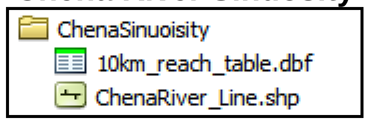
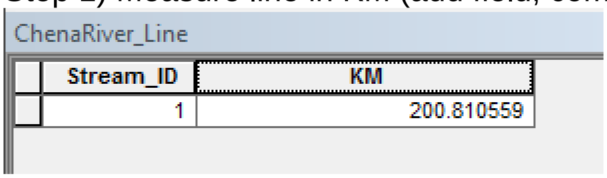
KEY: Feature Analysis Problems

Chena River Sinuosity

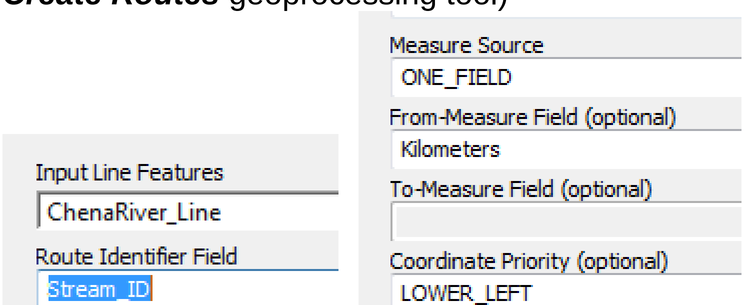


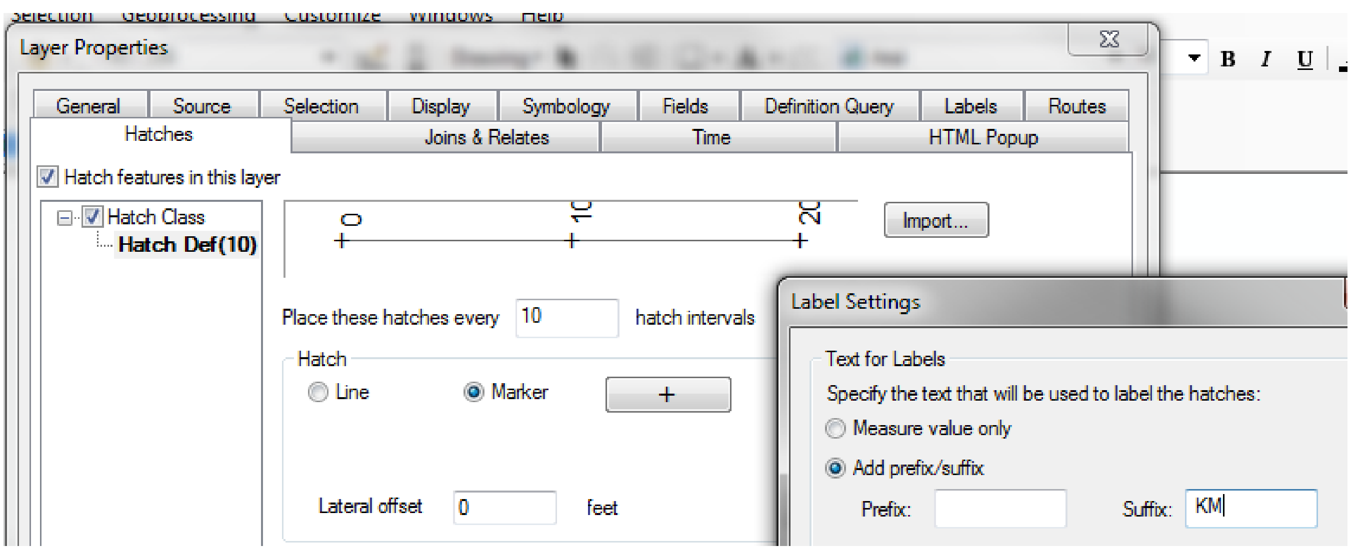
The Chena River length is a more than 200 KM. For each 10 KM stretch of the Chena River, compute it’s sinuosity as the 10km river length / straight line length.

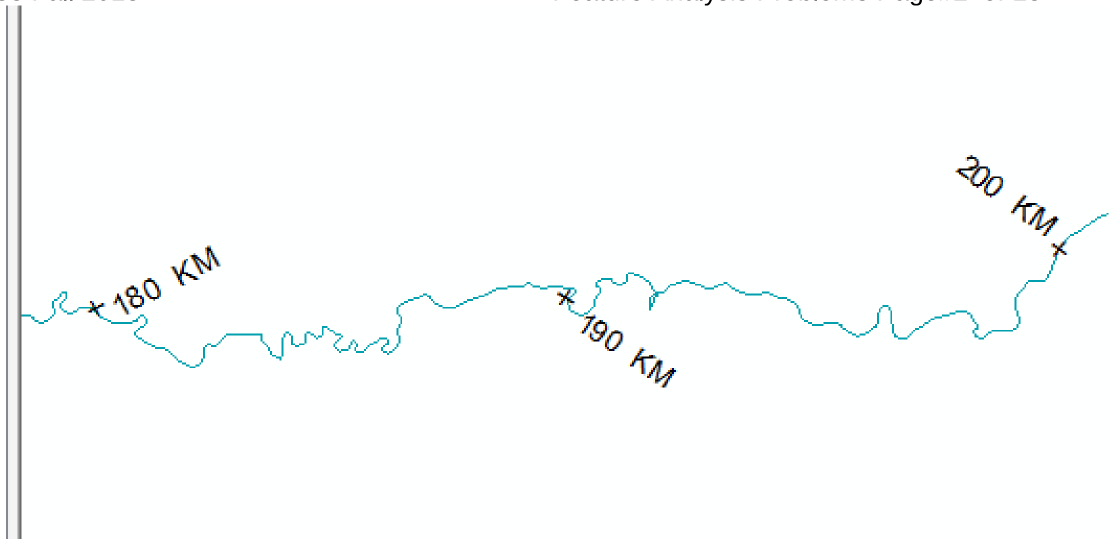
Step 1) Measure line in KM (add field, compute geometry,



