


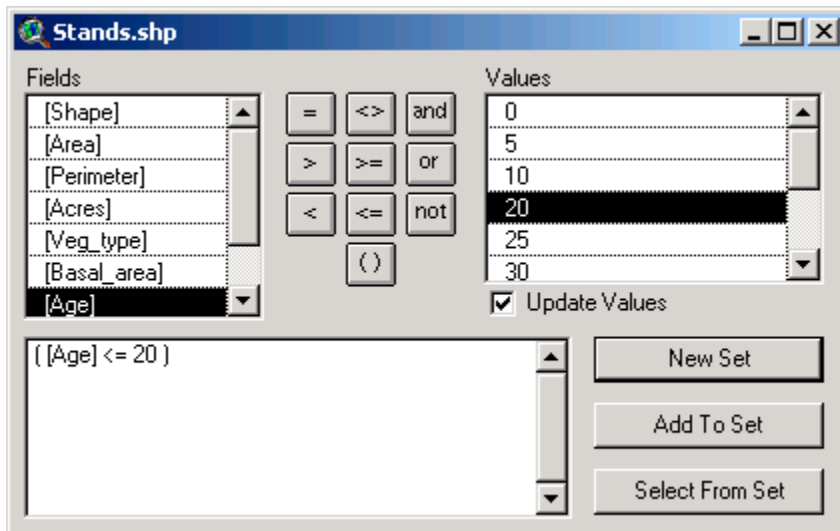
**5.1. Daniel Pickett Forest Annual Report.** For the Annual Report of the Daniel Pickett forest, you have been asked by Hugh Davenport (District Forester) to provide some information related to the forest's resources. Mr. Davenport poses his request as a series of questions:

1. In ArcView, open the Stands.shp GIS database into a View window.
2. Make the Stands.shp GIS database the active database in the View window Table of Contents.
3. Press the Query Builder  button to build a query for questions *a-i*.

From the stands GIS database:


a) How many acres of land have forests  $\leq 20$  years of age?

When the Query Builder dialog box is present, double-click (⌘) "Age" in the "Fields" list box, then double-click the "<=" button, then double-click "20" in the "Values" list box. The query created should resemble the image below.



The query is presented as ( [Age] <= 20 ) within ArcView.

Press the "New Set" button to show the polygons selected in the View window.

Press the Open Theme Table  button to view the Attribute Table for Stands.shp. The polygon records that match the query should be highlighted in yellow.

ArcView GIS 3.2

File Edit Table Field Window Help

11 of 31 selected

Attributes of Stands.shp

Shape	Area	Perimeter	Acres	Veget_type	Basal_area	Age	Mbf	Stand
Polygon	2522098.500	7146.726	57.899	A	200	50	21.2	1
Polygon	9389994.000	18714.068	215.566	C	175	40	12.9	2
Polygon	6761519.000	16103.322	155.223	A	210	55	25.8	3
Polygon	2803427.500	7314.187	64.359	A	250	65	34.2	4
Polygon	7130442.000	14321.127	163.692	C	90	20	3.1	5
Polygon	1559350.500	9008.162	35.797	A	220	55	25.7	6
Polygon	3144825.500	7770.218	72.196	C	150	35	8.7	7
Polygon	678347.313	3278.950	15.573	A	270	75	42.1	8
Polygon	3601950.500	8392.660	82.688	B	20	10	1.3	9
Polygon	1018033.125	4197.604	23.369	C	210	50	21.2	10
Polygon	1417177.250	4942.817	32.535	B	10	0	0.6	11
Polygon	3421375.000	9894.098	78.545	A	290	90	52.0	12
Polygon	5427447.000	12005.038	124.597	A	220	55	24.9	13
Polygon	2957964.250	7227.796	67.905	A	230	60	29.6	14
Polygon	983290.750	4240.553	22.573	B	10	5	0.8	15
Polygon	10706765.000	16504.322	245.795	C	120	30	5.6	16
Polygon	3150030.000	8650.215	72.314	C	140	35	8.9	17
Polygon	2005855.000	7811.168	46.048	B	20	10	1.4	18
Polygon	5728451.500	14774.963	131.509	A	240	65	34.0	19

Press the "Acres" column header button down.  
 Select from the Main Menu System, "Field," then "Statistics." The statistics related to the query should resemble the following:

Statistics for Acres field

Sum: 663.591
Count: 11
Mean: 60.326
Maximum: 163.692
Minimum: 21.742
Range: 141.950
Variance: 1580.578
Standard Deviation: 39.756

OK

From this report window, one can ascertain that 11 polygons were located matching the query, accounting for 663.6 acres of the Daniel Pickett forest.  
 The following queries utilize the same procedures as noted above.

b) How many acres of land have forests > 20 years of age and ≤ 40 years of age?

- Query: ( [Age] > 20 ) and ( [Age] <= 40 )  
 Result: 769.7 acres
- c) How many acres of land have forests > 40 years of age?  
 Query: ( [Age] > 40 )  
 Result: 1066.7 acres
- d) How many acres of land are in vegetation type A?  
 Query: ( [Veg\_type] = "A" )  
 Result: 999.8 acres
- e) How many acres of land are in vegetation type B?  
 Query: ( [Veg\_type] = "B" )  
 Result: 499.9 acres
- f) How many acres of land are in vegetation type C?  
 Query: ( [Veg\_type] = "C" )  
 Result: 1000.3 acres
- g) How many acres of land have average timber volumes per acre  $\geq$  20 MBF (thousand board feet)?  
 Query: ( [Mbf]  $\geq$  20 )  
 Result: 1023.1 acres
- h) How many acres of land have average timber volumes per acre  $\geq$  30 MBF?  
 Query: ( [Mbf]  $\geq$  30 )  
 Result: 435.4 acres
- i) How many acres of land have average timber volumes per acre  $\geq$  40 MBF?  
 Query: ( [Mbf]  $\geq$  40 )  
 Result: 94.1 acres

From the soils GIS database:

- j) How many acres might have a high response to fertilization?  
 Query: ( [Fertresp] = "high" )  
 Result: 844.9 acres
- k) How many acres might have a medium response to fertilization?  
 Query: ( [Fertresp] = "med" )  
 Result: 942.2 acres
- l) How many acres might have a low response to fertilization?  
 Query: ( [Fertresp] = "low" )  
 Result: 712.9 acres

From the streams GIS database (map units are feet):

- m) How many *miles* of Class 1 streams are in the database?  
 Query: ( [Class] = 1 )  
 Result: (17485.249 feet / 5280 feet per mile) = 3.31 miles
- n) How many *miles* of Class 2 streams are in the database?  
 Query: ( [Class] = 2 )  
 Result: 2.15 miles
- o) How many *miles* of Class 3 streams are in the database?  
 Query: ( [Class] = 3 )  
 Result: 2.03 miles

p) How many *miles* of Class 4 streams are in the database?

Query: ( [Class] = 4 )

Result: 2.35 miles

q) Why might these values be misleading, and what caveat might you provide to Mr. Davenport?

The streams GIS database contains streams that lie outside of the Daniel Pickett forest boundary. For an accurate measurement of the length of streams by stream class within the boundary of the Daniel Pickett forest, one would need to first develop a GIS database that contains only the streams that lie within the forest boundary.