Soils of NYS

Prof. Anthony Grande

Definition

SOIL:

The top layer of the earth composed of organic and inorganic material created over time in reaction to temperature and moisture working on parent material (bedrock).

Print the ***SOILS of NYS*** handout from the home page.

SOILS

Created and influenced locally by:

Parent material (bedrock and surface material)

Climate (temperature and moisture)

Topography (slope, drainage, sun-facing)

Biological factors (plants, animals, insects, micro-organisms, plant roots)

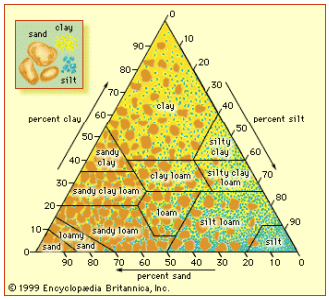
Time (develop very slowly and change over time)

Factors in Soil Analysis

- Texture – grain size of soil (sand-silt-clay ratio)
- Structure – the way soil particles hold together
- Drainage – the way water is retained
- pH - soil acidity and the ability of roots to absorb nutrients
- Soil profile – the layers (horizons) of a soil

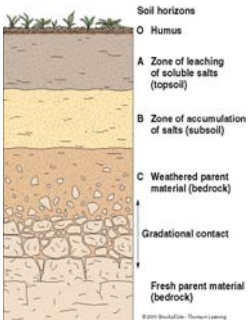
Soil Texture

.



Soil Profile

.



Soil Pattern of NYS

- Relatively young soils (post-glacial).
- Formed from transported material: soil, glacial till and scoured bedrock.
- Scoured bedrock near the surface is a source of soluble minerals.
- Soils vary locally with slope and sun orientation.

Soil Pattern of NYS

- Best soils are found on lime-rich glacial till that is fine-textured and on level land.
- Good drainage is important
- Highly organic muck soils are found at the sites of former glacial lakes.
- In some areas of NYS soils have a boulder problem. (This is also a result of glaciation.)

Negative Human Impacts

- Overuse – soil depletion; no rotation of crops
- Poor techniques – cultivation methods, over irrigation
- Erosion – loss of top soil; gullying
- Salinization – salt accumulation at surface
- Use of fertilizers and pesticides – type, methods of application
- Land Pollution – contamination of top soil from landfill sites, mining waste, chemical spills, etc.

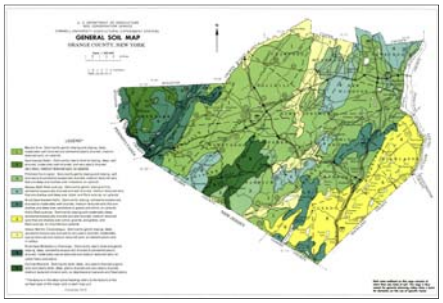
County Soil Surveys

Soil surveys provide a detailed analysis and mapping of local soils.

They are important for programs in agriculture, road and building construction, flood control, land preservation (esp. wetlands), and soil conservation.

- http://soils.usda.gov/survey/
- http://soils.usda.gov/survey/online_surveys/new_york/NY067/onondaga.pdf
- http://soildatamart.nrcs.usda.gov/Manuscripts/NY019/0/clinton_NY.pdf

Soil Map of Orange Co.



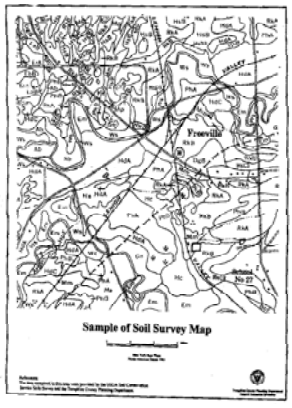
http://soildatamart.nrcs.usda.gov/manuscripts/NY071/0/orange.pdf

f

Detail of Soil Survey Map: Tompkins Co.

Soils vary within short distances based a number of factors including:

- drainage
- source material
- slope
- vegetation



Detail of Soil Survey Map: Clinton Co.

Color-coded soil groups with contour lines.