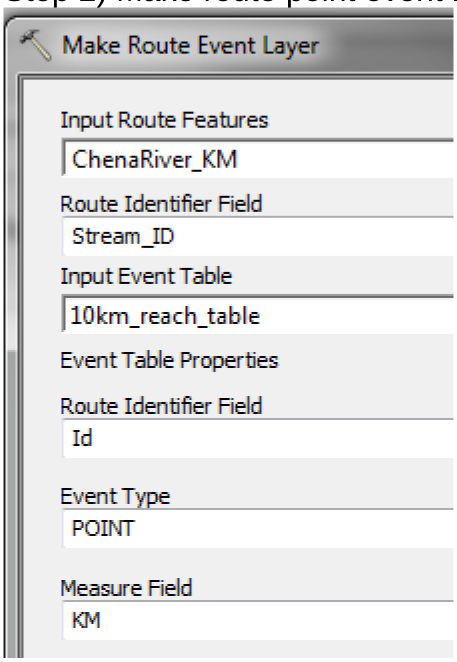
Create Routes geoprocessing tool)





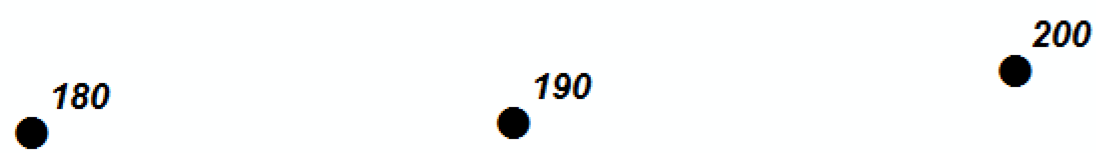


Step 2) Make route point event layer from text table.

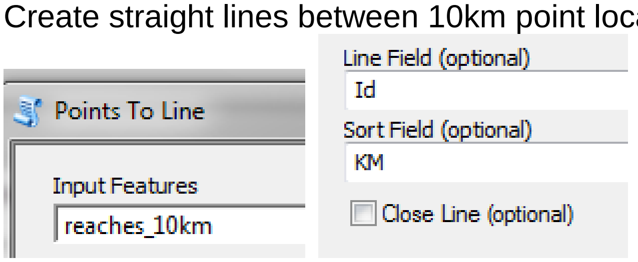


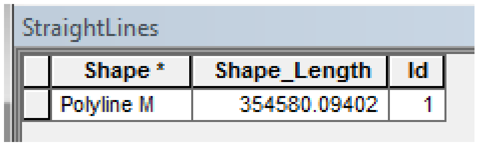
10km_PointEvents

OID	Id	KM	Shape *
0	1	0	Point M
1	1	10	Point M
2	1	20	Point M
3	1	30	Point M
4	1	40	Point M
5	1	50	Point M
6	1	60	Point M
7	1	70	Point M
8	1	80	Point M
9	1	90	Point M
10	1	100	Point M
11	1	110	Point M
12	1	120	Point M
13	1	130	Point M
14	1	140	Point M
15	1	150	Point M
16	1	160	Point M
17	1	170	Point M
18	1	180	Point M
19	1	190	Point M
20	1	200	Point M



Create straight lines between 10km point locations.

