



ARCH1291 – Visual Studies II
Week 8, Spring 2013
Assignment 7 GIS I
Prof. Alihan Polat

Visual Studies Exercise, Assignment 07 (Architectural Paleontology) Geographic Information Systems (GIS), Part II

Medium: GIS
Concept: Basic Skills – Visualizing Data
Date: 01/22/13

Subject: Visualizing Data for Countries / 2

THIS IS THE SECOND PART OF THE GIS EXERCISE.

READING for the coming week: Manuel Delanda, Deleuze, Diagrams, and the Genesis of Form

INTRODUCTION

This topic involves an analysis of historic data on country level, using the following indicators:

- GDP
- Climate (Average Annual Temperature)
- Population
- Land Area
- CO2 Emission Level
- Percentage of Urban Population

In this exercise you will work with a team of three to four people to explore a topic comparing how factors in the region where your house(s) are located potentially affect the local architecture. These could include urban to rural population ratios, wealth, climate, or other factors--whatever information you find in the data folder can be used. For this week's analysis, you can use either current or historical data.

The indicators in the data folder are derived and joined from multiple datasets,¹ with the goal being that the classwork overall provides insights into the factors that may lead to variations in architecture across countries/regions.

Data inventory for this exercise:

- World_Counties.gdb: A geodatabase file with country borders and an attribute table for:
 - GDP (Data From 1600-2008)
 - Population (Data From 1600-2030 projected)
 - Land Area (Data from 1920-2010)
 - CO2 Emission Value (Data from 1960-2008)
 - Urban Population Percentage to Total Population (Data from 1960-2008)
- Cities.shp: A shapefile major city location points
- Evttempc: A Raster dataset that shows average temperature values from 1950-2010 in Degrees Celsius.

Part II Process

1. Choose people to work with that have projects geographically close and contrasting to yours. For example, Finland and Mexico would make good contrasts
2. At this point, you have two maps from the previous part of the exercise.
 - Climate (average Annual Temperature)
 - Population
3. Load the last map file for which you created population maps.
4. Save this map as a new map file.
5. Choose the data you will be working with, and decide the thesis (premise) you will be exploring as well as how you intend to represent this (ie. What symbology (heat map or dot representations). This part of the assignment will be done in class. **Communicate with your professor and get their feedback before proceeding.**

You will meet with your group during the week to finish your representation, and come to class prepared to present your findings in ArcMap.

6. Some GIS pointers that may help you as you work:

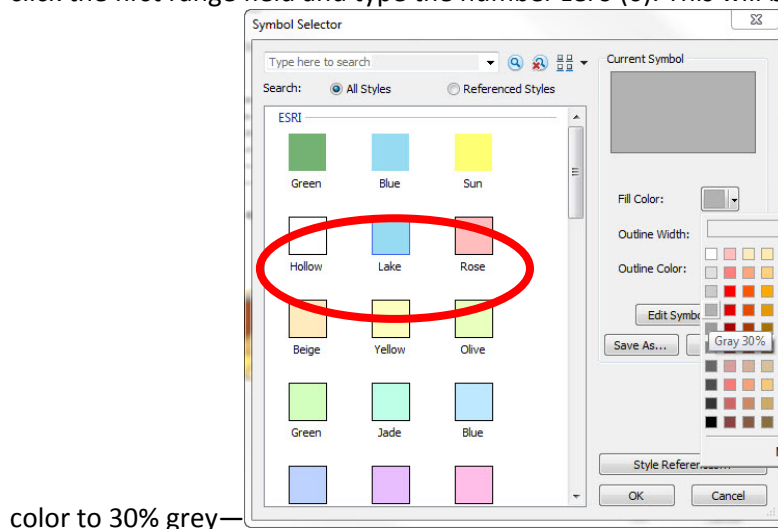
¹ There are some GDP values for certain countries that go back to the 17th century. Since there is no record of indicators before the modern era, all the historic data is derived and calculated by using models. All the data after 1969 are derived directly from World Bank Yearly Reports.

There is one easy way to copy the symbology from an existing layer. When you are in the symbology tab, you can click import and choose the source layer that this layers symbology will be based on. Usually this is easier and more efficient than doing it all over again.

