

Wildland Fire Decision Support System

WFDSS

Unit Shapes – Creating, Uploading & Managing
for Data Managers

Wildland Fire
Management Research,
Development &
Application



OBJECTIVES

- **Review Data Manager role**
- **Review WFDSS shapes-Focus on Unit Shapes**
- **Review Data Management tab**
- **WFDSS Shape Guidance**
- **Examples of Unit Shapes**
- **Relationship of FMUs, Unit Shapes, Objective Shapes, Incident Shapes**

Data Manager - User Role in WFDSS

- Enters and maintains strategic objectives.
- Enters and maintains management requirements.
- Creates, activates, and deactivates fire management unit (FMU) codes.
- Maintains FMU associations for individual agency units.
- Manages unit shapes.
 - Determine inclusion in Values Inventory and Values at Risk products
 - Upload/Delete/Edit text

Data Manager - User Role in WFDSS

- Fire Management planning using spatial data
 - (spatial LRMP/FMP)
- Levels/options available using spatial data for LRMP/FMP planning/decision process
 - National spatial data
 - My Home>System Preferences – turn on map layers
 - Always active in Values Inventories/Values at Risk
 - FMU shapes = Strategic Objectives/Management Requirements
 - All FMU option
 - Unit shapes = local data for what is important to unit
 - Objective shapes = local data for incidents
 - Incident shapes = local data used to manage an incident
 - Selectively active in Values Inventory and Values at Risk, managed by Data Manger

Data Managers use information from their overarching land management plans and fire management plans (LRMPs/FMPs). They also use spatial data that represents the guidance, objectives, and requirements from the LRMPs/FMPs.

Types of Shapes To Draw, Upload, Download and View in WFDSS

Pre-Season Planning (Recommended)

- FMU Shapes
- Unit Shapes

During Incident

- Objective Shapes
- Fire Perimeters
- Ignition for Analysis
- Barrier
- Landscape Mask
- Management Action Points – M.A.P.S.
- Points of Interest

Data Management Tab

- Objectives
- FMU Codes
- Unit Shapes

My Home Incidents Analyses Intelligence Data Management Administration

FMU Codes Objectives Unit Shapes

Strategic Objectives

Unit Selection

Geographic Area

- Alaska
- Northwest
- Northern California
- Southern California
- Northern Rockies
- Eastern Great Basin
- Western Great Basin
- Southwest
- Rocky Mountain
- Eastern
- Southern

Agency

- Bureau of Indian Affairs/Tribal
- Bureau of Land Management
- Fish and Wildlife Service
- National Park Service
- USDA Forest Service
- State
- ANCSA Corporations

Unit

- AZASF - Apache-Streaves NF
- AZCNF - CORONADO NATIONAL FOREST
- AZCOF - Coconino National Forest
- AZKNF - Kaibab National Forest
- AZNFRI - NATIONAL ADVANCED FIRE RESOURCE INSTITUTE
- AZPNF - Prescott National Forest
- AZTNF - Tonto National Forest
- NMASC - ALBUQUERQUE SERVICE CENTER
- NMCAF - CARSON NATIONAL FOREST
- NMCF - CIBOLA NATIONAL FOREST
- NMGNF - Gila National Forest**
- NMHCM - HUMAN CAPITAL MANAGEMENT
- NMIRM - INFORMATION RESOURCE MANAGEMENT
- NMLNF - Lincoln National Forest
- NMR03 - United States Forest Service - Southwestern Region
- NMSFK - SILVER CITY FIRE CACHE
- NMSNF - SANTA FE NATIONAL FOREST
- NMVCF - VALLES CALDERA NATIONAL PRESERVE
- NMWOF - Washington Office, New Mexico

Filter

Active Status

- All
- Currently Active
- Never Active
- Active on []

Objective Type

- Strategic Objective
- Management Requirement

FMU Code - Description []

Apply Filter

Strategic Objectives/Management Requirements for Unit: NMGNF - Gila National Forest

Create Strategic Objective Create Management Requirement

FMU	Type	Activated	Deactivated	Strategic Objective/Management Requirement
<Unit>	Mgmt Req	01/07/2011	03/25/2011	Human life, firefighter and public safety is the highest priority and will determine all wildland fire and fuels treatment actions.
<Unit>	Strat Obj			testing the info allowed
<Unit>	Strat Obj			testing
0	Mgmt Req	03/18/2009		Insure impacts to range allotments are assessed during wildland fire management operations.
0	Strat Obj	04/23/2009	04/23/2009	test
0	Strat Obj	12/17/2008		Contain unwanted fires at the smallest possible size.
0	Strat Obj	12/17/2008		Protect structures.
1	Mgmt Req	12/17/2008		Identify noxious weed control and mitigation measures.

Data Management tab opens to the Objectives first.

In the Objectives, you can create strategic objectives and management requirements. Strategic Objectives and Management requirements can now be associated with the <ALL FMU> FMU Code-Description. The <ALL FMU> code will eliminate duplication of strategic objectives and management requirements in all FMUs.

<ALL FMU> entries will show up in the Strategic Objectives/Management Requirements list as <Unit>. The <Unit> Strat Obj/Mgmt Reqs are automatically selected for decision content when a planning area is drawn.

Click EXCEL icon to download a spreadsheet of the Strategic Objectives and Management Requirements.

