

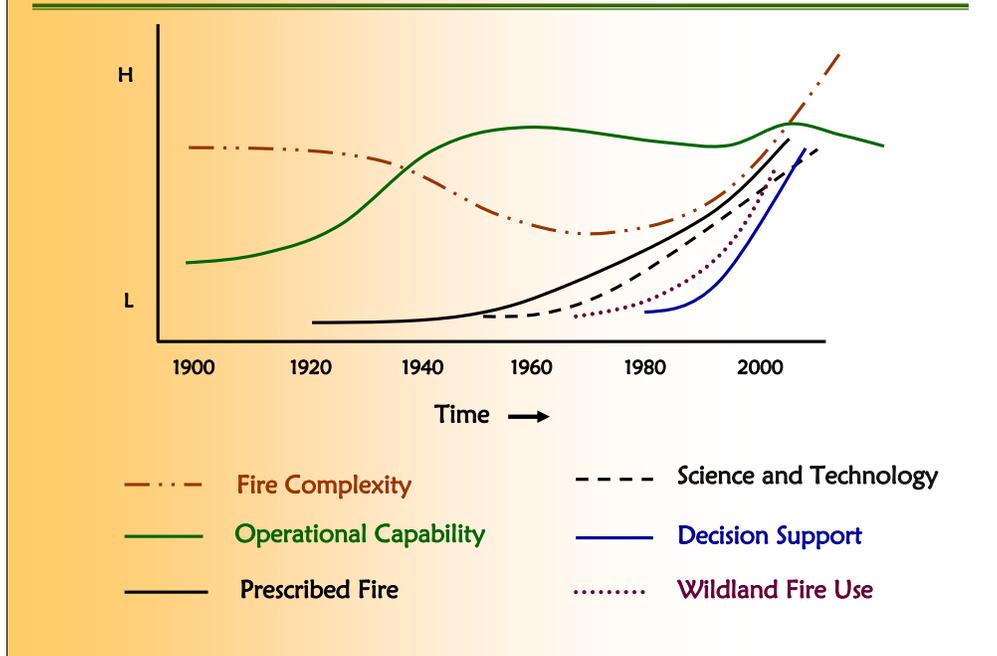


Wildland Fire Decision Support System

System Content and Element Descriptions

Wildland Fire Management RD&A
National Interagency Fire Center
Boise, Idaho

Wildland Fire Management – Complexity and Capability



This graph shows how the six elements have changed over time. It is discussed how the numbers of IMTs have declined over time and reduced our operational capacity. We have to make better use of science, technology and decision support to meet demands.



Wildland Fire Decision Making



- Effective management predicated upon decision making,
- Resource availability can no longer match large fire occurrence,
- Management of large fire costs becoming increasingly important,
- Smallest percentage of total wildland fires – large fires, accounts for largest amount of expenditures,
- Initial strategic response decisions are most important in terms of resource commitments and expenditures.

Elements of Wildland Fire Decision Making



Decision Support - Scale



- Incident level (tactical)
 - Short-term temporally and spatially
 - Fine scale



- Incident level (strategic)
 - Broader scale



- Unit or Area level (strategic)
 - Both short- and long-term scales



- National level (strategic)
 - Long-term scale

Scalable from short duration to long duration event



Wildland Fire Documentation

- Documentation and analysis of wildland fire suppression decisions are required by federal agency policy when:
 - Wildland fires escape initial actions, or
 - Wildland fires being managed for resource benefits exceed prescriptions and are declared wildfires, or
 - Prescribed fires exceed prescriptions and are declared wildfires,
- An alternative selection decision and documentation process has been used for nearly 30 years for wildfires – Wildland Fire Situation Analysis Process (WFSA).



Wildland Fire Documentation

- Documentation of wildland fire use decisions are also required by federal agency policy,
- A process for documenting wildland fire use decisions has been developed - Wildland Fire Implementation Plan (WFIP).
- Implementation of long-duration fires is completed through a Long-Term Implementation Plan (LTIP) with a slight variant called a Strategic Implementation Plan (SIP)



Wildland Fire Implementation

- Following wildland fire decisions, implementation is guided by different processes depending on the objectives and timeframe:

Suppression, Short-Term

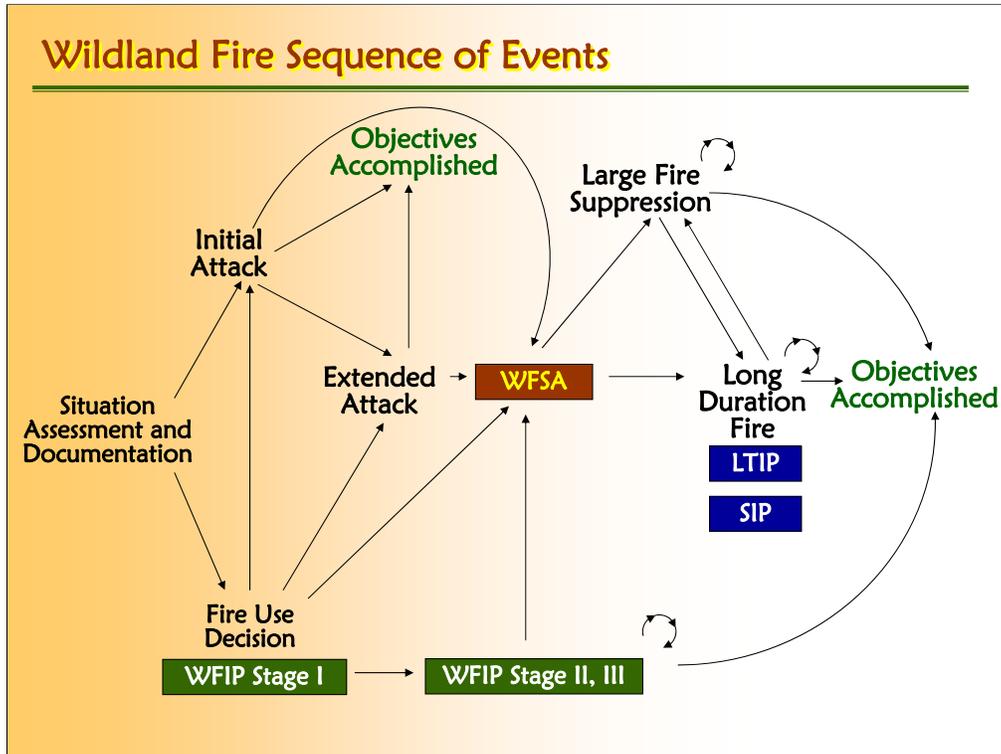
WFSA, Incident Action Plan (IAP)

Suppression, Long-Term

WFSA, Long-Term Implementation Plan (LTIP) or Strategic Implementation Plan (SIP), IAP

Wildland Fire Use

Wildland Fire Implementation Plan (WFIP), IAP



This is what we had with our old process.

