



Map Design I



GEOG380 FA2018

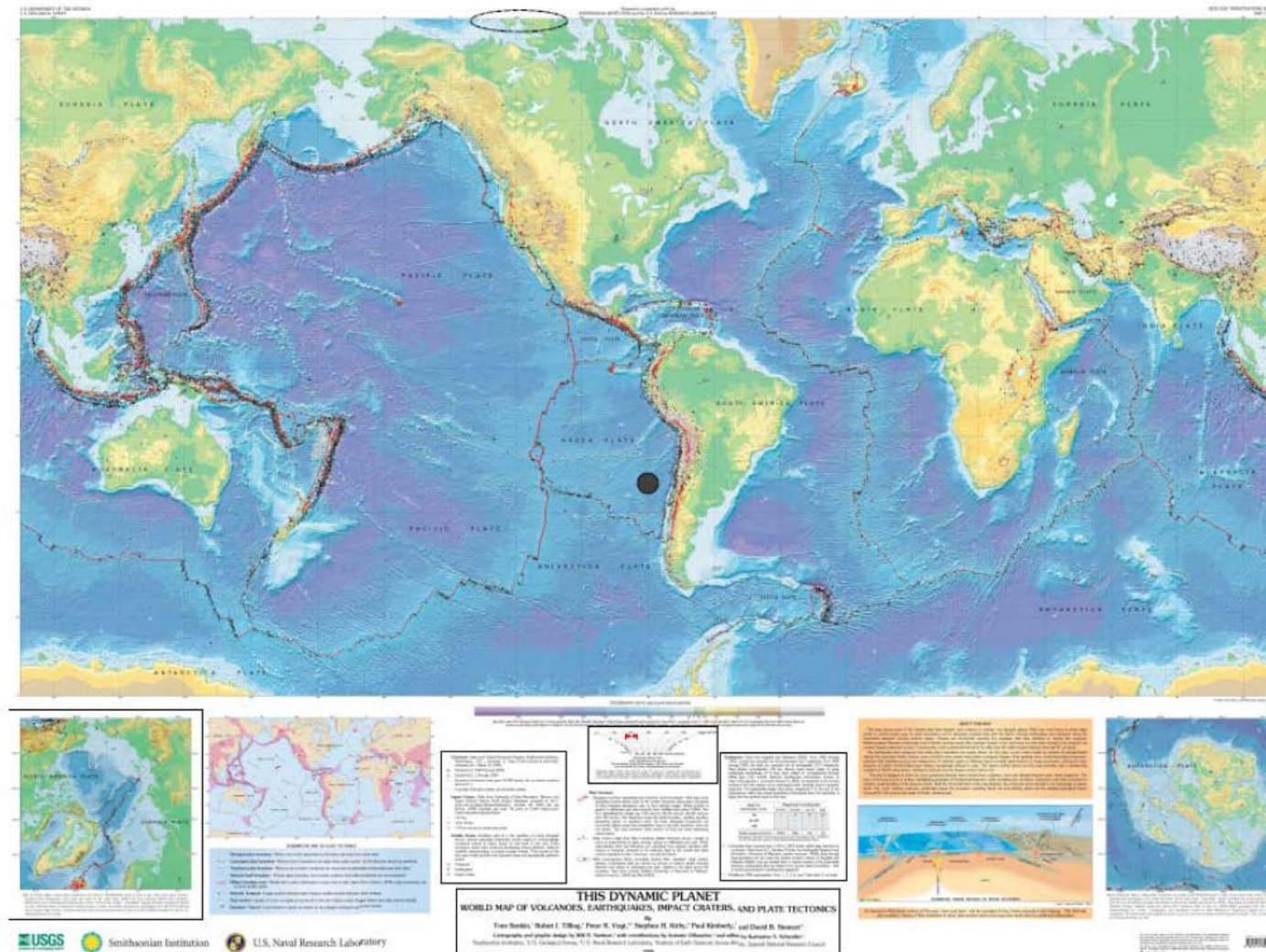
Analysis of map design – elements and layout

- ▶ Title
- ▶ Legend
- ▶ Orientation
- ▶ Explanatory text
- ▶ Scale
- ▶ Source
- ▶ Inset
- ▶ Borders
- ▶ Contrast and acuity
- ▶ Alignment
- ▶ Visual center
- ▶ Eye movement



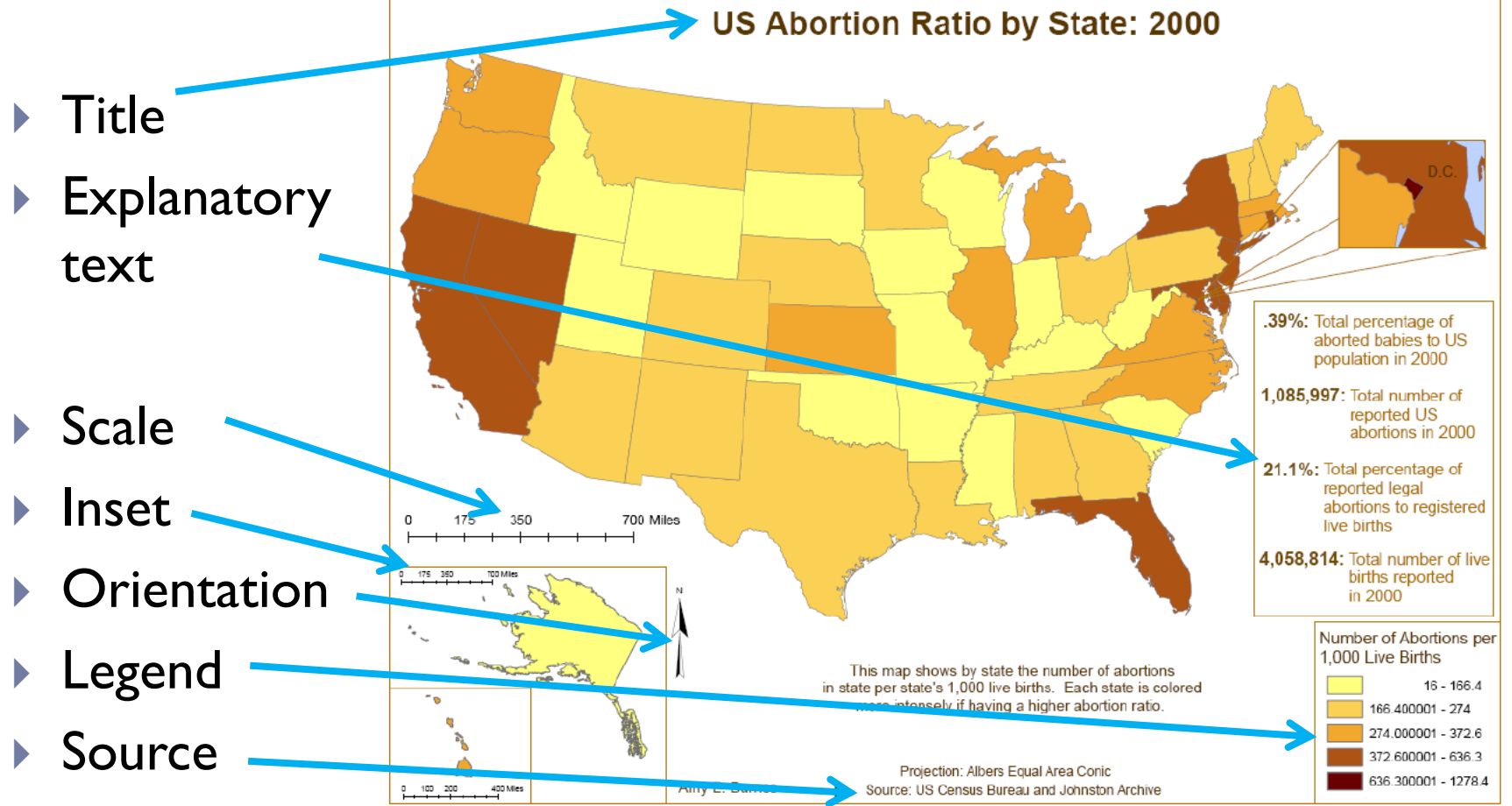
Map design example – This Dynamic Planet Map