Download Spreadsheet Strategic Objectives and Management Requirements

	A	B	C	D	E
1	FMU	Type	Activated	Deactivated	Strategic Objective/Management Requirement
2	<Unit>	Mgmt Req	01/07/2011	03/25/2011	Human life, firefighter and public safety is the highest priority and will determine all wildland fire and fuels treatment actions.
3	<Unit>	Strat Obj			testing the info allowed
4	<Unit>	Strat Obj			testing
5	0	Mgmt Req	03/18/2009		Insure impacts to range allotments are assessed during wildland fire management operations. □
6	0	Strat Obj	04/23/2009	04/23/2009	test
7	0	Strat Obj	12/17/2008		Contain unwanted fires at the smallest possible size.
8	0	Strat Obj	12/17/2008		Protect structures.
9	1	Mgmt Req	12/17/2008		Identify noxious weed control and mitigation measures.
10	1	Mgmt Req	12/17/2008		Insure impacts to range allotments are assessed during wildland fire management operations.
11	1	Mgmt Req	12/17/2008		Human life, firefighter and public safety is the highest priority and will determine all wildland fire and fuels treatment actions.
12	1	Strat Obj	12/17/2008		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 260 Level 3 and 430 Level 520 Grassland and P J Level 1 and 25000 Level 3 and 4500 Level 5100 Timber Level 1 and 21000 (Unsuitable and Suitable) Level 3 and 4100 Level 520
13	1	Strat Obj	12/17/2008		Increase the number of acres treated annually by prescribed fire and wildland fire use.
14	1	Strat Obj	12/17/2008		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.
15	1	Strat Obj	12/17/2008		Wildland Fire Use allowed when Beaverhead RAWWS, 7-day average ERC-K is below the 95th percentile.
16	1	Mgmt Req	12/17/2008		During suppression actions, work with private landowners to obtain permission to cross private land, cut fences, or use privately owned facilities (ditches, water sources, etc.) before entering private land or affecting private facilities. Keep records and promptly inform the landowner(s) of actions taken on private lands or affecting private facilities.
17	1	Mgmt Req	12/17/2008		Apply control measures as directed by the appropriate Air Quality Bureau (AQB) during air pollution episodes (e.g., no new ignitions during declared episodes).
18	1	Mgmt Req	12/17/2008		Assign a qualified archeologist as a resource advisor to any wildland fires potentially or actually burning in areas with a high probability of heritage resource sites.
19	1	Mgmt Req	12/17/2008		Fire management actions require consultation with the local resource specialist to access impacts on threatened and endangered plants, wildlife and fish.
20	1	Mgmt Req	12/17/2008		Avoid impacts to riparian areas, including heavy equipment, chemical retardant, and incident facilities.
21	2	Mgmt Req	12/17/2008		Avoid impacts to riparian areas, including heavy equipment, chemical retardant, and incident facilities.
22					

Wildland Fire Decision Support System National Preparedness Level: 1

My Home Incidents Analyses Intelligence **Data Management** Administration

FMU Codes Objectives Unit Shapes

FMU Codes

Unit Selection

Geographic Area

- Alaska
- Northwest
- Northern California
- Southern California
- Northern Rockies
- Eastern Great Basin
- Western Great Basin
- Southwest
- Rocky Mountain
- Eastern
- Southern

Agency

- Bureau of Indian Affairs/Tribal
- Bureau of Land Management
- Fish and Wildlife Service
- National Park Service
- USDA Forest Service
- State
- ANCSA Corporations

Unit

- AZASF - Apache-Sitgreaves NF
- AZCNF - CORONADO NATIONAL FOREST
- AZCOF - Coconino National Forest
- AZKNF - Kaibab National Forest
- AZNFRI - NATIONAL ADVANCED FIRE RESOURCE INSTITUTE
- AZPNF - Prescott National Forest
- AZTNF - Tonto National Forest
- NMASC - ALBUQUERQUE SERVICE CENTER
- NMCAF - CARSON NATIONAL FOREST
- NMCIFF - CIBOLA NATIONAL FOREST
- NMGNF - Gila National Forest**
- NMHCM - HUMAN CAPITAL MANAGEMENT
- NMIRM - INFORMATION RESOURCE MANAGEMENT
- NMLNF - Lincoln National Forest
- NMR03 - United States Forest Service - Southwestern Region
- NMSFK - SILVER CITY FIRE CACHE
- NMSNF - SANTA FE NATIONAL FOREST
- NMVCF - VALLES CALDERA NATIONAL PRESERVE
- NMWF - Washington Office, New Mexico

Add FMU Code for NMGNF - Gila National Forest

*FMU Code: Description: Activate Now

Filter

Never Activated Active Inactive

FMU Codes for NMGNF - Gila National Forest

FMU	Status	Description
<input type="radio"/> 0	Active	State/Private Land
<input type="radio"/> 1	Active	Black Range Moderate Risk
<input type="radio"/> 10	Active	Reserve Low Risk

Create FMU Codes.

The FMU Code entered here must match exactly the FMU code of the spatial FMUs provided to the WFDSS Data group.

The codes can be activated and deactivated from this page.

