



Bureau of Land Management Winnemucca Field Office



Find Fire

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What is Find Fire

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Find Fire is a series of ARC/INFO AML's (Arc Macro Language) that run an application for locating and mapping the origin of fires in ARC/INFO. It is also useful for finding locations for purposes other than fires. Find Fire was developed on the North Kaibab Ranger District, Kaibab National Forest and written by Rick Crawford the districts GIS (Geographic Information System) Data Base Administrator. Find Fire was originally designed around and specifically for the North Kaibab's GIS data set. Rick Crawford is currently the GIS Specialist at the Winnemucca Field Office of the BLM, Winnemucca NV.

Find Fire allows you to enter the coordinates of a fire or other location and gives you the legal location and a corresponding map of that location. For example, you have the UTM (Universal Transverse Mercator) coordinates from a GPS unit of a fire and you need to know the location by its legal description. Find Fire calculates the Township, Range, Section, and Quarter/Quarter Section for you and displays a map of that area, with the specific location identified. Find Fire also calculates coordinates using Latitude/Longitude as input. You can also work backwards by entering a legal description. Find Fire will return the UTM's and Latitude/Longitude of the center of that Section or Quarter/Quarter Section.

Find Fire also has a segment of the program which allows you to do ranging from lookout towers or other fixed points. You can enter the name of a lookout tower (with a previously identified location), the compass azimuth, and the distance from the tower. Find Fire will then give you the legal description, latitude, longitude, UTM's, and a map of that location. You can also enter the names of two lookout towers and two compass azimuths and get the same information about the location. On the North Kaibab Ranger District, Find Fire has five lookout towers that are

identified in the program which you can do ranging from. The program is being modified to make lookout tower and other locations, easily transportable to other Forests.

After the location of a fire is displayed on the map, Find Fire allows the user to display any other GIS data from the GIS library with that location. There are a few GIS maps like contour lines, sensitive wildlife habitat, and additional roads that have buttons set up specifically. If you need to see something else at that location which does not have a button, Find Fire has a map browser which allows you to put any GIS map on the display at that location.

If your profile on the IBM is part of and belongs to AFM (Aviation Fire Management) you can also use Find Fire to update and edit the district's fire map for the year. Find Fire stores this map data in a file that can be easily converted into an ARC/INFO map at the end of the year.

Running Find Fire [Return to Top of Page](#)

Find Fire runs in ARC/INFO.

Start ARC/INFO by clicking on <Start> <Programs> <ARC INFO User 7.2.1> <Arc>, or by typing "arc" in a "Command Prompt" window. At the "ARC:" prompt type "**findfire**". When you are done you will need to type "**quit**" to quit or end ARC/INFO.

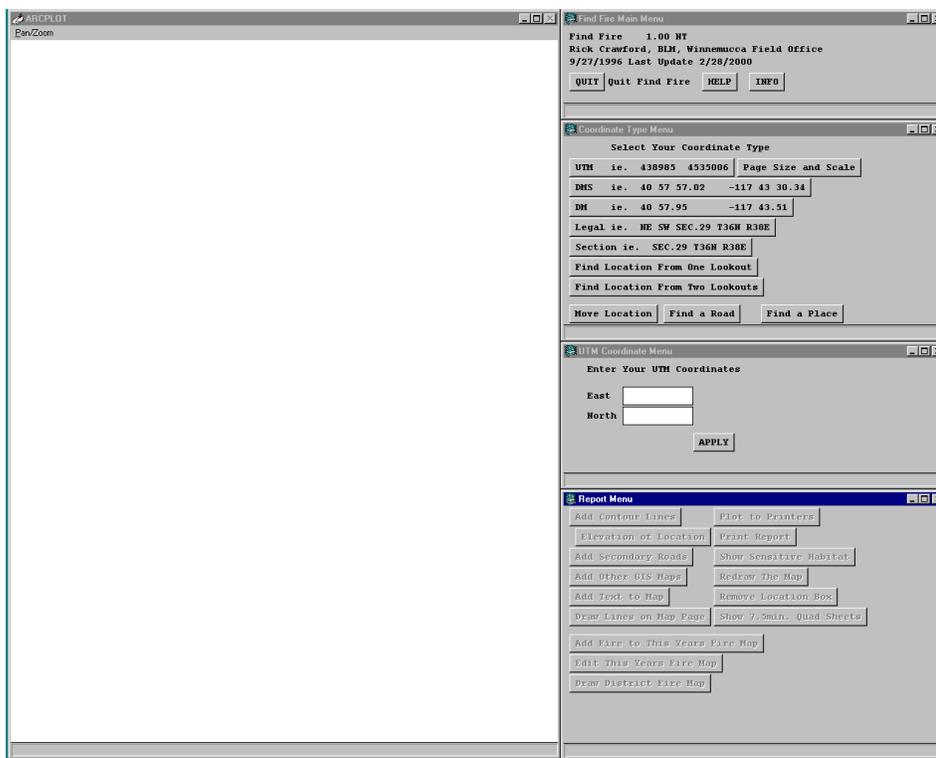
Please do not run Find Fire more than once at the same time by the same user. The multiple runs of Find Fire will conflict with each other. Different users can run Find Fire at the same time.

