Wildland Fire Management RD&A
National Fire Decision Support Center

Values Analyses (including RAVAR)
2011 Update and External Standard Operating Procedure
June 2011

Background

Analyzing values that may be affected by fire is an important objective in fire management. Following initial testing in 2005, values analysis associated with WFDSS was available by conducting a Rapid Assessment of Values at Risk (RAVAR). Over the past few years, WFDSS has incorporated several new values analysis tools, including some features of the RAVAR products; thus enabling faster access to information without the need for additional analysis outside of WFDSS. Within WFDSS values can be viewed on any map and tables quantifying values associated with planning areas and fire behavior analyses are automatically generated. However, not all RAVAR products are incorporated and due to issues regarding data availability, there may still be need for portions or all of the RAVAR products to be produced by a RAVAR analyst.

Values information may be instrumental in developing incident relative risk, objectives and courses of action within WFDSS. Because the data and analyses are intended solely for strategic planning, not tactical decisions, it is critical that onsite assessment through local expertise or field reconnaissance be completed prior to developing tactics. For example, Building Clusters represent each parcel where county assessor records indicate taxable improvements are present. One or more structures and other improvements may exist proximate to these point locations. Accuracy of cluster points decreases with large parcel areas.

The purpose of this update and SOP is to help local units understand what information is currently available, which of the values assessments are beneficial, and how to obtain the products.

Changes for 2011

Terminology

Values Analysis will be the general term used when referring to the assessment of values that may be affected by a fire. The term encompasses the suite of values information available through WFDSS and the RAVAR process:

WFDSS

Planning Area Values Inventory is an inventory of the values identified within a drawn WFDSS planning area.

Short Term Fire Behavior Values Inventory is an inventory of the values identified within the projected fire growth area.

Near Term Fire Behavior Values Inventory is an inventory of the values identified within a projected fire growth area.

FSPro Values at Risk is an inventory of the values identified within projected fire probability contours. The inventory is broken out by probability zone and an expected value is calculated. FSPro Values at Risk can be obtained in WFDSS FSPro results or the RAVAR report.

RAVAR

RAVAR refers to the process of assessing FSPro Values at Risk external to WFDSS and includes two main products: a report with tabular data for Values at Risk and assessment of proximity of those values to the fire and a detailed, scalable, standardized, printable Critical Infrastructure Map.

Available information

In addition to FSPro Values at Risk, values inventory for short-term fire behavior, near-term fire behavior, and planning areas are now available in WFDSS.

Values can be viewed on all maps in WFDSS. All values are displayed, not just those within a planning area or fire behavior analysis.

Many structures, improvements and other values can be displayed in any map in WFDSS.

WFDSS Unit Shapes allows data managers to add local data which will be included in values analyses tabular outputs if “include in Values” button is selected.

Processes

It is recommended that the various values analyses included in WFDSS be used to determine values information for a fire, but if RAVAR products are needed they are requested through the GA editor rather than through WFDSS. The request option has been removed from WFDSS because many components of RAVAR are now available for most of the continental US in WFDSS.

How to make a RAVAR request in 2011

1) Determine need – see table 2 to determine what products you need.
2) Request via GA editor – if you do not have local capacity to develop the requested products or you need data, contact your GA editor. http://frames.nbii.gov/documents/wfdss/GA_Editor_List.pdf or search in WFDSS Address Book by GA editor for current list.
3) GA editor will identify analyst within geographic area.
4) GA editor will contact NFDSC if no local analyst is available.
5) GA editor/NFDSC will coordinate to identify analyst and provide data.
6) Review of product completed by GA editor or designee
7) Product delivered to requesting party.

NFDSC contact number
208-473-8107

Values information in WFDSS and RAVAR

WFDSS

WFDSS now includes tabular outputs and displays of values associated with planning areas, short-term fire behavior (STFB), near-term fire behavior (NTFB) and FSPro. All of these products are automatically generated, usually less than one minute after requested. Values inventory for a planning area is automatically included in the decision. Values information from fire behavior analyses with a status of 'Complete' is automatically available to include in a decision or a report – they can be included through the edit decision or edit report process. Values can be viewed from any map in WFDSS.

Planning Area Values Inventory – This table lists all values within the defined planning area. The list gives a manager an indication of the types and quantity of values that may need consideration when developing objectives and course of action. This Values Inventory is only available to all viewers when a decision is published.

Short-term Fire Behavior and Near-term Fire Behavior Values Inventory – This table lists all values within the projected fire growth area for the time period specified in the analysis. These values are expected to be impacted by fire in the immediate future. Further details, obtain from local expertise or field reconnaissance, may be warranted to determine protection needs or fire objectives.

