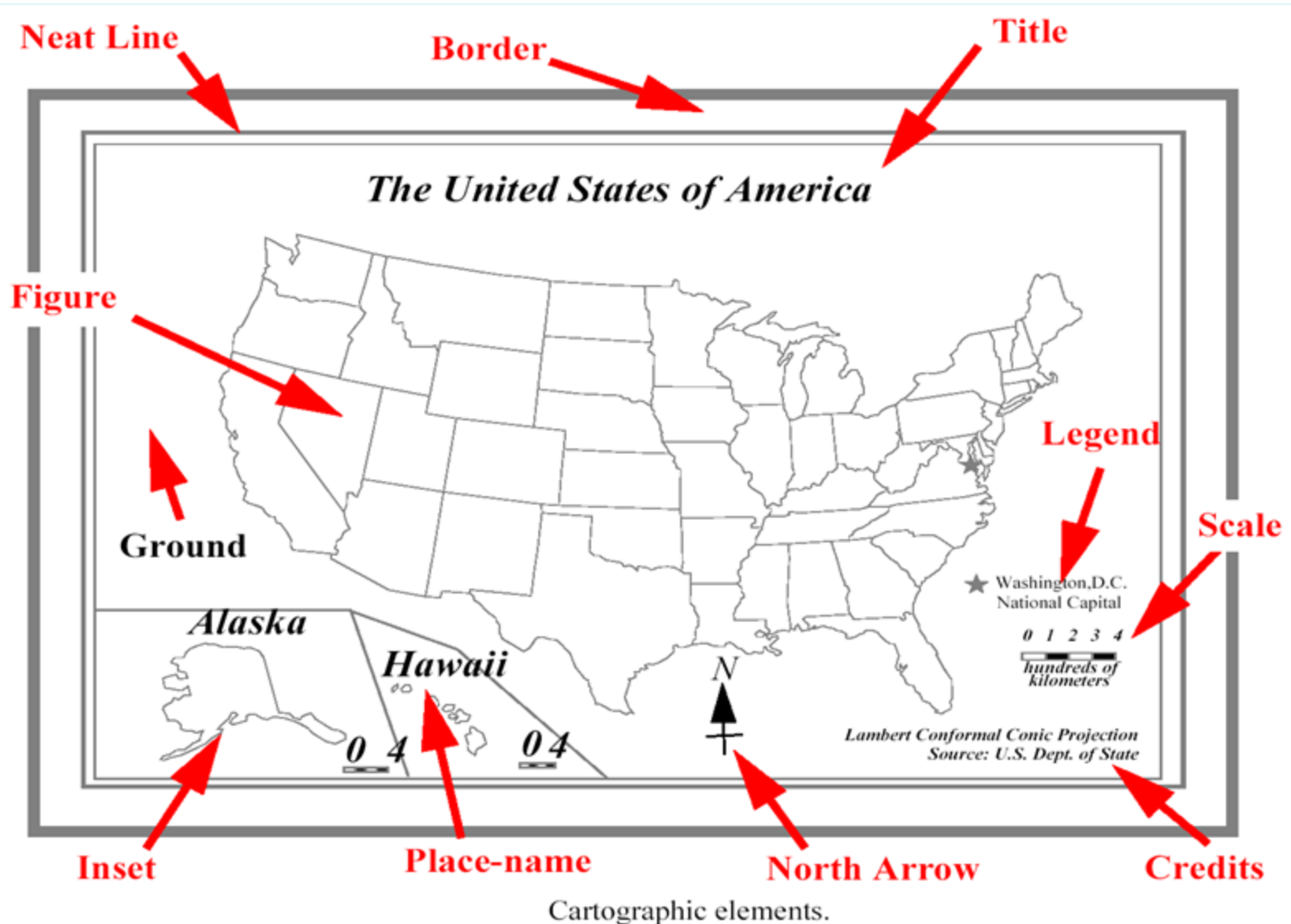
