

WHAT YOUR FAVORITE
MAP PROJECTION
SAYS ABOUT YOU

MERCATOR



YOU'RE NOT REALLY INTO MAPS.

ROBINSON



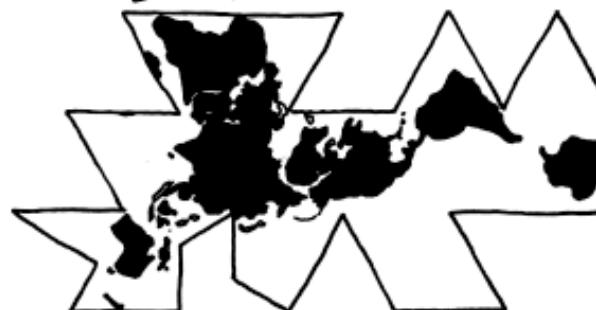
YOU HAVE A COMFORTABLE PAIR OF RUNNING SHOES THAT YOU WEAR EVERYWHERE. YOU LIKE COFFEE AND ENJOY THE BEATLES. YOU THINK THE ROBINSON IS THE BEST-LOOKING PROJECTION, HANDS DOWN.

VAN DER GRIJNEN

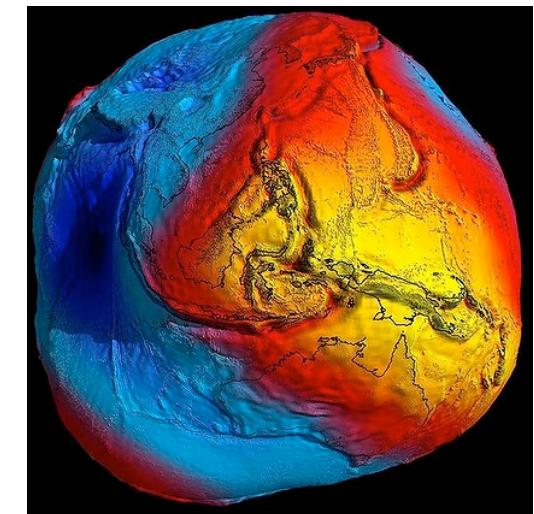


YOU'RE NOT A COMPLICATED PERSON. YOU LOVE THE MERCATOR PROJECTION; YOU JUST WISH IT WEREN'T SQUARE. THE EARTH'S NOT A SQUARE, IT'S A CIRCLE. YOU LIKE CIRCLES. TODAY IS GONNA BE A GOOD DAY!

Dymaxion



YOU LIKE ISAAC ASIMOV, XML, AND SHOES WITH TOES. YOU THINK THE SEGWAY GOT A BAD RAP. YOU OWN 3D GOOGLES, WHICH YOU USE TO VIEW ROTATING MODELS OF BETTER 3D GOOGLES. YOU TYPE IN DVORAK.



