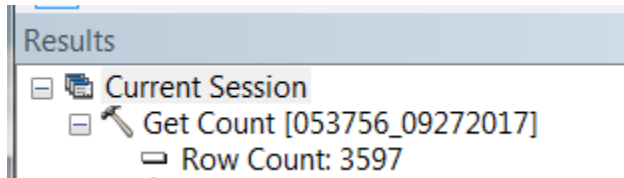


### Lab#5: GIS Tables

In this lab, you will be creating and analyzing tables from the polygons representing wildfire perimeters from 1940-2017. Downlad and unzip the data from the Alaska Fire Service website <https://fire.ak.blm.gov/predsvcs/maps.php>

- Statewide Fires 
- Current Lightning 
- Fire History 
- Historical Lightning 
- Current Weather and Indices 

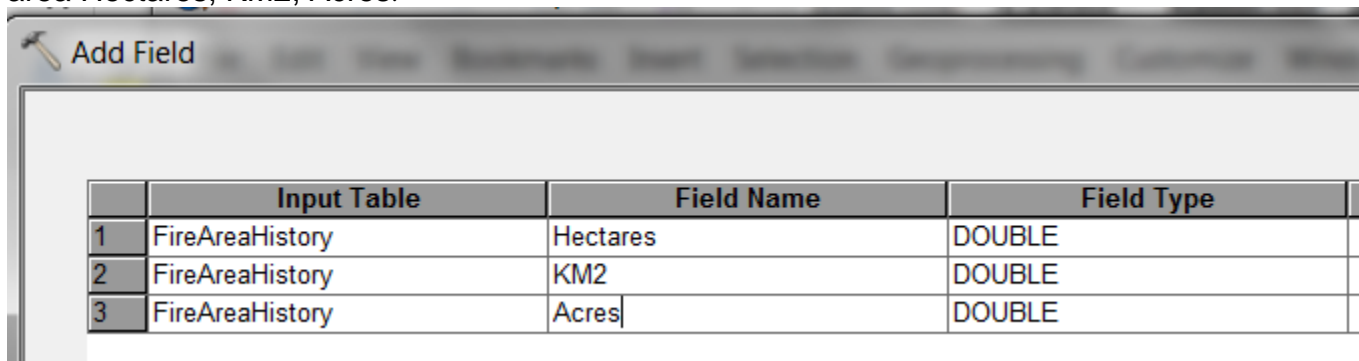
Use the **Get Count** geoprocessing tool to determine how many rows are in your polygon attribute table.



The field FireYear is a text field. Add a short integer field named Year and use the field calculator to populate the integer field.

