Dynamic Soil Properties and Advancing the Science of Soil Change. (S05-tugel102030-Oral)

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Abstract:

To make a consistent inventory of the soil resource, soil classification, mapping and interpretation are supported by pedological concepts based on soil properties that change relatively little. Concepts of soil change in soil survey are based primarily on the pedogenic time scale of thousands of years. However, management, disturbances and land use can change soil properties over periods of hundreds of years or less. There is increasing demand for information about management time-scale changes in resource condition, ecological processes, and the capacity of soil to function (e.g., support productivity and biodiversity, partition water, cycle nutrients, and filter and buffer contaminants). Pedological concepts for soil change need to include dynamic soil properties and their role in ecological processes, soil resistance and resilience. Information on dynamic and relatively static soil properties needs to be integrated to describe and predict the effects of management on soil functions, to develop soil interpretations, and to predict the sustainability of the soil resource. Pedologists, biologists and ecologists working together can advance the science of soil change.

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