Wildland Fire Decision Support System National Preparedness Level: 1

My Home Incidents Analyses Intelligence Data Management Administration

FMU Codes Objectives Unit Shapes

Unit Shapes

Unit Selection

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Upload Shape to NMGNF - Gila National Forest

*Label Category Description

File to Upload Include in Values

Shapes for Unit NMGNF - Gila National Forest

Values	Label	Category	Description
<input type="radio"/>	<input checked="" type="checkbox"/> TEST Barking Owls	Habitat	Barking Owls Habitat
<input type="radio"/>	<input checked="" type="checkbox"/> TEST Bar Mnt Toads	Habitat	Prevent high intensity fires in habitat.
<input type="radio"/>	<input type="checkbox"/> MAPs	MAP	MAPs we have typically used during large fire events
<input type="radio"/>	<input checked="" type="checkbox"/> Historic Cabin 1	Structures	Protect structures
<input type="radio"/>	<input type="checkbox"/> Barrier Mound	Barrier	Barrier made up of bare ground

Page 1 of 1 Rows per Page: 20

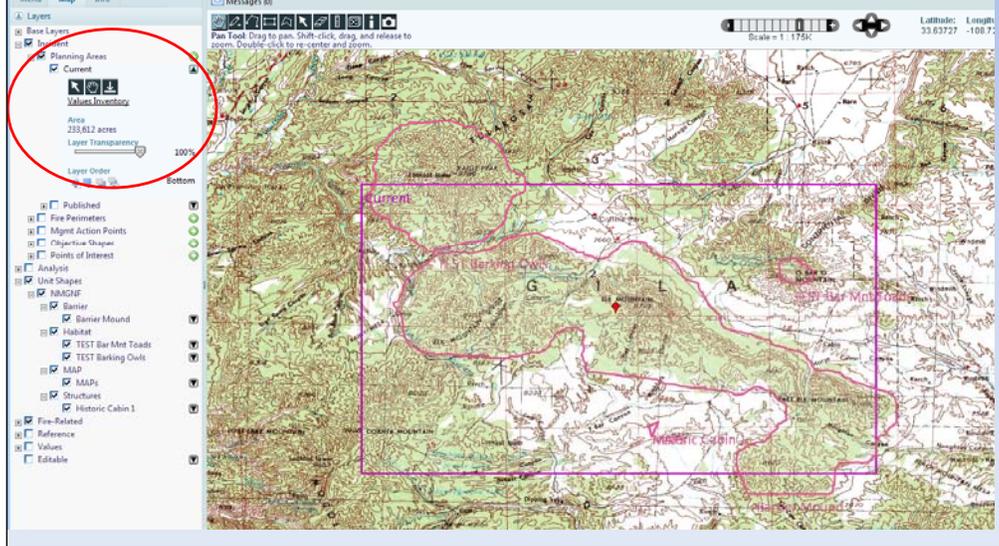
Upload unit shapes.

The Label field will display on the map when shapes are activated. The Category field will allow you to organize the shapes. The description is 144 characters long. You can enter information such as: objective, requirement, burn prescription, local description.

Check Include in Values to enable unit shapes to display in Values Inventory and Values at Risk outputs.

Manage the shapes by deleting, including/excluding in values products, or editing the text fields. Click Save.

Where to Find Values Inventory



Open Planning Area. Click Values Inventory.

 Wildland Fire
Decision Support System

Planning Area Values Inventory

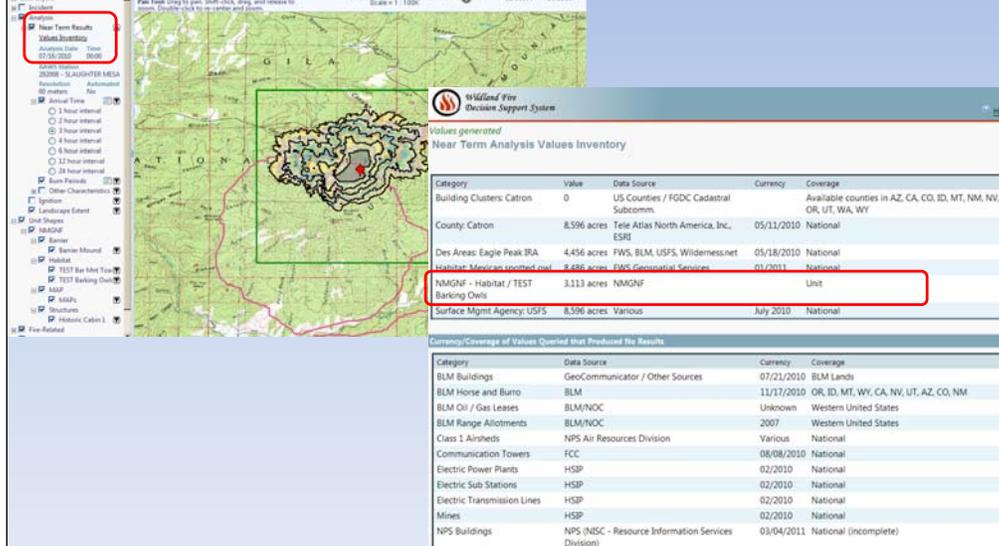
NAME	VALUE			
Planning Area Name	Current			
Incident Name	GNF TEST			
Planning Area Size	233612 acres			

Category	Value	Data Source	Currency	Coverage
BLM Range Allotments	9,420 acres	BLM/NOC	2007	Western United States
Building Clusters: Catron	48	US Counties / FGDC Cadastral Subcomm.		Available counties in AZ, CA, County: Catron
County: Catron	233,612 acres	Tele Atlas North America, Inc., ESRI	04/01/2008	National
Des Areas: Canyon Creek IRA	4,348 acres	FWS, BLM, USFS, Wilderness.net	05/18/2010	National
Des Areas: Eagle Peak IRA	7,952 acres	FWS, BLM, USFS, Wilderness.net	05/18/2010	National
Des Areas: Elk Mountain IRA	6,550 acres	FWS, BLM, USFS, Wilderness.net	05/18/2010	National
Des Areas: T Bar IRA	6,823 acres	FWS, BLM, USFS, Wilderness.net	05/18/2010	National
Electric Transmission Lines	5.6 miles	HSIP	02/2010	National
Habitat: Mexican Spotted Owl	109,593 acres	Gila National Forest	03/01/2008	Habitat restricted to Gila Nat
NMGNF - Habitat / TEST Bar Mnt Toads	1,043 acres	NMGNF		Unit
NMGNF - Habitat / TEST Barking Owls	11,293 acres	NMGNF		Unit
NMGNF - Structures / Historic Cabin 1	86 acres	NMGNF		Unit
Roads	32.8 miles	Tele Atlas North America, Inc., ESRI	11/01/2006	National
Surface Mgmt Agency: BLM	7,354 acres	Various	July 2010	National
Surface Mgmt Agency: USFS	211,426 acres	Various	July 2010	National
USFS Buildings	22	USFS-INFRA	07/20/2010	National

Currency/Coverage of Values Queried that Produced No Results

Example of Unit Shapes in Values inventory.

