

## What is the Strategy? A Comparison of the Wildland Fire Decision Support System (WFDSS) and Incident Status Summary ICS-209

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### Introduction

Home units provide direction for management of fires through Decisions created in the Wildland Fire Decision Support System (WFDSS). Decisions are required for federal wildland fires exceeding initial response or managed for multiple objectives. An optional strategy slider bar was added to the Course of Action section of Decisions in 2015. The slider scale is Monitor (value 0) to Suppression (value 100). The slider initiates at the mid-point (value 50) and must be saved to record a value. Users do not see the numerical values when using the slider.

The Incident Status Summary form (ICS-209) is required documentation for large fires, defined as 1)  $\geq 100$  acres in timber 2)  $\geq 300$  acres in grass/brush or 3) having a Type 1 or 2 Incident Management Team (IMT) assigned. Completed by local units or Planning Sections when IMTs are assigned, ICS-209s are submitted daily until containment with some variation. The ICS-209 form has four categories for strategy (Field 9D): Monitor, Confine, Point Zone Protection, Full Suppression. Users enter a percentage by category. This study compares the strategy directed in WFDSS by line officers to the one reported in the ICS-209 by fire managers.

### Methods

This study focused on fires with WFDSS Decisions from January 1 through August 31, 2015. Optional use of the strategy slider bar was recorded for each fire. If the slider was used, the value, from 0 to 100, and the date it was saved was recorded. Then the strategy category and percent was recorded from the next available ICS-209 after that date (if none after that date then the latest available was used).

Line officers can change the WFDSS strategy over the life of a fire. Changes made within a day were assumed to be editing; recording the value at the end of the day. Changes made greater than a day were assumed to represent a change in strategy and were recorded separately, with the ICS-209 strategy for the next available date thereafter captured.

### Results

#### General Data

There were 598 fires with WFDSS Decisions (1/1-8/31/2015); for a total of 669 strategies. Sixty fires changed the strategy in WFDSS one or more times. Strategies by Geographic Area are shown in Figure 1. Although the strategy slider bar was optional, it was widely used by all Geographic Areas; none had less than 80% use, with 85% use overall.

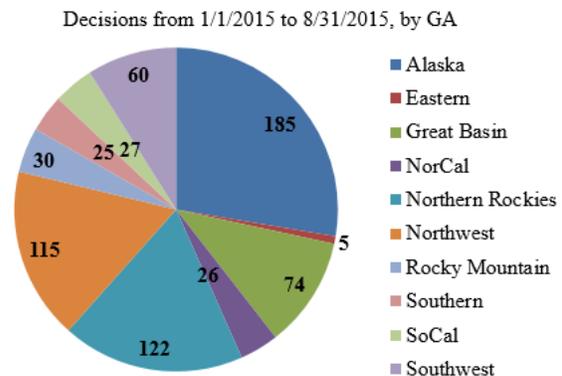
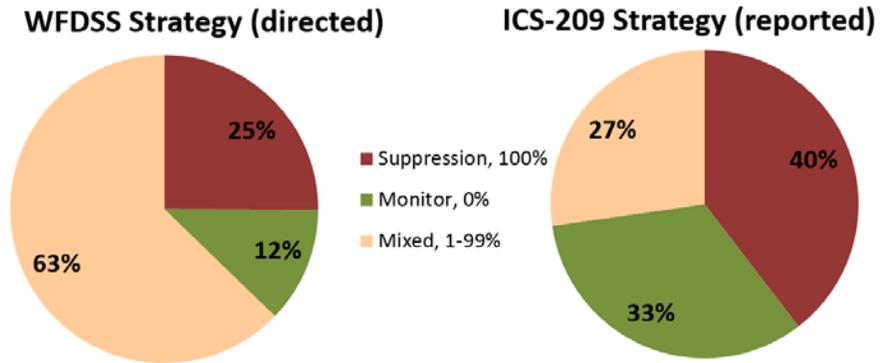


Figure 1 Number of strategies by GA for fires with Decision 1/1-8/31/2015.

