Largest Fire: Lost Hubcap (2,712) 8/29/2014
Fires Larger than 1,000 acres: 2

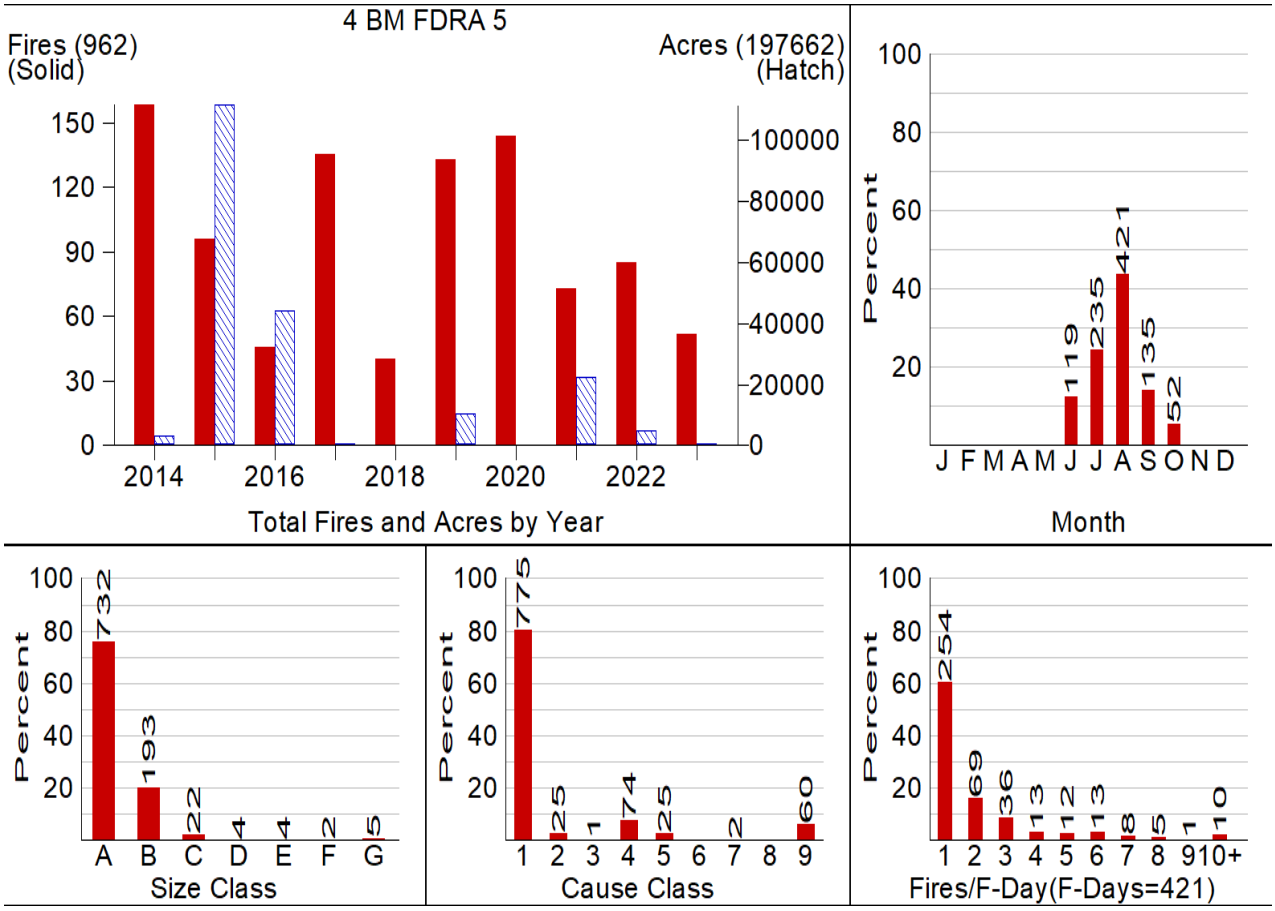
Size Class:

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

FDRA #5 – Central Blues Fire Summary



Fires: 962
Acres: 197,662
Primary Fire Cause: Lightning (75.6%)
Secondary Fire Cause: Recreation (10.2%)
Fire Size (acres) by Percentiles
.5= 80th 1.4=90th 14.95=97th:

Large Fire data:
First 100 acres +: Bald Sisters (2,972) 8/1/2014
First 300 acres +: Bald Sisters (2,972) 8/1/2014
First 2,000 acres +: Bald Sisters (2,972) 8/1/2014
Largest Fire: Canyon Creek (101,028) 8/12/2015
Fires Larger than 1,000 acres: 6

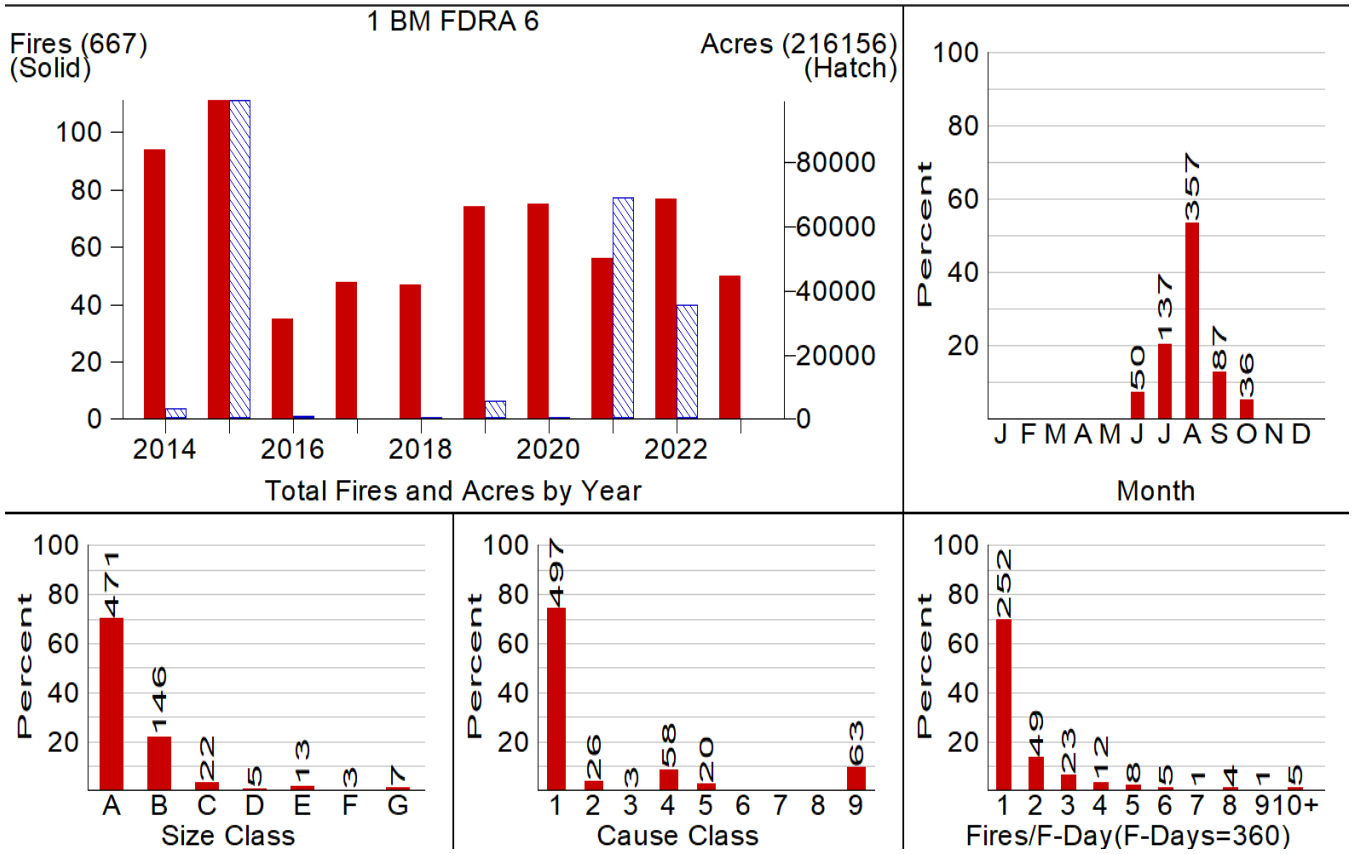
Size Class:

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

FDRA #6 – Northern Blues Fire Summary Graph



Fires: 667
Acres: 216,156
Primary Fire Cause: Lightning (72.0%)
Secondary Fire Cause: Recreation (9.2%)
Fire Size (acres) by Percentiles
0.75= 80th 3.6=90th 300=97th

Large Fire data:
First 100 acres +: Hurricane Creek (1,949) 7/14/2014
First 300 acres +: Hurricane Creek (1,949) 7/14/2014
First 2,000 acres +: Phillips Creek (2,601) 8/1/2015
Largest Fire: Butte Creek (80,212) 8/13/2015.
Fires Larger than 1,000 acres: 9

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

Appendix E: *FireFamilyPlus Analysis*

Fire Family Analysis Settings
The following parameters were used to prepare each of the analysis runs:

RAWS stations utilized in prior Fire Danger Operating Plan were evaluated and existing RAWS used within each SIG were determined to be the best representation for all the FDRAs except for FDRA 1: Juniper Sagebrush, in which the Flagstaff RAWS was added to better represent the FDRA.

- Fire Season: June 1 – October 31.
- Data Years: 10-years was selected for all FDRAs. (1994-2023)
- Analysis Period: 1 Day
- Large Fire Day: 300 acres.
    - During threshold development for each breakpoint, fire business analysis was performed on several acreage levels to determine decision point thresholds for comparison.
- Multiple Fire Day: 5
- Fuel Model: Fuel Model Y used for analysis which generally performed the best in original development of the FDOP.
- Variables: Analyzed ERC and BI as these are the historical values used in previous FDOPs and have worked well to support fire business decisions historically.

Threshold Setting

Using Fire Family Plus, statistical analysis was performed on several weather stations and SIGs for each FDRA. The 2019 SIGs were primarily used, and FDRA 1 incorporated a new station-Flagstaff, into the SIG based on analysis and feedback from unit program managers. Additionally, data was analyzed for determining correlations between ERC and fire history.

Fire Danger Rating Level:

Reviewing thresholds for a variety of size classes resulted in determining that 300 acres generally produced similar results as 2,000 acres during analysis. This size class was chosen to be analyzed for historical purposes and due to being based on previous reviews of local resource availability for staffing of a fire and potential resource commitment of extended incidents. The break points chosen generally align when an increase in probability was observed in the graph for each of the 4 decisions:

Low – Fires that occur have low growth potential and may not present enough behavior to be discovered for a few days. Fire behavior is generally low to minimal, and it may take a few days before fires spread enough to encompass much acreage within their footprint. Fires are generally suppressed at small sizes of less than an acre in size and are usually contained on the day of initial attack with a low number of resources. These fires are usually on the shoulders of fire season or are outside of the designated fire season timeframes.

Moderate- Fires that occur have some potential for growth and are generally discovered quickly after starting. Fire behavior is still generally low, but some short timeframe increases may be present. Fires will add acreage at a consistent rate but don't usually show significant increases in acreage to their footprint during a burn period. Fires are generally suppressed at small sizes of less than 10 acres, with some having the potential to grow larger

if given the right location, fuel loading, and weather conditions. Containment is generally completed within a day of initial attack and may require multiple resources to contain.

High - Fires that occur have potential for growth at moderate to high rates of intensity and spread. Fires are usually discovered quickly upon start. Fire behavior allows for growth at consistently high rates of spread and will increase in acreage rapidly if fuels and weather conditions align. Fire behavior characteristics are usually at moderate to high levels (high flame lengths, high rates of spread, spotting, torching) with extreme fire behavior characteristics (crown fire, long range spotting) occurring under the right conditions. Fires usually have high resistance to control. Acreages can increase in size within short time frames. Suppression of fires that have established themselves generally require multiple resources (both air and ground) and may take several days to accomplish containment. Fires are normally contained at less than 300 acres, but it is not uncommon for fires to have growth beyond this level.

Extreme - Fires that occur have great potential for growth at high to extreme rates of intensity and spread. Fires are discovered quickly upon start as fire behavior allows for growth at high to extreme rates of spread. Acreages usually increase rapidly whenever a fire establishes itself in continuous fuels. Fire behavior will likely show extreme characteristics with high flame lengths, high rates of spread, long range spotting, torching and/or crown fires and have a high degree of resistance to control. Suppression of fires that establish will require multiple resources that generally require ground and air resources. Fire growth will likely add numerous acres in short timeframes. Most large fires start and/or grow with this level.