Values Inventory for Near Term Fire Behavior with Unit Shapes



Example of Near-Term Fire Behavior Values Inventory. Values Inventory shows unit shapes intersected.

A FSPro output would have produced Values at Risk output.

Guidance for Shapes

- FMUs
- Unit Shapes
- Incident Shapes
 - **Objective Shapes**
 - Fire Perimeters
 - Ignition for Analysis
 - Barrier
 - Landscape Mask
 - Management Action Points – M.A.P.S.
 - Points of Interest

Guidance for FMUs

**Spatially represents the areas outlined in LRMP
and/or FMP of the local agency field unit**

- Processed as a national layer through Agency representative

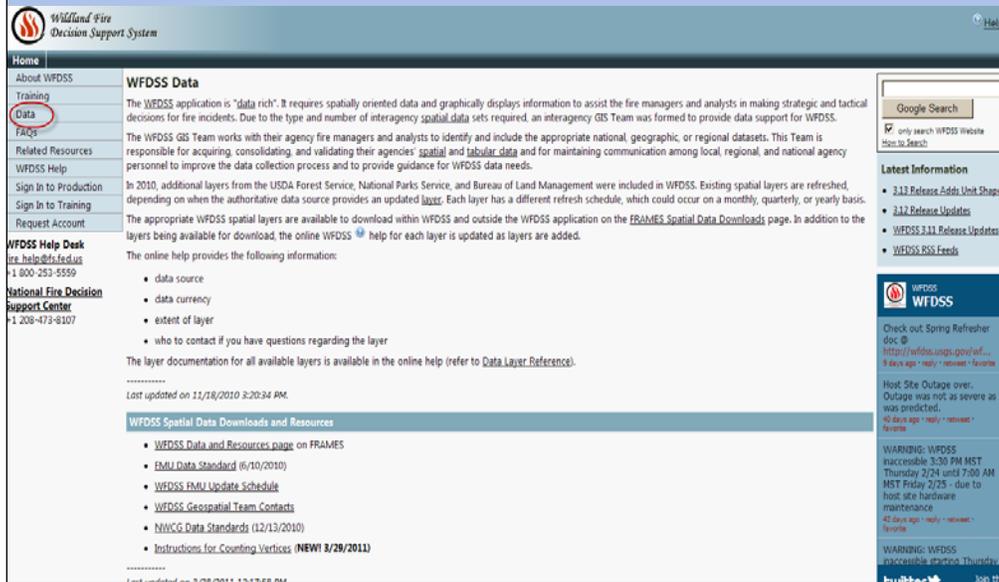
http://frames.nbii.gov/portal/server.pt?open=512&objID=688&&PageID=3492&mode=2&in_hi_userid=1025&cached=true

- WFDSS FMU data standard

http://wfdss.usgs.gov/wfdss/pdfs/Geospatial_data_stnd.pdf

- Display on Situation map

Links to Data on WFDSS Website



Wildland Fire Decision Support System

Home

- About WFDSS
- Training
- Data**
- FAQs
- Related Resources
- WFDSS Help
- Sign In to Production
- Sign In to Training
- Request Account

WFDSS Help Desk
Fire help@rfs.fed.us
1-800-253-5559

National Fire Decision Support Center
1-208-473-8107

WFDSS Data

The WFDSS application is "data rich". It requires spatially oriented data and graphically displays information to assist the fire managers and analysts in making strategic and tactical decisions for fire incidents. Due to the type and number of interagency spatial data sets required, an interagency GIS Team was formed to provide data support for WFDSS.

The WFDSS GIS Team works with their agency fire managers and analysts to identify and include the appropriate national, geographic, or regional datasets. This Team is responsible for acquiring, consolidating, and validating their agencies' spatial and tabular data and for maintaining communication among local, regional, and national agency personnel to improve the data collection process and to provide guidance for WFDSS data needs.

In 2010, additional layers from the USDA Forest Service, National Parks Service, and Bureau of Land Management were included in WFDSS. Existing spatial layers are refreshed, depending on when the authoritative data source provides an updated layer. Each layer has a different refresh schedule, which could occur on a monthly, quarterly, or yearly basis.

The appropriate WFDSS spatial layers are available to download within WFDSS and outside the WFDSS application on the [FRAMES Spatial Data Downloads](#) page. In addition to the layers being available for download, the online WFDSS help for each layer is updated as layers are added.

The online help provides the following information:

- data source
- data currency
- extent of layer
- who to contact if you have questions regarding the layer

The layer documentation for all available layers is available in the online help (refer to [Data Layer Reference](#)).

Last updated on 11/18/2010 8:20:34 PM.

