

# Exercise 1

## Working with Tables



### Introduction

Understanding the ArcGIS table structure and table property settings is a great foundation for working with your own tables in ArcGIS. In this exercise you will adjust how the table look. You will also use the query function and display selected records. You'll use basic summary and statistics tools to gather information from the table. Finally you'll prepare the data for a report.

### Goals

- Update field properties and table properties
- Select and query records
- Summarize data
- Change table appearance

### Prerequisites

- A basic knowledge of working in ArcGIS.
- A basic knowledge of working in Windows.
- The data for the course was downloaded and unzipped.
- You know the location of the Data folder.

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## Part 1: Field Properties

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Adding a feature class (e.g., shapefile) to ArcMap automatically adds its associated attribute table to ArcMap. A layer's attribute table is also referred to as a spatial table. Non-spatial (or stand-alone) tables which have no links to spatial features can still be added to ArcMap the same way as you would add other data to your map. Non-spatial tables added to ArcMap are not listed in the Table of Content's Display tab; therefore you will need to activate the TOC's Source tab in order to see the table and open it. See graphic below.

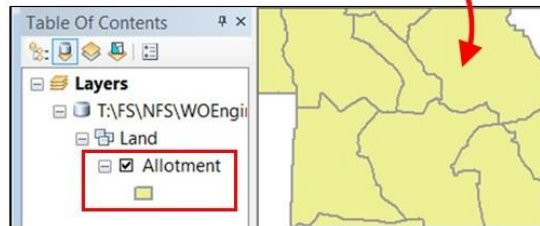


## Spatial Table

(Attribute Table)

Shape *	ALLOT	ALLOTMEN_1	ADM_
Polygon	00122	Walnut Creek	09
Polygon	00125	Yolo South	09
Polygon	00316	Blue Bell	09
Polygon	00317	Brady	09
Polygon	00303	Buckhorn	09
Polygon	00102	China Dam	09
Polygon	00505	Copper Canyon	09
Polygon	00508	Goat Peak	09

Linked  
to spatial  
features

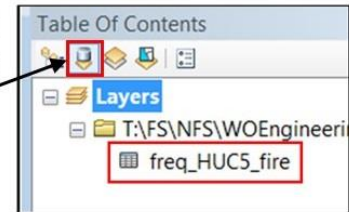


## Non-spatial Table

(Stand alone table)

OID	HUC_NAME	Cnt
0	Ash Creek and Sycamore Creek	13
1	Big Bug Creek-Agua Fria River	3
2	Black Canyon Creek	4
3	Boulder Creek	2
4	Cherry Creek-Upper Verde River	7
5	Fossil Creek-Lower Verde River	6
6	Granite Creek-Upper Verde River	10
7	Grindstone Wash-Upper Verde Ri	5

Visible when  
source tab is  
selected



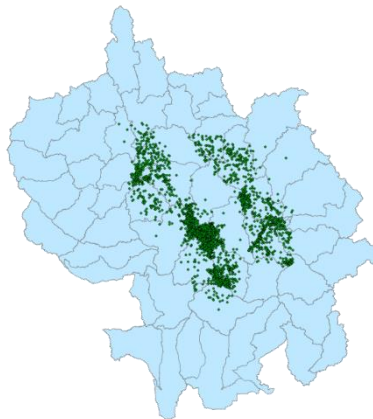
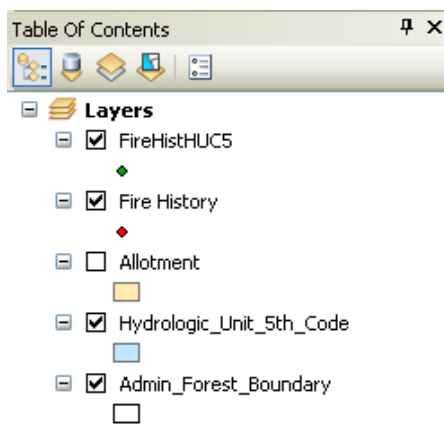
**Goal for this step:** Generate a report on wildfires that took place in Prescott National Forest in 2005 and display them by watershed region.

This step uses a Fire History layer and a watershed layer for analysis. Many of the Fire History layer's attributes are unnecessary for reporting fire occurrences for each watershed. You will change the Field Properties settings for the "FireHistHUC5" layer by displaying only those fields you need to work with.

### A. Start ArcMap



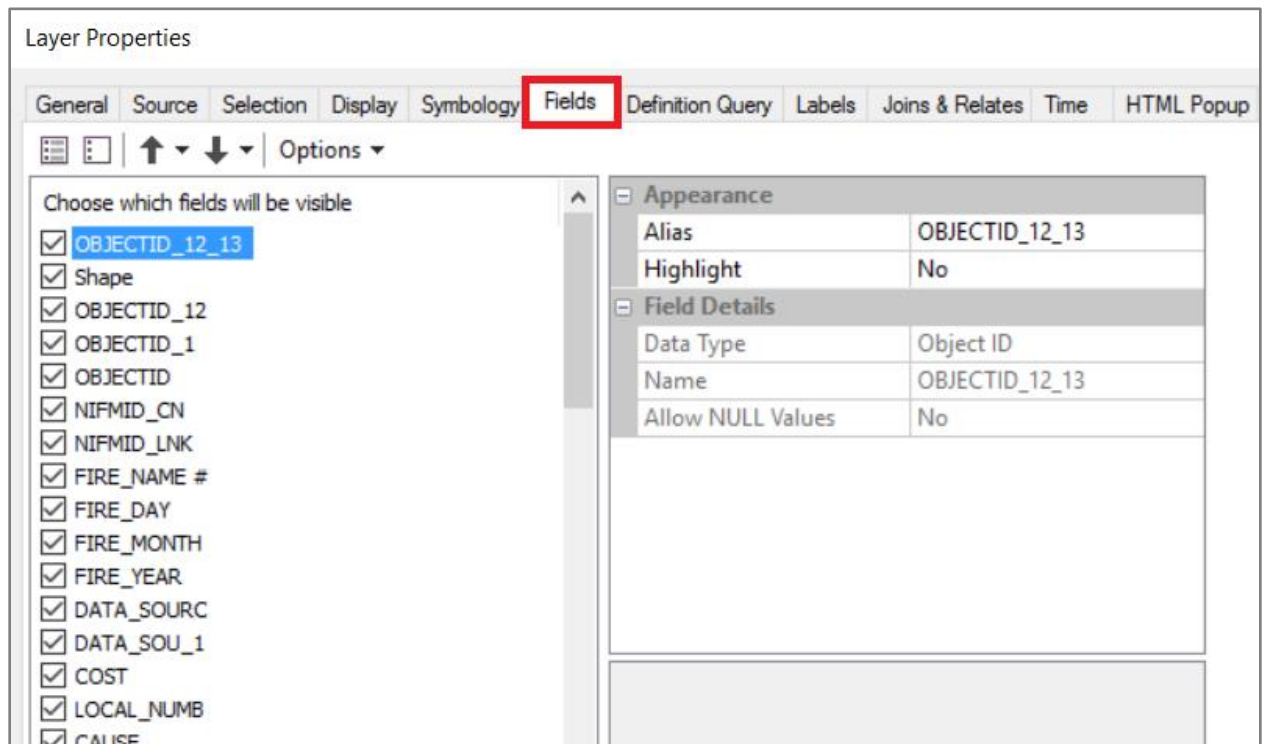
- Open **ArcMap**.
- If the **Getting Started** window appears, under the **Existing Maps** option, and select **"Browse for more..."** go to step d.
- If the **Getting Started** window doesn't appear select **File**, then select **Open**.
- Navigate to ...\\1\_WorkingWithTables\\Data, select the **Fire\_History.mxd** and select **Open**.