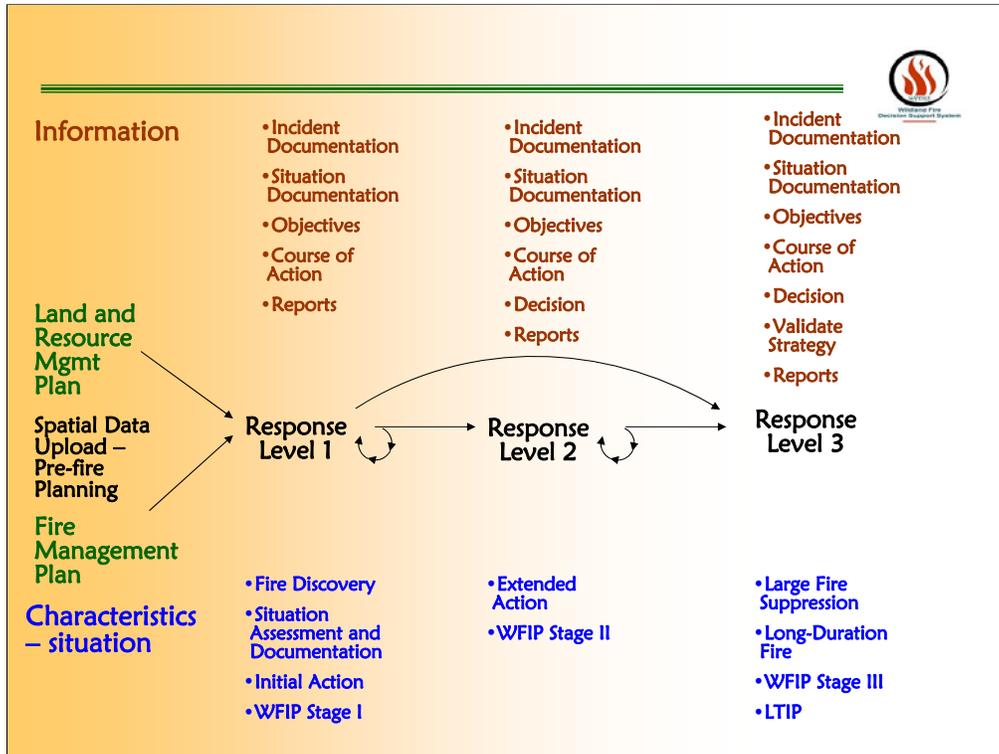


WFDSS — 2008 Policy Modifications



- Every wildland fire will be assessed following a decision support process that examines the full range of responses.
- The system currently under development is the Wildland Fire Decision Support System (WFDSS).

Policy should dictate the process. WFDSS documentation process is not tied to policy.



The new flow of decision process. We evolve through a series of response levels and analysis as our incident grows.

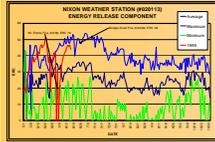


WFDSS - Goals of Development



- Documents strategic decisions,
- Provides decision support,
 - utilizes appropriate fire behavior modeling, economic principles, and information technology,
- Allows for operational plan preparation,
- Is linear, scalable, progressive, and responsive to fire complexity,
- Is spatially oriented, graphically displayed, with no reliance on large text input requirements,
- Is Internet-based to provide risk and decision sharing simply and efficiently,

Goals have been derived from out previous processes – WFSa, WFIP, LTIP



WFDSS - Goals of Development

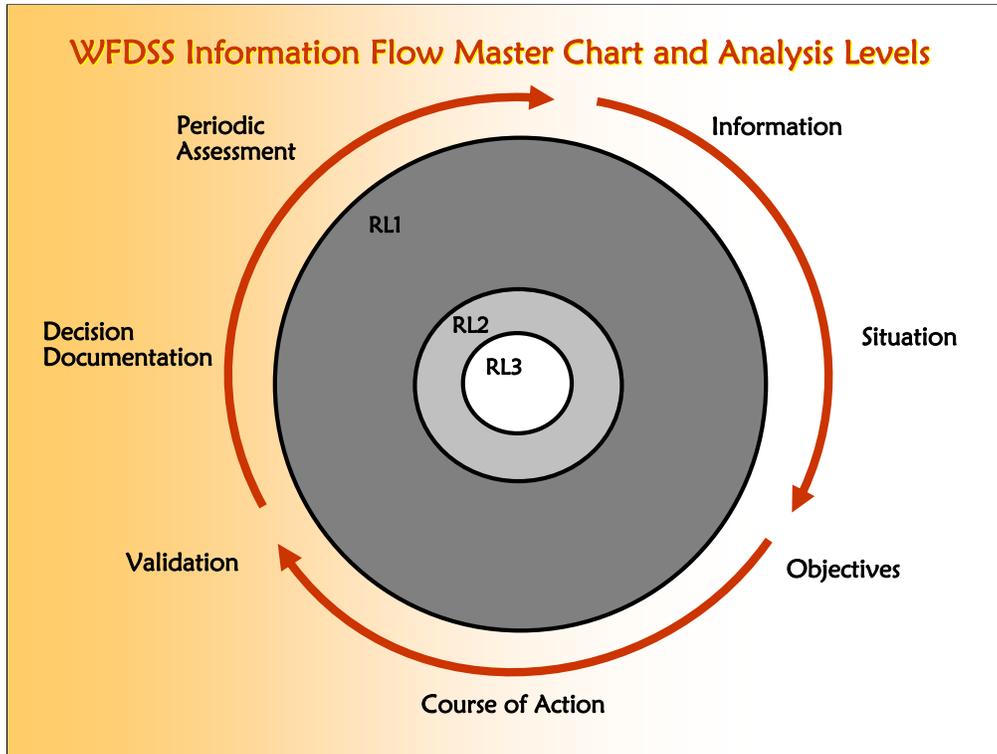


- Is applicable to all wildland fires as a single process,
- Replaces the multiple processes of WFSA, WFIP, LTIP, and SIP,
- Meets needs of all current users of the WFSA process.

Wildland Fire Decision Support System - Attributes

Primary Role	Documents strategic decisions, facilitates long-term risk assessment - decision support, and allows completion of an operational plan, commensurate with fire complexity
Strategic Objectives	Resource Benefits and Protection
Management Action Focus	Strategic and Tactical
Temporal Scale	Short to long
Spatial Scale	Incident or Complex
Validation	Defined Frequency
Revision/Update	Continually in response to conditions
Tactical Responses	Full range of tactical responses available and built into Course of Action

WFDSS Attributes



Changing response levels is similar to turning up the lights on our decision making process. When we are in our 90 -98% initial attack success, we may not need a lot of analysis to inform our decisions. As incidents escape initial attack or are being managed for resource benefit, we need more analysis to inform our decisions. We may require Farsite, FSPRO, or FlamMap modeling to inform our decision process with quantifiable information.

RL1- Response Level 1 requires little analysis for the majority of our fires -98% based on our historic IA Success

RL2- As incidents escape initial attack, more analysis needs to be completed to inform and support decisions. It is up to the user to decide analysis is important for the decision.

RL3 – Long term incidents (which are the least amount of incidents) require the most analysis. Users can still choose what is appropriate.