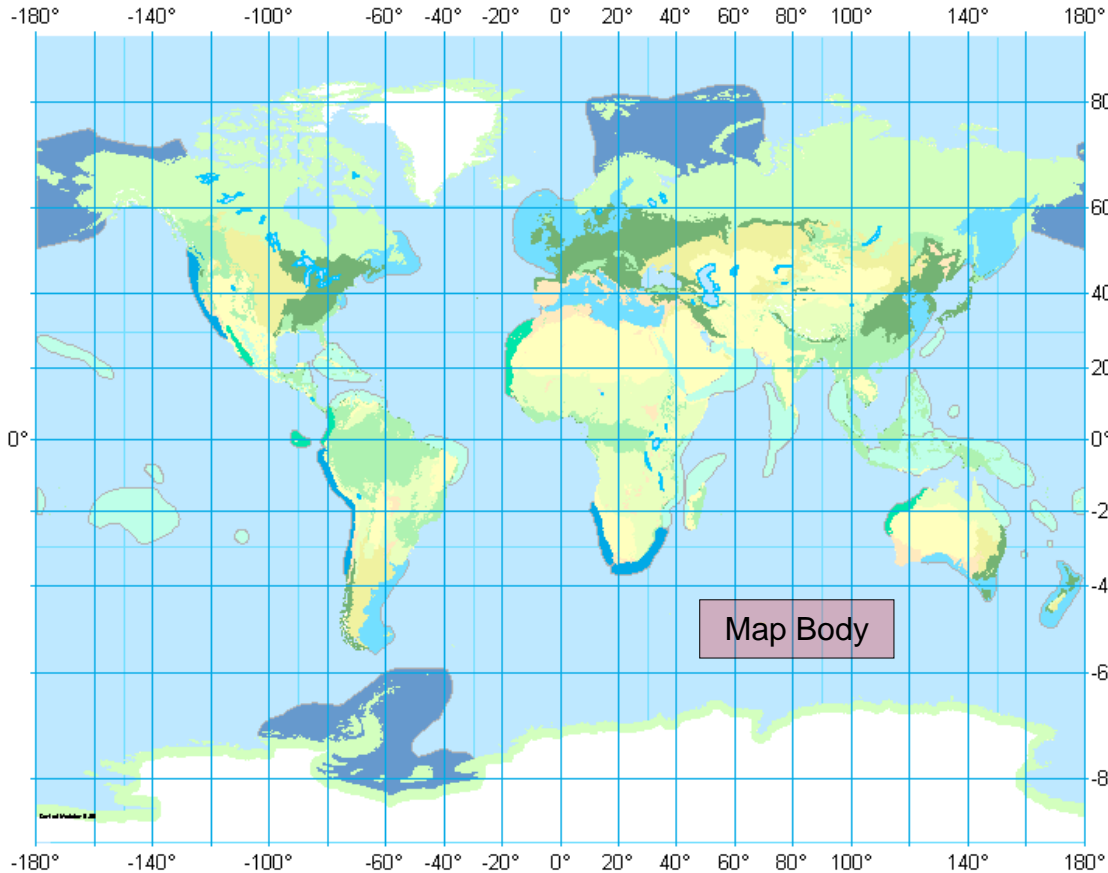