In the Data View, a map of Prescott National Forest displays. There are five layers in the map document. The FireHistHUC5 layer contains the combined attribute information of the Fire History, Allotment, and Hydrologic\_Unit\_5th\_Code.

## B. Manipulate Fields within Layer Properties

- Open the properties for the **FireHistHUC5**. (*Hint: Double-click the name of the layer in the table of contents.*)
- Activate the **Fields** tab. (Fields are the column names in the table.)



c. Select the **turn all fields off** button. 

d. Turn back on the following fields by selecting the checkbox next to the the field names:

- FIRE\_NAME #
- FIRE\_YEAR
- HUC5
- HUC\_NAME
- ALLOTMENT\_
- ALLOTMENT1
- ALLOTMEN\_1
- GIS\_ACRES

*These fields will now be visible in the table.*

e. Select **OK**.

## Part 2: Table Properties

Remember that a table is made up of records (rows) for each feature in the layer, and fields (columns) for each category of information. Records and fields make up the attributes of the layer.

An alias is an alternate name for the field (column). Unlike the actual field name, an alias may contain spaces, punctuation, and start with a number. For example, you could set the alias for "maj\_roads" to be "Major Roads" or "5 Major Roads."

**Goal for this step:** In the first part of this step you will assign **alias** names to the fields so they are more intuitively named. In the second part of this step you will use the **Select By Attributes** function to find specific fires that burned in the Prescott National Forest.

## A. Open the Attribute Table

- In the table of contents, right-click **FireHistHUC5 > Open Attribute Table**. (Alternatively you can double-click on the layer name while holding down the Ctrl key.)

FireHistHUC5							
	FIRE_NAME #	FIRE_YEAR	HUC5	ALLOTMENT_	ALLOTMENT1	ALLOTMEN_1	GIS_ACRES
▶		1971	1506020108		00122	Walnut Creek	20405
		1973	1506020108		00122	Walnut Creek	20405
		1973	1506020108		00122	Walnut Creek	20405
		1974	1506020108		00122	Walnut Creek	20405
		1974	1506020108		00122	Walnut Creek	20405
	BALD	1981	1506020108		00122	Walnut Creek	20405
	L.O.	2000	1506020108		00122	Walnut Creek	20405
		1972	1506020108		00122	Walnut Creek	20405
		1973	1506020108		00122	Walnut Creek	20405
	DEER	1976	1506020108		00122	Walnut Creek	20405

1 (0 out of 3411 Selected)

**FYI:** Notice the pound symbol (#) in the **FIRE\_NAME** field. This symbol indicates that the field is the layer's Primary Display Field (Layer Properties > Fields tab). The Primary Display Field is what is displayed when a user hovers the mouse over a feature (Map Tip). It is also the field that is used for labeling as a default.

- How many records are there? \_\_\_\_\_

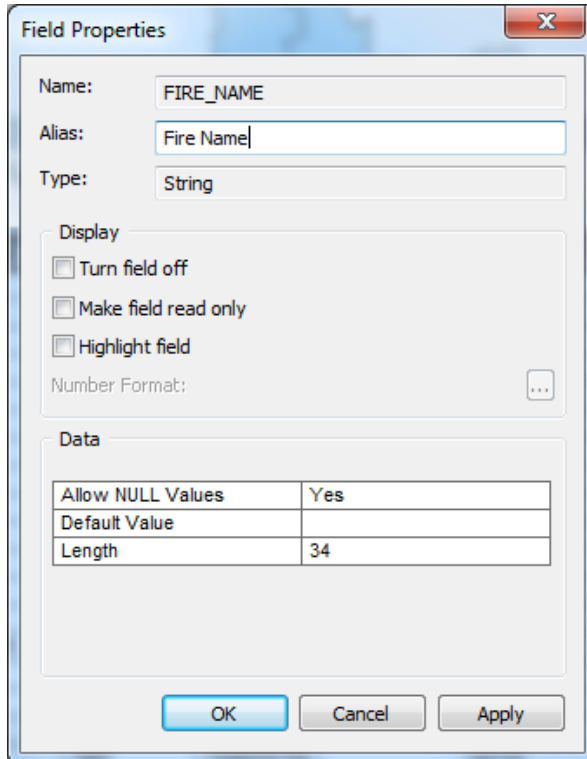
*Hint: See number at the bottom of the table.*

## B. Change Field Properties

Here are two different ways to give a field name a new alias.

### Method #1: Within the table

- a. In the table Right-click on the field header **FIRE\_NAME #**, then choose **Properties**.
- b. For the field's alias, enter **Fire Name**, then select **OK**.



The image shows a 'Field Properties' dialog box with the following fields and options:

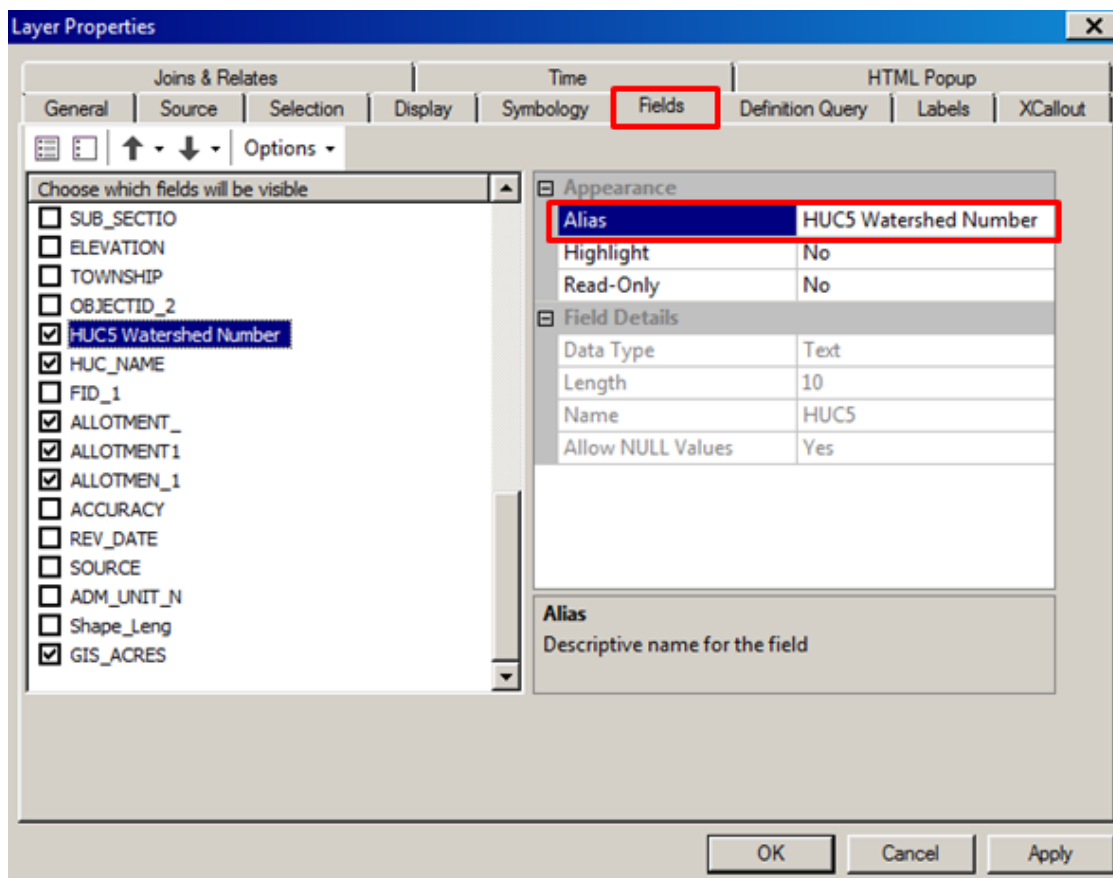
- Name:** FIRE\_NAME
- Alias:** Fire Name
- Type:** String
- Display:**
  - ☐ Turn field off
  - ☐ Make field read only
  - ☐ Highlight field
  - Number Format: ...
- Data:**

Allow NULL Values	Yes
Default Value	
Length	34

Buttons at the bottom: OK, Cancel, Apply.

