GEOG 3231/5231 Intro GIS

**Project 4: Raster Analysis**

***Ranked site selection, Winslow WA***

# 50 points

# Due Sept 29

**Objective:**

You have a client that wishes to build a small resort to serve as a weekend getaway for people in the Winslow, WA area. Your task is to find suitable locations based on the following:

1. Distance from Winslow:
   * Less than 10 km is optimal, 10-20 km is suitable, greater than 20 km is unacceptable.
2. Land cover must be forest:
   * Evergreen is optimal, other forest types are suitable, all other cover types are unacceptable.
3. Higher elevations are preferred:
   * Optimal is over 100m, between 75m – 100m is suitable, less than 75 m is unacceptable.

Use a 3-rank system where **optimal = 100**, **suitable = 10**, **unacceptable = 1**.

**Data Sources**:

Land Cover & Elevation raster data = USGS

Places & Lower 48 shapefiles = US Census

**Data processing & analysis:**

You will perform many of the same steps we took for the in-class raster analysis.

***Refer to your notes from the raster\_inclass project for clarification of the basic steps listed below.***

* Determine appropriate projection & set data frame > Export layers as appropriate
* Reclassify to create a water mask
* Set Geoprocessing Environments
* Create a distance raster using Winslow as the starting point
* Reclassify to rank the distance, landcover, and elevation grids (*be consistent with ranking system*)
  + *Refer to USGS website for land cover classes:* <http://landcover.usgs.gov/classes.php>
* Use Map Algebra to create a composite raster of the reclassified themes
* Reclassify your final grid into three ranks

**Deliverable:**

Your final project should contain a single map layout with:

1. The final suitability raster:
   1. Zoom to the extent of your “bulls-eye” and set symbology so each rank is identifiable
   2. Rename legend labels so ranks are obvious to distinguish
      1. *Optimal, Suitable, & Unacceptable*
2. The city of Winslow, labeled & symbolized appropriately (use halo)
3. The attribute table of your final suitability raster, edited in Excel to reformat row & field labels
   1. *This shows the number of grid cells in each rank, i.e. the accuracy of your analysis*
   2. *Row labels in the table should match legend labels*
   3. *Create & calculate a field for area in meters*
4. An inset reference map showing the extent of the study area within Washington State
   1. *Consider the inset map scale (WA state) and set the data frame projection accordingly*
   2. *Use extent indicator to identify study area*
5. All standard formatting & map elements

**Export the final layout to pdf and upload it to D2L.**