WFDSS Spatial Data Downloads and Resources

- [WFDSS Data and Resources page](#) on FRAMES
- [EMU Data Standard](#) (6/10/2010)
- [WFDSS EMU Update Schedule](#)
- [WFDSS Geospatial Team Contacts](#)
- [NWCG Data Standards](#) (12/13/2010)
- [Instructions for Counting Vertices \(NEW! 3/29/2011\)](#)

Last updated on 3/29/2011 12:17:58 PM

Google Search

only search WFDSS Website
[Click to Search](#)

Latest Information

- [3.12 Release Addt. Unit Shapes](#)
- [3.12 Release Updates](#)
- [WFDSS 3.11 Release Updates](#)
- [WFDSS RSS Feeds](#)

WFDSS

Check out Spring Refresher doc @ <http://wfdss.usgs.gov/wfdss/>
8 days ago · help · resource · favorite

Host Site Outage over. Outage was not as severe as was predicted.
46 days ago · help · resource · favorite

WARNING: WFDSS inaccessible 3:30 PM MST Thursday 2/24 until 7:30 AM MST Friday 2/25 - due to host site hardware maintenance
42 days ago · help · resource · favorite

WARNING: WFDSS inaccessible starting Thursday
Join the

Guidance Common to Unit and Incident Shapes

- Non-complex shapes: 100 points or 50,000 vertices for lines and polygons
- Break up larger shapefiles into multiple shapefiles
- Include in a decision document

Why size limits?

- Web Based Mapping Application
- Map performance degrades quickly if shapes are large

Unit Shapes Guidance

Local data based on LRMP/FMP for decision process

- You must have “Data Manager” **User Role** to upload/manage
- **Visible to anyone** with a WFDSS login on **ALL** WFDSS maps
- Used in multiple incidents
- Only uploaded, can not be created or drawn
- Unit shapes are linked with your FMU shapefile
- Pre-load spatial data for pre-planning purposes
- **Values inventory and Values at Risk captures unit shape data**

Unit Shape Examples

Shapes for Unit: MTFNF - USFS - Flathead National Forest

Values	Label	Category	Description
<input type="radio"/> <input checked="" type="checkbox"/>	Work Centers	Administrative	Work Centers on the FNF. Added by Goke 2/8/2011
<input type="radio"/> <input checked="" type="checkbox"/>	WBP Plus Trees	Silviculture	WBP Plus Trees are critical seed source, protect from fire. Added by Goke 1/10/2011
<input type="radio"/> <input checked="" type="checkbox"/>	Repeaters	Administrative	Radio Repeater Sites for FNF Communications. Added by Goke 2/8/2011
<input type="radio"/> <input checked="" type="checkbox"/>	Rental Cabins	Administrative	Rental Cabins administered by FNF. Added by Goke 2/8/2011
<input type="radio"/> <input checked="" type="checkbox"/>	PLOD	MAP	Primary Line of Defense from Lindberg Lake North to Forest Rd. 561. Added by Goke 2/1
<input type="radio"/> <input checked="" type="checkbox"/>	Lookouts	Administrative	Forest Lookouts administered by FNF. Added by Goke 2/8/2011
<input type="radio"/> <input checked="" type="checkbox"/>	Heritage Sites	Heritage	Contact Tim Light Forest Arch. @ 758-5258. Added by Goke 2/8/2011
<input type="radio"/> <input checked="" type="checkbox"/>	Campgrounds	Recreation	Recreation Campgrounds. Added by Goke 2/8/2011
<input type="radio"/> <input checked="" type="checkbox"/>	Cabins	Administrative	Cabins in Old Library (GIS). Added by Goke 4/4/2011

Page 1 of 1 Rows per Page: 20

Examples of Labels, Category usage, and Descriptions.

Unit Shape Examples

Shapes for Unit CASQF - Sequoia National Forest

Values	Label	Category	Description
<input type="radio"/> <input type="checkbox"/>	Trails	Hume	
<input type="radio"/> <input type="checkbox"/>	Trails	Western Divide	
<input type="radio"/> <input checked="" type="checkbox"/>	Spotted Owl Habitat	Hume	Select Habitat
<input type="radio"/> <input checked="" type="checkbox"/>	Sequoia Influence	Forest wide	Influence Zones
<input type="radio"/> <input type="checkbox"/>	Roads	Hume	
<input type="radio"/> <input type="checkbox"/>	Roads	Western Divide	
<input type="radio"/> <input checked="" type="checkbox"/>	Private Lands	Forest wide	Private In-holdings
<input type="radio"/> <input checked="" type="checkbox"/>	Giant Sequoia	Forest wide	Giant Sequoia Groves
<input type="radio"/> <input checked="" type="checkbox"/>	Fisher Habitat	Hume	Quality Habitat
<input type="radio"/> <input checked="" type="checkbox"/>	Fisher Habitat	Western Divide	Quality Habitat
<input type="radio"/> <input type="checkbox"/>	District Boundaries	Forest wide	

Page 1 of 1 Rows per Page: 20 Save Delete...

Examples of Labels, Category usage, and Descriptions.

