

Where to get information: Resource Inventory Maps

Resource inventory maps are made to provide location and interpretations of various resources.

Sources: Website of Agency, Map Stores, RIGIS/MASSGIS for digital maps.

Links to Maps: <http://nesoil.com/links.html>



Caution...Caution...Caution

Things to remember when using reference materials.

- Date published, date map was made.
- Intended use/limitation of the material/map.
- Source of material and how map was made.
- Maps should not take place of an on-site.
- Map scale, minimum delineation, inclusions, enlargement.

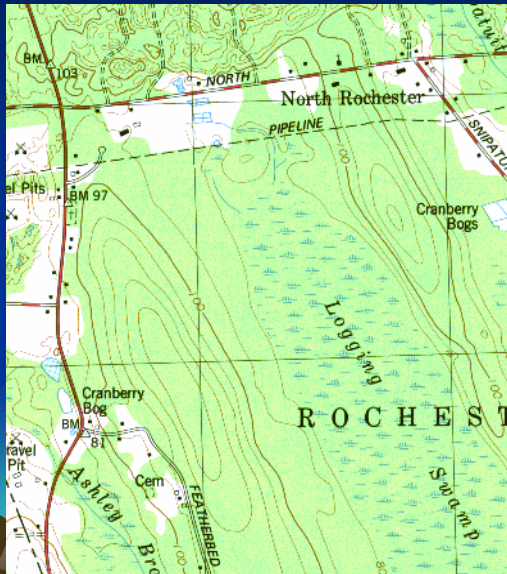
Table 2-2**Guide to Map Scales and Minimum Delineation Size**

Map scale	Inches per mile	Minimum size delineation ¹	
		acres	hectares
1:500	126.7	0.0025	0.001
1:2,000	31.7	0.040	0.016
1:5,000	12.7	0.25	0.10
1:7,920	8.00	0.62	0.25
1:10,000	6.34	1.00	0.41
1:12,000	5.28	1.43	0.57
1:15,840	4.00	2.5	1.0
1:20,000	3.17	4.0	1.6
1:24,000 (7 1/2')	2.64	5.7	2.3
1:31,680	2.00	10.0	4.1

USGS Topographic Maps

Topozone.com or Maptech.com

- Shows elevation contours, slope conditions, drainage patterns, cultural features and geologic landforms.
- Available for all areas at 7.5 min or 15 min quads.



FEMA Flood Maps

(<http://www.fema.gov/mit/tsd/>)

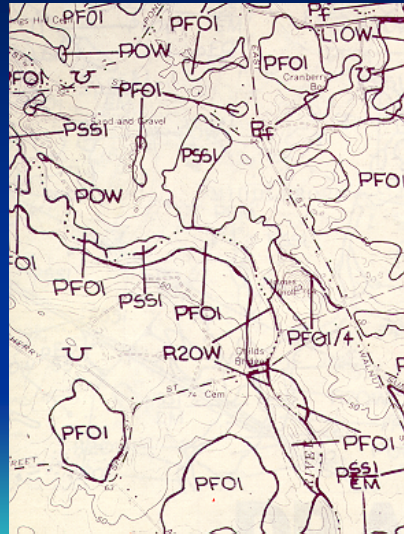
- FEMA publishes FIRM's which delineate flood hazard zones.
- Knowledge of the flooding potential of a site is useful in assessing the parent material of the soil (recent alluvium), and to locate areas which are susceptible to flooding.



National Wetland Inventory

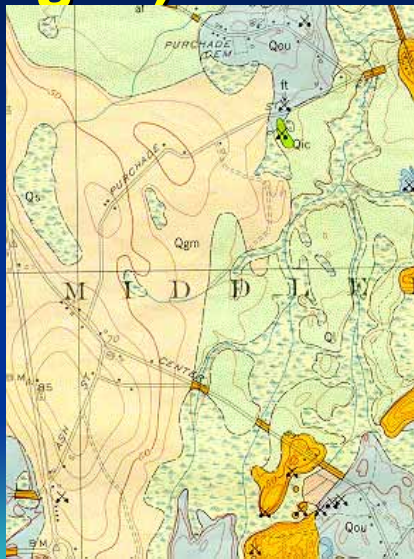
http://www.nwi.fws.gov/mapper_tool.htm

- Delineate wetland areas by a national classification system.
- Base map = 1:24,000 USGS Topo.
- Useful for locating wetland areas, watertable in outwash.
- MA. State wetland at 1:5k



Surficial Geology (usgs.gov)

- Delineate geologic deposits within an area and identify the different landforms. A narrative is included with each map that describes the different geologic deposits and the geologic history.



