Frac sand mining is an important new industry in western Wisconsin. The round, strong, quartz grains are used in the "fracking" process to enhance oil and natural gas extraction. Frac sand companies are seeking to mine the Jordan and Wonewoc formations in Wisconsin.

This project utilizes geologic and geographic data to guide the siting of potential frac sand mines in Trempealeau and Buffalo counties, Wisconsin. Criteria used to evaluate potential areas for sand mining include: distance from major roads and railroads, overburden thickness, water table depth, sand unit thickness and elevations, and pre-existing mine site locations. Data was collected from the Buffalo and Trempealeau Land Conservation offices and the WDNR.

The data was analyzed using ArcMap software. ArcGIS tools were used to interpolate the collected data and produce a heat map/index model of potential frac sand mine site locations. The "hottest" locations on the map are the most attractive for a frac sand exploration.

**METHODS**

**RESULTS**

**CONCLUSIONS**

**Appendix:** Definitions of Selected Technical Terms

- **Raster** - sampling of one or many continuous attributes on a rectangular array of cells used to capture imagery, thematic, surface, or picture data.
- **Index raster** - a raster storing a color map (heat map in this case), where each color is assigned a value based on categorical data.
- **Spatial Interpolation** - this method uses values at observed locations to estimate the variables at unobserved locations in geographic space.

**Bibliography**


WDNR, 2012b, DNR Public GIS FTP directory, ftp://dnrftp01.wi.gov/geodata/