A short cut to Find Fire can be created. The short cut should point to the batch file at the following address: "W:\gis\atool\findfire\Find_Fire.bat". This batch file will start Arc Info for you and run the Find Fire script.

Find Fire Menu Screens and Layout

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Find Fire when first started has five windows. The large window on the left is titled ARCPLLOT and is the canvas that the maps will be drawn on. On the right side will be four menu windows. Three of these windows stay fixed and the fourth changes, depending on what coordinate mode you are in. All five windows have action bars along the top edge for minimizing, maximizing, and moving. It is advised that you do not minimize, maximize, move, or close any of these windows because it could create a problem with Find Fire at this time. To quit Find Fire use the QUIT button on the main menu at the top right.



1. Find Fire Main Menu, Top menu.

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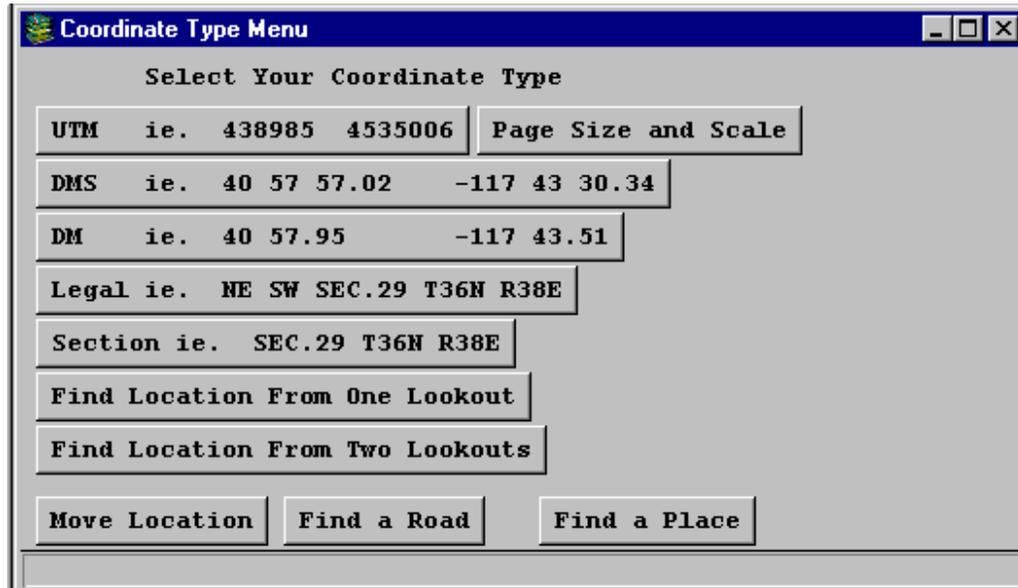
The main menu has the program title and the date the program was last updated. Also the QUIT button is on this menu. Use the QUIT button to quit Find Fire. By using the QUIT button to quit Find Fire the work space it was working in gets cleaned out, and any Find Fire temporary map files are deleted.