Aerial Photographs

USDA-NRCS Office or GIS



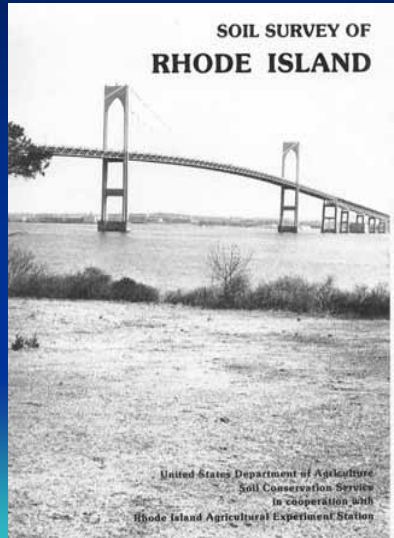
Historic Imagrey



Soil Surveys

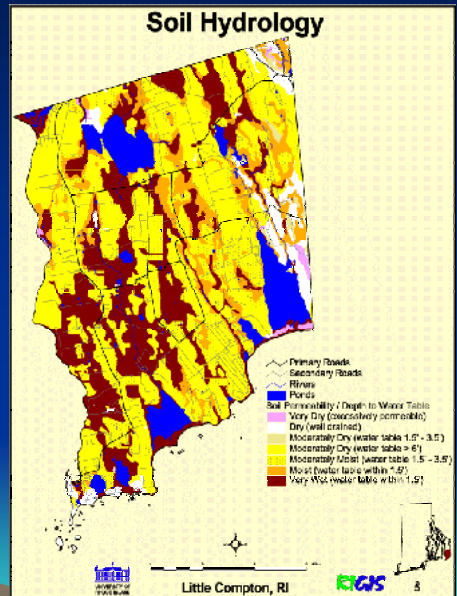
www.SI.nrcs.usda.gov or nesoil.com

- An inventory of the different kinds of soils in an area .
- Soil surveys provide information on soil drainage, parent material, textural ranges, and interpretations for various uses



Soil Surveys

- A soil survey describes the characteristics of the soils in a given area, classifies the soils according to a standard system of classification, plots the boundaries of the soils on a map, and makes predictions about the behavior of soils.
- Extensive field work!



Soil Surveys

- Soil surveys consist of: a narrative description of the soils, properties, and uses, and other info about the area.
- Soil maps with boundaries delineated on an aerial photo.
- Tables listing properties.



472—Pawnee loam, moderately wet, 1 to 8 percent slopes. This nearly level to gently sloping, moderately well drained soil is on low rocky and ridge residual areas and irregular in shape and ranges from 2 to 185 acres in size.

Typically, the surface layer is dark brown loam about 8 inches thick. The next 8 inches is dark brown, mottled, fine silty clay loam mixed with light brownish gray loam. The subsoil is dark brown, mottled, fine silty clay about 12 inches thick. The substratum to a depth of about 60 inches is brown, mottled silty clay loam. In some areas the subsoil contains iron clay.

Included with this soil in mapping are small areas of the somewhat poorly drained thick and poorly drained Lawrence soils. These soils are angrier lower on the terraces than the Pawnee soil. Lawrence soils are in depressions. Included soils make up 15 to 55 percent of the soil.

TABLE 12.—SOIL AND WATER FEATURES—Continued

Frequency	Duration	High water table				Initial
		Months	Depth	Kind	Months	
			75			22
Occasional	Long	See Key	1.0-2.0	Apparent	See Key	---
-----	---	---	1.0-2.0	Apparent	Feb-May	---
-----	---	---	16.0	---	---	---
-----	---	---	34.0	---	---	---
-----	---	---	16.0	---	---	---
-----	---	---	2.0-4.0	Apparent	Jan-Apr	---
-----	---	---	34.0	---	---	---

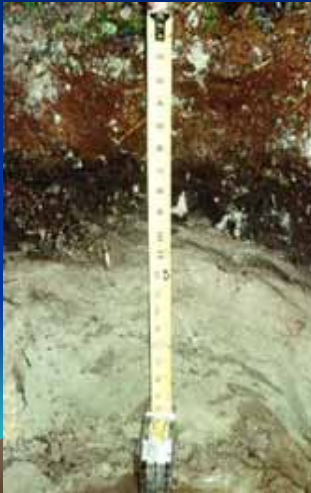
Uses of Soil Surveys

- Agricultural / Forestry - prime farmland.
- Erodibility of an area.
- Land Use Planning.
- Best uses of land.
- Suitability and Limitations of the Soil.
- Drainage calculations, stormwater management.
- Hydric Soils and On-site sewage.