FireYear	Year
2015	2015
1990	1990
1999	1999
2016	2016
2015	2015

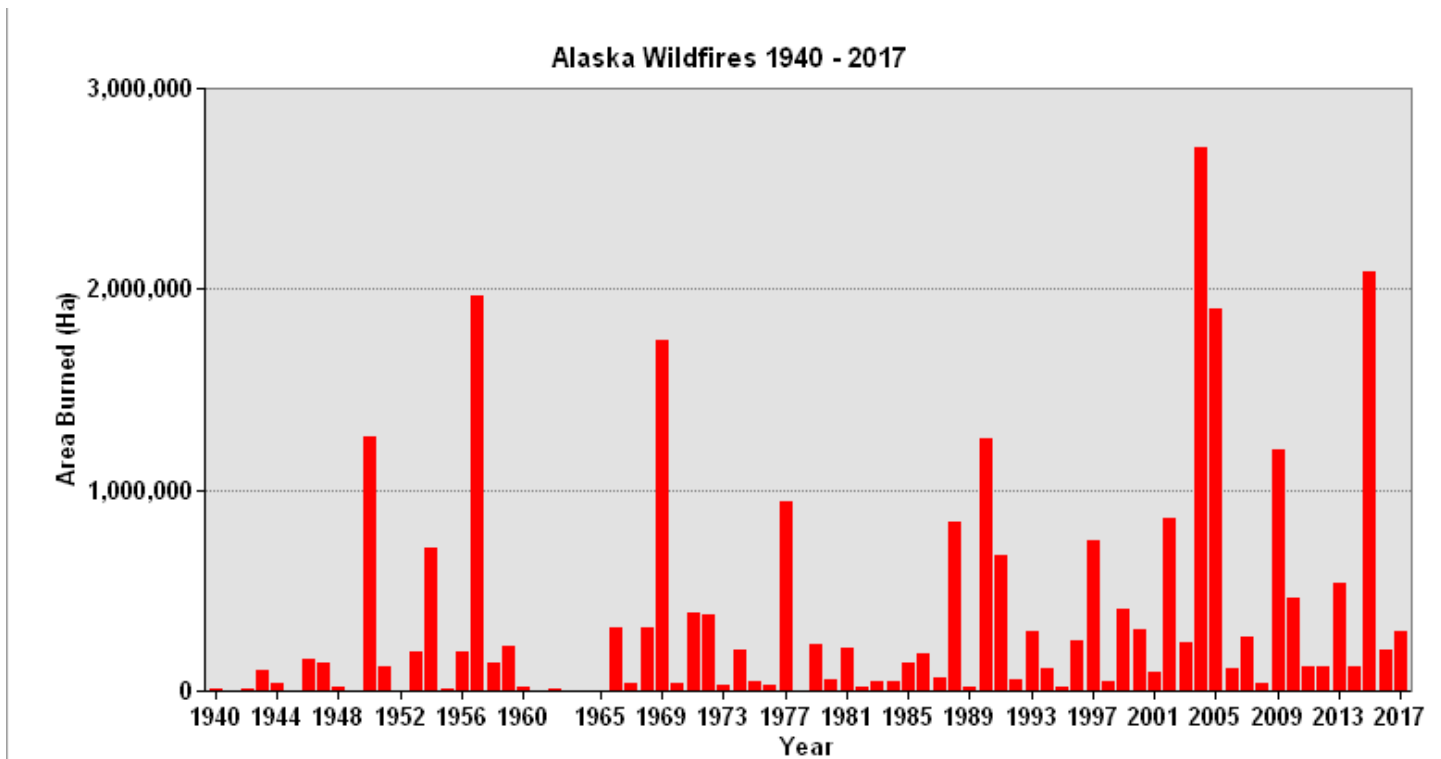
Use the **Add Field** geoprocessing tool in batch mode to add 3 double precision fields named Hectares, KM2, Acres. Open your table, right mouse click and Calculate Geometry to compute the area Hectares, KM2, Acres.



FireAreaHistory			
	Hectares	KM2	Acres
	6071.064518	60.710	15001.92
	4791.677176	47.916	11840.49
	1530.178497	15.301	3781.153
	4 729786	0 0472	11 68755

Use the **DeleteField** geoprocessing tool to delete the AREA,LEN fields..

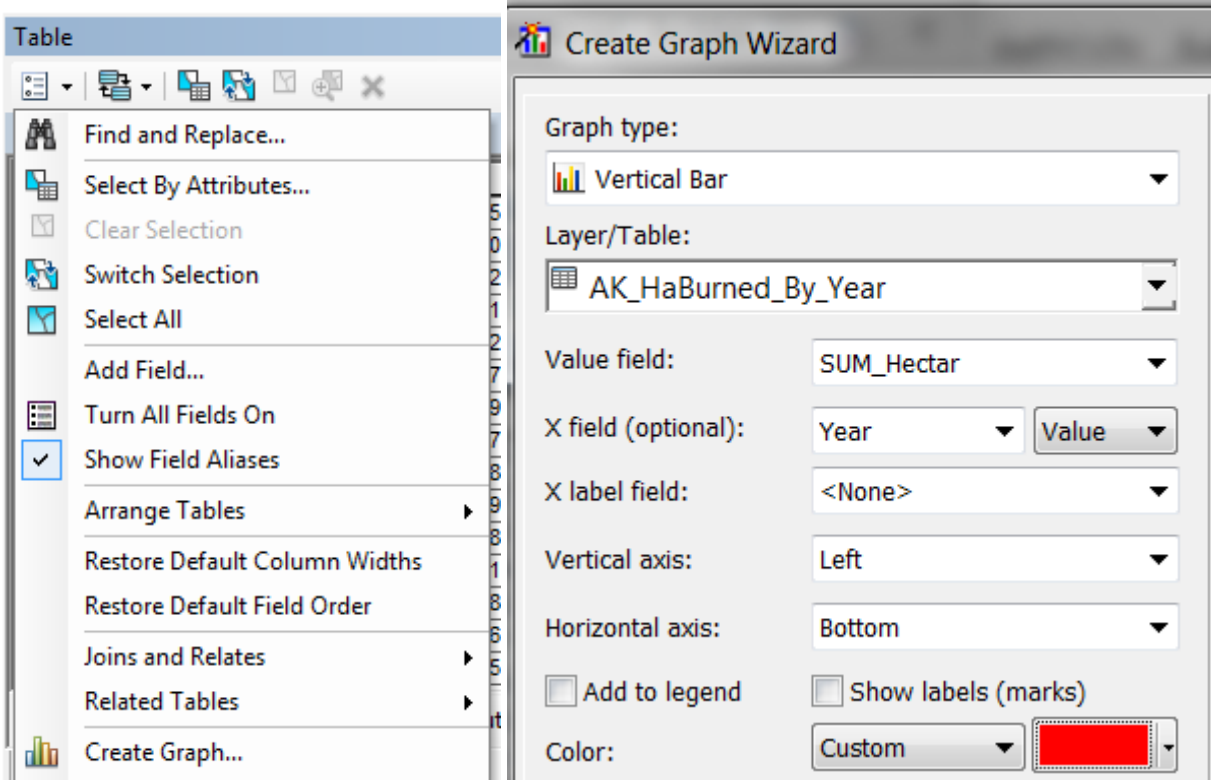
Create a chart of total hectares burned per year.