2. Coordinate Type Menu, Second menu from the top.

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The coordinate type menu is where you select what type of coordinates or data you are going to be entering in to Find Fire. Find Fire has nine types of data that can be entered. With each one of these types you



will get a different data entry menu. Seven of the data types are: UTM, DMS, DM, Legal, Section, One Lookout, and Two Lookouts. The other two types are an option to select a new location with the mouse and an option to find a road by entering it's road number.

UTM Universal Transverse Mercator

DMS Degrees, Minuets, Seconds for Latitude Longitude

DM Degrees, Minuets decimal for Latitude Longitude

Legal Legal Location with quarter quarter sections

Section Legal Location with section only

One Lookout Ranging from one lookout tower

Two Lookout Ranging from two lookout towers

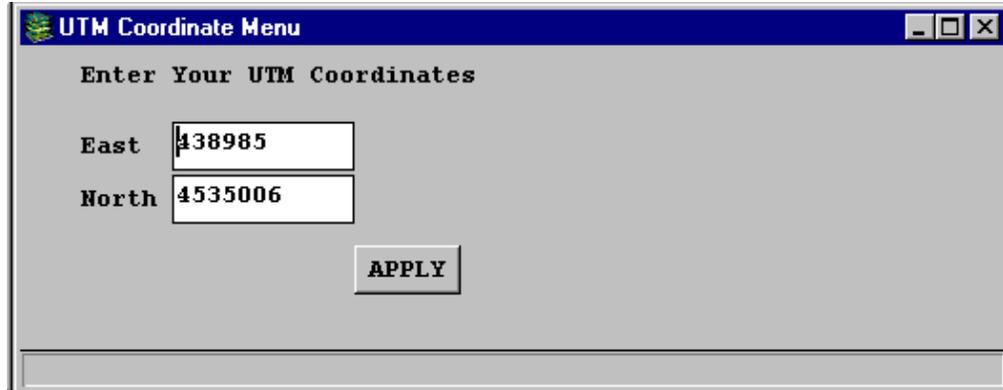
Move Location Change or move the location with the mouse

Find a Road Finds a forest road using the road number

3. Data Entry menus, Third menu from the top.

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A. UTM (Universal Transverse Mercator)

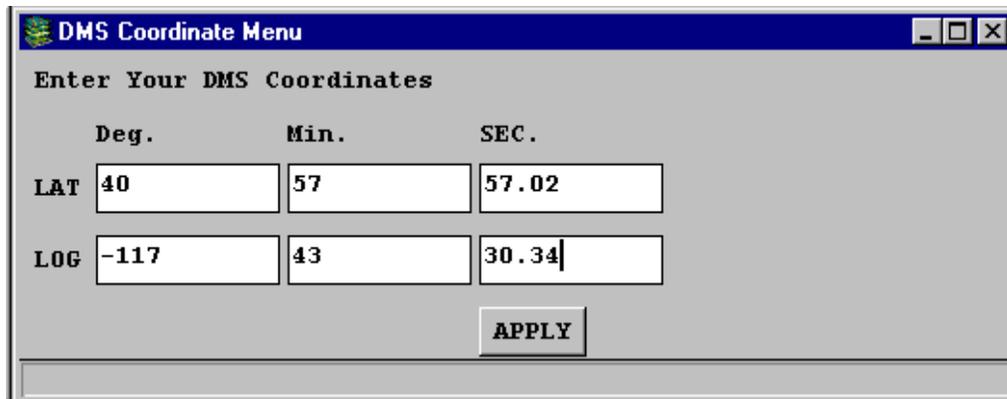


The screenshot shows a dialog box titled "UTM Coordinate Menu". It contains the text "Enter Your UTM Coordinates". Below this, there are two input fields: "East" with the value "438985" and "North" with the value "4535006". At the bottom center of the dialog is an "APPLY" button.

Enter the UTM Easting and Northing.

For the Winnemucca Field Office the Easting must be in the range of 241940 to 586000 and the Northing must be in the range of 4372055 to 4653920

B. DMS (Degrees, Minutes, Seconds)



The screenshot shows a dialog box titled "DMS Coordinate Menu". It contains the text "Enter Your DMS Coordinates". Below this, there are three columns of input fields labeled "Deg.", "Min.", and "SEC.". The "LAT" row has values "40", "57", and "57.02". The "LOG" row has values "-117", "43", and "30.34". At the bottom center of the dialog is an "APPLY" button.