Dispatch Response Levels:

Reviewing thresholds for a variety of size classes resulted in determining that 300 acres generally produced similar results as other acreages. This size class was chosen to be analyzed for historical purposes and to create consistency within the modeling and analysis for the Fire Danger Operating Areas. During analysis, historical dispatch levels were reviewed as well as resources designated for each of the levels. It was determined when looking at all the FDRAs, their breakpoints and designated resources aligned best with 3 levels rather than with the historical 4 levels. This was based upon local resource availability and potential resource commitments on extended incidents as well as designated resources assigned for each FDRA and response area within existing dispatch blocks. The breakpoints chosen generally align when an increase in probability was observed and align with historical fire growth based on fire threshold/climatological analysis.

Low - Fires that occur have low potential for growth and spread. Fire behavior characteristics are minimal. Fuel conditions generally are on the moister side that do not allow for significant fire behavior. Fires generally have a low resistance to control and have low fire growth potential overall. Generally, low numbers of fire resources are needed for containment, which generally is at small acreage.

Moderate - Fires that occur have moderate to high potential for growth and spread. Fire behavior characteristics are active but not at an extreme level. Fuel conditions can vary from moist to mainly dry. Some high fire behavior characteristics may occur such as spotting, torching, or short rapid rates of spread. Large fire growth may happen, but generally resources have the capacity to contain the fire during initial attack or shortly thereafter. Fires generally have some resistance to control and will likely take more than one resource to contain if it establishes itself.

High - Fires that occur have a high potential for growth and spread. Fire behavior characteristics are high to extreme. Fuel conditions are dry, and fuels are easily combustible. Fire behavior will likely show high flame lengths, high rates of spread, long range spotting, torching and/or crown fires and have a high resistance to control. Large fire growth is likely if resources do not contain fires on initial attack efforts. Multiple resources will likely be needed to contain fires.

Appendix F: Fire Danger Adjective Thresholds

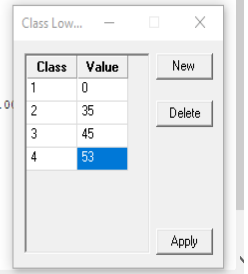
FDRA 1 – Juniper Sagebrush

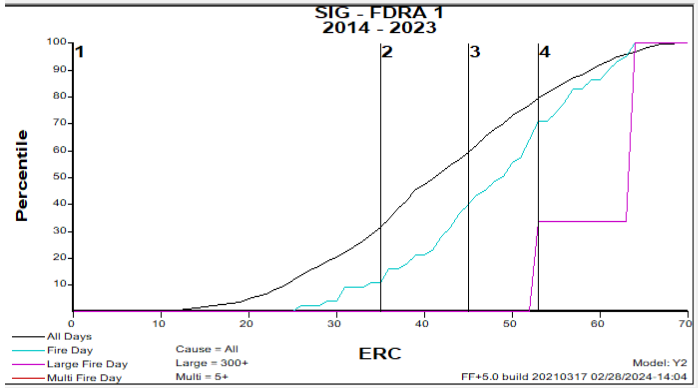
SIG - FDRA 1
Variable: ERC

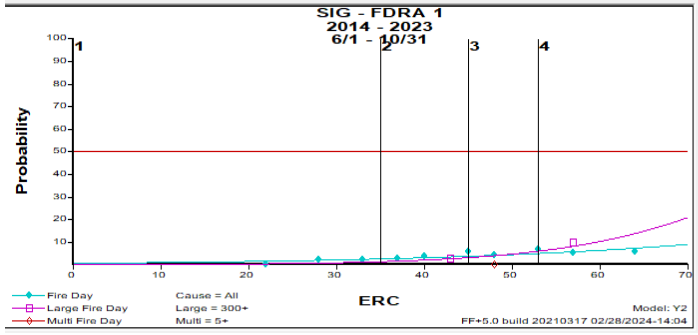
Time Frame: 6/1 - 10/31
Data Years: 2014 - 2023
Cause = All
Large Fire Day = 300 acres
Multiple Fire Day = 5 fires

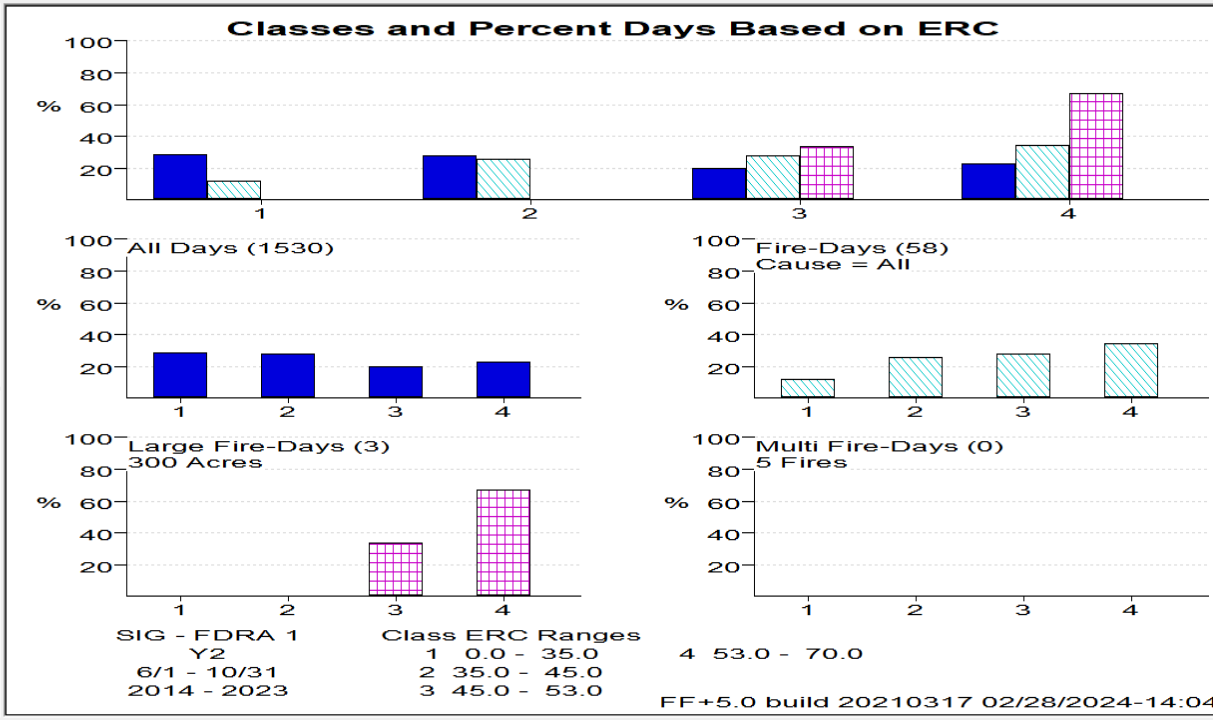
Stations in SIG - FDRA 1:
352123 - FLAGSTAFF HILL Model: Y2P2 Weight: 1.00 352124 - YELLOW PINE Model: Y2P2 Weight: 1.00 352416 - BLUE CYN Model: Y2P2 Weight: 1.00 352418 - SPARTA BUTTE Model: Y2P2 Weight: 1.0

		Percentages Based On Current Class Definitions										Model Probabilities (%)		
Cls #	Index Range	All-Days #	All-Days %	Fire-Days #	Fire-Days %FD	Fire-Days %AD	Large Fire-Days #	Large Fire-Days %LFD	Large Fire-Days %FD	Large Fire-Days %AD	Multi-Fire-Days #	Multi-Fire-Days %MFD	Multi-Fire-Days %FD	Multi-Fire-Days %AD	Fire Day	Large F-Day	Multi F-Day
1	0- 34	437	29	7	12	2	0	0	0	0	0	0	0	0	1- 3	0- 1	50- 50
2	35- 44	430	28	15	26	3	0	0	0	0	0	0	0	0	3- 4	1- 3	50- 50
3	45- 52	309	20	16	28	5	1	33	6	0	0	0	0	0	4- 5	3- 6	50- 50
4	53- 69	354	23	20	34	6	2	67	10	1	0	0	0	0	5- 9	6- 20	50- 50









FDRA 2 – Canyon Grasslands

```
SIG - FDRA 2
Variable: ERC

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 2:
 351518 - EDEN                Model: Y2P2      Weight: 1.00 351520 - ROBERTS BUTTE        Model: Y2P2      Weight: 1.00 45                del: Y2P2      Weight: 1.00
                    Percentages Based On Current Class Definitions                |  Model Probabilities (%)
Cls      Index     All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days |  Fire       Large     Multi
#        Range       #    %      # %FD %AD      # %LFD %FD %AD      # %MFD %FD %AD |  Day        F-Day     F-Day
---------------------*----------*--------------*-------------------*---------------  ----------------------
1        0- 32     451  29      36  17   8      0   0   0   0      0   0   0   0      4- 10     1-  3     1-  4
2       33- 47     530  35      67  32  13      3  21   4   1      3  23   4   1     10- 15     3-  6     4-  6
3       48- 60     367  24      73  35  20      9  64  12   2     10  77  14   3     15- 20     6- 11     6-  9
4       61- 71     182  12      33  16  18      2  14   6   1      0   0   0   0     21- 26    11- 17     9- 12
---------------------*----------*--------------*-------------------*---------------  ----------------------
                  1530         209             14                 13
Values in columns denoted by an * are displayed in the bar charts.
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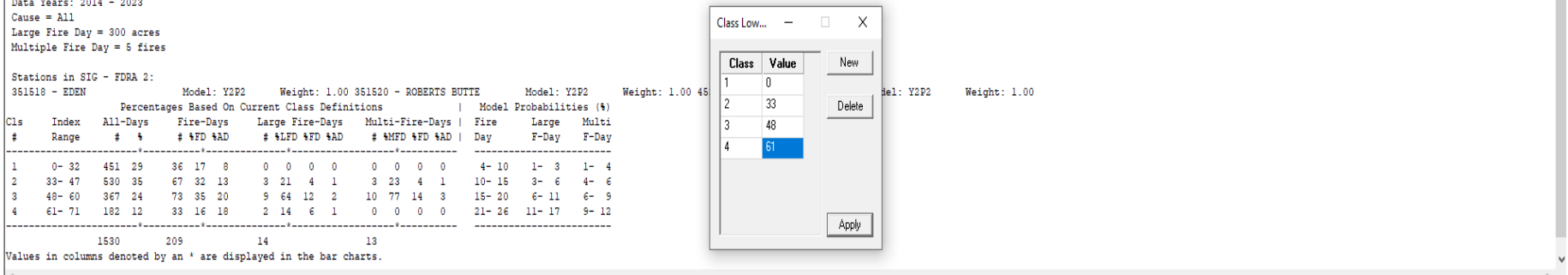

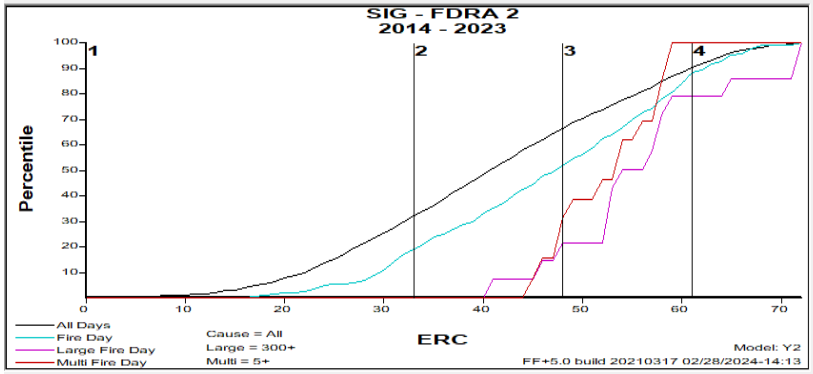

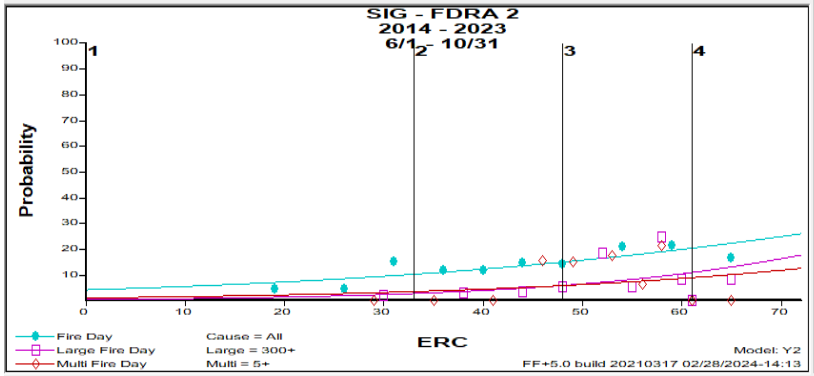

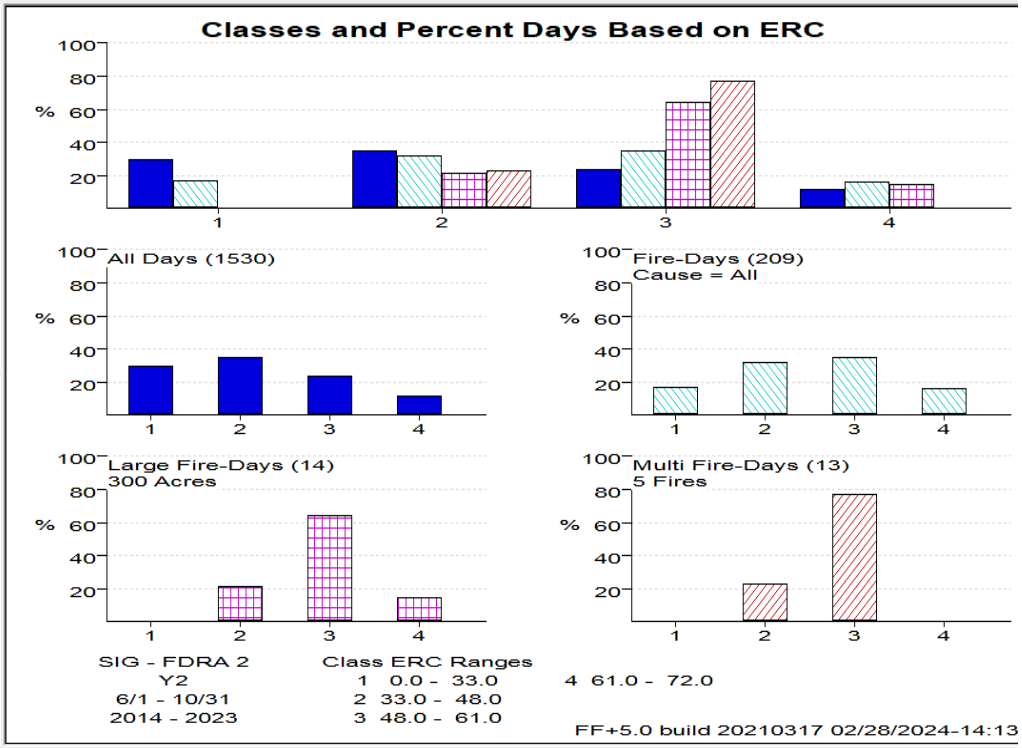

FDRA 3 – Western Forested