From ESA's GOCE satellite, 2011

XKCD 2011

A visually effective combination of layers

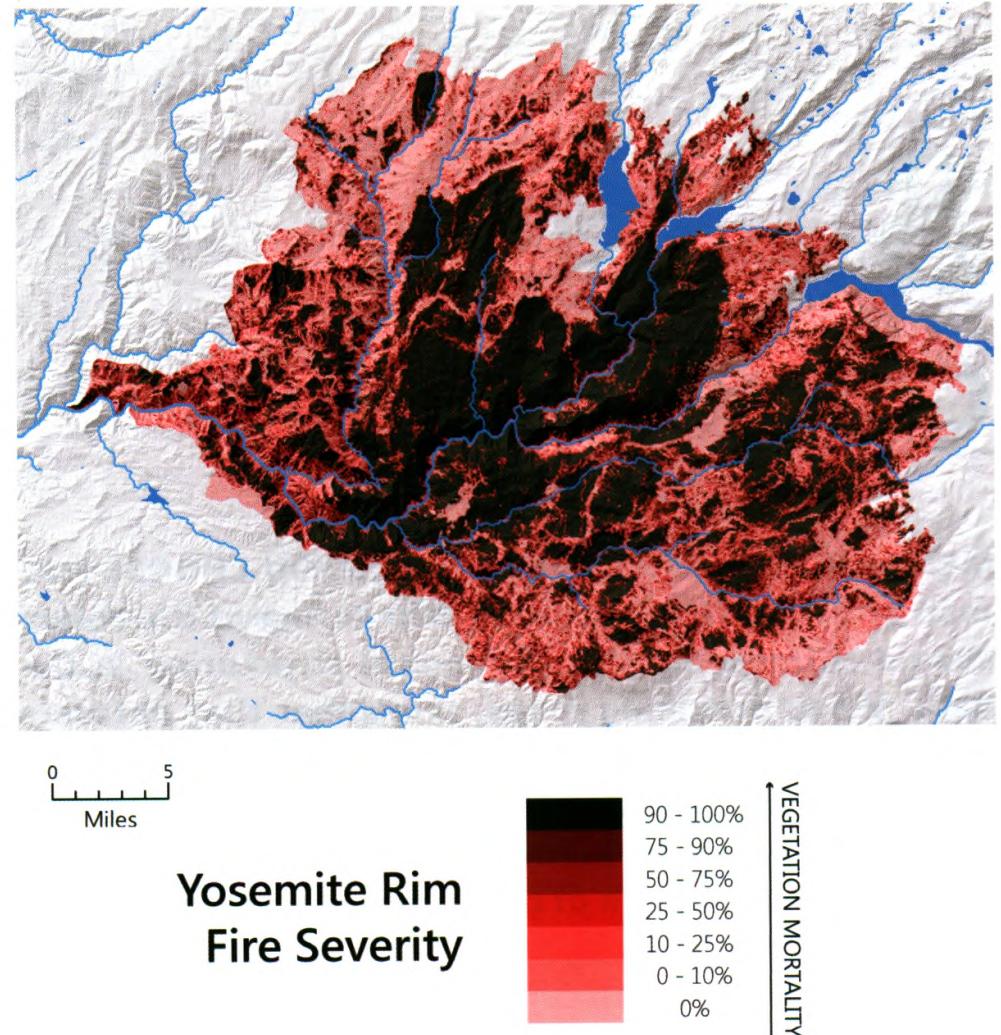


Figure 8.2 Map of fire severity demonstrates light-to-dark colors that parallel low-to-high data ordering. Data sources: US Geological Survey (USGS), US Forest Service. Map by A. Dennis, Department of Geography, The Pennsylvania State University (Penn State Geography).

Geography 360
October 17, 2016

Contemporary ecosystems of GIS -and- Mapping data: intensity vs. count -and- ~~How GIS understands shapes on the Earth~~

1. *Questions and Updates*

- Extra credit opportunity this weekend!
- No lecture or Prof.B. office hours on Friday: Will be at NACIS.
- The project due-date is being extended to Monday!

