Defining Custom Agencies and Importing Custom Fire Occurrence Data into FireFamilyPlus

Defining Custom Agencies

In FireFamilyPlus, agency definitions are used for associating fires with a RAWS or SIG, and for importing fire data from custom data files. When creating these definitions, the user needs to know two main things: the names of the units and the codes of the units as found in the import files. If the import files do not contain codes for regions (for this example, an FDRA will represent a region), units, or subunits, then a "dummy code" needs to be assigned by the user. This will enable the user to select the desired region (FDRA), unit, and/or subunit as a default for the entire file when importing custom historical fire data.

To better understand how FireFamilyPlus organizes this information, agencies, regions, units, and subunits have a tree-like structure, i.e. an agency is made up of regions, a region consists of units, and a unit is divided into subunits (Diagram 1). When defining agencies, the **region level is mandatory** for the agency to be usable for importing fire data. The user needs to define units and subunits only if necessary, for their agency. When importing custom fire data that is FDRA-specific, the user does not need to define units or subunits.

After creating the Fire Danger Rating Areas (FDRA) for the planning area, the user will need to identify the planning area as well as each FDRA in FireFamilyPlus. In FireFamilyPlus, the 'Agency' will define the planning area and the 'Region' will be used to define each FDRA. This will allow the user to import FDRA-specific fire occurrence data as well as conduct FDRA-specific fire occurrence and weather analyses.
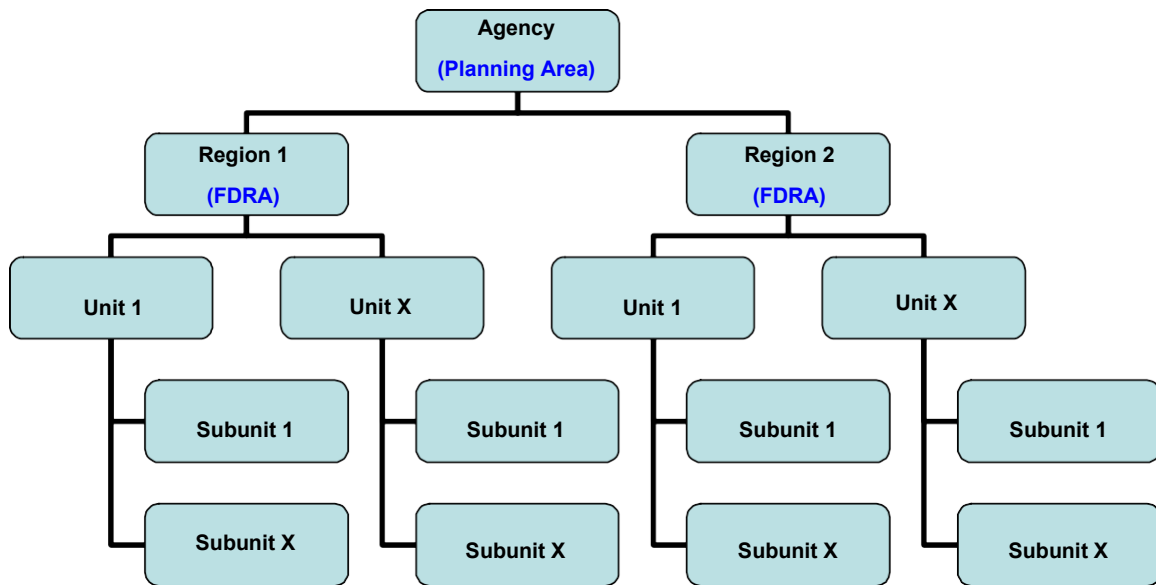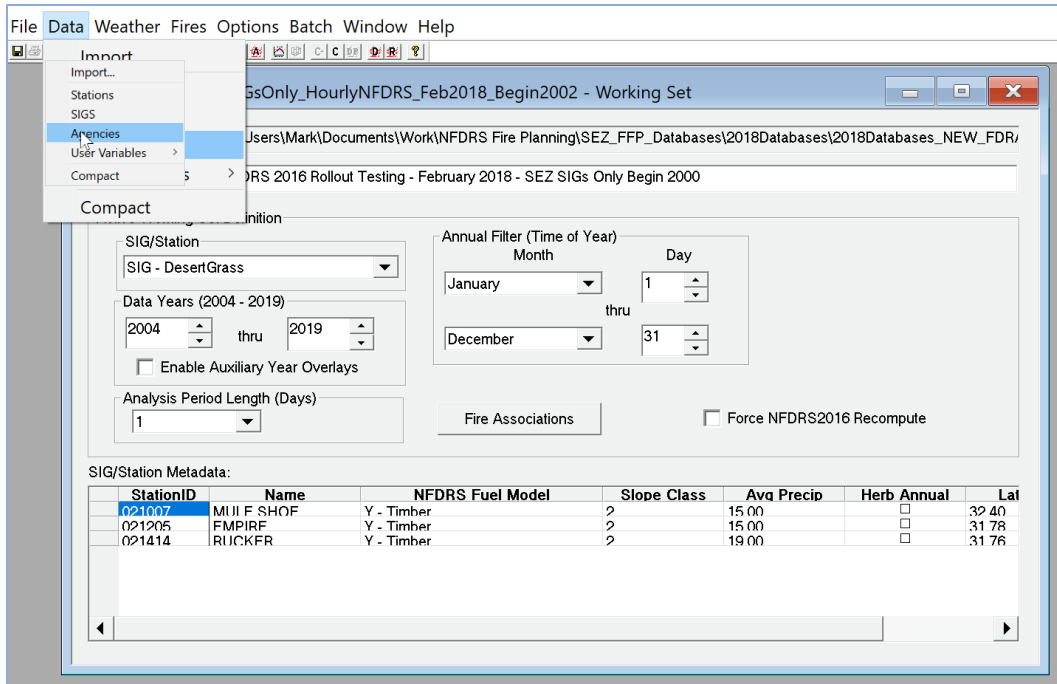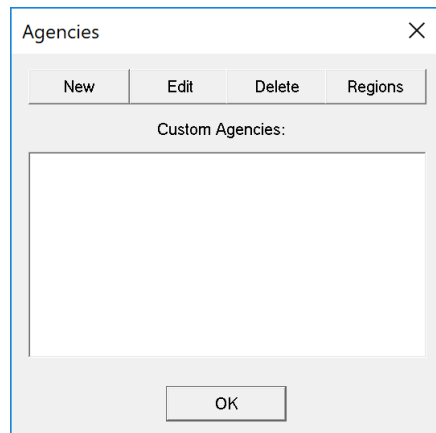

Diagram 1. FireFamilyPlus custom agency structure.