```
SIG - FDRA 3
Variable: ERC

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 3:
 351202 - TUPPER              Model: Y2P2      Weight: 1.00 351414 - J-RIDGE            Model: Y2P2      Weight: 1.00 352329 - CASE                 Model: Y2P2      Weight: 1.00
                    Percentages Based On Current Class Definitions               |  Model Probabilities (%)
Cls      Index    All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days |  Fire       Large     Multi
 #       Range      #    %        # %FD %AD       # %LFD %FD %AD      # %MFD %FD %AD |  Day        F-Day     F-Day
----------------------*----------*--------------*-----------------*----------   ------------------------
1       0- 29     382   25      48  16  13      0    0   0   0      1    4   2   0    7- 15     0-  0     1-  3
2      30- 40     478   31      79  26  17      0    0   0   0      3   13   4   1   15- 20     0-  1     3-  6
3      41- 53     414   27     107  35  26      2   25   2   0     10   42   9   2   20- 26     1-  4     6- 11
4      54- 68     256   17      70  23  27      6   75   9   2     10   42  14   4   27- 36     4- 21    12- 22
----------------------*----------*--------------*-----------------*----------   ------------------------
              1530        304               8                  24
Values in columns denoted by an * are displayed in the bar charts.
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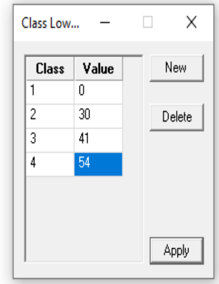
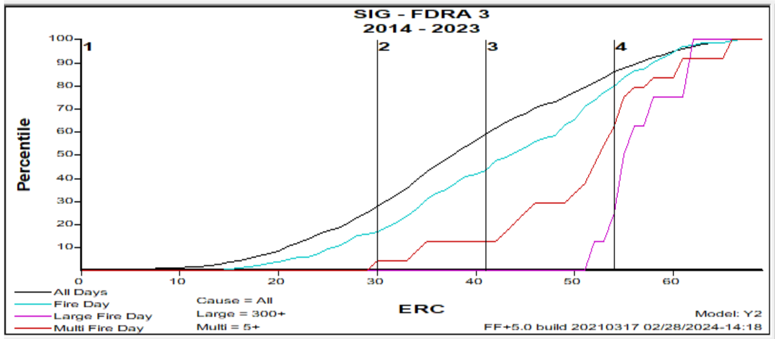
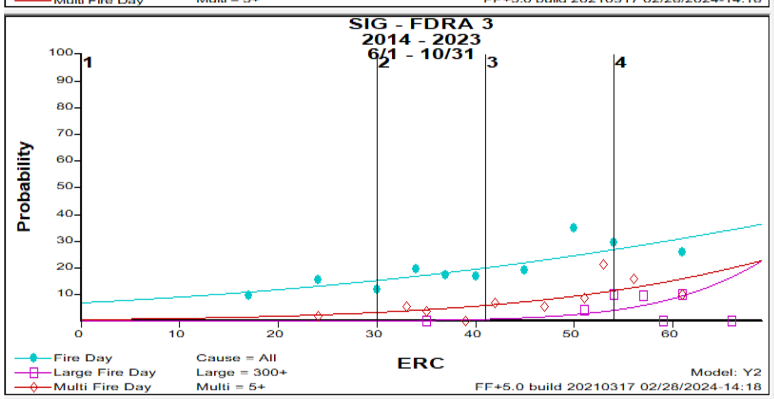
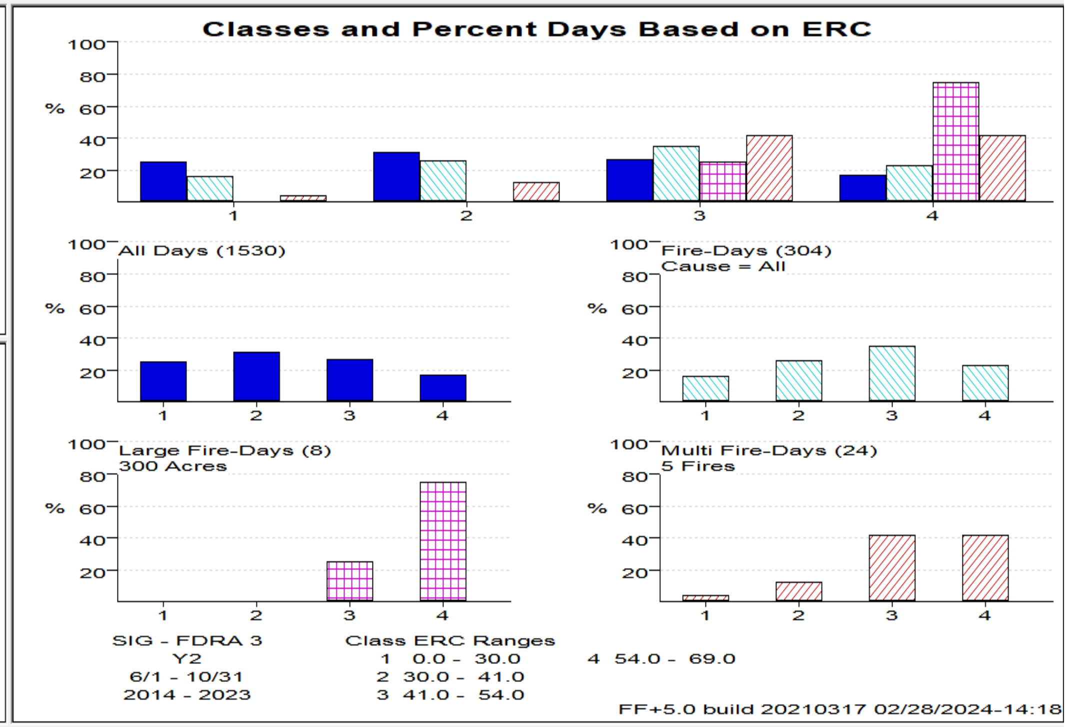








FDRA 4 – John Day Valley

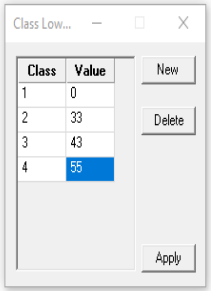
SIG - FDRA 4
Variable: ERC

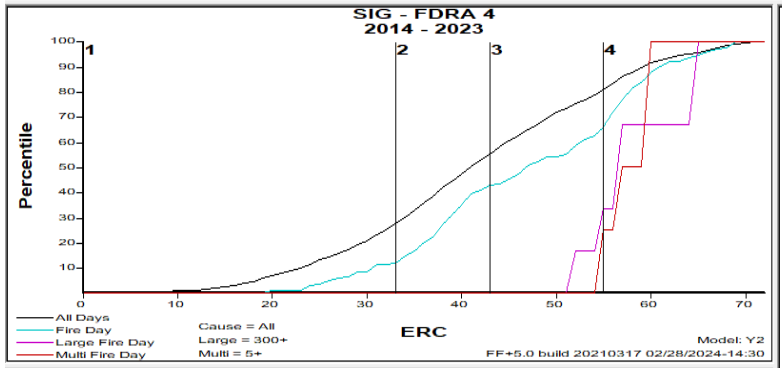
Time Frame: 6/1 - 10/31
Data Years: 2014 - 2023
Cause = All
Large Fire Day = 300 acres
Multiple Fire Day = 5 fires

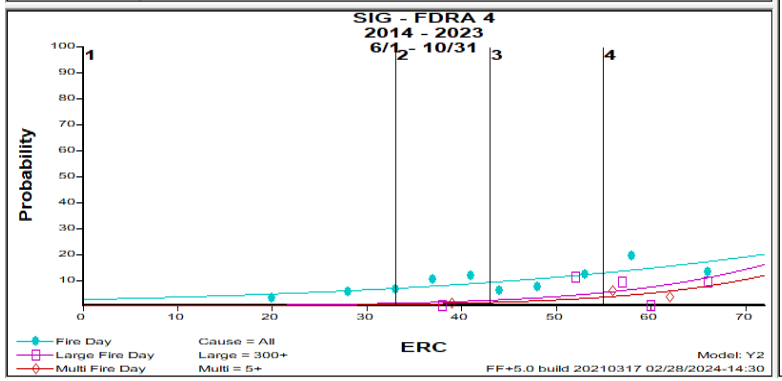
Stations in SIG - FDRA 4:
352327 - FALL MOUNTAIN Model: Y2P2 Weight: 1.00 352330 - BOARD CREEK Model: Y2P2 Weight: 1.00 352332 - KEENEY TWO Model: Y2P2 Weight: 1.00

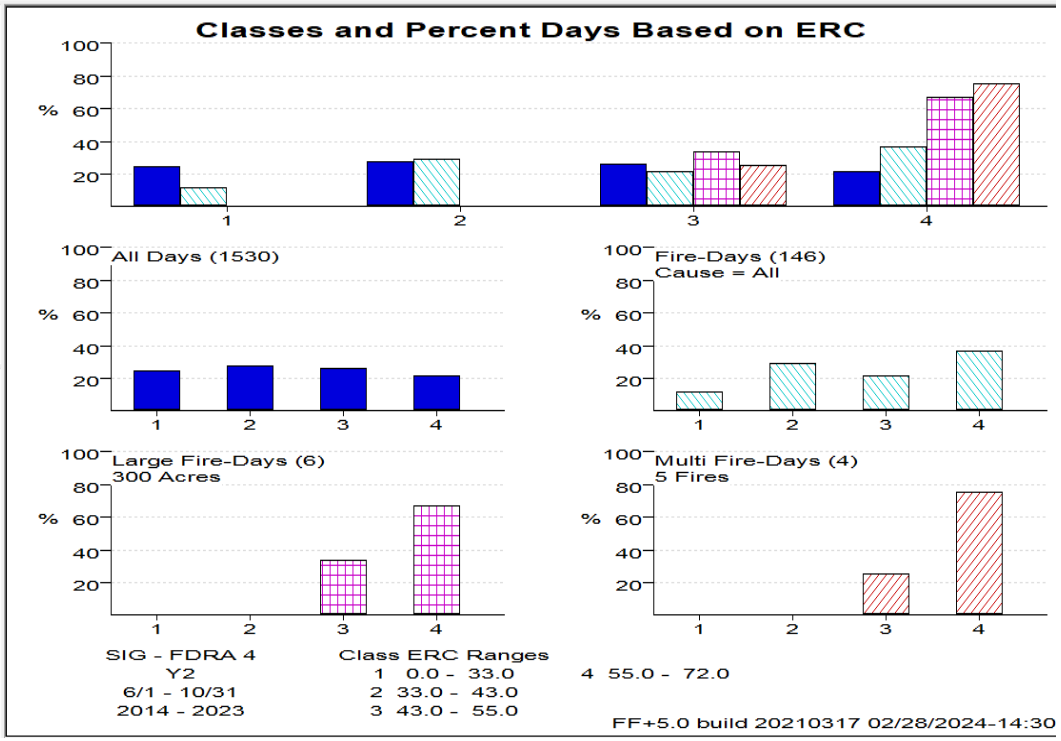
		Percentages Based On Current Class Definitions												Model Probabilities (%)		
Cls	Index	All-Days		Fire-Days			Large Fire-Days				Multi-Fire-Days				Fire	Large	Multi
#	Range	#	%	#	%FD	%AD	#	%LFD	%FD	%AD	#	%MFD	%FD	%AD	Day	F-Day	F-Day
1	0- 32	380	25	17	12	4	0	0	0	0	0	0	0	0	3- 7	0- 1	0- 1
2	33- 42	425	28	43	29	10	0	0	0	0	0	0	0	0	7- 9	1- 2	1- 1
3	43- 54	398	26	32	22	8	2	33	6	1	1	25	3	0	9- 13	2- 5	1- 3
4	55- 71	327	21	54	37	17	4	67	7	1	3	75	6	1	13- 20	5- 15	3- 11
		1530		146			6				4						

