THE MARITIME SOIL PROJECT: A NEW BRUNSWICK PERSPECTIVE

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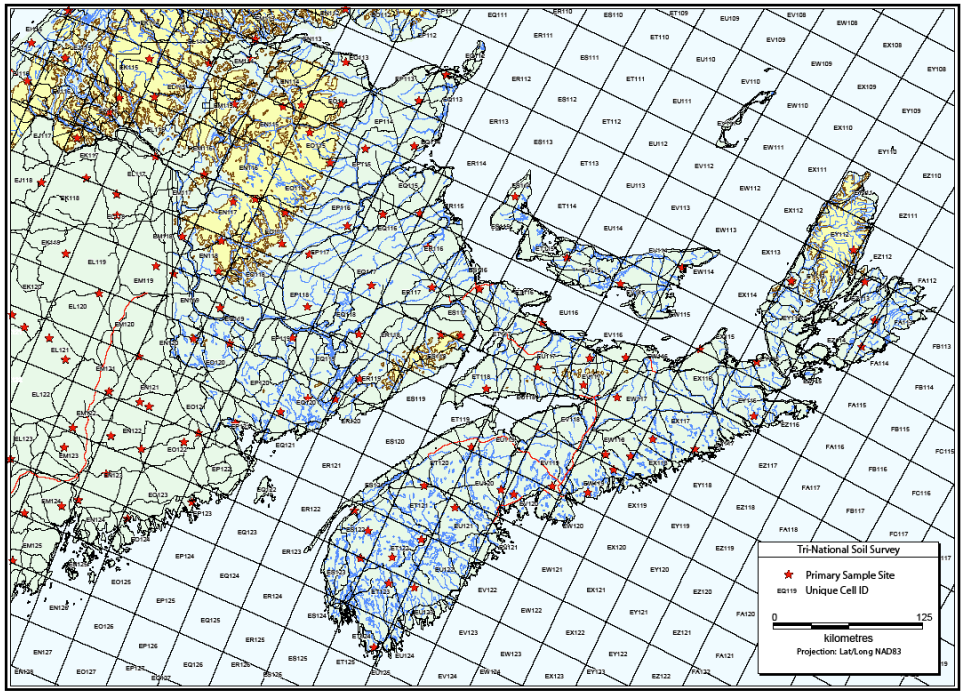
