

GIS Lab #5: Creating and Modifying Tables

Objectives:

- **Adding and Editing Tables**
- **Selecting and Summarizing Records**
- **Joining and Relating Tables**
- **Create a Graph**
- **Export a table**

Introduction:

More than 80% of a GIS project is devoted to data collection, cleansing, manipulation, and importation. All this has to occur before any analysis can begin take place. Once the data is in place, in its proper format, then the GIS user can start working with it to produce meaningful results.

The purpose of this exercise is to introduce the user to the process of creating and importing tabular data. Several methods are practiced, each with their own strengths and weaknesses. The best method depends on several factors including the user's expertise with different software packages, availability of software, the data itself, time, money, and the type of project.

At the conclusion of this exercise, several tabular data conventions will be discussed which will aid the user in selecting the best method to meet their goals.

1. Adding and Editing Tables
 1. Make a folder for Lab05
 2. Copy **plots.dbf and tables.mxd** to your new folder
 3. Start ArcGIS and open **tables.mxd** (solve the problem of the data source)
 4. Add **plots.dbf** table to the map document
 5. Right-click and **Open** the table.
 6. Change the table display. Right click>properties> Uncheck the fields **OID, Section** and **Plotnum**, and type "Plot ID Number" in the **Alias** field for the **Cfi4_plot** field name.
 7. Click **OK** to apply these changes.
 8. Edit cell values and add a record. To edit the values in a table, you must first start editing
 9. Notice the difference in appearance between editable and non-editable state.
 10. Find the word "CHUMP" and replace it with "CLUMP"
 11. Next, find the record in which the value for **DISTANC2** is too high. It should be fixed to read **147**.

12. There is one record which was mistakenly not entered. It should have these values:

<i>Section</i>	<i>Plot number</i>	<i>Plot ID Number</i>	<i>Desc 1</i>	<i>Bearing 1</i>	<i>DISTANC 1</i>	<i>Desc 2</i>	<i>Bearing 2</i>	<i>DISTANC 2</i>
3	828	3828	DF	N34E	13.8	DF	S76E	28.8

13. Add fields and calculate values. Table must be set to a non-editable state before adding fields.

14. Click the **Options** button and **Add Field**.

15. Add a field Name: **meters1**, Type: **float**, Precision: **6**, scale: **2**

16. Right-click the field heading for **meters1** and select **Calculate Values**

17. In the **Field Calculator**, build the expression by double-clicking **DISTANC1**, then entering ***0.3048**

18. Click **OK** to perform the calculation

19. When you have finished editing the table, select **Stop Editing** from the **Editor** menu.

2. Selecting and Summarizing Records

Query a table and display the selected set

1. Open the attribute table for the **Conifer Volume**
2. **Options** > **Select By Attributes** 'BA1994HPA>100'
3. Click **Apply** and then **Close**
4. To see only the selected records, click the **Selected** button.
5. Switch selected sets by selecting **Options** > **Switch Selection**
6. Click **Switch Selection** button again to return to the originally selected set.

Get descriptive statistics on the selected set

1. Right-click the field (**SV61994CPA**) and click **Statistics**.
2. Descriptive statistics are listed in the popup. Note that these are descriptive statistics only for the selected set of records/features.
3. Close the **Statistics** dialog and Clear the selected set.
4. Generate statistics again.

Modify a selection

1. First, make a query that selects plots with hardwood basal area (**Ba1994hpa**) greater than 80

2. Selecting out polygons with (**BA1994CPA**) greater than 100. choose the **Select from current selection** method

Summarize a table

1. Insert a new data frame and add the **packgis\forest\stands** layer by dragging it from ArcCatalog into ArcMap.
2. Open the **stands polygon** attribute table
3. Make the **Species** field active, and then select **Field > Summarize** from the menu.
4. Add the **sum of area** to the summary table, as well as the **average site index**.
5. Open the table

Joining and Linking Tables

Join tables

1. Right-click the **Conifer Volume** layer and select **Joins and Relates > Join....**
2. Select the choices as below. This will join the **plots** table to the **Conifer Volume** table, based on the **CFI4_PLOT** field.
3. Create the index when prompted.
4. Open the **Conifer Volume** table.