FSPro Values at Risk – This table displays the type and quantity of values by probability of being impacted at some time within the FSPro analysis period. Additionally expected value is calculated. This information may be helpful to determine which values are most likely to be impacted in the future and may require more detailed information, objectives and courses of action.

Tabular values information can be viewed (table 1) in a decision, report, the Situation Map in an Incident and the View Landscape, Analysis Map, and Results options in an Analysis (table 1). Planning Area Values Inventory is automatically included in the decision document. Values information associated with fire behavior analyses can be viewed in the Decision or Report Editor in the Incident Content Tree and can be added to the decision or report (figure 1). Values information is accessed in the maps via the down arrow next to the category in the table of contents for the display (figure 2).

Table 1. Location of display of values and tabular values information in WFDSS

Location in WFDSS	Map display	Tabular Data			
		Planning Area	STFB	NTFB	FSPro
Intelligence	X				
Incident					
Decision Tab		X	X*	X*	X*
Report Tab		X**	X*	X*	X*
Situation Tab	X	X	X*	X*	X*
Analysis					
Analysis Map	X	X			
View Landscape	X		X	X	X
Results	X		X	X	X

* Only analyses accepted by the analyst and marked complete are available. Values information must be added to a report or decision, but is available in the Editor for easy inclusion.

**Planning area values inventory is only available when there is a published decision.

Figure 1. Decision Editor with Incident Content and Decision Content.

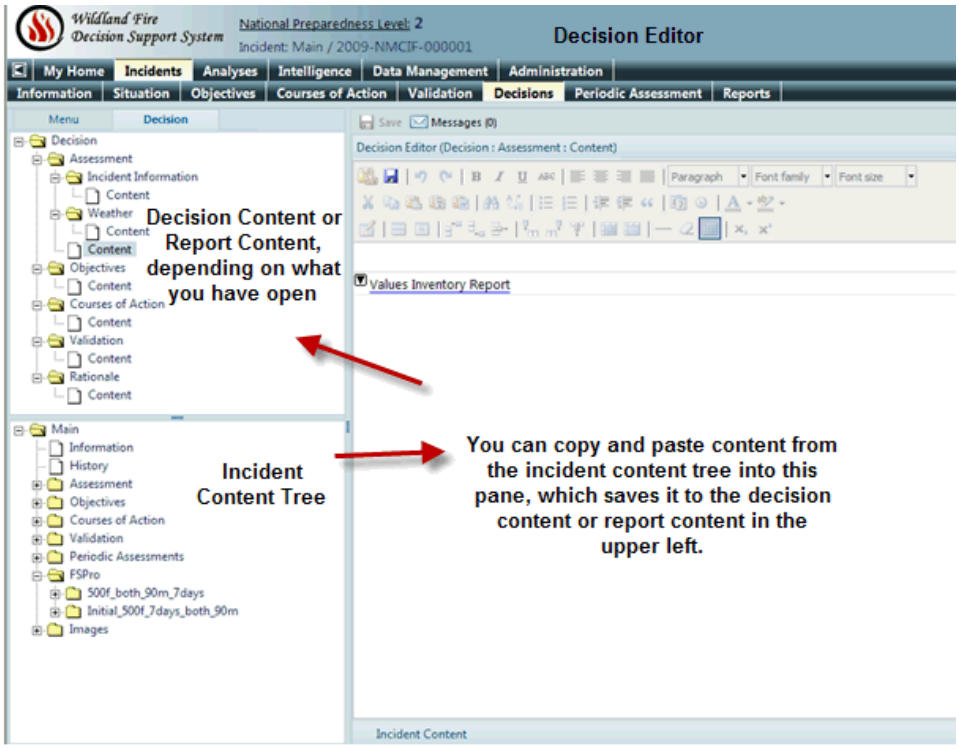
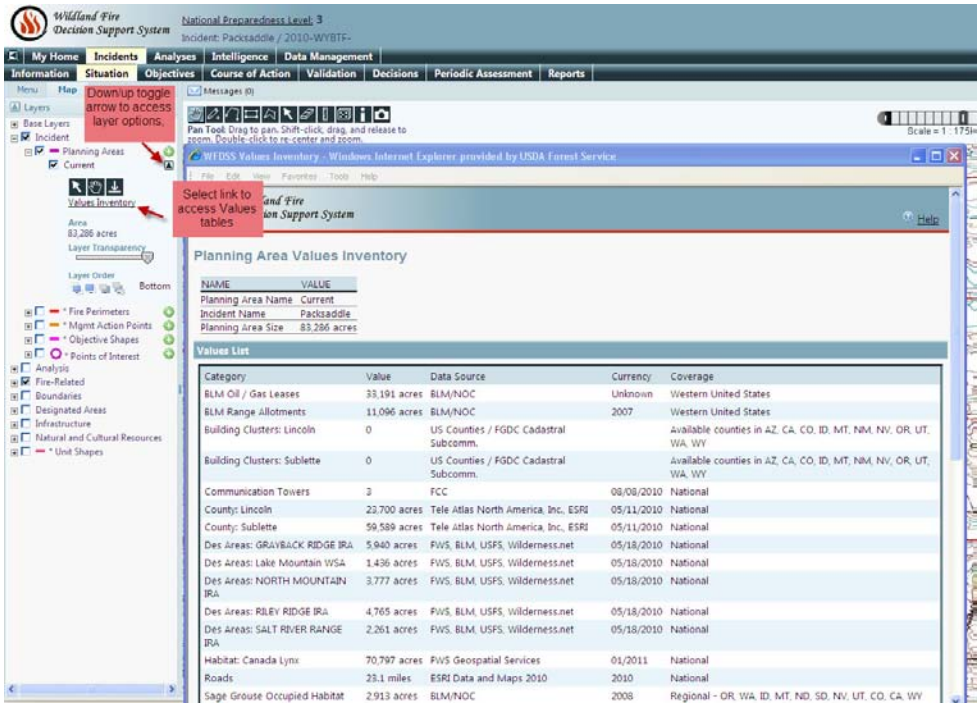