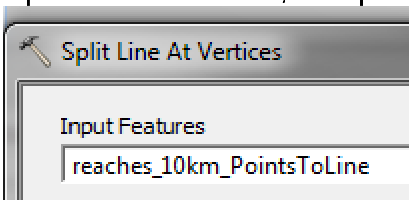




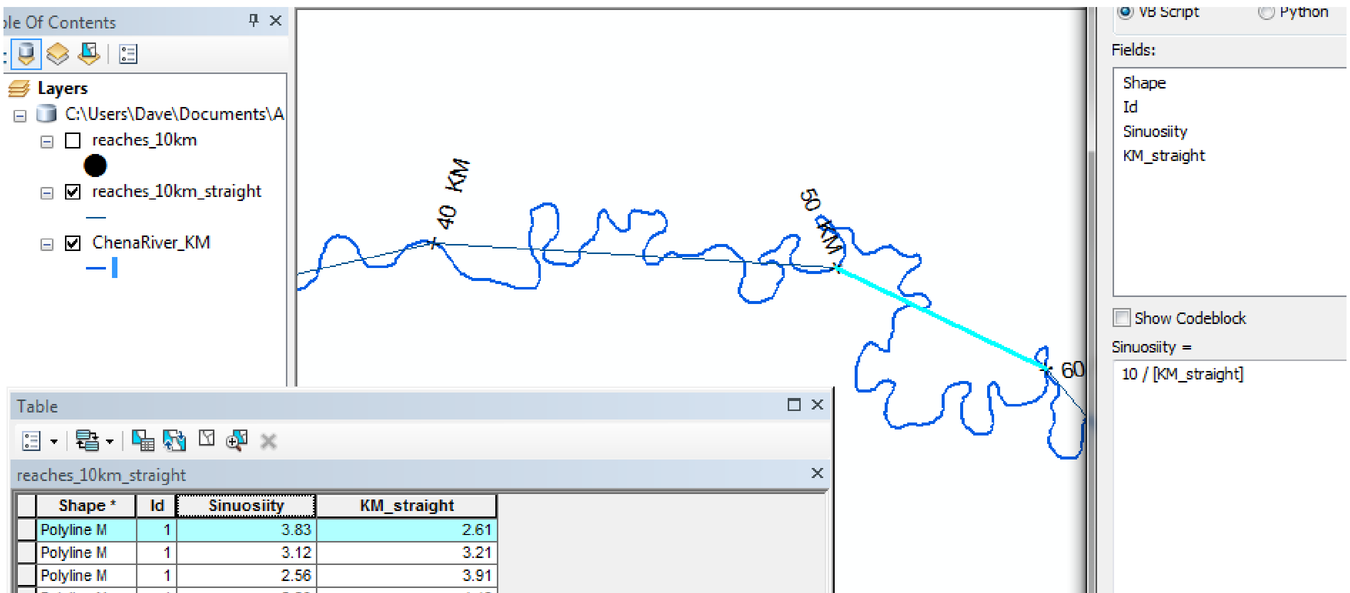
StraightLines

	Shape *	Shape_Length	Id
	Polyline M	354580.09402	1

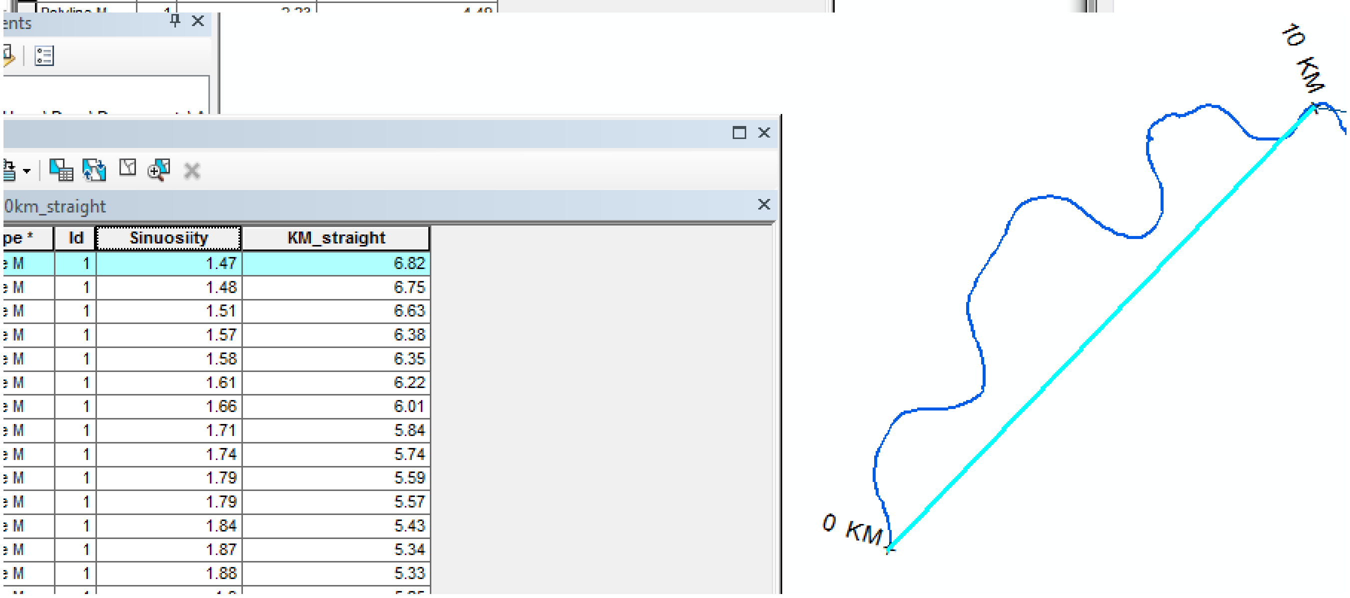
Split line at vertices, compute straight line length.