- ▶ Title
- ▶ Legend
- ▶ Orientation
- ▶ Explanatory text
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- ▶ Eye movement



▶ (Source: <http://mineralsciences.si.edu/tdpmap>) (or N:\Courses\Geog_380\)

Map elements



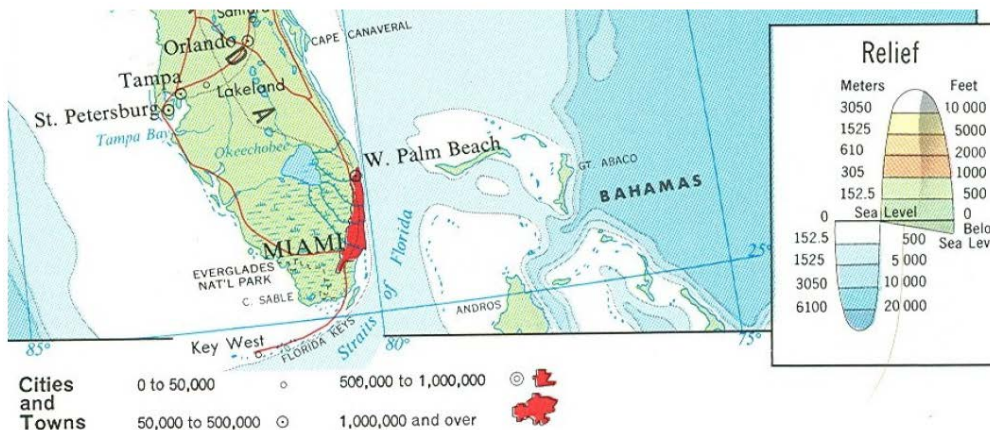
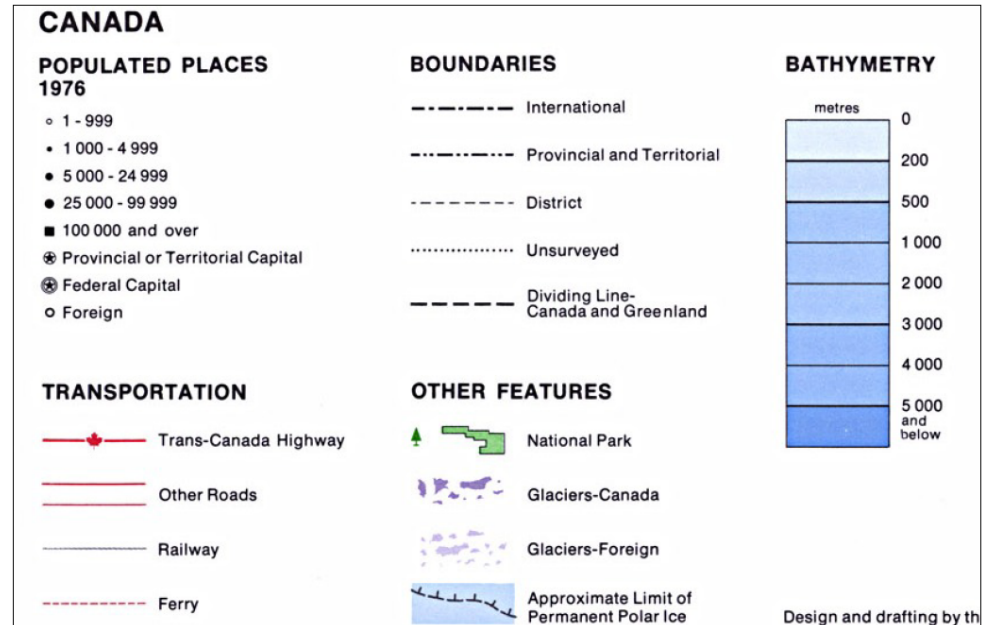
Title

- ▶ Map title should try to include:
 - ▶ **What**: the topic of the map
 - ▶ **Where**: the geographic area
 - ▶ **When**: temporal information
 - ▶ ...usually in that order
- ▶ Font size should generally be 2-3 times larger than other large texts in the map
- ▶ Add a **subtitle** in smaller type for longer titles or more complex map subjects



Legend or Key

- ▶ Legend is **key to interpret** your map
- ▶ Avoid including obvious symbols and don't include the title "Legend" or "Key"
- ▶ *This Dynamic Planet map ...*