To begin the process of setting up a custom agency in FireFamilyPlus:

1. In FireFamilyPlus select the **Data -> Agencies** menu option.

2. Selecting the **Agencies** menu option will bring up the following dialog box:

This dialog box lists all of the custom created agencies. The Fire Danger Operating Plan (FDOP) planning area will be represented the 'Agency". For this example, the user will use the acronym "SEZ" (i.e. Southeast Zone) to identify the planning area. That's all there is to creating an 'Agency' other than an internal code that FireFamilyPlus uses to identify that agency.

3. Select **'New'** to create a new 'Agency'. When selected, a dialog box appears prompting the user to enter the name of the agency. Enter the name **'SEZ'** and Select **'OK'** (Example 1). FireFamilyPlus then creates a record and internal ID for the new agency.
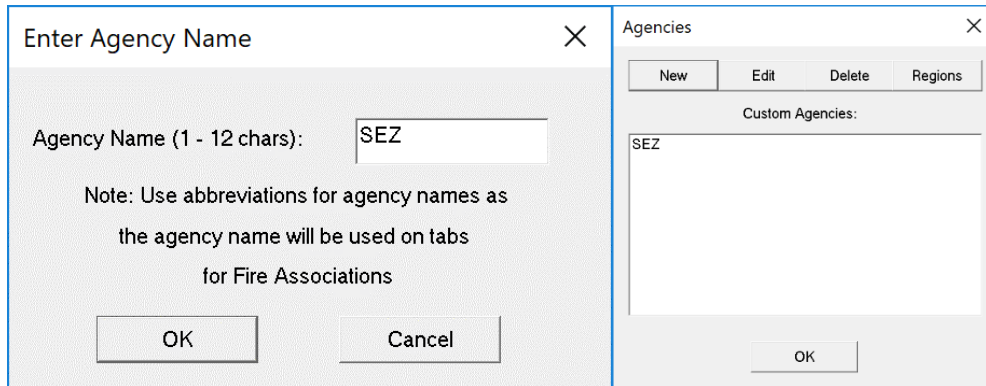
Example 1. Create a new 'Agency' name that represents the FDOP planning area.

- Note that the 'Agency' Name is limited to a total of 12 characters.

- **'Edit'**: Select **'Edit'** if the user needs to edit the name of the selected agency in the list.

- **'Delete'**: Select **'Delete'** if the user needs to delete a selected agency in the list. (This option will also delete all regions, units, and subunits for that agency).

- **'Regions'**: **'Regions'** will be used to define the FDRAs in FireFamilyPlus. For this example, select **'Regions'** to create the FDRA identifier in FireFamilyPlus for the selected agency (**'SEZ'**) in the list. The 'Sonoran FDRA' is used as the example 'Region' for this exercise (Example 2). This dialog box displays the regions for the agency. Regions have two main parts:

1. *The code for the FDRA (Region)*. Assign a unique numerical code for each FDRA. This example uses "1". Keep it simple. Region codes should be unique for an agency, and all region codes *should contain the same number of characters*.

2. *The name of the region*. This example uses "Sonoran FDRA" as the assigned name. Try to keep the FDRA names relatively short.
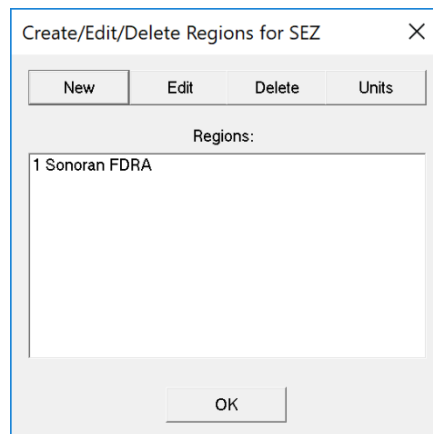

Example 2. Create new a 'Region' name that identifies an FDOP Fire Danger Rating Area; i.e. 'Sonoran FDRA'.

- In this example the user will create a total of three FDRAs: Sonoran FDRA, Desert Grasslands FDRA, and Forest/Woodlands FDRA (Example 3):
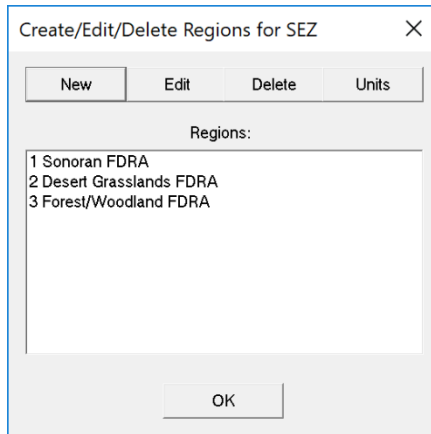
Example 3. Create three FDRA identifiers in FireFamilyPlus: 1 Sonoran FDRA, 2 Desert Grasslands FDRA, 3 Forest/Woodland FDRA.

