

Brownfields And The Correlation of Free And Reduced Priced Lunches

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Objectives

Toxic brownfields are found throughout the country. This project uses spatial analysis to determine whether their location is associated with children of families in need.

Disadvantaged populations are more likely to live closer to brownfields. Using data from the Iowa Department of Education on free and reduced priced lunches I studied the correlation between brownfields and students who receive free or reduced priced lunches

Data

- Agency for Toxic Substances & Disease Registry
- Social Vulnerability Index
- Environmental Protection Agency
- Contaminated Sites
- Iowa Department of Education
- Free and Reduced Priced Lunches
- Iowa Department of Natural Resources
- US Census Bureau

Methods

- Buffer zones of 2.5 miles from schools
- Spatial Join of buffer zones to schools
- Count of contaminated sites in the buffer around the schools
- Social Vulnerability Index (SOVI) for vulnerable communities to tract level
- Social Vulnerability refers to demographic and socioeconomic factors that show the communities abilities to bounce back from a disaster situation.

Contaminated Sites and Schools

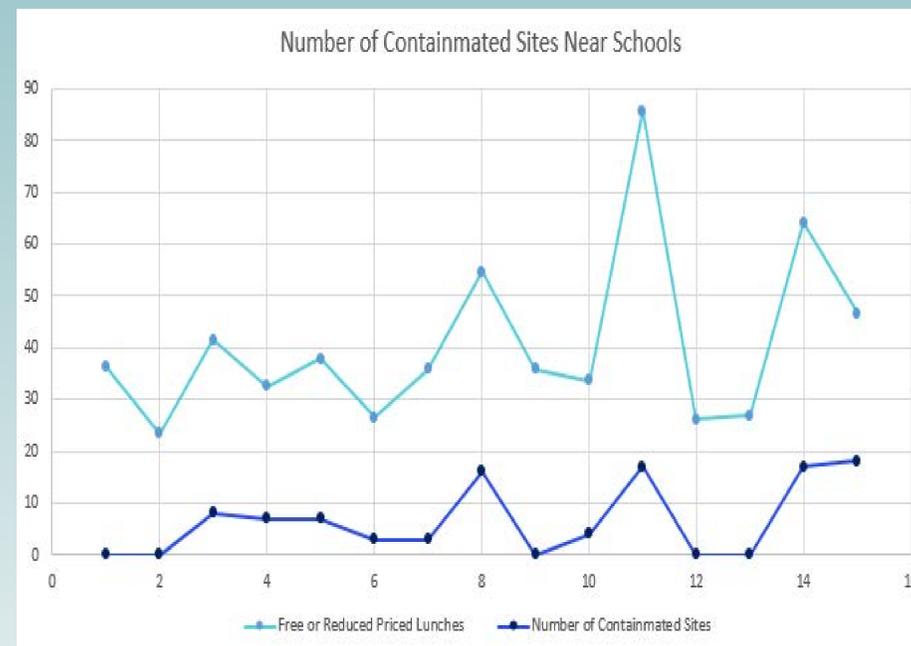


Figure 1

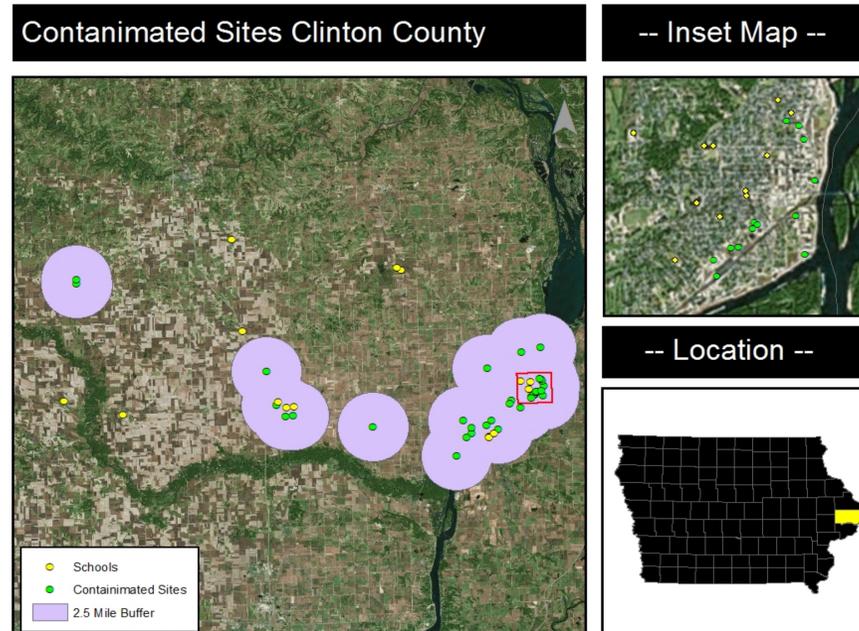


Figure 2