Definition of Map Elements

Layout Design

>>





- Major Lakes
- Terrestrial Biome
- Biome Type
- Tundra
- Boreal Forest / Taiga
- Temperate Conifer Forests
- Temperate Broadleaf and Mixed Forests
- Montane Grasslands and Shrublands
- Temperate Grasslands, Savannas and Shrublands
- Mediterranean Forests, Woodlands and Scrub
- Desert and Xeric Shrublands
- Tropical and Subtropical Dry Broadleaf Forests
- Tropical and Subtropical Grasslands, Savannas and Shrublands
- Tropical and Subtropical Coniferous Forests
- Tropical and Subtropical Moist Broadleaf Forest
- Flooded Grasslands and Savannas
- Mangroves
- Water
- Snow, ice, glaciers and rock
- Marine Biome
- Biome Type
- Polar
- Temperate Shelfland Seas
- Temperate Upwelling
- Tropical Upwelling
- Tropical Coral
- World Background
- latlong (30 degree)
- world30

David Maguire
October 2004

Source: ESRI Data & Maps CD
Created in ArcGIS 9 using ArcMap

Title **World Habitat Areas**

Grid

Legend

Projection
Robinson Projection

Data Source

North Arrow

Author

Inset map

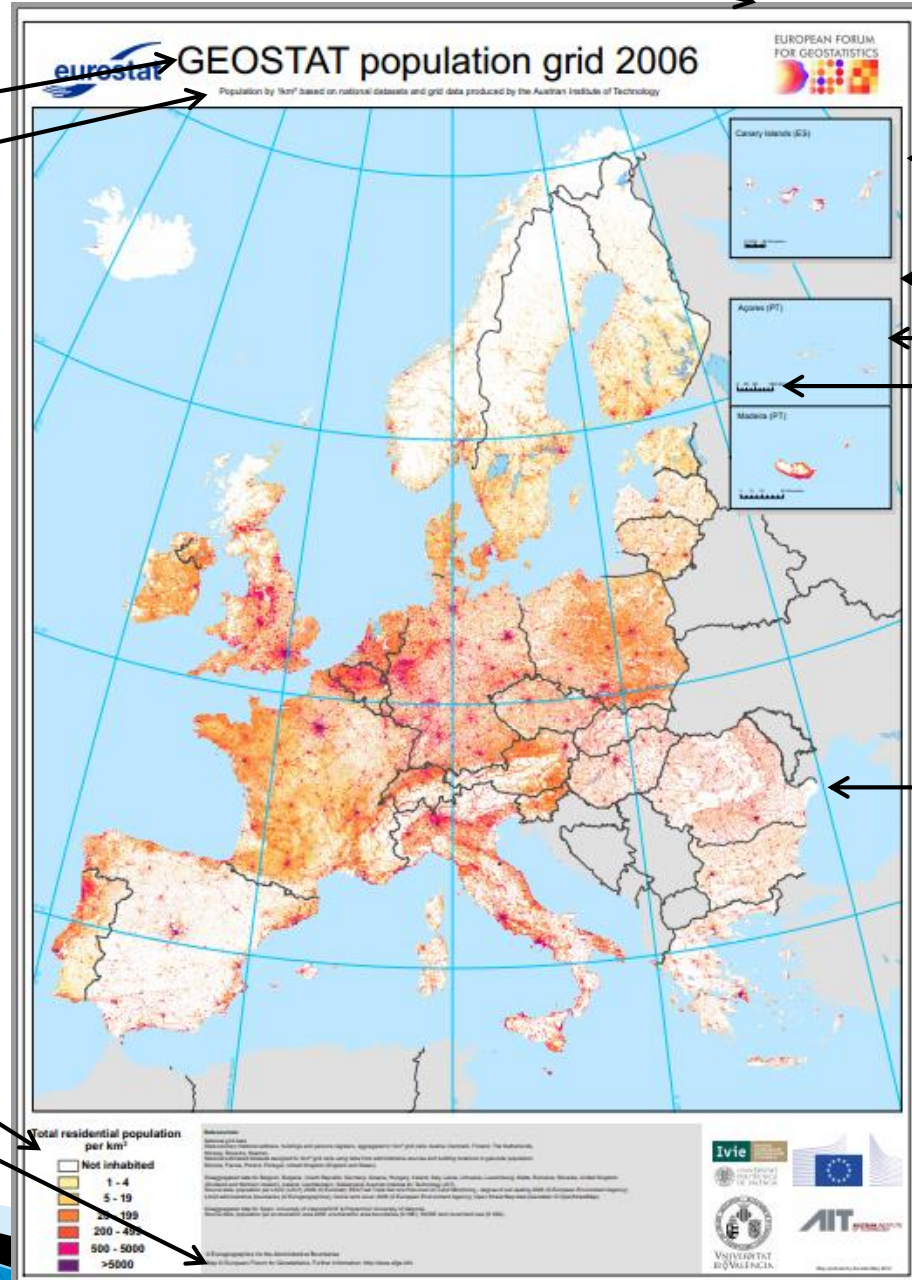
Scale
Miles
770

Edge of paper

>>

Titel

Subtitel



Frame line

Neat line

Inset

Scale

Orientation



▶ The most maps are created from the common set of elements:

1. Frame and neat line
2. Mapped area
3. Inset map
4. Title and subtitle
5. Legend
6. Data source
7. Scale
8. Orientation

Take the most of the available space

Take the least of available the space



- Primary Elements
- Secondary Elements

Primary Elements



- Title & Subtitle
- Legend
- Maps
- North arrow
- Date
- Authorship
- Scale bars
- Page border

- ▶ Usually draws attention by virtue of its dominant size; serves to focus attention on the primary content of the map.
- ▶ Should be an answer to:
 - What?
 - Where?
 - When?



Though titles could be placed anywhere on the layout page, these placements offer visibility while still allowing the map element to remain central to the overall layout.

- ▶ The map title should appear larger than the source or legend text but should never overpower the map body.
- ▶ Its placement does not have to be at the top center of the map, but it should always be easy to see and reflect the map's purpose.

- ▶ Describe map theme as short as possible
- ▶ Will draw attention
- ▶ No abbreviations
- ▶ Word “map” should be avoided
- ▶ Title is visually bigger than subtitle
- ▶ Avoid **bold**, *italics*. Keep it simple
- ▶ Located most often above the map or above the legend

Homeownership, 2000
White Non-Hispanic Householders

Change in Minority Homeownership, 1990 to 2000

- ▶ The principal reference to the map symbols.
- ▶ It is still a key element for map reading; describing all unknown or unique map symbols used.

- ▶ The legend should be large enough for the reader to interpret the symbology.
- ▶ The symbols used in the legend should exactly reflect the symbols used in the map body.
- ▶ The legend should never be scaled independently from the map body.
- ▶ The legend should also be self-explanatory.
- ▶ The purpose of the legend is to help the reader interpret the map body.
- ▶ If the legend needs any type of interpretation, then it has failed its purpose.

