GIS-Based Landscape Analysis for Advancing Soil Survey. (S05-kienast162156-Oral)

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Abstract:

Clearly there is a need to increase the efficiency, quality, and flexibility of soil survey. Many soil scientists are interested in improving the methods and products of soil survey by utilizing GIS and spatial data currently available. With these tools, soil scientists can begin to quantify soil-landscape models, efficiently allocate resources for soil data collection and documentation, and quantify soil map unit concepts. We developed a protocol for utilizing geographic information processing and landscape analysis to advance soil survey. This protocol is based on results from a test project in the Circle Cliffs area of Southern Utah. This protocol begins with specifying minimum data needed for the various phases of soil mapping. The following steps include suggested analyses for initial development of map unit concepts, and methods for assessing appropriateness of documentation based on map unit area and complexity. The implementation of this protocol in the Circle Cliffs area provided quantitative descriptions of map unit concepts, insight into soil-geology-landscape relationships, and aided in map unit refinement. This protocol provides a guideline for the use of GIS for soil mapping and outlines basic analyses, but will need to be modified depending on the characteristics of the individual soil survey area.

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Presentation Information:

Presentation Date: Thursday, November 14, 2002
Presentation Time: 10:45 am

Keywords:

soil survey, soil mapping, GIS, landscape analysis