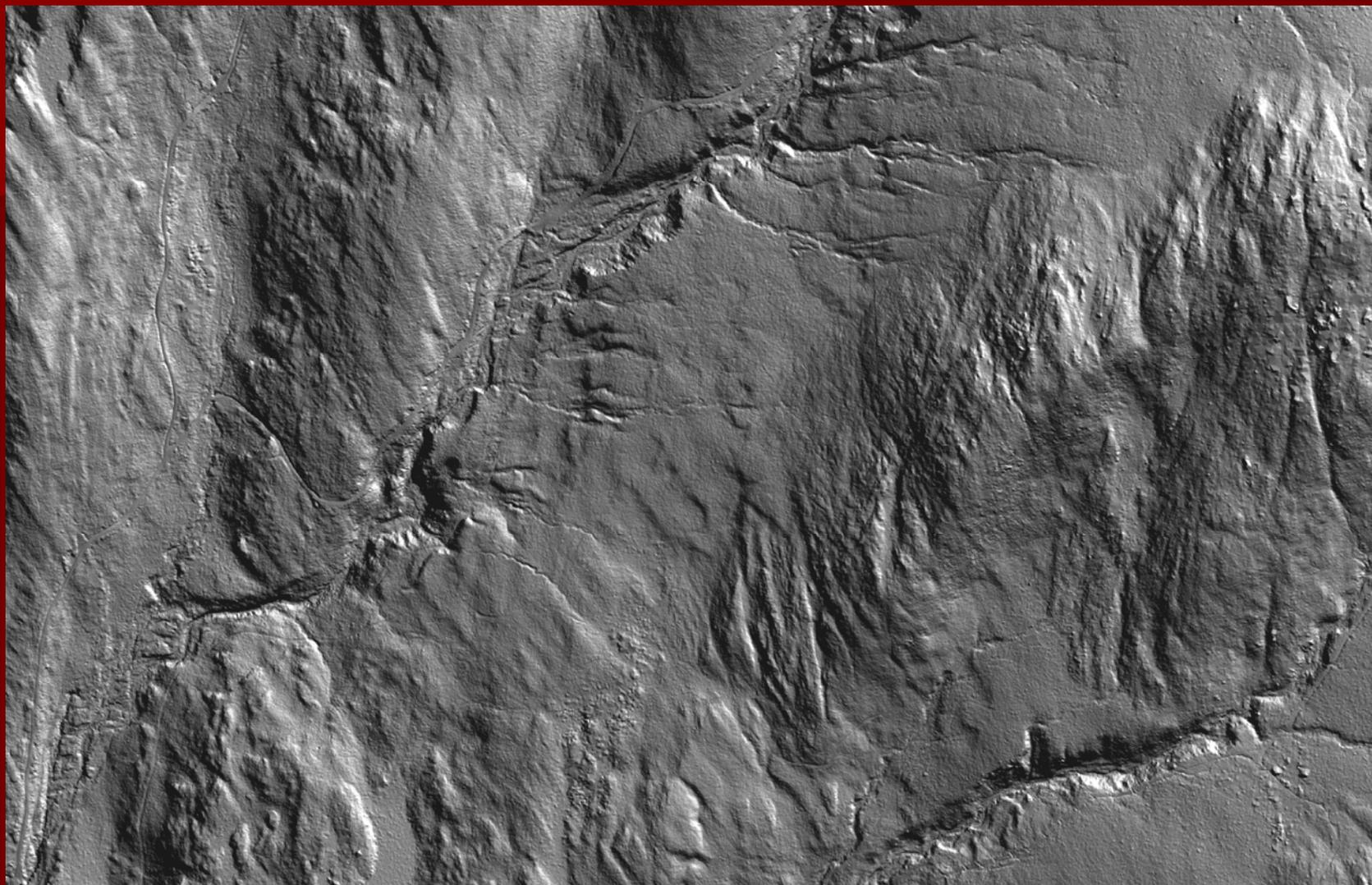
A 3D topographic map of a mountainous region, likely in Vermont. The terrain is rendered with a color gradient from blue (low elevation) to yellow (high elevation). The map shows several peaks and valleys, with a prominent ridge running diagonally across the center. The map is overlaid with a grid of contour lines, and a network of roads or paths is visible. The background is a solid red color.