Figure 2. Values Inventory for a Planning Area.



RAVAR

Rapid Assessment of Values at Risk is the original source of values information associated with WFDSS. Using FSPro outputs, RAVAR assesses values impacted by fire by probability zone during the analysis period. RAVAR products include a report with tabular counts of various values and a verbal description of selected values and the distance to the fire and a standardized, printable Critical Infrastructure Map of the values, FSPro analysis and local features. A full RAVAR analysis is completed by a trained analyst and can take from 4 – 10 hours depending on the experience of the analyst and the complexity and size of the fire. Either or both products can be developed; however, creation of the RAVAR report requires some of the work necessary to develop the map. Development of just the Critical Infrastructure Map will take 30 minutes to several hours depending on data availability and incident complexity.

RAVAR Critical Infrastructure Map – This map is developed in ArcMap using FSPro output and values data layers. The map displays the values in relation to the FSPro analysis and other selected geographic features. The map can be variously scaled and printed.

RAVAR Report – The report includes tabular data regarding the type and quantity of values by probability of being impacted at some time within the FSPro analysis period and expected value.
Additionally the report includes an itemization of certain values and their proximity to the current fire perimeter.

Comparison of WFDSS and RAVAR

Table 2 provides a reference for determining the most effective source of information for the current fire situation.

Table 2. Comparison of WFDSS and RAVAR products and time required to produce them.

	Location of Products and Time to Generate	
Values Information	WFDSS	RAVAR
Tabular inventory of values in a planning area	Situation Map, Analysis Map, Decision Content, Report Editor after a decision is published < 1 minute	Not Available
Tabular inventory of values within a short-term fire behavior projection	STFB results map/report Situation map after STFB analysis is marked "complete", Decision and Report Editor < 1 minute	Not Available
Tabular inventory of values within a near-term fire behavior projection	NTFB results map/report Situation map after NTFB analysis is marked "complete", Decision and Report Editor < 1 minute	Not Available
Tabular inventory of Values at Risk related to an FSPro analysis	FSPro results map/report Situation map after FSPro analysis is marked "complete", Decision and Report Editor < 1 minute	RAVAR report 4 – 10 hours
Display of values	Situation Map, Analysis Map, View Landscape, Results (see table 1 for details on locations) < 1 minute	Critical Infrastructure Map with Values at Risk from FSPro Analysis 30 minutes – 4 hours
Printable/scalable maps	Can print screen captures, but cannot change scale once captured. Not intended for large displays. < 1 minute	Critical Infrastructure Map for Values at Risk is an ArcMap product. 30 minutes – 4 hours
Assessment of location of values relative to the fire	Can be done manually via the maps using the measuring tool Time varies depending on number of values assessed – 5 minutes and up	RAVAR report - completed by RAVAR analyst 4 – 10 hours Can be done manually in ArcMap using measuring tool once Critical Infrastructure Map is created ArcMap. Time varies depending on number of values assessed – 5 minutes and up (after map is created)

When is RAVAR necessary and what products should be requested?

RAVAR is only available for Values at Risk generated in relation to FSPro. There are no STFB, NTFB RAVAR products.

Request a Critical Infrastructure Map when a printable/scalable map of Values at Risk is required. A RAVAR analyst can develop the map but may need to request data from NFDSC. NOTE: This map is produced following instructions in the RAVAR Analyst Manual (http://wfdss.usgs.gov/wfdss/WFDSS_Resources.shtml scroll to WFDSS Tools).

Request a RAVAR report when a tabular count of building clusters at risk is needed and cadastral data are not available in WFDSS for the incident.

Request a RAVAR analysis when both products are required.