Map Legend

Transportation

-  Limited Access Hwy
-  Multi-lane Divided Road
-  Private Road
-  Residential Street
-  On-ramp
-  Railroad Track
-  Airport
-  Interstate Route
-  U. S. Route
-  State/Provincial Route
-  County or Other Route

Political Features

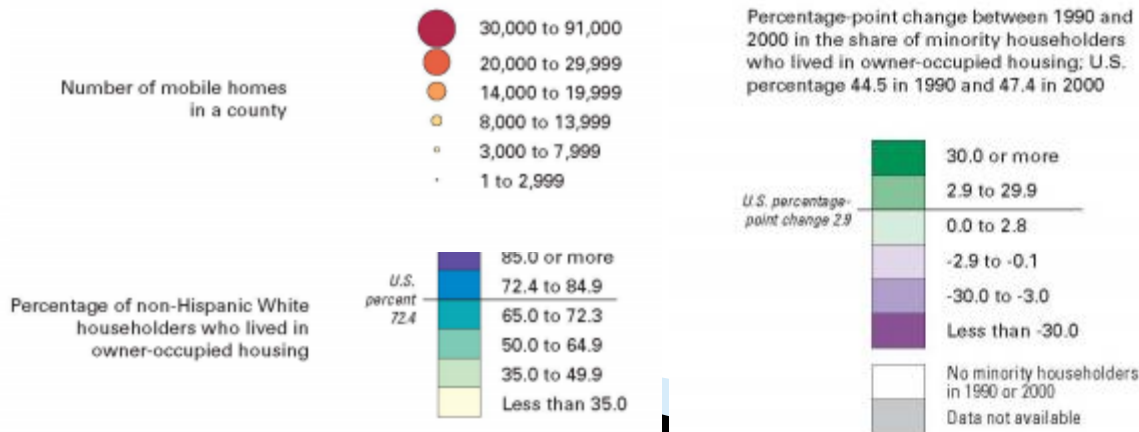
-  State/Provincial/International Boundary
-  Capital City
-  Larger City
-  Smaller City/Town/Neighborhood
-  Urban Area
-  Rural Area
-  Body of Water
-  Recreational Area/Park

Places of Interest

-  Golf Course
-  Sporting Venue
-  Shopping Center
-  Hospital
-  Government/Military/Education Facility

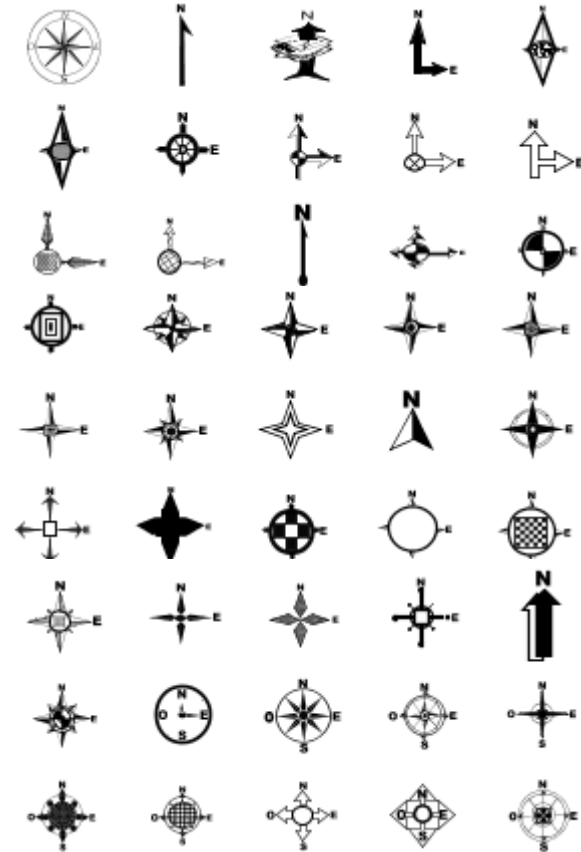
Legend properties

- ▶ Defines all thematic symbols
- ▶ Self-explanatory symbols are excluded (for example country borders)
- ▶ Avoid using box around the legend
- ▶ Forms a part of the map and normally is not separated
- ▶ Symbols should be identical (size, color, orientation to the map)
- ▶ Symbols and explanations should be aligned