Digital Soil Mapping and SIE in Essex County, Vermont

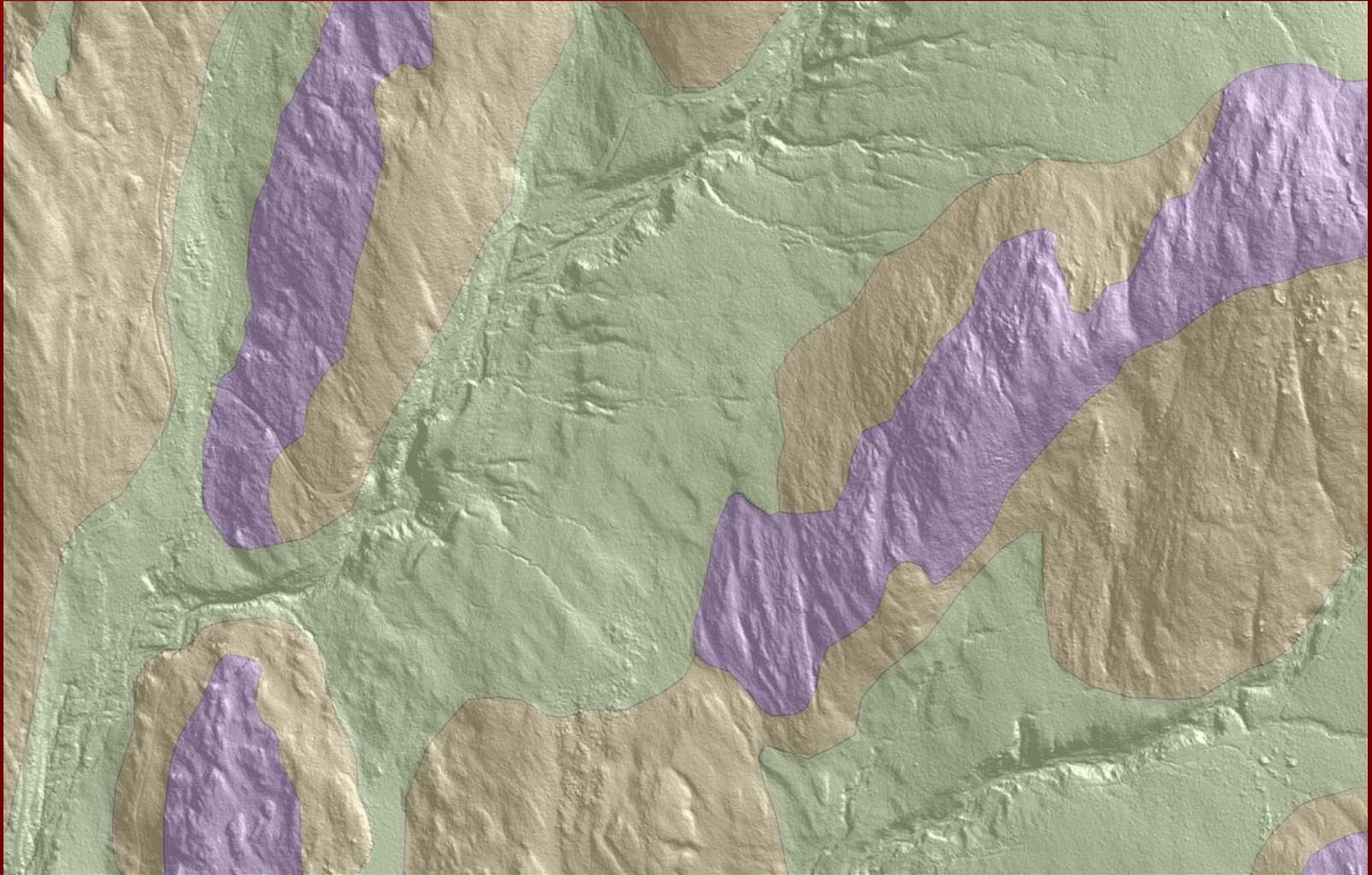
Almost everything we do starts with a 1-m DEM



