



TASK #3 FRAMING THE FIRE OCCURRENCE

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OBJECTIVE(S)

Upon completion of this lesson, participants will be able to:

1. Identify and describe the historical wildfire occurrence for an analysis area.
2. Relate the target group(s) most commonly associated with the fire occurrence issues and the management tool(s) that should be considered to address the identified fire occurrence.

NARRATIVE

I. INTRODUCTION

One of the more important tasks in the development of a Fire Danger Operating Plan (FDOP) is to gain a comprehensive understanding of the units' fire occurrence workload. If we know who, what, when, where, and how fires occur, we can focus on specific target groups with strategic fire management applications that incorporate fire danger rating as the basis for decision-making.

- A. Determine an acreage value for large fire-days for each FDRA; this is the historical fire size where containment during initial attack becomes problematic (i.e. fires larger than 50 acres tend exceed the local unit's IA resources suppression capabilities). Suppression experience in the analysis area can help with determining the acreage value of your large-fire day but be careful not to overestimate this value. Record the large-fire day acreage value along with the rationale.

FireFamilyPlus can help identify the large-fire acreage value. In FFP select the applicable date range and RAWS or SIG for the FDRA you wish to analyze. The user can then select "Fires" from the top menu then click on "Summary" and select "Working Set". Next, select the FDRA you are analyzing.

Click "OK" and the Fire Summary Graph will appear (Image 1).

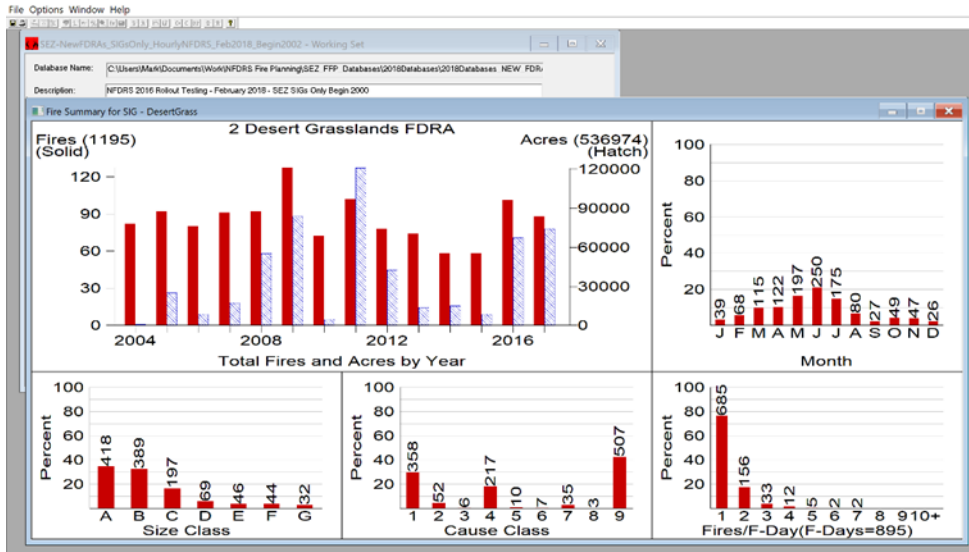


Image 1. Fire Summary Graph showing the number of fires and acreage for the selected analysis period; percent of fires by month; percent of fires by size class, cause class, and percent of fires per fire-day.

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Select “Options” -> “View Graph Data” from the menu in the upper left corner of the FFP window. The “Fires Occurrence Summary” will appear in a new window (Image 2).