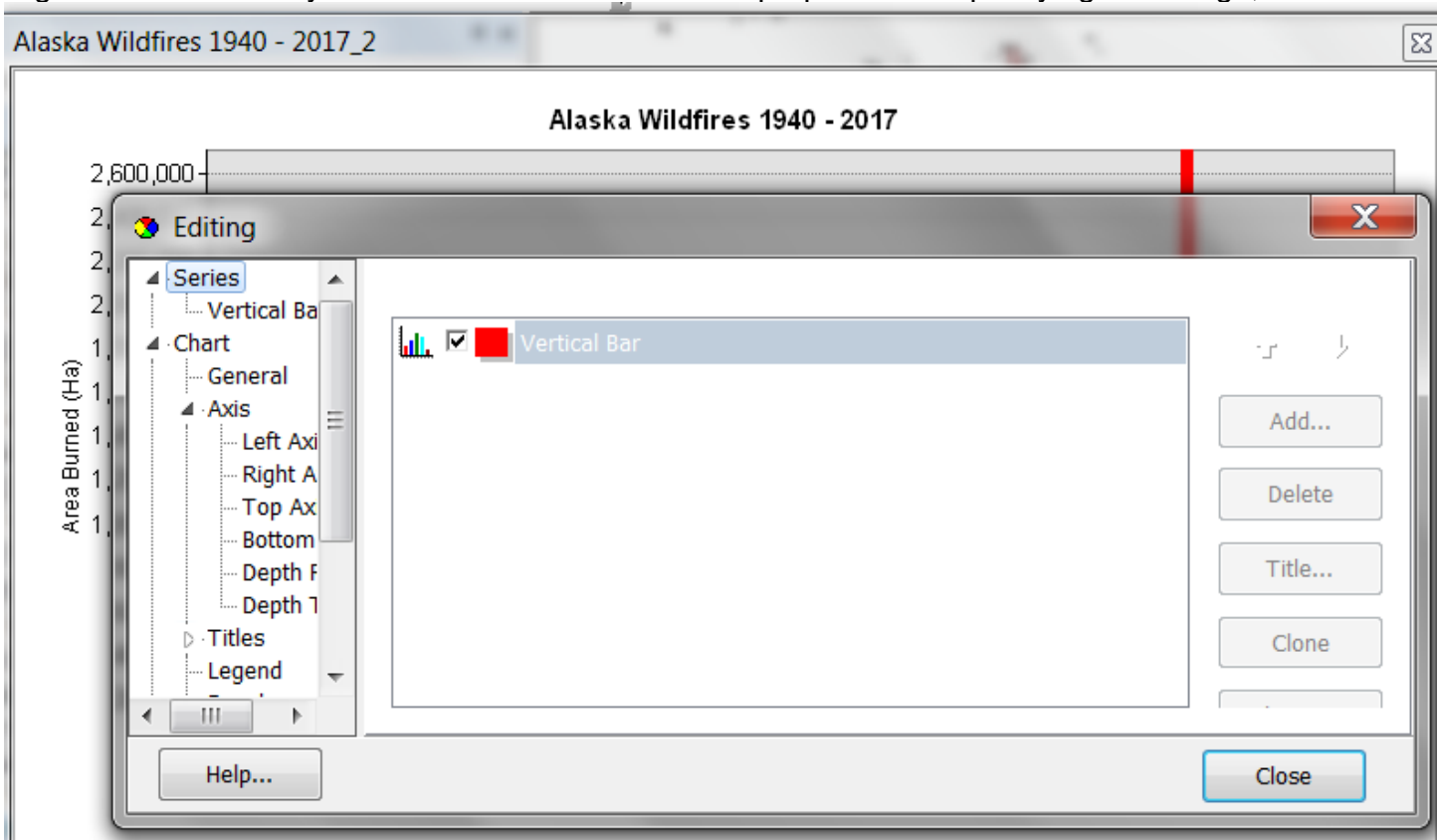
First use the **Summary Statistic** geoprocessing tool to create a new table of total hectares burned per year.

