

Appendix N

Wildland Fire Decision Support System Information

WFDSS Subsections

The Wildland Fire Decision Support System is divided into 9 subsections represented by tabs within the program. These sections are: Information, Situation, Assessment, Objectives, Course of Action, Cost, Decisions, Periodic Assessment, and Reports.

Information

Basic information for an incident is found in this section, which includes: Incident Name, Point of Origin, Unique Fire Identifier, Fire Code, Fire Perimeter/Incident Size, Discovery Date, Containment Date, Controlled Date, Out Date, Landscape Data Source, Geographic Area, Responsible Unit at Point of Origin, Incident Cause, and Jurisdictional Agency at Point of Origin. Updating this information is essential for ongoing incidents (especially acreages and dates) as this information is automatically populated into the WFDSS Decision content. WFDSS is connected with the Integrated Reporting of Wildland fire Information (IRWIN) and transfers information to and from other fire applications through IRWIN. See the IRWIN website <http://www.doi.gov/pmb/owf/irwin.cfm> for current information regarding shared information and order of precedence of the system for editing data. It is also important that the incident Owner(s) are available when the incident is updated or transferred. Incident ownership may be associated with an individual or group, depending on fire complexity, jurisdictions involved, and other considerations.

Situation

The Situation section provides a map interface displaying a variety of incident and reference information. It reduces the need for paper maps by giving users a dynamic and intuitive interface in which information needed for decision support is timely and easily accessible from anywhere with an internet connection. This section allows users to create new shape files, view values and boundaries, and conduct Basic and Short-Term fire analysis.

Map (sub tab) – Has several spatial layers available:

- Base Layers – USGS Topo Imagery, USGS Imagery, USGS Topos, ESRI Topos, ESRI World Imagery, WFDSS Topos, Google Maps, Google Physical, U.S. States;
- Incident – Planning Areas, Fire Perimeters, Management Action Points, Points of Interest, Objective Shapes, Point of Origin;

- Analysis – Ignitions, Barriers, Landscape Masks, Basic Fire Behavior, Short Term Fire Behavior, Near Term Fire Behavior, FSPro (Values at Risk);
- Fire Environment and Safety – Active MODIS 6, Active MODIS 12, Active MODIS 24, MODIS YTD, VIIRS-I 6, VIIRS-I 12, VIIRS-I 24, VIIRS-I YTD, Est Ground Evac Time, Retardant Avoidance, Aquatic Res Avoidance, Incidents, Active Planning Areas;
- Disturbance History – WFDSS Fires Since January 1 of Current Year, Historical Wildfires, Fuel Treatments, Burn Severity;
- Fire Weather and Danger – Significant Fire Potential, Fire Wx Zones, RAWS Stations;
- Boundaries – Jurisdictional Agencies, Responsible Agencies, Federal Admin Areas, TNC Lands, Counties;
- Designated Areas – Wilderness, Potential Wilderness, Special, Other, BLM;
- Infrastructure – Facilities, Communication, Energy, Roads and Trails;
- Natural and Cultural Resources – Air Quality, Critical Habitat (T&E), Sage Grouse Habitat; and
- Unit Fire Planning – Unit Outlines, FMUs, and Other Unit Shapes for each agency unit shown on the map. Data managers can upload shape files that contain information about local values.

Menu (sub tab) – Provides links to other tools and utilities within WFDSS.

Info (sub tab) – the user can access Information and the Map Capture tool. Information includes: Feature Information, Fire Danger (ERC charts), Smoke Dispersion, Strategic Objectives, Fire Weather Forecasts, Predictive Services Significant Fire Potential, and Hourly Weather Forecast. Additionally users can access basic information about the underlying landscape file: Source, Elevation, Aspect, Slope, Fuel Model, Canopy Cover, Bulk Density, Stand Height, Base Height.

Assessment

Users complete the Relative Risk Assessment and Organization Assessment, create Risk Tables identifying local values at risk, and identify Benefits expected from the fire.

Objectives

Strategic Objectives and Management Requirements as entered from approved plans (Land and Resource Management Plans, Fire Management Plans) can be viewed here. Based on the Planning Area, Strategic Objectives and Management Requirements are automatically loaded to the Decision content for reference when a new fire occurs. Incident Objectives and Incident Requirements are created for an individual incident. Incident Objectives address protection of assets, social-political needs, or use of fire for resource benefits, but at least one protection objective is required on every incident. Develop good Incident

Objectives by addressing What, Where, When (optional), and Why in order to express leader's intent and a sense of priority. When possible, limit Incident Objectives to five so as not to bury important information. See www.wfmrda.nwcg.gov/line_officer_resources.php for more information. Incident Requirements state the limitations that the Agency Administrator imposes on fire managers associated with achieving the Incident Objectives in alignment with the overarching Strategic Objectives.