2. *Understanding the project within the changing ecosystem of GIS*

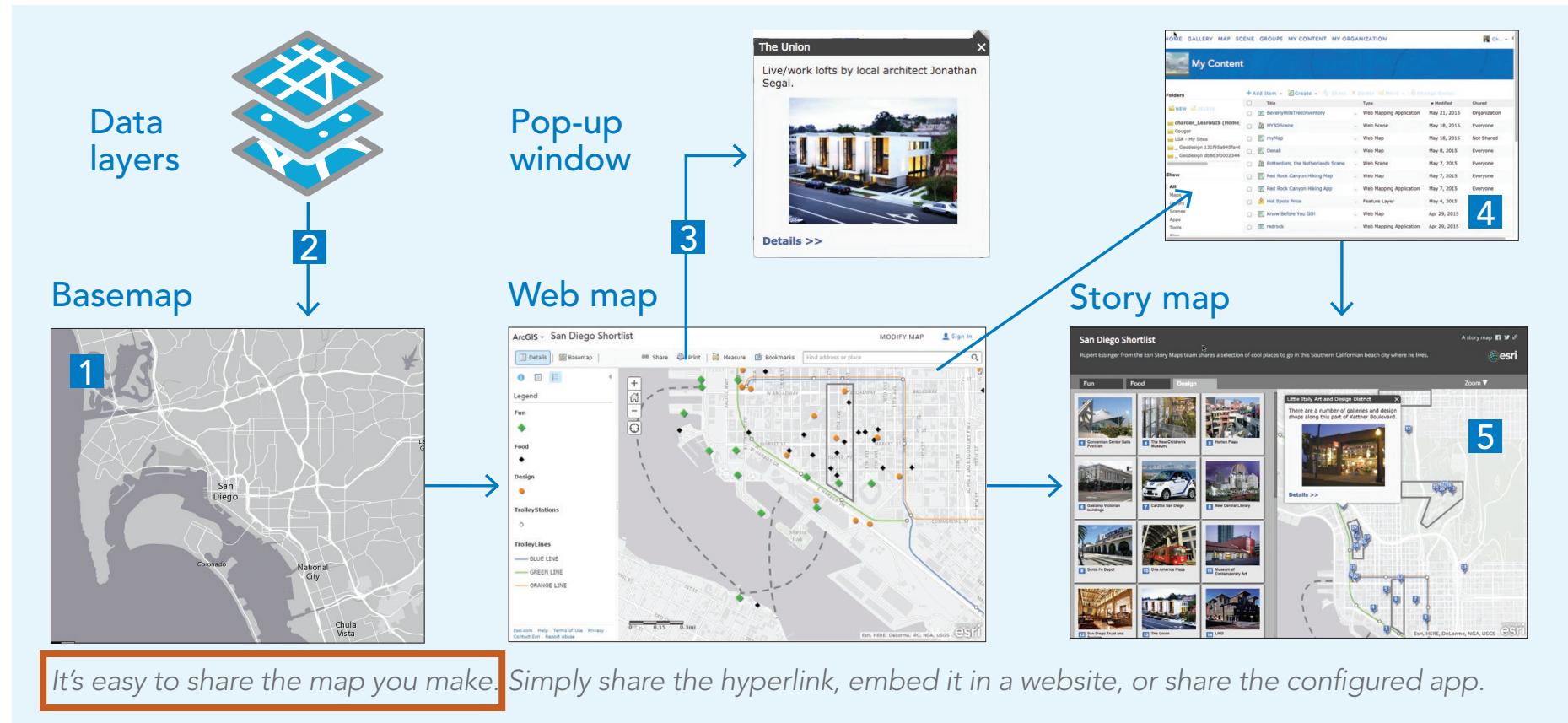
- There are more ways of getting, visualizing, and communicating data
- Demo: Checking/editing your maps to make sure layers are visible when they are placed into story maps.

3. *Mapping intensity data vs. count data (continued)*

- When do you use choropleth maps?
- When do you proportional symbol maps?

4. *How does GIS represent and present points, line, shapes on the Earth?*

“It’s easy to share the map you make” (sometimes)



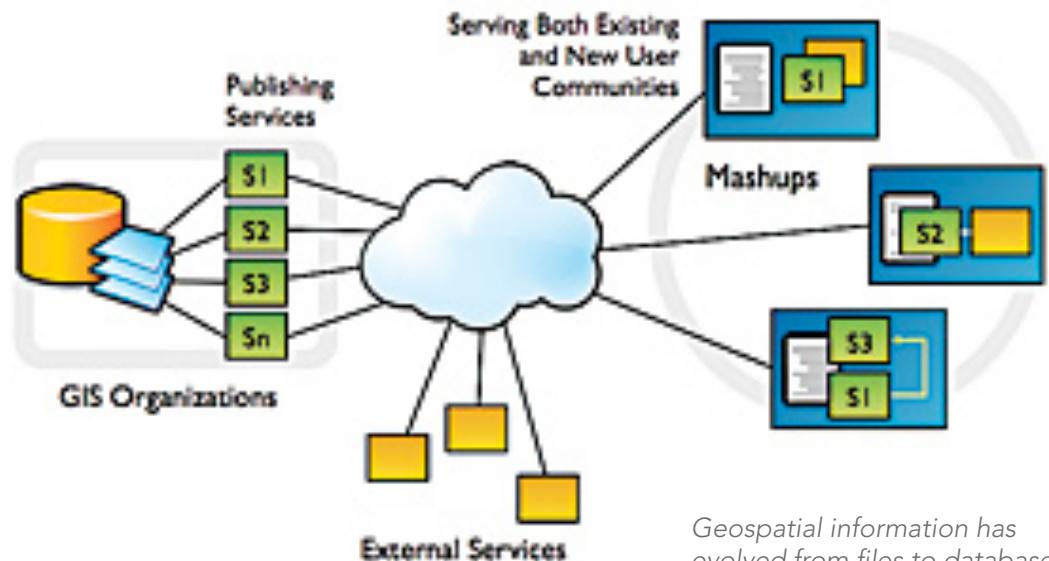
Source: *The ArcGIS Book*

Your project uses “Web GIS”