AK_HaBurned_By_Year			
Year	FREQUENCY	SUM_Hectar	
1940	1	5206.430571	
1942	5	11519.195032	
1943	8	98581.048218	
1944	1	38907.340169	

Next with your table open, under the Table Options menu, select Create Graph...



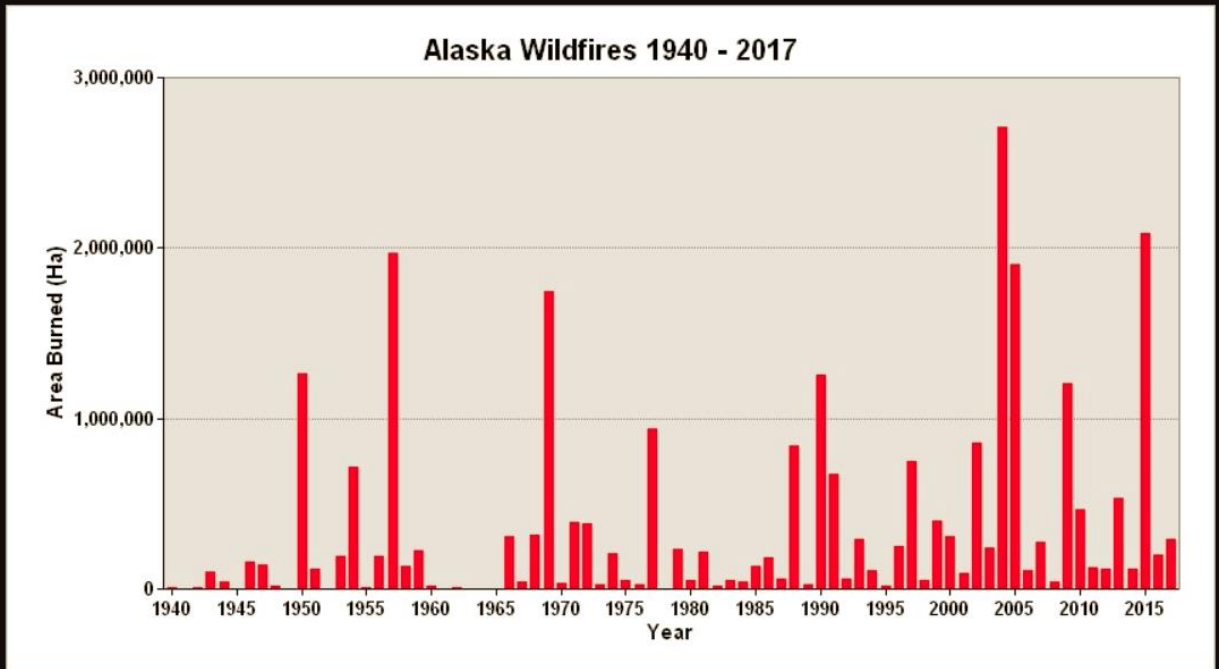
Right mouse click on your chart and select advanced properties for specifying axis range, etc.



Right mouse click an export as a jpg file...use a web browser to view your jpg.

<http://dverbyla.net/nrm338/>

file:///C:/nrm338/lab5/AK\_fires/AK\_Fires\_1940\_2017.jpg



The top four years in terms of hectares burned were 2004,2015, 1957,2005.

**Create a pdf report of fires since 2000 per year.**

Create a layer of fires since 2000.

Fires Since 2000				
	FireName	DiscDate	Hectares	Year
	Anakshek Pass	6/21/2015	6071.064518	2015
	Punupkahkroak Mountain	6/17/2016	4.729786	2016
	Kuka Creek 1	6/22/2015	3806.430977	2015
	Apoon	6/21/2015	6083.19342	2015
	Pastoliak River	12/28/2000	5216.77782	2000

First change the numeric format of your hectares to display one to the right of the decimal and use comma separators:

Hectares
6,071.1
4.7
3,806.4
6,083.2
5,216.8
121.0
0.2
141.1

Next change specify descriptive field alias:

Fires Since 2000				
	Fire Name	Date of Discover	Ha Burned	Fire Year
	Anakshek Pass	6/21/2015	6,071.1	2015
	Punupkahkroak Mountain	6/17/2016	4.7	2016
	Kuka Creek 1	6/22/2015	3,806.4	2015

Then from your table options, select Reports...

