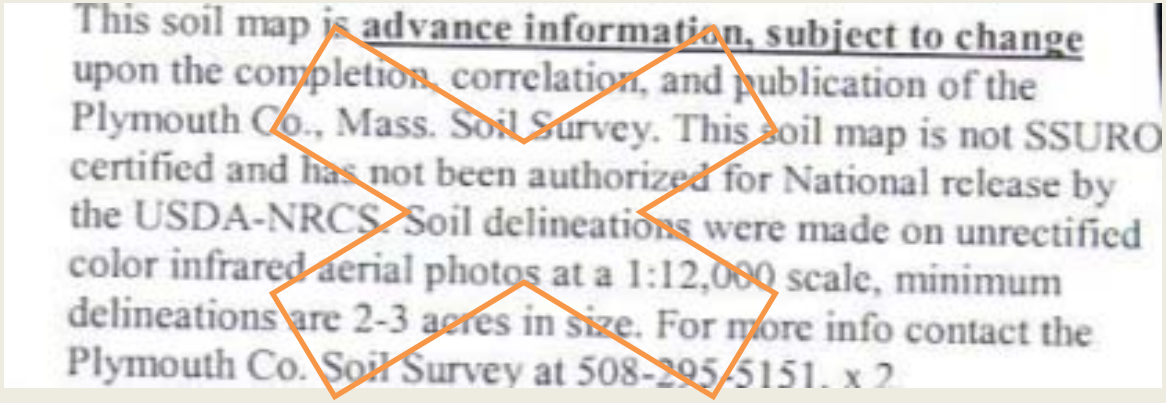
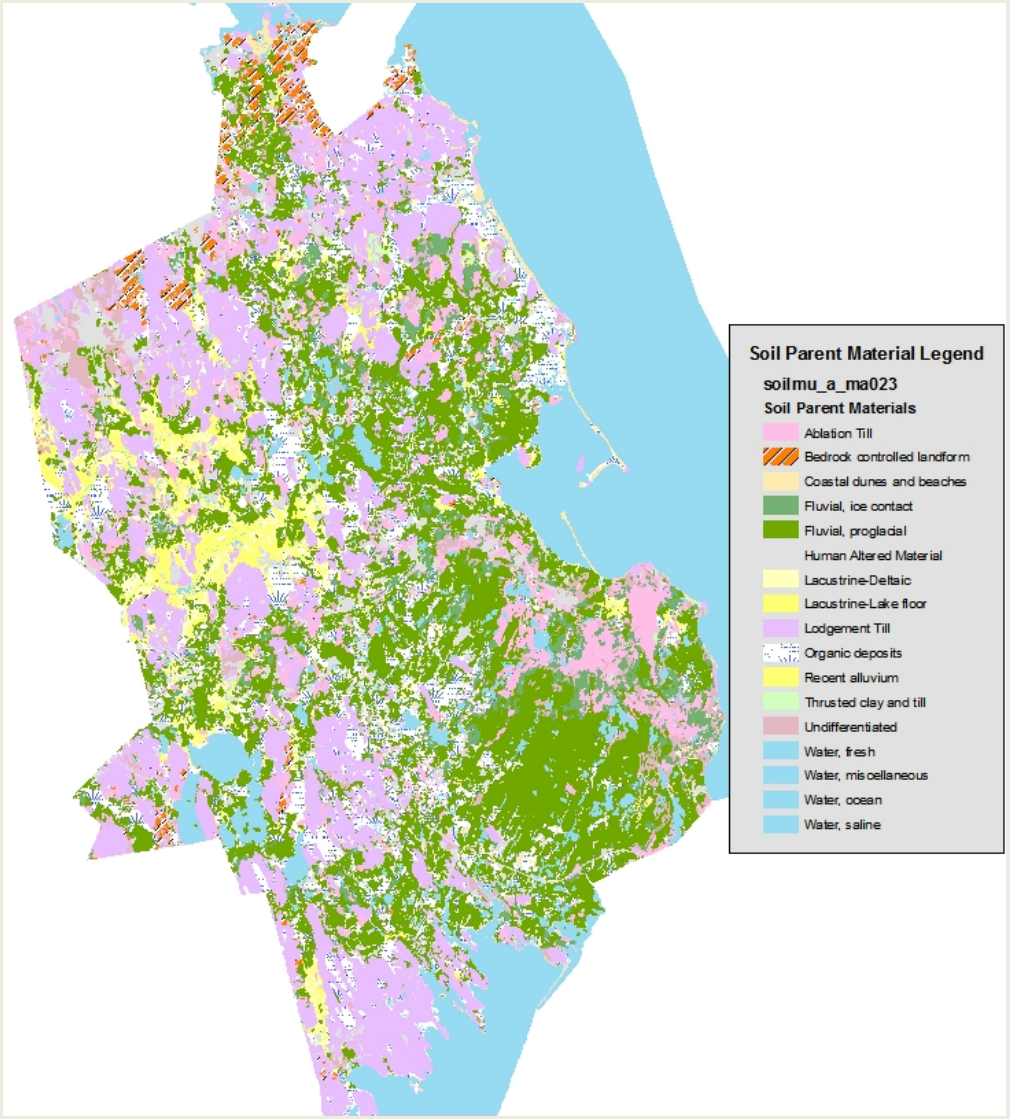
Plymouth County Soil Survey Update (Extensive Revision 1990-2010)