WFDSS – Information Flow



Information

Situation

Objectives

Course of Action

Validation

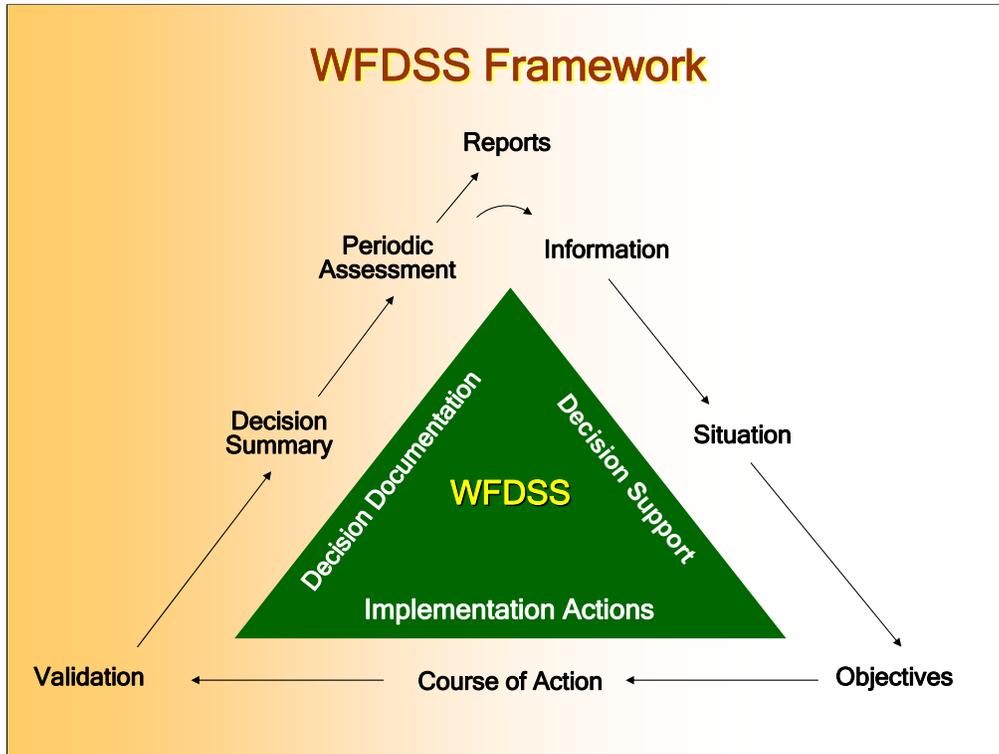
Decision Summary

Periodic Assessment

WFDSS has 7 Steps

The screenshot shows the WFDSS web application interface in Microsoft Internet Explorer. The browser title is "WFDSS Incident Information - Microsoft Internet Explorer provided by USDA Forest Service". The address bar shows the URL: "http://wfdss.usgs.gov/wfdss_prototypes/jsp/assessment/incident_list.jsp". The page header includes the USDA Forest Service logo and the text "National Preparedness Level: 1" and "Incident: Gila 2.11". The main navigation menu is highlighted with a red circle and contains the following tabs: Information, Situation, Objectives, Course of Action, Validation, Decision Summary, and Periodic Assessment. The "Objectives" tab is currently selected. The main content area displays the "Gila Incident Information" form, which includes fields for Incident Name, Geographic Area, Owner Name, Transfer Ownership, North Latitude, Day, Min, Sec, West Longitude, Day, Min, Sec, Shape Upload, Incident Privileges, Fire Number, Fire Code, Unit Name, Incident Size (acres), Incident Cause, Incident Start Date, Incident Start Time, Containment Date, Containment Time, Controlled Date, Controlled Time, Out Date, and Out Time. The form also includes a section for "Affected Jurisdictions" with checkboxes for various agencies and a "Save" button at the bottom.

WFDSS has 7 sub tabs to develop and document a **risk-informed decision** through analysis and deliberation.



This slide shows the 7 sub tabs of WFDSS and how they relate to the decision and implementation. Information, Situation and Objectives contribute to Decision Support. Course of Action within WFDSS is the Implementation Actions. Validation, Decision Summary and Periodic Assessment are the parts of WFDSS that are the Decision Documentation.

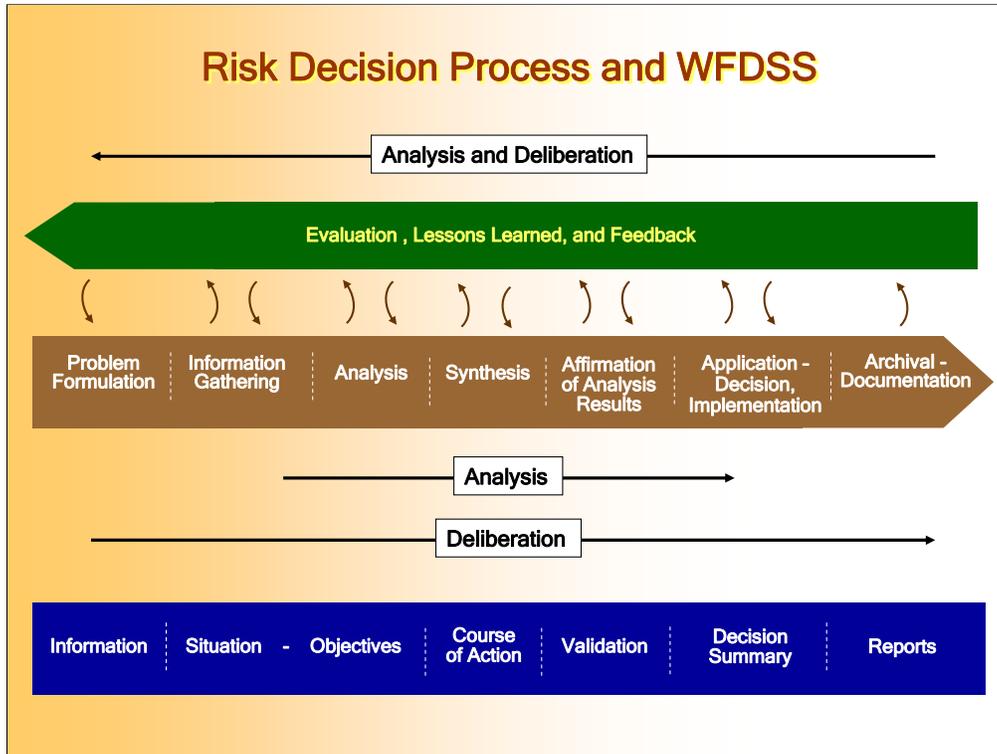


Decision Making: An Analytic - Deliberative Process



- **Risk-informed decision making** - requires two distinct but linked processes:
 - analysis
 - deliberation.
- **Analysis:**
 - rigorous, replicable methods to provide information about factual questions.
 - brings new information into the process - **informs deliberation.**
- **Deliberation:**
 - discussion, reflection, and persuasion to communicate, raise, and collectively consider issues, increase understanding, and facilitate substantive decisions.
 - brings new insights, questions, and problem formulations - **frames analysis.**

WFDSS will allow decision makers to make **risk-informed decisions** by providing analysis and deliberation.



The top portion of the slide shows a typical risk informed decision process through analysis and deliberation. The blue strip at the bottom of the slide shows the WFDSS decision flow process and how it lines up with the risk informed decision process above it.

In WFDSS the INFORMATION tab is the Problem Formulation of risk informed decision making. SITUATION and OBJECTIVES provide the Information Gathering and Analysis of the risk informed process. The COURSE OF ACTION is the Synthesis. VALIDATION is the Affirmation of Analysis results. DECISION SUMMARY is the Application-Decision Implementation. REPORTS aligns with the Archival Documentation.



Decision Support – Added Value

- How fire may burn (intensity, spread rates),
- Fuel conditions, departures from average,
- Fire dynamics,
- Fire danger and weather analysis,
- Fire history reviews, area burned, type of past fires,
- Probability of a fire reaching a planning area boundary
- Probability of season-ending event,

Decision support tools provide added value to risk informed decision making.



Decision Support – Added Value

- Indications of where the fire may spread, or total area that may be burned,
- How fast the fire will travel,
- How soon the fire may reach critical locations,
- Potential fire effects,
- Fire duration,
- Probability of fire impacting sensitive areas,
- Projections of values to be protected in the fire area and identification of values,
- Probability of where the fire will spread.

Decision support tools provide added value to risk informed decision making.

Subsection Areas and Information Flow Master Chart

Information



Purpose:

Documents the initial and continuing fire situation, and provides required information to complete administrative fire reporting.

Situation

Objectives

Course of Action

Validation

Decision Summary

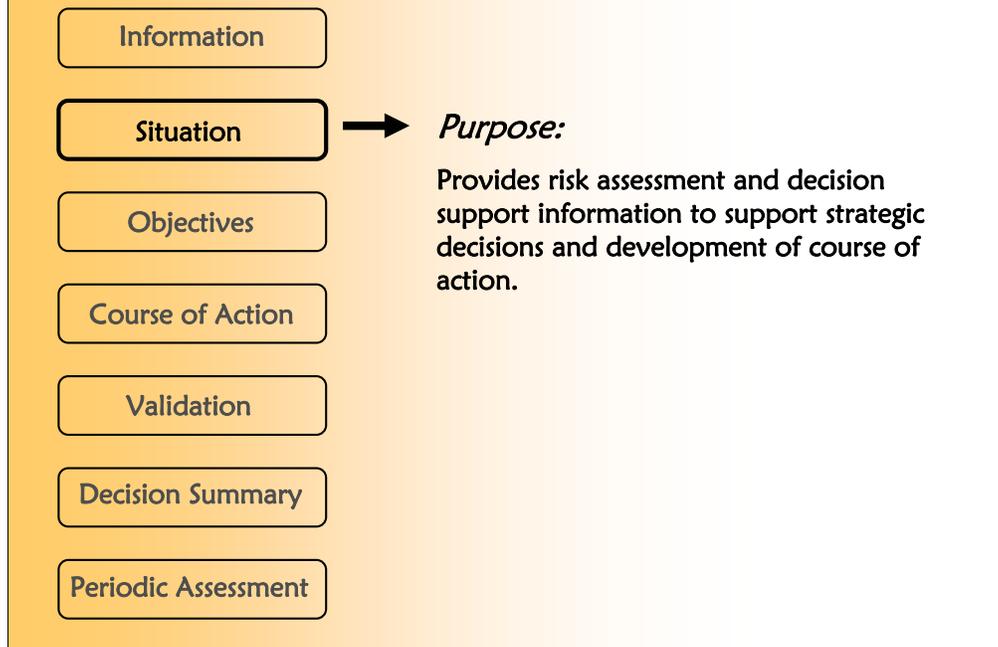
Periodic Assessment

INFORMATION

Purpose:

Documents the initial and continuing fire situation, and provides required information to complete administrative fire reporting.