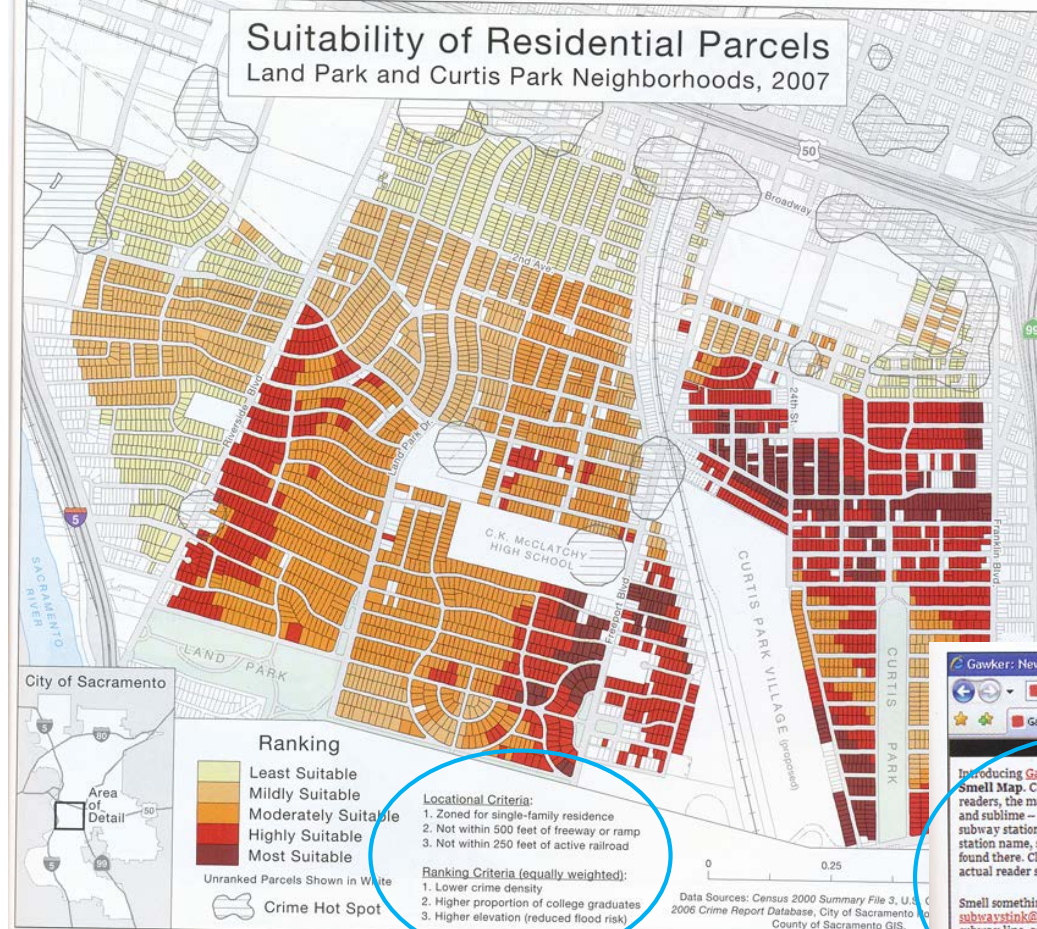
- ▶ Arranged from left to right...
 - ▶ Culture specific
- ▶ Alignment
- ▶ Grouping

Ancillary/Exploratory text

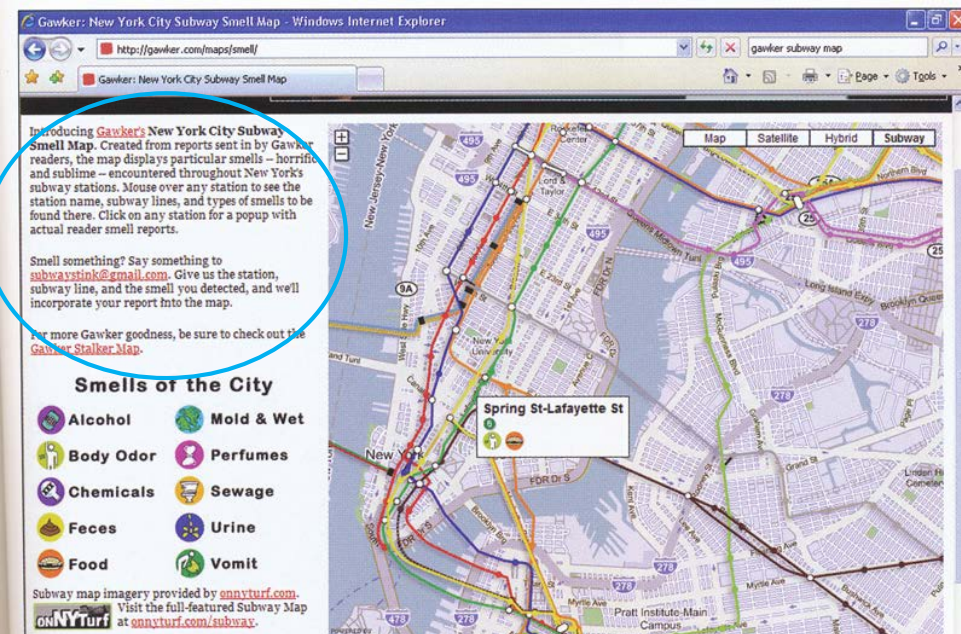
- ▶ Used to communicate some of the important patterns, **messages** in the map
- ▶ Examples:
 - ▶ On a historical map, a paragraph setting the *historical context*, and what happened at *important locations*
 - ▶ On a map of income changes, an *explanation* that suburban counties are getting richer, and urban counties getting poorer due to some reasons
 - ▶ The following slides
- ▶ Somewhat subjective interpretations, but so is your map



Suitability of Residential Parcels Land Park and Curtis Park Neighborhoods, 2007





COLOR PLATE 12.3 The final real estate site suitability map, resulting from the case study in section 12.2.