## Method #2: Within the map view TOC (Table of Contents)

- c. In the TOC, right-click **FireHistHUC5 > Properties**.
- d. Activate the **Fields** tab.
- e. **Highlight** the **HUC5** field in the left pane by clicking on its name.
- f. Change the Alias to **"HUC5 Watershed Number"**.



- g. Create the following aliases:
- HUC\_NAME > **HUC5 Watershed Name**
  - ALLOTMENT1 > **Allotment Number**
  - ALLOTMEN\_1 > **Allotment Name**
- h. Select **OK**.

**Shortcut:** When you right-click a field name within the table, you can turn a field off. If you want to make the field visible at a later time, simply open the layer properties and check the visibility checkmark on the Fields tab.

- i. In the FireHistHUC5 attribute table, right-click on the field name called **ALLOTMENT\_**, then select **Turn Field Off**.
- Your new table will look similar this:*



FireHistHUC5

Fire Name	FIRE_YEAR	HUC5 Watershed Number	HUC5 Watershed Name	Allotment Number	Allotment Name	GIS Acres
	1971	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1973	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1973	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1974	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1974	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
▶ BALD	1981	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
L.O.	2000	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1972	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1973	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
DEER	1976	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
APACHE	1977	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
WARREN	1981	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
TOP	1981	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
STRINGTOWN	1981	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405
	1983	1506020108	Lower Big Chino Wash	00122	Walnut Creek	20405

6 (0 out of 3411 Selected)

FireHistHUC5

Next, we want to select the Apple fire, which burned in 1981. You will build an expression in to query this record.

### C. Select records within a table

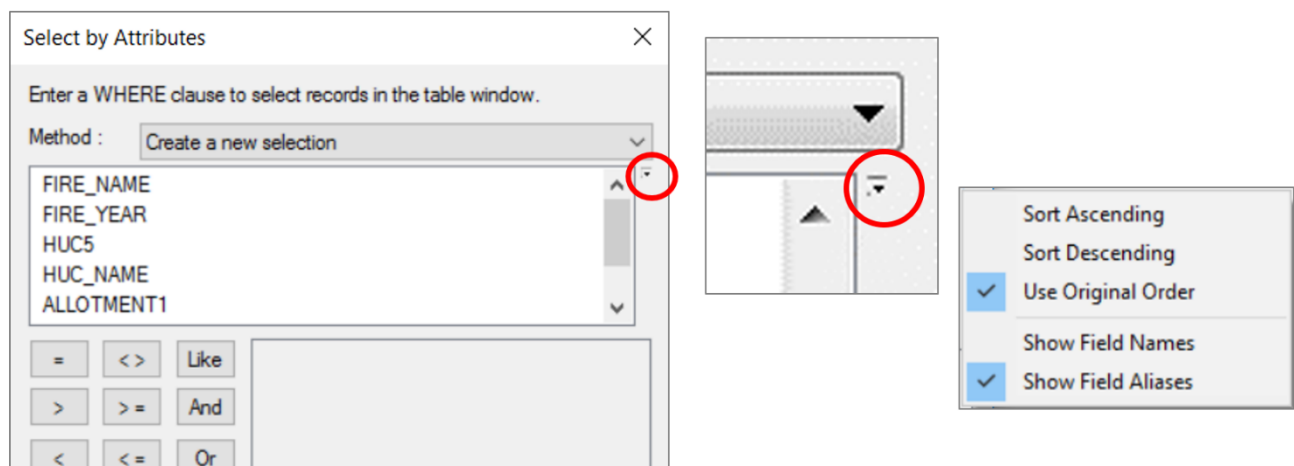
You will now create an expression that will select a specific record in the table.

- Select the **Select by Attributes** button at the top of the Table window.



The *Select by Attribute* window opens.

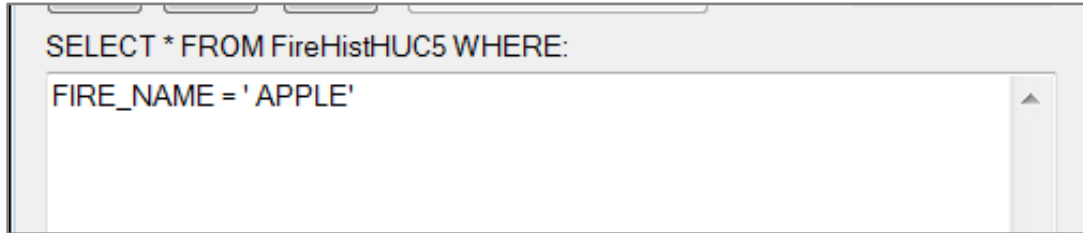
**Note:** Use the small drop down arrow to change how the field names are displayed. Toggle between Alias names and Field names. See images below.



- b. Double-click **Fire Name** to add it to the expression box.
- c. Single-click the '=' sign to add it to the expression box.
- d. Select the **Get Unique Values** button.

*The unique values from the Fire\_Name field are now listed.*

- e. Double-click **'APPLE'** to add it to the expression box.



You have just built a query expression.

- f. Select the **Verify** button to see if you are using proper query syntax. If successfully verified, select **OK**.
- g. Select **Apply** to run the query.
- h. Select **Close** to close the **Select by Attributes** window.

In the table window, one record is selected now, which means one point feature is also selected in the Data View.

- i. Select the **Show Selected Records button**  located at the bottom of the table to show only the selected records.

**What are the names of the watershed and allotment in which the Apple fire occurred?**

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There are a variety of tools to help you visualize the selected records. Flashing is one way to highlight a selected point in your map.

- j. Right-click the box at the beginning of the row, and select **Flash**. The selected feature flashes in the Data View.

Table


FireHistHUC5

	Fire Name	FIRE_YEAR	HUC5 Water	HUC5 Watershed Name *	Allotment Nu	Allotment Nam
▶	APPLE	1981	1507010203	Black Canyon Creek	00317	Brady

Right-click to open the record's options (The black arrow may or may not show.)



You may have to move or resize the table to see the map view and the table. You should be able to see the selected point in the map view (look for the light blue circle). You can also flash the selected feature with a right click on the triangle at the beginning of the row. If you left click the row again, the feature will display in yellow on the screen. Try it.

- k. Right-click again on the gray square at the left of the record and choose **Zoom To Selected**.
- l. Select the **Show all records** button  at the bottom of the table to show all records, both selected and not selected.