We want a report for each fire year and each day of discovery a list of fire names and hectares burned.

**Report Wizard**

Which fields do you want on your report?

Layer/Table:  Report View Contents Field:

Available Fields:  Report Fields:

**Report Wizard**

Do you want to add any grouping levels?

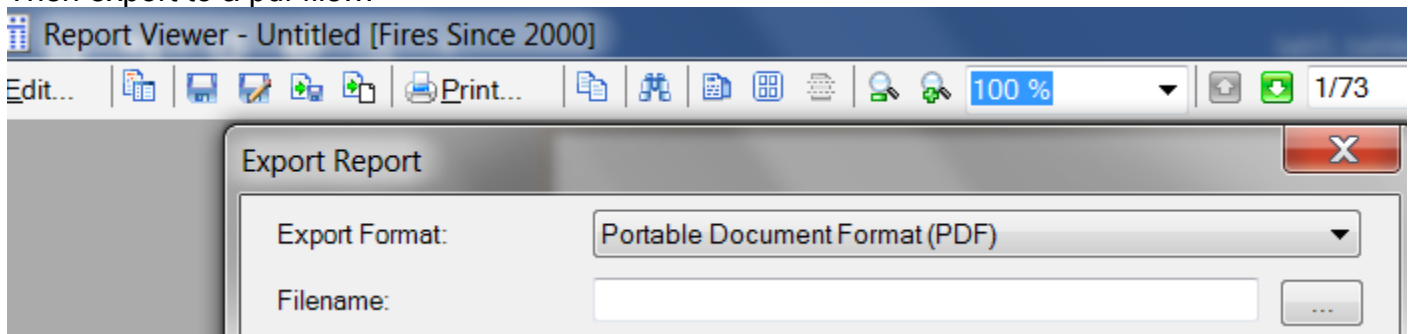
Report Fields:

Edit your report to your preference:

# Fires Since 2000

Fire Year	Date of Discovery	Fire Name	Ha Burned
<b>2000</b>			
	<b>5/6/2000</b>		
		Frazer Lake	256.1
	<b>5/9/2000</b>		
		KARLUK	164.6
	<b>6/6/2000</b>		
		ROCK CK.	318.9
	<b>6/9/2000</b>		
		Dall River	5,205.6
		WILD	1,876.0
	<b>6/10/2000</b>		
		Slokenjikh	46.7
		Purcell	263.6
		Spirit Lake	39,364.1
	<b>6/11/2000</b>		
		Bent Tree	97.6

Then export to a pdf file...





Report.pdf - Adobe Acrobat Reader DC

File Edit View Window Help

Home Tools Report.pdf x Sign

69 / 73 75%

	Moose Creek	122.4
<b>2017</b>		
	4/18/2017	
	Zane Hills	867.1
	4/24/2017	
	DTAW Oklahoma Impact Area Rx	19,645.2
	5/4/2017	
	4.5 Mile Nistler Road	9.9
	5/7/2017	
	YTA Stuart Creek IA Grass Rx	7,322.7
	5/11/2017	
	Saltrey Creek	37.7
	5/13/2017	
	Deep Creek	15.7

**Create Excell pie chart of general cause classes.**

First, use the **Summary Statistic** geoprocessing tool create a table of total hectares by general cause.

GenCause	FREQUENCY	SUM_Hectares
	1778	15,829,255.9
False Alarm	1	1,133.3
Human	194	612,786.6
Lightning	1488	9,925,768.7
Lightning - WFU	102	675,047.0
Natural Out	1	46.4
Prescribed	33	70,052.6

We want one class for lightning and "Unknown" for the first row, so use your field calculator to assign these class values. Then select all rows except for False Alarm, Natural Out.