Web GIS Is Moving Us into a New Era

Providing Advanced Geoservices for the Enterprise and the Open Web



Geospatial information has evolved from files to databases and now to the web. Each organization's individual GIS becomes part of a synchronized global platform. Data layers and analytics created by individual organizations are arranged into themed collections on the web. Every item has a URL. There is a data catalog, a searchable portal where you can discover data created by others and combine it with your own data in a host of GIS applications.

Web GIS is supposed to mask a lot of complexity, but sometimes the complexity peers through...

Data on the web is often transferred via the “HTTP” protocol (a set of procedures/rules).

A URL (as you would see in your browser) represents a request from you to distant servers:

`http://www.google.com/maps`

“Protocol”
①

“Domain” &
server name
②

File name
requested
③

The complexities of Web GIS...

- Unfortunately... HTTP is not ‘secure’.
 - Instead, we increasingly use “HTTPS”, which is “encrypted.”
- ArcGIS Online’s Story Maps generally want to consume data via https
 - Yet ArcGIS Online’s regular maps don’t seem to have this restriction.
- As such, you may have layers that appear in your maps in the editor/ viewer but do NOT appear in your Story Map.
 - We have revised the links on the Canvas page to data layers you can use. Moving forward, there should be fewer issues.
 - Adding data via the ‘descriptions’ page method is the safest because you can make the URLs into https:// directly.
 - We want you to verify your layers appear in the Story Map. If they don’t, we offer instructions in the revised assignment to fix (almost all) such problems, generally by changing URLs from http:// to https://
 - But if you try and you can’t fix it following our procedures, don’t worry. Follow the procedures in the new ‘submission checklist’ in the assignment to document in writing in your Story Map what else is supposed to appear and where we can see it (a link to your original map.) *This is not your fault.*

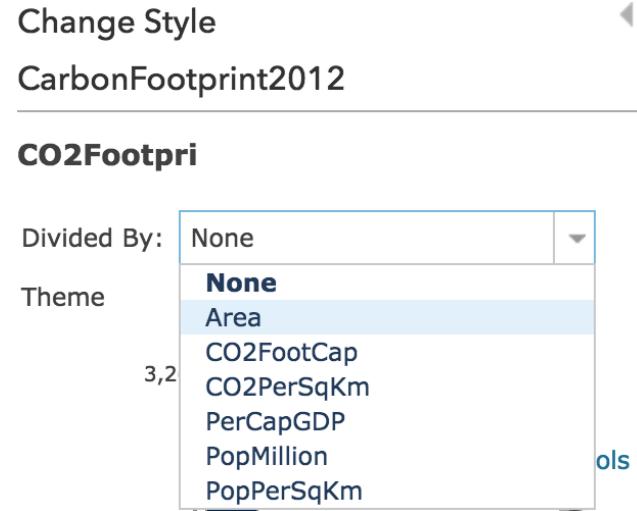
The complexities of Web GIS...

Demos:

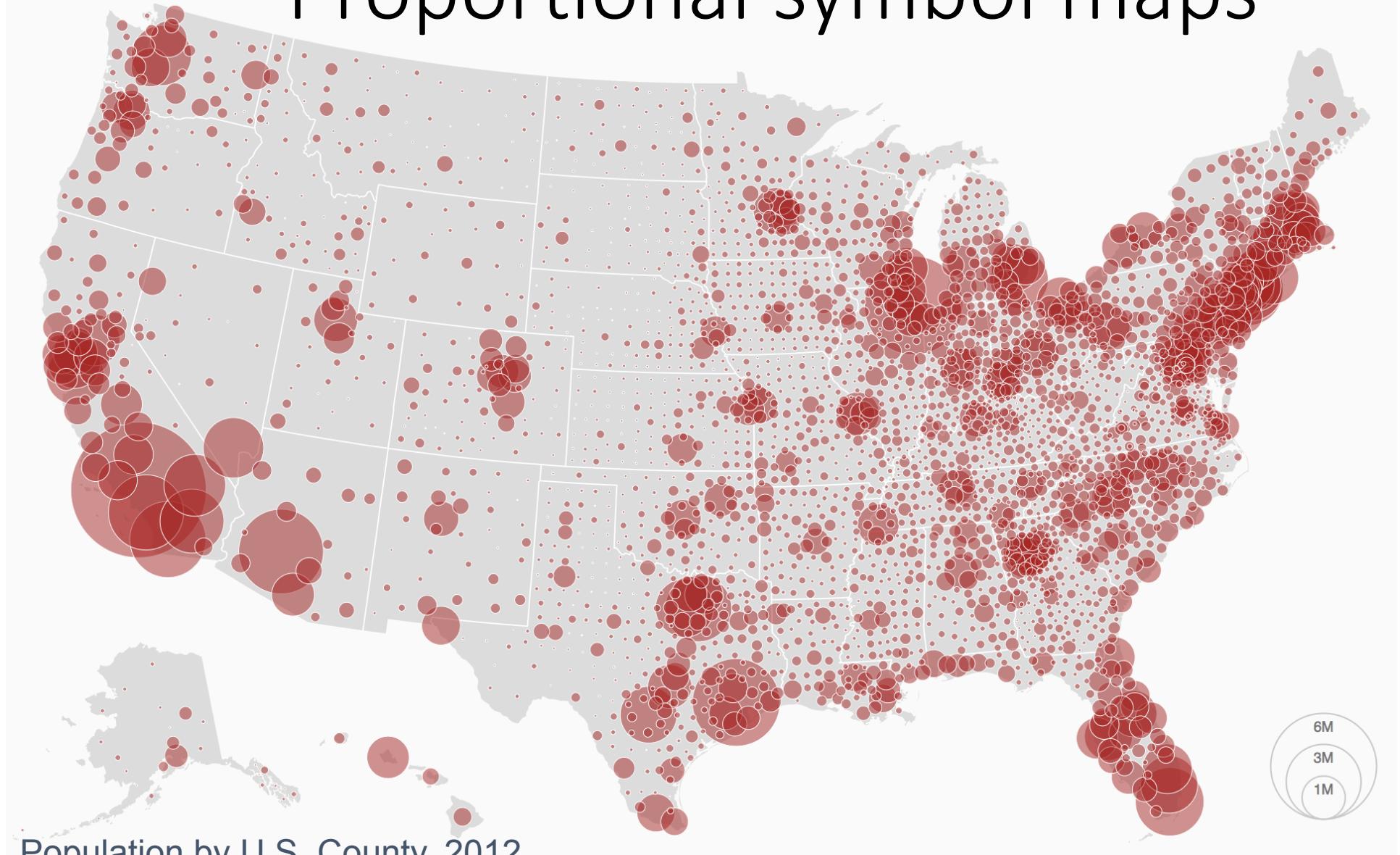
- Showing a layer that fails to display in a Story Map.
- Adding the layer safely via the descriptions page.
- Modifying the protocol the Story Map uses to try to get the not-visible layer data (from <http://> to <https://>) via AGOL Assistant.

Mapping: Intensities vs. Counts

- *Standardizing* data is dividing it by a quantity.
- Choropleth maps are best employed where *count data* can be *standardized* into being *intensities*.
 - Not people...
but people per square mile.
 - Not total carbon emissions across a territory...
but carbon emissions per person.
 - Not total employment in the service industries...
but service industry employment
as a percentage of total employment in all sectors.
- If there is a reason to display count data without standardizing them, then consider *proportional symbol maps*.



Proportional symbol maps



Proportional symbol maps

- **When:**
You have regions (or point locations).
You have ‘count data’ for each region (or point location).
- **Technique:**
You use symbols in regions to represent data values.
Change the symbol sizes (usually areas) in proportion to the quantities they represent.
- **Goal:**
The overall areal distribution of the shading on the map corresponds to the phenomenon on the ground.