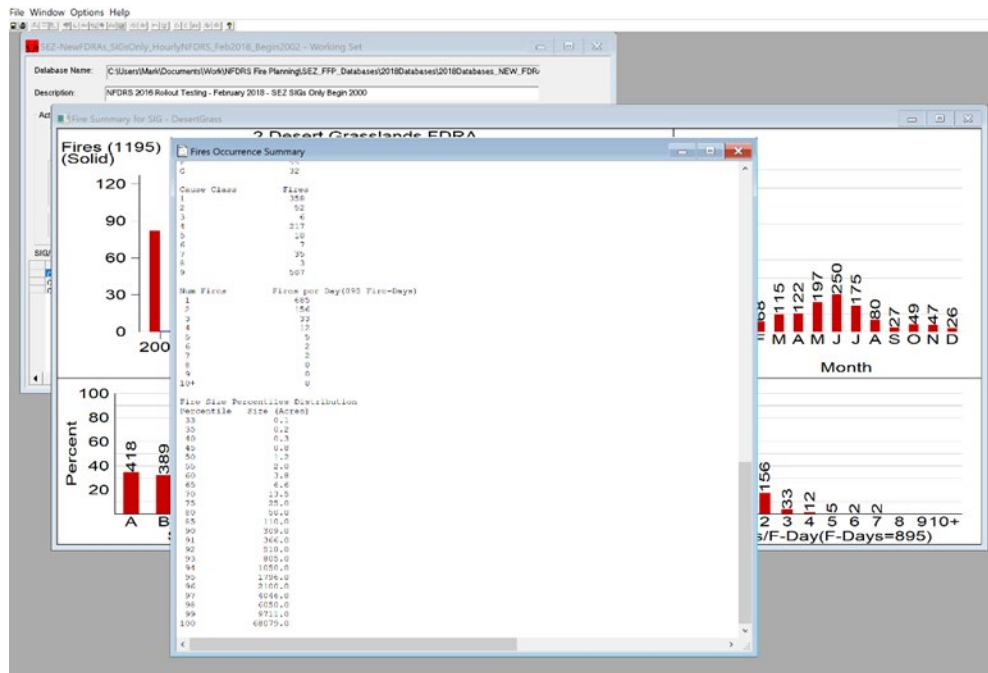
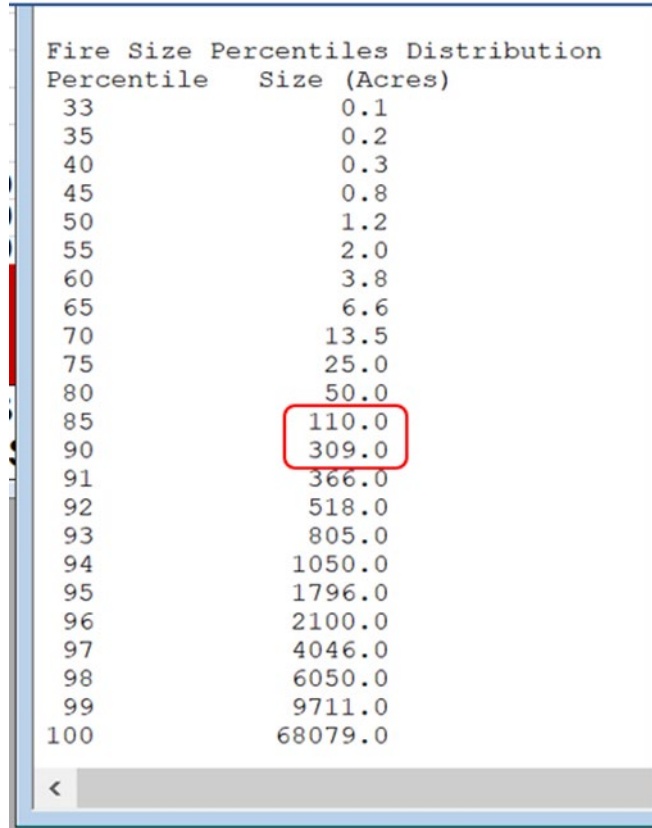


Image 2. Fires Occurrence Summary showing the data that is used to create the histograms in the Fire Summary Graph.

The user can scroll down through the Fires Occurrence Summary table and view the data that is used to create the histograms in the Fire Summary Graph. The user can view the “Fire Size Percentiles Distribution” data located at the bottom of this summary page (Image 3).

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Percentile	Size (Acres)
33	0.1
35	0.2
40	0.3
45	0.8
50	1.2
55	2.0
60	3.8
65	6.6
70	13.5
75	25.0
80	50.0
85	110.0
90	309.0
91	366.0
92	518.0
93	805.0
94	1050.0
95	1796.0
96	2100.0
97	4046.0
98	6050.0
99	9711.0
100	68079.0

Image 3. Fire Size Percentile Distribution data depicting historical fire size and percentile categories.

When discussing the large-fire size issue you can look at the data and, as the example shows in Image 3, may decide that either 50, or 110 acres (80th or 85th percentiles) may best represent when fires begin to exceed the suppression capabilities of the local IA resources. It may also be decided that 75 acres best represents this value. *This value should be determined using the data available in FFP and collaborative discussion.*

- B. Determine a value for multiple-fire days for each FDRA; historically, this is the number of fires occurring in a single day that would exceed the effective capabilities of the local unit. Document your findings in the FDOP Template along with your rationale.

The process for deciding on a value for multiple-fire days can also be determined using FFP as described above. The Fires Occurrence Summary displays the historical number of fires per day (Image 4).

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Num Fires	Fires per Day (895 Fire-Days)
1	685
2	156
3	33
4	12
5	5
6	2
7	2
8	0
9	0
10+	0

Image 4. Historical number of days with one or more fires per fire-day. This example shows out of 895 total fire-days there have been 685 days with one fire per fire-day, 156 days with 2 fires per fire-day, 33 days with 3 fires per fire-day, etc. for the analysis period.

When discussing the appropriate value for multiple-fire days you can view the data and collaboratively decide which value best represents a multiple-fire day for the FDRA being analyzed. Using the information in Image 5, you may determine that 2 or 3 fires per day best represents multiple-fire days where the capability of their IA resources is exceeded. *This value should be determined using the data available in FFP and collaborative discussion*

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- C. Analyze the fire occurrence workload within the analysis area utilizing the analysis area's FireFamilyPlus and GIS data.

