How low can you go? Applying GIS to soil-landscape mapping at large scales (S05-noller123022-Poster)

Authors:

- J.J.Dixon* Oregon State University
- J.S.Noller Oregon State University

Abstract:

Scale-dependent relations of Geographic Information Systems (GIS) aided soil-landscape mapping were tested on old-growth forest soils in western Oregon. Soils representative of geomorphic landscape units within the 1.5 hectare Detritus Input Removal and Transfer (DIRT) study site were sampled, analyzed, mapped, and classified. The DIRT study investigated how rates and sources of plant litter control the accumulation and turnover of organic matter and nutrients in forest soils. Twenty-one 10 x 15 meter plots (one control and six treatments with three replicates) were sited on five coalesced alluvial fans, emanating from the adjacent valley hillslope, covering a remnant Pleistocene alluvial terrace. A first-order soil-landscape survey of the study site, mapped at a scale of 1:500, revealed two soil orders (Andisol and Inceptisol), two soil taxonomic classifications (Alfic Hapludands and Andic Dystrudepts), seven soil map units, and six geomorphic landscape units. GIS technology was used to spatially relate treatment plots to soil taxonomic classification, soil map units, and landscape units. Results show high variability in soil map units and landscape units among the DIRT plots.

Corresponding Author Information:

Jay Noller Oregon State University 3017 ALS Corvallis, OR 97331 phone: 541-737-6187 fax: 541 737 5725 e-mail: jay.noller@oregonstate.edu

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