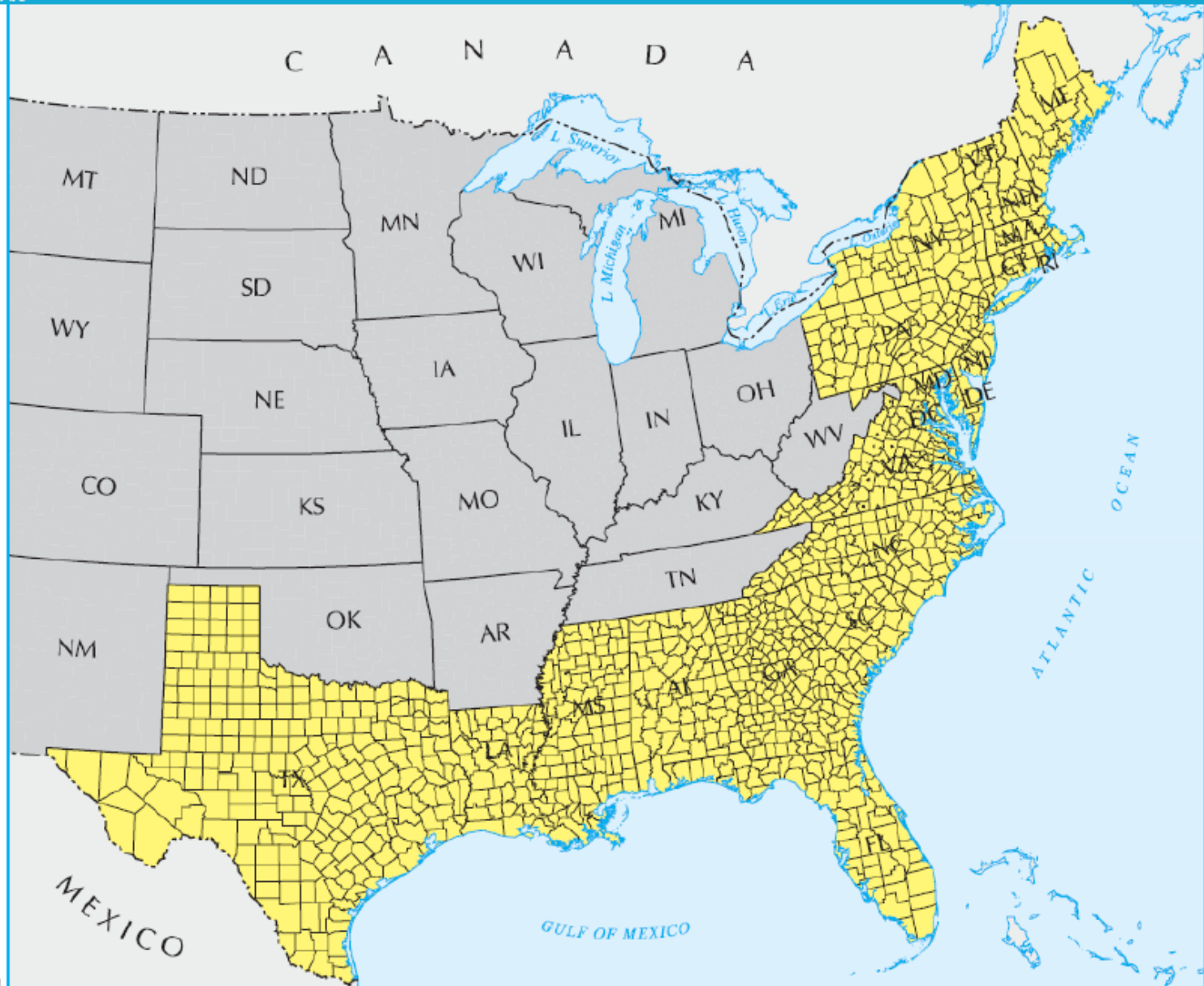
COLOR PLATE 24.6 A screen capture of the New York City Smell Map (<http://www.gawker.com/maps/smell/>) of the subway stations around lower Manhattan Island. In this case, someone reported that the Spring Street/Lafayette Street station had a distinctive body odor and food smell. (Image courtesy of Gawker.com; reproduced with permission.)

Surveillance Area

This data represents the program during the Fall of the year 2000.

-  Participating
-  Not Participating

This map depicts the 22 recipients of cooperative agreement funds for West Nile virus (WNV) surveillance to work with the Centers for Disease Control and Prevention, for the year 2000. The recipients were chosen because they were affected by the WNV in 1999, or because they have a high potential for being affected in the future because of bird migration patterns. Maine, New Hampshire, and Vermont joined the program in September.



Disclaimer: These data are provisional and may be revised or adjusted in the future.

This map is available at: <http://nationalatlas.gov/virusprint.html>

Orientation / direction

- ▶ **Do you need it? ... If:**
 - ▶ The map is not oriented with north up
 - ▶ The map is of an area unfamiliar to the audience
- ▶ Two primary elements to give orientation
 - ▶ North arrow
 - ▶ Graticule