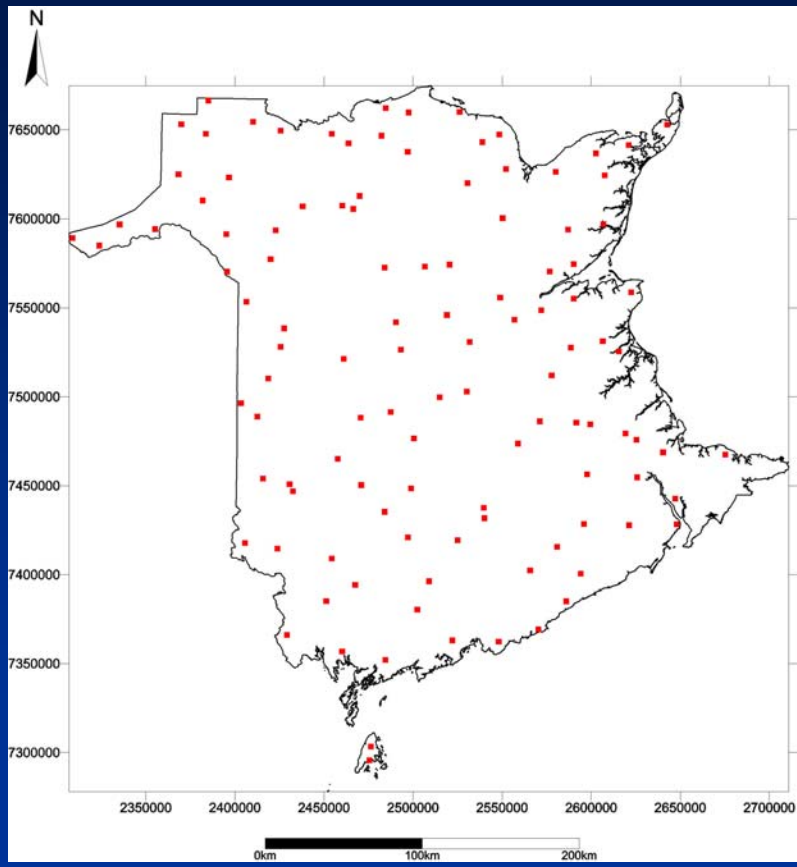
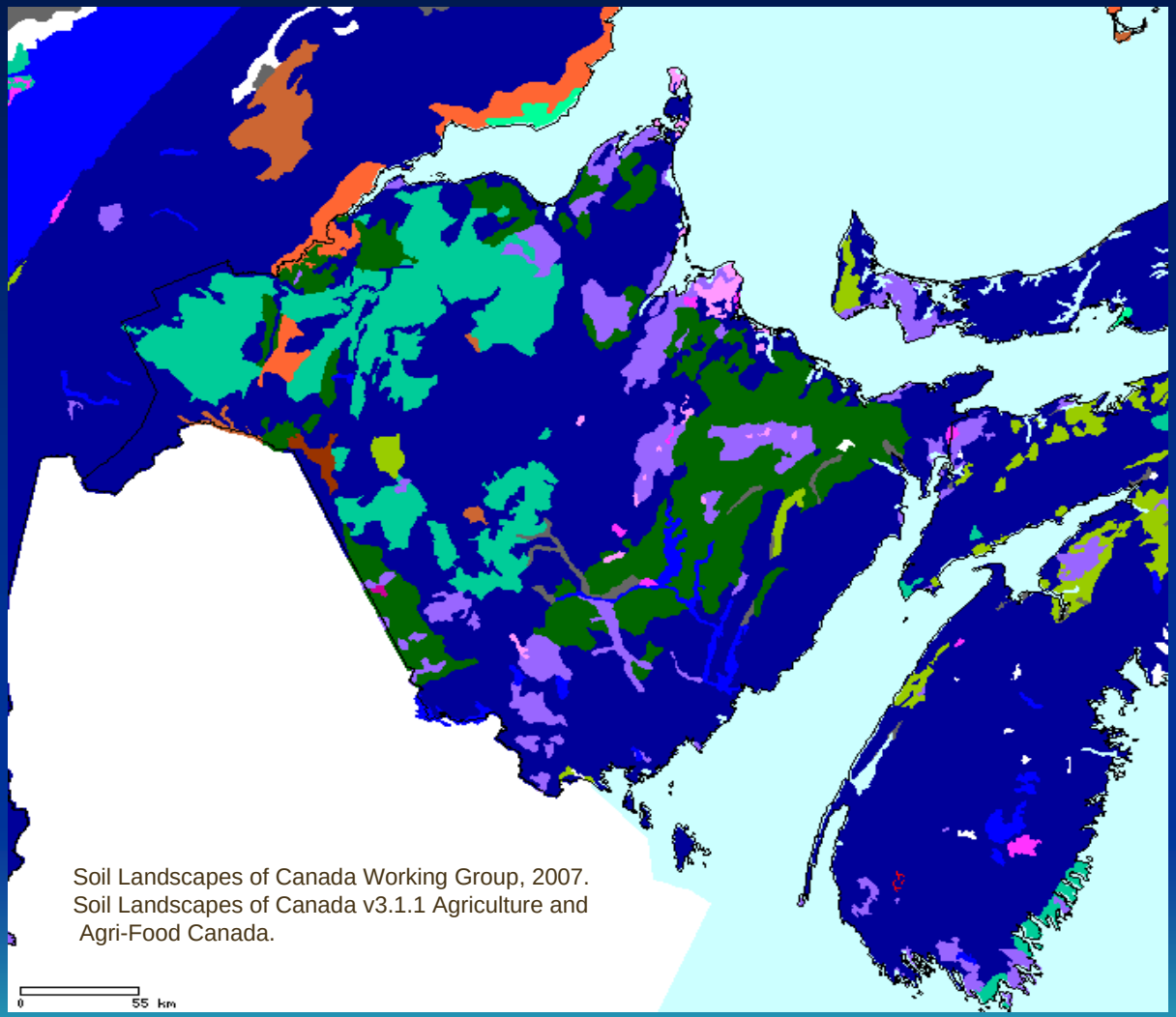
Sample Distribution planned vs actual





