

North American Soil Geochemical Landscapes 2010 USGS Perspective

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Workshop on the Role of Geochemical Data in
Ecological and Human Health Risk Assessment

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USGS Soil Geochemical Landscapes Project

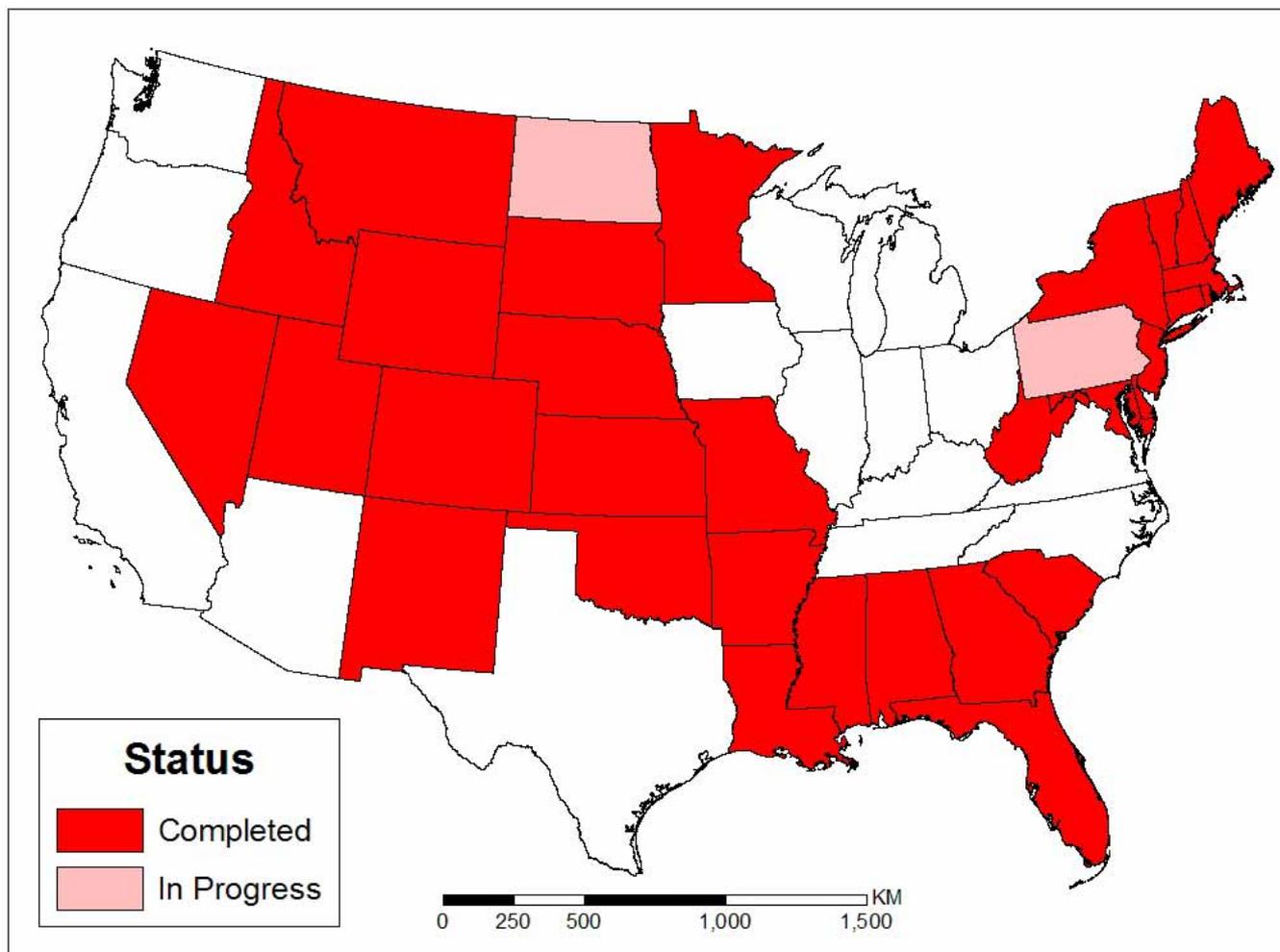
Samples collected:

- ❖ 0 to 5 cm depth soil
- ❖ A horizon
- ❖ C horizon, or closest equivalent down to 1 m depth

Analyses:

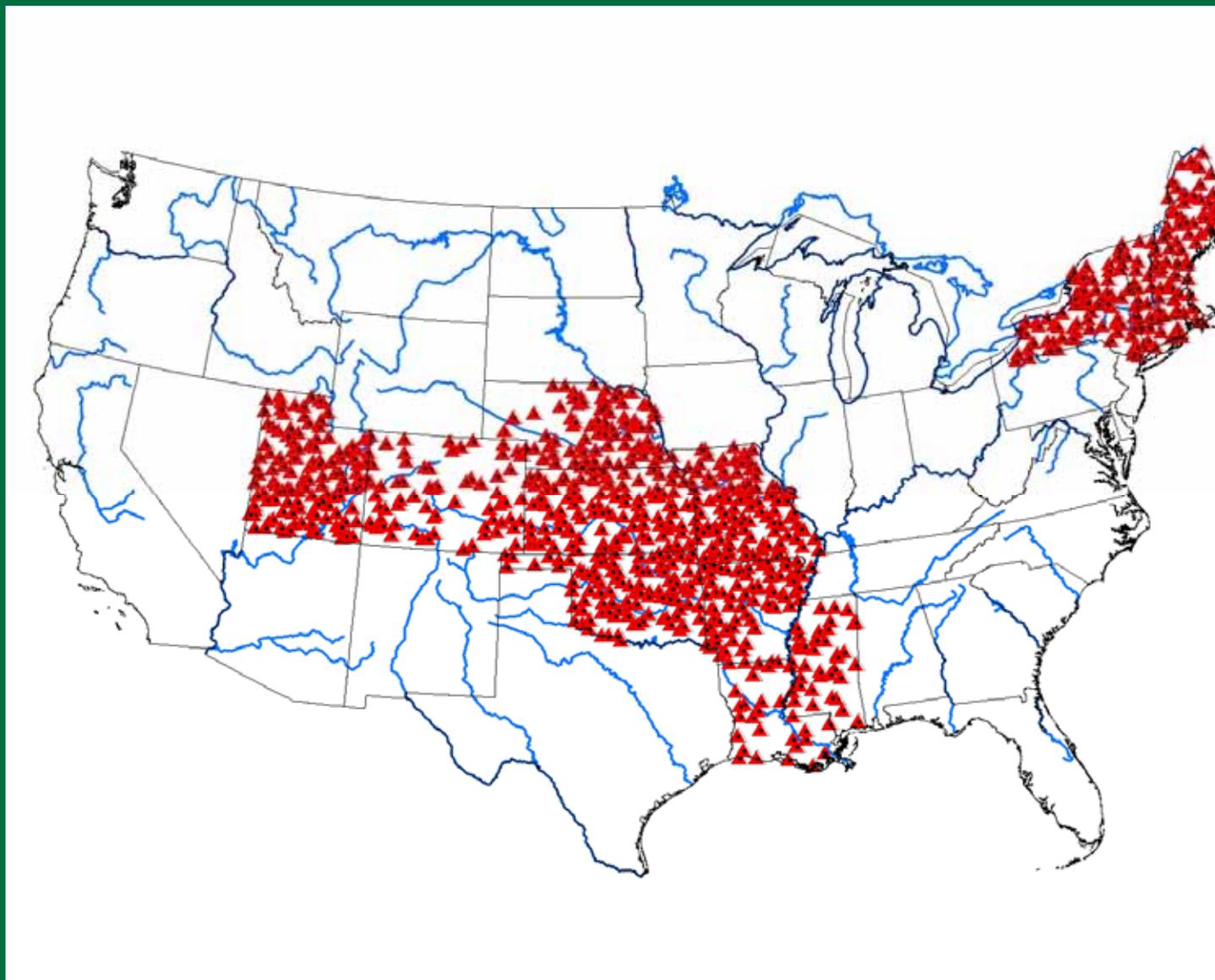
- ❖ Near-total extraction for major and trace elements
- ❖ Forms of carbon
- ❖ Anthrax (*Bacillus anthracis*) in 0 to 5 cm depth soil
- ❖ Microbial characterization of all three samples at 10% of sites (funding from USDA Forest Service)
- ❖ XRD mineralogy – A and C horizon