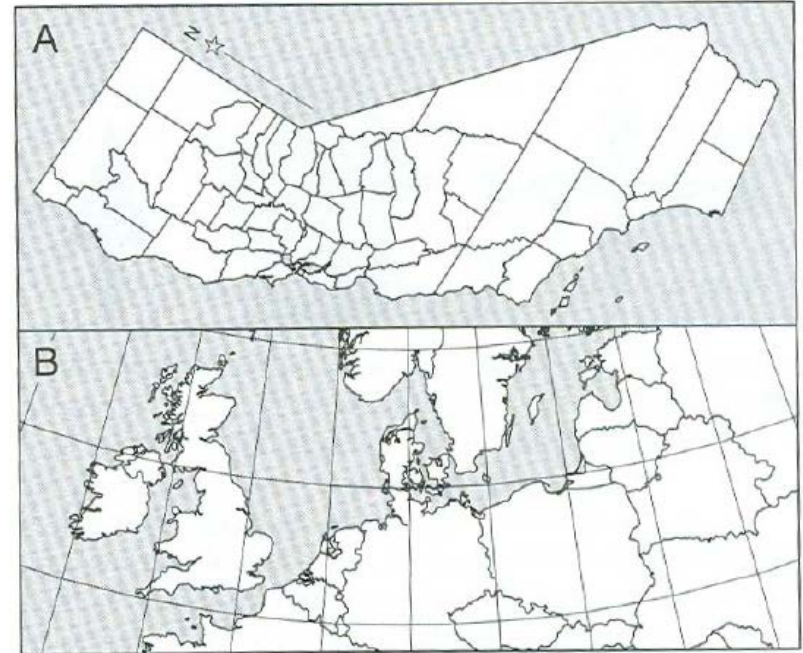
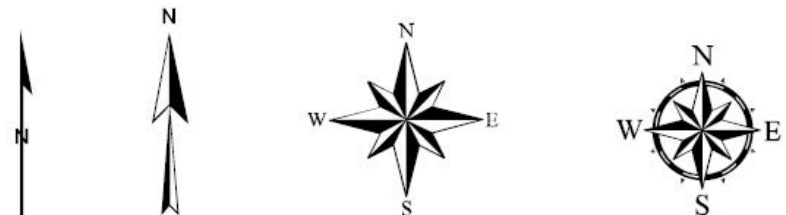
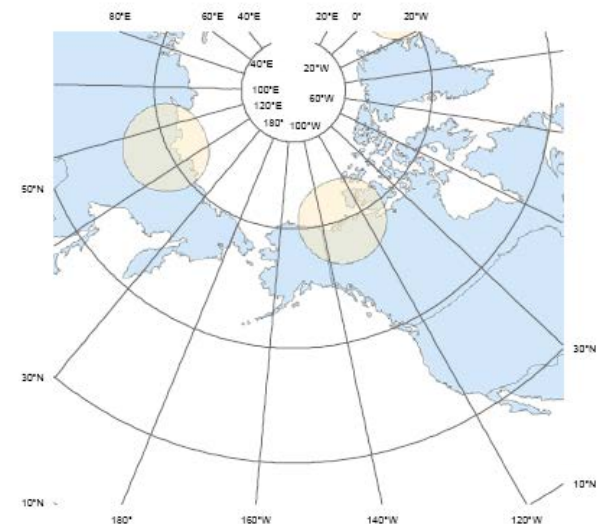
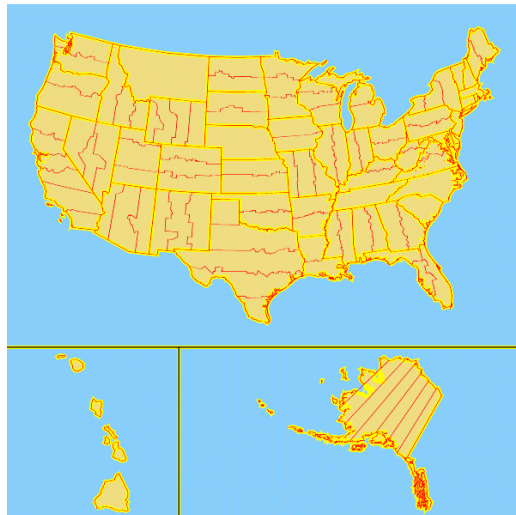
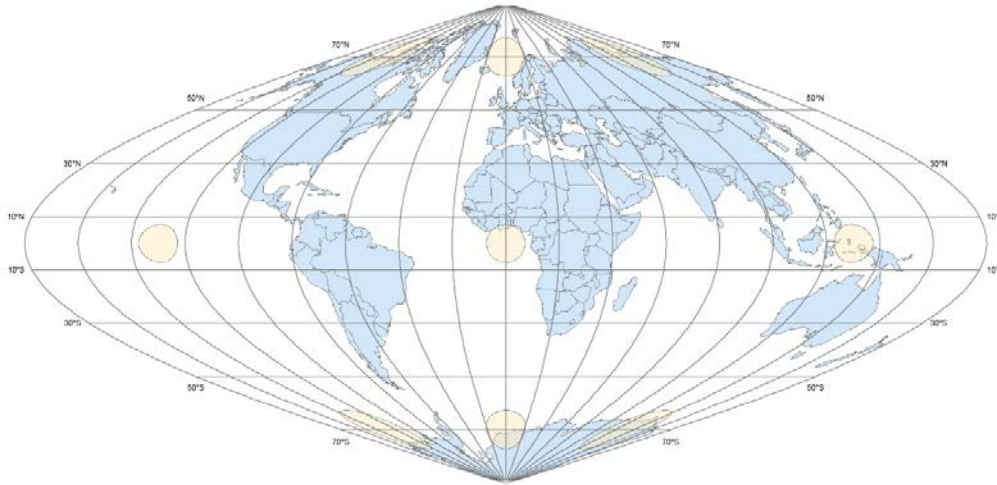


FIGURE 11.16 (A) Use of a north arrow on a map not oriented with north at the top. (B) Meridians of a graticule indicating direction of north.



(Source: Slocum et al. 2009)

Group Activity: need a north arrow? (2 min.)



Scale

- ▶ An *essential element* that most maps express

- ▶ Numerically

Scale 1:700 000

- ▶ Graphically



- ▶ Verbally

One mm on the map represents
700 m on the earth

- ▶ Q. how can you read the scale from “A”?