- To view the new 'Agency' and associated FDRAs in FireFamilyPlus, the user can navigate to **'Fires' => 'Summary' => 'General'**
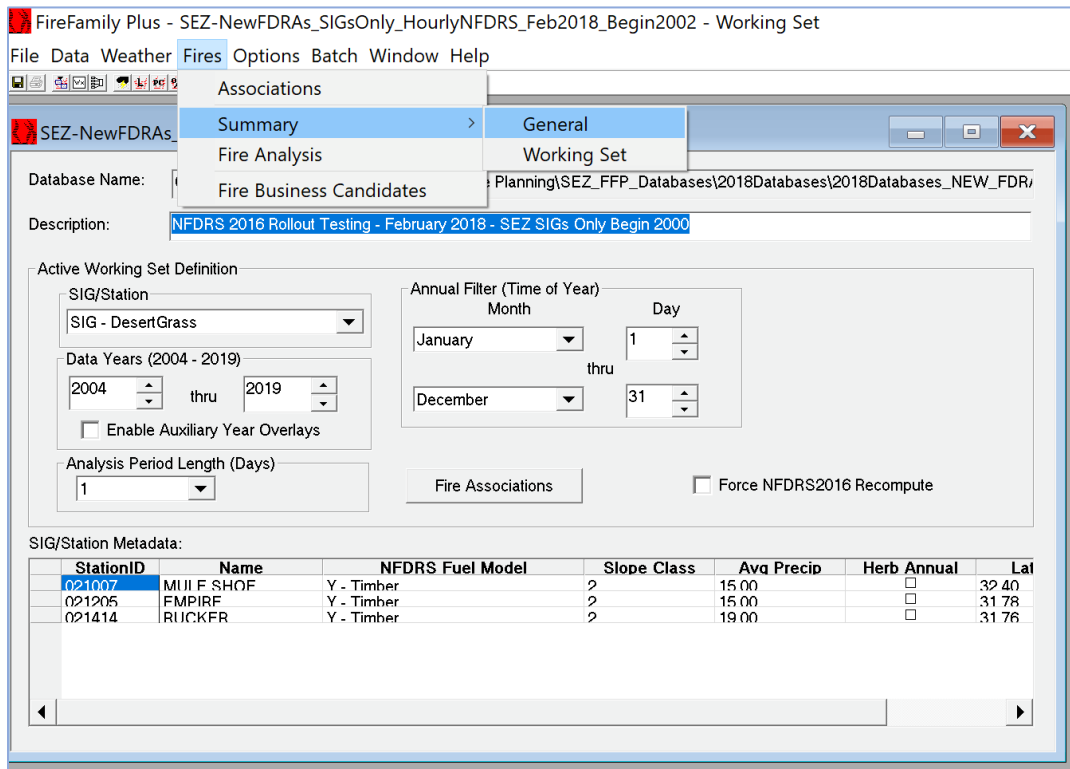
A new dialog box will appear, and the user should see the new 'Agency' tab that was created, "SEZ", located in the top row of tabs. When the user selects the 'SEZ' tab the new FDRAs that are associated with 'SEZ' in the 'Region(s)' section are listed on the left side of the dialog box: 1 Sonoran FDRA, 2 Desert Grasslands FDRA, and 3 Forest/Woodland FDRA.
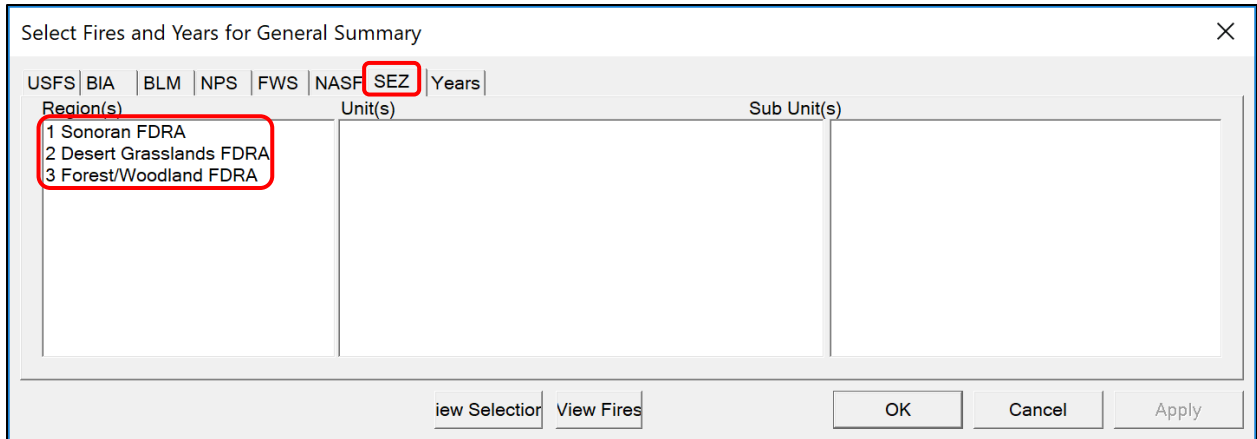
- • Note: Since 'Units' and 'Sub Units' are not needed these sections will remain blank.

This concludes the exercise on how to create custom agencies and regions that identifies the planning area and FDRAs in FireFamilyPlus.

Importing User-Defined Fire Occurrence Data

Now that the planning area and FDRAs have been created in FireFamilyPlus this exercise will illustrate a process on how to export historical fire data from ArcMap and save this data as a .csv (comma separated values) file. The user can import this .csv file into MS Excel. The goal is to import this custom historical fire data into an MS Excel spreadsheet and format it so it can then be imported into FireFamilyPlus.

This example will assume the user has the planning area polygon (that includes all of the FDRAs) as well as a historical fires layer loaded in ArcMap. If needed, get some help from a GIS Specialist. This example will use the "SEZ_All-FDRAs_040319" polygon to represent the planning area and the "SEZ_FireHistory_040419" layer to represent the initial fire history layer.

Exporting Data from ArcMap - Example

1. Open the planning area map in ArcMap and right-click on the "Historical Fires" layer in the menu tree. Select **'Joins and Relates'**, then select **'Join'**. The following dialog box will appear:
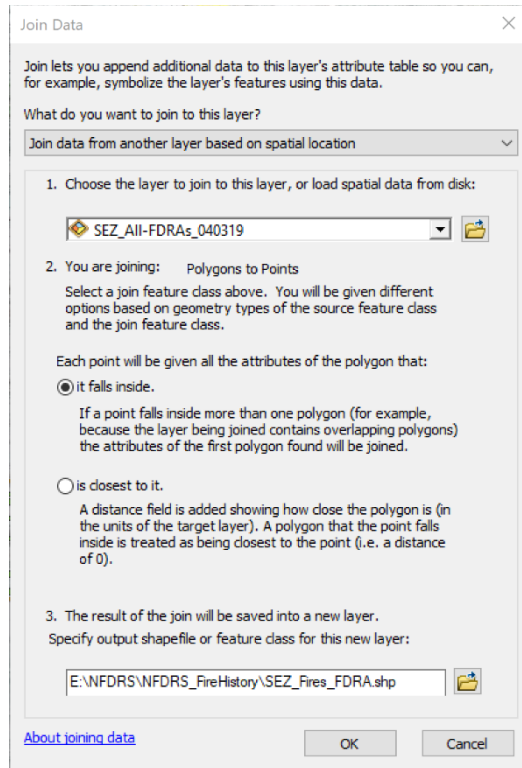
2. In this dialog box:

   1) select **'Join data from another layer based on spatial location'**.