Enter the Latitude and Longitude degrees, minutes, and seconds. Only the seconds can have any decimal places. The minutes and seconds fields must be filled in even if they are just zero ("0"). For the Winnemucca Field Office the Latitude degrees must in the range of 39 to 41 and the Longitude degrees must be in the range of -116 to -119. The Longitude is negative because we are in the western hemisphere. An example of a DMS Longitude and Latitude would be: (-112 36 15.5).

C. DM (Degrees Minutes)

	Deg.	Min.
LAT	40	57.95
LOG	-117	43.51

APPLY

Enter the Latitude and Longitude degrees minutes. This is just like DMS except that there are no seconds and the minutes can be decimal. Only the minutes can have any decimal places. The minutes field must be filled in even if they are just zero "0". For the Winnemucca Field Office the Latitude degrees must be in the range of 39 to 41 and the longitude degrees must be in the range of -116 to -119. The longitude is negative because we are in the western hemisphere. An example of a DM Longitude would be (-112 36.25).

D. Legal (The legal description with it's quarter quarter section.)

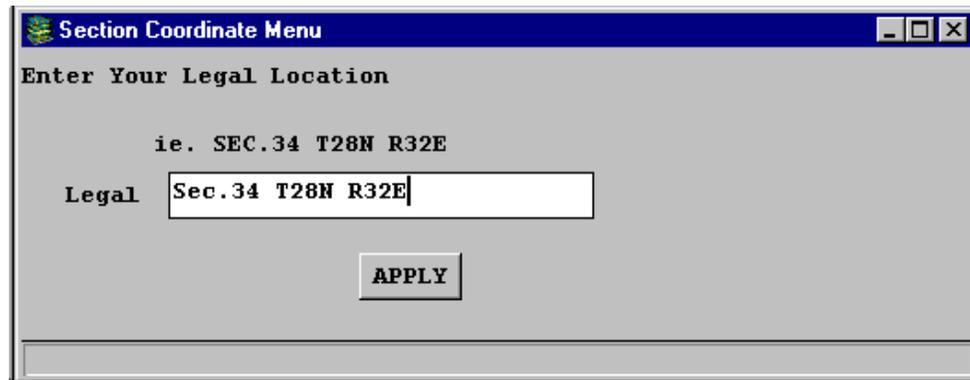
ie. SW SE SEC.34 T28N R32E

Legal: SW SE SEC.34 T28N R32E

APPLY

Enter the legal description of the location down to the quarter quarter section. The legal description must be typed in exactly in the same format that the example is in. This includes all spaces, UPPER, and lower case. Only legal descriptions that are on or near the Winnemucca Field Office will be accepted. Examples of legal descriptions are: (SW SE Sec. 12 T35N R02E) or (NW SE Sec.02 T34N R03W)

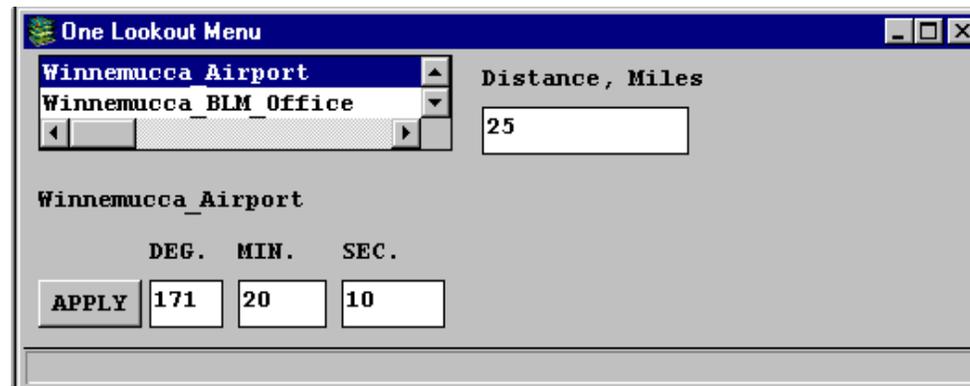
E. Section (The legal description with just the section.)