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



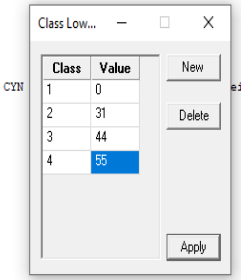


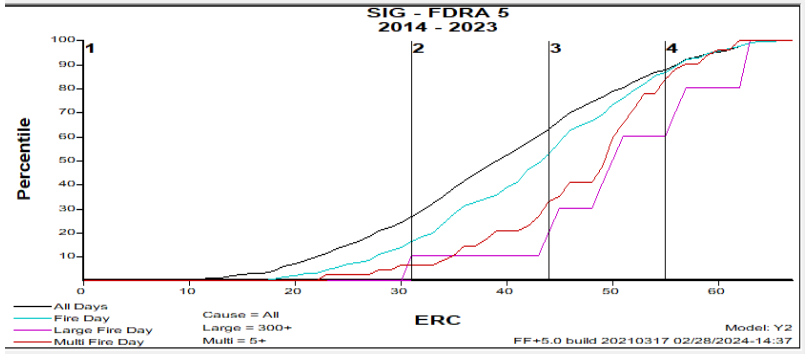


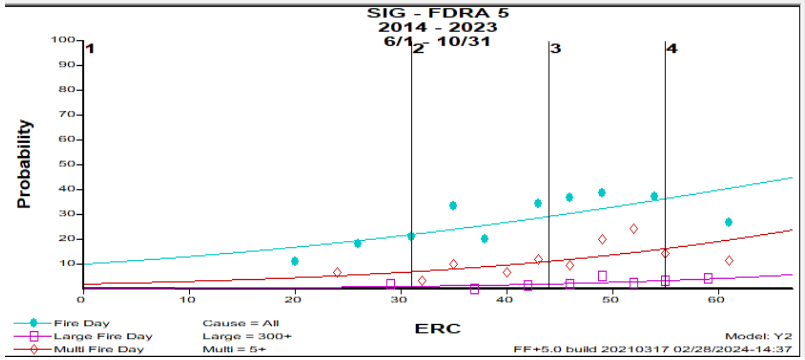


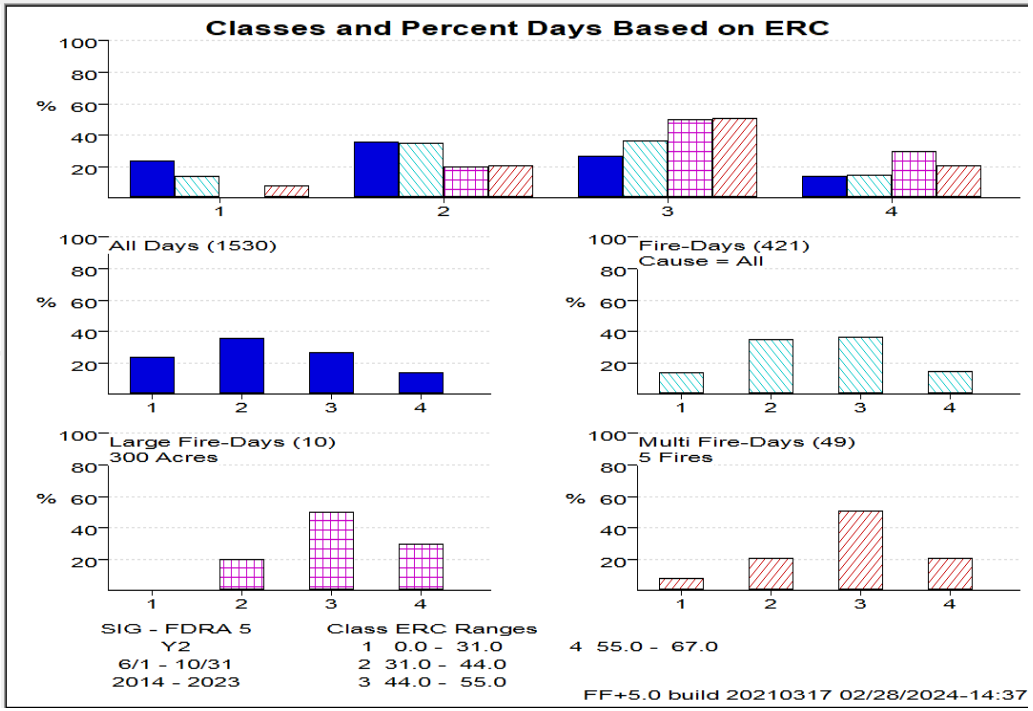
FDRA 5 – Central Blues

```
SIG - FDRA 5
Variable: ERC

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 5:
 351414 - J-RIDGE              Model: Y2P2      Weight: 1.00 352124 - YELLOW PINE          Model: Y2P2      Weight: 1.00 352327 - FALL MOUNTAIN       Model: Y2P2      Weight: 1.00 352416 - BLUE CYN                                eight: 1.00
                        Percentages Based On Current Class Definitions                |  Model Probabilities (%)
Cls      Index     All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days |  Fire       Large     Multi
 #       Range       #   %      # %FD %AD      # %LFD %FD %AD      # %MFD %FD %AD |  Day        F-Day     F-Day
----------------------*----------*--------------*-----------------*---------------  ----------------------
 1       0- 30     368  24      59  14  16      0   0   0   0      4   8   7   1     10- 22    0-  1     2-  7
 2      31- 43     548  36     147  35  27      2  20   1   0     10  20   7   2     22- 29    1-  2     7- 11
 3      44- 54     406  27     153  36  38      5  50   3   1     25  51  16   6     29- 36    2-  3    11- 16
 4      55- 66     208  14      62  15  30      3  30   5   1     10  20  16   5     37- 44    4-  6    16- 23
----------------------*----------*--------------*-----------------*---------------  ----------------------
                  1530         421             10                 49
Values in columns denoted by an * are displayed in the bar charts.
```









FDRA 6 – Northern Blues

SIG - FDRA 6
Variable: ERC

Time Frame: 6/1 - 10/31
Data Years: 2014 - 2023
Cause = All
Large Fire Day = 300 acres
Multiple Fire Day = 5 fires

Stations in SIG - FDRA 6:
351319 - BLACK MTN RIDGE Model: Y2P2 Weight: 1.00 351502 - HARL BUTTE Model: Y2P3 Weight: 1.00 453803 - ALDER Model: Y2P2 Weight: 1.00

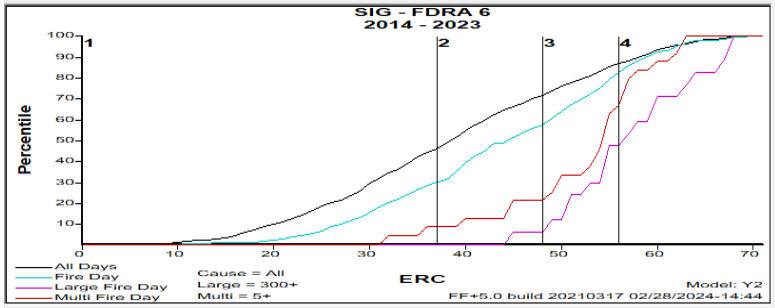
Cls	Index	All-Days		Fire-Days			Large Fire-Days				Multi-Fire-Days				Model Probabilities (%) Fire	Large	Multi
#	Range	#	%	#	%FD	%AD	#	%LFD	%FD	%AD	#	%MFD	%FD	%AD	Day	F-Day	F-Day
1	0- 36	670	44	103	29	15	1	6	1	0	3	13	3	0	7- 21	0- 1	1- 4
2	37- 47	395	26	98	27	25	1	6	1	0	3	13	3	1	21- 27	1- 3	4- 6
3	48- 55	234	15	85	24	36	7	41	8	3	10	42	12	4	28- 33	4- 8	7- 10
4	56- 70	231	15	74	21	32	8	47	11	3	8	33	11	3	34- 45	8- 29	10- 19
		1530		360			17				24						

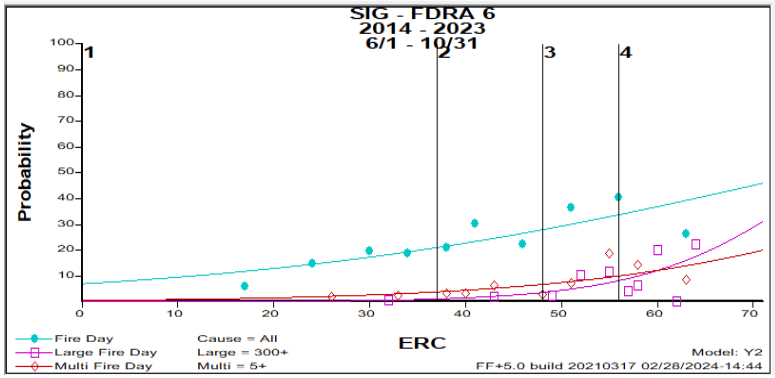
Values in columns denoted by an * are displayed in the bar charts.

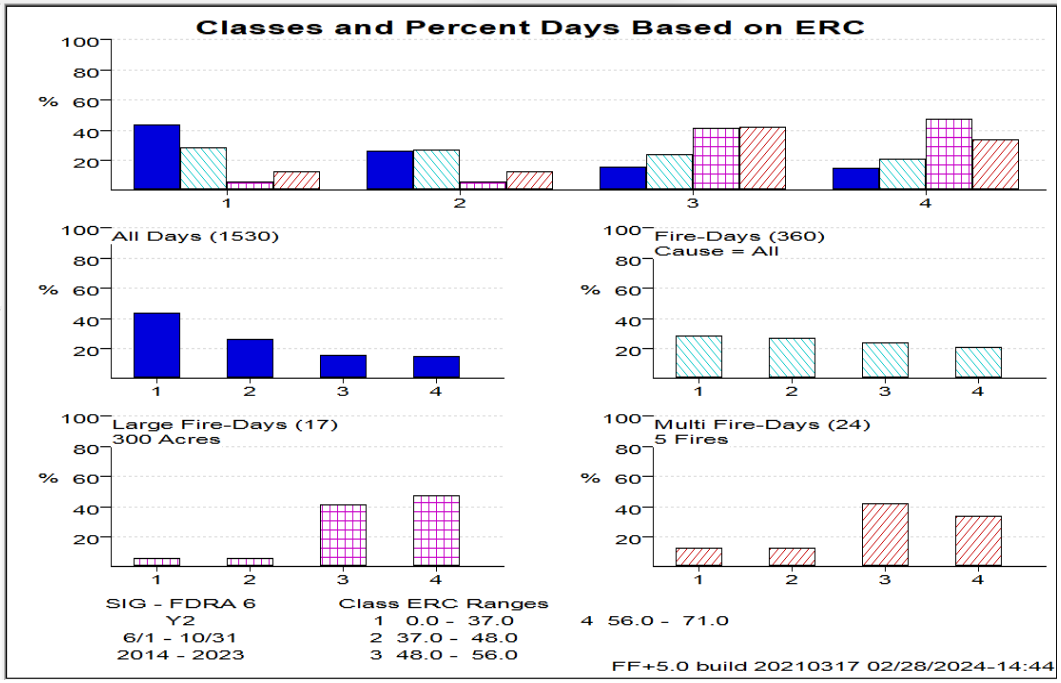
Class Low...