GenCause	FREQUENCY	SUM_Hectares
Unknown	1778	15,829,255.9
False Alarm	1	1,133.3
Human	194	612,786.6
Lightning	1488	9,925,768.7
Lightning	102	675,047.0
Natural Out	1	46.4
Prescribed	33	70,052.6

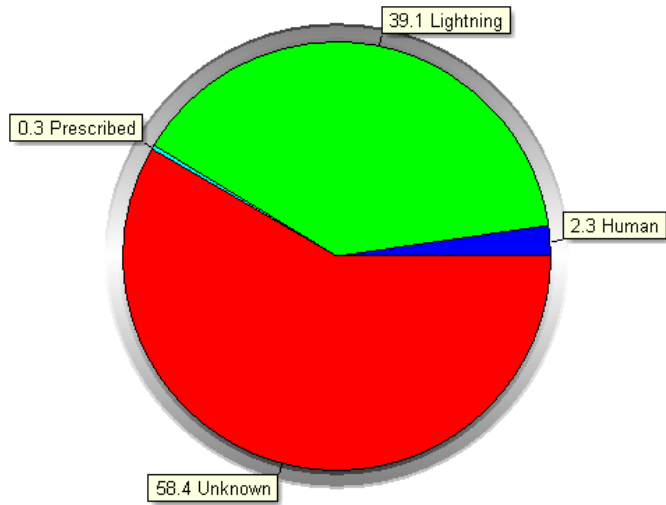
and use the **Summary Statistic** geoprocessing tool create a table of total hectares by general cause for your selected rows

GenCause	Total Ha
Human	612,786.6
Lightning	10,600,815.6
Prescribed	70,052.6
Unknown	15,829,255.9

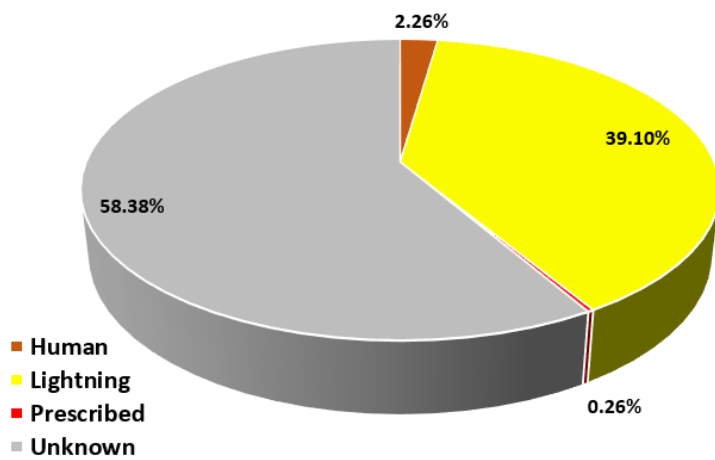
GenCause	Total Ha	Percent
Human	612,786.6	2.3%
Lightning	10,600,815.6	39.1%
Prescribed	70,052.6	0.3%
Unknown	15,829,255.9	58.4%

Use either Arcmap or Excel to create a pie chart...  
And create a pie chart of your own design.

Alaska Wildfires General Causes (%)



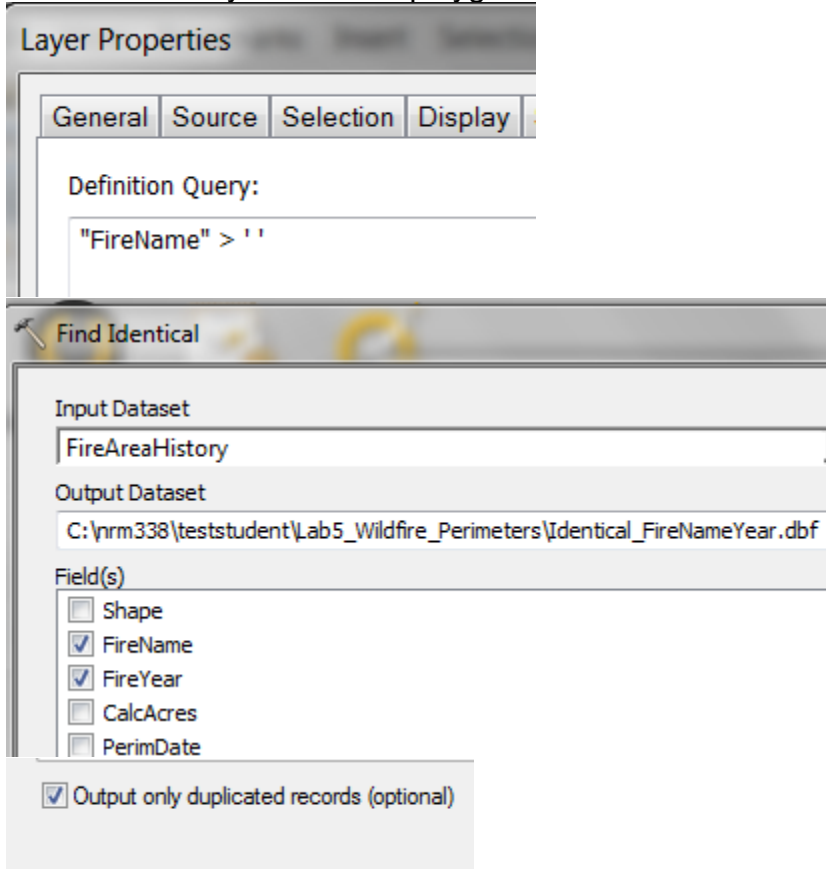
Alaska Wildfires General Causes (1940 - 2017)



### Create table of different wildfires with same name.

Use the Find Identical geoprocessing tool to create a table where the FireName and FireYear are identical.