Use a joined field for layer display

5. Make the **Pack Forest CFI** data frame active, and clear any selected features (**Selection > Clear Selected Features**).
6. Change the legend for the layer so that it is using a **Graduated Color** display with the defaults of **Natural Breaks** and 5 classes, based on the **plots.meters1** field. Select the **Color Ramp** to orange monochromatic.
7. Add the **\packgis\forest\boundary** data source as a polygon layer with a contrasting color, and make sure it draws before the CFI plots

Link tables

1. Activate the **New Data Frame**.
2. Right-click on the **stands polygon** layer and select **Joins and Relates > Relate...**
3. relate the **stands polygon** table to the **spec_area** table by the **SPECIES** field
4. You will not notice any changes.
5. Open both tables (**stands polygon** and **spec_area**; in order to find the **spec area** table, click the **Source** tab in the Table of Contents).

6. Select the record from the **spec_area** representing **DOUGLAS-FIR** by clicking on the cell in the leftmost column.
7. From the **Options** menu, select **Related Tables > stands_species : polygon**. This selects records in the **stands polygon** attribute table that have the value of **DOUGLAS-FIR** for **SPECIES**
8. Part of the value of relating tables is that it allows you to make very rapid selections on data. You can easily select, in order, **DOUGLAS-FIR** stands, then **MIXED-REDCEDAR**, then **RED ALDER**. Imagine how much longer this would have taken if you had used **Select by Attributes** to make a selection based on species.

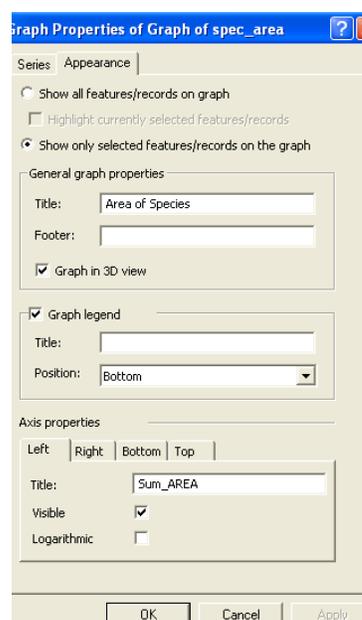
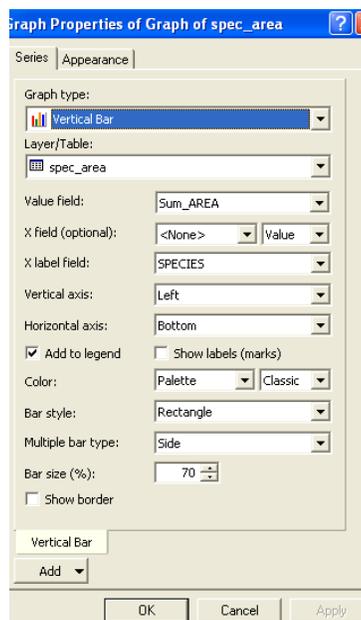
Remove links and joins

1. Remove the join (right-click the **Conifer Volume** layer name and select **Remove Join(s) > plots**).

Create a Graph

Create a graph for selected features

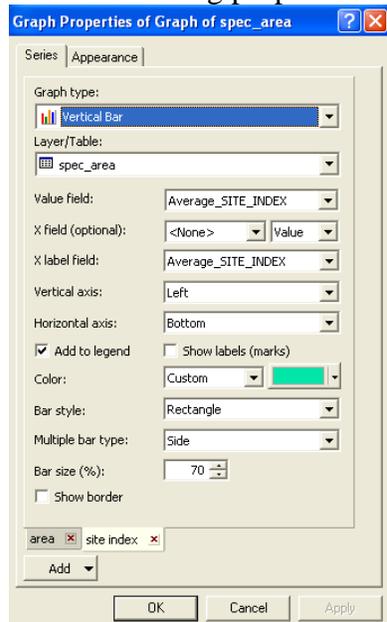
1. Select the records representing **REDCEDAR** and **RED ALDER** in the **spec_area** table (use the <CTRL> key to select more than one record) and from the **Options** menu, select **Related Tables > stands_species : polygon** to select related features in the **stands polygon** layer
2. **Tools > Graphs > Create**
3. Set the following properties



4. Click **Apply**

Graph multiple fields

5. Right-click the title bar for the graph and select **properties**.
6. Click **Add**> New Series
7. Set the following properties



- 8.
9. Click OK

Change the graph type

1. Open graph properties and select the **Pie** graph.
2. Alter the graph properties and Advanced properties

Export a graph

1. Right-click the title bar of the graph and select **Export...**
2. Save the file as **spec_area_pie_graph** in **WMF** (Windows Metafile) format.
3. You can insert it in any application

Export a table

1. From the **Options** menu, select **Export**.
2. Click the **Browse** button, which will allow you to specify the output location, file name, and file type.

Close the map document