Class	Value
1	0
2	37
3	48
4	56

New
Delete
Apply



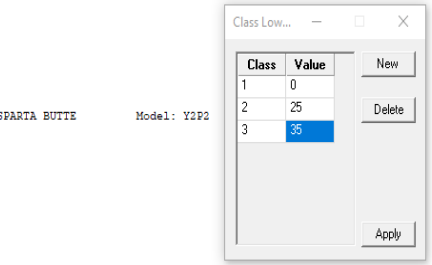


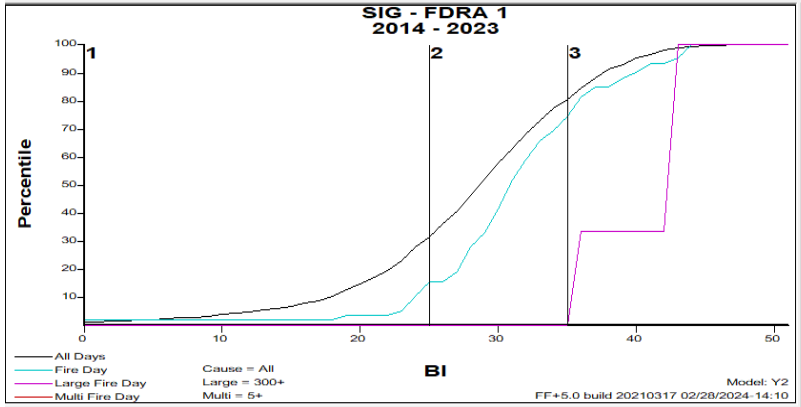


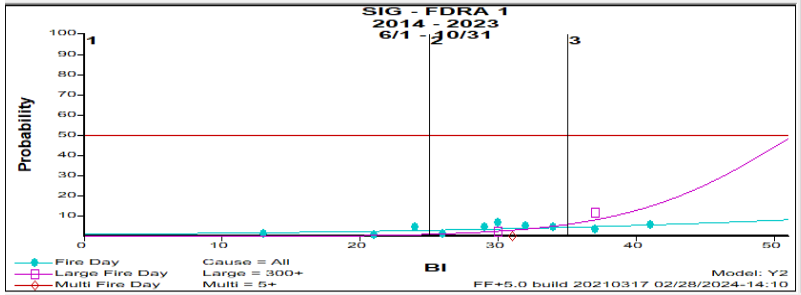
Appendix G: Dispatch Response Level Thresholds

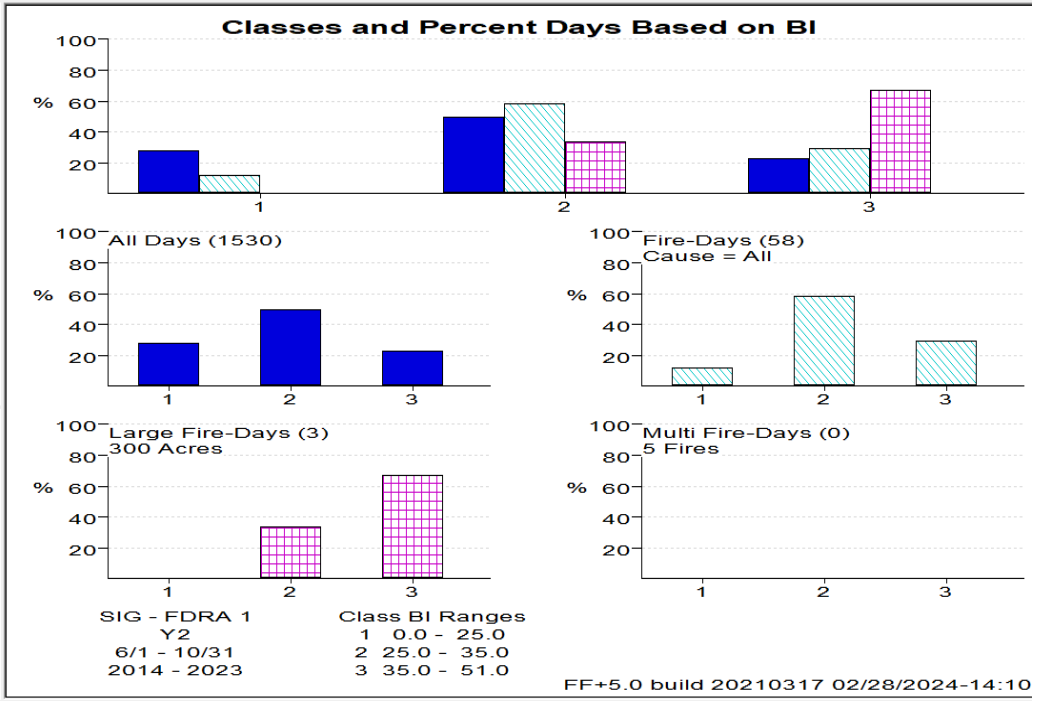
FDRA 1 – Juniper Sagebrush

```
SIG - FDRA 1
Variable: BI

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 1:
 352123 - FLAGSTAFF HILL       Model: Y2P2      Weight: 1.00 352124 - YELLOW PINE         Model: Y2P2      Weight: 1.00 352416 - BLUE CYN           Model: Y2P2      Weight: 1.00 352418 - SPARTA BUTTE        Model: Y2P2
                        Percentages Based On Current Class Definitions            |  Model Probabilities (%)
Cls      Index     All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days |  Fire      Large     Multi
 #       Range       #    %      # %FD %AD      # %LFD %FD %AD      # %MFD %FD %AD |  Day       F-Day     F-Day
-------------------*----------*--------------*------------------*-----------------*  ----------------------
 1       0- 24     423  28      7  12   2      0   0   0   0      0   0   0   0      |  1- 3     0- 1    50- 50
 2      25- 34     757  49     34  59   4      1  33   3   0      0   0   0   0      |  3- 4     1- 5    50- 50
 3      35- 50     350  23     17  29   5      2  67  12   1      0   0   0   0      |  5- 8     6- 44   50- 50
-------------------*----------*--------------*------------------*-----------------*  ----------------------
                  1530         58               3                  0
```



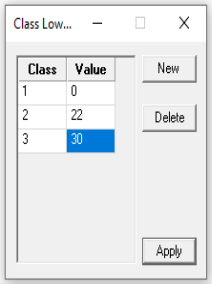


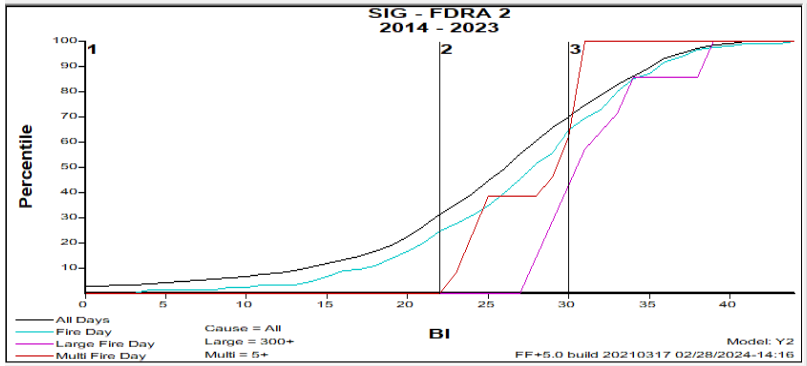


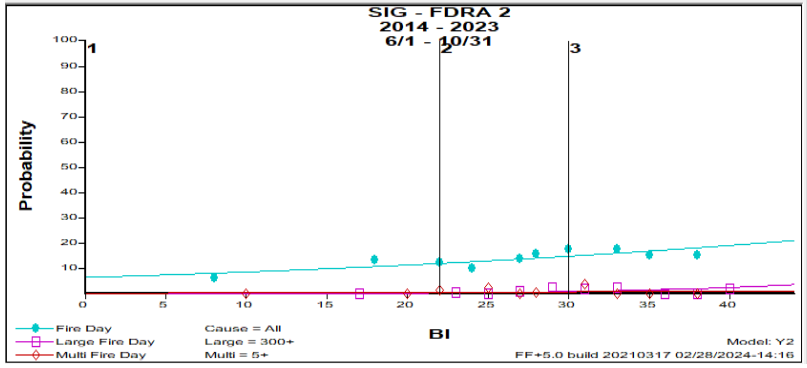


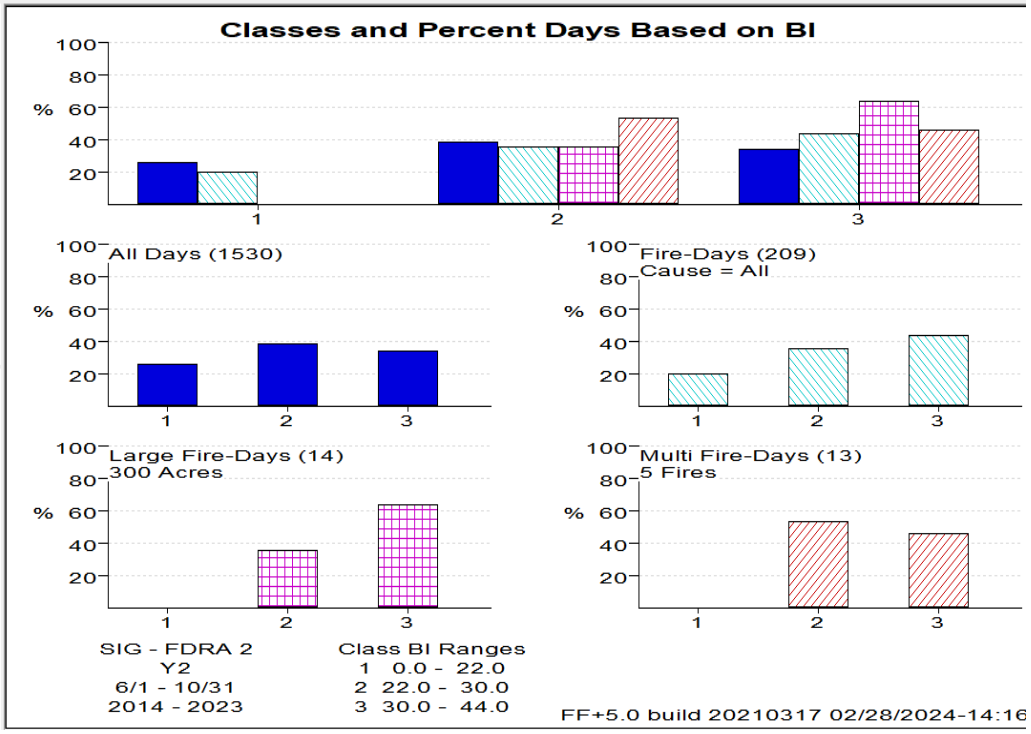
FDRA 2 – Canyon Grasslands

```
SIG - FDRA 2
Variable: BI

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 2:
 351518 - EDEN                Model: Y2P2      Weight: 1.00 351520 - ROBERTS BUTTE        Model: Y2P2      Weight: 1.00 453803 - ALDER                Model: Y2P2      Weight: 1.00
                        Percentages Based On Current Class Definitions                |  Model Probabilities (%)
Cls      Index    All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days |  Fire      Large    Multi
 #       Range      #   %       # %FD %AD      # %LFD %FD %AD      # %MFD %FD %AD |  Day       F-Day    F-Day
-------------------*----------*--------------*-------------------*-----------------  ------------------------
 1       0- 21     403  26      42  20  10      0   0   0   0      0   0   0   0      7- 12    0-  0    0-  1
 2      22- 29     597  39      75  36  13      5  36   7   1      7  54   9   1     12- 15    1-  1    1-  1
 3      30- 43     530  35      92  44  17      9  64  10   2      6  46   7   1     15- 21    1-  4    1-  1
-------------------*----------*--------------*-------------------*-----------------  ------------------------
                  1530         209             14                 13
Values in columns denoted by an * are displayed in the bar charts.
```



