

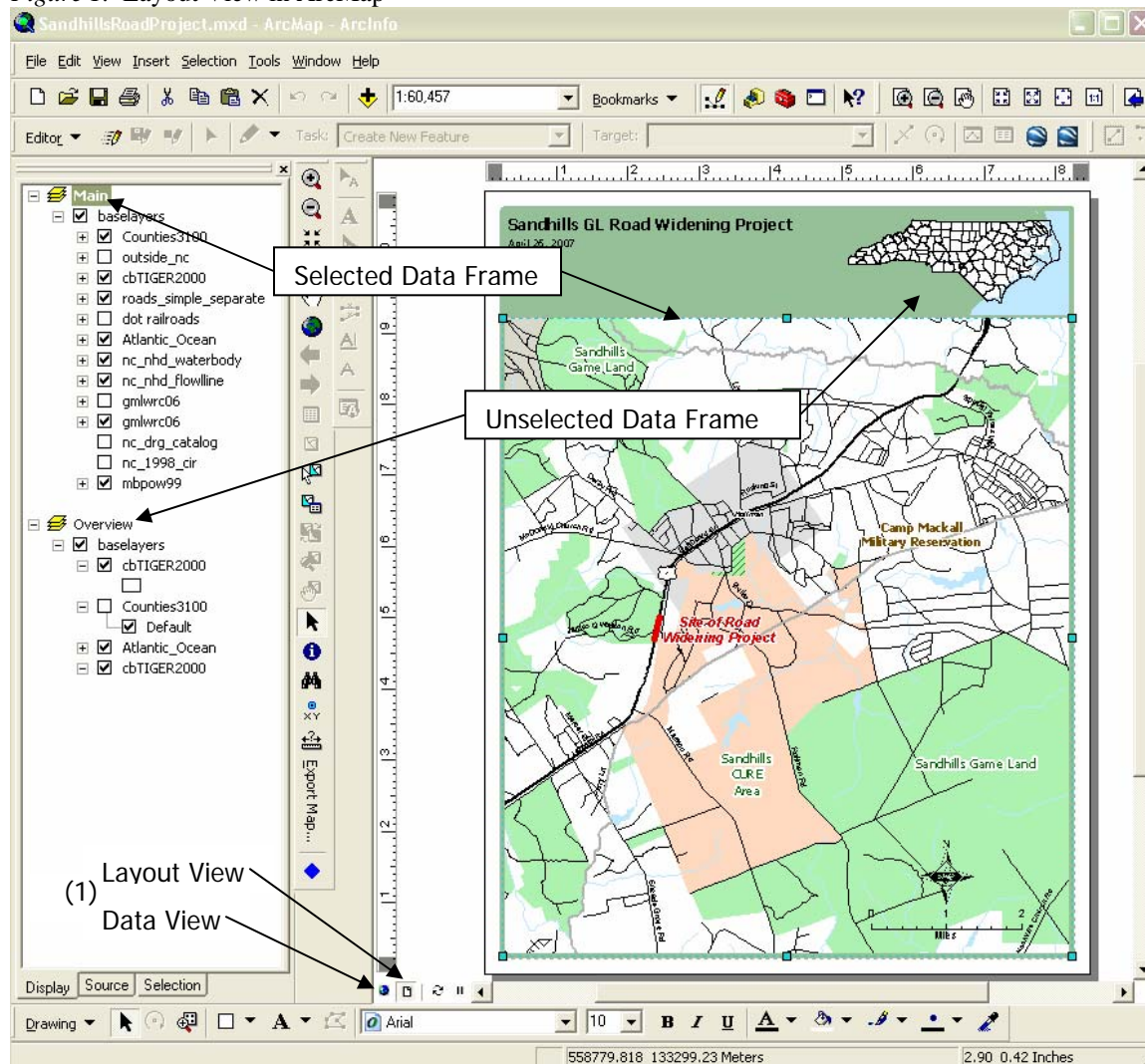
Creating Labels in ArcGIS

ArcGIS provides many ways to label the features in shapefiles and feature classes. Labels can be stored in such a way as to move with the map (called Annotation - good for roads), or stay in a particular place on the layout (called Graphic Text - good for titles, legends, north arrows, etc.) A third method is to have ArcGIS create the labels for each feature dynamically (i.e., you don't have to place each label individually). This document will go through the basics of making labels, and some tricks to set up labels quickly. Let's get started!