The screenshot shows a dialog box titled "Section Coordinate Menu". It contains the text "Enter Your Legal Location" and an example "ie. SEC.34 T28N R32E". Below this is a text input field labeled "Legal" containing "Sec.34 T28N R32E". At the bottom center is an "APPLY" button.

Enter the legal description of the location down to the section. The legal description must be typed in exactly in the same format that the example is in. This includes all spaces, UPPER, and lower case. Only legal descriptions that are on or near the Winnemucca Field Office will be accepted. Examples of legal descriptions are: (Sec. 12 T35N R02E) or (Sec 02 T34N R03W)

F. Find Location From One Lookout



The screenshot shows a dialog box titled "One Lookout Menu". It features a list box with "Winnemucca Airport" and "Winnemucca_BLM_Office". To the right is a "Distance, Miles" input field with "25". Below the list box are three input fields for "DEG.", "MIN.", and "SEC." with values "171", "20", and "10" respectively. An "APPLY" button is located to the left of these fields.

Select the lookout tower from the list of lookout towers. Enter the distance from the tower in miles. Enter the compass azimuth in degrees minutes seconds. Degrees minutes and seconds must all be filled in even if they are zero "0". Only the seconds can have any decimal places. Degrees must be in the range of 0 to 360 with 0 or 360 as north and 180 south.

It is possible to use an observation point other than one of the lookout towers in the list of towers as your lookout tower. You must know the coordinates of the observation point in one of the following: UTM, DMS, DM, Legal, or Section. First make one run of Find Fire using the coordinates of the observation point. Then do a second run of Find Fire without quitting Find Fire and select your lookout tower to be the Last_Find_Fire_Location. This will use the location from the last run of Find Fire as your lookout tower.

G. Find Location From Two Lookouts

Lookout One			Lookout Two		
DEG.	MIN.	SEC.	DEG.	MIN.	SEC.
23	21	45	270	34	0

Select two lookout towers from the two tower lists. You must select different towers from each list. For each tower enter the compass azimuth in degrees 1minutes seconds. Degrees minutes and seconds must all be filled in even if they are zero "0". Only the seconds can have any decimal places. Degrees must be in the range of 0 to 360 with 0 or 360 as north and 180 south.

Same as with finding a location from one lookout tower it is possible to use an observation point other than one of the lookout towers in the list of towers as one of your lookout towers. You can only have one observation point that is new. One of the towers must be from the list of lookout towers. You must know the coordinates of the observation point in one of the following: UTM, DMS, DM, Legal, or Section. First make one run of Find Fire using the coordinates of the observation point. Then do a second run of Find Fire without quitting Find Fire and select one of your lookout to be last_Find_Fire_Location. This will use the location from the last run of Find Fire as one of your lookout towers.

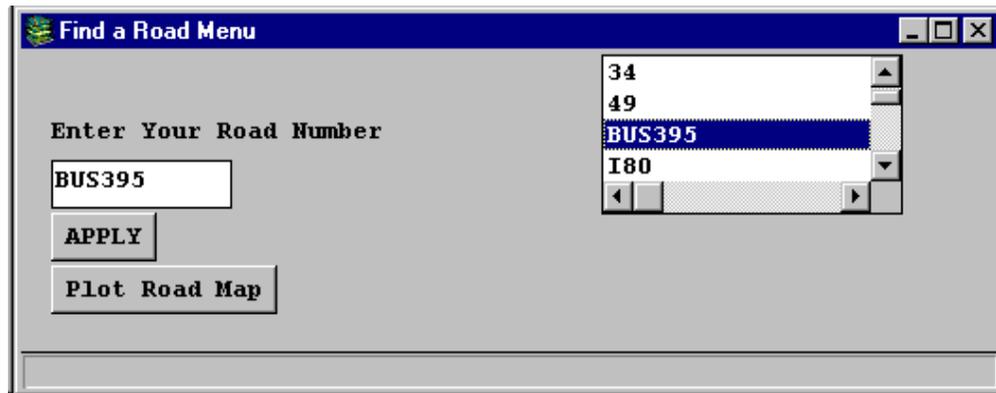
H. Move Location

Select Move and Point to Map with the Mouse

MOVE

Move the location of the center of the map. In the "Move Coordinate Menu" select "MOVE" and point to the new location with the mouse. This move option only works when a map is displayed.