   2) The layer to join is the "SEZ_All-FDRAs_040319" polygon.

   3) Select the radio button next to **'it falls inside'**.

   4) Specify the name of the output shapefile and the location where it will be saved to. The new fire history layer for this example is named "SEZ_Fires_FDRA".

3. This new layer will be added to the project in ArcMap. The new "join" layer will have all the fire information and a column that designates the appropriate FDRA to each fire. The user can view this information when the attribute table for the layer is opened. This new layer allows the user to export this data for eventual import into FireFamilyPlus and perform Fires Analysis by associating the fires to their respective FDRAs. To open the attribute table for the "SEZ_Fires_FDRA" layer, right-click on the layer name in the menu tree and select **'Open Attribute Table'**.
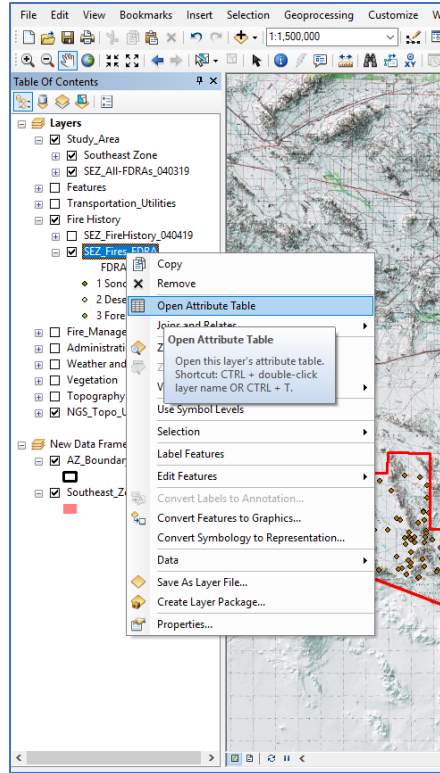
4. The attribute table will be displayed, the user can see all of the information associated with the selected historical fire layer. The attribute table in this example contains numerous columns, many of which can be deleted after the file is exported and opened in MS Excel.

5. To export this data, click on the **'Table Options'** icon in the upper left corner of the attribute table. Select the **'Export'** option.

6. The "Export Data" dialog box will appear. Select **'All records'** and specify the file name and where the export file is to be saved. This example shows the file being saved to "Downloads" and the export file name is "SEZFireHistoryTable.csv". *It is important to save this file with the .csv extension.*

7. When the user clicks on the "Browse" button next to the "Output Table" box, a new window will appear that allows the user to specify the location for storing the export file and the file name.

   1) Select where to store the export file.

   2) Create a file name and remember to include the .csv extension with the file name.

3) In the "Save as type" box, select **'Text File'**.

4) Click **'Save'**.
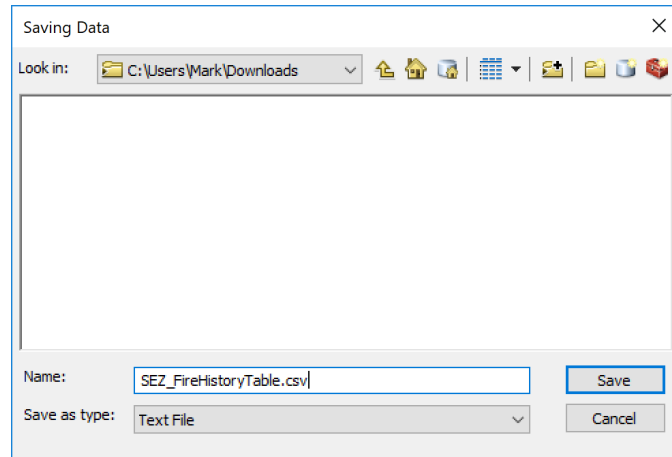
8. A new dialog box will open asking if the user wants to save the table to the current map. Select **'No'**.
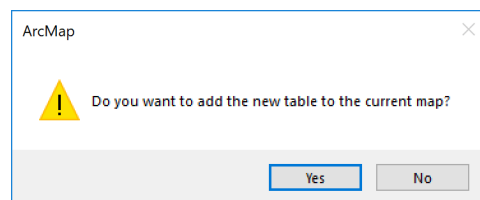
9. Close the attribute table and save and close the ArcMap application at this time.