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*Strategy Overall*

Comparing strategies from WFDSS (directed) to the ICS-209 (reported) indicates: suppression is directed less than reported, monitor is directed less than reported, a mixed strategy is directed more than reported. Figure 2 shows a comparison between WFDSS and ICS-209

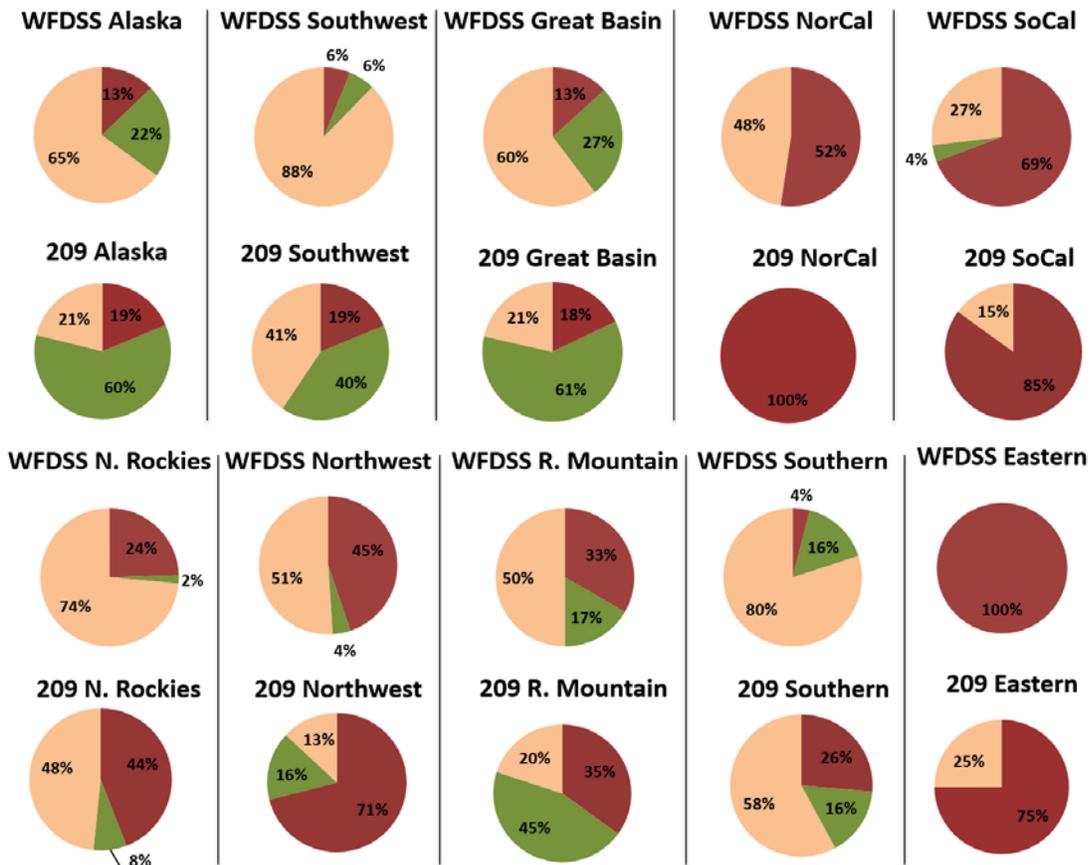


**Figure 2 Comparison of strategy in WFDSS to ICS-209 overall.**

strategies for the fires overall. In WFDSS the directed strategy is less black and white compared to the ICS-209; a “mixed” strategy is directed more than double the amount than is reported.

*Strategy by Geographic Area*

Comparing strategies from WFDSS to the ICS-209 by area yields interesting nuances, Figure 3. For example, Northern (NorCal) 100%, and Southern California (SoCal) 85%, had the highest



**Figure 3 Comparison of strategy in WFDSS to ICS-209 by Geographic Area.**

percentages of reporting Suppression; Great Basin had the lowest at 18%. Great Basin had the highest percentage of reporting Monitor at 61%. All NorCal fires reported Suppression but it was only directed 52% of the time. The Southwest directed Monitor 6% of the time but was reported almost 7-fold more at 40%. Despite intricacies in the data, the overall trend of directing Monitor and Suppression less often than reported holds true for all areas except Eastern.

*Comparing Fire by Fire*

Fire by fire comparisons were made nationally and by Geographic Area for the following scenarios, Table 1.

- The percent of time a WFDSS strategy for a specific incident directed Suppression when the ICS-209 reported Suppression.
- The percent of time a WFDSS strategy for a specific incident directed Monitor when the ICS-209 reported Monitor.
- The percent of time an ICS-209 reported Suppression when WFDSS directed anything other than Suppression.

These scenarios indicate the level of agreement between directed and reported strategy.