I. Find a Road

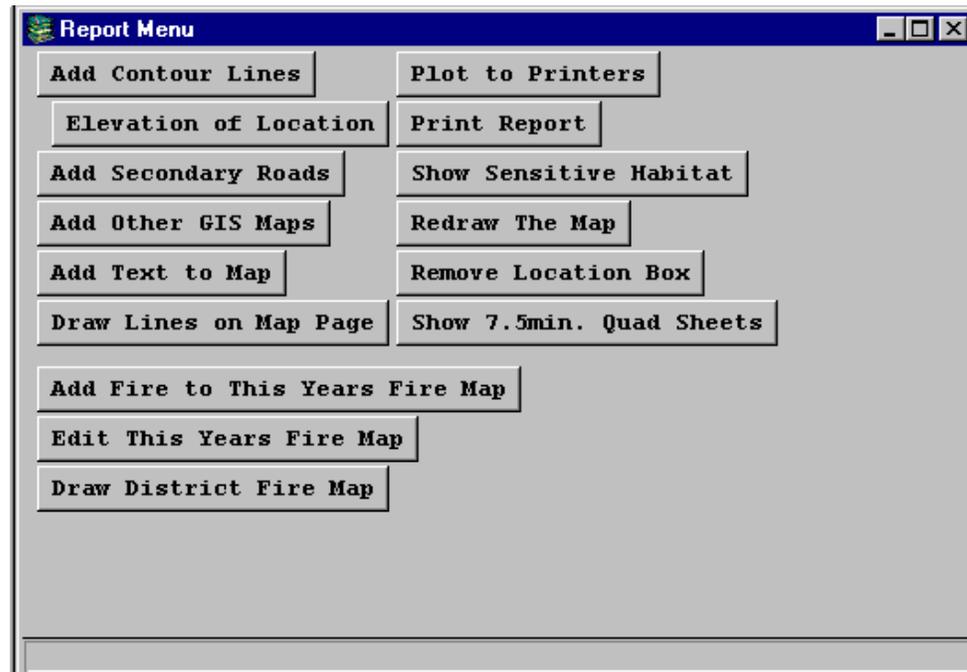


This option finds a road using the road number. Enter the road number that you are looking for and select the district or area that the road is to be found on. For this option to work all the road maps in GIS must have an attribute for road number. Once Find Fire has found the road you will need to use the "Move Location" option to get the legal of a point along the road. The "Plot Road Map" button sends the Find a Road map to a printer or plotter. When you are in this option the "Report Menu" is frozen.

After you have entered your input into one of the input menus click on the APPLY button to have Find Fire find the location.

4. Report Menu, The bottom menu [Return to Top of Page](#)

This menu has several functions that can be done with the final output from Find Fire. You can add other GIS maps to the map display. You can send the map to a printer or the plotter. Or you can print a simple report about the location. If you are a member of AFM you can also add the location that you just finished running through Find Fire to



the district fire map for the year. To access this menu you must first do at least one run of Find Fire.

A. Add Contour Lines

This button adds 40 foot contour lines to your location map. This function can be a little slow.

B. Elevation of Location

This button adds the elevation of the location to the upper left corner of the map display

C. Add Secondary Roads

When Find Fire plots its first map with each run Find Fire plots only the main system roads on the location map. This button will draw all the roads that are in the GIS on the location map.

D. Add Other GIS Maps

This button opens a map browser that lets you add any GIS map that you have access to the location map. Please see Add Other GIS Maps for details on this sub. menu.

E. Add Text to Map

This button allows you to type text on to the location map before plotting or printing. A sub. menu comes up. In that menu enter the text that you want to add to map and select the text size in inches. Place the text on the map by clicking on the "Add Text" button and pointing to the map with the mouse. The "CANCEL" button cancels out of the text menu.

