Field Map Layout

Map layout is a virtual page on which you can place and arrange map elements such as titles, north arrows, legends and scale bars and get a preview of the map before printing. The map elements should be placed precisely to create useful, visually pleasing maps. In this activity a map layout of the different spatial data available for a selected field at Mead, Nebraska (University of Nebraska-Lincoln Agricultural Research and Development Center) is created and colorful maps of yield mapping, soil mapping and interpolation are produced.
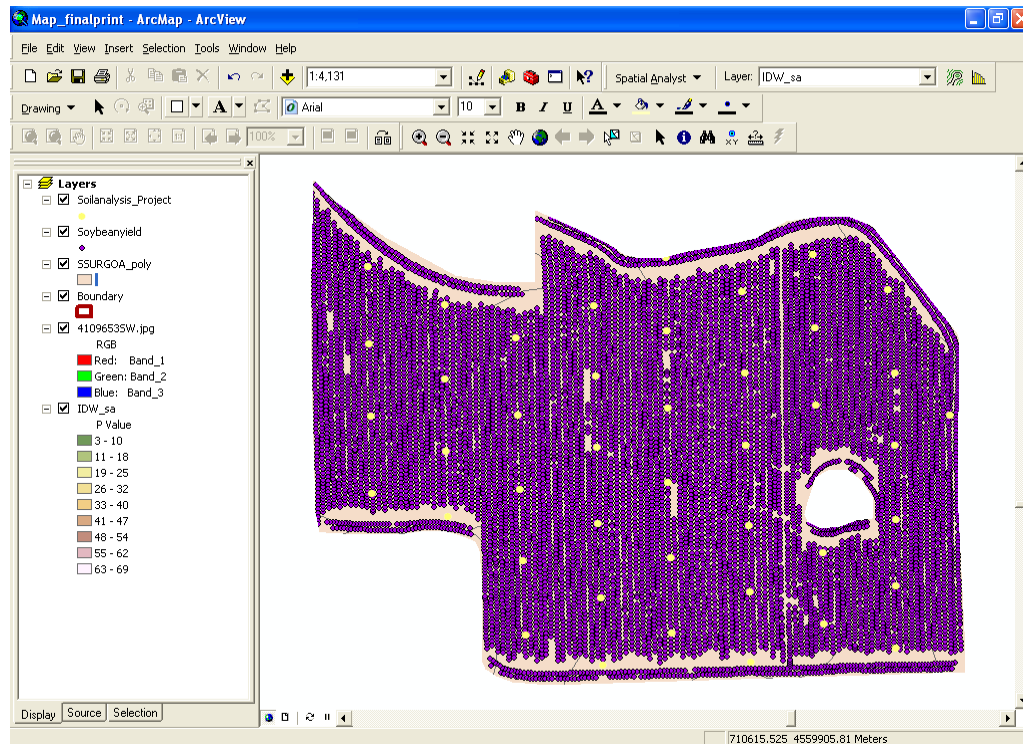

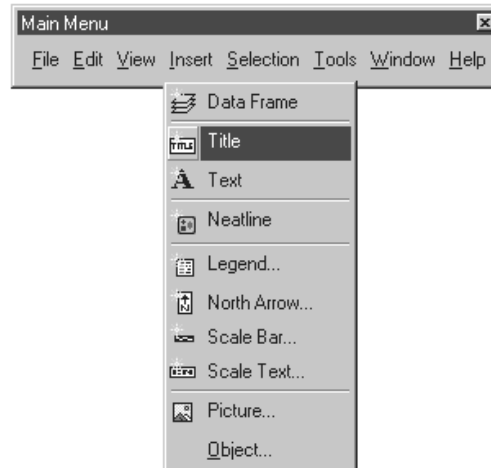## *Explorer's Guide*

Before You Start

Review the elements of a map and discuss their importance for mapping.
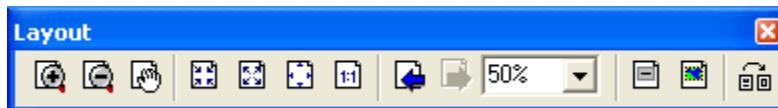
Learning by Doing

1. Open ArcMap project PrintMap.mxd by navigating to C:\4HGIS\FieldMapLayout or the directory specified by your instructor. The map will take some time to open up. This map was created by adding Boundary.shp, image 4109653SW.jpg, soybean yield data for the year 2002, importing SSURGO data and by performing IDW interpolation as discussed in activities 26 through 28.Your map should be as shown below.
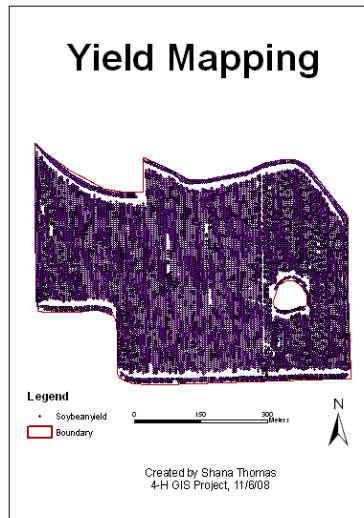
2. Move the layer above other layers if you cannot see it on the map. Change the symbology as desired.