Hillshade made from 1-m LiDAR



Parent Materials are Digitized Manually

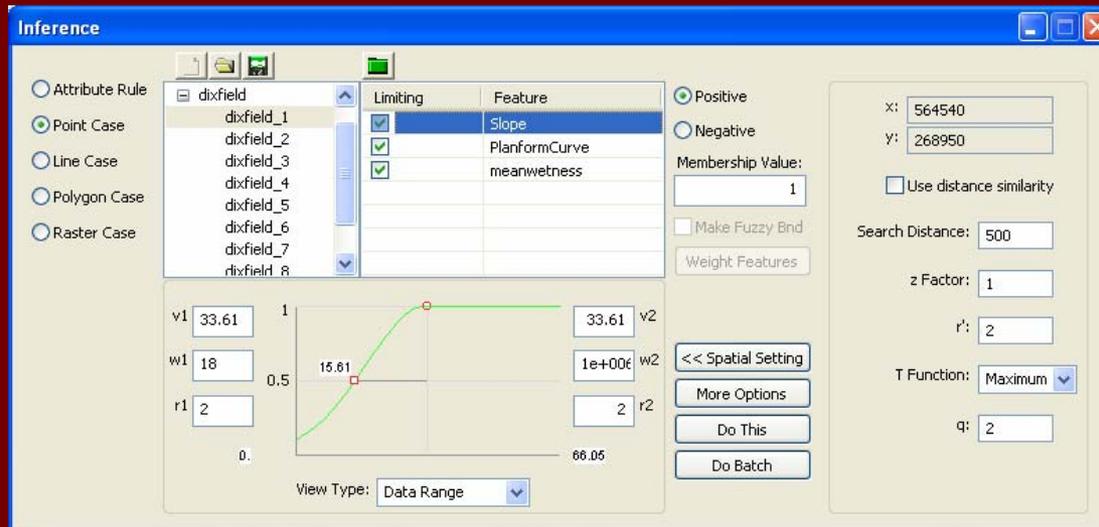


“Mapping” in the winter!

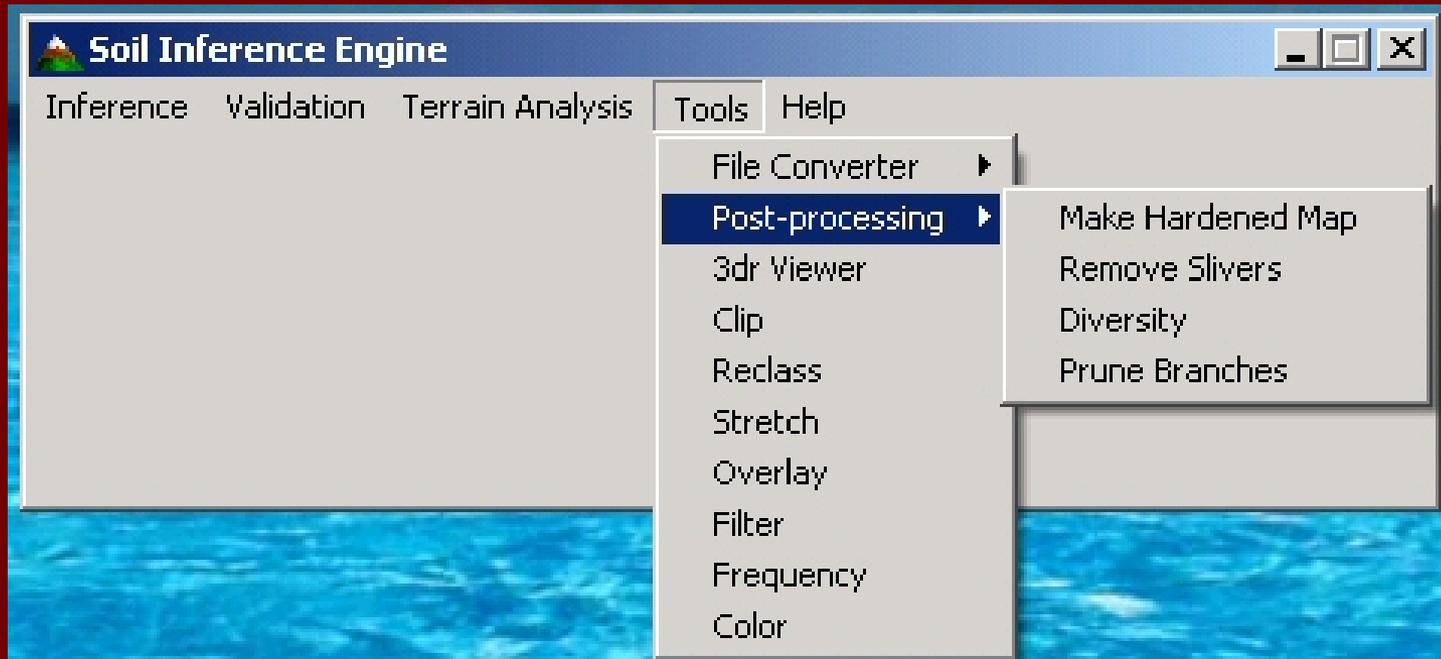
SIE

What is SIE??

