

TOPIC: 2009 Rocky Mountain Area Decision Support Protocols

INTENT: The purpose of this paper is to describe the process for requesting Wildland Fire Decision Support System (WFDDSS) assistance and tools during the 2009 fire season for emerging and/or large fires within the Rocky Mountain Geographic Area.

The WFDDSS provides a scaleable decision support tool that helps agency administrators and wildland fire managers make informed decisions for all unplanned ignitions. The WFDDSS uses appropriate fire behavior modeling, economic principles, and information technology to support effective wildland fire decisions consistent with Resource and Fire Management Plans

WFDDSS is constructed as a web-based system but can also generate a variety of standard or custom reports. One report, the Decision Analysis Report (DAR), represents the compilation of WFDDSS subsection information into a single report that becomes the formal decision documentation for the incident. The WFDDSS Decision Analysis Report (DAR) replaces the Wildland Fire Situation Analysis (WFSA), Wildland Fire Implementation Plan (WFIP) and Long-Term Incident Planning (LTIP) processes.

EXPECTATION: Units in the Rocky Mountain Area will build local capacity sufficient to utilize the basic WFDDSS tools to create an incident, prepare a course of action to meet strategic and incident objectives, and create a Decision Analysis Report.

An RMA Decision Support Group (DSG) may be requested to assist Agency Administrators (AA) and Incident Commanders (IC) with the analysis and development of a DAR and the associated course of action for moderate to long term wildland fire event managed by local unit T3¹ Incident Management Organization (IMO).

Decision support tools that can be utilized to provide additional information concerning the fire environment include:

- WFDDSS Fire Spread Probability (FSPro) is a spatial model that calculates and maps the probability of fire spread, in the absence of suppression, from a current fire perimeter or ignition point for a specified time period,
- WFDDSS Rapid Assessment of Values at Risk (RAVAR), is a spatial model that shows the primary resource values to be protected and/or at risk from ongoing large fire events. RAVAR can be directly integrated with the WFDDSS-FSPro model to identify the likelihood of different resources being threatened.
- WFDDSS Values Inventory is a list of the tier 1 RAVAR data within a specified radius of the incident. It is a non spatial display of available on the INFO tab for all incidents.
- WFDDSS Basic Fire Behavior gives "snapshot in time" fire behavior outputs (flame lengths, rates of spread, fireline intensities, etc.) for an entire user-defined landscape extent using one set (per cell) of wind and fuel moisture conditions. WFDDSS BFB can be thought of as a "spatial BEHAVE or BehavePlus". Using fuels, topography, and weather

¹ See RMA Decision Support Group Protocols (07/2009). The focus of the DSG is to support local T3 organizations and units with Response Level 2 and 3 Decision Analysis Report development, not to "mentor" or support RMA T1 and 2 teams. The RMA T1 and 2 teams were configured beginning in the 2009 season to be capable of managing the full spectrum of wildland fire strategic and tactical responses. The DSG is not intended to be an overhead team; it is strictly for support to local units.

data, fire behavior characteristics are calculated and displayed for every cell of the landscape extent.-

- WFDSS Short Term Fire Behavior is a two-dimensional fire growth model. This web-based application calculates spread rates and maximum spread direction at each cell. Holding all environmental conditions (wind and fuel moistures) constant for the duration of the simulation, STFB calculates fire growth and behavior by searching for the set of pathways with minimum fire spread times from an ignition (point) source. Using one set of wind and fuel moisture conditions, STFB provides potential fire spread (arrival times and major paths) for a user-defined length of time.
- WFDSS-Stratified Cost Index (SCI) provides an analysis of comparable fire suppression expenditures from historic data.

Units may utilize the available WFDSS tools to assist fire managers and agency administrators in making decisions regarding strategies on wildland fires as appropriate.