Spatial Fire Planning (SFP) is an optional planning process available to spatially describe an administrative unit's Strategic Objectives and Management Requirements. For more information about WFDSS Spatial Fire Planning, refer to the WFDSS homepage: <http://wfdss.usgs.gov>.

Course of Action

The Course of Action (COA) tab is where Incident Owners and Editors can describe the overall fire management strategy and develop and document one or more Action Items that will accomplish the Incident Objectives and Requirements developed for an Incident. The COA should express the leader's (Agency Administrator) intent, and should be aligned with direction provided in the delegation of authority. A COA is a required part of a decision and must contain at least one action item. Users can edit, include, or exclude action items each time a new decision is made for the incident.

Management Action Points (MAPs) (left menu) may be developed to define a condition that when met, prompts implementation of a pre-determined action. The Condition, Action, and optional Cost can be defined and linked to geospatial MAPs drawn in the Situation tab.

Cost

Several methods for determining cost can be found here; follow your agency direction and include a summary of how the cost was constructed. The Stratified Cost Index (SCI) tool is available for USFS and DOI incidents. The correct model is automatically chosen by the Unit ID in the Unique Fire Identifier. The model requires input for the estimate final acreage of the incident. Users can input up to four different estimated acreages.

Decisions

In this section, users create, view, edit, and download published decisions. It is important that Owners, Editors, and Reviewers become familiar with their role and understand how to manipulate the incident content into the Decision Content. Additionally, knowing and understanding how and where to save information as agreed upon by the incident Owner(s) are essential. From this tab, an Owner(s) starts the review and approval process. Incident decisions can be edited by incident Owners or by those users who have been granted access through incident privileges. Users will access the decision editor by checking the

radio button next to the pending decision, then clicking EDIT. Once editing is completed, users click the Check-In button to allow access by others.

The WFDSS Decision content is outlined into several sections: Incident-Information, Weather, Modeling, Risk, Benefits, Objectives (includes all FMUs, Strategic Objectives and Management Requirements included in the Planning Area as well as all included Incident Objectives and Incident Requirements), Course of Action (includes MAPs), Cost, and Rationale. Multiple editors can be working on different sections of the WFDSS Decision content with a little coordination and using the edit / check-in process. Additional information that supports the Decision should be added to each of these sections.

The users who are editing the Decision content should include maps captures or uploaded images that support the Decision or help tell the story of the incident and the Decision. These images can be added to any section of the content as needed. Additionally, the Editors should also include all support information: cost development summary, Relative Risk, social/political concerns, fire behavior models, Values at Risk, long term assessment information.

Prior to submitting a Decision for the Review and Approval process, the Rationale portion of the Decision must be completed. The Rationale content should describe why the Decision was made to implement the Course(s) of Action. Consider explaining what caused you to make this Decision, what caused you to choose the Course(s) of Action, what are the causes and influences on the incident, what are the social and political concerns/pressures, what does the Relative Risk Assessment tell you, are there smoke concerns, and what fire behavior models informed the Decision.

Once a Decision has all the sections completed, it can be submitted for the Review and Approval process. If a Decision has not been published, it can be edited or deleted. However, once a Decision has been published, it is part of that incident record and cannot be changed or removed.

The Incident Objectives, Incident Requirements, Course of Action and Planning Area cannot be viewed by users who do not have incident ownership or privileges until a Decision is published. A new Decision must be made if updated information or findings are to be documented.

Periodic Assessment

This is the section where the Approver(s) will complete the Periodic Assessment and view the previous actions and comments. The Periodic Assessment must be completed based on the timeframe specified by the Approver. Depending upon the complexity and activity on the incident, the timeframe can be set to 1-14 days while publishing the Decision or during the Periodic Assessment process.

It is beneficial to document clear, concise information about the incident when completing the Periodic Assessment. The Periodic Assessment information will be part of the project record and a way for someone to gather situational awareness of the incident. It should be useful information, not only during the incident, but also for years to come when reviewing incidents. The comment section is especially pertinent because Approvers can outline the thought process and reasons for either continuing a current decision or requiring a new one.

Reports

This section allows users to create custom reports consisting of portions of Decision content, (e.g. the MAP content or Fire Behavior content). A report can be viewed, edited, published, and downloaded. The Report section does not provide a report on a Published Decision. Reports on Published Decisions can be found in the Decisions tab by using the PDF or HTML button, depending on desired format. When creating a report the user can decide on a custom, Delegation of Authority, or a Management Action Point report. These reports give the user the ability to select pertinent information from the incident for the report they are constructing.

WFDSS Tools and Functions

WFDSS User Roles and Incident Privileges

User Roles within WFDSS correspond to permissions which allow users to perform certain tasks within the application, such as creating an incident or conducting fire behavior analysis. Typical User Roles are Viewer, Dispatcher, Author, Data Manager, and Fire Behavior Specialist.