**Table 1 National and Geographic Area comparisons of strategy fire by fire.**

Geographic Area	% of time WFDSS directed Suppression when ICS-209 reported Suppression	% of time WFDSS directed Monitor when ICS-209 reported Monitor	% of time ICS-209 reported Suppression when WFDSS directed anything other than Suppression
Nationally	54%	28%	25%
Alaska	35%	31%	14%
Eastern	100%	N/A <sup>1</sup>	N/A <sup>2</sup>
Great Basin	50%	32%	10%
NorCal	58%	N/A <sup>1</sup>	100%
Northern Rockies	51%	14%	29%
Northwest	63%	27%	51%
Rocky Mountain	71%	44%	0%
Southern	20%	0%	22%
SoCal	65%	N/A <sup>1</sup>	100%
Southwest	17%	8%	17%
	High % = greater agreement	High % = greater agreement	Low % = greater agreement

Nationally, when ICS-209 reported Suppression it was only directed in WFDSS roughly half of the time (54%). Eastern Area had the greatest agreement on strategy reported in ICS-209 and directed in WFDSS, when ICS-209 reported Suppression, at 100%. Whereas Southwest, Southern, and Alaska Areas had the least agreement at 17%, 20%, and 35% respectively.

Agreement between WFDSS and ICS-209, when ICS-209 reported Monitor was low nationally (28%) and for all areas (excluding Eastern, NorCal, and SoCal<sup>1</sup>). Southern Area had the least

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<sup>1</sup> Eastern, NorCal, and SoCal did not have any ICS-209s reporting Monitor as the strategy

agreement with respect to Monitor at 0%; the area with the greatest agreement was Rocky Mountain at 44%.

When an ICS-209 strategy reported Suppression but WFDSS directed anything other than Suppression the agreement in strategy differed greatly between Geographic Areas. Nationally this occurred 25% of the time, however in two areas, NorCal and SoCal, it happened 100% of the time, while in Rocky Mountain 0% of the time.<sup>2</sup>

## Discussion

### *A Closer Look*

Looking further at the details yields more insight and questions. Table 2 displays the value of the WFDSS slider (0% = monitor, 100% = suppression) and the reported Suppression strategy by category in the ICS-209 for some example fires in the dataset. If you were the line officer on these fires and you saw what the reported strategy was in the ICS-209, how confident would you be that the direction you provided in the WFDSS Decision with regard to strategy was followed?

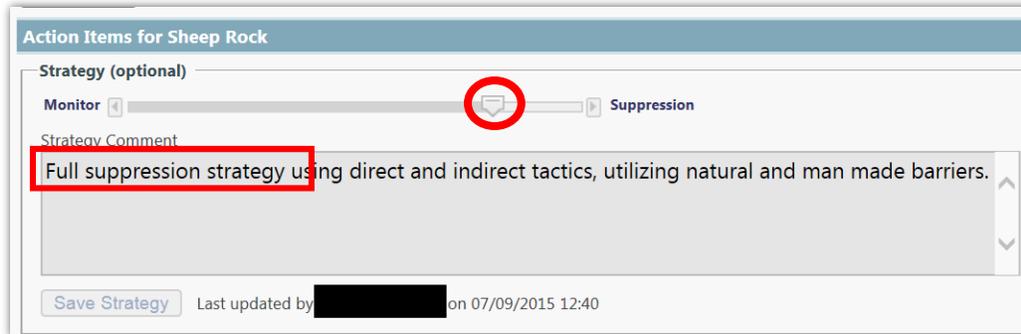
**Table 2 WFDSS strategy slider values vs. ICS-209 percent by category**

Incident	WFDSS Strategy Slider % (0%=monitor, 100%=suppression)	ICS-209 Category and %
Bridge	61%	100% Suppression
Mount Emma	19%	100% Suppression
SA Hill	27%	100% Suppression
Thursday Creek	31%	100% Suppression
Tween	22%	100% Suppression
Barnaby	32%	100% Suppression
Jay Pt	80%	100% Suppression
Little Devil	79%	100% Suppression
Peters	100%	100% Confine
Card Street	44%	95% Suppression, 5% Monitor
Juneau Lake	69%	100% Suppression
Deepbank Creek	58%	100% Monitor
Rock	22%	100% Suppression
Golsovia #3	100%	100% Monitor
Village Creek	100%	100% Point Zone Protection
Keefer Cutoff	100%	100% Monitor
Mission Creek	100%	100% Point Zone Protection
Medicine Creek	100%	100% Confine
Pontag	100%	100% Monitor
Wolf Creek	79%	100% Suppression
Saddle Lakes	82%	100% Suppression

