The Nova Scotia Component of the North American Soil Geochemical Landscape Project

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The North American Soil Geochemical Landscape Project is a three-nation soil geochemical initiative involving the federal, provincial and state geological surveys of Canada, the United States and Mexico. The overall objective of the project is to establish a continental-scale framework of inorganic, organic and microbiological soil geochemical data and to ensure the data are available for a wide range of applications, issues and disciplines.

The overall national sampling program design was developed by the Geological Survey of Canada. Specifically for Nova Scotia, the sampling program involved the collection of one sample (the location of which was randomly generated) from each 40 km x 40 km sample grid cell covering the Province of Nova Scotia yielding an overall sample density of 1 sample per 1600 km^2. (In some instances, two samples were collected in several of the grid cells).

All field collection protocols including: (1) the identification of the various soil horizons to be sampled, (2) the type, number and size of samples to be collected, and (3) the type and proper use of accepted sampling equipment and analytical protocols, were designed by the Geological Survey of Canada in conjunction with numerous partners including the National Forestry Service, Agriculture Canada and Health Canada.

Prior to the commencement of the 2007 field season, a one week field orientation program was held in the Amherst area in early June. The program introduced the Nova Scotia sampling team to the field equipment, the sample data sheets and identification of the various soil horizons to be sampled.

In total, 54 sites across the province were visited and sampled (plus three field duplicates for a total of 57 samples). All samples were collected by shovel from shallow, hand-dug pits averaging approximately 90 cm in depth. Detailed field descriptions, including sample depth, colour, redoximorphic features, texture, clast type/percentage and root size/quantity, were recorded for each site. A digital photograph of the site was also taken for future reference. Sample sites were georeferenced (NAD 83) by GPS to the Universal Transverse Mercator (UTM) grid.

In addition to collecting soil samples for geochemical analysis, measurements of the following: (1) radon in soil gas concentrations, (2) gamma ray spectrometery (U, Th, K, and Total), and (3) soil permeability, were also collected at each site. Soil samples were also collected for bulk density/moisture content.

Analytical results are pending. Funding for the project was provided by Natural Resources Canada and Health Canada.