Maximum sinuosity—2.6 km straight, 10km river distance



	Shape *	Id	Sinuosiity	KM_straight
	Polyline M	1	3.83	2.61
	Polyline M	1	3.12	3.21
	Polyline M	1	2.56	3.91



pe *	Id	Sinuosiity	KM_straight
M	1	1.47	6.82
M	1	1.48	6.75
M	1	1.51	6.63
M	1	1.57	6.38
M	1	1.58	6.35
M	1	1.61	6.22
M	1	1.66	6.01
M	1	1.71	5.84
M	1	1.74	5.74
M	1	1.79	5.59
M	1	1.79	5.57
M	1	1.84	5.43
M	1	1.87	5.34
M	1	1.88	5.33

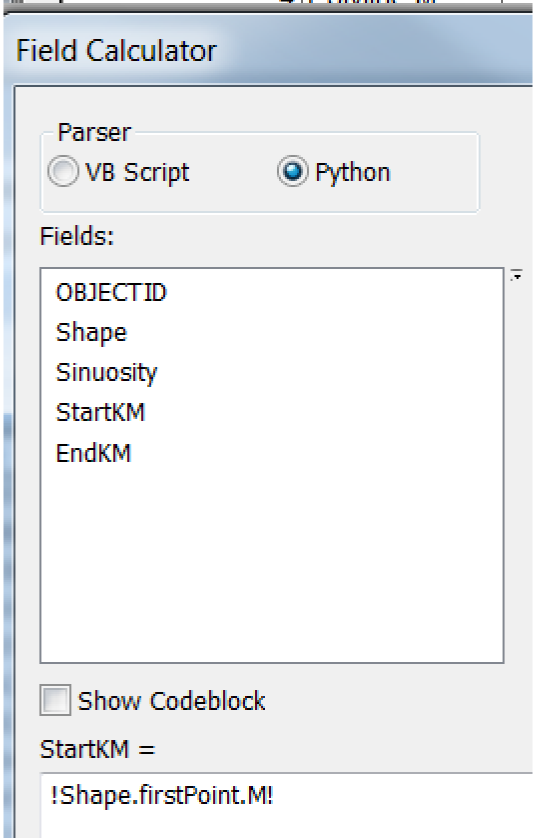
OR

Split Line at Point geoprocessing tool with 100 feet search Radius…

Join Field geoprocessing to transfer sinuosity value

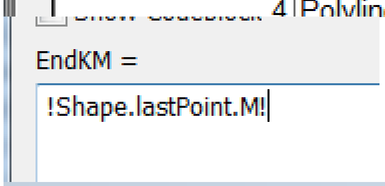
ChenaRiver_10KMReaches

OBJECTID *	Shape *	Sinuosity	StartKM	EndKM
1	Polyline M	1.466865	<Null>	<Null>
2	Polyline M	1.713398	<Null>	<Null>
3	Polyline M	1.871108	<Null>	<Null>
4	Polyline M	1.481156	<Null>	<Null>



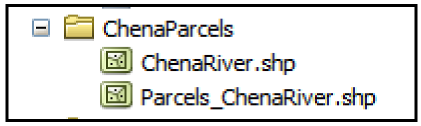
ChenaRiver_10KMReaches

OBJECTID *	Shape *	Sinuosity	StartKM	EndKM
1	Polyline M	1.466865	0	<Null>
2	Polyline M	1.713398	10	<Null>
3	Polyline M	1.871108	20	<Null>
4	Polyline M	1.481156	30	<Null>



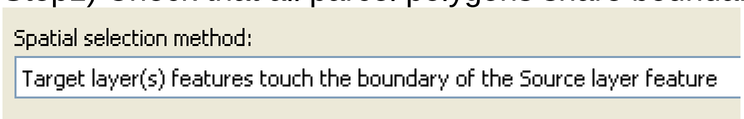
Shape *	Sinuosity	StartKM	EndKM
Polyline M	1.466865	0	10
Polyline M	1.713398	10	20
Polyline M	1.871108	20	30
Polyline M	1.481156	30	40
Polyline M	2.228405	40	50
Polyline M	3.830642	50	60
Polyline M	2.162592	60	70

Chena River Parcel Value

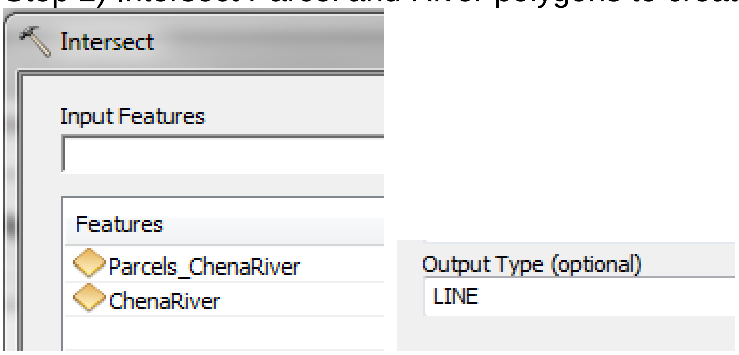


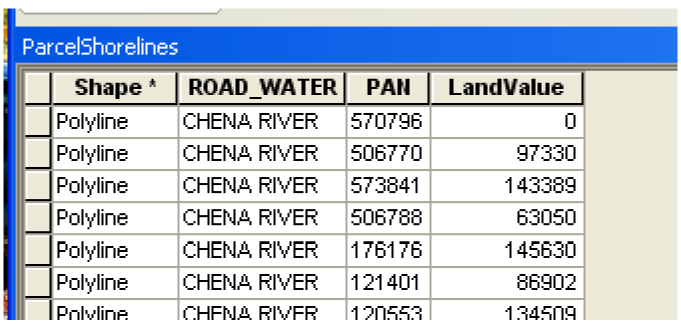
Determine the mean length of riverfront property in meters and mean land value in dollars for all parcels adjacent to the Chena River.