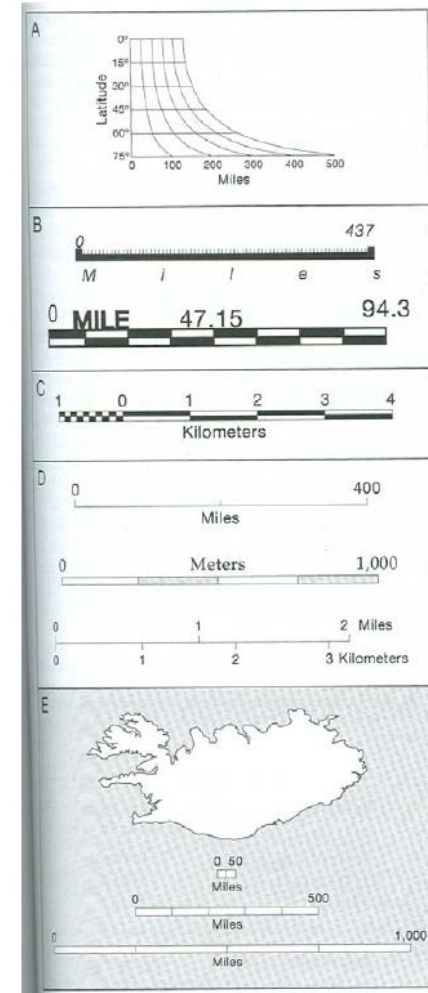
- ▶ Think about usefulness

- ▶ Size

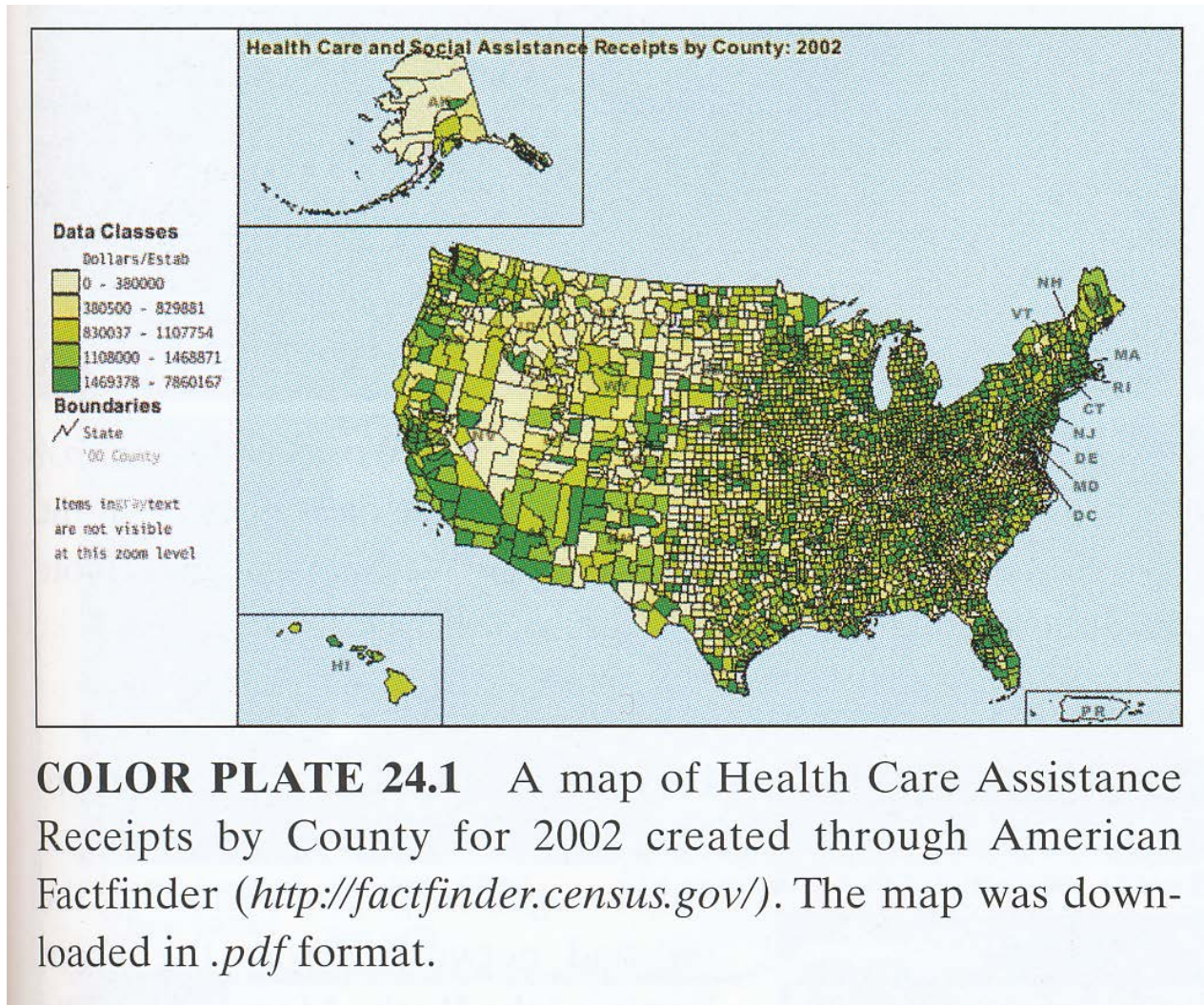
- ▶ Units, number of ticks

- ▶ Examples

- ▶ Next slide



Scale example: need a scalebar?



COLOR PLATE 24.1 A map of Health Care Assistance Receipts by County for 2002 created through American Factfinder (<http://factfinder.census.gov/>). The map was downloaded in .pdf format.

Sources – credits

- ▶ Your map **should include...**
 - ▶ Data source(s)
 - ▶ Where the data / information came from
 - ▶ Map maker (your name) and when it was made
 - ▶ Map projection and coordinate systems if this is critical to its use/understanding
- ▶ This is “fine print” for the interested
 - ▶ Less noticeable, using a smaller font size
- ▶ Example
 - ▶ Next slide



CANADA

MANUFACTURING PRODUCTIVITY

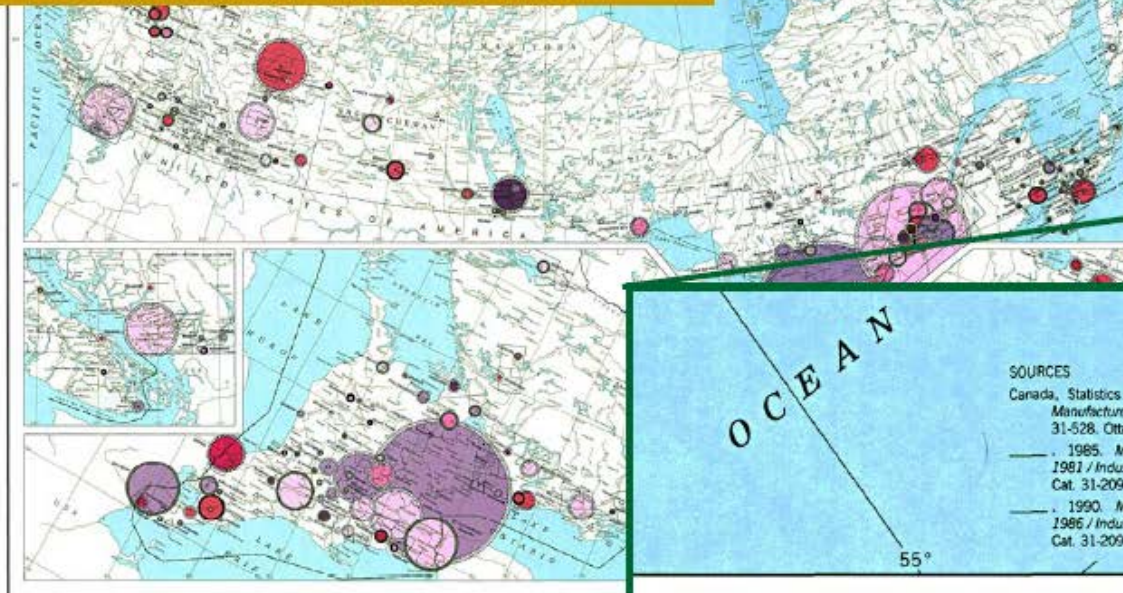
Produced by the National Atlas Information Service, Canada Centre for Mapping, Energy, Mines and Resources Canada. Printed 1993.

Copies of this map may be obtained from the Canada Map Office, Energy, Mines and Resources Canada, Ottawa, or your nearest map dealer. Quote MCR 4196.

Cette carte est aussi publiée en français. Demander le numéro MCR 4196F.

© 1993. Her Majesty the Queen in Right of Canada, Department of Energy, Mines and Resources.

Scale 1:7 500 000 or 1 centimetre represents 75 kilometres
kilometres 75 0 75 150 225 300 375 450 kilometres
Lambert Conformal Conic Projection, Standard Parallels at 49°N and 77°N.
Modified Polyconic Projection, North of Latitude 80°.



CANADA
MANUFACTURING PRODUCTIVITY

Produced by the National Atlas Information Service, Canada Centre for Mapping, Energy, Mines and Resources Canada. Printed 1993.