Status of sampling—31 December 2009

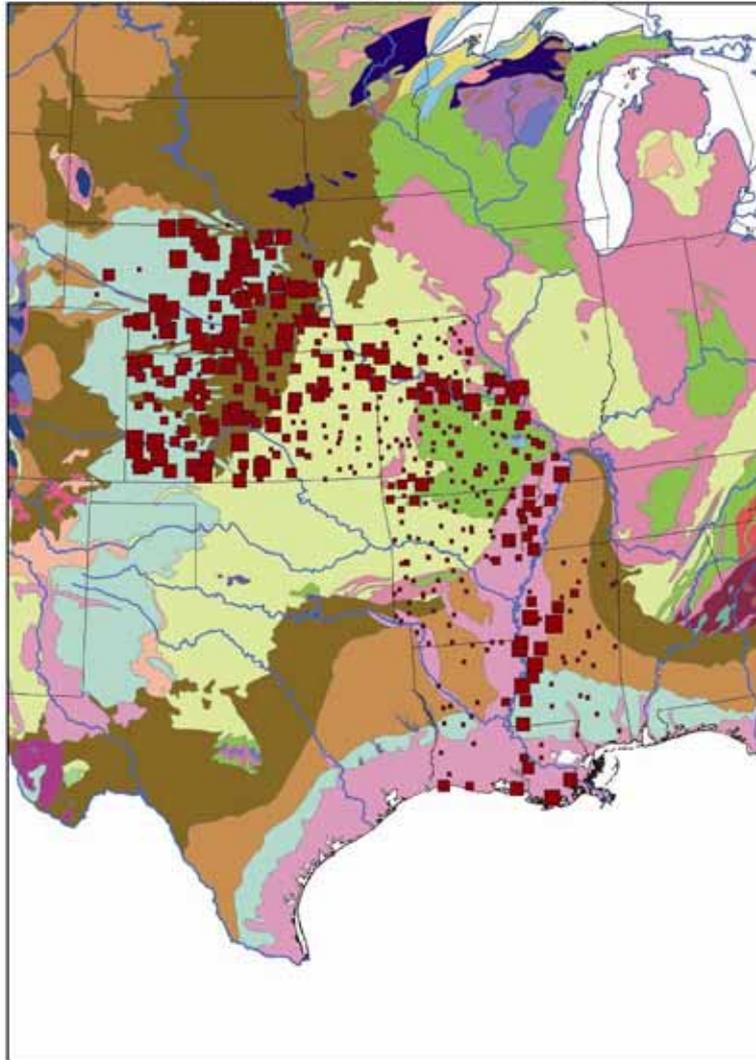


**2,677 sites = 8,031 samples
geochemistry on ~ 3200 samples**

Status of XRD mineralogy—March, 2010

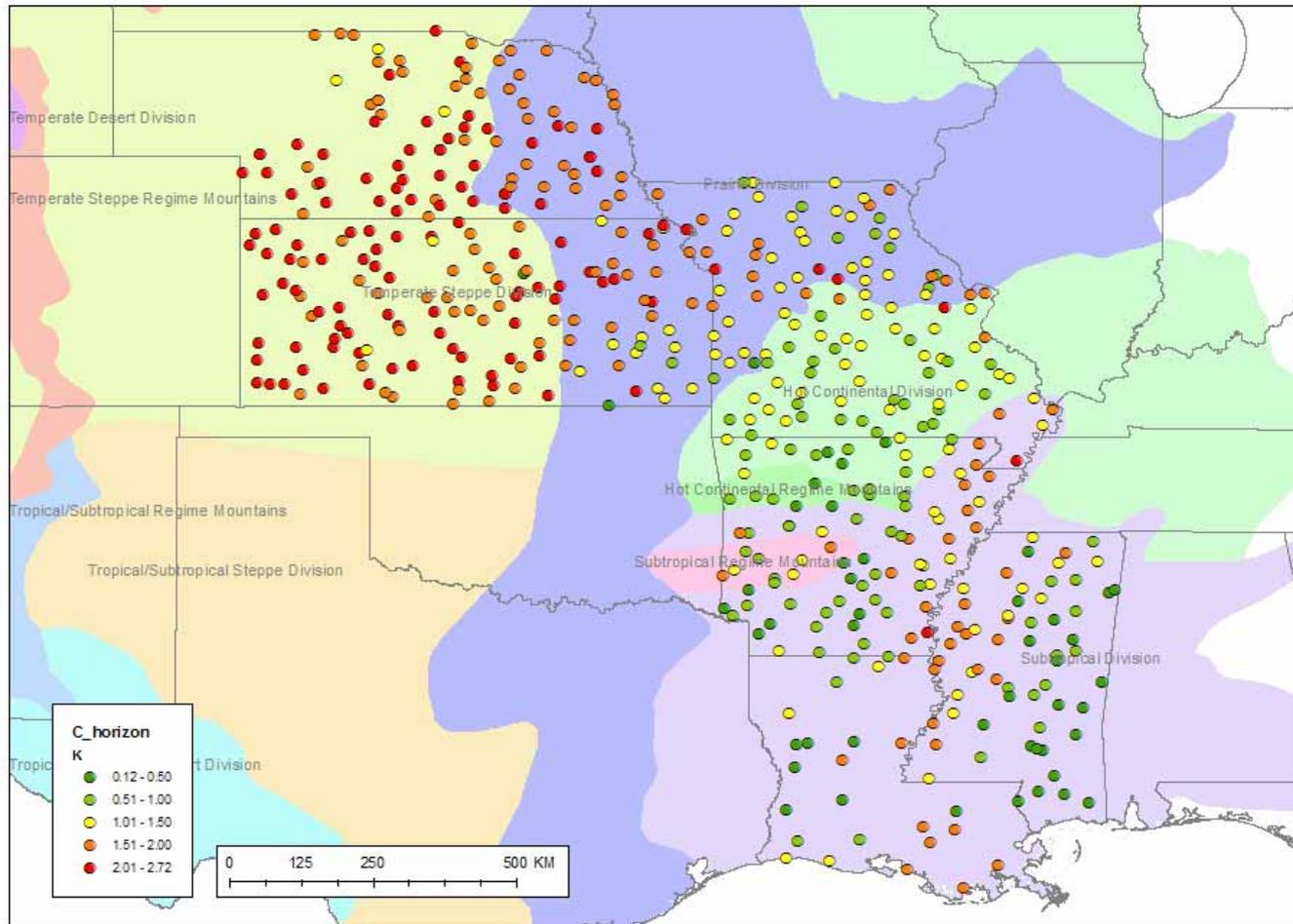


Orthoclase in C horizon samples



Abundant orthoclase from the High Plains apparent source for this mineral along the Missouri and Mississippi Rivers, and possibly the Gulf Coast

K in C horizon soils



Recent Project Developments

Interagency agreement with US Environmental Protection Agency

- ❖ Fund part of the sample collection this year
- ❖ Fund analyses of 0 to 5 cm depth soils for *Yersinia pestis* (black plague) and *Francisella tularensis* (tularemia/rabbit fever)

Discussions with researchers at the Johns Hopkins Bloomberg School of Public Health

- ❖ Pilot study to analyze 0 to 5 cm depth soils collected in farm fields for *Methicillin-resistant Staphylococcus aureus* (MRSA)

2010 USGS Activities

- ❖ Complete soil sampling in conterminous US
- ❖ Continue to push XRD and geochemistry analytical stream
- ❖ Presentation at Society for Environmental Geochemistry and Health meeting in Galway, Ireland, June 2010
- ❖ Work on interpretive products for spatial data as data become available
- ❖ Database construction and data release to public
- ❖ Organize sample archive at USGS facility in Denver