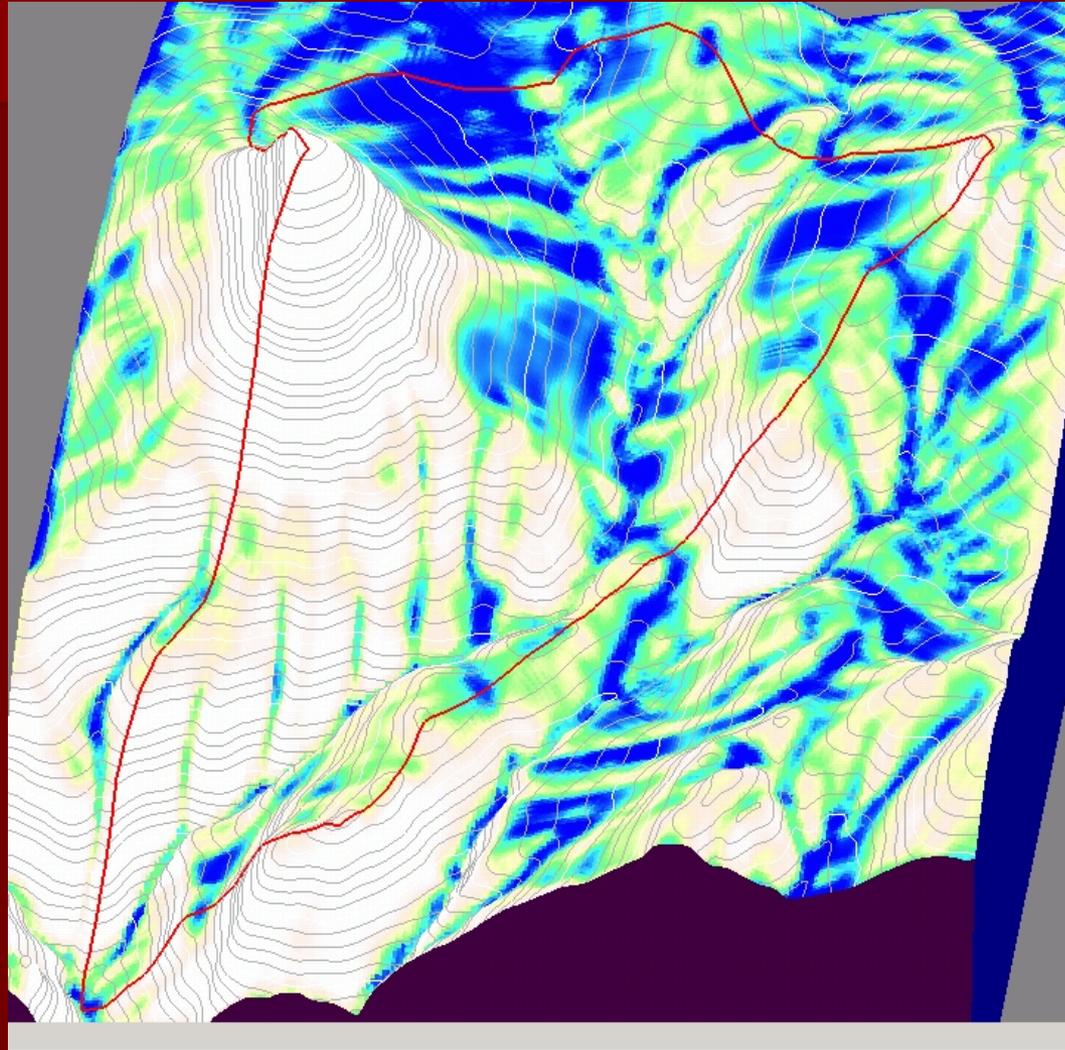
- A knowledge-based inference engine for creating raster soil maps under fuzzy logic
- We use it to map basal till areas