MANUFACTURING PRODUCTIVITY

The manufacturing sector is a major contributor to Canada's economic growth and productivity. This map shows the distribution of manufacturing productivity across the country in 1986. The map is based on data from the 1986 Census of Manufacturing and Construction, which provides a detailed breakdown of the manufacturing sector by province and territory. The map uses a color scale to represent different levels of productivity, with darker colors indicating higher productivity. The map also shows the distribution of manufacturing output by province and territory, with darker colors indicating higher output. The map is a valuable tool for understanding the economic structure of Canada and for identifying areas of high productivity and growth.

SOURCES

- Canada, Statistics Canada, 1979. *Concepts and Definitions of the Census of Manufactures / Concepts et définitions du recensement des manufactures*. Cat. 31-528. Ottawa.
- 1985. *Manufacturing Industries of Canada: Sub-Provincial Areas, 1981 / Industries manufacturières du Canada : niveau infraprovincial, 1981*. Cat. 31-209. Ottawa.
- 1990. *Manufacturing Industries of Canada: Sub-Provincial Areas, 1986 / Industries manufacturières du Canada : niveau infraprovincial, 1986*. Cat. 31-209. Ottawa.

MANUFACTURING PRODUCTIVITY, 1981-1986

TOTAL VALUE ADDED BY MANUFACTURING, 1986

(millions of dollars)

Borders

- ▶ A border may help to draw together the elements on the map
 - ▶ **Frame line** – serves as a picture frame surrounding everything in the map
 - ▶ **Neat line** – sometimes used to outline the actual map content within the entire map
- ▶ Borders should be **subtle** and not distract
 - ▶ Thin black or grey line often good choice



California

Author: ***, date: ***, source data: ***

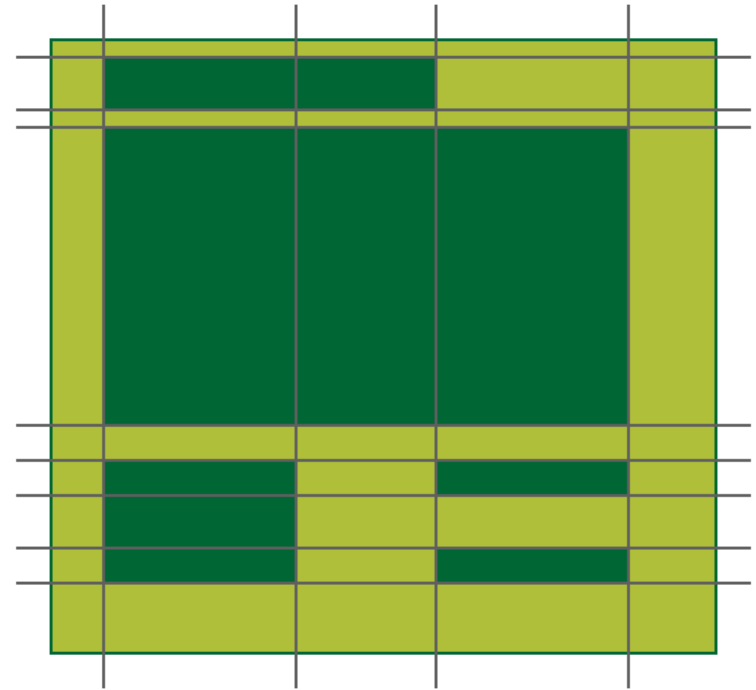
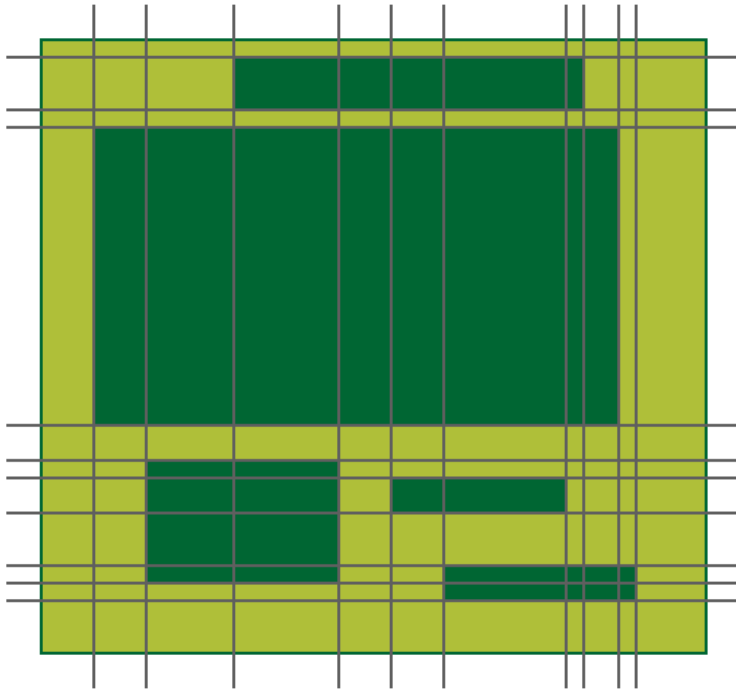
Insets or Location Maps

- ▶ One or more, usually smaller, extra maps that show...
 - ▶ an enlarged portion of the main map with lots of details
 - ▶ related themes / times
 - ▶ related areas
 - ▶ the location of the main map in a smaller scale
- ▶ Consider **scale** and **projection differences** between the main map and inset/location maps
- ▶ *This Dynamic Map...*



