

EXPLORING MY FAVORITE SOIL SERIES (OLPE)

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Do you have a favorite soil series for testing out on new tools or models? I expect most people, at least those of you still reading, have a few favorites, kept right in their back pocket, ready to test the fallibility of any new soil application. I remember a few years ago when the Series Extent Explorer (a neat tool that shows you the geographic extent of any soil series) first came. Without even thinking, I immediately tested it with the Olpe Soil. And now because my supervisor chain has all enthusiastically agreed that this essay met the guidelines for the Friday Weekly Update . . . I get to tell you why.

If you've ever heard of "Olpe" [pronounced, **ol-pee**], more than likely it is because of an eastern Kansas staple, the *Olpe Chicken House* restaurant. Does it live up to the hype? Yes! Go ahead and make that detour to Olpe, KS and enjoy the light-crisp fried chicken and homemade pie. On your way you might be lucky enough to spot a road cut with an Olpe soil. All you have to do is look in terraces above any stream draining out of the Flint Hills of Kansas.

The Flint Hills are so named for the abundant residual flint eroding out of region's Permian limestone beds. Geologists use the term "chert" instead of flint, but all you really need to know is that chert is a quartz rock, which is a lot more resistant to erosion than the softer limestone and shale parent materials of the region. This weathered chert creates lag gravels, which in turn have been reworked and transported, mostly eastward and southeastward by paleo-stream systems. These gravels are brownish to reddish brown in color, smooth, angular-to-subangular chert pebbles and cobbles. Gravel roundness increases, and color becomes darker the further they have been transported from their source strata in the Flint Hills. Would You Like to Know More? Merriam and Harbaugh (2004) wrote an excellent review on the origin and distribution of these chert gravels.

Olpe, the soil that forms in this gravel, is a Clayey-skeletal, smectitic, thermic Typic Paleudolls (SSS, 2022). That string of nonsense tells us that the Olpe soil is a very-gravelly old moist prairie soil that you really should think twice before digging in to build a basement. It has mollic and argillic horizons. It drains poorly and is more susceptible to erosion after being overgrazed. The soil can be photogenic (if chert gravel is not coated in clay) as the 80% gravel content in the 50–100cm depth range is quite striking compared to its darker loess cap.

The soil geographer in all of us, however, would appreciate the geographic distribution of the Olpe soil (Figure 1; CSRL, 2022) which is found in stream terraces and on high hilltops. This pattern has been used by geologists to track past positions of streams, leading to many classic geomorphic debates related to valley asymmetry, stream capture, stream migration, Coriolis effect, crustal tilting, glacial isostasy, and Pliocene-Pleistocene climate effects on stream flow and pattern, all of which are . . . well beyond the scope of this article.

The occurrence of the Olpe soil is an interesting geomorphic oddity. The gravel source is distinct and well known, and Olpe's stringy geographic pattern across the region gracefully follows modern streams. So, whenever any new soil application comes out, I quickly type in the four-letter word O-L-P-E and think of light-crisp fried chicken

and homemade pie.

Postscript, can you find a link between a memorable meal and your favorite soil?

References

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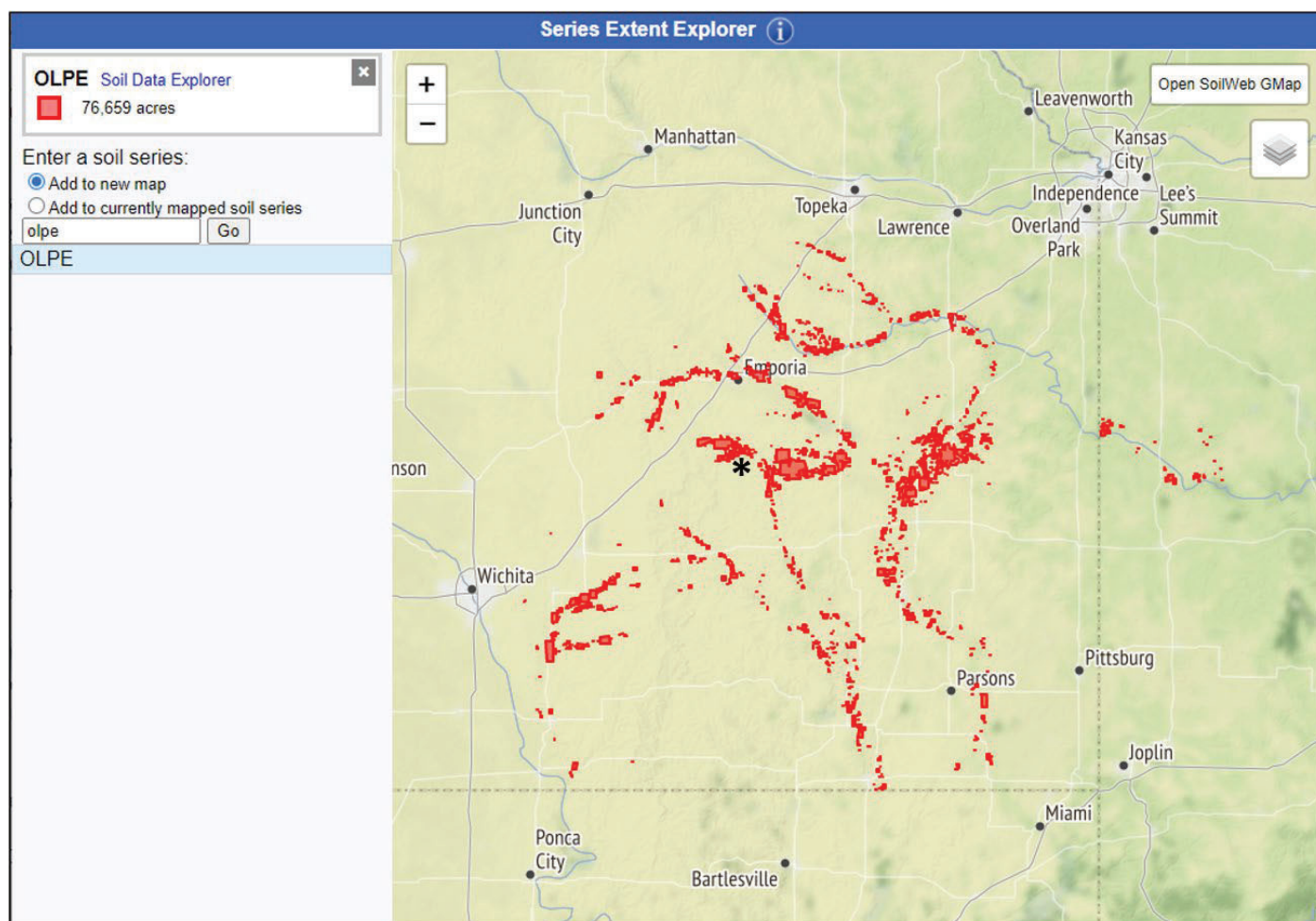


Figure 1. Spatial extent of the Olpe soil series using the Series Extent Explorer tool. The old skeletal Olpe soil forms in stream terraces above streams draining out of the Kansas Flint Hills. Asterisk marks location of the Olpe Chicken House.