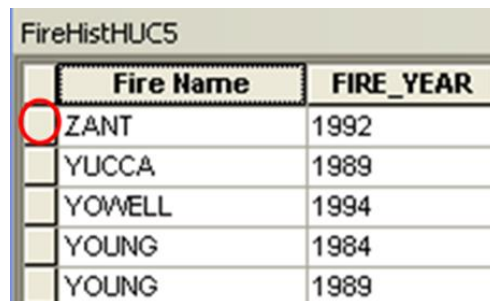
**Note:** To sort the record values in ascending (A-Z) / descending (Z-A) order, double click the field header name.

- m. Double-click on the **Fire Name** header until the values are sorted in **descending** order.
- n. Compare your Fire Name field column to the screen capture below. Values starting with "Z" are at the top of the list.

**FYI:** You can also right-click on a field header and choose Sort Ascending or Sort Descending.

The “Apple” fire you queried earlier is still selected. We want to add another record to the selection. Let’s select the very first record (i.e., ZANT).

- o. Hold down <Ctrl> key and **left-click** on the gray square to the left of the first record in the table. (See red circle on image below.)



	Fire Name	FIRE_YEAR
<input type="checkbox"/>	ZANT	1992
<input type="checkbox"/>	YUCCA	1989
<input type="checkbox"/>	YOWELL	1994
<input type="checkbox"/>	YOUNG	1984
<input type="checkbox"/>	YOUNG	1989

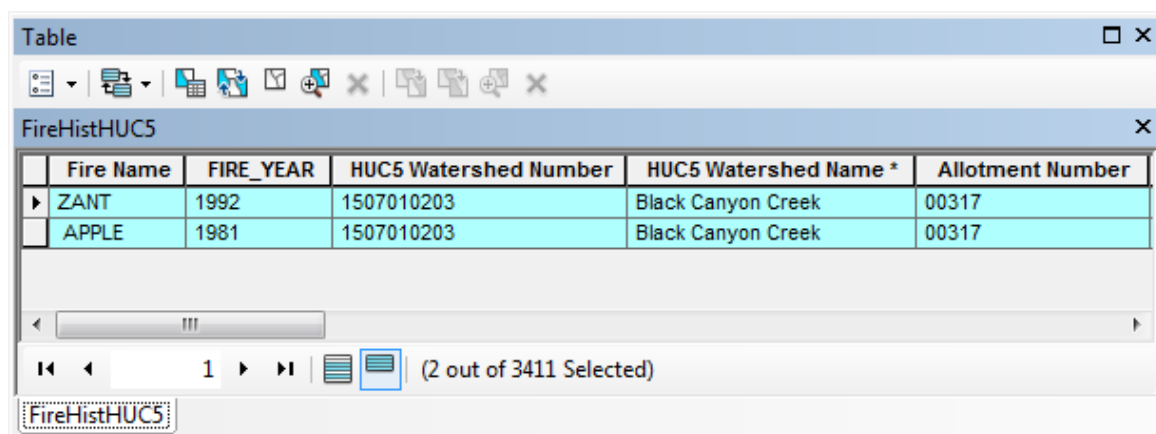
The “ZANT” fire record will now be highlighted in light blue.

Are two records selected? YES / NO

- p. If no records are selected, reselect the “Apple” and “Zant” records.

**WARNING:** If you do not hold down the <Ctrl> key when selecting additional records, the previous selection will be cleared and you will have to re-select the record.

- q. Select the **show Selected** button to see the selected records.




	Fire Name	FIRE_YEAR	HUC5 Watershed Number	HUC5 Watershed Name *	Allotment Number
<input checked="" type="checkbox"/>	ZANT	1992	1507010203	Black Canyon Creek	00317
<input checked="" type="checkbox"/>	APPLE	1981	1507010203	Black Canyon Creek	00317

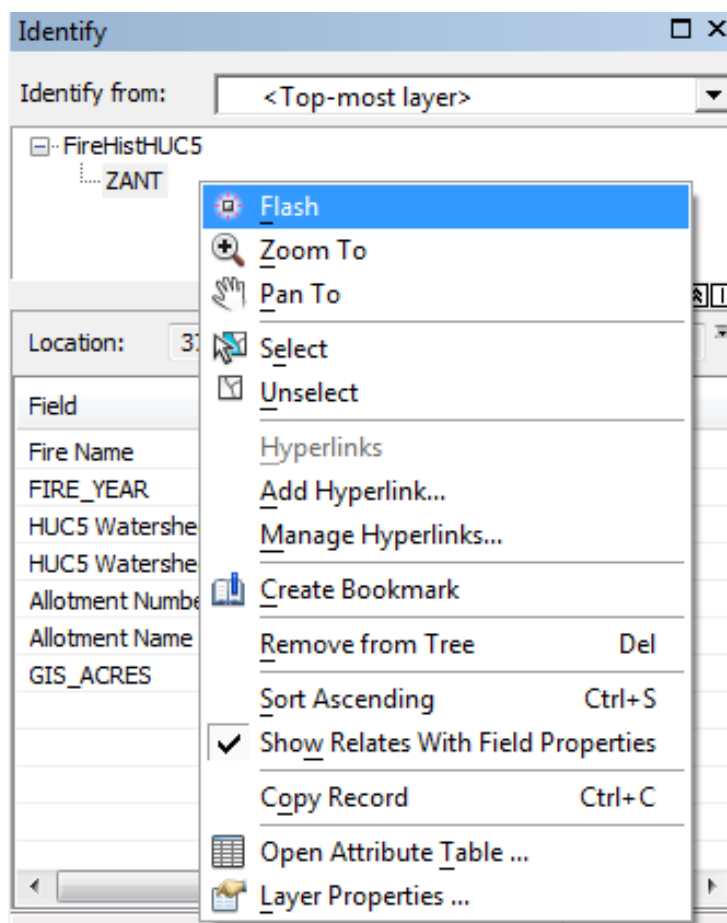
(2 out of 3411 Selected)

- r. Did the two fires occur in the same year? YES / NO

Although the fires occurred in different years, they both burned in the same Black Canyon Creek watershed and Brady allotment. View the Zant fire location with the Flash tool.

- s. To the left of the **ZANT** record, right-click the gray square and select **Flash**. *(The selected feature flashes in the Data View. It may be behind the table.)*

**FYI:** You can also use the Identify tool  in the Data View to identify different map features. Once you have selected a feature using the Identify tool, right-click it in the Identify window to open the Context Menu. In the Context Menu you have a large choice of functions that you can apply to the data. You can **Zoom To** the identified feature, **Select** it, **Create Bookmark**, open the layer's **Attribute Table** and more. The image below shows all of the options. Close the identify window.



- t. Select the **Full Extent button**  to get back to the full view of your data.


## Part 3: Summarize Command

The Summarize command creates a non-spatial, summary table containing one record for each unique value of the selected field (the total number of summarized records represents the total number of unique values). Optionally, the summary table can include summary statistics from multiple fields within the same table. The statistical options include Count, Minimum, Maximum, Average, Sum, Standard Deviation, and Variance.

Statistical analysis is often used to explore your data. An example might be to examine the distribution of values for a particular attribute or to spot outliers (extreme high or low values). Having this information is useful when defining classes and ranges on a map, when reclassifying data, or when looking for data errors. Often this is done by creating spatial summaries, such as calculating the average elevation for each watershed. Summary data is useful for gaining a better understanding of conditions in a study area.

