

Geography 361—Cartography
Penn State Department of Geography

Cindy Brewer, Fall 2009

Lab 5: Representing Terrain (8%)

Data Sources: Plots from Andrew Pierce, boundary from NPS, and base data from USGS GNIS, NED and NHD, 2009.

Section:	Tues	Wed	Thurs
Assigned:	Oct. 25	Oct. 26	Oct. 27
Progress check:	Nov. 1	Nov. 2	Nov. 3
Due:	8	9	10

Assisted by Jim Thatcher. Plot data provided by Anna Vandervglut and Stockton Maxwell. Terrain from USGS Lake Tahoe Data Clearinghouse. Hydrography from NHD. Summit data from GNIS (U.S. Board on Geographic Names) http://geonames.usgs.gov/domestic/download_data.htm

The goal in completing this lab is to become expert at using data derived from a DEM to represent terrain on maps.

Cartographic concepts:

- Combine elevation tints (hypsometric tints), contour lines, and hillshading skillfully to represent terrain form and provide metric information about elevation.

New tools and skills:

- Use transparency to overlay multiple raster layers
- Label contours.
- Use feature outline masks (remove part of contour line for label without leaving a hole in terrain)
- Build multi-part color ramps
- Use and save ramp styles

Map requirements and grading criteria:

A. Sampler page includes four maps:

1. Hillshade with elevation gradient
2. Classed elevations with contours
3. Hillshade with contours
4. Swiss hillshade (elevation tints, filtered hillshade, and aerial shading)

There are no labels, points, boundaries or other map marginalia on Map A (except the caption below each frame and your name and section).

B. The page includes one map showing:

Figure 1:

- lakes**, most named
- peaks**, named where applicable
- a combination of **hillshading and/or elevation tints**
- **scale bar** within map area
- map scale at 100,000
- some **road** and **hydro feature** labels, consider point labels where applicable as well

Figure 2:

- all of Anna and Stockton's **plot locations** named and represented with point locations
- **lakes**, most named
- **contour** lines, with index vs. intermediate contours distinguishable
- many contours are **labeled**

- contour lines have gaps for labels and terrain colors below labels are continuous (created with **masks/advanced drawing**—no visible label halos)
- a combination of **hillshading and/or elevation tints**
- **scale bar** within map area
- map scale is at **1:20,000** (use layout with figure caption placed below map as set in MXD)

Cartographic requirements:

- presents an **aesthetically pleasing and readily interpreted** representation of Lake Tahoe terrain
- **point symbols are distinguishable** yet not overly prominent and don't interfere with terrain
- point labels **positioned** following cartographic placement guidelines
- labels easily **associated with the locations** they label
- labels visually organized into **categories** using type characteristics (fonts, size, etc.)—no more than two fonts on the map