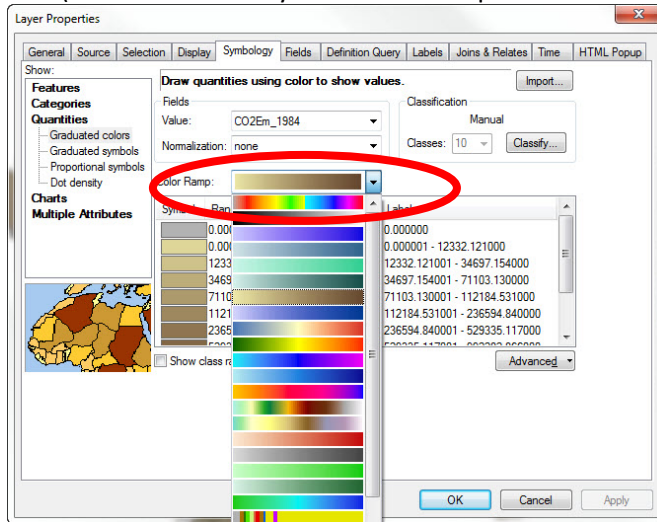
7. Your map extents should be the same as the previous maps. Make sure the display scales are consistent and other layers that show your topic's city and country name labels are visible.

Export your map as a PDF. Since all the data on these maps are vector based, you can control the colors and line thicknesses in Adobe Illustrator.

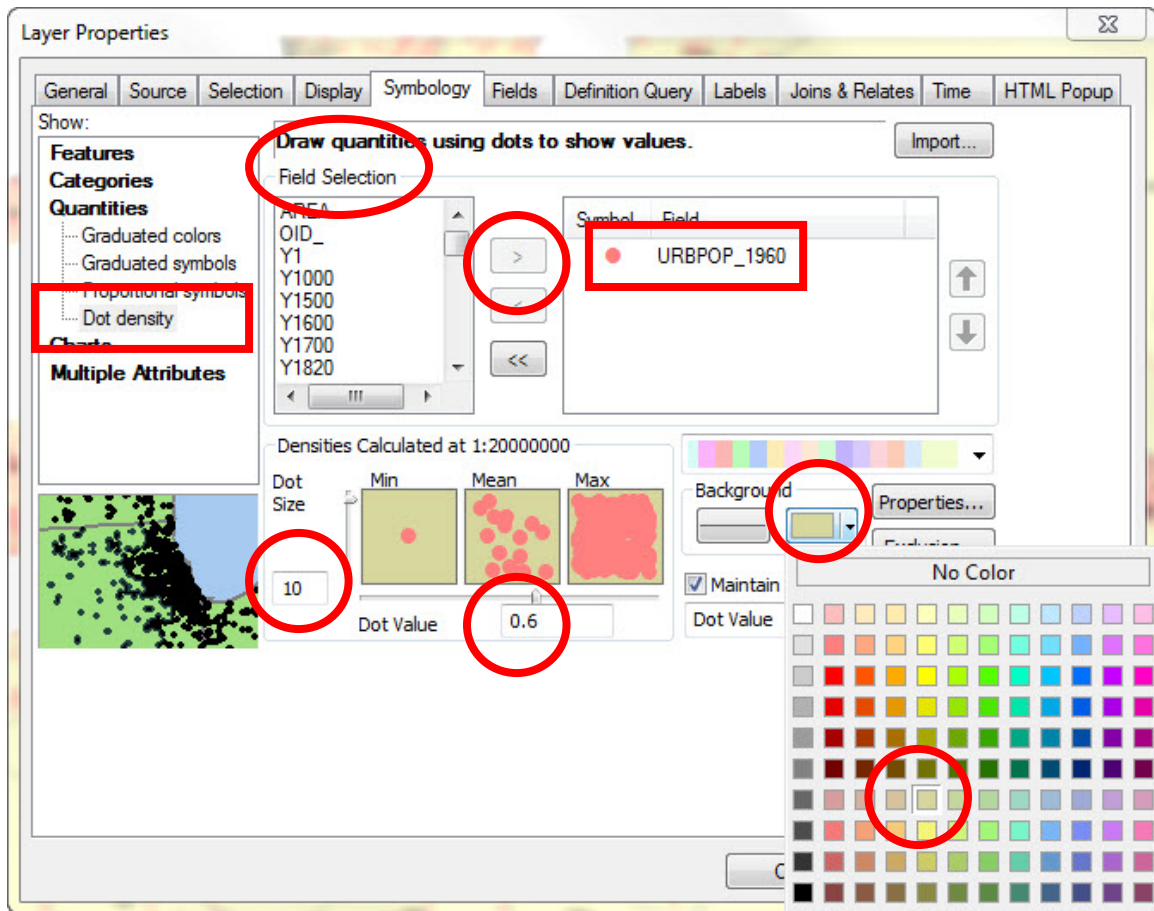
8. Save this map as a new map file. We will use CO2 Emission data to create a new map.
9. 30% Gray which is typically used to designate missing data. Some countries did not published data for their CO2 emission rates until 1990's. Although we use 10 classes for classification of the data, we have to assign one flat color to value 0 which indicates there is no data. Go and click the first range field and type the number zero (0). This will be our no data class. Change its