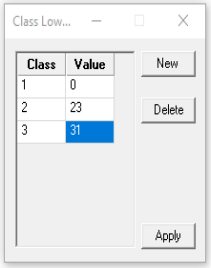


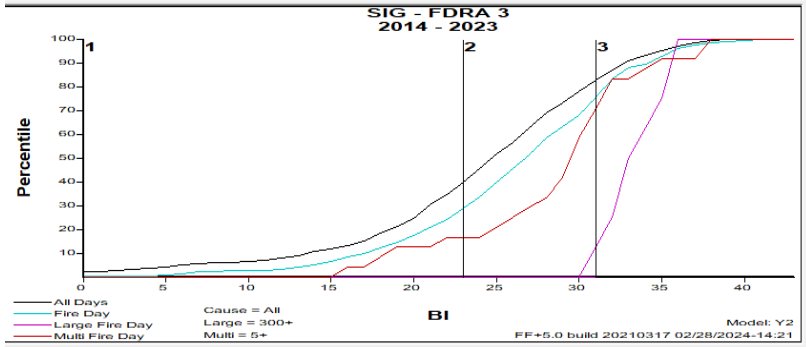


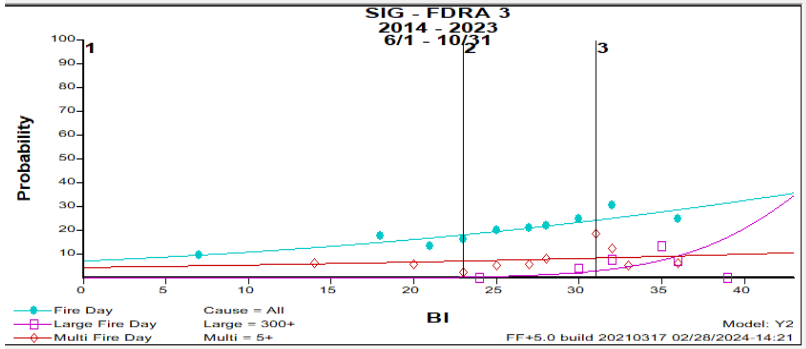


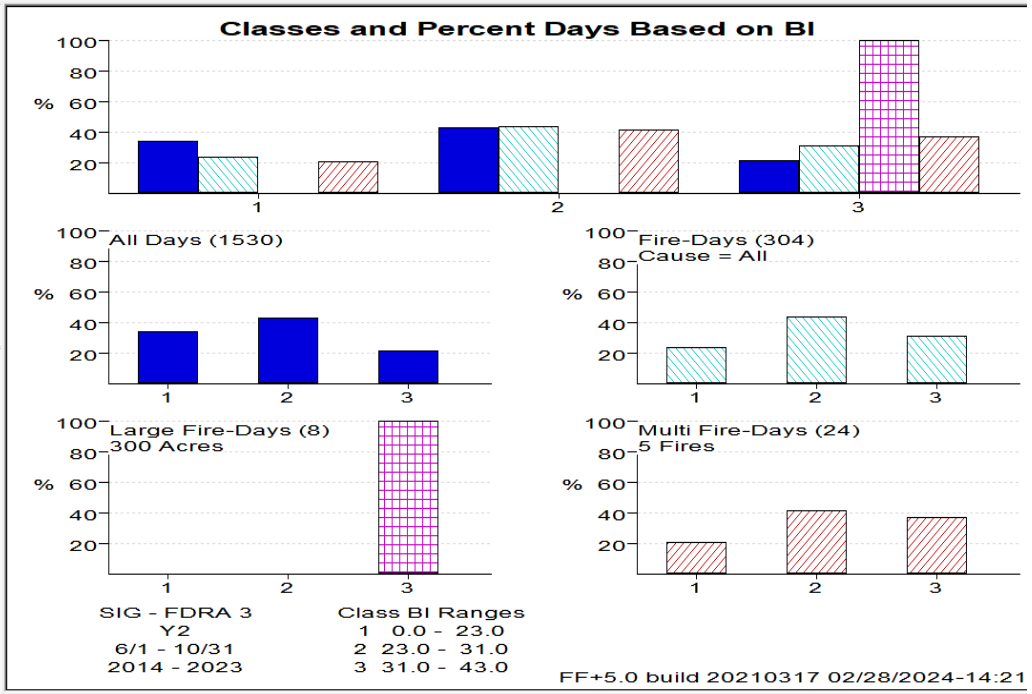
FDRA 3 – Western Forested

```
SIG - FDRA 3
Variable: BI

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 3:
 351202 - TUPPER                Model: Y2P2      Weight: 1.00 351414 - J-RIDGE              Model: Y2P2      Weight: 1.00 352329 - CASE                 Model: Y2P2      Weight: 1.00
                                Percentages Based On Current Class Definitions                                 | Model Probabilities (%)
Cls      Index     All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days      | Fire      Large     Multi
 #       Range       #    %       # %FD %AD       # %LFD %FD %AD      # %MFD %FD %AD      | Day       F-Day     F-Day
-------------------+----------+--------------+-------------------+-------------------  ------------------------
 1       0- 22     530   35      74  24  14      0   0   0   0       5  21   7   1       |  7- 18    0-  0     5-  7
 2      23- 30     663   43     134  44  20      0   0   0   0      10  42   7   2       | 18- 24    1-  3     7-  8
 3      31- 42     337   22      96  32  28      8 100   8   2       9  38   9   3       | 24- 35    3- 30     9- 11
-------------------+----------+--------------+-------------------+-------------------  ------------------------
                  1530         304              8                  24
Values in columns denoted by an * are displayed in the bar charts.
```



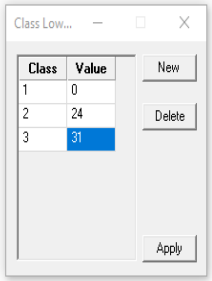


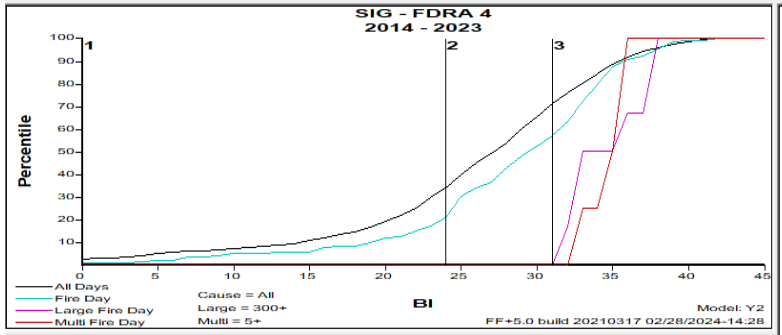


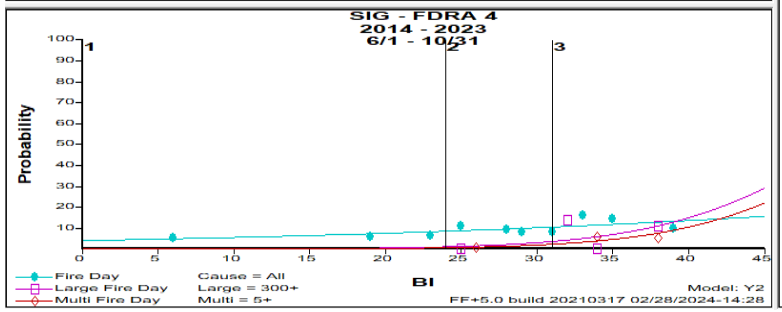


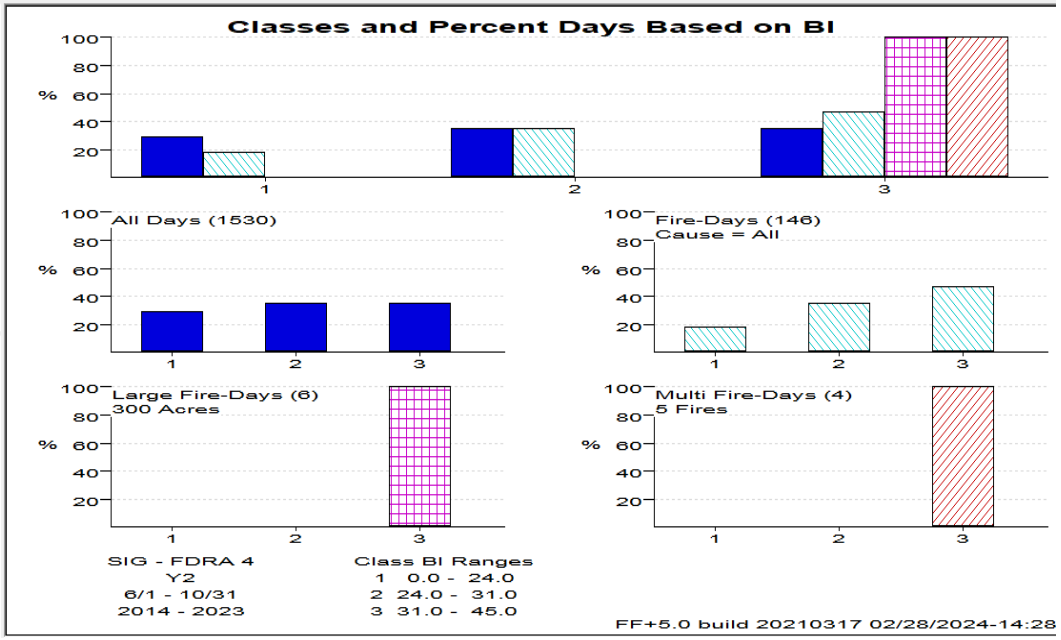
FDRA 4 – John Day Valley

```
SIG - FDRA 4
Variable: BI

 Time Frame: 6/1 - 10/31
 Data Years: 2014 - 2023
 Cause = All
 Large Fire Day = 300 acres
 Multiple Fire Day = 5 fires

 Stations in SIG - FDRA 4:
 352327 - FALL MOUNTAIN        Model: Y2P2      Weight: 1.00 352330 - BOARD CREEK          Model: Y2P2      Weight: 1.00 352332 - KEENEY TWO          Model: Y2P2      Weight: 1.00
                    Percentages Based On Current Class Definitions                |  Model Probabilities (%)
Cls      Index     All-Days      Fire-Days      Large Fire-Days     Multi-Fire-Days |  Fire      Large     Multi
 #       Range       #   %       # %FD %AD       # %LFD %FD %AD      # %MFD %FD %AD |  Day       F-Day     F-Day
-----------------------*-----------*--------------*-------------------*-----------   ---------------------
1       0- 23     453  30      26  18   6       0   0   0   0       0   0   0   0      4-  8    0-  1    0-  1
2      24- 30     544  36      51  35   9       0   0   0   0       0   0   0   0      9- 10    1-  3    1-  2
3      31- 44     533  35      69  47  13       6 100   9   1       4 100   6   1     11- 15    4- 26    2- 19
-----------------------*-----------*--------------*-------------------*-----------   ---------------------
                  1530         146              6                   4
Values in columns denoted by an * are displayed in the bar charts.
```









FDRA 5 – Central Blues

SIG - FDRA 5
Variable: BI

Time Frame: 6/1 - 10/31
Data Years: 2014 - 2023
Cause = All
Large Fire Day = 300 acres
Multiple Fire Day = 5 fires

Stations in SIG - FDRA 5:
351414 - J-RIDGE Model: Y2P2 Weight: 1.00 352124 - YELLOW PINE Model: Y2P2 Weight: 1.00 352327 - FALL MOUNTAIN Model: Y2P2 Weight: 1.00 352416 - BLUE CYN eight: 1.00

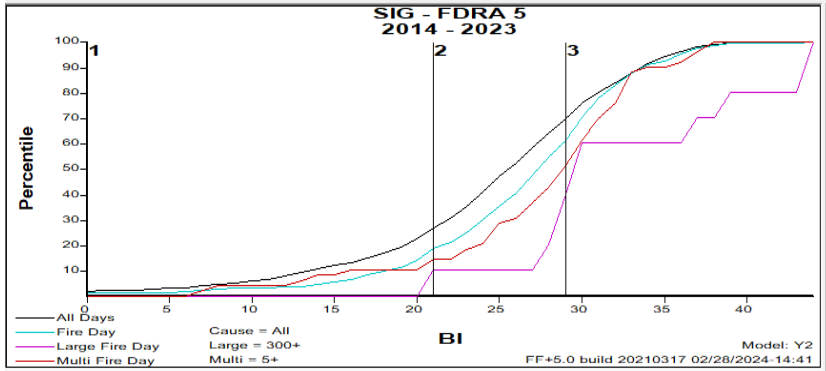
Cls	Index	All-Days		Fire-Days			Large Fire-Days				Multi-Fire-Days				Model Probabilities (%) Fire Day	Large F-Day	Multi F-Day
#	Range	#	%	#	%FD	%AD	#	%LFD	%FD	%AD	#	%MFD	%FD	%AD			
1	0- 20	347	23	59	14	17	1	10	2	0	6	12	10	2	11- 23	0- 1	10- 11
2	21- 28	629	41	171	41	27	2	20	1	0	16	33	9	3	24- 30	1- 2	11- 12
3	29- 43	554	36	191	45	34	7	70	4	1	27	55	14	5	31- 45	2- 11	12- 13
		1530		421			10				49						

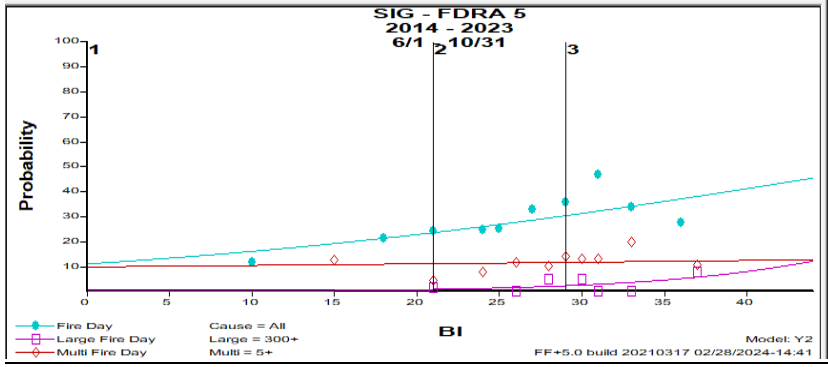
Values in columns denoted by an * are displayed in the bar charts.