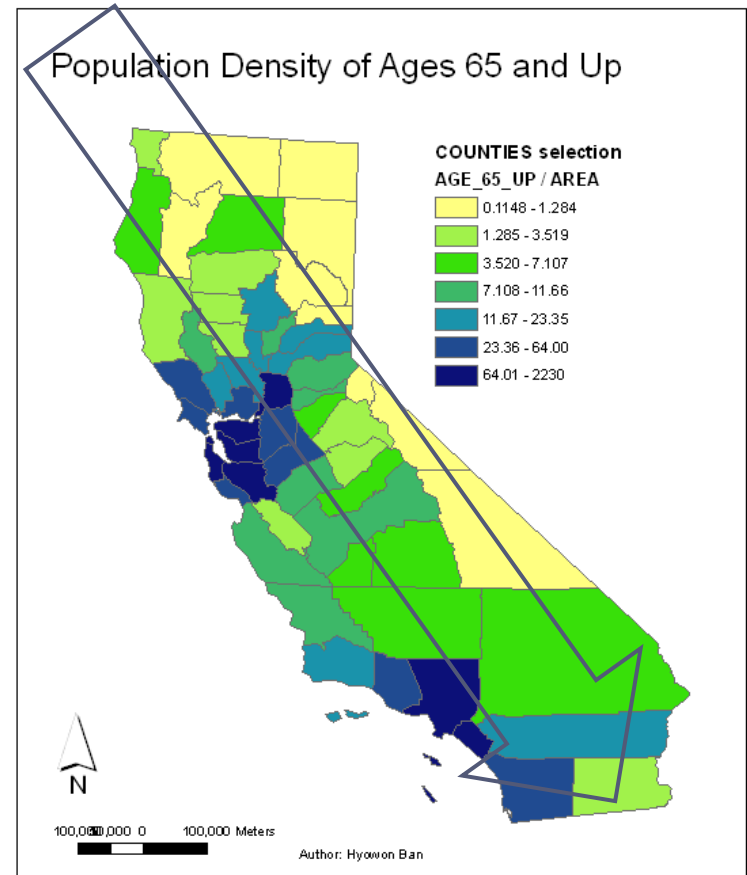
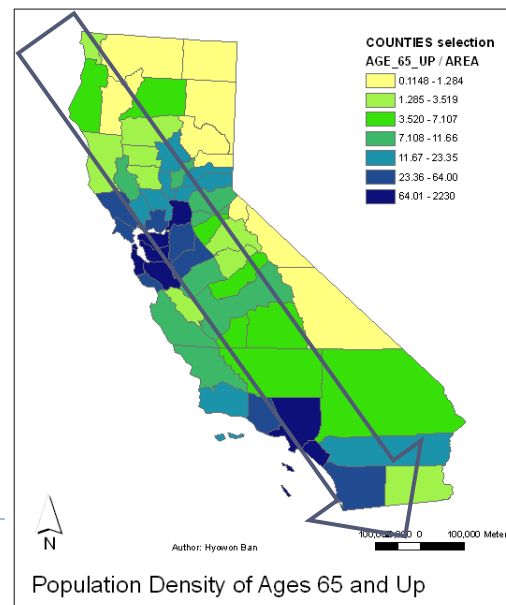
Alignment – Sight lines

- ▶ Sight lines are invisible horizontal and vertical lines
- ▶ Reducing the number of sight lines, **reduces complexity**



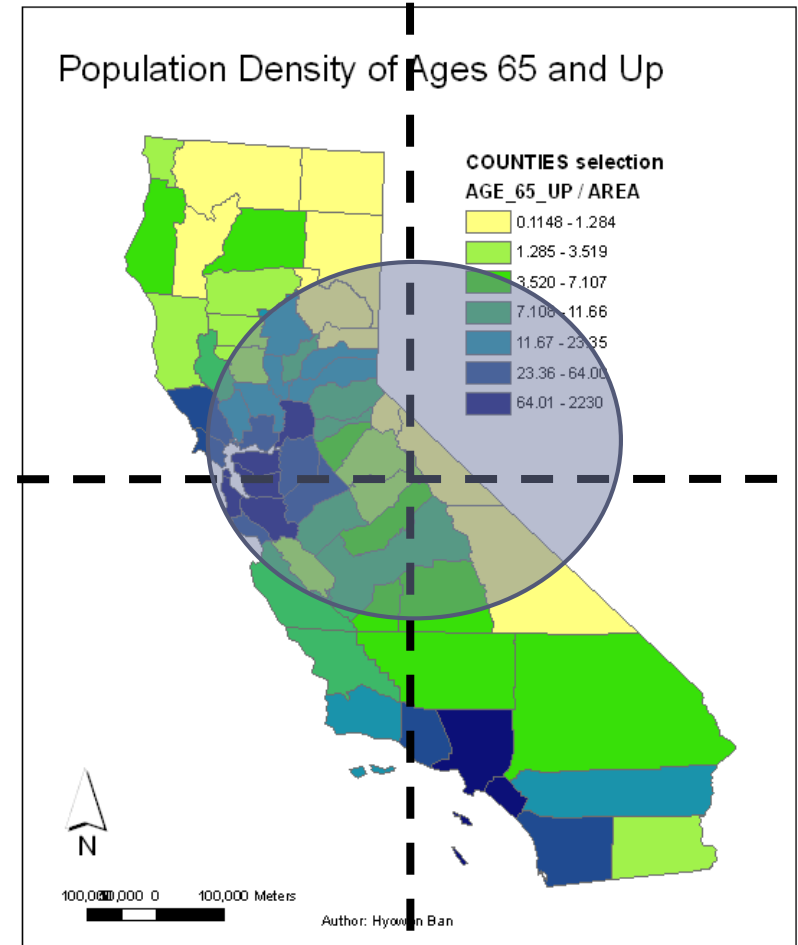
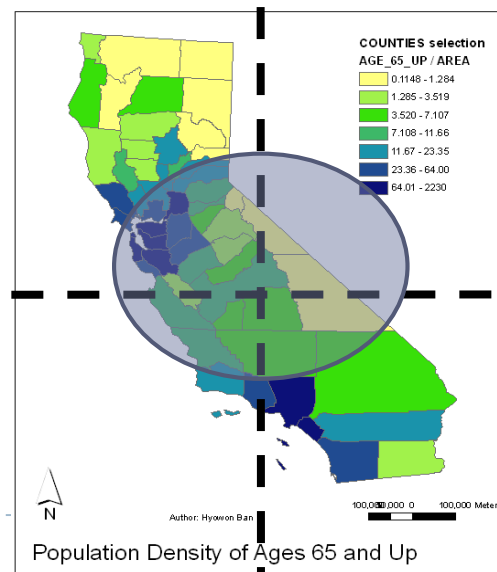
General layout – eye movement

- ▶ In general
 - ▶ From top to bottom
 - ▶ From left to right
- ▶ Position map elements accordingly to tell your “story” efficiently



General layout – visual center

- ▶ The visual center is located **slightly above** the actual center
- ▶ Centering implies importance



Group Activity

- ▶ Form a group with 2~3 of your neighbors
- ▶ Find one good example and one bad example for visual center and eye movement in mapping
- ▶ Share your findings with other groups



Exercise

- ▶ Map Design
 - ▶ 09_map design exercise.pdf
 - ▶ 09_data.zip



Summary

- ▶ **Map elements combine to make a useful map**
 - ▶ Require appropriate selection and use of Title, Legend, Orientation, Explanatory text, Scale, Source, Inset/Location map, and Borders
- ▶ **Map layout**
 - ▶ Optical center, eye movement, sight lines, and **balance**



For next time...

- ▶ **Readings**

- ▶ Ch. 11 & 12