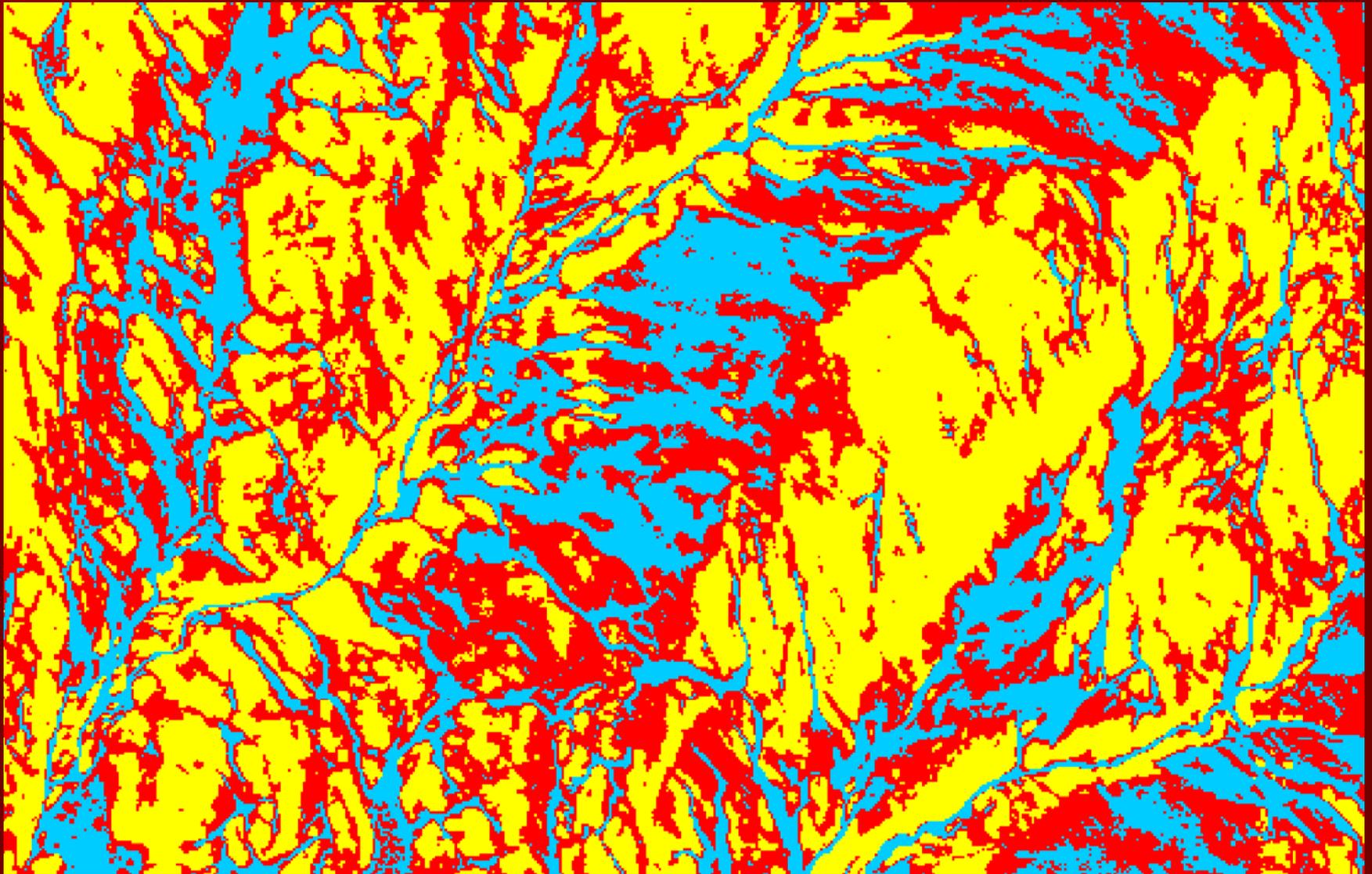
SIE also offers many other tools...