Subsection Areas and Information Flow Master Chart

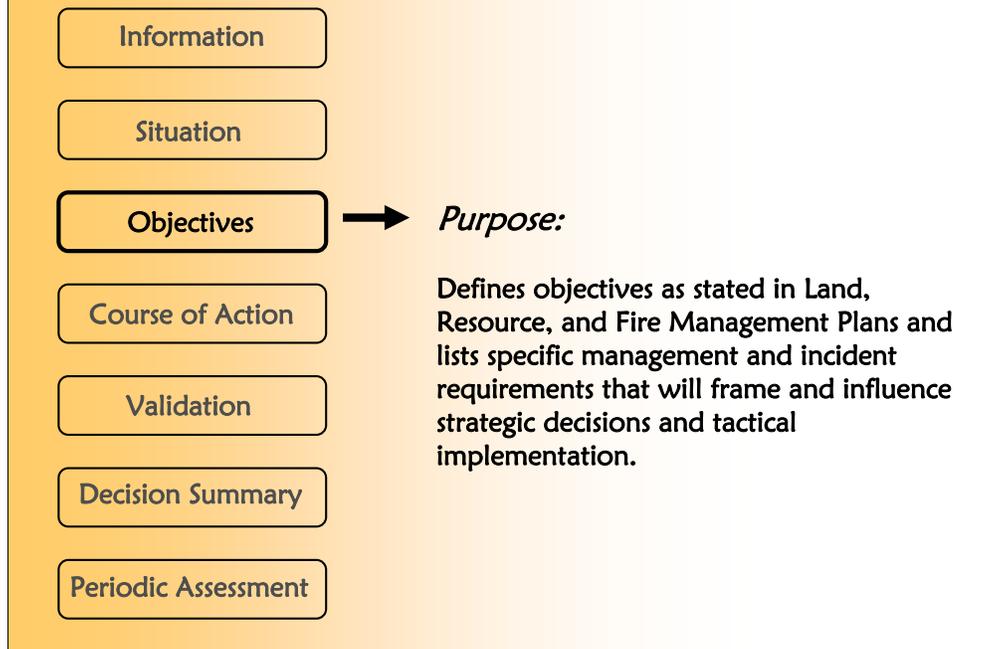


SITUATION

Purpose:

Provides risk assessment and decision support information to support strategic decisions and development of course of action

Subsection Areas and Information Flow Master Chart

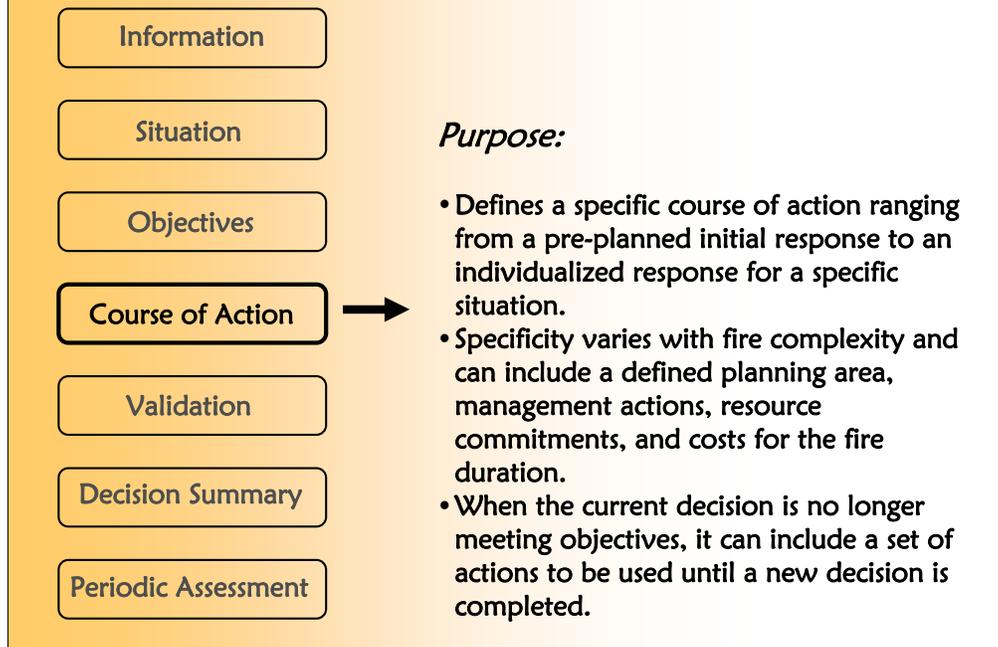


OBJECTIVES

Purpose:

Defines objectives as stated in Land, Resource, and Fire Management Plans and lists specific management and incident requirements that will frame and influence strategic decisions and tactical implementation

Subsection Areas and Information Flow Master Chart



Course of Action

Purpose:

Defines a specific course of action ranging from a pre-planned initial response to an individualized response for a specific situation.

Specificity varies with fire complexity and can include a defined planning area, management actions, resource commitments, and costs for the fire duration.

When the current decision is no longer meeting objectives, it can include a set of actions to be used until a new decision is completed.

Subsection Areas and Information Flow Master Chart

Information

Situation

Objectives

Course of Action

Validation

Decision Summary

Periodic Assessment



Purpose:

Provides a review of the Situation, Objectives, and Course of Action to ensure that Objectives can be met, and in the event they cannot be met, the Validation guides the development of a new Course of Action.

Validation

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Provides a review of the Situation, Objectives, and Course of Action to ensure that Objectives can be met, and in the event they cannot be met, the Validation guides the development of a new Course of Action.

Subsection Areas and Information Flow Master Chart

Information

Situation

Objectives

Course of Action

Validation

Decision Summary →

Periodic Assessment

Purpose:

Documents the response decision, the rationale for that decision, and stipulates the timeframe for revisiting and reassessing the decision.

Decision Summary

Purpose:

Documents the response decision, the rationale for that decision, and stipulates the timeframe for revisiting and reassessing the decision

Subsection Areas and Information Flow Master Chart

Information

Situation

Objectives

Course of Action

Validation

Decision Summary

Periodic Assessment



Purpose:

Provides a process to periodically review the current decision, response, and accomplishments to evaluate effectiveness and confirm accuracy or, if needed, indicate progression to a higher response level and associated planning activities.

Periodic Assessment

Purpose:

Provides a process to periodically review the current decision, response, and accomplishments to evaluate effectiveness and confirm accuracy or, if needed, indicate progression to a higher response level and associated planning activities.

Inside WFDSS





WFDSS – User Roles



Specific Roles Identified:

- Viewer
- Dispatcher
- Author
- Data Manager
- Geographic Area Editor
- National Editor
- Fire Behavior Specialist
- RAVAR Analyst
- Super Analyst
- Help Desk
- Administrator

There are currently 11 user roles in the WFDSS application. Of the 11 roles, there are 3 important roles to the field users – DISPATCHER, AUTHOR, DATA MANAGER. The FIRE BEHAVIOR SPECIALIST is also important, however this role will require special skills often found in LTANs (Long Term Fire Analysts). The privileges and access to the WFDSS application increase as users move down the list above. Viewers have the least access to the system. Dispatch role can do everything a viewer can plus they can create incidents. Authors do everything the previous two roles do and they also document the decision and request analyses to support/inform the decision. Data Managers however can only create the Fire Management Units (or other land management units) and the strategic objectives and the management requirements based on land management plans and fire managements plans pertinent to the agency they work for.