Conclusion

As seen in figure one the higher number of contaminated sites in a two and a half mile radius of a school there is greater percentage of students who receive free or reduced priced lunches.

In figure two the map shows a clustering of contaminated sites in the eastern side of the county, this is also a more vulnerable community according to The Agency for Toxic Substances and Disease Registry that uses a social vulnerability index for disaster management as seen in figure three.

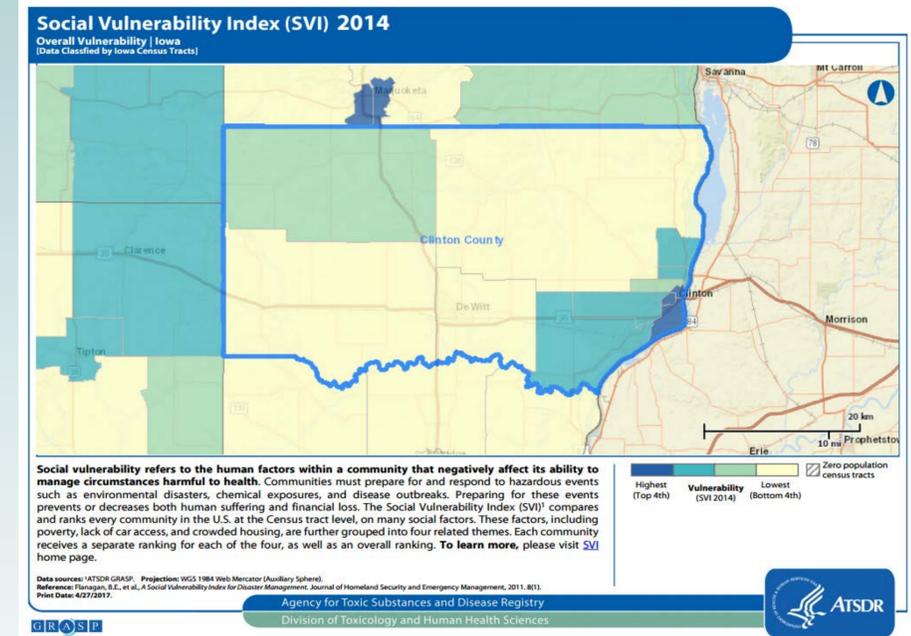


Figure 3

References

- U.S. EPA. (2016, August 3). Brownfield Overview and Definition. Retrieved from www.epa.gov
- Becerra, Marisol. 2013 Environmental Justice for Whom? Brownfield Redevelopment and Gentrification in the City of Chicago. PhD Thesis, University of Michigan
- Commission of Racial Justice. 1987. Toxic Waste and Race in The United States. Special Topic on Toxic Injustice, New York: Church of Christ.
- Karaoglu, Lora. 2004. Brownfields Redevelopment: The Criteria for Environmental Justice and Public Participation. Environmental Justice Research Collaborative (NEJRC) at Northeastern University Working Series, Boston: Northeastern University
- ATSDR GRASP
- Flanagan, B.E. et al. A Social Vulnerability Index for Disaster Management. Journal of Homeland Security and Emergency Management, 2011
- ESRI