Using Rasterization to Overcome Boundary Changes

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Bradford Mapping
Study: Land Values, 1860-1870

- How did the Civil War and the first 5 years of Reconstruction affect land values across the US?
- Given wildly varying land values (min: $1, max: $7309) changes needed to be expressed in % difference

- Data Source: County Average Land Values, US Agricultural Census, 1860 & 1870
- From National Historical GIS (nhgis.org)
- Data in contemporary dollars per acre
- 40% inflation 1860-1870
Boundary Changes
("Year 2 Raster" - ("Year 1 Raster" X "Inflation Factor"))
("Year 1 Raster" X "Inflation Factor")
Advantages

- Easy to model
  - No statistics with difficult-to-interpret results
  - Can adjust equation for total rather than % change
- Raster can be averaged to jurisdiction boundaries for correlation with other variables
Faults

- No weighting with other variables
- Some slices that change jurisdictions can have difference values that are out of sync with either their origin or destination polygons, or regional trends.
Land Value Data Source: 1860&1870 Census of Agriculture, retrieved from NHGIS.  
County Boundary Data: Minnesota Population Center.  
Lakes and Rivers: US Census Bureau 
Continent: ESRI