Importing an ArcMap Data File into MS Excel - Example

This example illustrates how to import data into MS Excel 2016. Earlier versions of MS Excel utilize a slightly different process. Open a new sheet/file in MS Excel and select **'Data'** from the menu bar at the top of the screen. Before importing any data into the Excel spreadsheet, click on the cell in the upper left-hand corner of the spreadsheet (cell A1). The reason for this will explained shortly.
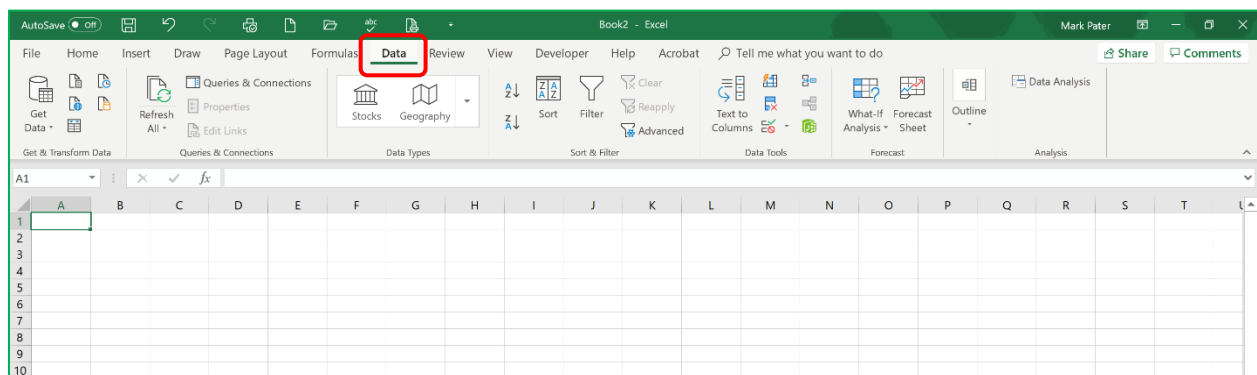
Next, select the **'Get Data'** icon in the upper left corner of the screen.
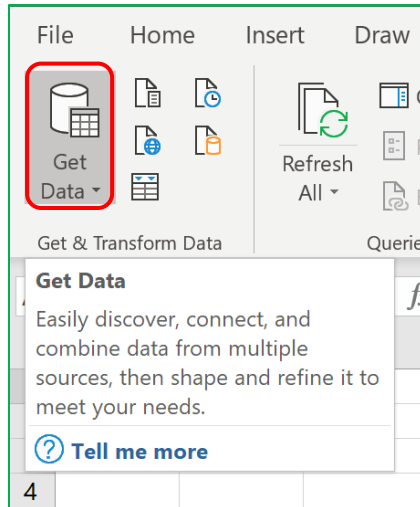
Next, select **'Legacy Wizards'** and then select **'From Text (Legacy)'**
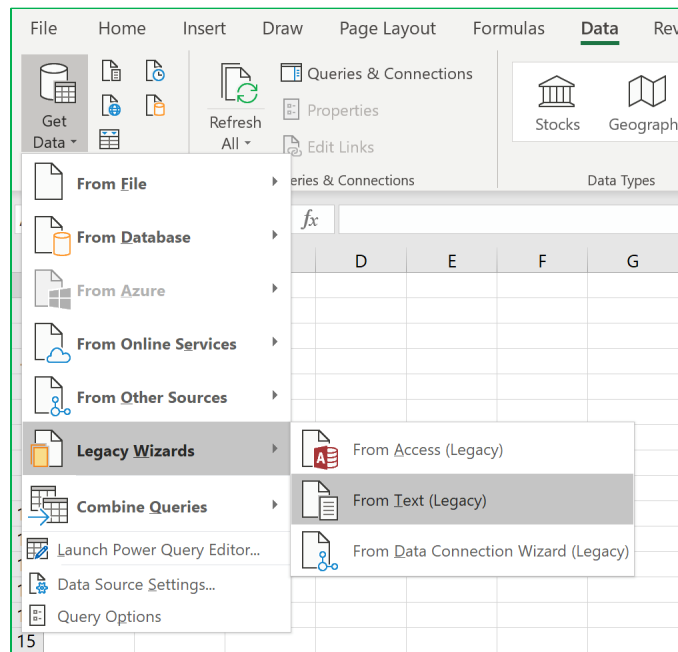
Note: Using earlier versions of MS Excel (i.e. 2007, 2010), open Excel and select **'Data'** from the menu bar at the top of the window. Click on the **'From Text'** icon. Next, select the file and click on **'Import'**. The following steps describe the same process for importing the data into the Excel program.

A dialog box will appear, navigate to the location where the previously downloaded .csv file is stored. Double-click on the .csv file and the following dialog box (**'Text Import Wizard'**) will appear.

Step 1: First, make sure to select the **'Delimited'** radio button under the "Original data type" section. Note the box that states: **'Start import at row:'**, use the scroll bar to the right of the preview window to scroll down to where the column headers begin. This example shows the column headers beginning in row 1. Change the number in the box to **'1'**. Next check the box next to **'My data has headers'**. Click on **'Next'** and the next step in the dialog box will appear.
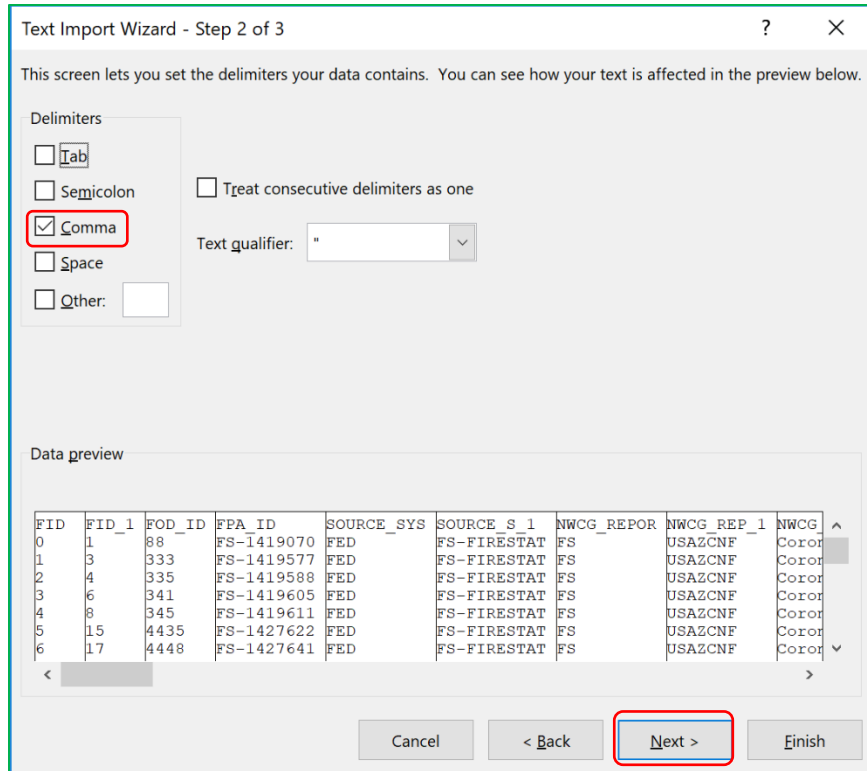
Step 2: Check the box next to **'Comma'**. The **'Tab'** box is the default setting and the user can uncheck this box. Note that the data preview window shows the data beginning with the row that contains the column header names. Click on **'Next'** and the third step in the dialog box will appear.
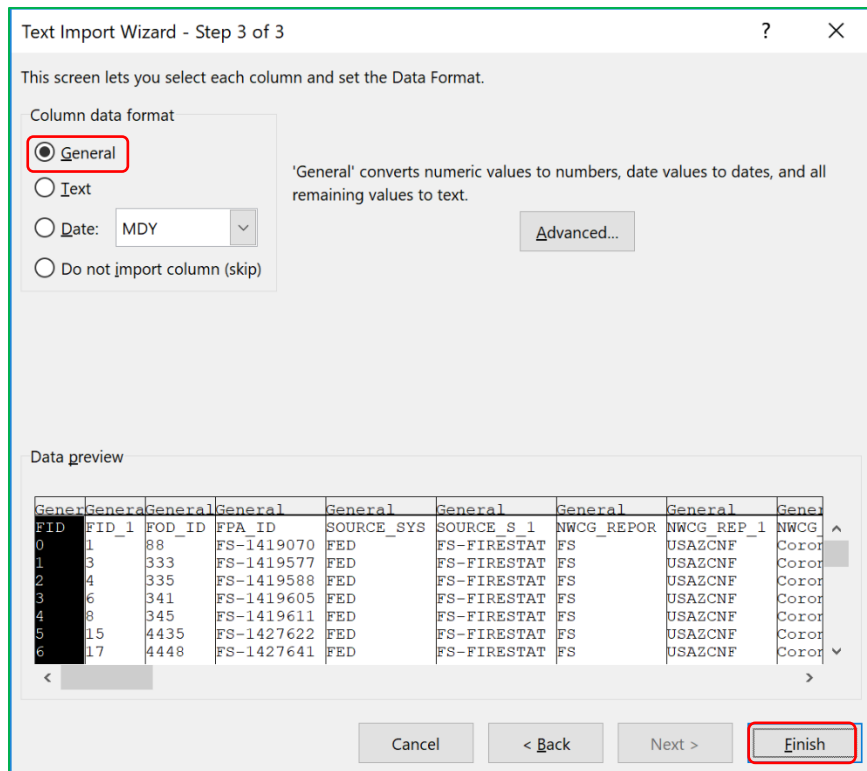
Step 3: The default setting for the "Column data format" is pre-selected for **'General'**, this should suffice for the data import. Note that the left column is highlighted in black. If the user has data columns that are not to be imported, the "Data preview" window in this step allows the user to select columns that are not needed for import into FFP. For this example, non-essential columns will be deleted after the data is imported into the spreadsheet. Click on **'Finish'** and the following **'Import Data'** dialog box will appear.
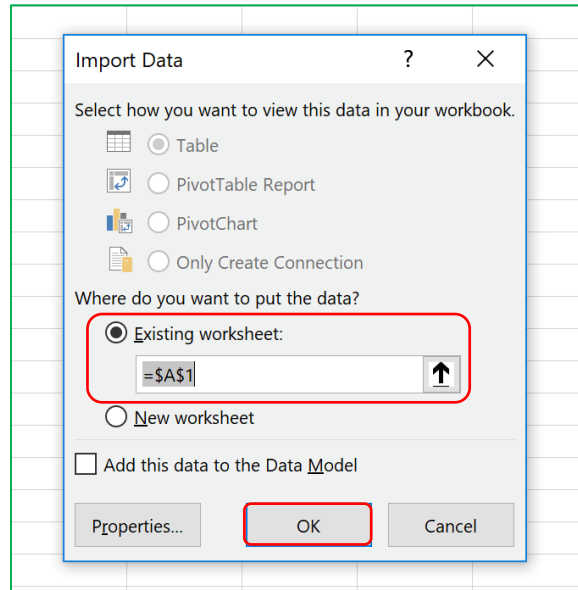
Make sure that the button next to **'Existing worksheet'** is checked (this is the default setting) and the first cell to be populated is shown as **'=A1'**. This is the first cell in the upper left corner of the new worksheet (cell A1). If the user selects 'New worksheet' the data will be imported into a new worksheet. Click on **'OK'** and the data from the .csv file will be imported into the Excel spreadsheet (Example 4).