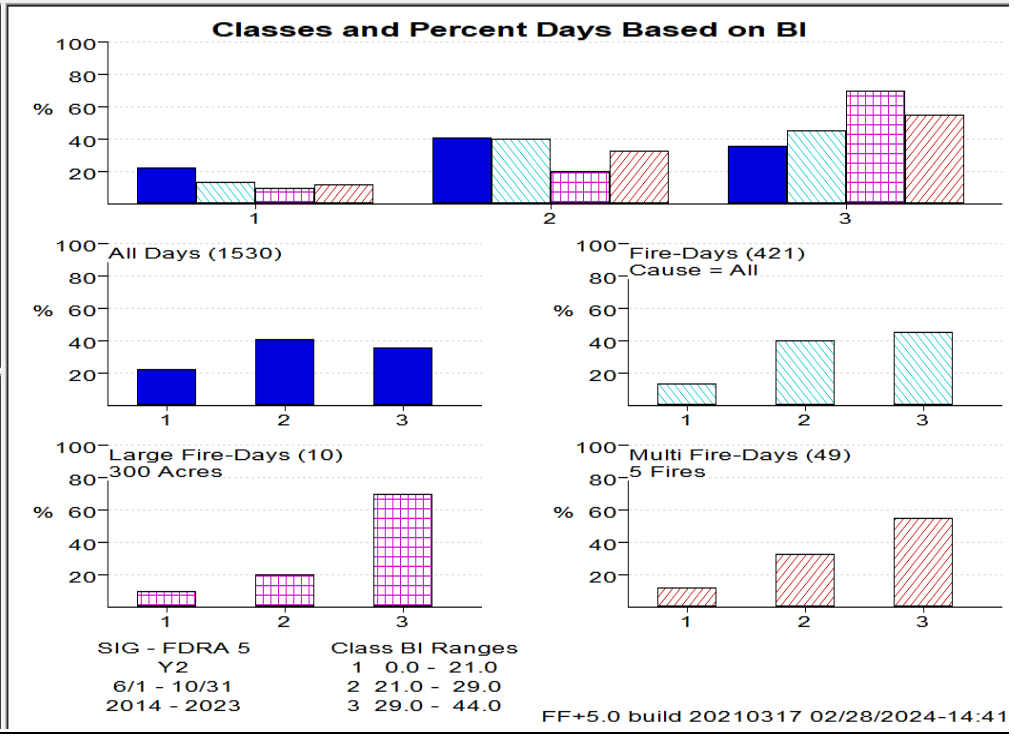
Class Low...

Class	Value
1	0
2	21
3	29

New
Delete
Apply







FDRA 6 – Northern Blues

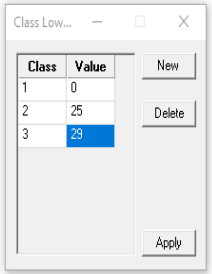
SIG - FDRA 6
Variable: BI

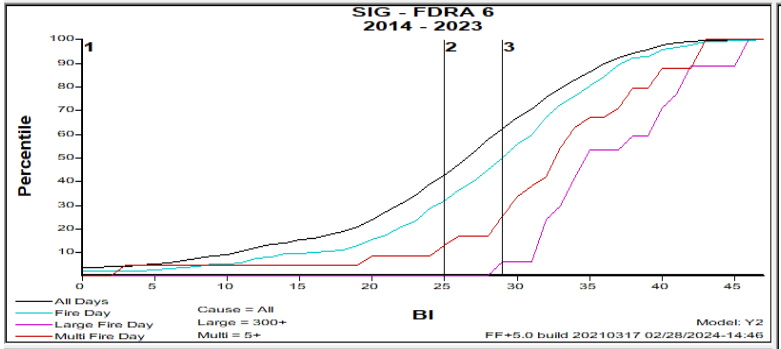
Time Frame: 6/1 - 10/31
Data Years: 2014 - 2023
Cause = All
Large Fire Day = 300 acres
Multiple Fire Day = 5 fires

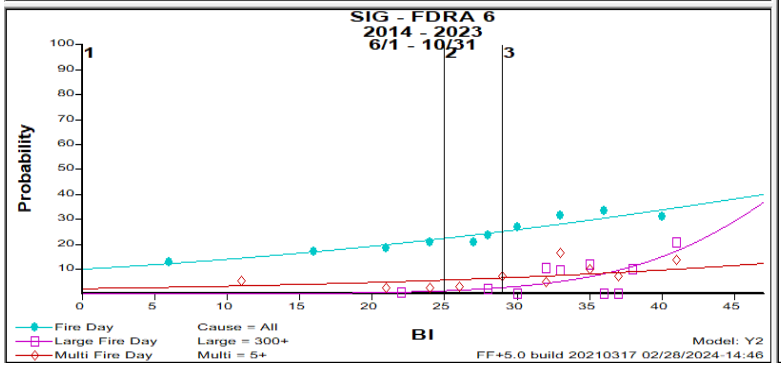
Stations in SIG - FDRA 6:
351319 - BLACK MTN RIDGE Model: Y2P2 Weight: 1.00 351502 - HARL BUTTE Model: Y2P3 Weight: 1.00 453803 - ALDER Model: Y2P2 Weight: 1.00

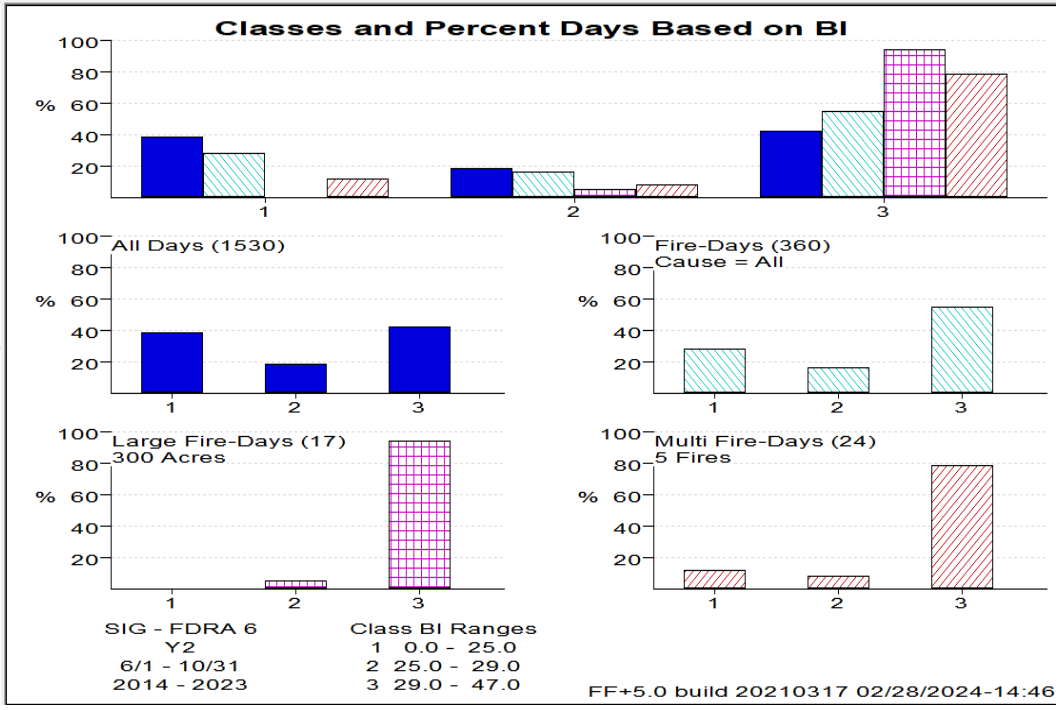
Cls	Index	Percentages Based On Current Class Definitions: All-Days		Fire-Days			Large Fire-Days				Multi-Fire-Days				Model Probabilities (%): Fire	Large	Multi
#	Range	#	%	#	%FD	%AD	#	%LFD	%FD	%AD	#	%MFD	%FD	%AD	Day	F-Day	F-Day
1	0- 24	591	39	103	29	17	0	0	0	0	3	13	3	1	10- 22	0- 1	2- 5
2	25- 28	288	19	59	16	20	1	6	2	0	2	8	3	1	22- 24	1- 2	6- 6
3	29- 46	651	43	198	55	30	16	94	8	2	19	79	10	3	25- 39	3- 33	7- 12
		1530		360			17				24						

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







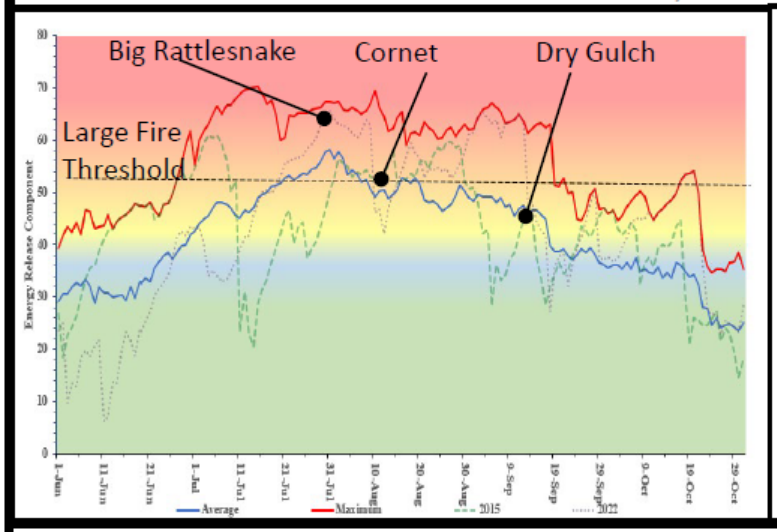


Appendix H: Fire Statistics Results

FDRA	SIG	Years	Annual Filter	Variable	Model	Greenup	Freeze	Fire Day					Large Fire Day					Multi-fire Day				
								Type	R^2	CHI^2	P-Value	P-Range	(acres)	R^2	CHI^2	P-Value	P-Range	Days	R^2	CHI^2	P-Value	P-Range
1	FDRA 1	2014-2023	6/1 - 10/30	ERC	Y2	25-May	31-Dec	ALL	0.6	6.7	0.5731	0.01-0.09	300	23.61	N/A	N/A	0.01-0.14	5	N/A	N/A	N/A	N/A
1	FDRA 1	2014-2023	6/1 - 10/30	BI	Y2	25-May	31-Dec	ALL	0.42	10.2	0.2535	0.01-0.08	300	23.61	N/A	N/A	0.0-0.23	5	N/A	N/A	N/A	N/A
2	FDRA 2	2014-2023	6/1 - 10/30	ERC	Y2	15-May	31-Dec	ALL	0.66	15.3	0.0533	0.05-0.26	300	0.42	11	0.2035	0.0-0.04	5	0.22	18.4	0.0186	0.0-0.03
2	FDRA 2	2014-2023	6/1 - 10/30	BI	Y2	15-May	31-Dec	ALL	0.63	6	0.6484	0.07-0.21	300	0.2	13.6	0.0942	0.01-0.19	5	0	23.3	0.0015	0.06-0.06
3	FDRA 3	2014-2023	6/1 - 10/30	ERC	Y2	15-Apr	31-Dec	ALL	0.72	14.2	0.0756	0.08-0.36	300	0.5	6.9	0.2255	0.0-0.19	5	0.54	6.2	0.6201	0.01-0.21
3	FDRA 3	2014-2023	6/1 - 10/30	BI	Y2	15-Apr	31-Dec	ALL	0.83	5.6	0.6923	0.07-0.36	300	0.58	5.2	0.2716	0.0-0.25	5	0.12	8	0.4371	0.05-0.10
4	FDRA 4	2014-2023	6/1 - 10/30	ERC	Y2	5-Jun	31-Dec	ALL	0.63	14.4	0.0712	0.03-0.20	300	0.34	6.1	0.1054	0.0-0.13	5	0.63	0.8	0.3686	0.0-0.10
4	FDRA 4	2014-2023	6/1 - 10/30	BI	Y2	5-Jun	31-Dec	ALL	0.51	10.7	0.2213	0.04-0.16	300	0.36	8.3	0.0159	0.0-0.20	5	0.84	0.4	0.5226	0.0-0.15
5	FDRA 5	2014-2023	6/1 - 10/30	ERC	Y2	15-May	31-Dec	ALL	0.54	32	0.0001	0.12-0.45	300	0.32	2.7	0.8441	0.01-0.06	5	0.46	7.9	0.4448	0.04-0.24
5	FDRA 5	2014-2023	6/1 - 10/30	BI	Y2	15-May	31-Dec	ALL	0.65	18.2	0.0196	0.11-0.46	300	0.14	8.6	0.1267	0.0-0.12	5	0.07	5.1	0.7477	0.1-0.13
6	FDRA 6	2014-2023	6/1 - 10/30	ERC	Y2	15-May	15-Oct	ALL	0.69	25.2	0.0014	0.08-0.46	300	0.68	6.6	0.5809	0.0-0.26	5	0.43	10.1	0.2566	0.01-0.19
6	FDRA 6	2014-2023	6/1 - 10/30	BI	Y2	15-May	15-Oct	ALL	0.91	3.4	0.9073	0.1-0.4	300	0.59	8.6	0.3742	0.0-0.37	5	0.4	5.1	0.7445	0.02-0.12