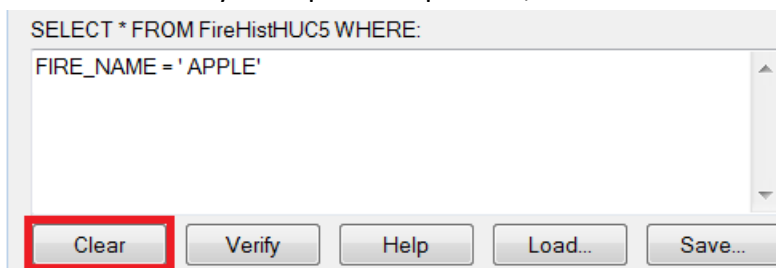
Next you will find out which 5th-level watersheds were affected by fires in 2005. You will begin by constructing a query that meets the criterion of the previous sentence. In this step you are still working with the FireHistHUC5 layer.

### A. Query Data

- a. At the top of the FireHistHUC5 table, select the **Select by Attributes** button. 

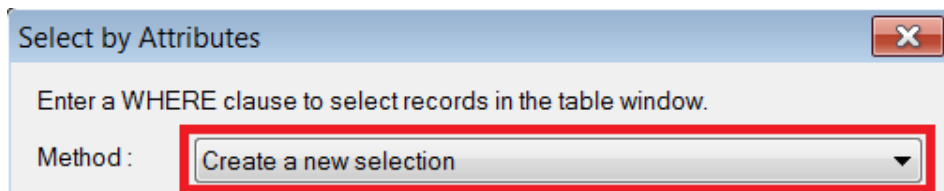
**FYI:** Watersheds are assigned unique “HUC” (Hydrologic Unit Code) values. The HUC system has 6 levels, level 1 being the biggest and level 6 the smallest. Each level has a 2 digit identifier appended to the previous level, making a 6th level HUC a 12 digit identifier.

- b. If there is already an expression present, select the **Clear** button.



You must clear any previous expressions first, unless you are adding to them. In this step you are still working with the FireHistHUC5 layer.

- c. Verify the method is to **create a new selection**.



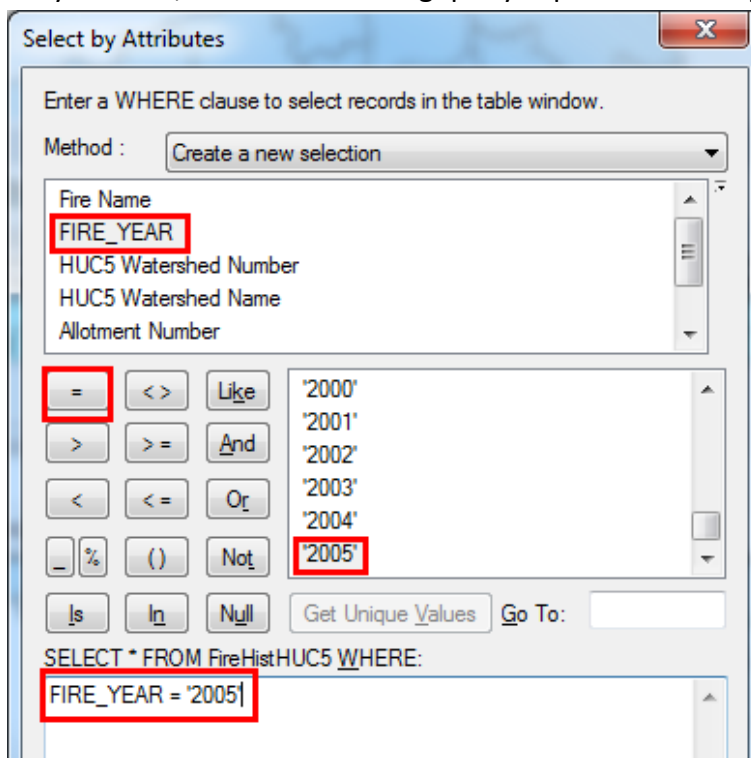
Select by Attributes

Enter a WHERE clause to select records in the table window.

Method : Create a new selection

**CAUTION:** Creating a new selection clears any previously selected records.

- d. On your own, build the following query expression: **"FIRE\_YEAR" = '2005'**



Select by Attributes

Enter a WHERE clause to select records in the table window.

Method : Create a new selection

Fire Name  
FIRE\_YEAR  
 HUC5 Watershed Number  
 HUC5 Watershed Name  
 Allotment Number

= < > Like '2000'  
> > = And '2001'  
< < = Or '2002'  
\_ % ( ) Not '2005'  
Is In Null Get Unique Values Go To:

SELECT \* FROM FireHistHUC5 WHERE:  
FIRE\_YEAR = '2005'

- e. Select the **Verify** button to see if you are using proper query syntax. If successfully verified, select **OK**. (Otherwise you need to correct your query expression.)
- f. Select **Apply**.  
*In the attribute table, the selected set of two records is replaced by 64 selected records. The selection set represents those fires that burned in 2005.*
- g. **Close the Select by Attributes window.**

Notice in the Map View that the point features corresponding to the 64 table records are also selected. You may want to zoom out. For a field in the table, you can summarize the number of times the field's unique values repeat. For example, let's find out how many times a watershed name repeats for the selected set of 2005 fires. The field to summarize is "HUC5 Watershed Name."

## B. Summarize the Data

- In the attribute table, **right-click** on **HUC5 Watershed Name** > **Summarize**.

Table

FireHistHUC5

Fire Name	FIRE_Y	HUC Watersh	HUC5 Watershed Name*	Altmet	AltmetNam	GIS_ACRE
Winter	2005	1507010301	Upper Hassayampa River		eric	47546.4
Windmill	2005	1506020302	Fossil Creek-Lower Verde		yon	10204.8
Willow	2005	1506020201	Granite Creek-Upper Ver			35462.1
Wildcat	2005	1506020204	Grindstone Wash-Upper			15947
West Spruce	2005	1503020301	Kirkland Creek			35462.1
Valley	2005	1506020302	Fossil Creek-Lower Verde		yon	10204.8
Top	2005	1506020302	Fossil Creek-Lower Verde			15391.4
Tank	2005	1503020302	Sycamore Creek			
Sycamore	2005	1503020302	Sycamore Creek			
Switchback	2005	1507010203	Black Canyon Creek			
Stringfield	2005	1506020202	Hell Canyon			
Spot	2005	1506020201	Granite Creek-Upper Ver			
Skidmore	2005	1506020207	Cherry Creek-Upper Ver			
Sierra	2005	1506020201	Granite Creek-Upper Ver			
Seven Up	2005	1503020203	Boulder Creek			
September	2005	1507010201	Ash Creek and Sycamore			
Riemer	2005	1507010201	Ash Creek and Sycamore			

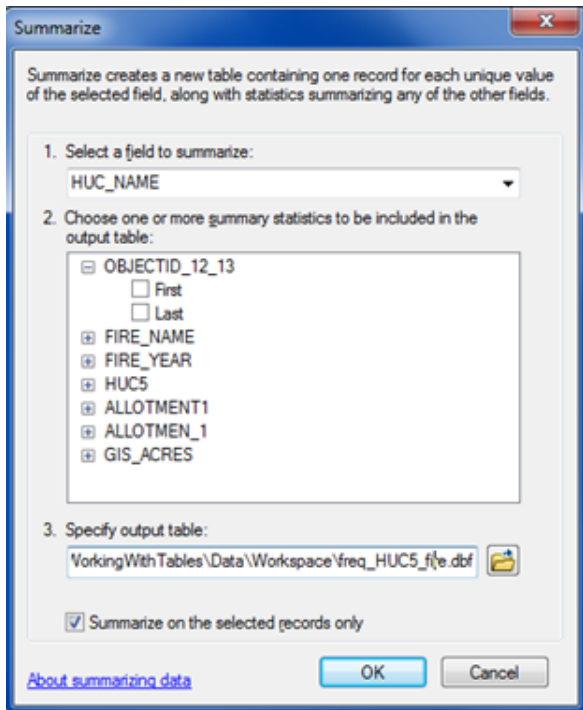
Sort Ascending  
Sort Descending  
Advanced Sorting...  
**Summarize...**  
Statistics...  
Field Calculator...  
Calculate Geometr...  
Turn Field Off  
Freeze/Unfreeze C...  
Delete Field  
Properties...