Step1) Check that all parcel polygons share boundary with Chena River



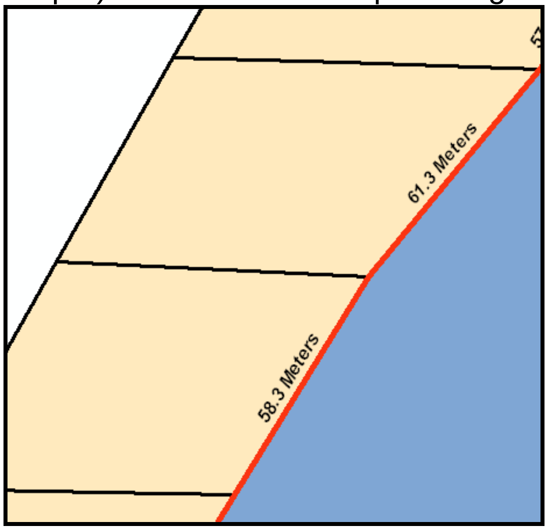
Step 2) Intersect Parcel and River polygons to create shorelines:



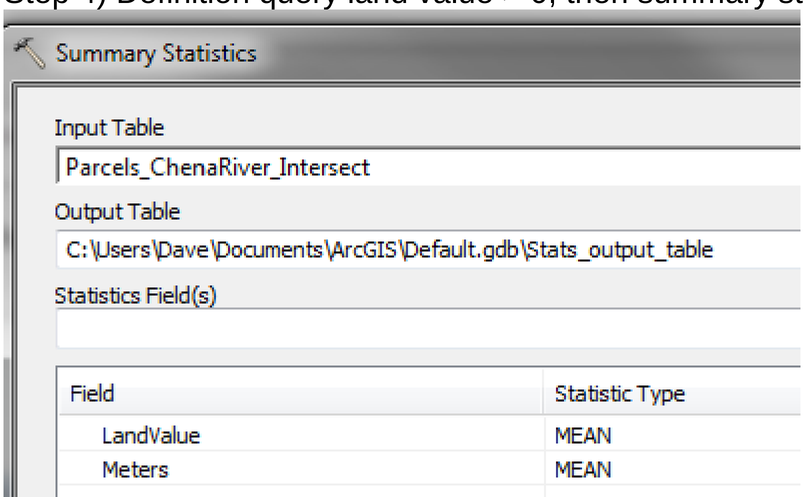

ParcelShorelines

Shape *	ROAD_WATER	PAN	LandValue
Polyline	CHENA RIVER	570796	0
Polyline	CHENA RIVER	506770	97330
Polyline	CHENA RIVER	573841	143389
Polyline	CHENA RIVER	506788	63050
Polyline	CHENA RIVER	176176	145630
Polyline	CHENA RIVER	121401	86902
Polyline	CHENA RIVER	120553	134509

Step 3) Add field and compute length in meters for each line

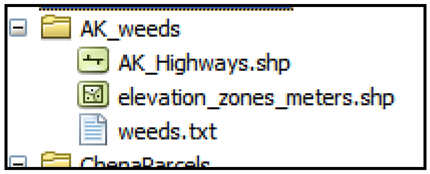


Step 4) Definition query land value > 0, then summary statistics



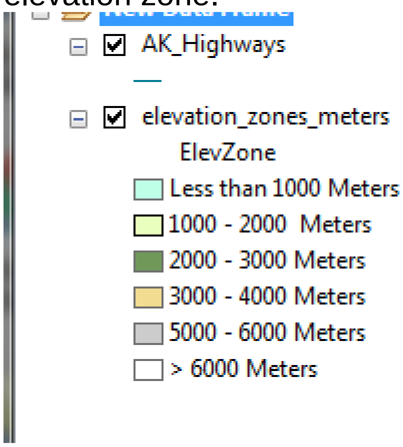
MEAN_LandValue	MEAN_Meters	FREQUENCY
$107,243.40	63.1	337

Invasive Weed Locations

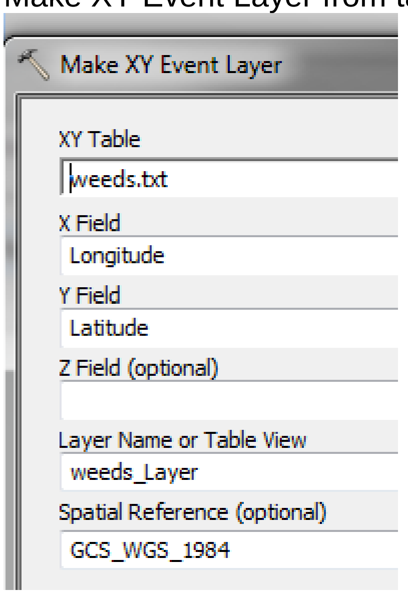


The weed locations were recorded using a GPS in longitude,latitude, WGS84.

