



The Soil Series in Soil Classifications of the United States

Samuel Indorante (1), Dylan Beaudette (2), and Eric C. Brevik (3)

(1) USDA-NRCS, Carbondale, IL, USA (sam.indorante@il.usda.gov), (2) USDA -NRCS, California Soil Resource Laboratory, Davis, CA, USA (Dylan.Beaudette@ca.usda.gov), (3) Department of Natural Sciences, Dickinson State University, Dickinson, ND, USA (Eric.Brevik@dickinsonstate.edu)

Organized national soil survey began in the United States in 1899, with soil types as the units being mapped. The soil series concept was introduced into the U.S. soil survey in 1903 as a way to relate soils being mapped in one area to the soils of other areas. The original concept of a soil series was all soil types formed in the same parent materials that were of the same geologic age. However, within about 15 years soil series became the primary units being mapped in U.S. soil survey. Soil types became subdivisions of soil series, with the subdivisions based on changes in texture. As the soil series became the primary mapping unit the concept of what a soil series was also changed. Instead of being based on parent materials and geologic age, the soil series of the 1920s was based on the morphology and composition of the soil profile. Another major change in the concept of soil series occurred when U.S. Soil Taxonomy was released in 1975. Under Soil Taxonomy, the soil series subdivisions were based on the uses the soils might be put to, particularly their agricultural uses (Simonson, 1997).

While the concept of the soil series has changed over the years, the term soil series has been the longest-lived term in U.S. soil classification. It has appeared in every official classification system used by the U.S. soil survey (Brevik and Hartemink, 2013). The first classification system was put together by Milton Whitney in 1909 and had soil series at its second lowest level, with soil type at the lowest level. The second classification system used by the U.S. soil survey was developed by C.F. Marbut, H.H. Bennett, J.E. Lapham, and M.H. Lapham in 1913. It had soil series at the second highest level, with soil classes and soil types at more detailed levels. This was followed by another system in 1938 developed by M. Baldwin, C.E. Kellogg, and J. Thorp. In this system soil series were again at the second lowest level with soil types at the lowest level. The soil type concept was dropped and replaced by the soil phase in the 1950s in a modification of the 1938 Baldwin et al. classification (Simonson, 1997). When Soil Taxonomy was released in 1975, soil series became the most detailed (lowest) level of the classification system, and the only term maintained throughout all U.S. classifications to date. While the number of recognized soil series have increased steadily throughout the history of U.S. soil survey, there was a rapid increase in the recognition of new soil series following the introduction of Soil Taxonomy (Brevik and Hartemink, 2013).

References

Brevik, E.C., and A.E. Hartemink. 2013. Soil maps of the United States of America. *Soil Science Society of America Journal* 77:1117-1132. doi:10.2136/sssaj2012.0390.

Simonson, R.W. 1997. Evolution of soil series and type concepts in the United States. *Advances in Geocology* 29:79-108.