Example 4. Data file exported from ArcMap into an MS Excel spreadsheet and saved as a .csv file.

Save this as a .csv file in MS Excel. Next, the user can check and reorganize the columns to meet the format and organization required to prepare the file for import into FireFamilyPlus.

Generic Fire Import into FireFamilyPlus

Before the user can import custom fire data into FireFamilyPlus, the user needs to know which columns will be used in FFP. The *required fields* in FFP are: **'Fire Number', 'Total Acres'**, **'Statistical Cause'**, **'Discovery Date"**, and **'Region ID'**. The **'Fire Number'** must be unique; for this example, use the '**FID'** column as the fire number because with multiple agencies' data there may be more than one fire with the same number. If the user selects the **'Fire Number'** field and there are duplicates when importing, FFP takes the first number and drops the second. The **'Discovery Date'** must be in the mm/dd/yyyy format to import into FFP.   The **'Region ID'** is the FDRA. Remember to import the **'Fire Name'** and the **'Latitude' and 'Longitude'**. *Delete all other columns in the spreadsheet.*

Open the .csv file in MS Excel. This example will delete a number of columns that are not needed for import into FFP. The columns to retain are:

- Discovery Date
- Total Acres
- Statistical Cause
- Fire Name
- Fire Number (This example will use the FID number assigned in ArcMap in order to avoid any duplicate numbers).
- Latitude
- Longitude
- Region ID (FDRAs)

The example below illustrates a reformatted .csv file in MS Excel that contains the requisite information for import into FFP (Example 5). The column headers have been renamed and all non-essential columns have been removed, the .csv file was also saved with a different file name.