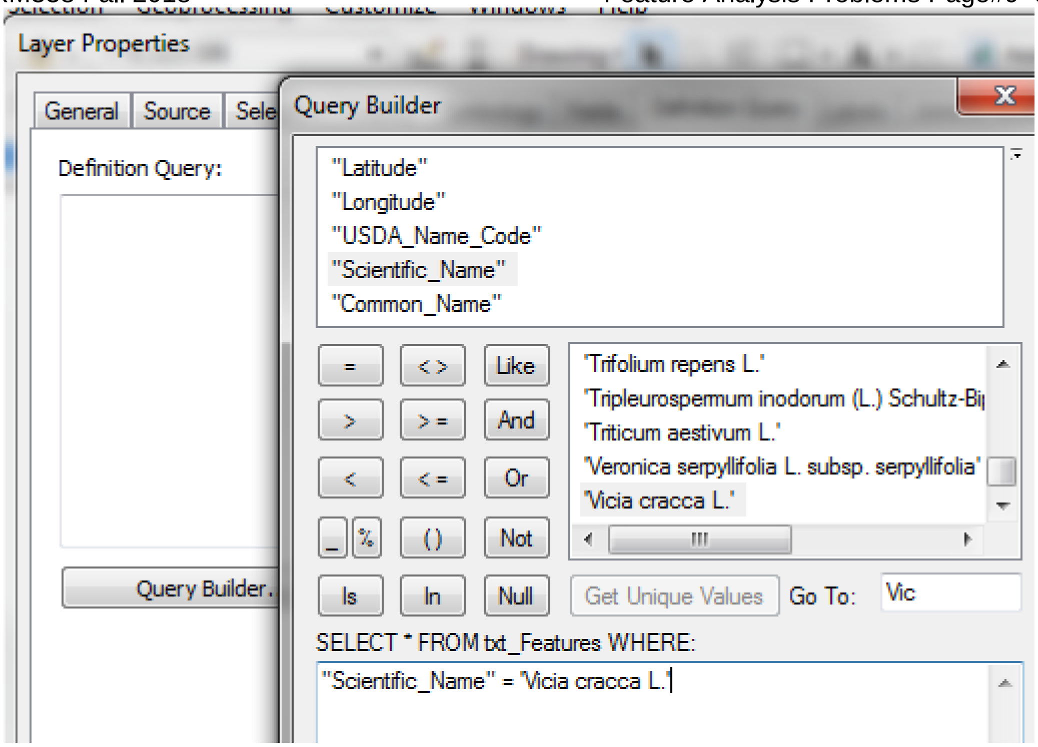
For birch vetch, *Vicia cracca L.* locations, determine the percentage of total locations by elevation zone.



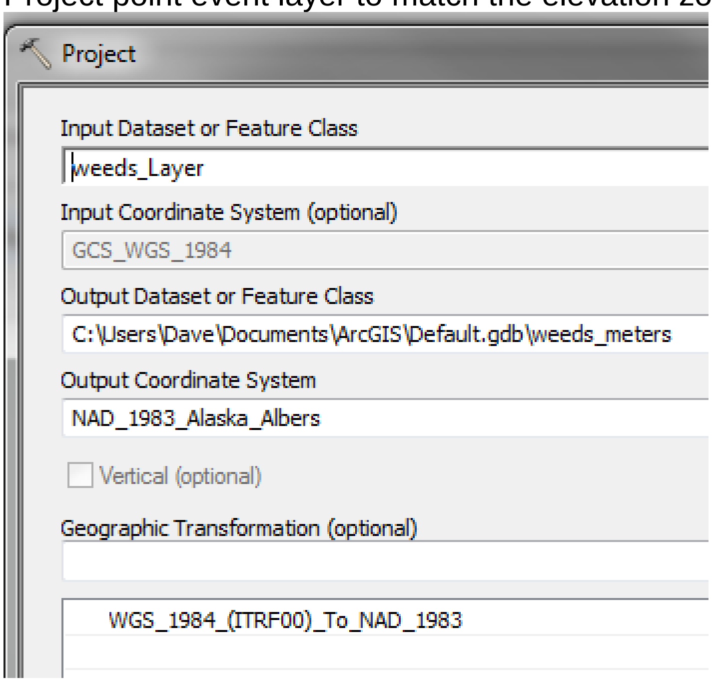
1) Make XY Event Layer from table, defining as GCS WGS84



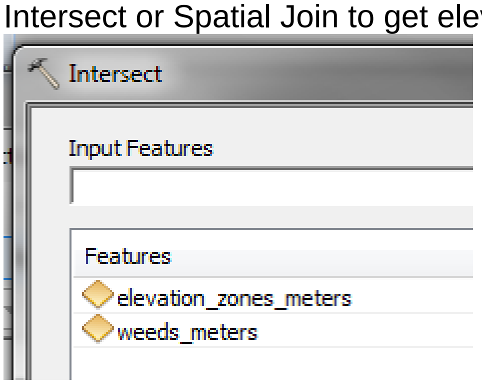
2) Definition query for table **`Scientific_Name` = 'Vicia cracca L.'**

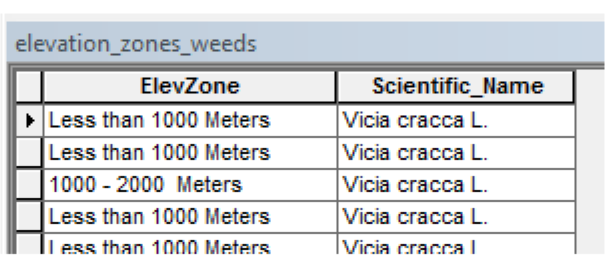


3) Project point event layer to match the elevation zones coordinate system



4) Intersect or Spatial Join to get elevation zone of each Vicia cracca location.