TARGET GROUP		IGNITION CAUSE		RELATIVE DEGREE OF CONTROL	COMMUNICATION METHODS	WORKLOAD DESCRIPTION
a GENERAL	b SPECIFIC	c GENERAL	d SPECIFIC	e	f	g
Public	Overnight campers & day-use picnickers.	4 - Campfire	Unattended (and escaped) Campfires around developed recreation sites.	Low	Communicated by Dispatch Center daily to agency personnel for newspaper, "Smokey's Arm" sign at the entrance to developed recreation areas.	The unit is experiencing a significant number of escaped campfires at developed recreation sites. The campfires are abandoned by single-day or overnight campers when fuels are critically dry and high wind events.
					Preparedness Level (PL). The suppression action will be contingent upon the decision authority outlined in the Preparedness Plan: PL1: District Ranger PL2: District Ranger PL3: Forest	management with a confine/contain strategy may require suppression resources for an extended time; making them unavailable for initial attack in places where they may be needed most. Although there is no regional or National direction for the confine/contain strategy during periods of high fire danger and/or the availability of resources to

Image 5. Fire Workload Analysis Table () identifies target groups, ignition causes, relative degree of control over the target groups, communication tools, and workload description.

Complete the Fire Workload Analysis Table (FDOP Template, Section III.B) with the following information (Image 5).

- a. **Target Group - General:** Select one of the three general target group categories (select from the drop-down list: Agency, Industry, Public) that most appropriately describes the source of the ignition issue.
- b. **Target Group - Specific:** Briefly describe the general target group more specifically. For example, "Public" can be more clearly described as "Overnight campers and day-use picnickers".
- c. **Ignition Cause - General:** Select from one of the general ignition cause classes (select from the drop-down list containing the standard nine cause classes).
- d. **Ignition Cause - Specific:** Briefly describe the general ignition cause more specifically. For example, "Campfire" can be more expressly described as "Unattended (and escaped) campfires around developed recreation sites."

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- e. **Relative Degree of Control:** Briefly describe the general ignition cause more specifically. For example, “Campfire” can be more expressly described as “Unattended (and escaped) campfires around developed recreation sites.”
 - f. **Communication Methods:** Briefly list the communication method(s) an agency can utilize to provide information that promotes fire danger awareness within the target group. For example, the use of fire danger rating signs that display the current adjective fire danger rating to the public; fire danger messages through public service announcements; fire prevention patrols making direct contact with recreational users in campgrounds and recreation sites, etc.
 - g. **Workload Description:** Briefly define the workload associated with addressing the identified ignition issue and related target group. For example, during periods of high visitor use, increased prevention patrols and extended staffing may be required.
- D. The information gathered from the *Fire Workload Analysis Table* (Task 3) is important for completing the subsequent *Decision Summary Table* (Task #5). The *Decision Summary Table* provides a summary of the planning area’s fire danger issues and concerns. Each issue is associated with a specific target group whose activities can be influenced through effective communication and implementation of specific control measures.
- E. The process for deciding on a value for multiple-fire days can also be determined using FFP as described above. The Fires Occurrence Summary displays the historical number of fires per day (Image 4).
- F. Analyze and discuss within the group the fire history and fire statistics for the analysis area; specifically:
1. Types of ignition that are common to the analysis area.
 2. Frequency of the ignition types.
 3. Pattern of fire occurrence.
 4. Distribution of fires throughout the year.
 5. Distribution of fires by size class.
 6. Distribution of fires by fire day.

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- G. The selection of management tool and NFDRS index/component to manage a fire ignition will be reviewed and analyzed with more tools in Task #5 and a final selection presented in Task #7.

II. EXERCISE MATERIALS

- A. [Planning Area Fire Workload Analysis Chart](#)
- B. FireFamilyPlus database for analysis area (electronic file)
- C. Fire occurrence and history maps (analysis area GIS products)
- D. Major transportation systems layers (analysis area GIS products)
- E. [Fire Danger Operating Plan Template](#)

REVIEW OBJECTIVE(S)

Upon completion of this lesson, participants will be able to:

1. Identify and describe the historical wildfire occurrence for an analysis area.
2. Relate the target group(s) most commonly associated with the fire occurrence issues and the management tool(s) that should be considered to address the identified fire occurrence.

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REFERENCES

State and DOI Cause Codes Crosswalk to FS Statistical Cause Code									
	FS	DOI	MN	UT*	CA	NC	WA	AR	MT
Lightning	1	1	A	LT	2	1	1	8	1
Equipment	2	6	F	EQ	7,10,12	6	6**	6	6
Smoking	3	3	C	SM	4	3	4	3	3
Campfires	4	2	B	CF	3	2	3**	5	2
Debris	5	4	D	DB	5	4	5	2	4
Railroads	6	7	G	RR	11	7	8	4	7
Arson	7	5	E	IN	6	5	2	1 (Incendiary)	5
Children	8	8	H	CH	8	8	7	7	8 = Power lines
Misc	9	9	I	MC	1,9	9	9	9	9

*UT Codes from 84 to 96 = DOI

**WA Codes: 3 = Recreation (hunter, campfire, other), 6 = Logging (sparks from equipment, equipment burning)

Image 6: Fire Cause Code Crosswalk