You are trying to ensure a correspondence between:
phenomenon <-> data <-> visualization <-> interpretation



Proportional symbol map... or choropleth map?

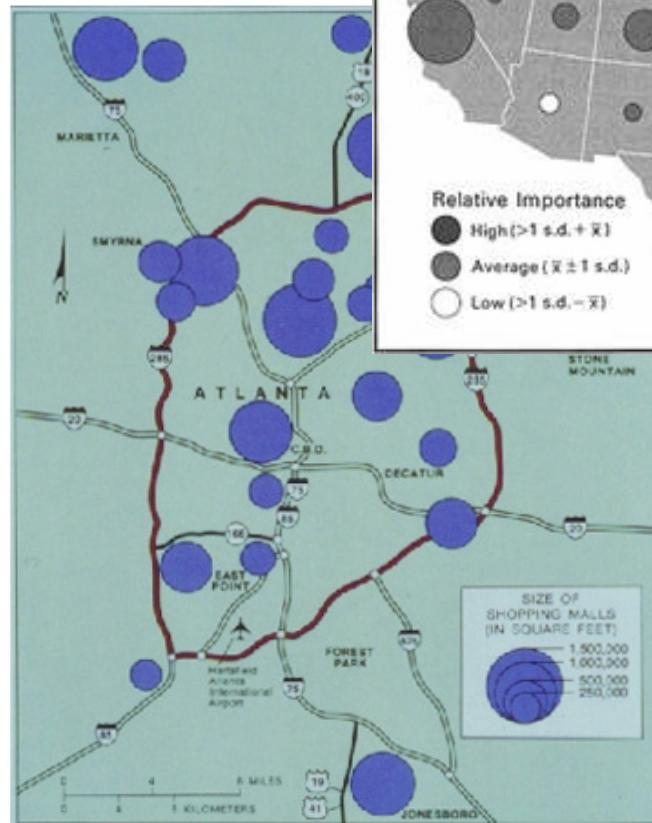
Question:

In each of these cases, would you use proportional symbol or choropleth mapping, and why?

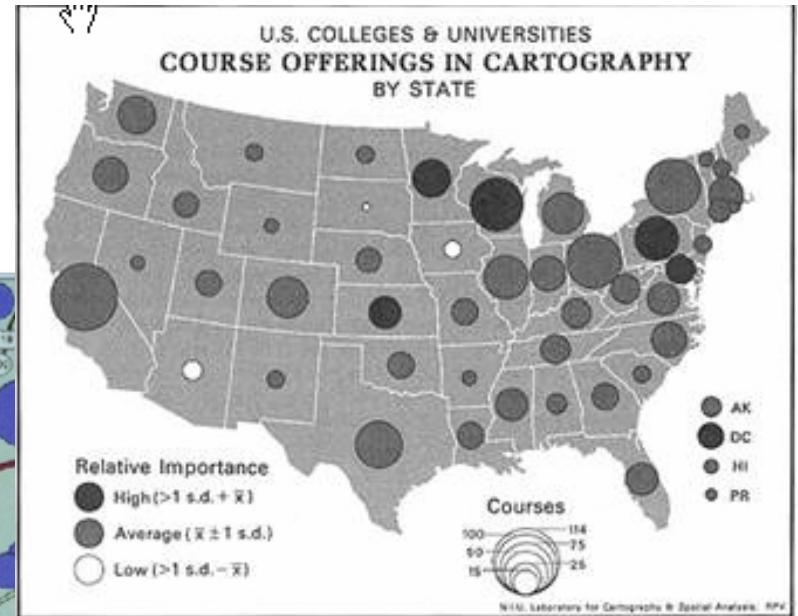
- Data for each U.S. state on what percentage of the state's power generation comes from hydroelectric sources.
- Data for each U.S. state on what percentage of the total national hydroelectric power generation each state provides.

Some considerations in proportional symbol mapping

- Point measurements or aggregates over an area?
- What placement of symbols?
- What if symbols overlap?



True point



Conceptual point