ArcMap Basics

Before getting into creating labels, let's go over important issues to keep in mind when making a map. ArcMap provides two ways to view your map. One is Data View, where you can view all the layers on the left, pan around, etc. Data View is used primarily for working with the data (editing and creating features, and modifying attributes). The other is Layout View. In Layout View, you can see the borders of the page, and place multiple Data Frames (a window containing a map), titles, labels, north arrows, legends, etc. on the page (Figure 1).

Figure 1. Layout View in ArcMap

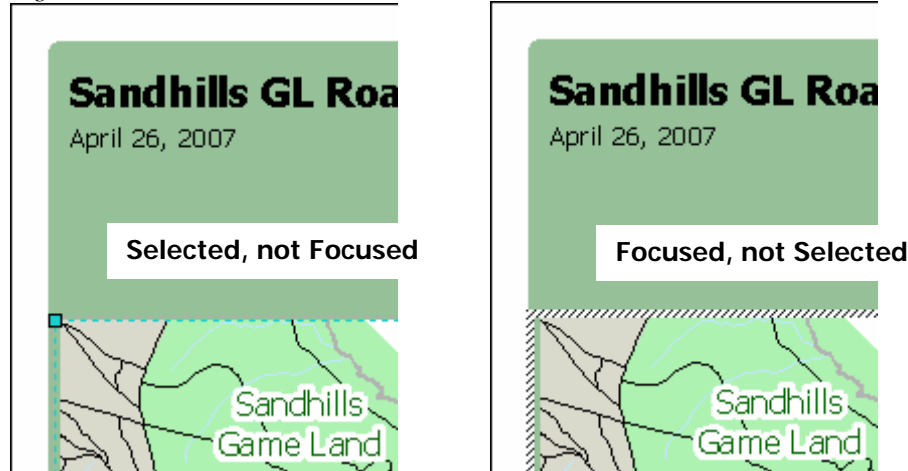



Layout View is primarily for formatting your map for printing. You can toggle between views from the View menu or by using the buttons at the bottom left of the map (1).

Focusing the Data Frame

When in Layout View however, you can make your map behave as if it is in Data View by “focusing” the Data Frame (i.e., you can edit features and modify annotation, as we will see below). **It is very important to know whether the Data Frame is “focused” when working in Layout view.** When “focused” the border of the Data Frame will appear thicker (see Figure 2 for illustration).

Figure 2. Selected and Focused Data Frames



You can focus the data frame by either double-clicking on the data frame, or selecting the data frame and clicking the *Focus Data Frame* button  on the Layout toolbar.

Know the View You're In

Now, the method used for creating or editing a label is virtually identical for Graphic Text or for Annotation (see sections below). The only difference is what view you are in and whether the Data Frame is focused or not. Table 1 shows when each type of label is editable and visible.

Table 1. Functionality of Label Types in Different Views


| Label Type | Data View | Layout View (not focused) | Layout View (focused) |
|--------------|-----------------------------|----------------------------|----------------------------|
| Graphic Text | Not Visible Not Editable | Visible Editable | Visible Not Editable |
| Annotation | Visible Editable | Visible Not Editable | Visible Editable |

Now that we've covered a bit of the basics, lets move on to actually creating some labels!



Creating Labels

As mentioned in the previous section, labels (be they Graphic Text or Annotation) are created in the same way. There are two basic methods:

Method 1: Insert Text

1. Pan to the location of the map where you want to insert a label.
2. In the *Insert* menu, click *Text*. A text box will appear in your map.
3. Type in the text you wish to appear on the label.
4. Once you have completed typing, click somewhere else in the map.
5. If you wish to move the label, click on the *Select Elements* tool , and click on the label to select it. Once selected, you can click and drag the label around the map.