First create a layer of all fire polygons that have a fire name



Use the **Join Field** geoprocessing tool to join the FireName, FireYear to your table.

FEAT_SEQ	FireName	FireYear
1	Kivalina River	1999
1	Kivalina River	2012
2	Eli River	2015
2	Eli River	2010
2	Eli River	2004
3	Koyuk	2015
3	Koyuk	2016
4	Winter Trail	2009
4	Winter Trail	2010
4	Winter Trail	2015
4	Winter Trail	2004
5	Pastolik River	2007
5	Pastolik River	2002
6	REINDEER	1990
6	REINDEER	1997
7	Reindeer	1992

Finally use the **Frequency** geoprocessing tool to see if any of these fires are from the same year

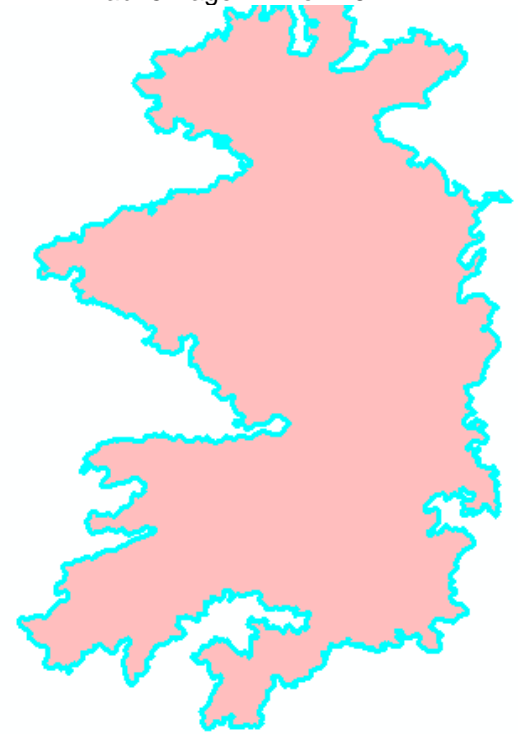
FREQUENCY	FireName	FireYear
3	Moose Creek	2002
2	Bear Creek	2013
2	Beaver Creek	2005
2	Big Creek	1999
2	Dall River	2000
2	FYU NE 22	1988
2	Kingasivik Mountains	2010
2	MHM N 25	1991
2	MHM SE 27	1986
2	Mission Creek	2005
2	PORCUPINE	1993
2	Rock Creek	2004
2	South Fork	2001
2	Swinging Dome	1989
2	Timber Creek	2013
2	West Fork	2015
1	100 Mile Creek	1996

So for example, the West Fork fire of 2015 was actually 2 different burns:

CalcAcres	PerimDate	Source	EditDate	
59532.5	9/1/2015	Digitized	9/2/2015	Digitize
231.4	6/28/2015	GPS	7/3/2015	Collecte

West Fork 2015

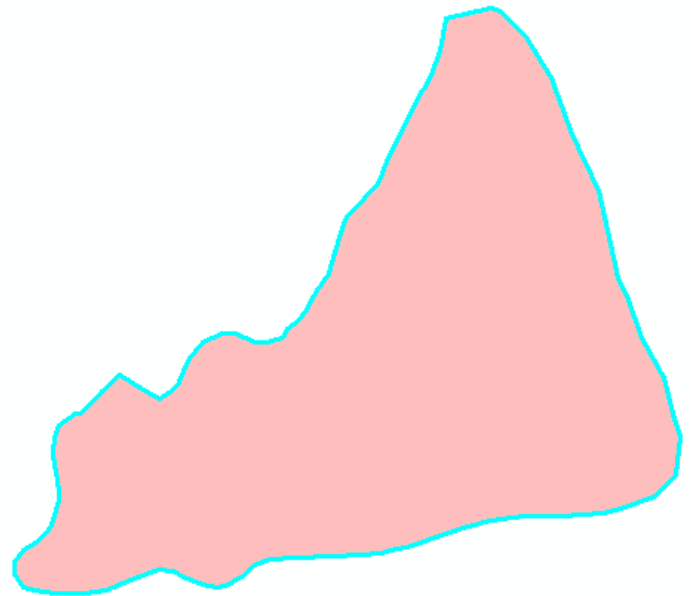
(1 out of 2 Selected)