Unit Shape Examples

File to Upload
 Include in Values

Shapes for Unit: CAKNP - Sequoia-Kings Canyon

Values	Label	Category	Description
<input type="radio"/> <input type="checkbox"/>	South Fork Kaweah	Trails	Trails within the South Fork of the Kaweah FMU
<input type="radio"/> <input type="checkbox"/>	Sierra Crest	Trails	Trails within the Sierra Crest FMU
<input type="radio"/> <input checked="" type="checkbox"/>	Sequoia Groves	Local Values	Giant Sequoia Groves
<input type="radio"/> <input type="checkbox"/>	Rx Pre-1980	Prescribed Fires	Prescribed burns previous to 1980
<input type="radio"/> <input type="checkbox"/>	Rx 2010	Prescribed Fires	Prescribed burns in 2010
<input type="radio"/> <input type="checkbox"/>	Rx 2005-2009	Prescribed Fires	Prescribed burns between 2005 and 2009
<input type="radio"/> <input type="checkbox"/>	Rx 2000-2004	Prescribed Fires	Prescribed burns between 2000 and 2004
<input type="radio"/> <input type="checkbox"/>	Rx 1990-1999	Prescribed Fires	Prescribed burns between 1990 and 1999
<input type="radio"/> <input type="checkbox"/>	Rx 1980-1989	Prescribed Fires	Prescribed burns between 1980 and 1989
<input type="radio"/> <input type="checkbox"/>	North Fork Kaweah	Trails	Trails within the North Fork of the Kaweah FMU
<input type="radio"/> <input type="checkbox"/>	Middle Fork Kaweah	Trails	Trails within the Middle Fork of the Kaweah FMU
<input type="radio"/> <input type="checkbox"/>	Marble Fork Kaweah	Trails	Trails within the Marble Fork of the Kaweah FMU
<input type="radio"/> <input type="checkbox"/>	Kern Canyon	Trails	Trails within the Kern Canyon FMU
<input type="radio"/> <input type="checkbox"/>	Grant Grove	Trails	Trails within Grant Grove Peninsula FMU
<input type="radio"/> <input type="checkbox"/>	East Fork Kaweah	Trails	Trails within the East Fork of the Kaweah FMU
<input type="radio"/> <input type="checkbox"/>	Cedar Grove	Trails	Trails within the Cedar Grove FMU

Page 1 of 1 Rows per Page: 20

Example shows that the trails layer was split into smaller layers based on drainages.

Incident Shapes Guidance

Local data that is useful for managing an incident

- **Objective Shapes**
- Fire Perimeters
- Ignition for Analysis
- Barrier
- Landscape Mask
- Management Action Points – M.A.P.S.
- Incident owners or editors can create (draw), select a Unit Shape, upload and download an incident shape
- Multiple objectives can be associated with a single shape
- Multiple shapes can be associated with a particular objective
- Can be tied to multiple incident objectives and/or requirements
- Only used on a single incident

Incident Shapes Viewing

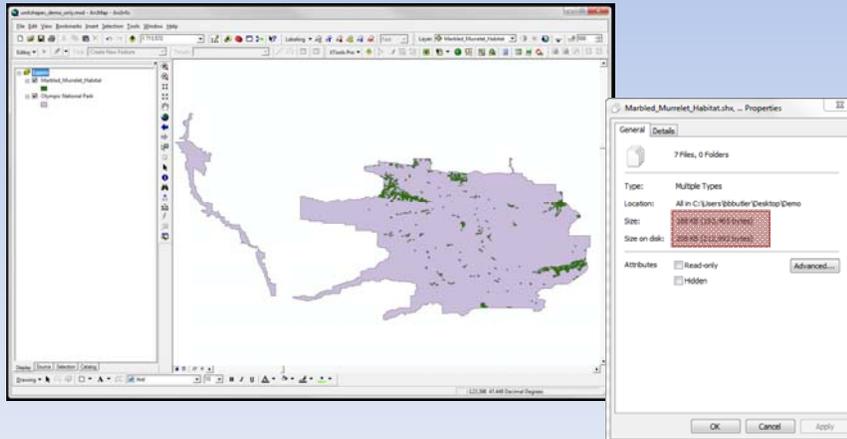
- View on Situation map
- Visible to those with incident privileges before publishing decision on the SITUATION map:
Objective Shapes and M.A.P.s
- Visible to anyone with a WFDSS username after decision published: Fire Perimeters, Ignition for Analysis, Barrier, Landscape Mask, Points of Interest
- Available in new feature coming soon – Pending Decision KMZ download

Working with Complex Unit Shapes

Troubleshooting upload problems and editing data

What are Complex Shapes?

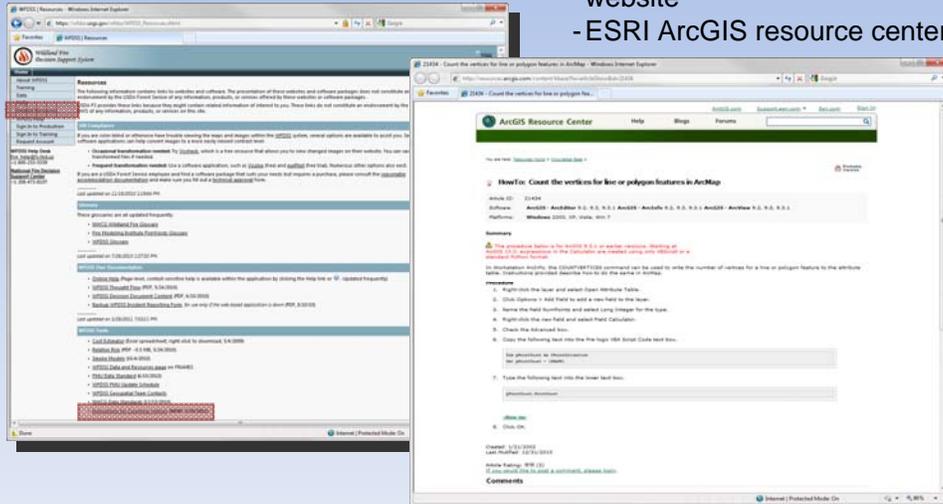
- Shapes that will not load into WFDSS as unit shapes
- 100 points (point shapefile), 50,000 vertices (line and polygon shapefiles)
- Often difficult to determine if the geometry of a shapefile is “complex”
- File size can be, and often is, misleading



