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NEWS RELEASE

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Flexible Soil Model Maps Remote Areas

Scientists create a map of soils in wilderness areas using the Remote Area Soil Proxy modeling technique.

MADISON, WI, August, 9, 2009 - Soil scientists often face the dilemma of wishing to study soil in remote areas because they are ideal places to study soil formation and distribution under natural conditions, but mapping them requires a huge investment of time and resources. Computer-based models offer an efficient alternative. Researchers used ArcGIS geodatabase software to develop the Remote Area Soil Proxy (RASP) modeling technique to predict natural occurrence of soils in remote areas.

Bruce Frazier and Richard Rupp of Washington State University and Toby Rodgers and Crystal Briggs of Soil Survey conducted this work in the Pasayten River watershed in north-central Washington. Their results are reported in the summer issue of *Soil Survey Horizons*. Data were collected from dominant landscape facets accessible by or near trails, and soil formation was modeled using surrogates for the soil forming factors.

This technique requires an understanding of the soil forming processes occurring that the model must predict. In this case, four processes were identified as most important: podzolization (the process by which soils are depleted of bases and become acidic), andisolization (the rapid weathering of volcanic glass with formation of allophane, ferrihydrite, and imogolite), the prevention of the first two processes by erosion and unstable slopes, and continual wetness. Additional data related to vegetation, terrain attributes, hydrology, and parent materials were added to the model.

Twenty-two soil map unit complexes representing the diversity of the area were identified and found to match well with adjoining surveys using National Cooperative Soil Survey correlation procedures, reaching 75% accuracy at sampled pedon description sites within the watershed. The procedures developed in this modeling effort are new to soil survey and will benefit efforts in remote areas. Additionally, the model can be updated as new theories of soil formation are formulated, or as new data become available.

This featured article of SSH is available for free access at <https://www.soils.org/publications/soil-survey-horizons/> until the next quarterly issue.

Soil Survey Horizons, <https://www.soils.org/publications/soil-survey-horizons/>, is a medium for expressing ideas, problems, and philosophies concerning the study of soils in the field. Articles include research updates, soil news, history of soil survey, and personal essays from the lives of soil scientists. *Soil Survey Horizons* is published by the Soil Science Society of America.

The Soil Science Society of America (SSSA) is a progressive, international scientific society that fosters the transfer of knowledge and practices to sustain global soils. Based in Madison, WI, and founded in 1936, SSSA is the professional home for 6,000+ members dedicated to advancing the field of soil science. It provides information about soils in relation to crop production, environmental quality, ecosystem sustainability, bioremediation, waste management, recycling, and wise land use.

SSSA supports its members by providing quality research-based publications, educational programs, certifications, and science policy initiatives via a Washington, DC, office. For more information, visit www.soils.org.

SSSA is the founding sponsor of an approximately 5,000-square foot exhibition, *Dig It! The Secrets of Soil*, which opened July 19, 2008 at the Smithsonian's National Museum of Natural History in Washington, DC.