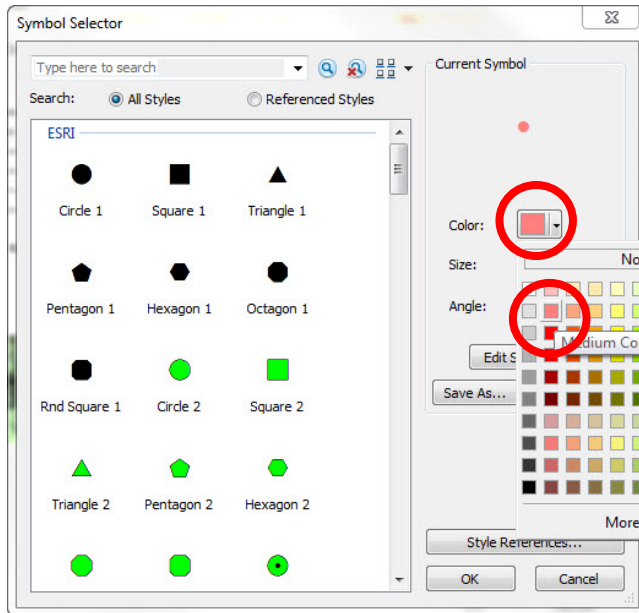
10. You can change the color ramp to different color gradients (as indicated on below image). Click Ok. (Note the units of your data in this process. This should be clearly labeled in the drawing).



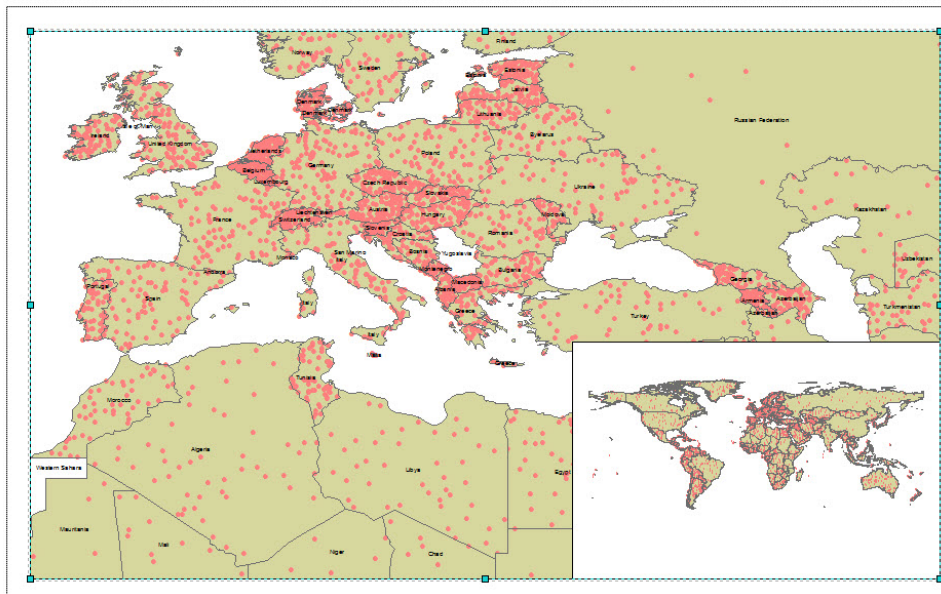
11. . Make sure the display scales are consistent and other layers that show your topic's city and country name labels are visible. Also confirm that your map extents are consistent. If not follow the steps in the previous exercise sheet to set the paper size and scales.
12. Export your map as a PDF. Since all the data on these maps are vector based, you can control the colors and line thicknesses in Adobe Illustrator.
13. Save your map as a new map file.



- To set up color symbology for dots, double click the default point symbol right next to your active field (URBPOP_####). To give an example, change its color to medium coral light and click ok. Click to background fill option now. It's the button on the right underneath background panel. Change the background color to lime dust.



- Set the dot size to 10 and the dot value to 0.6. Dot size defines the default scale of each dot and dot value defines what each dot represents on your map. For example, if your dot value is set to 1, and your attribute table has a value of 30 for the field that you map, you will have 30 dots in that polygon. Click Ok and do the same thing for you're the other layer that displays on your keymap. This time, set both dot size and dot value to 1. Use the same settings for background and dot colors. Your maps should look like the image below.



FINALIZING THE PROJECT

16. Export your map as a PDF. Since all the data on these maps are vector based, you can control the colors and line thicknesses in Adobe Illustrator.
17. When you have finished, please submit the digital file(s), named Professor's Last Name_Sp13_Your Name_GIS II . Please print out your 11" x 17" maps. Since you are creating multiple maps, please assign a number to your file name to indicate which map you are saving.
18. Do not forget to save all your files after completing the exercise. Make sure you copy your map files and your data files to your personal / USB drives or cloud storage.
19. Hand in your work to the GIS II folder and Process Folio folder.