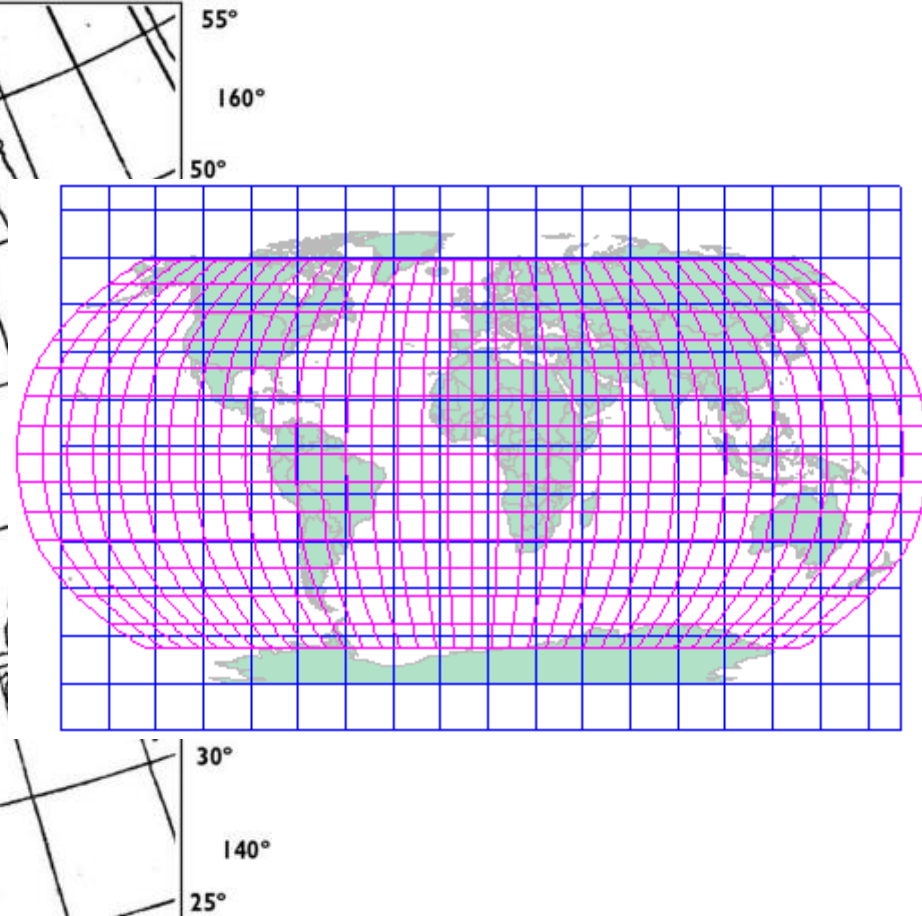
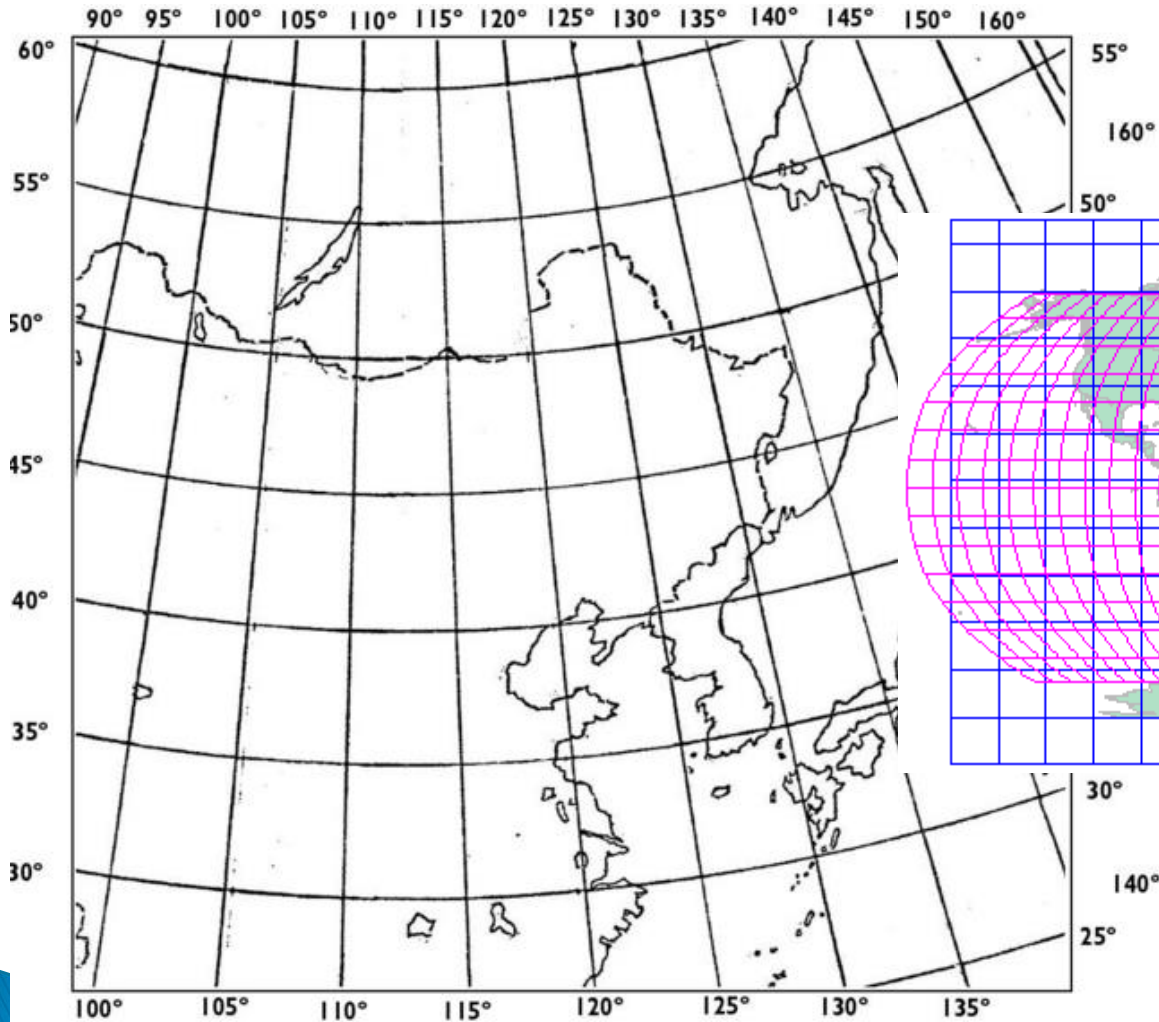