WFDSS – User Roles, *continued*



Viewer:

- Is the minimum level of access for all WFDSS users.
- View incident information for all WFDSS incidents and groups.
- Cannot edit.

Dispatcher:

- Enter information for a new WFDSS incident.
- Edit incident information for incidents they create.
- Run simple (unsupervised) fire behavior analyses.

Viewers have the least access to the system. Viewer role granted to anyone with a .gov government e-mail account. View incident information for all WFDSS incidents and groups. View completed analyses and reports. Cannot edit.

Dispatch role can do everything a viewer can plus they can create incidents. Dispatcher role – expected to be granted to those individuals responsible for the initial response, firecode and fire number. Enter information for a new WFDSS incident.

Edit incident information for incidents they create. Run simple (unsupervised) fire behavior analyses.



WFDSS – User Roles, *continued*



Author:

- Enter information for a new WFDSS incident.
- 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.

Author role – for individuals who will author decisions within the WFDSS application. This role would probably be had by those involved in the decision documentation such as fire planners, AFMOs, FMOs, and “Ologists” who contribute to the documentation. Authors do everything the previous two roles do and they also document the decision and request analyses to support/inform the decision. Enter information for a new WFDSS incident. 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.



WFDSS – User Roles, *continued*



Data Manager:

- Enters and maintains strategic objectives / management requirements and fire management unit associations for individual agency units

Data Managers enters and maintains strategic objectives and fire management unit associations for individual agency units. Data Manager role would probably be assigned to the fire planner or the individual who contributed objectives to the fire management or land management plans.

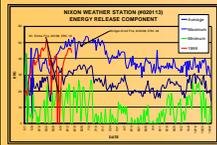


WFDSS – User Roles, *continued*



Geographic Area Editor:

- Edit WFDSS incidents within their geographic area (GACC).
- Request and cancel analyses for WFDSS incidents in their GACC.
- Prioritize analysis requests within their GACC.
- Authorize new Viewer, Author, Dispatcher, and Fire Behavior Specialist roles in their GACC.
- Does not have privileges specific to Fire Behavior Analysts, RAVAR Analysts, or Administrators.



Geographic editor role is intended to be one per region to promote interagency communication and provide accountability for incident prioritization and deletion. Edit WFDSS incidents within their geographic area (GACC). Request and cancel analyses for WFDSS incidents in their GACC. Prioritize analysis requests within their GACC Authorize new Viewer, Author, Dispatcher, and Fire Behavior Specialist roles in their GACC. Does not have privileges specific to Fire Behavior Analysts, RAVAR Analysts, or Administrators.

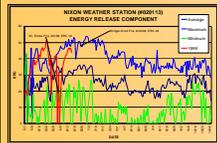


WFDSS – User Roles, continued



National Editor:

- Has maximum authority relative to WFDSS incident management.
- Has all the capabilities of a Regional Editor, but at a national level.
- Delete incidents.
- Does not have privileges specific to Fire Model Analysts, RAVAR Analysts, or Administrators.



National Editors can determine fires of national significance. Has maximum authority relative to WFDSS incident management. Has all the capabilities of a Regional Editor, but at a national level. Delete incidents. Does not have privileges specific to Fire Model Analysts, RAVAR Analysts, or Administrators.



WFDSS – User Roles, *continued*



Fire Behavior Specialist:

- Formerly the FSPro Analyst role, but the name change reflects additional fire behavior tools available in WFDSS. Users requesting this role should have previous fire behavior modeling experience, including evaluating and modifying landscape files, historic climate, and forecasted weather.
- Conduct “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.

The FIRE BEHAVIOR SPECIALIST is also important, however this role will require special skills often found in LTANs (Long Term Fire Analysts). Formerly the FSPro Analyst role, but the name change reflects additional fire behavior tools available in WFDSS. Users requesting this role should have previous fire behavior modeling experience, including evaluating and modifying landscape files, historic climate, and forecasted weather. 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.



WFDSS – User Roles, continued



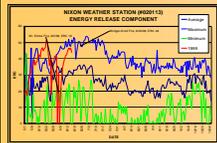
RAVAR Analyst:

- Since the RAVAR analysis tool is not yet completely automated, some manual effort is required to complete a RAVAR analysis. This manual effort is provided by the RAVAR Analysts at the Forestry Science Lab in Missoula, so users should not request this role.
- Accept or reject a RAVAR analysis request.
- Post RAVAR summary documentation.



Super Analyst:

- Has maximum analysis authority, provides coaching and training to other analysts.
- Run, edit, and accept all types of analyses.
- Delete analyses.



RAVAR Analyst:

Since the RAVAR analysis tool is not yet completely automated, some manual effort is required to complete a RAVAR analysis. This manual effort is provided by the RAVAR Analysts at the Forestry Science Lab in Missoula, so users should not request this role.

Accept or reject a RAVAR analysis request.

Post RAVAR summary documentation.

Super Analyst:

Has maximum analysis authority, provides coaching and training to other analysts.

Run, edit, and accept all types of analyses.

Delete analyses.



WFDSS – User Roles



- **Help Desk** – this role is for the folks at the NIFC HELP DESK
- **Administrator** – This role is for the system developers

Help Desk:

Located at the National Interagency Fire Center (NIFC) in Boise, Idaho.
 Assist other WFDSS users with technical questions associated with the system.
 Access user profiles.
 Reset passwords.
 View "work in progress" from within the application.

Administrator:

Comprised of the WFDSS core team and IBM developers.
 Authorize new users.
 Disable users.
 Assign and modify user roles.
 Reset passwords.
 Edit user profiles.
 Send WFDSS e-mails and broadcast WFDSS messages.

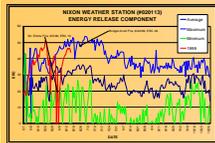


Inside a WFDSS Incident

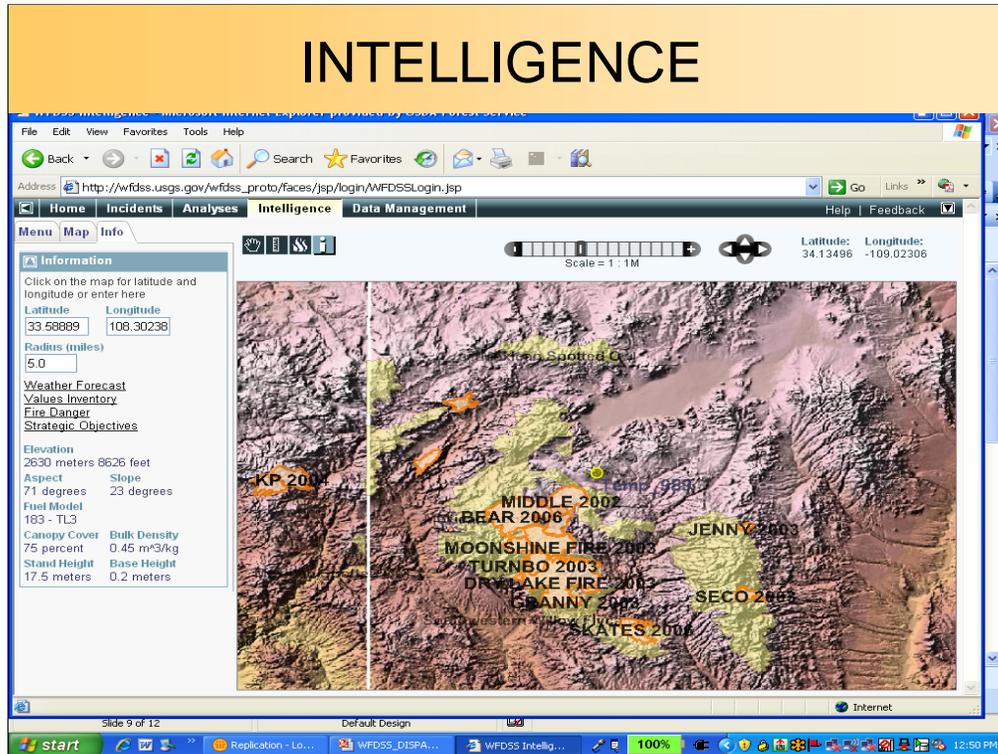


Lets Look inside WFDSS at:

- Intelligence
- Zone Fire Weather Forecasts
- ERC- G
- Values Inventory
- RAVAR Results
- Values at Risk Results
- Basic Fire Behavior



INTELLIGENCE



Intelligence Tab offers easy access to a variety of basic decision support information

- Spatial information – T&E species, Fire History
- Weather Forecasts
- Values Inventory – based on tier1 RAVAR data in a radius – similar to RiVAT products from 2008
- Fire Danger – ERC-G
- Strategic Objectives that were pre-loaded into the system

Zone Fire Weather Forecasts

http://wfdss.usgs.gov - Fire Weather Forecast - Microsoft Internet Explorer provided by...

Wildland Fire Decision Support System

000
FNUSS4 KEPZ 191458
FUWEPZ

FIRE WEATHER PLANNING FORECAST FOR NEW MEXICO
NATIONAL WEATHER SERVICE EL PASO TX/SANTA TERESA NM
758 AM MST FRI DEC 19 2008

..DISCUSSION...
YESTERDAY'S QUICK HITTING TROUGH HAS EXITED THE REGION. TODAY AND THROUGH THE WEEKEND WESTERLY FLOW ALOFT WILL KEEP THE REGION FREE OF ANY STORM SYSTEMS. DESPITE PERIODS OF HIGH CLOUDS...DRIER AIR AT LOW AND MID LEVELS WILL MOVE IN TO TRIM RELATIVE HUMIDITY VALUES. NEAR BREEZY CONDITIONS EXPECTED SATURDAY. SUNDAY A BACKDOOR COLD FRONT WILL PUSH IN FROM THE EAST TO THE RIO GRANDE AND TO THE CONTINENTAL DIVIDE BY MONDAY MORNING. TUESDAY IS THE NEXT DAY WITH THE POTENTIAL FOR SIGNIFICANT WEATHER. AN UPPER LEVEL PACIFIC STORM SYSTEM WILL SWING ACROSS THE AREA. WINDY CONDITIONS ARE EXPECTED TO DEVELOP WITH THE DEVELOPMENT OF A DEEP SURFACE TROUGH. SCATTERED RAIN AND SNOW SHOWERS ARE ALSO LIKELY.

...PERCENTAGES SHOWN IN THE SKY/WEATHER PORTION REFLECT SKY COVER AMOUNT...

...MEAN ELEVATIONS USED TO OBTAIN MIXING HEIGHTS AS FOLLOWS:
ZONE 110 - RESERVE (5900 FT)
ZONE 111 - DEMING (4300 FT)
ZONE 112 - LAS CRUCES(3900 FT)
ZONE 113 - RUIDOSO (6900 FT)

VENTILATION CATEGORIES ARE DETERMINED BY CRITERIA ESTABLISHED BY THE STATE OF NEW MEXICO.

Latitude: Longitude:
34.19845 -107.44837

Internet

start

Replication - Lo... WFDSS_DISPA... 2 Internet Ex... 100% 12:51 PM

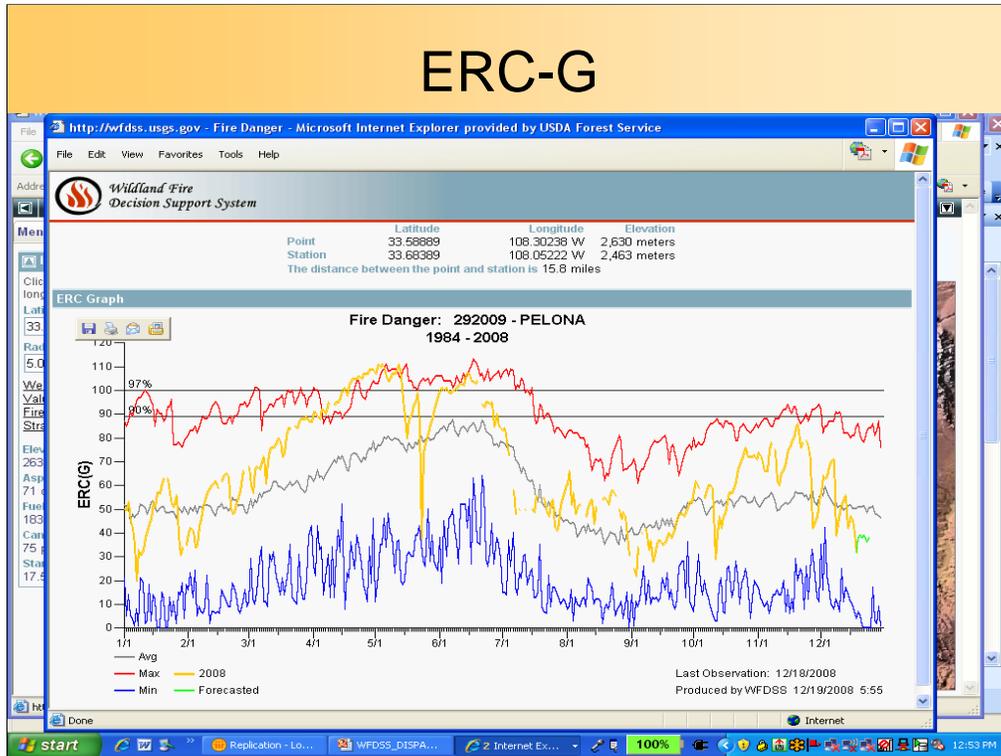
Values Inventory

The screenshot shows a Microsoft Internet Explorer browser window displaying the 'Wildland Fire Decision Support System' website. The page title is 'Values Inventory Information'. It provides the following details:

- Latitude: 33.58689
- Longitude: 108.30238 W
- Radius: 5.0 miles

Asset	Value	Data Source	Currency	Coverage
Census Housing Values	\$0	U.S. Census Bureau	Jan 01, 2000	National coverage
Habitat: Mexican Spotted Owl	2,343 acres	Gila National Forest	Mar 01, 2008	Habitat restricted to Gila National Forest
Jurisdiction: USFS	25,579 acres	Various		AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY
Jurisdiction: BLM	9,359 acres	Various		AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY
Jurisdiction: Private	14,721 acres	Various		AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY
Jurisdiction: State	807 acres	Various		AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY

Value inventory displayed is a 5-mile radius of coordinates



ERC-G graph for closets weather station

Strategic Objectives

http://wfdss.usgs.gov - WFDSS Strategic Objectives - Microsoft Internet Explorer provided by USDA Forest Service

Wildland Fire Decision Support System

Strategic Objectives

Latitude Longitude Radius (miles)
33.56889 108.30238 5.0

- [-] **NM-GNF** - Gila National Forest (39,937 acres)
 - [-] **0 - State/Private Land** (14,567 acres)
 - [-] Strategic Objectives
 - Contain unwanted fires at the smallest possible size.
 - Protect structures.
 - [-] **10 - Reserve Low Risk** (25,370 acres)
 - [-] Strategic Objectives
 - Wildland Fire Use allowed when Slaughter Mesa RAW5 7-day average ERC-K is below the 95th percentile.
 - Unless other resource values dictate, suppression actions will be planned to control fires at no larger than the designated sizes, if suppression is the chosen management response:

Vegetation Type	Fire Intensity Levels	Max. Size (Acres)
Riparian	Level 1 and 2	50
	Level 3 and 4	10
	Level 5	5
Grassland and PJ	Level 1 and 2	5000
	Level 3 and 4	500
	Level 5	100
Timber (Unsuitable and Suitable)	Level 1 and 2	5000
	Level 3 and 4	250
	Level 5	50

Ecosystems are restored and maintained, consistent with land uses and historic fire regimes and condition class utilizing wildland fire use, prescribed fire, and mechanical fuel treatments.

