1-E New Land Management Tools – Technology At Your Fingertips!

Jim Turenne, CPSS
Assistant State Soil Scientist, RI USDA-Natural Resources Conservation Service (NRCS).

Jim.Turenne@ri.usda.gov (401-822-8830)
Soils Info: www.FB.com/SoilSNE or www.twitter.com/soilsne

Narragansett silt loam (Un-official State Soil of RI).
Critical soil information has always been difficult to obtain.

https://casoilresource.lawr.ucdavis.edu/soilweb-apps/
Works on smart phone browser also – use the phones GPS to locate yourself
What is a Soil Survey?

A soil survey is a scientific report about the soils in an area that consists of maps, descriptions of the soil, data, AND soil properties and interpretations on uses of the soil for over 96+ land-uses.

• Results of extensive field work.
• Over 100 years mapping soils.
• Largest soil database in world.
• New areas of mapping.
Rhode Island Soil Survey

- Early surveys 1904/30’s
- 1981 – Published RI Survey.
  - Field work 1965-75
  - 25 mappers worked on it.
  - Mapped at 1:12K.
- Digitized 1990’s by EDC on Topo base map, SSURGO certified 1996, RIGIS attribute table added.
- 2004-Present – Coastal Zone Soil Survey, Freshwater, spatial edits, tabular changes.

All RI surveys online at:
https://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=RI
What does a soil scientist see? How are soil interpretations made? The following shows the data collected for each soil series.
MATTAPOISETT SERIES

The Mattapoisett series consists of soils suitable to artemesia, moderately deep or deep to dense loam in the upland till and very deep to bedrock. They are poorly drained soils that formed on sandy glacial drift deposits and/or eroded materials underlying loam till. Slope ranges from 0 through 1 percent. Saturated hydraulic conductivity is very high, with surface horizons moderately low through low in the coarse-textured surface layer and dense subsoils and horizon. Mean annual temperature was 48 degrees F (9 degrees C) and mean annual precipitation is about 1090 millimeters.

TAXONOMIC CLASS: Sandy, isric, mesic, shallow, system: Typic Duhopods

TYPICAL PEDON: Mattapoisett loamy sand - on an eroded, concave, 3 percent slope of a drumline in a wooded area. (Colors are for moist soil).

O horizon: 0 to 1 centimeters; black (10YR 2.5/1); humic material, many very fine, fine and medium roots; extremely acid; abrupt wavy boundary.

A Horizon: 1 to 3 centimeters; black (10YR 2.5 1); silty material; common very fine and fine and few medium and coarse roots; extremely acid (pH 4.2); abrupt wavy boundary. (Combined thickness of the 1 and 2 horizons is 3 to 10 centimeters.)

A Horizon: 1 to 10 centimeters; brown (10YR 5.5/2); sandy loam with loamy characteristics; very friable; common very fine and fine and few medium and coarse roots; very strongly acid (pH 4.1); very abrupt; 1 percent cobble; 2 percent stones; abrupt wavy boundary. (3 to 20 centimeters thick)

Map of Lab Data: https://tinyurl.com/jaycgto
TA6. Mesic Spodle. For testing in MLRA 144A and 145 of LFR R and MLRA 145B of LFR S. A layer 5 cm (2 inches) or more thick, starting at a depth ≤15 cm (6 inches) from the mineral soil surface, that has value of 3 or less and chroma of 2 or less and is underlain by either:

a. One or more layers 0 cm (0 inches) or more thick occurring at a depth ≤30 cm (12 inches) from the mineral soil surface, having value and chroma of 3 or less, and showing evidence of spodic development; or

b. One or more layers 5 cm (2 inches) or more thick occurring at a depth ≤30 cm (12 inches) from the mineral soil surface, having value of 4 or more and chroma of 2 or less, and directly underlain by a layer 8 cm (3 inches) or more thick having value and chroma of 3 or less and showing evidence of spodic development.