	Discovery Date	Total Acres	Statistical Cause	Fire Name	Fire Number	Latitude	Longitude	FDRA
1	Discovery Date	Total Acres	Statistical Cause	Fire Name	Fire Number	Latitude	Longitude	FDRA
2	6/26/2005	0.5	1	CUNNINGHAM	0	32.68555556	-109.8691667	3 Forest/Woodland FDRA
3	7/18/2005	3	1	CEDAR	1	32.75194444	-110.0872222	3 Forest/Woodland FDRA
4	7/18/2005	18	1	STOWE	2	32.77305556	-109.9422222	3 Forest/Woodland FDRA
5	7/18/2005	0.1	1	WEST PEAK	3	32.73972222	-110.0402778	3 Forest/Woodland FDRA
6	7/25/2005	0.1	1	GRANT	4	32.6525	-109.8691667	3 Forest/Woodland FDRA
7	3/24/2005	38	3	LYLE	5	31.47333333	-110.4263889	3 Forest/Woodland FDRA
8	3/28/2005	0.1	4	LOG	6	31.41611111	-110.2633333	3 Forest/Woodland FDRA
9	3/27/2005	1	4	BOND	7	31.37666667	-110.2916667	3 Forest/Woodland FDRA
10	4/23/2005	0.1	4	RAMADA	8	32.40277778	-110.695	3 Forest/Woodland FDRA
11	9/1/2005	0.25	1	HITCHCOCK	9	32.37833333	-110.6830556	3 Forest/Woodland FDRA
12	6/11/2005	0.1	4	SCOPE	10	32.41694444	-110.7269444	3 Forest/Woodland FDRA
13	6/22/2005	0.1	9	SPENCER	11	32.41611111	-110.7475	3 Forest/Woodland FDRA
14	7/3/2005	0.1	4	ZION	12	32.41722222	-110.7291667	3 Forest/Woodland FDRA
15	7/23/2005	0.1	1	DOBBINS	13	32.42111111	-110.7255556	3 Forest/Woodland FDRA
16	8/9/2005	0.25	1	UPPER SOLDIERS SNAG	14	32.42666667	-110.7386111	3 Forest/Woodland FDRA
17	8/9/2005	0.1	1	MARSHAL SNAG	15	32.48055556	-110.7541667	3 Forest/Woodland FDRA
18	4/7/2005	120	4	103 FIRE	16	31.435	-110.3486111	3 Forest/Woodland FDRA
19	4/17/2005	0.1	4	FALLS	17	31.43361111	-110.2836111	3 Forest/Woodland FDRA
20	4/21/2005	18	9	LAKEVIEW	18	31.44333333	-110.3988889	3 Forest/Woodland FDRA
21	5/8/2005	0.1	4	REEF	19	31.42972222	-110.2816667	3 Forest/Woodland FDRA
22	5/25/2005	10	1	WEST GATE	20	31.53805556	-110.4388889	3 Forest/Woodland FDRA
23	5/25/2005	0.5	1	RED	21	31.50166667	-110.7286111	3 Forest/Woodland FDRA
24	6/11/2005	0.1	4	REEF II	22	31.42972222	-110.2822222	3 Forest/Woodland FDRA
25	7/16/2005	0.1	1	WHETSTONE	23	31.48305556	-110.3638889	3 Forest/Woodland FDRA
26	7/20/2005	0.5	1	SAWMILL	24	31.44111111	-110.3413889	3 Forest/Woodland FDRA
27	10/30/2005	0.5	4	3-BYE	25	31.46833333	-110.4733333	3 Forest/Woodland FDRA
28	11/12/2005	0.1	4	FORTY-EIGHT	26	31.41805556	-110.43	3 Forest/Woodland FDRA
29	11/30/2005	0.2	4	PAULINE	27	31.48388889	-110.5341667	3 Forest/Woodland FDRA
30	12/10/2005	0.1	4	TOWNSITE	28	31.43083333	-110.2805556	3 Forest/Woodland FDRA
31	7/18/2005	0.5	1	BATHTUB	29	31.40694444	-110.3055556	3 Forest/Woodland FDRA
32	1/7/2006	0.1	4	FIRST	30	31.42944444	-110.3027778	3 Forest/Woodland FDRA

Example 5. Reformatted MS Excel spreadsheet containing the information required for import into FFP in the proper sequential order as described in step #5 below.

1. To begin the import process in FireFamilyPlus, click on **'Data'** and select **'Import'** and the following **'Import Fire and Weather Data'** dialog box will open.

2. In the 'Agency' window select the custom "Agency" from the drop-down list. In this example select "SEZ".
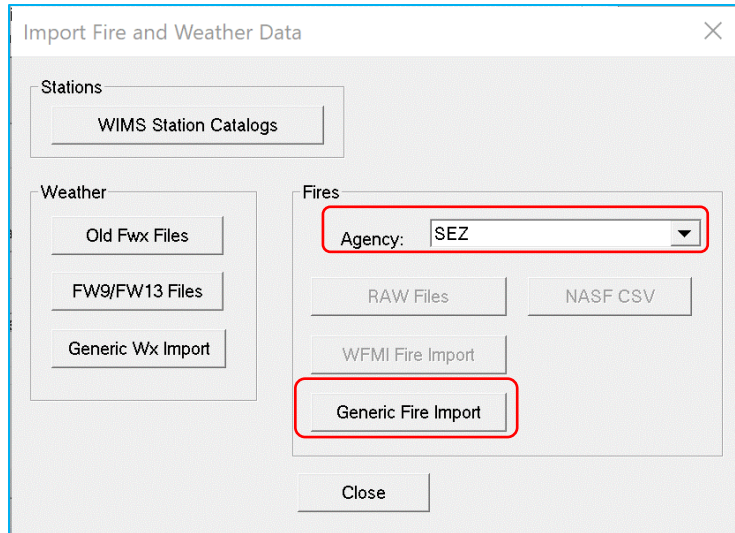
3. Next, select **'Generic Fire Import'** and a dialog box will appear, navigate to where the generic fire import file (.csv) is stored.
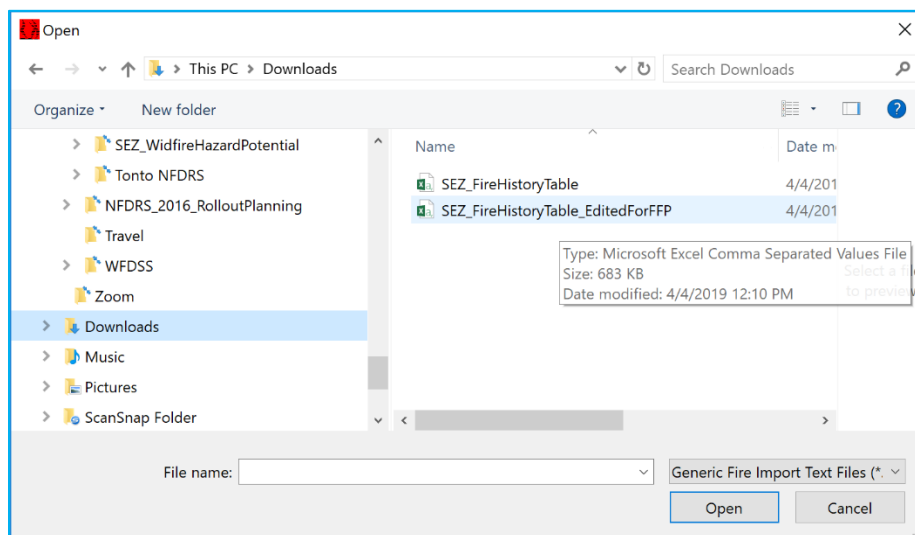
4. Select the generic fire import file and either click on **'Open'** or double-click the file name. The 'Import Generic Fire Data window will appear next.