Increase the number of acres treated annually by prescribed fire and wildland fire use.

Strategic objectives . . . In the future WFDSS is planned to have spatial FMU information that will pull specific strategic objectives for the location by linking the text to the spatial data

Strategic Cost Index

http://wfdss.nwfg.gov - WFDSS SCI Results - Microsoft Internet Explorer provided by USDA Forest Service

File Edit View Favorites Tools Help Links

 **WFDSS** Incident/Analysis: Chippy / Chippy SCI 080507
National Preparedness Level: 1

Incidents Analyses Preferences User Profile User Access Help Logout

Stratified Cost Index Results

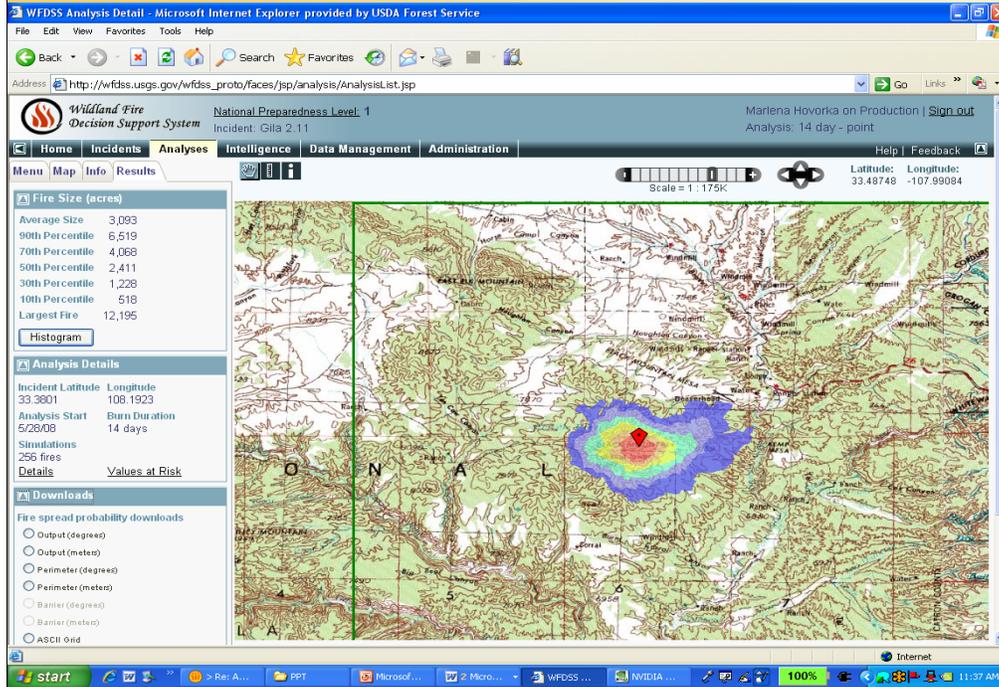
Stratified Cost Index by Percentage				
Acres Burned	25%	50%	75%	90%
36140	\$62	\$285	\$1,318	\$2,549
39000	\$60	\$277	\$1,283	\$2,481
81920	\$46	\$213	\$986	\$1,907
183680	\$35	\$160	\$741	\$1,432

25 percent of historical fires with similar characteristics had a cost per acre less than the value displayed in the 25% column of the table. Likewise, 50, 75, and 90 percent of fires with similar characteristics had a cost per acre less than the values displayed in their respective columns.

Analysis List Input Parameters

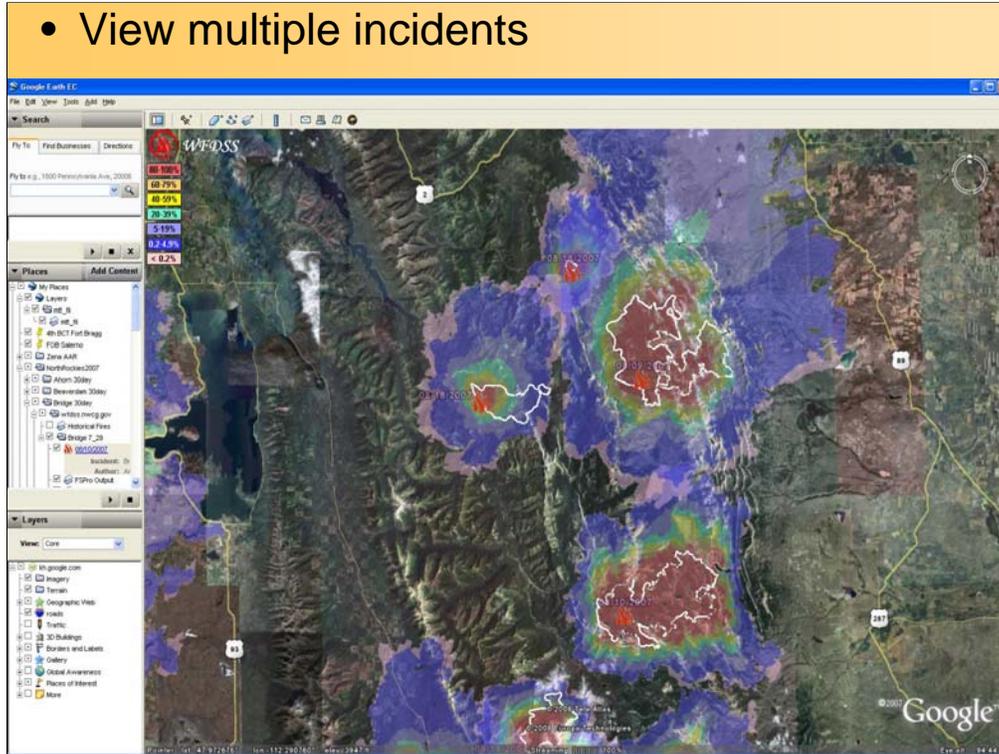
Sample of SCI – subject to change as the DOI SCI is developed. Currently depicts USFS costs.

- View analysis results and collaborate on-line



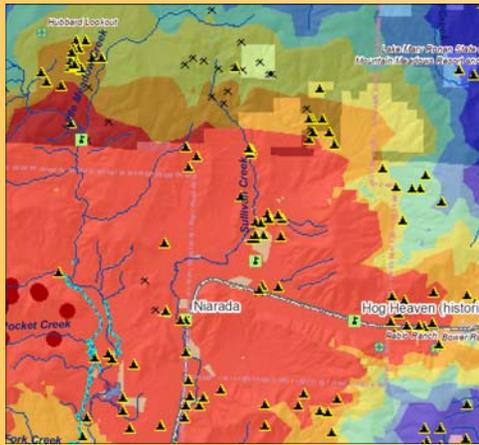
Eliminates the “who has the WFSA” syndrome we have all experienced. Also eliminates the wet map with the runny ink or the map faxed at 2 a.m. that no one can read.

- View multiple incidents



View multiple incidents in a download viewable in GOOGLE Earth. Good for MAC groups or field units with numerous fires that are doing planning for a large area.