It's Done!



Plymouth County Soil Survey

- Size: 425,000 acres
- MLRA's: 149B & 144A
- Scale: 1:12,000
- Minimum Size Delineation. 1/2 acre
- 34,354 soil polygons
- 8,656 Special spot features



What's the Difference

1969 Plymouth

- Scale 1:15,840 (MSD~2.5)
- Gloucester Soil acreage = 35,550
- Field work 1950-1963
- Pre-taxonomy, soils described to shallow depths (30" in some)
- Sb = Sanded muck / bog
- Urban areas unclassified
- 28 series recognized
- 106 mapunits
- No coastal/tidal marsh soils

2010 Plymouth

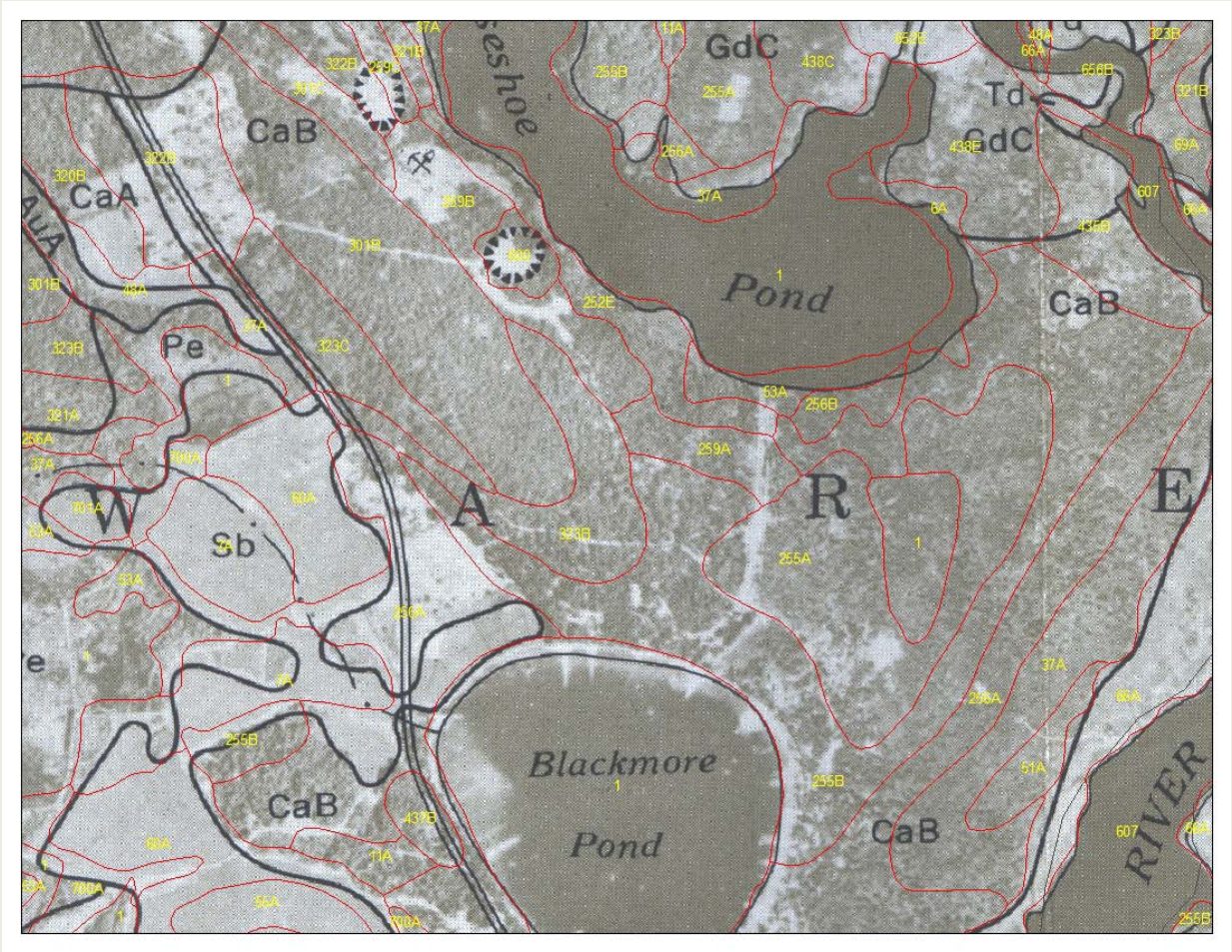
- Scale 1:12,000 (MSD~0.5)
- Gloucester Soil Acres = 2,875
- Field work 1989-2009
- Soil Series names on cranberry beds
- Urban areas classified as high as possible to series
- 6 New Soil Series, 9 Dropped, 52 series in all. Classified to 65 inches.
- Georeferenced sites
- 231 mapunits
- Tidal series, dune soils, and beach units established.