Complex Shapes – Counting Vertices

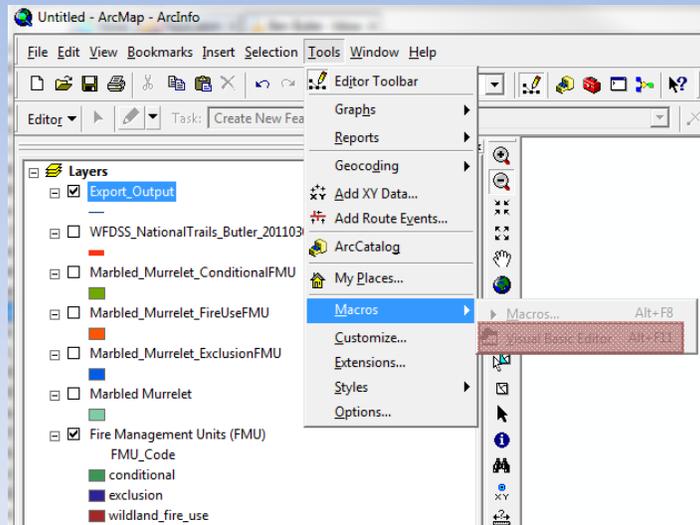
Determining the number of vertices in the potential unit shape layer will help to identify if the layer is “complex” and if you will experience errors when loading the data into WFDSS.

- Instructions via WFDSS website
- ESRI ArcGIS resource center



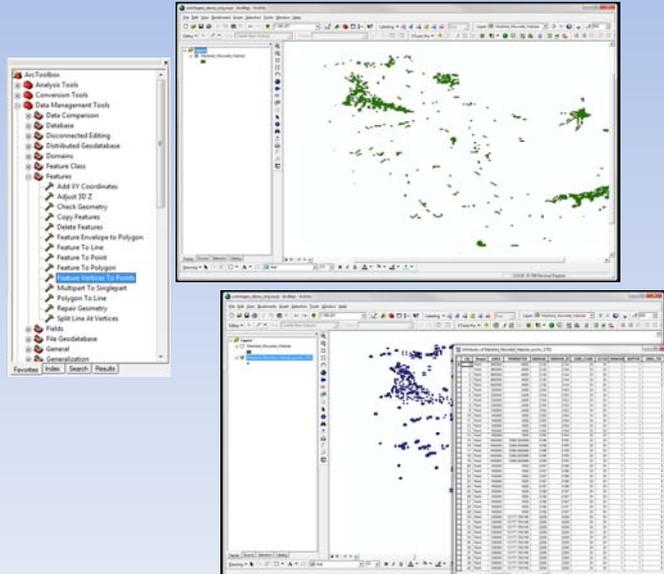
Complex Shapes – counting vertices

- MUST HAVE Visual Basic Editor installed



Counting Vertices

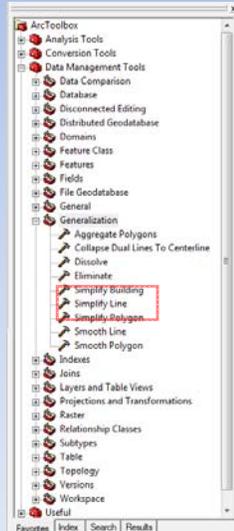
- If VB editor is not installed use ArcToolbox “feature vertices to points” tool



- Creates a new point shapefile which can be used to determine the number of vertices.
- Each point represents an individual vertex in the potential unit shape layer.
- After the new shapefile is created you can simply open the attribute table and note the number of points in the layer.

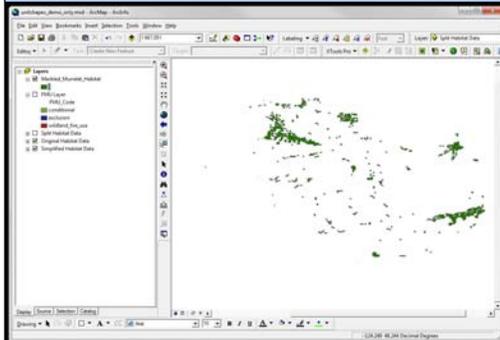
Simplifying (Thinning) Complex Shapes

- ArcToolbox – Use “simplify polygon” and “simplify line” tools
- Count vertices after running to determine if shape is still “complex”

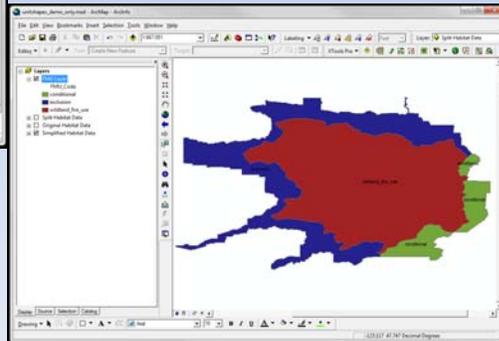


Splitting Complex Shapes

Potential unit shapes will need to be split if thinning does not simplify them enough to be successfully loaded into WFDSS