User Notes: This indicator is used to identify soils that have spodic materials that meet the
INTERPRETATIONS:

- Hydric Soil = Wetland
- High Watertable = Sever for most uses.
- Sandy soil – source of sand.
- Not Prime Farmland
- Hydrologic Group D
- Buried carbon = good riparian soils for nitrate removal.
- Site Index 55 for Red Maple
- High Pollinator Habitat – dominated by Clethera
- Well suited wetland wildlife habitat
- Suited for Blueberries/Cranberry
- Frequent Ponding (vernal pool)
- High carbon pools
- Low AWC
- Low Runoff
- etc.
Woodbridge series – dense till at 80 cm, water table at 50 cm, prime farmland soil, bad for septic systems.

Enfield series – loess over outwash, best agricultural soil in New England!

Billington soil from Point Judith Pond – 4 geologic events.
Improvements to RI Soil Survey

- RIGIS Attribute Table.
- Coastal Zone Soil Survey and Freshwater mapping.
- Spatial Edit fix and riparian wetland connections, errors.
- Northwest Hill Order 2.
- Ongoing data enhancements based on better data.
- Urban areas and better floodplain mapping.

Decreased from 33 to 20 fields – join sheet has all if needed. Attribute Guide: nesoil.com/upload/2016_RIGIS_Soil.pdf
Coastal and Freshwater Soil Survey

No subaqueous soils mapped, all beaches are one unit, barrier dunes are one undifferentiated unit with no data, marshes not mapped out in detail.

Subaqueous soils mapped, several beach units, barrier dunes are mapped to series level, marshes mapped out in detail. Point data provided along with special features.
Spatial Edits!

• Issue with pre ortho basemap during digitizing.
• Attempts made to fix.
• Re-digitizing needed, all of Block Island fixed, Hydro fixed (streams, ponds, coastal zone).
• Riparian wetlands in progress (goal is to have best coverage of wetlands for RI).
Press Windows logo key + Shift + Q to stop recording
Where to get Soil Survey Data?

Web Soil Survey (soils.usda.gov)
- Source for “Official” USDA soils.
- 8,400 users per day!
- Provides suitability, limitations for use, properties/qualities, and Ecologic Information (TBD).
- Allows for free customized soil reports (free).
- Export of data (shape file).
- Many other features.
- Cons: learning curve, outages.
Other Sources (may not be be updated)

- **www.rigis.org**: Same spatial as SSURGO, Attribute table (spread sheet has all fields if needed), download points, lines, polygons. For use with a GIS.

- SoilWeb: Google SoilWeb for Google maps, Earth, and app store for smartphone. 2016 SSURGO should be online soon, provides some interps but not all.

- RI DEM Environmental Maps: http://www.dem.ri.gov/maps/


- **Contact Me!**
Questions/ Improvements / Demo Time
Click on the green “START WSS” button

http://websoilsurvey.nrcs.usda.gov
Navigate to the Area

Area of Interest Interactive Map

Quick Navigation
- Address
- State and County
- Soil Survey Area
- Latitude and Longitude
- PLSS (Section, Township, Range)
- Bureau of Land Management
- Department of Defense
- Forest Service
- National Park Service
- Hydrologic Unit
To View Spatial and Tabular Data

Click and drag one of the AOI buttons to outline the boundaries.

To View Spatial and Tabular Data

Area of Interest (AOI)

Soil Map  Soil Data Explorer  Download Soils Data  Shopping Cart (Free)

Search

Area of Interest

Table of Contents

AOI Properties

AOI Information

Map Unit Symbols

Use Soil Survey Area Map Unit Symbols

Use National Map Unit Symbols

Area (acres)

12,983

Soil Data Available from Web Soil Survey

Hampshire County, Massachusetts, Central Part (MA609)

Data Availability

Tabular and Spatial, complete

Tabular Data

Version 7, Dec 17, 2013

Spatial Data

Version 4, Dec 17, 2013

Clear AOI

Import AOI

Export AOI

Quick Navigation

Address

State and County

Legend

View Extent

Contiguous U.S.