- ▶ According to the rules, each map should have a north arrow.
- ▶ But if the map is north oriented, or if the geographical coordinate are already on the map the north arrow can be omitted.

- ▶ Ways of representing scale:
 - North arrow – many choices but keep it simple
 - Graticules(Grid) – grid lines representing longitude and latitude. Meridians are indicating the north direction



Graticules(Grid)



- ▶ The meaning and value of some maps (such as those relating to current affairs or weather) are time sensitive.
- ▶ The reader must know when they were produced to gauge whether to trust them.
- ▶ An out-of- date road atlas or city map can cause tremendous frustration.
- ▶ The detail with which you specify the date of production will depend again on the nature of your theme and audience.

- ▶ The authority lying behind the composition of a map can be of prime importance in some situations.
- ▶ Most maps note the name, initials, or corporate identity of the cartographer(s).



General Commission for Survey (**GCS**)

- ▶ Provides the reader with important information regarding linear relations on the map. A scale can be numerical (for example 1:50000) or graphical

Graphic scale  0 1,100 Feet

Word statement 1 inch equals 500 feet

Representative fraction 1:6,000



- ▶ Scale bars are frequently located at the bottom of the map to make them easy to find.
- ▶ Remember, map scale can be represented as a verbal scale (1 cm = 1 km) or as a representative fraction (1:24000 or $1 / 24000$).

Secondary Elements



- Neat lines
- Graticules
- Network path
- Disclaimer
- Data sources
- Data citations
- Logos
- Graphs
- Photographs
- Graphics
- Map number, if series
- Tables
- Copyright
- Projection
- Inset maps
- Descriptive text



- ▶ Neatlines or clipping lines are used to frame a map and to indicate exactly where the area of a map begins and ends.
- ▶ The outer neatline of a map--its border--helps to frame the entire map composition to draw the reader's attention to the various elements of information.

- ▶ Neatlines are also used to "clip" the area of the body of the map and of locator, inset, and index maps.





- ▶ Allows to determine the origin of data
- ▶ Data source is the smallest type of texts used in maps
- ▶ Commonly located on the right or left of the map bottom within the frame line

Data sources:

National grid data

Data sources: National address, buildings and persons registers, aggregated to 1km² grid cells: Austria, Denmark, Finland, The Netherlands, Norway, Slovenia, Sweden.

National estimated datasets assigned to 1km² grid cells using data from administrative sources and building locations to geocode population: Estonia, France, Poland, Portugal, United Kingdom (England and Wales).

Disaggregated data for Belgium, Bulgaria, Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Romania, Slovakia, United Kingdom (Scotland and Northern Ireland), Iceland, Liechtenstein, Switzerland: Austrian Institute for Technology (AIT).

Source data: population per LAU2 (LAU1) 2006 (© Eurostat); EEA Fast Track Service Precursor on Land Monitoring - degree of soil sealing 2006 (© European Environment Agency); LAU2 administrative boundaries (© Eurogeographics); Corine land cover 2006 (© European Environment Agency); Open Street Map data (Geodaten © OpenStreetMap).

Disaggregated data for Spain: University of Valencia/IVIE & Polytechnic University of Valencia.

Source data: population per enumeration area 2006, enumeration area boundaries (© INE); SIOSE land cover/land use (© IGN).



- ▶ Unless it is absolutely clear from the context in which a map appears, readers will need to know about the sources from which the map was derived.
- ▶ You must identify your sources so that the reader could, if needed, track them down to check your information and interpretation.