Basic Output from SIE = Fuzzy Results



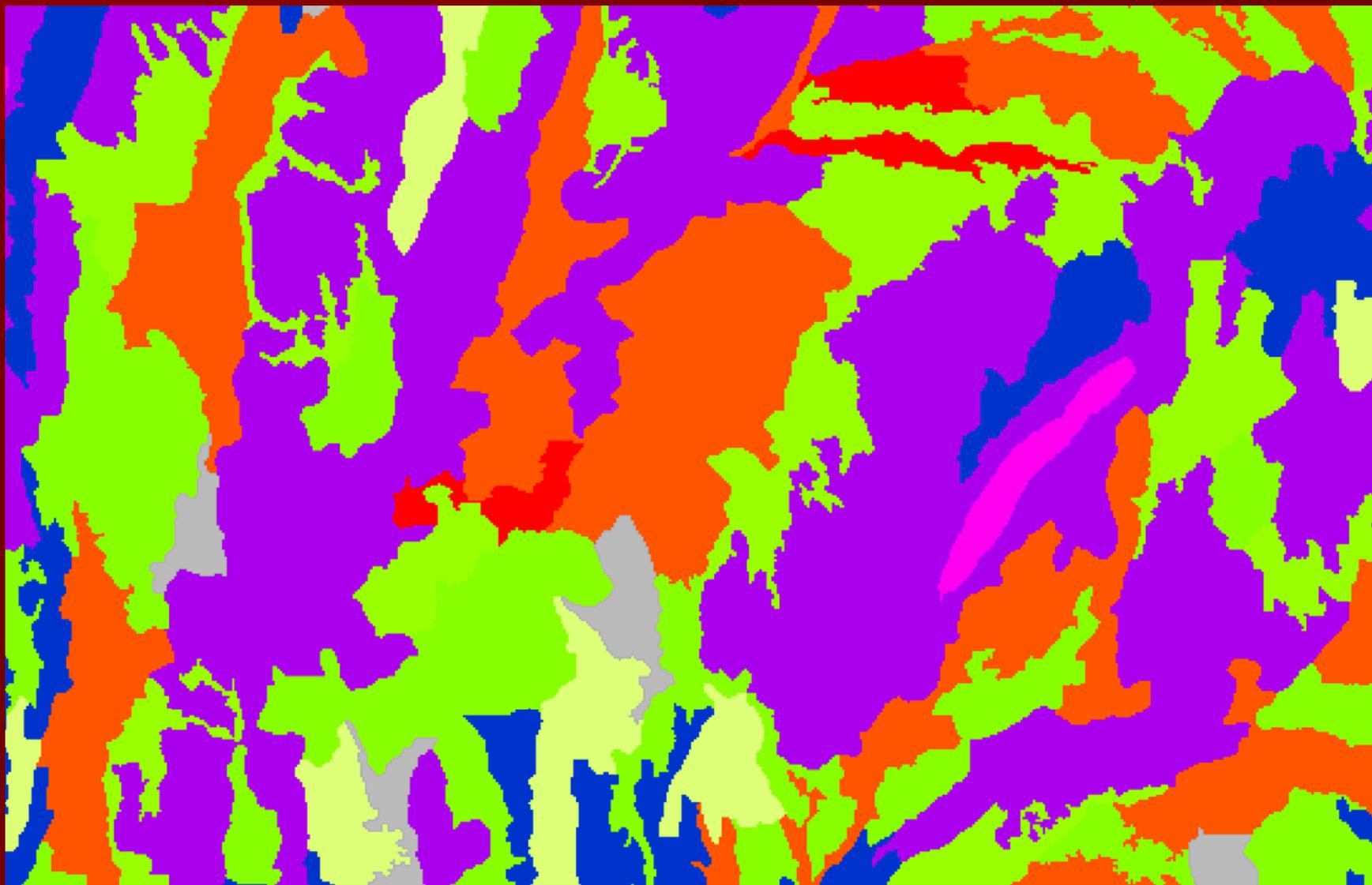
Hardened Results Map From SIE (Cabot, Colonel, Dixfield)