RAVAR Results

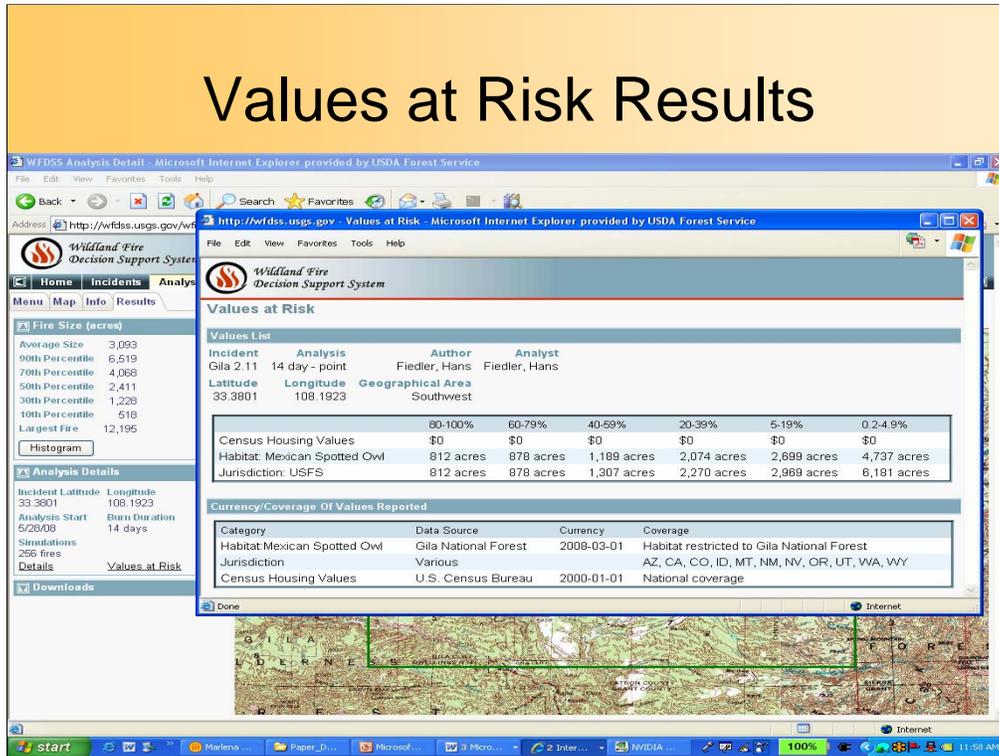


Estimates of Structure Values at Risk: Estimate is derived from analysis of Flathead, Lake, and Sanders Counties parcel data; count represents building clusters*. The first table is the summary of the above mentioned counties. Separate tables for the Flathead, Lake, and Sanders counties are listed in this report.

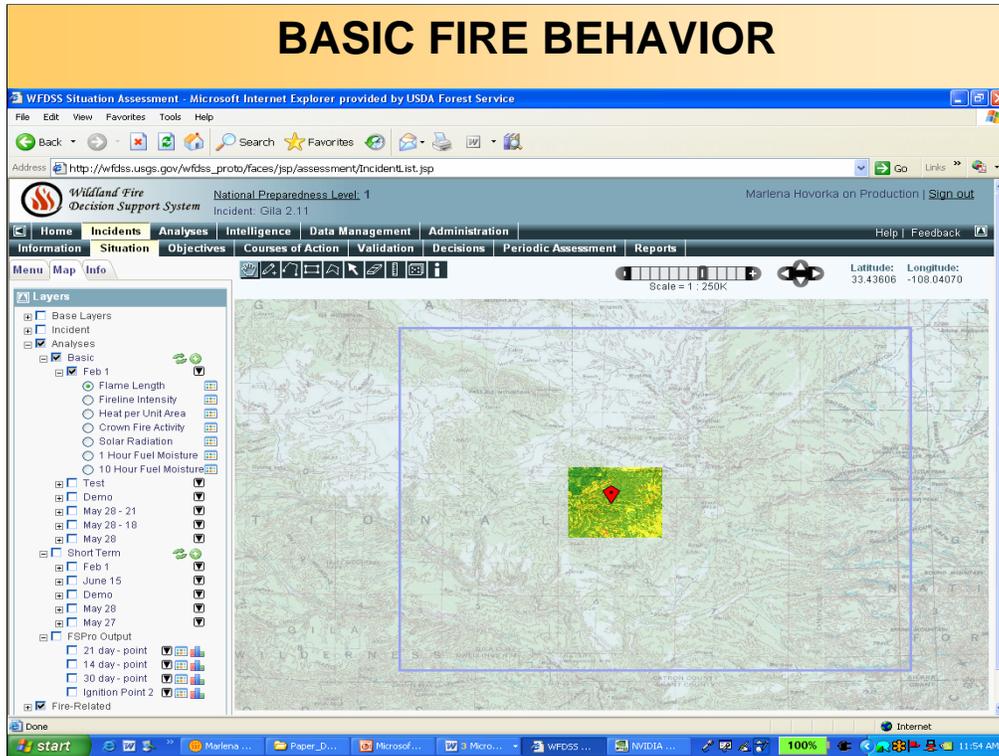
Fire Spread Probability Zone	COMBINED COUNTY TOTALS			
	Count by Zone	Cumulative Count	Value by Zone	Cumulative Value
> 80%	63	63	\$9,292,500	\$9,292,500
60 - 80 %	32	95	\$4,720,000	\$14,012,500
40 - 60 %	23	118	\$3,392,500	\$17,405,000
20 - 40 %	227	345	\$33,482,500	\$50,887,500
5 - 20 %	354	699	\$52,215,000	\$103,102,500
1 - 5 %	1,374	2,073	\$202,665,000	\$305,767,500

RAVAR results rely on FSPro out put to produce the values by zone. Created by RAVAR Analysts in Missoula.

Values at Risk Results

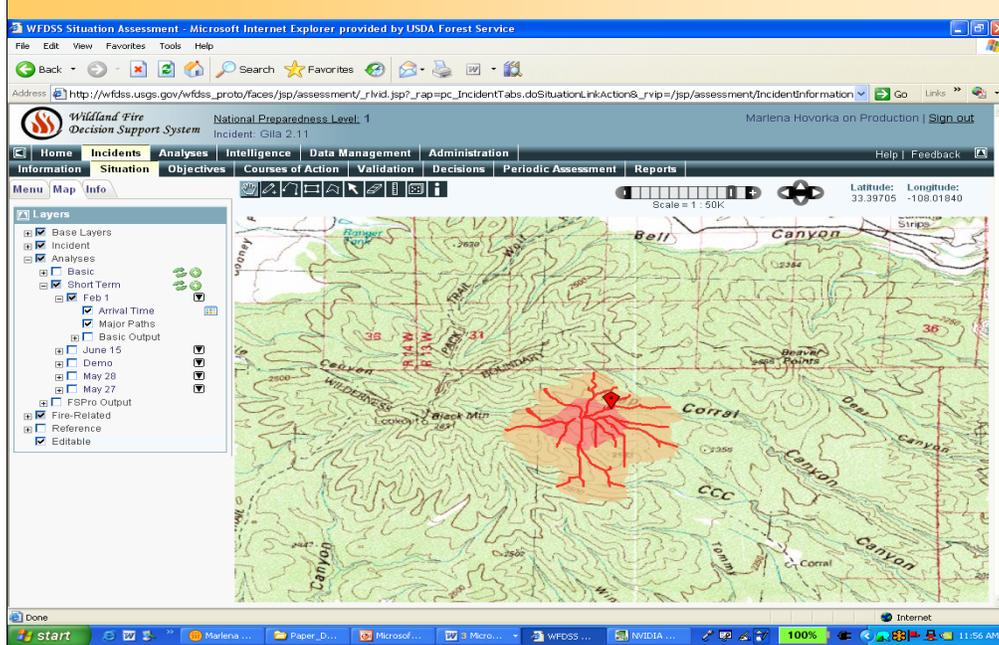


As the Values layers collected by the RAVAR Group in Missoula over the past 3 summers are being loaded into WFDSS, RAVAR Results can be instantly obtained once a FSPro run is complete. It is anticipated that data layers will be added over time to enhance the product.



Basic fire behavior outputs can be produced by Dispatchers or Authors. This analysis runs on an un-calibrated landscape chosen on the fire information page. Example, folks in CA are directed to use the CA Landscape layer instead of the LANDFIRE layers available. The analysis also chooses weather from the closest weather station. Also available will be a minimum travel time product to show flow paths and expected arrival times.

SHORT TERM FIRE BEHAVIOR



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