Mandatory Use (Forest Service Only):

- 1) For all fires expected to exceed \$5 million, a WFDSS-SCI analysis will be completed.
- 2) For all fires reaching or anticipated to reach \$10 million or more a WFDSS-FSPro, WFDSS-SCI, and WFDSS-RAVAR assessments will be completed

Optional Use:

- 1) Fires reaching or anticipated to reach \$5 to \$10 million would benefit from WFDSS-FSPro and WFDSS-RAVAR assessments and units will be strongly encouraged to use these tools.
- 2) Any event where conditions indicate moderate to long duration persistence and management. Units are strongly encouraged to request a RMA DSG early on, as the modeling results will assist in the development of the course of action and assessment of potential risks.
- 3) Any wildland fire incident that escapes initial attack and transitions into extended attack with a Type I or II IMT or FUMT ordered where the strategy to be utilized is uncertain.

PROCESS: To ensure WFDSS tools are available in a timely manner, the Rocky Mountain Geographic Area Coordinating Group will implement the protocols described below.

1. For WFDSS support needs, the Unit's first point of contact is their Agency's identified Point of Contact (POC) within the RMA.

Agency	Name	Number
USFS	Paul Langowski	303-275-5307
USFS	Brenda Wilmore	970-328-5891
CO BLM	Ken Kerr	303-239-3693
CO/WY BLM	Gwenan Poirier	303-239-3689
NPS	Linda Kerr	303-969-2883
USFWS	Neal Beetch	303-445-4367
BIA	TBA	

States	TBA	
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If the Agency POC is not available, contact Rocky Mountain Area Coordination Center (RMACC) to request WFDSS support and/or incident analysis prioritization.

2. Prior to initial contact, the Unit (Forest, Park, Monument, Refuge, Field Office etc) will assign a point-of-contact (POC), with WFDSS author role to initiate and review incident analysis.
3. For WFDSS-FSPro or "supervised" fire behavior analyses, a Fire Behavior Specialist will be assigned to the incident to coordinate with the Unit assigned POC. The specialist will work with the Unit POC to either create a fire perimeter in WFDSS or upload the fire's most current shape file.
4. The Fire Behavior Specialist will complete the WFDSS-FSPro assessments. Depending upon National and Geographic Area fire activity and the incident's priority status within the National WFDSS structure, results may take from one to seventy-two hours to run, validate, and be prepared for decision maker use.
5. The Values Inventory process has been automated for the 2009 Fire season and it is the Unit's responsibility to complete this assessment on the Situation tab in WFDSS. Since the RAVAR analysis tool is not yet completely automated, some manual effort is required to complete a RAVAR analysis. Units will initiate the RAVAR request in WFDSS following concurrence with their Agency POC.
6. The WFDSS-SCI analysis has been automated for the 2009 season. The WFDSS-SCI analysis will be based upon the fire information entered by the Unit POC. It is the Unit's responsibility to request the WFDSS-SCI analysis on the View Information tab for the incident in question. Agency POC's can assist Units in interpretation of the analysis,
7. When WFDSS-FSPro or RAVAR results are available, the analyst will notify the Unit POC to coordinate a briefing of the results to the appropriate audience. The Fire Behavior Specialist will assist units in downloading files for viewing and printing. Briefings may occur over the phone or in person, depending upon activity. Units will take the lead role in identifying who should be involved in the briefing (Agency Administrators, FMO, FUMA, IMT, etc.).
8. Updates to the original WFDSS-FSPro run should be requested through their Agency's identified POC or RMACC as specified in item 1 above.

UNIT RESPONSIBILITY:

1. Prior to the fire season, request and obtain a user's login and password. The WFDSS tools are located at http://wfdss.usgs.gov/wfdss/WFDSS_Home.shtml. At a minimum, Unit FMOs and AFMOs, should request a user profile with sufficient edit access (author) privileges to initiate and review incident analysis.
 - a. Develop a local Unit level Fire Behavior Specialist cadre
 - b. Review the Landfire fuel model and canopy fuels layers for the Unit to be able to provide any necessary local adjustment/modifications to the assigned analyst.
2. Provide ongoing prioritization of Unit incidents requiring WFDSS support.
3. Identify Unit point-of-contact to work with the assigned WFDSS analyst. These individuals need to be able to articulate to the analyst what values are at risk to the fire; understand the fire strategy and be able to provide information on fire behavior, line constructed, natural barriers to fire spread, fuel models, vegetation, fuel moistures,

representative weather stations; and provide current fire perimeter shape file for program uploading.