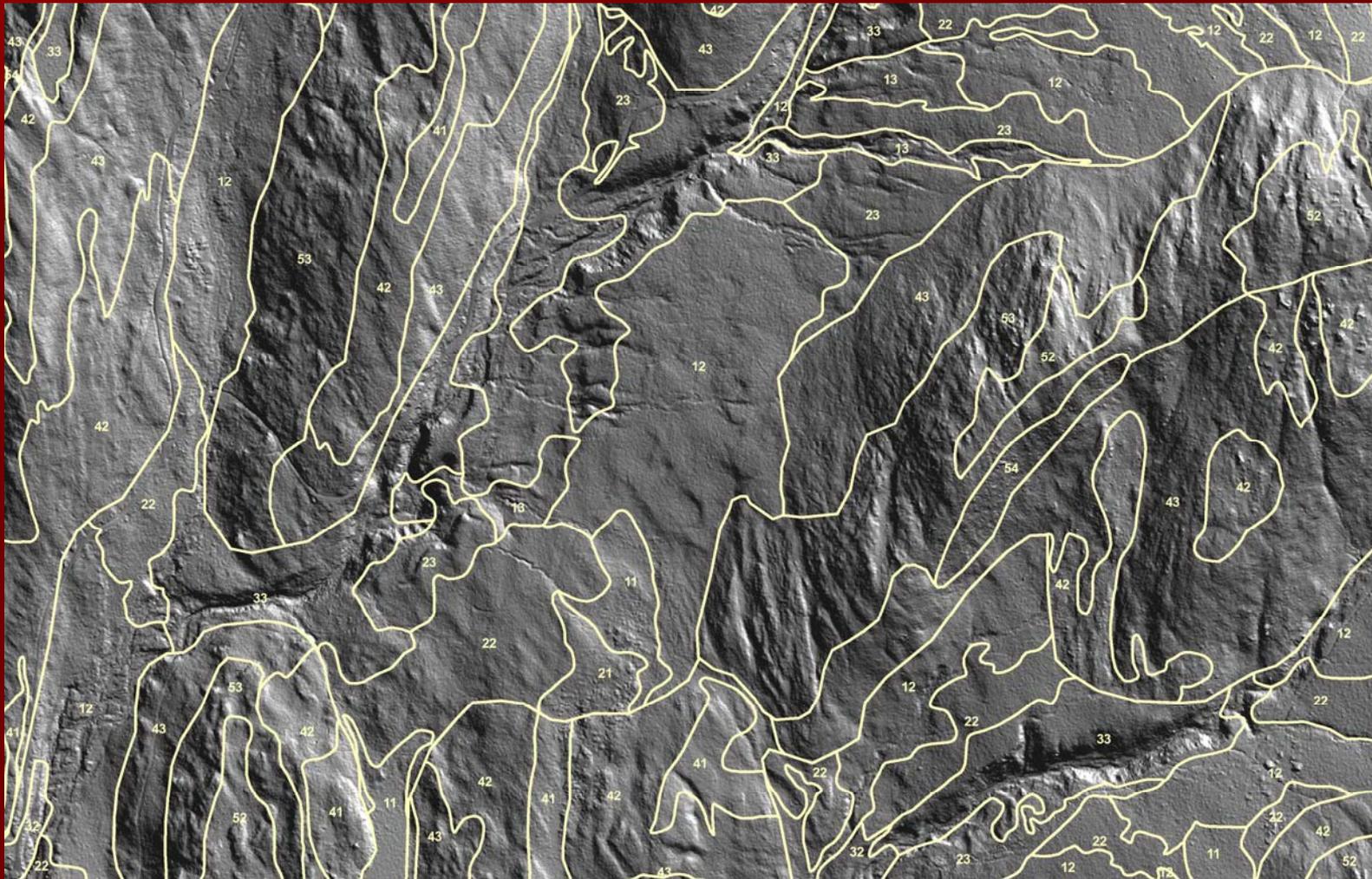
Hardened Results + Slope Phase



Slivers Removed...