Tri-national samples collected at double density in New Brunswick

New Brunswick soils



Provincial and Territorial Boundaries
Ocean
Lakes
Co-dominance
Dominant Values of Soil Development
Black Chernozemic
Black Solonetzic
Brown Chernozemic
Brown Solonetzic
Brunisolic Gray Luvisolic
Brunisolic Static Cryosolic
Brunisolic Turbic Cryosolic
Dark Brown Chernozemic
Dark Brown Solonetzic
Dark Grey Chernozemic/Luvisolic
Dystric Brunisolic
Eutric Brunisolic
Ferro-Humic Podzolic
Fibrisol
Folisol
Gleysolic
Gleysolic Static Cryosolic
Gleysolic Turbic Cryosolic
Gray Brown Luvisolic
Gray Luvisolic
Gray Solonetzic
Humic Podzolic
Humisol
Humo-Ferric Podzolic
Melanic Brunisolic
Mesisol
Non-applicable
Organic Cryosolic
Orthic Static Cryosolic
Orthic Turbic Cryosolic
Podzolic Gray Luvisolic
Regosolic
Regosolic Static Cryosolic
Regosolic Turbic Cryosolic
Sombric Brunisolic
Static Cryosolic
Turbic Cryosolic

New Brunswick soils

- Dominant soil types humo-ferric and ferro-humic podsols (coloured blue and bright green, respectively) and podsolic grey luvisols (dark green)
- Also gleysols (purple), brunisols (orange) and regosols