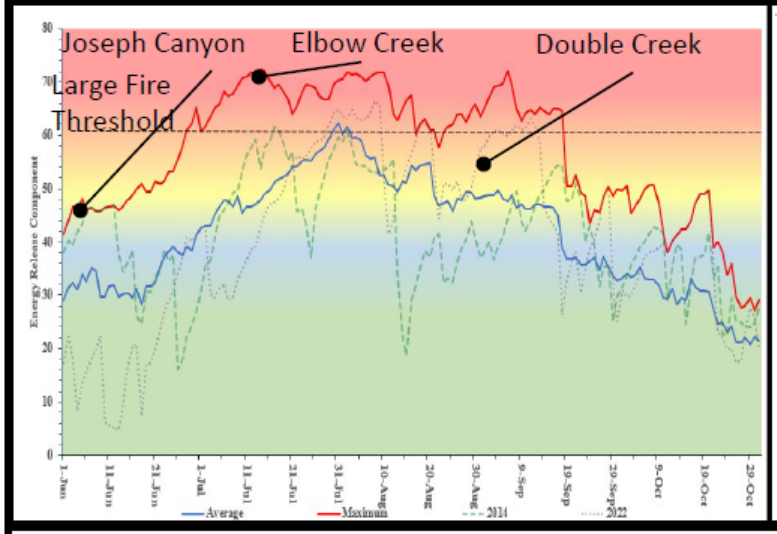
Appendix F: Pocket Cards for FDRA's

FDRA 1 Juniper-Sagebrush
RAWS: Blue Canyon, Sparta, Yellow Pine, Flagstaff
HISTORIC DATA YEARS: 2014-2023
FUEL MODEL: Y-Timber Litter Fire Weather Zones: OR646, OR644



Comet Fire Info: 8/10/2015, ERC 53, 56,331 Acres
Dry Gulch Fire Info: 9/12/2015, ERC 45, 17,823 Acres
Big Rattlesnake Fire Info: 8/1/2022, ERC 64, 350 Acres
Large Fire Threshold is at an ERC of 53

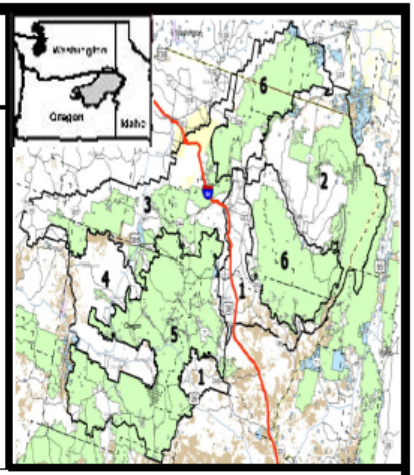
FDRA 2 Canyon Grasslands
RAWS: Alder Ridge, Eden, Roberts Butte
HISTORIC DATA YEARS: 2014-2023
FUEL MODEL: Y-Timber Litter Fire Weather Zones: OR645, WA693, ID102



Double Creek Fire Info: 8/30/2022, ERC 54, 175,937 Acres
Elbow Creek Fire Info: 7//15/2021, ERC 72, 22,960 Acres
Joseph Canyon Fire Info: 6/4/2021, ERC 46, 7,610 Acres
Large Fire Threshold is at an ERC of 61

Blue Mountains Interagency Fire Danger Operating Plan 2024

- National Forests: Malheur, Umatilla, Wallowa-Whitman
- ODF Units: John Day, LaGrande, Pendleton, Wallowa
- WA DNR: Portions of SE Region
- BIA: Umatilla Agency
- 6 Fire Danger Rating areas (FDRA)



FIRE DANGER INTERPRETATION:

- Header: Describes the Fire Danger Rating Area (FDRA) the chart applies to, identifies weather stations (RAWS) utilized, NFDRS fuel model, and years analyzed for that FDRA.
- MAXIMUM: Highest ERC recorded for that day during the analysis period.
- AVGERAGE: Average ERC recorded for that day during the analysis period.
- Large Fire Threshold: Majority of fires larger than 300 acres occurred above this value.
- Year: The ERC values recorded for that season.
- Fires: Large fires that occurred within the FDRA during the analysis timeframe.

REMEMBER WHAT FIRE DANGER TELLS YOU:

- Energy Release Component (ERC) Indicates fire season severity trends. Calculated min/max temperature and humidity, and 24hr precipitation duration. (Wind is NOT part of calculation)
- PAY ATTENTION to local conditions and variations across the landscape: Fuel, Weather, and Topography.
- LISTEN to weather forecasts and local weather readings—especially WIND.

CRITICAL THRESHOLDS:

- Winds > 12 MPH
- Temperature > 90
- RH < 20%
- 1000-hour fuels less than 11%
- Live Woody FMC lower than 80%

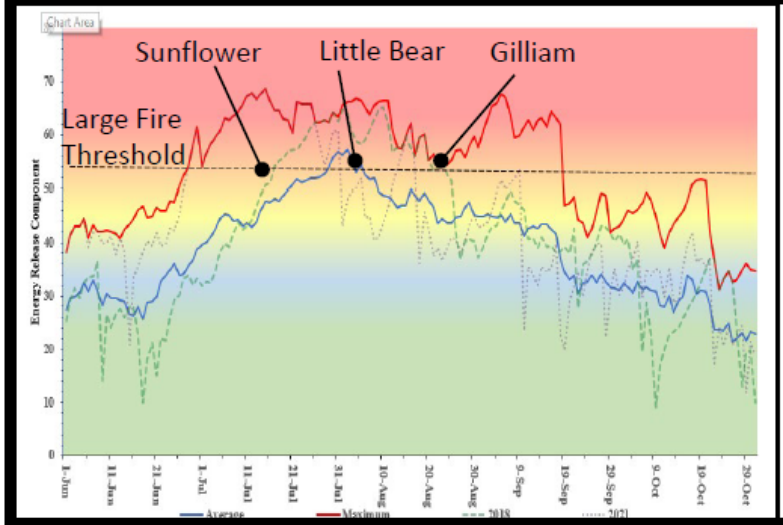
WATCHOUTS:

Red Flag Warnings or Very Dry Fuels combined with one of the following:

- Lightning with little or no precipitation.
- Strong Winds combined with Low Humidity, including Dry Cold Front passage.
- Dry Unstable Air Mass including Surface Thermal Trough Passage.

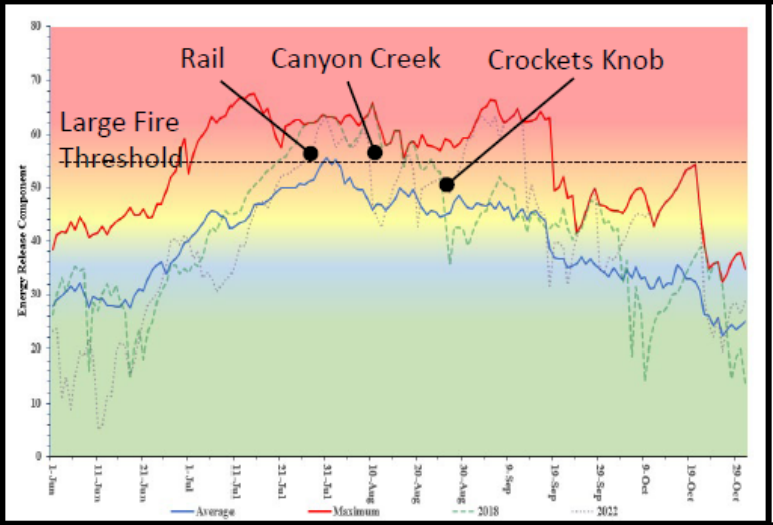
Station(s) comply with NWCG weather station standards

FDRA 3 Western Forested
RAWS: Tupper, Johnson Ridge, Case
HISTORIC DATA YEARS: 2014-2023
FUEL MODEL: Y-Timber Fire Weather Zones: OR643,OR644



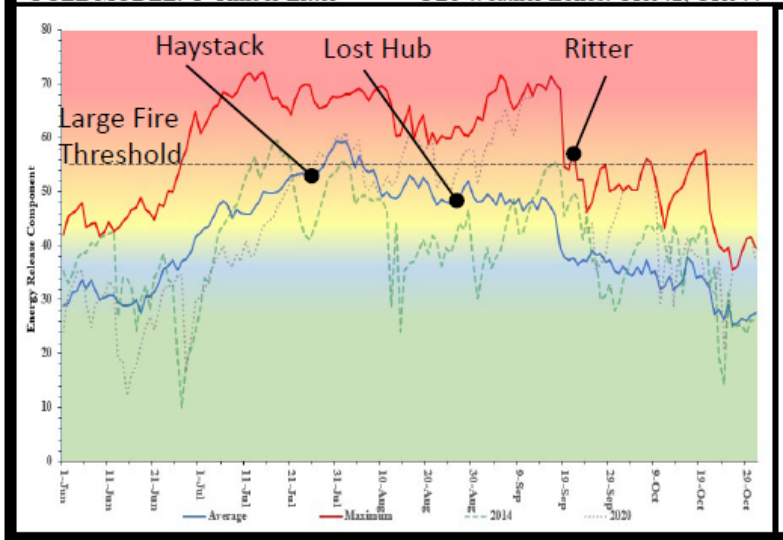
Sunflower Fire Info:7/14/2014, ERC 52, 7,175 Acres
Little Bear Fire Info: 8/6/2019, ERC 55, 1,350 Acres
Gilliam Fire Info: 8/20/2018, ERC 55, 954 Acres
Large Fire Threshold is at an ERC of 54

FDRA 5 Central Blues
RAWS: Johnson Ridge, Blue Canyon, Fall Mountain, Yellow Pine
HISTORIC DATA YEARS: 2014-2023
FUEL MODEL: Y-Timber Litter Fire Weather Zones: OR644, OR642



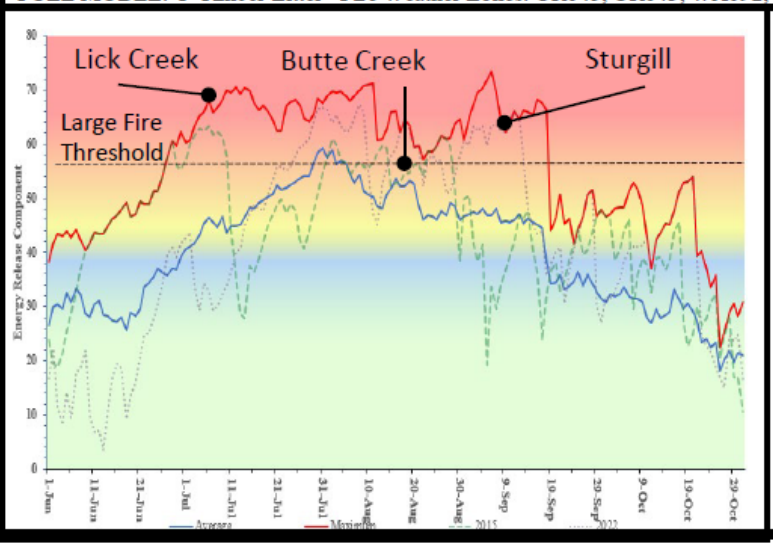
Canyon Creek Fire Info: 8/14/2015, ERC 57, 101,028 Acres
Rail Fire Info: 7/31/2016, ERC 56, 43,799 Acres
Crockets Knob Fire Info: 8/22/2022, ERC 50, 4,337 Acres
Large Fire Threshold is at an ERC of 55

FDRA 4 John Day Valley
RAWS: Board Creek, Fall Mountain, Keeney Two
HISTORIC DATA YEARS: 2014-2023
FUEL MODEL: Y-Timber Litter Fire Weather Zones: OR642, OR644



Haystack Fire Info: 7/29/2014, ERC 52, 1,121.5 Acres
Lost Hub Fire Info: 8/29/2014, ERC 47, 2,712 Acres
Ritter Fire Info: 9/21/2020, ERC 57, 2,712 Acres
Large Fire Threshold is at an ERC of 55

FDRA 6 Northern Blues
RAWS: Alder Ridge, Black Mtn, Harl Butte
HISTORIC DATA YEARS: 2014-2023
FUEL MODEL: Y-Timber Litter Fire Weather Zones: OR645, OR643, WA692, WA709



Butte Creek Fire Info: 8/20/2015, ERC 56, 80,212 Acres
Lick Creek Fire Info: 7/10/2021, ERC 70, 25,336 Acres
Sturgill Fire Info: 9/7/2022, ERC 63, 21,635 Acres
Large Fire Threshold is at an ERC of 56