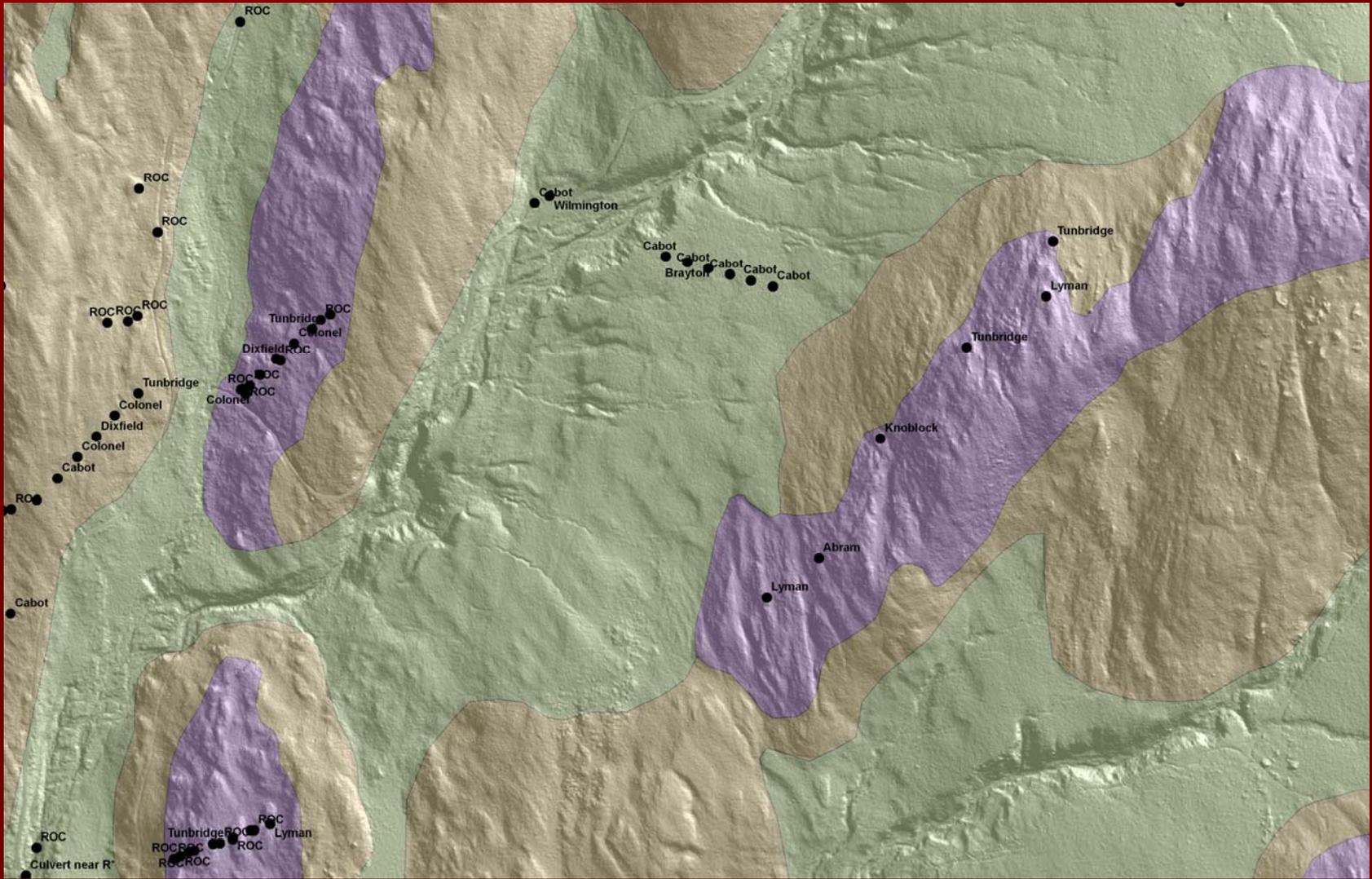
...Vectorized and Ready for SSURGO



Incorporates original parent material delineations and SIE mapping

Eliminates need for extra digitizing step

How Do We Know It Works?

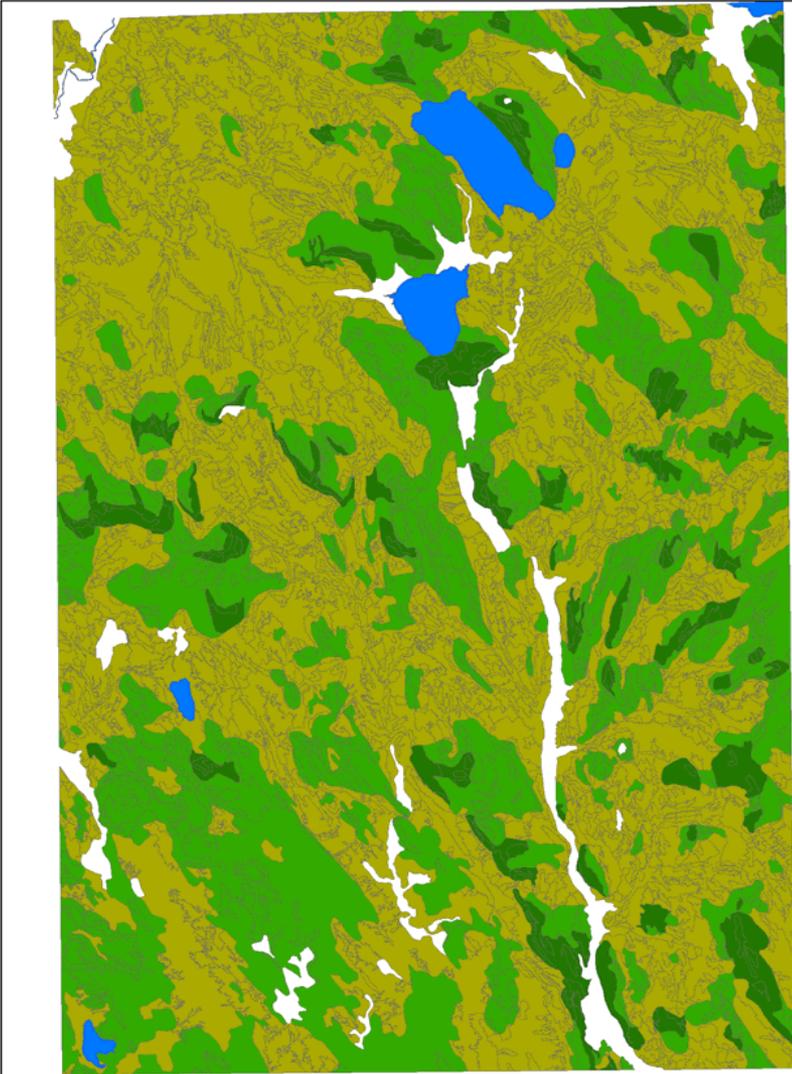


Directed Investigation using GPS

- These methods are daunting for mappers with little experience in the digital world

- So far these methods don't work in all areas
- But...

DSM methods work almost everywhere



Excluded are areas designated as:

- Ablation till
- Fluvial/Alluvium
- Muck

And we are still working to find the best methods for these areas.

← 90,000 Acres

The Team

- MLRA 12-5 Soil Survey Office in Saint Johnsbury, Vermont.
- SIE Software Development by Xun Shi, Ph.D; Department of Geography, Dartmouth College.