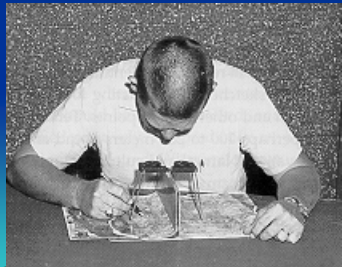
Limitations and Suitabilities

A major reason for conducting soil surveys is to provide information about the best uses of the soil for general planning purposes and highlight the limitations and suitabilities for various uses.



How Soil Surveys are Made

- Prior to heading to field some time spent in office reviewing various resource maps (geology, flood, old soil mapping).
- Learn about the area to be mapped.
- Use stereoscope to delineate slope breaks.



How Soil Surveys are Made

- Extensive field work - 90% of time in field.
- Walk landscape, dig holes in various areas to classify soil and determine map unit.
- Tools used include; spade and auger, compass, map board, color books.



How Soil Surveys are Made

- Soil boundaries delineated in the field.
- Map landscapes, develop model of soil, geology, drainage, limitations, etc. to determine proper map unit.




Field Sheet

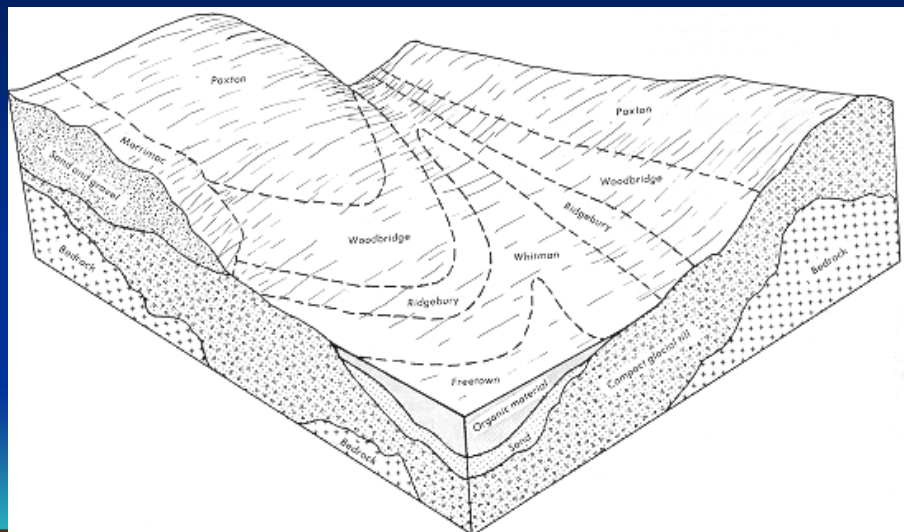
- Soil map unit boundaries and map unit symbol.
- Each map unit is described and each soil series is described.
- Interpretive tables for various uses.



Soil Map Units

- A map unit is a collection of soil areas or miscellaneous areas delineated in a soil map or soil survey.
 - Example: 306B Paxton fine sandy loam, 3 to 8 percent slopes, very stony
 - Types: Consociations, Complexes, Misc. Areas, Undifferentiated Units, Associations
 - Depends on mapping scale and use.
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Soil - Landscape Relation



Data Collection



Lab Analysis, Pedon Descriptions, Transects, Watertable Studies

Soil Laboratory Analysis

- Pedons are described and sampled for chemical and physical properties.
- Samples sent to NSSL.
- Lab data used to classify pedons, determine properties for tables.



Geographic Information Systems

Computer Cartography

A geographic information system (GIS) is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information (i.e. spatial data). This system includes hardware, software, data and staff.



GIS

Advantages:

- Allows maps to overlay at the same scale.
- Query data.
- Links maps to database.
- Can overlay the maps on aerial imagery and topographic maps.
- Easier to locate your site (can use GPS).

Disadvantages:

- Cost of software (freeware is available).
- Learning curve.
- Changing scale does not change map accuracy!
- Errors in digitization of the map.