Scale

1:24000
View the soil map

Soil Map Tab
Soil Reports: Map unit descriptions are in the "AOI Inventory" menu.
Soil Data Explorer Tab

The Soil Data Explorer Tab provides tools for exploring soil properties and qualities, specifically focusing on drainage. The tab includes options for building site development and dwellings with basements, with view options for maps and tables. The map shows areas suitable for dwellings with basements, with a legend and scale for accurate reading. The tables provide summary data by map unit, including map unit names, ratings, component names, and acres in AOI, with percentages for areas classified as water.
Soil Data Explorer Tab
Soil Reports: "Selected Survey Area Interpretations" - Soil potential ratings of subsurface sewage disposal systems single family homes.
Soil Reports: "Selected Survey Area Interpretations" - Soil potential ratings of subsurface sewage disposal systems single family homes.

Soil Data Explorer Tab

[Image of a computer screen showing a map and tables with soil properties and pH values.]
### Soil Chemical Properties

**Hampshire County, Massachusetts, Central Part**

<table>
<thead>
<tr>
<th>Map symbol and soil name</th>
<th>Depth (mm)</th>
<th>Cation-exchange capacity (meq/100g)</th>
<th>Effective cation-exchange capacity (meq/100g)</th>
<th>Soil reaction (pH)</th>
<th>Calcium carbonate (T)</th>
<th>Gypsum (T)</th>
<th>Salinity (mmhos/cm)</th>
<th>Sodium adsorption ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1—Water</td>
<td></td>
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<td></td>
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<tr>
<td>Water</td>
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</tr>
<tr>
<td>21—Pootuck fine sandy loam, 0 to 3 percent slopes</td>
<td>0-10</td>
<td>2.2-6.2</td>
<td>4.5-10.3</td>
<td>3.5-7.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td></td>
<td>10-34</td>
<td>0.9-6.2</td>
<td>4.5-6.5</td>
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<tr>
<td></td>
<td>34-60</td>
<td>0.0-1.9</td>
<td>4.5-6.5</td>
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</tr>
<tr>
<td>44—Ripsawm fine sandy loam, 0 to 3 percent slopes</td>
<td>0-5</td>
<td>2.1-5.0</td>
<td>4.5-7.3</td>
<td>4.5-10.3</td>
<td>0</td>
<td>0</td>
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<td></td>
<td>5-24</td>
<td>0.9-6.3</td>
<td>4.5-7.3</td>
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<td></td>
<td>24-60</td>
<td>0.0-1.0</td>
<td>4.5-7.3</td>
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<tr>
<td>54—Saco silt loam, 0 to 3 percent slopes</td>
<td>0-12</td>
<td>4.1-14</td>
<td>5.1-7.3</td>
<td>4.5-10.3</td>
<td>0</td>
<td>0</td>
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<td></td>
<td>12-44</td>
<td>1.7-11</td>
<td>5.1-7.3</td>
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<td></td>
<td>44-60</td>
<td>0.0-3.5</td>
<td>3.8-7.3</td>
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<tr>
<td>84—Limerick silt loam, 0 to 3 percent slopes</td>
<td>0-12</td>
<td>1.1-5.5</td>
<td>3.5-7.3</td>
<td>4.5-10.3</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>
Soil Reports: "Selected Survey Area Interpretations" - Soil potential ratings of subsurface sewage disposal systems single family homes

Download Soils Data Tab

Download Soils Data for...
Your AOI (SSURGO)

General Information
- Link: Description of Soil Survey Geographic (SSURGO) Database
- Download Contents: Tabular data, spatial data (if available), template database, and FGDC metadata
- Spatial Data Format: ESRI Shapefile, Geographic WGS84

Soils Data Download Package for your AOI (SSURGO)

Region: Hampshire County, Massachusetts, Central Part

Soil Survey Areas:
- Hampshire County, Massachusetts, Central Part (MA609)
  - Area in AOI: 12,585 acres
  - Data Availability: Tabular and Spatial, complete
  - Version: Survey Area: Version 8, Dec 17, 2013
  - Tabular: Version 7, Dec 17, 2013
  - Spatial: Version 4, Dec 17, 2013

Template Database
- State: US
- Template Database Version: 56
- Template Database Name: ssurgo_US_2003

Download Size: _

Download Link: Press Create Download Link to create a soils data download package for your Area of Interest.

Create Download Link

Soil Survey Area (SSURGO)
- U.S. General Soil Map (STATSGO2)

Download SSURGO Template Databases