**Summarize**  
Create a summary table grouped by the values in this field. The dialog that appears lets you choose whether all the records will be summarized or just the selected records.

(64 out of 3411 Selected)

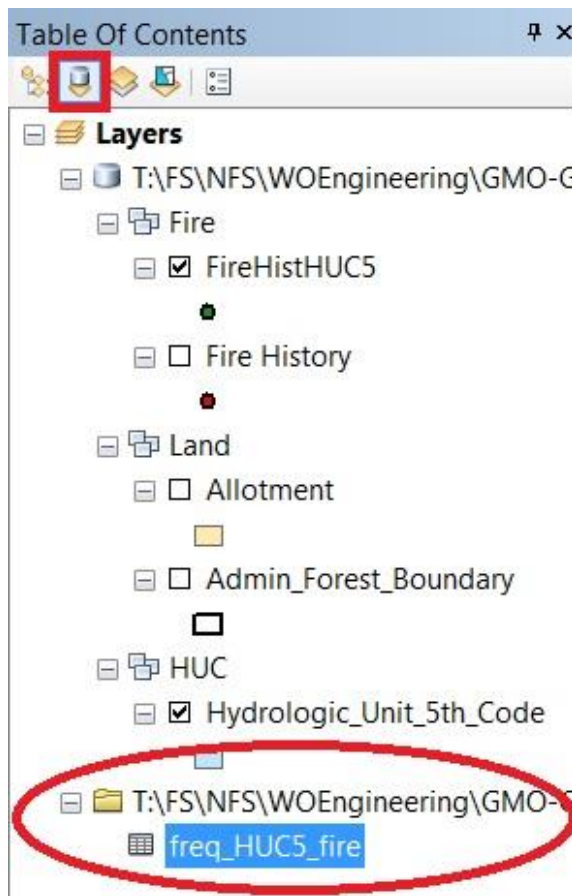
The Summarize dialog window opens. Notice that the field headers in the Summarize window use the actual field names, not the field aliases.





- b. Verify the field to summarize is **HUC\_NAME**.
- c. Select the **Browse** button and navigate to ... \Data\Workspace 
- d. For the **Name**, enter **freq\_HUC5\_fire**.
- e. Verify the “**Save as type**” is set to **dBASE Table**.  
*You could also save it to a geodatabase if desired. In this case, even though it's in a geodatabase, it is still a non-spatial table. See box below for more info.*
- f. Select **Save**.
- g. Verify that “**Summarize on the selected records only**” is checked. (Otherwise, you'll summarize all 3,411 records.)
- h. Select **OK**. Select **Yes** when asked if you want to add the resulting table to the map.
- i. Close the **attribute table** window.

A new table is created as a result of the Summarize command. The “summary” table is an Object table (i.e., non-spatial), which is why it is only listed when the TOC's Source tab is active. See the following image:



- j. In the TOC, right-click **freq\_HUC5\_fire** and select **Open**.

*If you do not see this table, select the 'List by Source' button at the top of the table.*

freq_HUC5_fire		
	OID	HUC_NAME
	0	Ash Creek and Sycamore Creek
	1	Big Bug Creek-Agua Fria River
	2	Black Canyon Creek
	3	Boulder Creek
	4	Cherry Creek-Upper Verde River
	5	Fossil Creek-Lower Verde River
	6	Granite Creek-Upper Verde River
	7	Grindstone Wash-Upper Verde River
	8	Hell Canyon
	9	Kirkland Creek
	10	Sycamore Creek
	11	Upper Hassayampa River

Frequency of watershed names

**How many watersheds (HUCs) were affected by fires in 2005?**

0      5      11      12      64

*Hint: Read the total number of records.*

The OID (Object Identifier) field is generated by the software, and contains unique numbers automatically assigned to each record. The "Count\_HUC\_NAME" field, which represents the number of times (i.e., frequency) a watershed had a 2005 fire, provides the answer to that question.

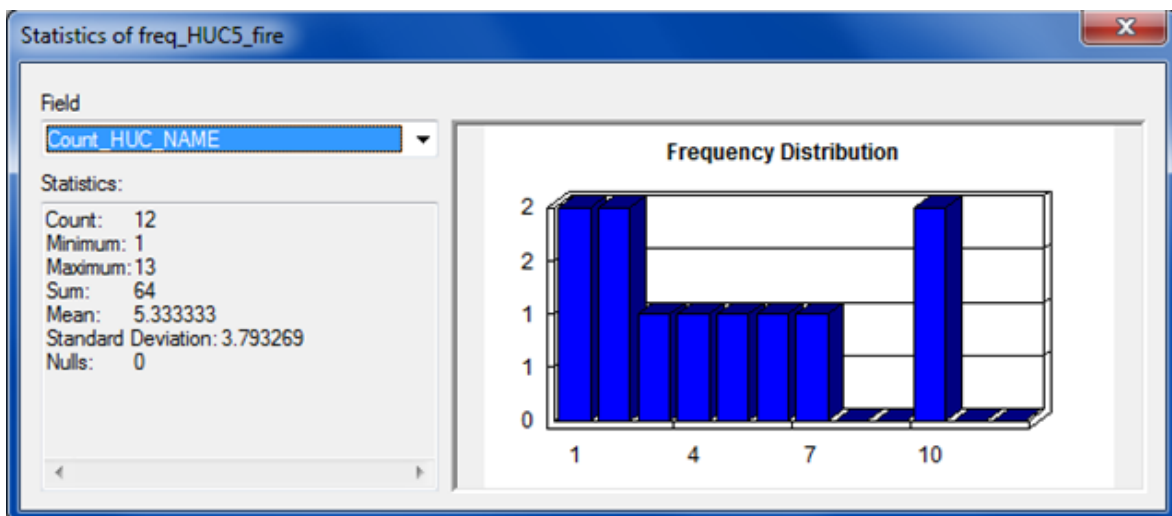
**How many times did the Black Canyon Creek watershed have a fire in 2005?**

0      1      4      10      999

*Hint: Be sure to read the "Count..." field; not the "OID" field.*

## C. Run Statistics

- k. Right-click **Count\_HUC\_NAME** and select **Statistics**.  
(The Statistics window opens. The X-axis represents the frequency of fires occurring in a given watershed; The Y-axis represents the number of watersheds that had that corresponding number of fires)
- l. For the 12 watersheds affected by a 2005 fire, the Sum tells us that there were 64 fires in 2005.



**Do you remember this same number when you used Select by Attributes to query 2005 fires?**

- m. Close the **Statistics** window.

- n. Close the **freq\_HUC5\_fire** table.



## Part 4: Preparing a Table for a Report

In the previous step, you created a table breaking down the distribution of the 2005 fires by watershed. Twelve watersheds were affected. You are now tasked with analyzing and reporting those fires that took place in 2005.