F. Draw Lines on Map Page

This button allows you to draw lines on the surface of the map. In the sub menu that comes up select the line type you want and click on "Draw Lines". Draw the line with the left mouse button. To stop drawing push 9 on the keyboard or Ctrl. and the right mouse button.

G. Plot to Printers

This button exports the map to ArcPress for plotting the displayed map to a printer or plotter. Select the a printer or plotter and a driver. Most of the 8.5" x 11" printers use driver HP PCL5 and the 36" plotters use driver HP RTL. For more

information on ArcPress please see ArcPress on the GIS/GPS part of the Winnemucca internal web page. All the location maps are 8.5" X 11" and the District Fire map is 30" X 30" and should be sent to the plotter.

H. Print Report

This button prints a simple report about the location to one of the laser printers. Select the printer from the list. The report comes out on one page.

I. Show Sensitive Habitat

This button draws sensitive areas to the location map. At the Winnemucca Field Office this button allows you to display Land Status, WSA's, and Previous fires.

J. Redraw The Map

This button clears all the map data that has been added to the location map and draws a new location map for the same area as the last Find Fire run.

K. Remove Location Box

This button removes the red box, marker and lines marking the location on the map. It also removes the title information at the top of the map. This is useful in that once you have found a location you can now use the map as a base project map. You can add any GIS layers you want, Draw on the map, or add text to the map.

L. Add Fire to This Years Fire Map

This button brings up a sub. menu for the fire shop to add this location to the Districts fire map for the year. In the sub. menu enter the name of the fire, and the date of the fire. Also select the size and cause of the fire and click on the "ADD" button. The "CANCEL" button cancels out of this sub. menu.

M. Edit This Years Fire Map

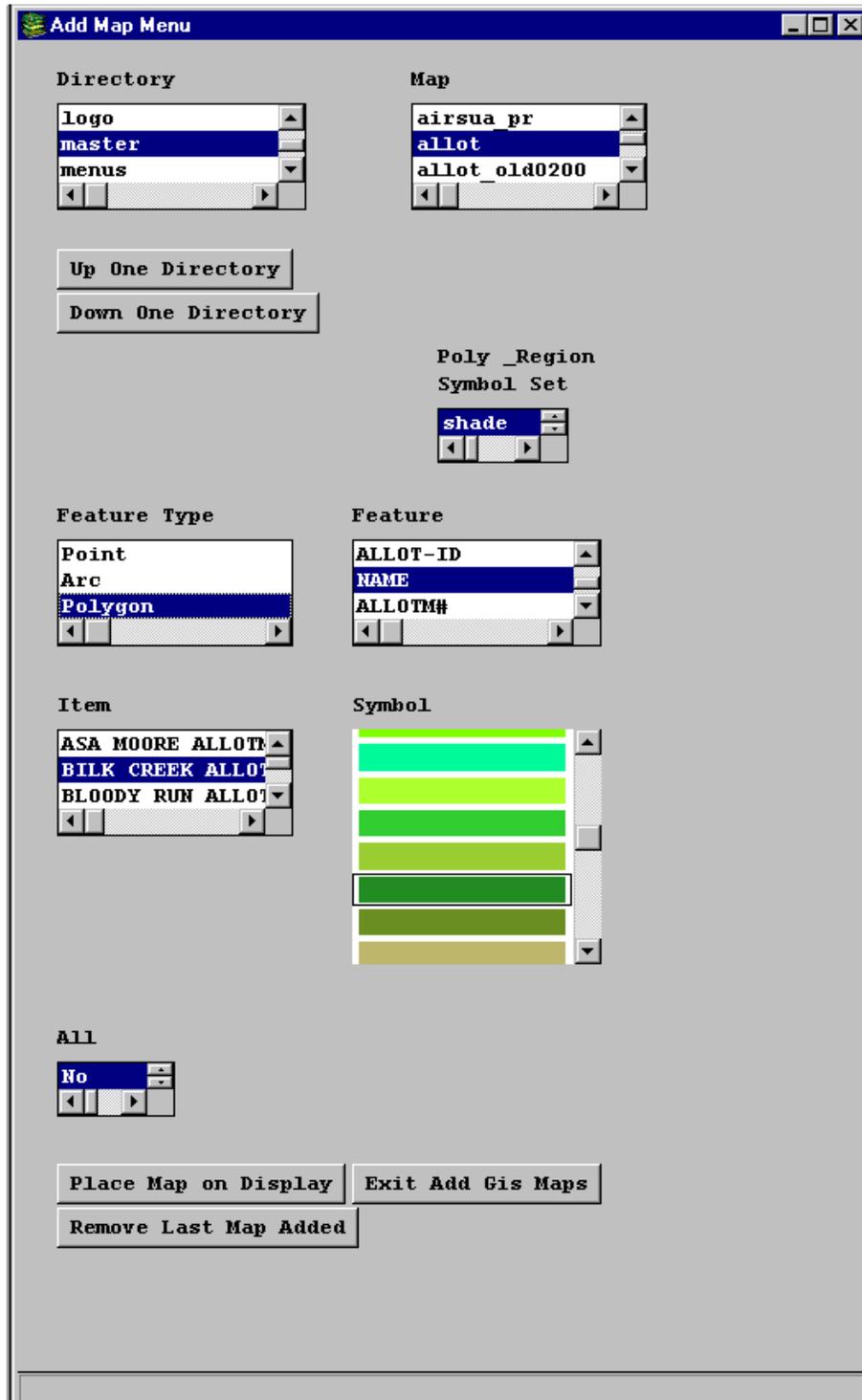
This button brings up a sub. menu that allows the fire shop to list, print, and delete fires from the Districts fire map for the year. It also allows you to draw this years fires on the map page. Please see Edit This Years Fire Map for details on this sub. menu.