Comparison

1969 Survey

2010 Survey

1969 with 2010 in Red

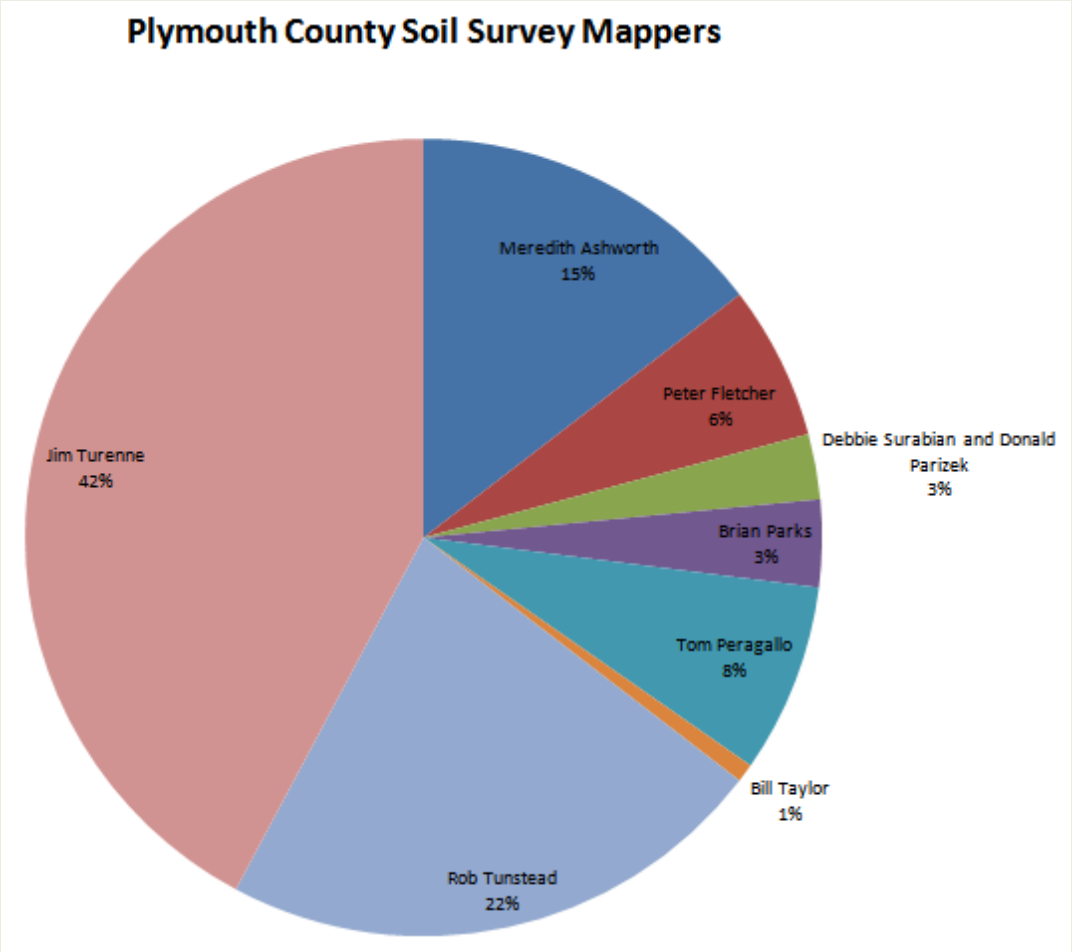


The Plymouth Mappers

Pete Fletcher* 1989 to 1992+
Jim Turenne 1990 to 2003
Meredith Ashworth 1994 to 1999
Rob Tunstead 2000 to 2010
Brian Parks 1997 to 2009
Tom Peragallo 1991 to 2008
William Taylor 1990 to 1995
Donald and Debbie 2008 to 2010

Other Mappers: Terry Schnider, Brian Lesinski, Phil Angel, volunteers and interns.

