

13.9 Highest and lowest elevation stands. Which stand in the Brown Tract is located at the lowest average elevation? Which stand is located at the highest average elevation?

We'll need to have both the elevation (BrownDEM) and stands (stands) GIS databases available for our analysis. In ArcView 3.x, you must enable the Spatial Analyst extension to view a raster database such as the DEM. The following process can lead you to your answers:

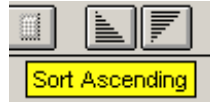
1. Make the stands GIS database the active theme in a view.
2. Select Summarize zones from the Analysis menu.
3. Choose a field in the popup box that uniquely identifies the stands. In this case, we're interested in all stands but want to make sure that each stand is treated individually. Within the attribute data of our management units, a variable named "Stand" exists. It has a unique (non-repeating) number for each stand and will be our choice in this example.
4. Identify the raster database (BrownDEM) that contains data that we wish to summarize for each stand and choose the OK button. You can choose OK again when informed about the inability to chart the result.

No visual output is immediately produced by the procedure described above. Rather, the result should be a table that gives us summary data of elevation slope values for each of our stands. An annotated version of the output showing information for only the first ten stands is given below.

Stats of BrownDEM Within Zones of Stands.shp								
Stand	Count	Area	Min	Max	Frang	Mean	Std	Sum
1	319	343602.7500	441	480	39	470.4201	8.9959	150064.0000
2	2186	2354594.5000	359	491	132	436.0229	32.4074	953146.0000
3	770	829386.0000	316	458	142	398.3792	36.2275	306752.0000
4	2884	3106427.5000	274	419	145	355.0260	30.4901	1023895.0000
5	533	574107.4375	215	315	100	266.9493	24.5102	142284.0000
6	1195	1287164.0000	247	323	76	290.3531	15.6309	346972.0000
7	338	364068.1250	241	312	71	293.8373	13.9774	99317.0000
8	2494	2686349.0000	346	581	235	460.2791	48.0560	1147936.0000
9	337	362991.0000	303	414	111	356.2077	25.9961	120042.0000
10	2395	2579713.5000	183	363	180	269.7420	40.6320	646032.0000

The first variable is the unique identifier for each of our stands. We could join this data to our management file by using this variable as a join item if we so desired (see Chapter 9 for a review of joining operations). This would allow us to map the results. The next variables, "Count" and "Area," list the number of grid cells each stand overlapped and the area that the grid cells represented. This allows us to know the size of each stand. The "Min," "Max," and "Range" returns the minimum, maximum, and the difference between these values for the percent slope in the management unit. The "Mean" is the average percent slope and the "Std" variable is the standard deviation.

We'll need to sort this table to get our answers. Click on the column heading for the "Mean" field. Use the "Sort Ascending" button to reorder the tabular output from lowest to highest average elevation.



An examination of the table should reveal that Stand 213 has the lowest average elevation (138.78) and that Stand 108 has the highest average elevation (646.70).