In this step you will use a previously created 5th Level Watersheds layer file to create a report. The layer file has been created by joining the Summary table to the attribute table of the Hydrologic\_Unit\_5th\_Code (watershed) layer with the goal of creating a map illustrating the number of 2005 fires in each watershed. **For this step...** you are not required to print the table. First, let's clean up our map a bit.

An appealing map is always valuable; however, an analysis is often bolstered by supporting tabular data. In this step you will create a tabular report for the twelve 5th level watersheds affected by the fires in 2005. You will then change the appearance of the table to make it more readable and useful for printing purposes.

### A. Clean up Map

- a. If you have any fires selected, unselect them using the **Unselect Tool**. 
- b. Select the **Add Data** button  and navigate to the **...\Data** folder. Then add the **5th Field Watersheds.lyr** to the map. *(Alternatively, you can drag-and-drop the Layer file from Catalog.)*
- c. Turn off the **FireHistHUC5**, **Fire History**, **Allotment**, **Hydrologic\_Unit\_5th\_Code**, and **Admin\_Forest\_Boundary** layers in the **TOC**.


Now, you should have only the 5th Field Watersheds layer active in your map.

### B. Manage Table

- a. Open the attribute table for the **5th Field Watersheds layer**.

As illustrated in the next image, the table has unnecessary information that only detracts from table's purpose (which is to show those watersheds affected by 2005 fires). In addition, the field names are long and cryptic.

Table			
<ul style="list-style-type: none"> <li>Find and Replace...</li> <li>Select By Attributes...</li> <li>Clear Selection</li> <li>Switch Selection</li> <li>Select All</li> <li>Add Field...</li> <li>Turn All Fields On</li> <li>Show Field Aliases</li> </ul>	HUC_NAME	Shape_Leng	Shape_Length
	Aubrey Valley	198389.246144	198389.246144
	Upper Big Chino Wash	156192.668969	156192.668969
	Upper Partridge Creek	164646.058051	164646.058051
	Markham Wash Area	118378.649226	118378.649226
	Willow Creek	108286.401071	108286.401071
	Lower Partridge Creek	150561.515944	150561.515944
	Heaven's Gate	225734.993096	225734.993096
	Middle Big Chino Wash	197459.368913	197459.368913
	Ash Fork Draw-Jumbo Tank	99503.748454	99503.748454
	Knight Creek	206508.853434	206508.853434

You can toggle between Field Names and Aliases in the Attribute table by selecting on **Table Options** button , then **Show Field Aliases**. With aliases, you can shorten and give more meaningful names to all of your fields, like: HUC5 Watershed Number instead of "Hydrologic\_Unit\_5th\_Code". HUC5 represents the "HUC5" field originating from the table called "Hydrologic\_Unit\_5th\_Code."

b. **How many watersheds make up the layer?** *Hint: Read the total number of records.*

Our first step in making the table more readable is to limit the 53 records to only those watersheds affected by 2005 fires. We can use the layer property setting called Definition Query to limit both a layer's features and records. However, setting the Definition Query only works with the layer's attribute table closed.

- Close** the attribute table.
- Open the properties window for the **5th Field Watersheds** layer.  
*Hint: Double click the name in the TOC.*
- Select the **Definition Query** tab.

The Query Builder window opens. You will build a query expression where the frequency of watershed names is greater than zero. The result of the query will be the twelve watersheds affected by 2005 fires.

- Select the **Query Builder** button to start building this query.

- g. On your own build the following expression:

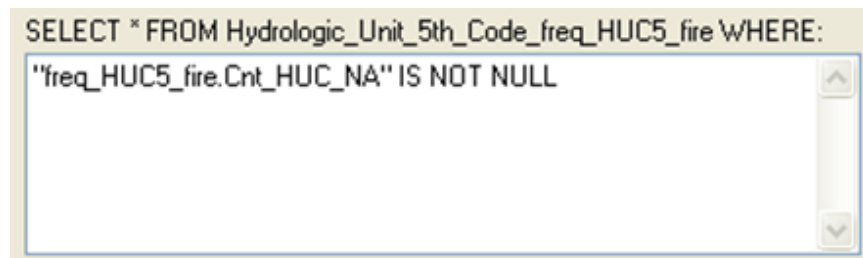
**freq\_HUC5\_fire.Cnt\_HUC\_NA IS NOT NULL**

**Hint #1:** "Count\_HUC\_Name" is an alias for "freq\_HUC5\_fire.Cnt\_HUC\_NA"

**Hint #2:** Use the operator buttons to build "IS NOT"

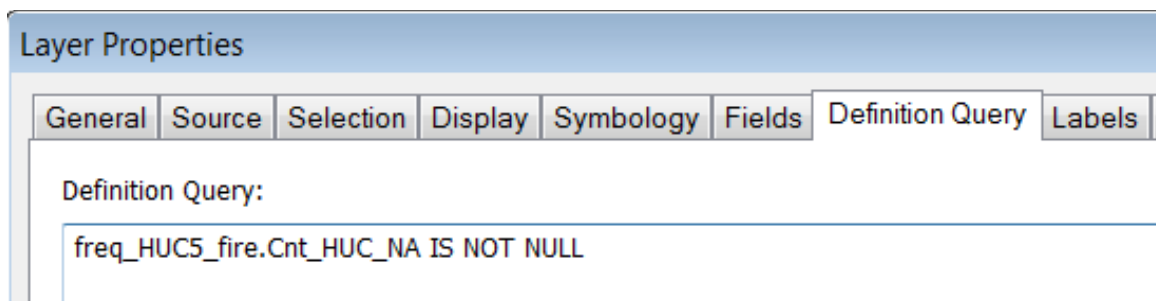
- j. Shouldn't we be using "not equal to" (< >)?

For querying <Null> values, you must use the "IS" or "IS NOT" operators. See the following graphic.



- k. Select the **Verify** button to see if you are using proper query syntax. If successfully verified, select **OK**. (Otherwise, you need to correct your query expression.)

**The query expression is now part of the Definition Query:**



**FYI:** A Definition Query only affects how a layer displays in ArcMap. It does not change the source layer's total number of features and records!

- l. Select **OK** to close the **Query Builder**.  
m. Select **OK** to close the **Layer Properties**.

Notice that only the specified watersheds are visible now. Note that Definition Queries are a great way to show only your Forest or District when looking at a map. Now we will look at the layer's Attribute table.

- n. Open the attribute table for the **5th Field Watersheds** layer.
- o. Let's further improve the appearance of the table. In the attribute table, right-click on the following field names and turn them **off** (*Hint - these are all alias names*):
  - OBJECTID\*
  - Shape
  - Shape\_Leng
  - Shape\_Length
  - Shape\_Area
  - OBJECTID\*
  - HUC\_NAME (*There are two—only turn off one*)

**Now how many records make up the layer?**

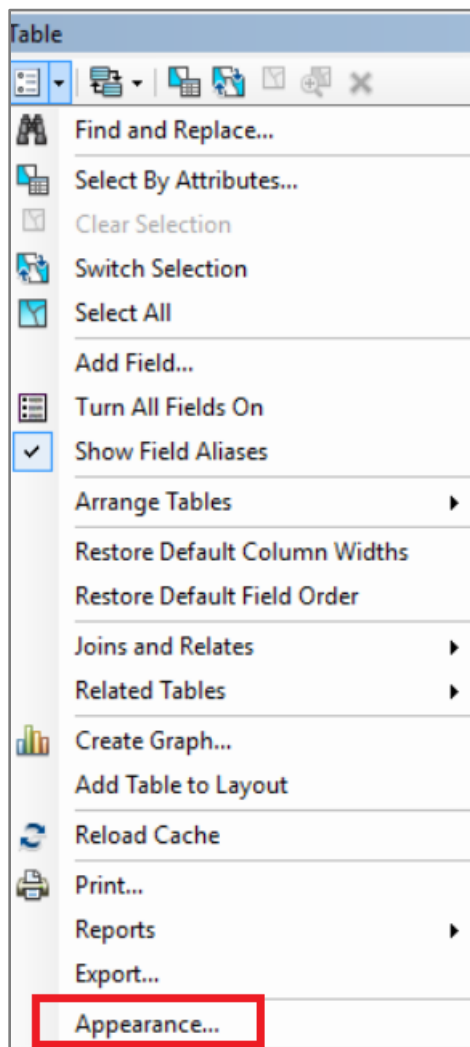
**2          12          24          53**