4. If an Incident Management Team (IMT) is assigned, the Unit will determine if the team will be formally delegated WFDSS responsibilities or if the Unit assigned POC will continue working with the analyst and coordinate IMT involvement and needs.
5. Request an RMA Decision Support Group if needed.
6. Request preseason assistance and training if needed.
7. Identify individuals who are willing to train and participate as WFDSS Fire Behavior Specialist.

ROCKY MOUNTAIN COORDINATING GROUP/RMACC RESPONSIBILITY:

1. Provide ongoing prioritization of incidents within the Geographic Area requiring WFDSS support.
2. Recruit and coordinate an RMA DSG cadre including a Fire Behavior Specialist support/mentoring cadre.
3. Assign a Fire Behavior Specialist to work with the Unit’s identified POC Fire Behavior Specialist if the Agency POC is not available.
4. Establish a Decision Support Group at RMACC at PL IV or higher.

Table 1 – WFDSS USER ROLES and Minimum RMA Prerequisites

USER ROLE	WFDSS Privileges	RMA Minimum Qualifications
Viewer	<ul style="list-style-type: none"> • Is the minimum level of access for all WFDSS users. • View incident information for all WFDSS incidents and groups. • Cannot Edit 	<ul style="list-style-type: none"> • None – To Be granted WFDSS access non-federal users need to provide documentation that they have completed an approved computer security awareness training. For users who have a Federal e-mail address, it is assumed that they have taken an approved security awareness training
Dispatcher (Incident Initiation)	<ul style="list-style-type: none"> • Enter information for a new WFDSS incident within their geographic area. • Edit incident information for incidents they created, until ownership is assigned • Run simple (unsupervised) fire behavior analyses 	<ul style="list-style-type: none"> • Complete basic WFDSS training on how to create and incident available on the WFDSS website
Author	<ul style="list-style-type: none"> • Enter information for a new WFDSS incident. 	<ul style="list-style-type: none"> • Needs to complete basic WFDSS training

USER ROLE	WFDSS Privileges	RMA Minimum Qualifications
	<ul style="list-style-type: none"> • Edit incident information for incidents they create. • Grant privileges to other users for incidents they have authored. • Run simple (unsupervised) fire behavior analyses. • Request an analyst be assigned for fire behavior modeling and RAVAR analysis. • Create a group or complex from individual incidents. 	<p>available on the WFDSS website</p>
<p>Fire Behavior Specialist²</p> <p>Requires previous fire behavior modeling experience</p>	<ul style="list-style-type: none"> • Conducts “supervised” fire behavior analyses and modify inputs as needed. • Accept (or reject) the results of the fire behavior analyses. • Grant privileges to other analysts for analyses they have created. • Interpret fire behavior analyses for other users. 	<ul style="list-style-type: none"> • Users requesting this role should have previous fire behavior modeling experience, including evaluating and modifying landscape files, historic climate, and forecasted weather as this role utilizes geospatial fire behavior models. • The minimum qualifications are approached in the same manner as the RERAP and FARSITE technical specialist positions. S-490 along with S-492 and S-493, or S-495 and/or being a qualified FBAN or LTAN with FSPro training/experience is required. • Users requesting this role should provide their agency POC documentation of their completion of the minimum requirements
<p>Geographic Area Editor (Agency Point of Contact)</p>	<ul style="list-style-type: none"> • Edit WFDSS incidents within their geographic area (GA). 	<ul style="list-style-type: none"> • As determined by the

² Any role higher than Viewer can complete a short-term fire behavior analysis. Training is available on the WFDSS website. S-490 is the minimum RMA suggested prerequisite.

USER ROLE	WFDSS Privileges	RMA Minimum Qualifications
	<ul style="list-style-type: none"> • Request and cancel analyses for WFDSS incidents in their GA. • Prioritize analysis requests within their GA. • Authorize new Viewer, Author, Dispatcher, and Fire Behavior Specialist roles in their GA. 	individual Agency