Incident privileges are assigned at the time of (and are specific to) an incident. These privileges allow you to Own, Edit, Review, or Approve decision content.

Fire Modeling

Fire modeling has been incorporated into WFDSS, in the form of the Fire Spread Probability model (FSPro), Basic Fire Behavior (Basic), Short Term Fire Behavior (STFB) and Near Term Fire Behavior (NTFB). Comparison of WFDSS Short Term and Basic models to stand alone FlamMap and other fire behavior information can be found on the WFDSS homepage under the Related References link, fire behavior section. Information for requesting assistance in running these models for your incident can be found at the WFDSS homepage through the Wildland Fire Management Research and Development and Application group, or by visiting http://www.wfmrda.nwcg.gov/decision_support.php.

Relative Risk Assessment (Assessment Tab or left menu)

The Relative Risk Assessment is required before publishing a Decision for an incident. Its purpose is to assist in planning for, assessing, and managing the

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incident. It provides the Agency Administrator with a quick but comprehensive assessment of the risk of the fire. An incident Owner or Editor can perform the assessment.

This is a qualitative process that can be completed in less time than a quantitative long-term risk assessment. The Relative Risk Assessment chart uses three risk components:

- values
- hazard
- probability

Each of these components is assessed independently. The three outputs are then evaluated in a final step that provides the Relative Risk rating for the fire. As the graphs are completed, there is a text box to document the thoughts/reasons for the inputs. The information from the text box automatically populates in the WFDSS Decision content but the graphs themselves do not. Relative Risk can be visited pre-season to define some local inputs. From the Relative Risk rating, guidance is provided within the system to assist the Owner/Author in determining the level of analysis needed, considerations for the incident and documentation of the Decision.

Organizational Assessment (Assessment Tab or left menu)

The Organizational Assessment (OA) is required to publish a Decision for an incident. It guides Agency Administrators in their management organization selection, both in escalating and moderating situations (.i.e. this process can be used to expand or contract organizations). The OA is based on Relative Risk, implementation difficulty, and decision concerns. The final part of the OA combines these variables to allow users to select the level of incident management needed.

Incident KMZ (left menu)

Incident KMZ files can be downloaded that include all the incident spatial data and completed analysis from the Published Decision(s). The spatial data is composed of the incident shapes found under the Incident and Analysis layers folder on the Situation Tab. If a decision is pending, only spatial information available to all users will be provided in the KMZ.

WFDSS Suggested Refresher Items

Visit the WFM RD&A Line Officer Resources page for current refresher and training materials at http://www.wfmrda.nwcg.gov/line_officer_resources.php.

It is suggested that the following items are covered in an annual WFDSS refresher. Utilize the WFDSS 101 training for details in any of the topical areas below. Suggested minimum duration for review is two hours.

Strategic Objectives and Requirements – briefly review what is currently pre-loaded in WFDSS, discuss if there is conflicting information within the same Strategic Objective (SO) or FMU, and evaluate what fire management options can be utilized within each SO/FMU. Determine if edits are needed to update the information currently in WFDSS.

Boundary Fires – discuss, with interagency partners, how fires will be managed along boundaries. Utilize a fire scenario for this discussion if possible and work through the WFDSS process.

Fire Scenario – discuss/input the fire scenario in WFDSS Training.

- Utilize a fire scenario that is somewhat complex and includes interagency partners.
- Planning Area – draw a planning area with dialogue around how to draw it and what to include within it.
- Values Inventory – review the values inventory as provided in WFDSS from the planning area.
- Situation Tab – review information available in the situation tab.
- Relative Risk and Organizational Assessment – complete this process making notes of what various elements were rated the way they were.
- Incident Objectives / Incident Requirements – write them for the scenario. Review to ensure they provide leader’s intent and the “why” type information.
- Course of Action – develop a course of action that further explains leader’s intent, the priorities for the incident, and as needed, what not to do.
- Scenarios – as the above information is developed, discuss the potential scenarios and document those actions not taken in the assessment or rationale.
- Rationale – draft the rationale to include “My decision is…” information. This is the executive summary of the document. Consider documenting what is allowed in the management plan, the probability of being successful, the expected duration, and what was considered but rejected. The Rationale section provides a list of items to consider addressing and discussing.
- If interagency partners are not involved in the scenario, discuss who, when and how they would have been involved during an incident.

Fire Behavior Models –

- Discuss the various models (FSPro, NTFB, STFB) and when any of them might be utilized.
- Review the values at risk information provided by the models and how it varies from the values inventory.

- Discuss how the models might be utilized to answer what types of questions.
- Review products previously utilized by the forest to evaluate risk on a fire or assist with decision making.