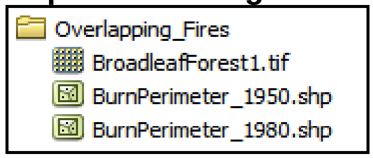




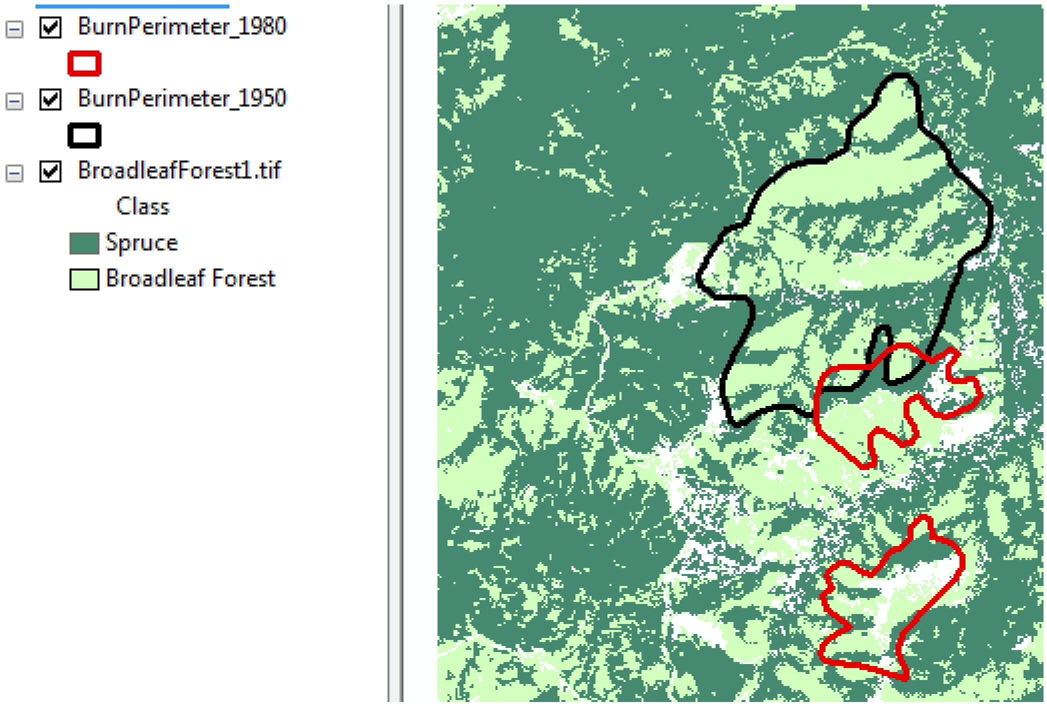
5) Frequency or Summary Statistics

FREQUENCY	ElevZone	Percent
943	Less than 1000 Meters	99.89%
1	1000 - 2000 Meters	0.11%

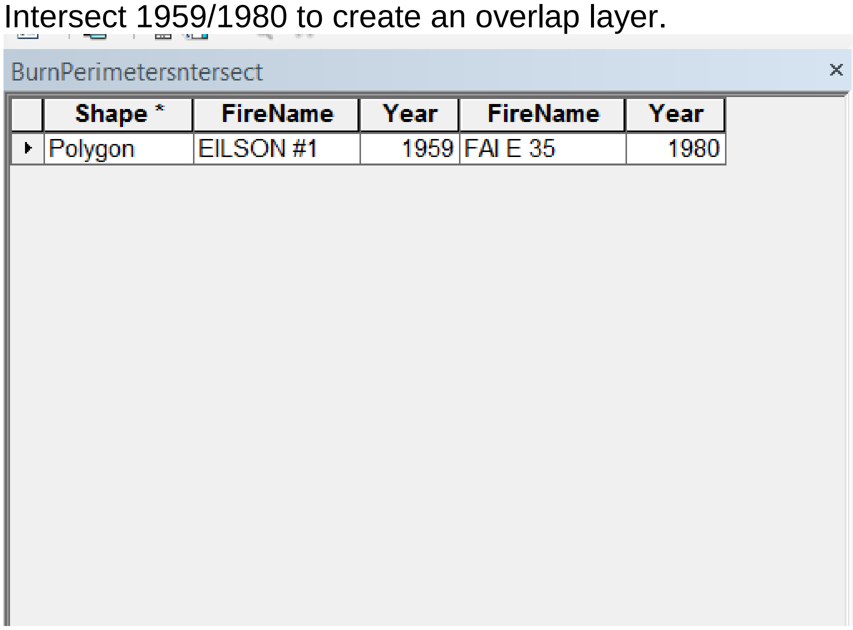
Repeat Burn Vegetation



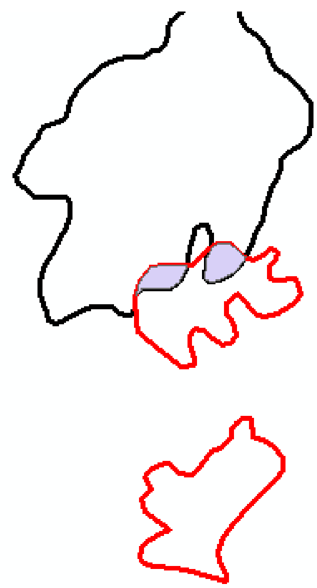
Two polygons represent fire perimeters from 1950 and 1980. Create a table of percent broadleaf forest with each of these fire perimeters, and within the area that burned in both 1950 and 1980.