N. Draw District Fire Map

This button draws a 30 inch by 30 inch map of the District with this years fires plotted out.

Add Other GIS Maps , a sub. menu of the Report Menu [Return to Top of Page](#)

This menu is a basic map browser that lets you add any GIS map that you have access to the location map. To draw a GIS cover you will need to work your way through this menu from the top to the bottom. First you will need to select a directory. The Directory box starts in the GIS library at M:\gis1. If you need to move up a directory click on the "Up One Directory" button and the directory box will move up to M:. To move down a directory select the directory you are moving to in the Directory box and click on the "Down One Directory" button. Keep going up or down until you are in the correct directory. Then select a cover in the Map box. Then select a feature type in the Feature Type box. If the feature type is polygon or region you will next need to select line or shade from the Symbol Set box. Shade will draw areas as solid colors and line will



draw them as line outlines. Then in the Feature box select the attribute column you want to display. Then in the Item box select what item you want. If you want all the map items select all in the All box. Then select a symbol from the Symbol box. Now you are ready to place the cover on

the map page by clicking on the "Place Map on Display" button. The "Remove Last Map Added" will remove the last map element added to the map. This is useful if you make a mistake and add the wrong map. Warning this button will also remove other parts of the map display if used before any maps have been added. To exit from Add Other GIS Maps click on the "Exit Add Gis Maps" button.

Edit This Years Fire Map, a sub. menu of the Report Menu [Return to Top of Page](#)

This menu lets people in the fire shop to manipulate the list of fires for this year.

A. List Fires By Location, Name, and Date

This button displays a list of this years fires in a scrolling box.

B. Print List of Fires

This button prints the list of this years fires.

C. Delete a Fire

This button opens a sub. menu that allows you to delete a fire that was entered by mistake. In the sub menu select the fire name and click on the "DELETE" button. The "CANCEL" button will cancel you out of this menu.

D. Draw This Years Fires on The Map Page

This button will draw the other fires for this year that are near to current location on the map display. This is useful for seeing if there have been other fires in the area. To display fires from previous years you will need to use "Add Other GIS Map" on the Report Menu.

E. Fire List to ARC/INFO

This button creates a ARC/INFO point coverage from the list of fires. In the sub.menu select the work space you want the coverage created in, and select the file to create the coverage from. Then select "Save" and the coverage will be created.

F. CANCEL

Cancel out of this menu.