Method 2: New Text Button

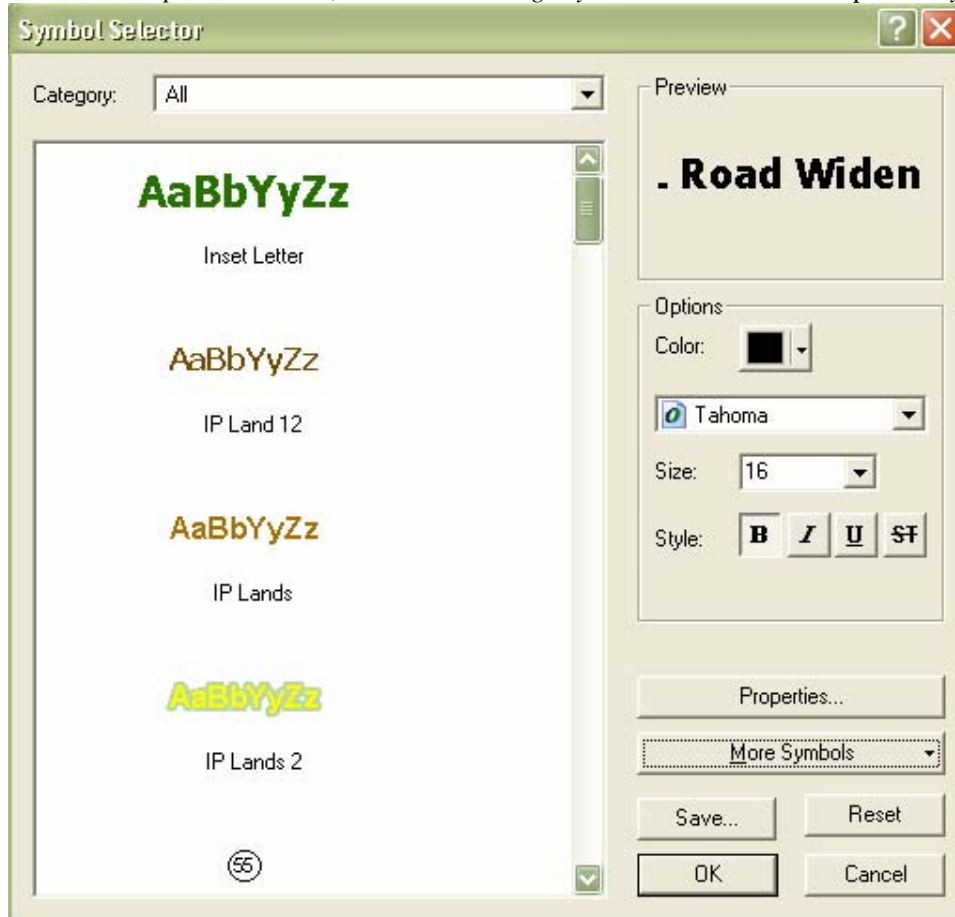
1. Pan to the location of the map where you want to insert a label.
2. On the *Drawing* toolbar, click on the *New Text* button .
3. Click on the map where you wish to place the label. A text box will appear in your map.
4. Type in the text you wish to appear on the label.
5. Once you have finished typing, click somewhere else on the map.
6. If you wish to move the label, click on the *Select Elements* tool , and click on the label to select it. Once selected, you can click and drag the label around the map.