Methods and protocols

Field orientation trip in the Fredericton area

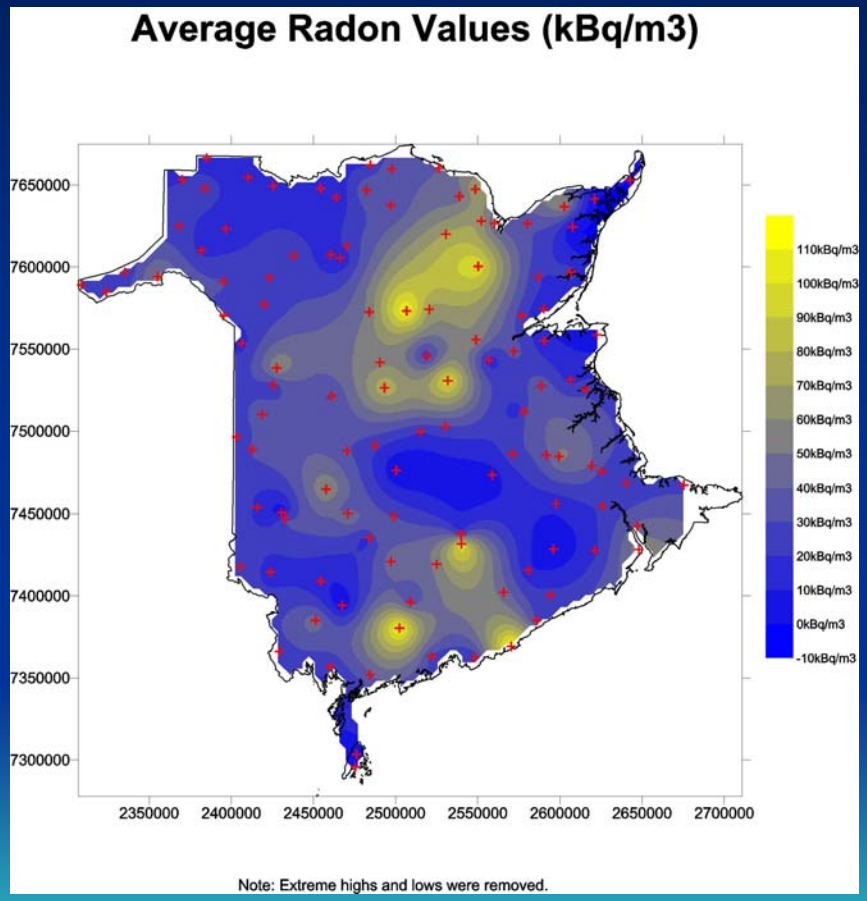
Field gear

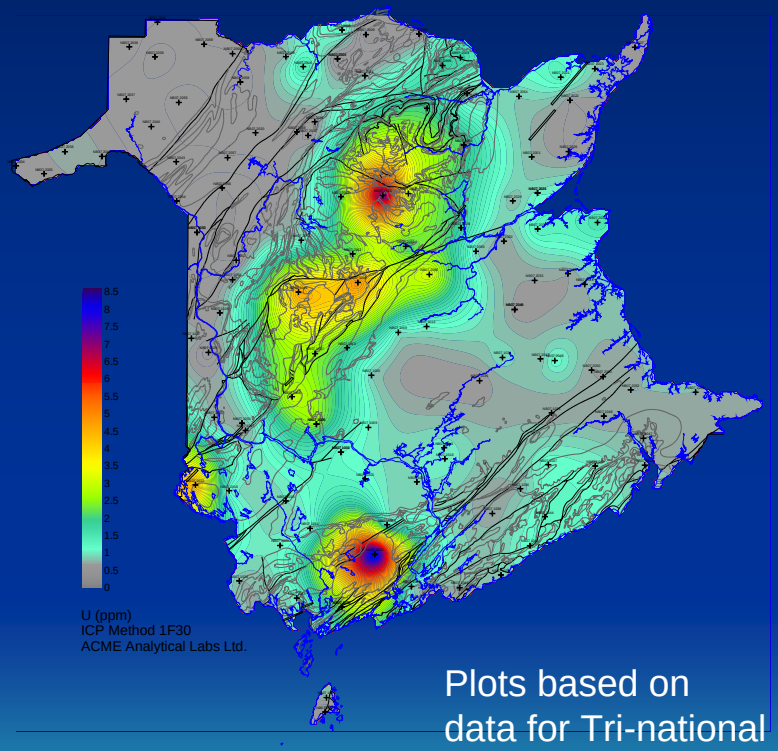
Sample types

Sample types

- 17 different samples collected at each site, including splits for anthrax, soil toxicology, bulk density, and different horizons for partner agencies.
- In- situ soil radiometrics and soil gas radon measurements.
- Public Health (0-5 cm) layer (2 samples), organic layer (2 samples), B-horizon, C-horizon (3 samples)
- Samples from 3 intervals for National Forest Inventory, composite sample for Environment Canada and pebble lithology sample.

Sample distribution, soil radon measurements and U in tills



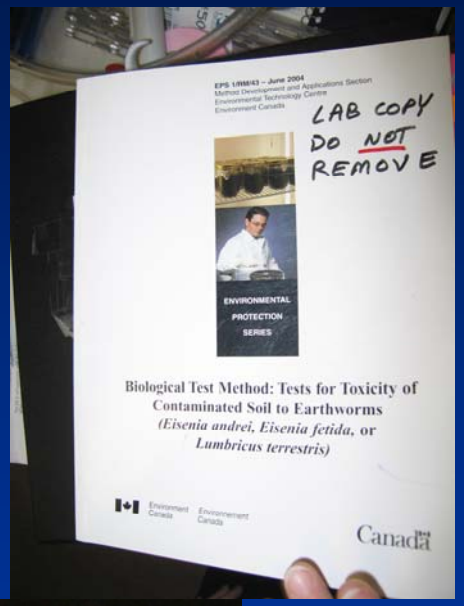


Plots based on data for Tri-national samples (< 63 micron Fraction) from 2007

Soil radon and U in tills

- Even with only 116 sample sites, there is a correlation between radon in soil and geological terranes.
- Note that readings are in kBq/m3.

What is happening with the samples?



What is happening with the samples?

- Overall soil potential and soil toxicology being measured in Environment Canada Atlantic and Université de Moncton laboratories.
- UdM lab is frequently used for analytical work on contaminated sites; laboratory procedures are controlled to meet strictest environmental standards.

The Health Canada sponsored radon survey/soil radiometrics

Additional Activities

- New Brunswick provincial survey geologists undertook some Tri-national survey sampling in the Northwest Territories and Yukon Territory.

Side trip #1 – Arctic Red River (NWT)

Side trip #2 – Yukon Territory