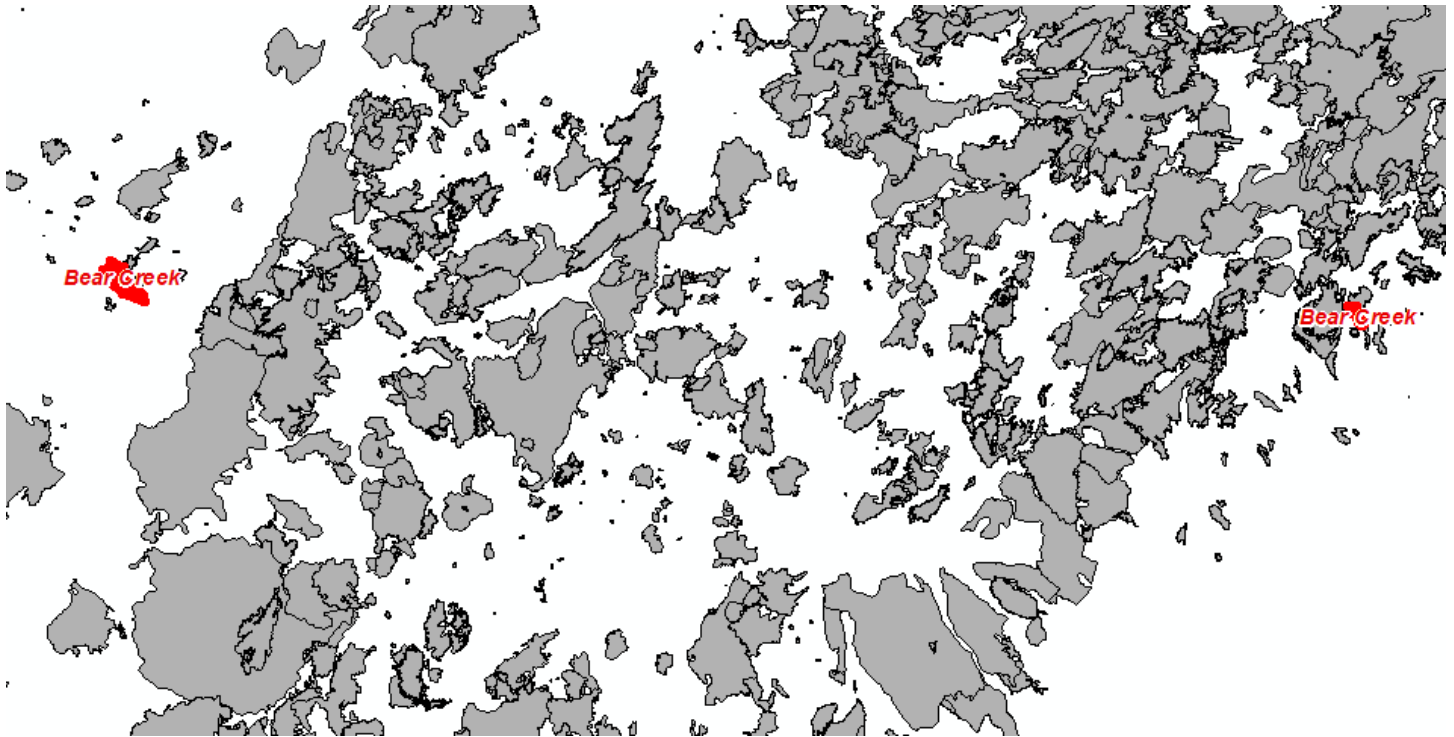
CalcAcres	PerimDate	Source	EditDate	
59532.5	9/1/2015	Digitized	9/2/2015	Digitize
231.4	6/28/2015	GPS	7/3/2015	Collecte

West Fork 2015

(1 out of 2 Selected)



Create new layer showing the Bear Creek fires of 2013.



### Table of Discovery Dates

For the fires that occurred since 2000, create a chart of week of fire discovery:

Fires	
Date of Discover	Week_
<Null>	0
<Null>	0
<Null>	0
1/3/2003	1
3/12/2003	11
3/14/2013	11
3/15/2009	12
3/27/2008	13
4/6/2002	14
4/2/2008	14
3/31/2008	14

The use the Frequency geoprocessing tool and create a chart