Changing Label Appearance

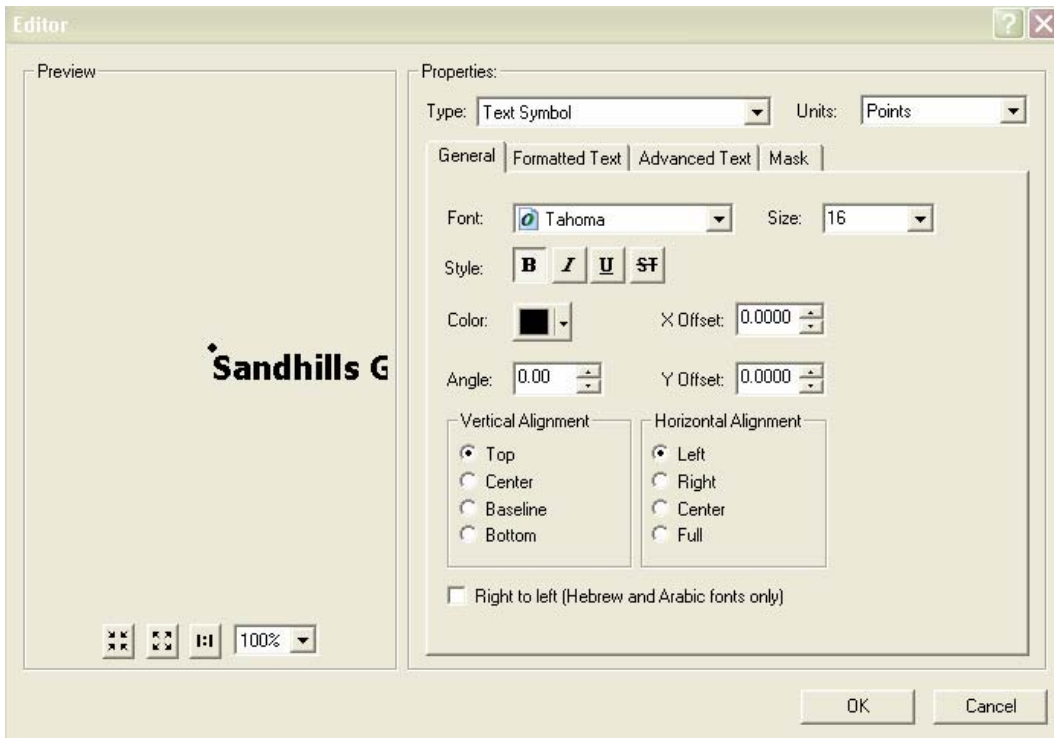
Symbol Selector

Once you have created your label, there are an almost infinite ways in which to change the appearance (or format) the label. Below are some of the basics.

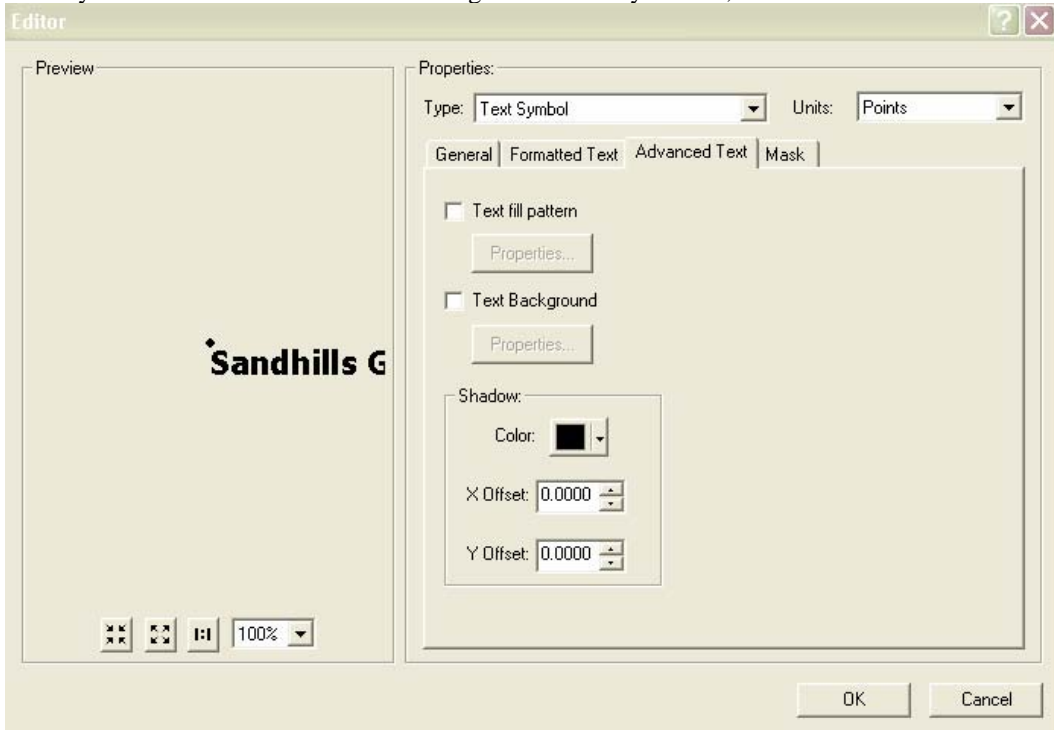
1. Click on the *Select Elements* tool , and then click on the label to select it.
2. Open the *Properties* window by right-clicking on the label, and choosing *Properties* from the menu that appears.
3. In the *Properties* window, click on the *Change Symbol* button. This will open the *Symbol Selector* Window