3. Now you are ready to create a layout and print the map. To do this, go to *Layout View* under *View* menu. Insert the map and major map components (Activity 13) by selecting Title, Legend, North arrow, and Scale bar from *Insert* menu. Once they are placed on your map layout, you can edit their appearance, right-click to change their properties, and select each element to reposition it or scale its size as needed.
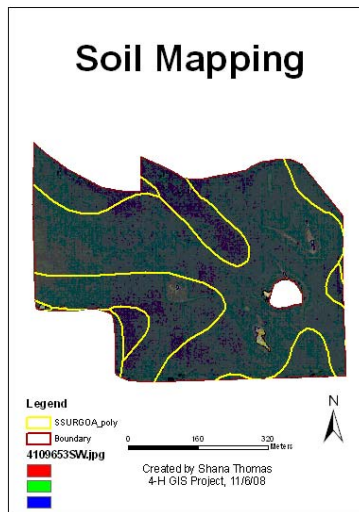
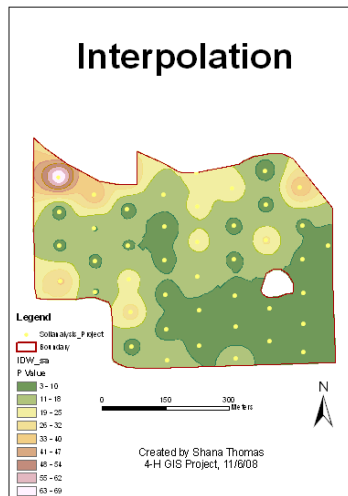4. The Layout toolbar is used for navigating around the page in your map layout.

5. To create a yield map of the field, turn off all the layers except Soybeanyield and Boundary. Your map should be as shown below. Go to File > Print Preview to make any changes before taking a print out of your yield map. Make sure the area your map covers does not run off the printer's page and is not too small. Change the page size or orientation to fit your map on the printer's page. Resize your map by enabling scale to fit if your map is larger than the printer's page.

6. Create and print out a soil map by turning off all the layers except Boundary, SSURGOA_poly and image. Insert title, scale bar and legend. Your map should be as shown below.
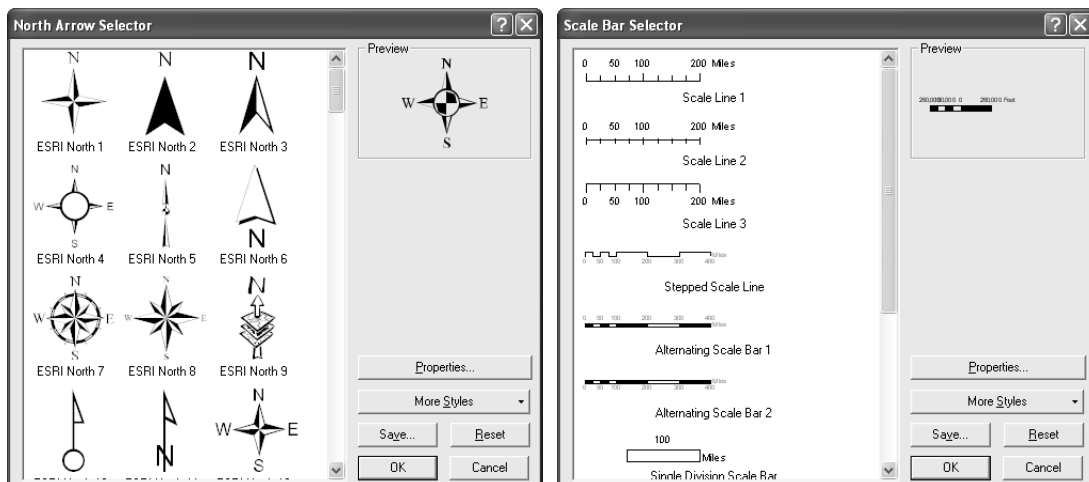

7. Similarly print out the interpolation map by turning off all the layers except Boundary, Soilanalysis_Project and IDW_sa layers. Insert title, scale bar and legend. Your map should be as shown below.

How Does It Work

Different analysis are possible in a field if you have soil data and yield data. Why is the yield low in certain areas? Is yield related to the type of soil? Mapping a field gives you a better vision of the resulting analysis.

When using ArcMap software, View and Layout modes are available to work with data. While View mode is used to manage data layers, Layout mode allows constructing actual maps, including all necessary map elements (title, legend, scale, north arrow, etc.). Previewing layout enables seeing actual maps before it they are sent to a printer. There is a variety of different styles for all map elements that make each map a unique creation of art and science (see example north arrows and scale bars below).

Additional Challenge

Create and print out maps of the selected field combining several spatial data together.

Vocabulary

Layout *is an on-screen document where map elements are arranged for printing.*
Legend *is a reference element of the map that lists and explains the colors, symbols, line patterns, shadings and annotation used to construct the map.*
Scale *is the ratio or relationship between corresponding distances shown on the map and in reality.*
North Arrow *is a map symbol showing the orientation of the map.*

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