5. **Select the Fields in the left box and move them to the right box**. *What the user sees in the available fields will not have the same name as the headers in the spreadsheet*, for example, "FID" will be the "Fire Number". The user will need to make sure that the columns in the spreadsheet match the sequential column order created in FFP. Fields with asterisks *must* be selected and __the order must be the same as the columns in the spreadsheet__. Make sure that **'Comma'** is selected in the 'Field Delimiter' section and the Date Format is **'MM/DD/YYYY'**. Also, make sure that the date format in the spreadsheet matches the **'MM/DD/YYYY'** format. The user can verify the regions by clicking in the Region box if desired.

6. *Note the sequential order of the 'Selected Fields' in the FFP dialog box match the order of the columns in the Excel spreadsheet.* Also note that header column E in the spreadsheet (Example 5) is re-labeled "Fire Number" (it was the FID # in the original .csv file); this column will populate the "Fire Number" field in FFP. Remember, as stated above, the column header names in the spreadsheet do not have to match the names of the 'Selected Fields' in FFP.

7. Make sure the **'Overwrite Duplicates'** button is selected in the 'Duplicate Handling' section of the dialog box. This will prevent duplicate fires from being added to your FFP database.

8. After the steps described above have been completed and the generic fire data is ready for import, click the **'Import Fires from:…'** button located at the bottom of the dialog box.

9. Following the data import into FFP, a dialog box will appear.

6. If there are errors, click on the 'View Log' button to open a new window that displays any errors in the import data.

Import Error Log

FireFamily Plus Generic Fire Import Log
Started: 04/04/2019 at 12:31:28

****
Import File Name: C:\Users\Mark\Downloads\SEZ_FireHistoryTable_EditedForFFP.csv
          Record Number 1, Discovery date is not valid.
          Record Number 9916, no FireID or FireNumber
Processed 9916 fire records :
          Appended 1829 records.
          Updated 8085 existing records.
          Rejected 2 records for bad data.

Import Completed: 04/04/2019 at 12:32:23
2 errors were encountered.

7. Errors such as "no Fire ID or Fire Number", or "Discovery date is not valid" will have to be corrected. Following any corrections, reload the data following the steps as described above.

8. Common errors include:

   a. The sequential order of the columns in the spreadsheet do not match the sequential order of the 'Selected Fields' in FFP.

   b. The 'Region' (FDRA) names in the spreadsheet do not match the names assigned each FDRA in FFP.

   c. The 'Region' (FDRA) names in the spreadsheet do not include the numerical code assigned to each FDRA when they were created in FFP (i.e. 1 Sonoran FDRA).

   d. Missing data in the spreadsheet (i.e. Fire Name, Fire Number, Statistical Cause, etc.).

Remember to associate the imported fire data with the appropriate RAWS or SIGs that are associated with each FDRA. On the Working Set Window click on the **'Fire Associations'** button.
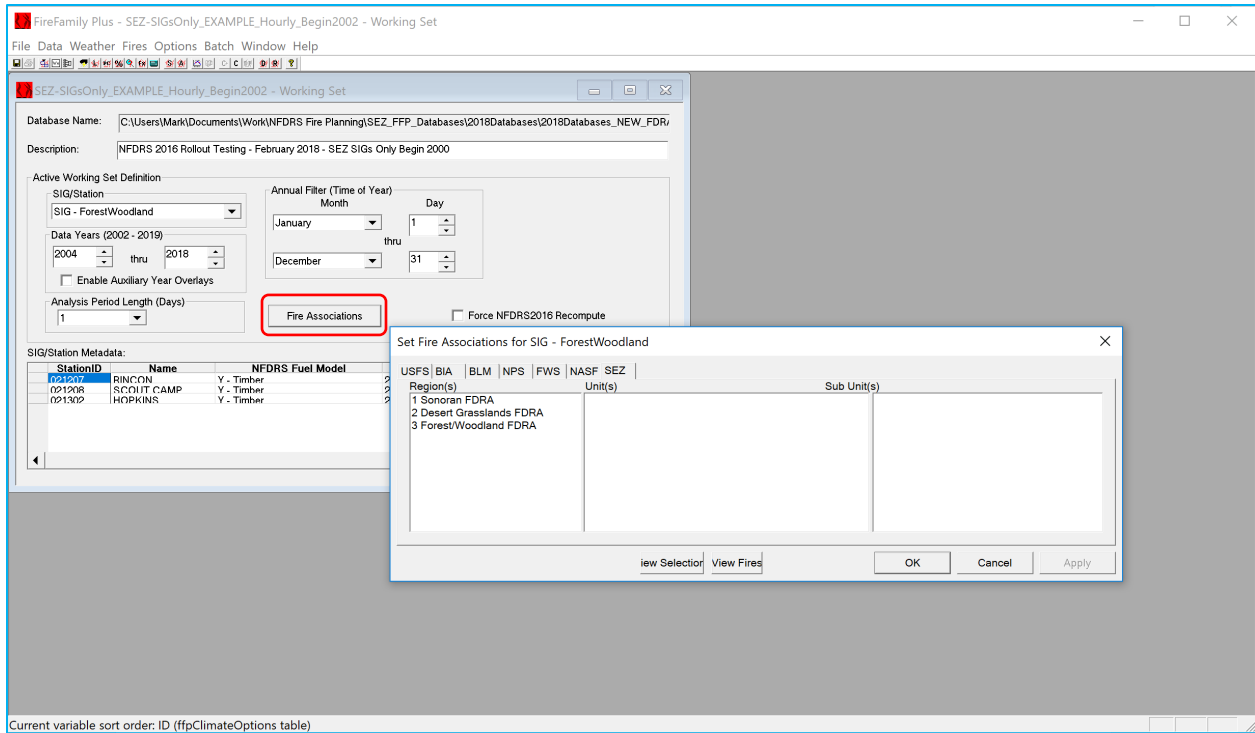
This example shows the 'Active Working Set Definition' to include the 'ForestWoodland' SIG. After clicking on the 'Fire Associations' button, the 'Set Fire Associations for SIG – ForestWoodland' window appears. First select the appropriate 'Agency', for this example select "SEZ". Next, select the corresponding FDRA for this SIG which is '3 Forest/Woodland FDRA'. Click on 'OK' to save the association.

Repeat the fire association process for each FDRA in the planning area. For the selected planning area, the user will need to **select the correct association for each RAWS**, depending in which FDRA it resides/represents.