4. In the left pane, you will see that there are several preset label styles to choose from. Note that in the upper right corner of the window, a preview of your text is shown. If none of those styles are appropriate, you can modify font type, size, color, and style in the *Options* box on the right. If you wish to make more advanced formatting changes, click on the *Properties...* button. This will open the *Editor* window.



5. There are many options to change your label from this window (too many to go through in such a short “tips” document), but we will cover the most common options. In general, the best way to familiarize yourself with the options is to play around with the options here, and see what it looks like in the “Preview” window on the left. From the “General” tab, you can change the vertical alignment and horizontal alignment, as well as the angle of the label.
6. If you wish to create some sort of background behind your text, click on the “Advanced Text” tab.




7. If you wish to create a shadow under your text, modify the *X Offset:* and *Y Offset:* values until you see the shadow appear as you like it in the preview window. You will also want to change the shadow color to gray or some other color. For creating a label box with a pointer, check the *Text Background* box, and click on the *Properties...* button if you wish to modify the appearance.

8. If you wish to place a *Halo* around the text, click on the *Mask* tag, and click on the *Halo* button, then change the *Size:* value to determine the thickness of the halo.
9. Once you have finished formatting your label, click on the *OK* buttons back through all the windows until you are back to your map.

Drawing Toolbar

You can also modify the appearance of the label using tools on the *Drawing* toolbar. Many of the buttons on this toolbar are similar to other programs you are already familiar with (Font , Font Size, Font Color, Fill Color, etc.) However, if you wish to rotate the text, you can use the “Rotate” tool:

1. Select the label you wish to modify by clicking on the *Select Elements* tool , and then clicking on the label to select it.
2. If you wish to rotate the label, click on the *Rotate* button on the “Drawing” toolbar.
3. Click on your label, and rotate it until it is in the appropriate orientation.

Again, these methods are the same whether you are working with Graphics Text or with Annotation. The next two sections will deal with how to manage each of these types of labels.

Annotation

Annotation is attached to the Data Frame, stored in the .mxd document, and moves with features in a data frame when panned. This makes it ideal for labeling features in a shapefile or feature class. ArcMap allows you to sort Annotation into groups for easier organization. For instance, you may want to group all of your road labels in one group, town labels in another group, tract names in another group, etc. Once they are grouped, you can turn each group on or off separately.

Selecting the Active Annotation Group

Since there can be more than one annotation group in a map, you must tell which Annotation you wish to work with before adding labels to the group.

1. Make sure you are in the correct Data Frame.
2. Click on the *Drawing* button on the toolbar, and click on the *Select Annotation Target* button. A list of all annotation groups will be displayed. The Group with a check next to it is the currently active Annotation Group.
3. Click on the Group you would like to be active.

Now, when any text is added as Annotation, it will be added to the Annotation Group you selected.