- ▶ Accuracy, and reliability of sources is critical to the interpretation of a map and should be noted. Sometimes it is also important to indicate how the data was processed, grouped, generalized, or categorized.

- ▶ Source information provides the reader with additional information, such as:
 - the map author
 - organization
 - production date
 - data source date
 - projection, coordinate system
 - how the map was produced.

The amount of information supplied regarding the projection used for the map is dependent on the purpose of the map and/or the complexity of the projection.

In simple terms this equates to:

- ▶ Simple maps may not require projection information to be shown, but it can be added if desired. A good example is a town/city, holiday resort map where the important factor is that a consistent scale is used and that features stay in their correct position relative to each other.
- ▶ Larger area and more complex maps/projections need some projection information to be shown.
- ▶ Legal maps and very complex/unusual projections need precise information about the mathematics behind the projection

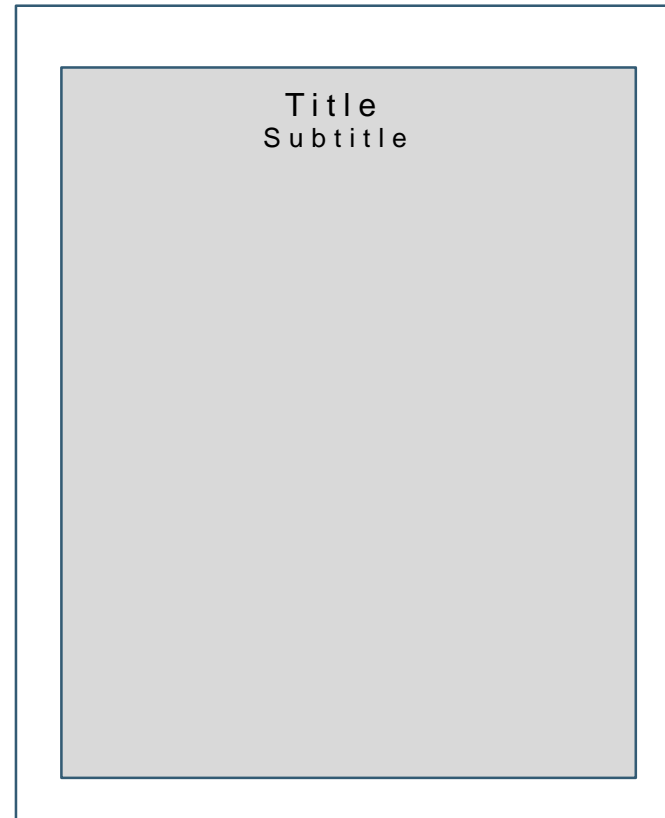
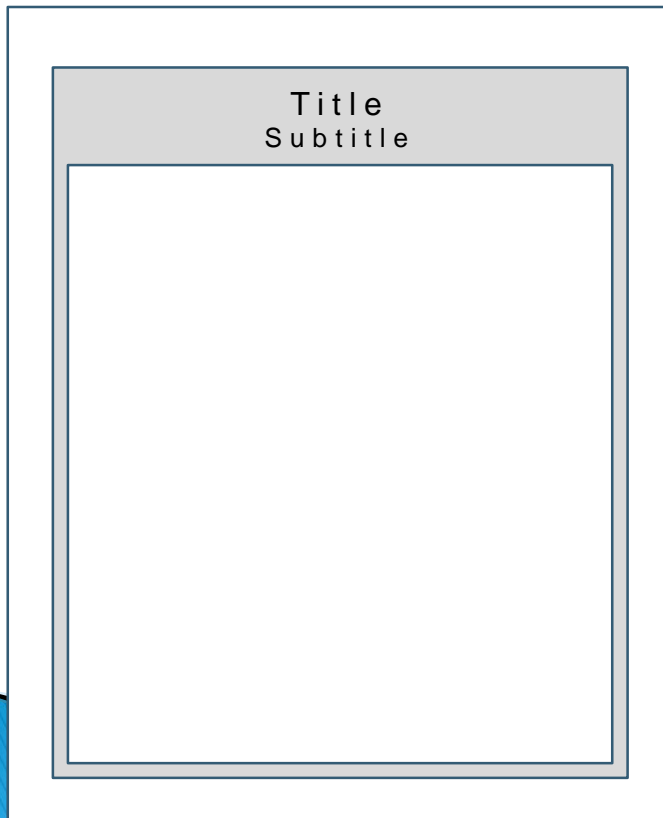
- ▶ Many properties can be measured on the earth's surface independently of its geography. Some of these properties are:
 - ▶ Area
 - ▶ Direction
 - ▶ Distance

- ▶ Map projections can be constructed to preserve one or some of these properties, though not all of them simultaneously.
- ▶ Each projection preserves or compromises or approximates basic metric properties in different ways.