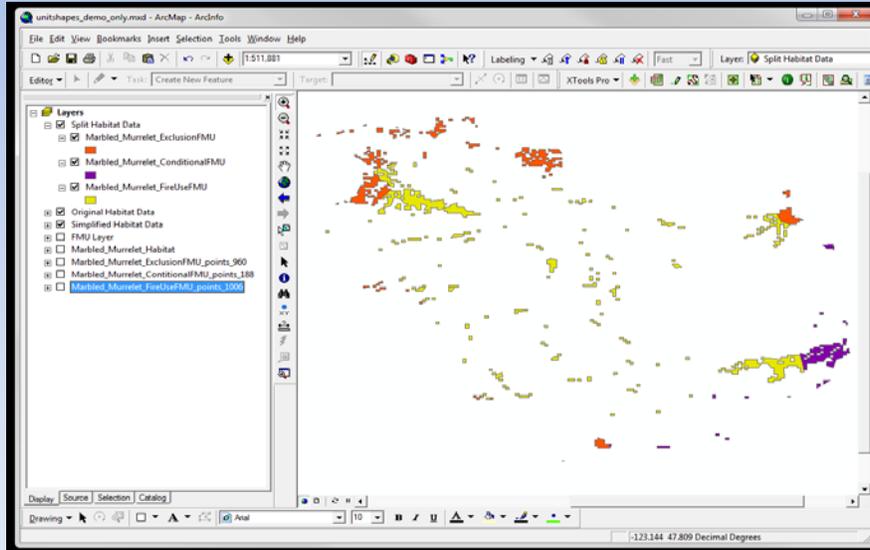


- Determine logical groupings to split the layer.
- Consider using the FMU boundaries as a way to split the data.



Splitting Complex Shapes

Clip original data based on each FMU Code to create an individual unit shape layer for each FMU code



Splitting Complex Shapes

Determine the number of vertices for each of the resulting layers

- If vertex count < 50,000 then load into WFDSS
- If vertex count > 50,000
- Simplify (thin) and recount
- If vertex count < 50,000 the load into WFDSS
- If vertex count > 50,000 split into smaller shapefiles

The screenshot displays the ArcGIS interface. On the left, the ArcToolbox is open, showing the 'Feature Vertices To Points' tool selected under the 'Features' category. The main window shows a map with several layers, including 'Marked_Murriet_ExclosurePMU_points'. An attribute table is overlaid on the map, showing the following data:

FID	Shape	AREA	PERIMETER	MURRIET	MURRIET_ID	GRID_CODE	CCODE	MURRIET	BUFFER	GRID_FID
1	Point	1880000	47861	2676	2684	81	81	1	1	0
2	Point	1880000	47861	2676	2684	81	81	1	1	0
3	Point	1880000	47861	2676	2684	81	81	1	1	0
4	Point	1880000	47861	2676	2684	81	81	1	1	0
5	Point	1880000	47861	2676	2684	81	81	1	1	0
6	Point	1880000	47861	2676	2684	81	81	1	1	0
7	Point	1880000	47861	2676	2684	81	81	1	1	0
8	Point	1880000	47861	2676	2684	81	81	1	1	0
9	Point	1880000	47861	2676	2684	81	81	1	1	0
10	Point	1880000	47861	2676	2684	81	81	1	1	0
11	Point	1880000	47861	2676	2684	81	81	1	1	0
12	Point	1880000	47861	2676	2684	81	81	1	1	0
13	Point	1880000	47861	2676	2684	81	81	1	1	0
14	Point	1880000	47861	2676	2684	81	81	1	1	0
15	Point	1880000	47861	2676	2684	81	81	1	1	0
16	Point	1880000	47861	2676	2684	81	81	1	1	0
17	Point	1880000	47861	2676	2684	81	81	1	1	0
18	Point	1880000	47861	2676	2684	81	81	1	1	0
19	Point	1880000	47861	2676	2684	81	81	1	1	0
20	Point	1880000	47861	2676	2684	81	81	1	1	0
21	Point	1880000	47861	2676	2684	81	81	1	1	0
22	Point	1880000	47861	2676	2684	81	81	1	1	0
23	Point	1880000	47861	2676	2684	81	81	1	1	0
24	Point	1880000	47861	2676	2684	81	81	1	1	0
25	Point	1880000	47861	2676	2684	81	81	1	1	0
26	Point	1880000	47861	2676	2684	81	81	1	1	0
27	Point	1880000	47861	2676	2684	81	81	1	1	0
28	Point	1880000	47861	2676	2684	81	81	1	1	0
29	Point	1880000	47861	2676	2684	81	81	1	1	0
30	Point	1880000	47861	2676	2684	81	81	1	1	0
31	Point	1880000	47861	2676	2684	81	81	1	1	0
32	Point	1880000	47861	2676	2684	81	81	1	1	0
33	Point	1880000	47861	2676	2684	81	81	1	1	0
34	Point	1880000	47861	2676	2684	81	81	1	1	0

Tips for Spatial Data

- Think Spatially
 - Relationship to LRMP/FMPs
 - Relationship to decision
 - Relationship to values inventory /values at risk
- Start small with 1 or 2 ideas
- Keep It Simple
- **Avoid Sensitive Data**
- Scale: local, regional, or national

TIPS Continued

- Not intended for large complex shapes, use non-complex shapefiles
- Consider breaking up larger shapefiles into multiple shapefiles
- Map performance degrades quickly if shapes are large
- Thinning of shapes to improve web map performance
- F11 – enlarge screen (increase screen display)
- Use Up/Down arrow  to increase screen display

Relationship of Shapes in WFDSS

Pre-Season Planning (Recommended)

- FMU Shapes
- Unit Shapes

During Incident

- Objective Shapes
- Fire Perimeters
- Ignition for Analysis
- Barrier
- Landscape Mask
- Management Action Points – M.A.P.S.
- Points of Interest

FMU shapes are connected to the overarching land and resource management plans and fire management plans (LRMPs/FMPs). Unit shapes are tied to FMUs and tiered from the LRMPs/FMPs. Unit shapes can then be used to create Objective shapes for incidents. Incident shapes are created from the action on the ground. Incident shapes include fire perimeters, ignitions for analysis, barriers, landscape masks, management action points (M.A.P.s), and models outputs.