Creating a New Annotation Group

If you would like to create a new Annotation Group:

1. Make sure you are in the correct Data Frame.
2. Click on the *Drawing* button on the toolbar, then click on *New Annotation Group*. The *New Annotation Group* window will appear.
3. Type in the appropriate *Annotation Group Name*:
4. Here you can set the *Scale Range* for the Annotation group by clicking *Don't Show When Zoomed*. If you select a value in *Out Beyond*, the Group will not be visible beyond that scale of viewing. If you select a value in *In Beyond*, the Group will not be visible when zoomed in below that level.
5. Click on the *OK* button.

You have now created a new Annotation Group that will appear in the list for that Data Frame.

Editing Annotation Group Settings

You can edit the Settings for an Annotation Group in the *Data Frame Properties* Window.

1. Right-click on the Data Frame of interest in the Table of Contents (the left panel of ArcMap).
2. Choose *Properties...*
3. Click on the *Annotation Groups* tab. You will see a list of Annotation Groups associated with the selected Data Frame. You can change the visibility of the Group by checking or unchecking the checkbox next to each group. You can also add or remove groups here using the buttons on the right.

4. If you would like to modify the settings of the Annotation Group (the ones set up in the previous section), you can highlight the Annotation Group of interest, and click on the *Properties...* button.

Dynamic Labeling

ArcMap can create labels based on attribute fields in the shapefile or feature class. These labels are created each time the map is refreshed, so it can cause your map to draw slowly.

Creating Dynamic Labels

1. Right-click on the layer you wish to label, and choose *Properties*. This will open the Layer Properties window.
2. Click on the *Labels* tab. This will allow you to change the appearance of labels for each feature displayed.
3. In the *Method...* box, you have two choices. If *Label all features in the same way* is selected, every feature will be labeled in the same manner. If *Define classes of features and label each class differently* is selected, you can set up classes by building queries.
4. In the *Text String...* box, you can determine what will appear in each label. The drop-down list is a list of fields in the attribute table for the layer. For more advanced labeling, you can click on the *Expression* button to build labels using multiple fields from the attributes.
5. In the *Text Symbol...* box, you can set the appearance of the label text. Select the desired font, font size, font color, or click on the "Symbol..." button for more advanced labeling (see *Symbol Selector* section above)
6. In the *Other Options* box, there are two buttons.
 - a. *Placement Properties* – Here you can change where the label is placed in relation to the feature being labeled. For instance, if it is a road feature, you can have the label placed following the road, or strictly horizontal. You can also control whether to label all features, or to only place one label per unique name.
 - b. *Scale Range* – Here you can change when labels appear on the map (e.g., at small scales you may not want road labels to appear, but when you zoom in, you want them to show up).
7. In the *Pre-defined Label Style* box there is the *Label Styles...* button. Here you can pick a label style already created and apply it to the layer.
8. Once you have completed setting up the appearance of the labels, check the *Label features in this layer* box, and click on the *OK* button.
9. Your labels should now appear on the map.

Converting Dynamic Labels to Annotation

Once you have set up dynamic labeling in the previous step, you can convert these labels to Annotation so that you can tweak or modify each individual label separately.

1. Right-click on the layer with labeling already set up and visible (see *Creating Dynamic Labels* above).
2. Choose *Convert Labels to Annotation*.
3. In the *Store Annotation* box, click on *In the map*.
4. In the *Create Annotation For* box, click *Features in Current Extent*, if you wish to only have the labels currently visible on the map created. If you leave *All Features* checked, the process may take a very long while, and the map may be slow to open and use.
5. If you wish to change the name of the Annotation Group, click in the *Annotation Group* field, and type in the desired name.
6. Click on the *Convert* button, to create the Annotation Group.

You will now be able to edit and create labels in this new Annotation Group.

Questions?

Scott Anderson
GIS Biologist
Division of Wildlife Management
North Carolina Wildlife Resources Commission

p 919.707.0054
c 919.280.3967
f 919.707.0067
scott.anderson@ncwildlife.org

mail:
1722 Mail Service Center
Raleigh, NC 27699-1722

physical:
1751 Varsity Drive, Room 456
Raleigh, NC 27606

N 35° 46' 27.84"
W 78° 40' 42.21"