<sup>2</sup> All Eastern Area fires directed a Suppression strategy in WFDSS

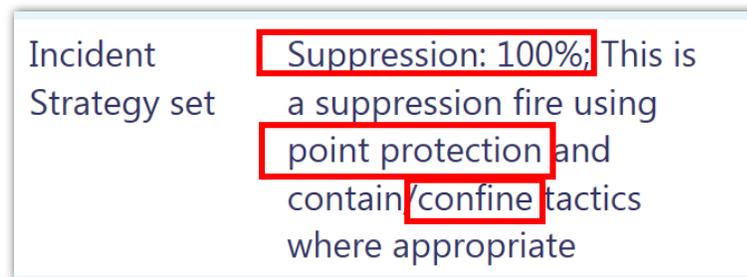
Now let's flip that question around, imagine you are the Incident Commander for the fires in Figure 4 and 5. If you saw the direction provided on strategy in WFDSS for these fires, how would you direct your firefighters on the ground and how would direct your team to fill out the ICS-209 for strategy?

Figure 4 shows the strategy in a WFDSS Decision in which the author wrote that the strategy is "Full Suppression" but placed the slider at a value of 82%.



**Figure 4 Strategy slider for a fire set to 82% while written direction says "Full Suppression."**

Figure 5 shows the WFDSS strategy for a fire in which the author wrote the strategy is "100% Suppression" but also adds it is "point protection" and "contain/confine tactics." There is no way to represent a strategy in ICS-209 in three categories if one of them is listed at 100%.



**Figure 5 This fire's WFDSS strategy states 100% Suppression, but also lists point protection and confine.**

#### *What Does This Mean?*

Clearly there are some disconnects between the directed strategy for a fire in WFDSS to what is reported as the strategy in ICS-209 and it varied by Geographic Area in 2015. More than one factor may be the cause:

- Differences in user interfaces. In WFDSS users are presented with a scale for selecting strategy, but in ICS-209 they are presented with categories. Does the manner in which the user is presented with options impact the selection? Does presenting a scale (WFDSS) lead users to select a value in the middle more often than presenting by category (ICS-209)?

- A result of the 2015 fire season. Are the nuances in the strategies by each Geographic Area a result of the 2015 fire season specifically or a reflection of direction and management for the area in general regardless of the type of fire season an area experienced in 2015?
- Misunderstanding/unintended use of the WFDSS strategy slider. There were clear instances in WFDSS where user entered data regarding strategy did not match the numeric value saved on the strategy slider. Either, users did not realize or did not care that selecting *Save Strategy* in the WFDSS strategy section would save a value on the slider, which by default is set in the middle, at a value of 50. Of the 23% of fires in which the strategy value was 50 some represent unintended use of the slider, but it would be impossible to say that all 23% were unintended use without verifying with each decision author.

The same question is posed to two different audiences in different ways. Does this inherently increase opportunities for misunderstanding of strategy? Line officers get a slider bar with two distinct strategies at either ends of a continuum, while fire managers get four categories. Furthermore, just because WFDSS and ICS-209 do not always match does not mean a misunderstanding happened between line officers and fire managers with regard to strategy. It is possible the slider did not match the direction provided in the Incident Objectives and Requirements and through inbriefing, or perhaps the ICS-209 reporting is not reflective of what is occurring on the ground. Because directing and reporting of strategy do not use the same system and terms it is not even possible to have an exact match on strategy anytime the strategy is something other than Suppression or Monitor.

Why are managers asked to indicate strategy in different ways? Perhaps WFDSS should present strategy in a similar manner as ICS-209? Or maybe ICS-209 the same as WFDSS? What if WFDSS prepopulated the ICS-209 strategy via the Integrated Reporting of Wildland Fire Information (IRWIN) for fires with Decisions? Would that force a conversation between line officers and fire managers when there is a disconnect on directed and reported strategy?

### **Recommendations**

To enable line officers and fire managers to communicate clearly with regard to strategy the fire community needs a data standard for the strategy on a fire. IRWIN should be used to populate the strategy throughout fire systems to reduce inaccurate and duplicate data entry. An authoritative data source (ADS) would need created to indicate which fire reporting/information/decision system was the authoritative source for strategy under different circumstances (i.e. when there is a published decision, when there is not a published decision).

Further research could be completed comparing the Strategic Objectives and Management Requirements from the Land and Resource Management Plan (LRMP) and the Incident Objectives and Requirements providing leader's intent to both the WFDSS strategy slider bar and ICS-209 to evaluate if decision making and actions on the ground are in alignment with the LRMP direction.