	HUC5	HUC_NAME	Count_HUC_NAME
▶	1506020202	Hell Canyon	1
	1506020204	Grindstone Wash-Upper Verde River	5
	1506020201	Granite Creek-Upper Verde River	10
	1506020207	Cherry Creek-Upper Verde River	7
	1503020203	Boulder Creek	2
	1503020302	Sycamore Creek	2
	1507010202	Big Bug Creek-Agua Fria River	3
	1507010201	Ash Creek and Sycamore Creek	13
	1503020301	Kirkland Creek	1
	1506020302	Fossil Creek-Lower Verde River	6
	1507010301	Upper Hassayampa River	10
	1507010203	Black Canyon Creek	4

Your table now displays only those attributes to be presented in your report. Note: the changes are not permanent. Next, you will change the appearance of the field headers.

### C. Make Changes to Table Appearance

- a. In the attribute table, select **Options** , then **Appearance**.

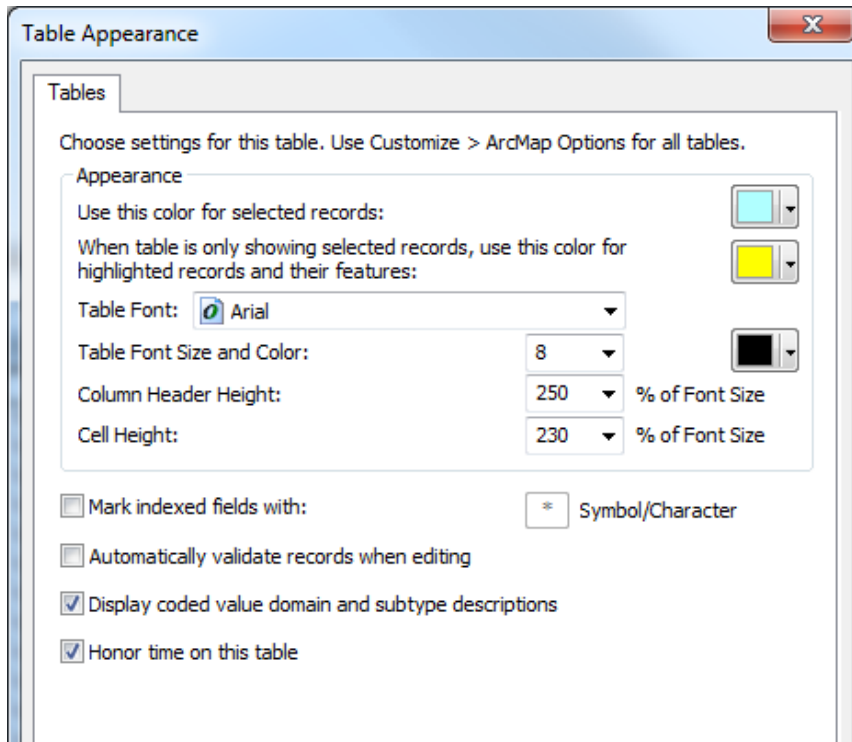


- b. For the **Column Header Height**, enter **250** and press the <Tab> key.  
 c. For the **Cell Height**, enter **230** and press the <Tab> key.  
 d. Uncheck the box for “**Mark indexed field with.**”

Compare your Table Appearance settings to the screen capture below:

- e. Select **OK**.






**Table Appearance**

Tables

Choose settings for this table. Use Customize > ArcMap Options for all tables.

Appearance

Use this color for selected records: 


When table is only showing selected records, use this color for highlighted records and their features: 



Table Font:  Arial

Table Font Size and Color: 8 

Column Header Height: 250 % of Font Size

Cell Height: 230 % of Font Size

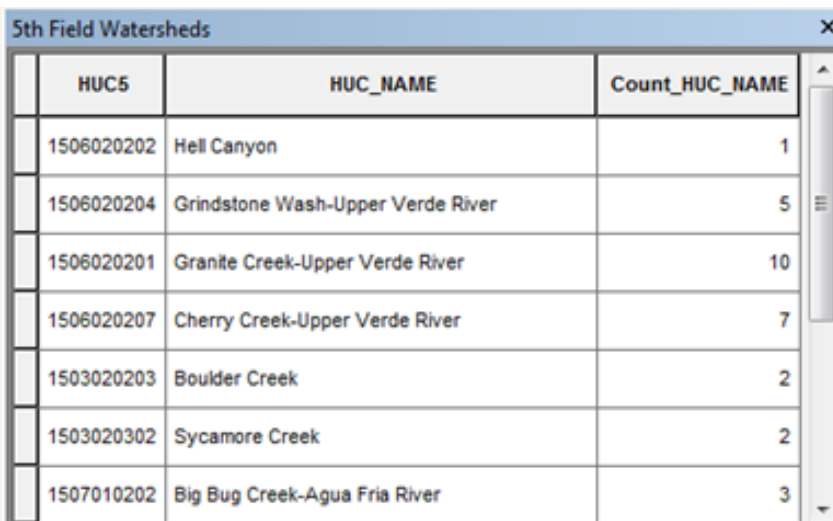
☐ Mark indexed fields with: \* Symbol/Character

☐ Automatically validate records when editing

☒ Display coded value domain and subtype descriptions


☒ Honor time on this table

**RESULT:** The column headers and cell heights have increased vertically.



HUC5	HUC_NAME	Count_HUC_NAME
1506020202	Hell Canyon	1
1506020204	Grindstone Wash-Upper Verde River	5
1506020201	Granite Creek-Upper Verde River	10
1506020207	Cherry Creek-Upper Verde River	7
1503020203	Boulder Creek	2
1503020302	Sycamore Creek	2
1507010202	Big Bug Creek-Agua Fria River	3

- f. **Optional:** As needed, manually resize column widths.

Although we will not be printing the table in this exercise, the table's appearance is now acceptable for insertion into a report or into ArcMap's Layout View. To print, you would select **Table Options** , and select **Print**.

**Tip:** If you have difficulties printing the table from ArcMap, try exporting the table as a .txt or .dbf format for use in MS Excel (**Table Options**, then **Export**). Do not print the table as part of this class.

## D. Save and Close

- a. Select **File** menu > **Save As**.
- b. Navigate to ...\**Data\Workspace\Results**.
- c. In the File name field, enter **Fire\_History\_results.mxd**.
- d. Select **Save**.
- e. **Exit** ArcMap.

In this exercise, you were presented with a task to find out which watersheds were affected by 2005 fires. To perform the analysis you used the Summarize command from the context menu in the layer Attribute Table. In addition you learned how view and edit table properties in order to report the analysis findings both clearly and efficiently.

**-END OF EXERCISE**

**Congratulations on finishing this exercise!**