- ▶ Both optional; borders can serve to restrain eye movements.
- ▶ Neatlines are finer lines than borders, drawn inside them and often intra-parallelism, rendered as part of the graticule; used mostly for decoration.

- ▶ Help organise the map content and define its extent
- ▶ Frame line is used in most cases
- ▶ Neatline is used mainly when mapped area needs to be cropped

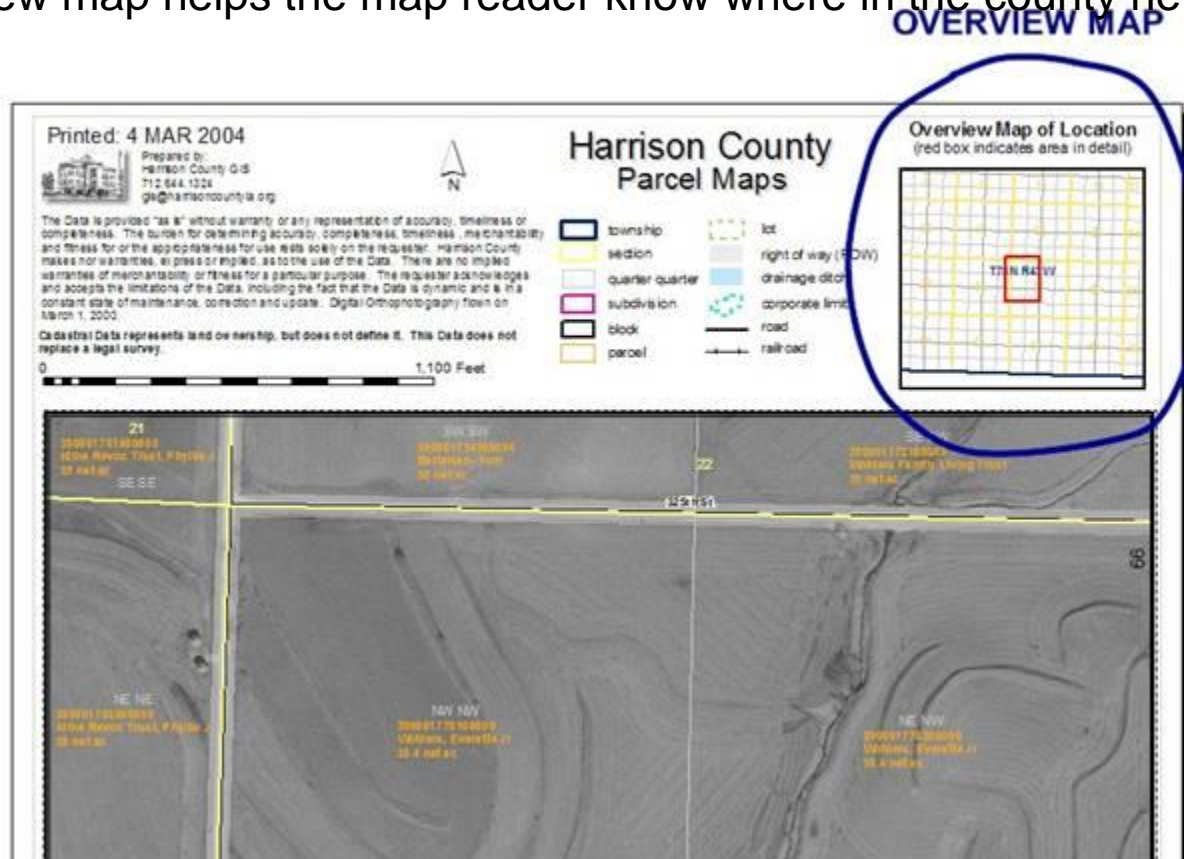


- ▶ Some maps portray areas whose locations may be unfamiliar to readers.
- ▶ In such cases, the cartographer adds a "helper" or locator map that places the body of the map within a larger geographical context with which the reader can be expected to be familiar.

Overview Map



- The overview map helps the map reader know where in the county he or she is examining.



- ▶ Sometimes observations and data are so densely clustered in small sections of a larger map that the cartographer must provide the reader with additional close-up, "zoomed-in" maps of these smaller areas. Otherwise the data will obscure itself.
- ▶ These close-up detailed maps are called insets.

- ▶ Inset maps provide location information about the map (the map area's location in the world) or a larger-scale view of a selected map region.



- ▶ Can serve different purposes:
 - To enlarge important areas
 - To show related topics to the main theme
 - To show areas which can not be showed on the main scale
 - Locator inset shows primary mapped area in relation to larger and more easily recognisable area



- ▶ There are limits to the amount of information that can be placed effectively in the body of a map, even though this information is useful to readers.
- ▶ Sometimes labels and other information have to be moved to an index map.

