Kevin Sass

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G141 Lab 5

**Spatial Analysis with Raster Data**

1. The classifications present for unw\_res and wtd\_res are 8 – 10 and 8.2 – 10, respectively. The higher the value, the more suitable it is to build a wind turbine in that area.
2. Weighted site selection analysis allows users to rank raster cells and assign a relative importance value to each layer. The result is a suitability surface which ranks potential sites from 1 to 5. Sites with a value of 1 are least suitable and those with a value of 5 are most suitable. Weighted site selection is an important site selection method because it includes options for viewing next-best sites (those with a value of 4) should the ideal sites not work.

Weighting layers is another critical step in weighted site selection because it allows the user to place varying levels of importance on different factors such as proximity to a major highway and sun exposure. Weights are usually determined by a panel of experts on the subject being tested and they are based on specific criteria for the analysis. Weights are assigned as different percentages that must add up to 100%.

1. In our last lab, we found suitable blocks of areas that are fit for building wind turbines, however, they do not show delineations within those blocks that specify which subdivisions are most suitable and more suitable than the other subdivided areas in those blocks. Our lab 5 result does show this and can prove to be much more helpful in choosing the best possible locations for building structures such as wind turbines. It becomes especially useful when you rank importance of certain factors in weighted analysis to better customize the map to suit your needs. You would choose unweighted analysis if all factors have equal importance.   
   A suitable location would be the top northeast corner of Cook County, as this area reflects the highest number value/color for suitability in both the Unweighted and Weighted maps.