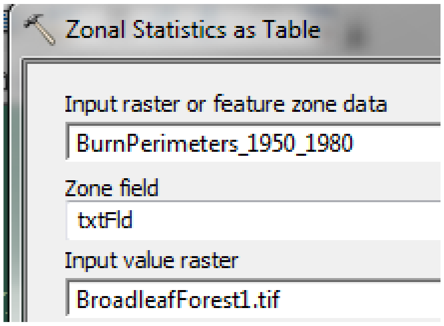
1) Intersect 1959/1980 to create an overlap layer.


BurnPerimetersntersect

Shape *	FireName	Year	FireName	Year
Polygon	EILSON #1	1959	FAI E 35	1980



2) Zonal StatisticsAs Table with each polygon the zone.

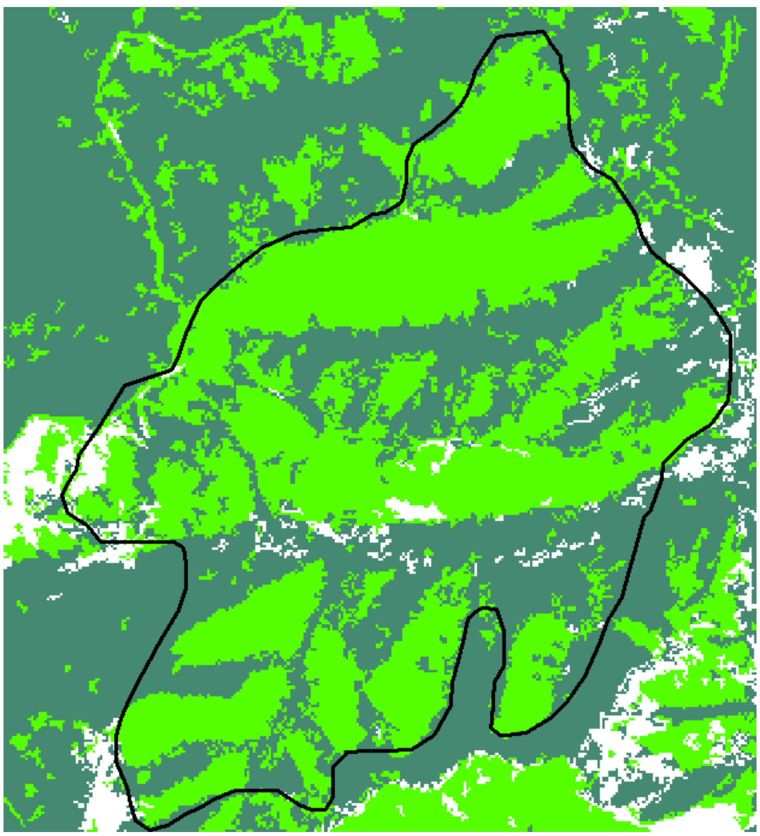


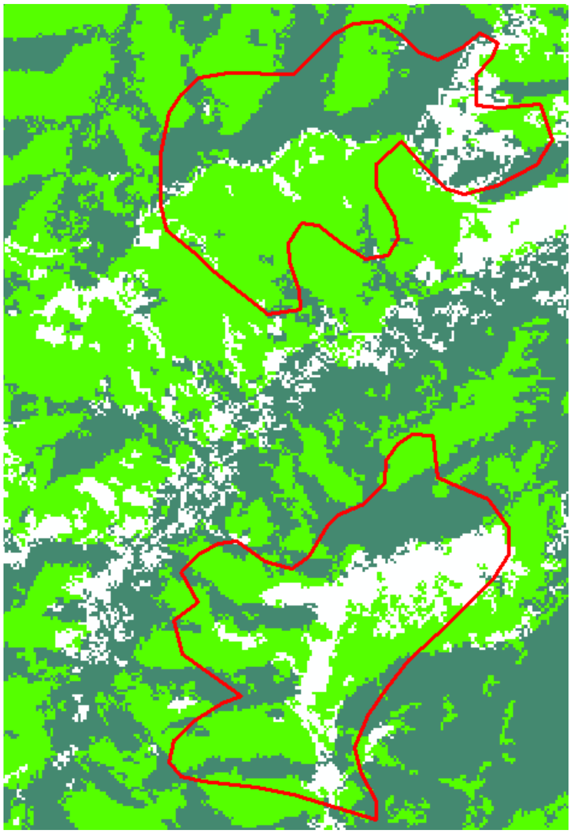
3) Compute percent broadleaf for each table

ZonalSt1959

Year	COUNT	MEAN
1959	40101	58.6%

Year	COUNT	MEAN
1980	13512	58.6%





Broadleaf1950_1980Burn

YEAR	MEAN	Broadleaf
19591980	0.712088	71.2%