Thanks to All!

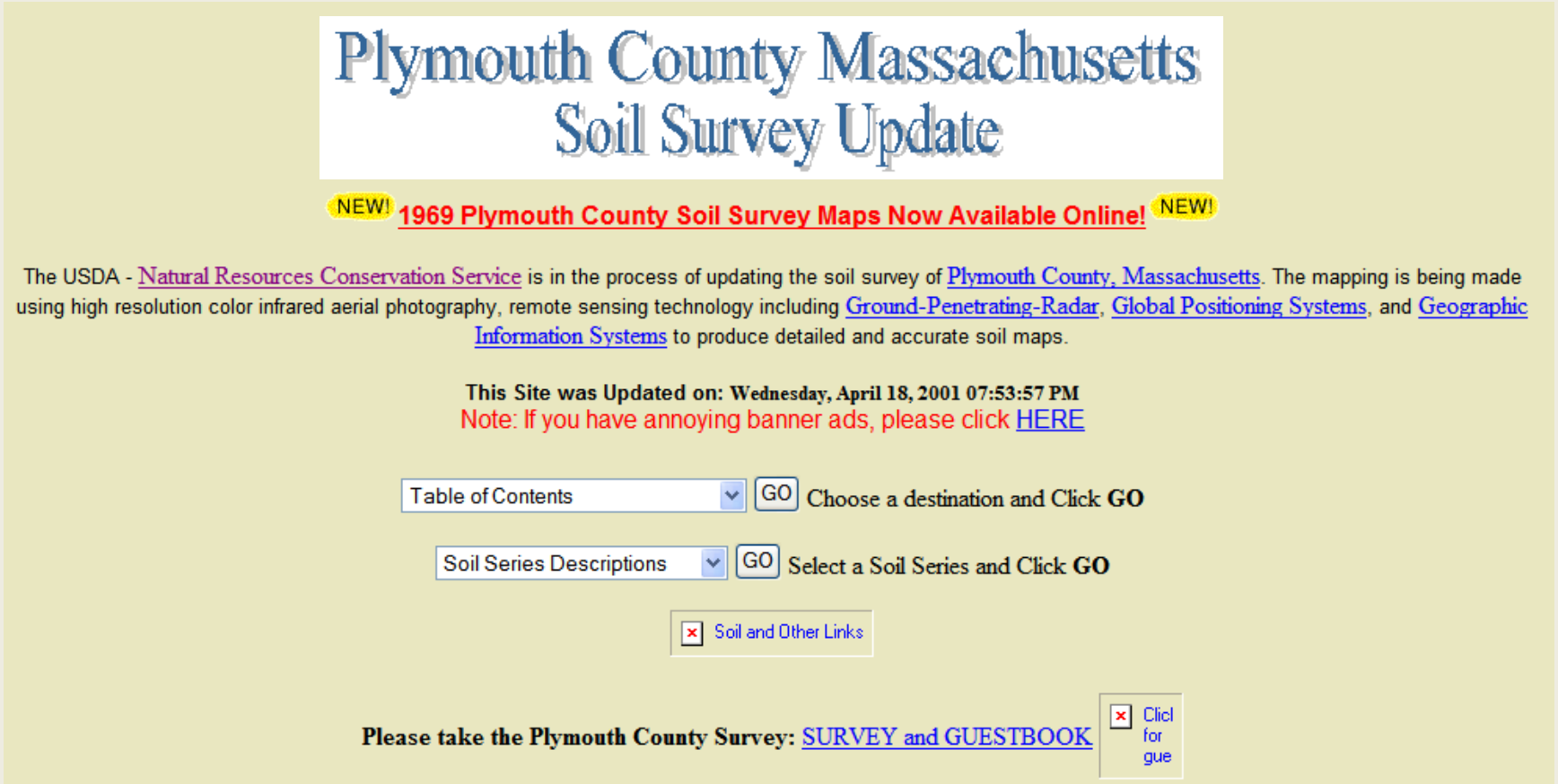


*Pete's acres mainly on the dunes and beaches!

The Website

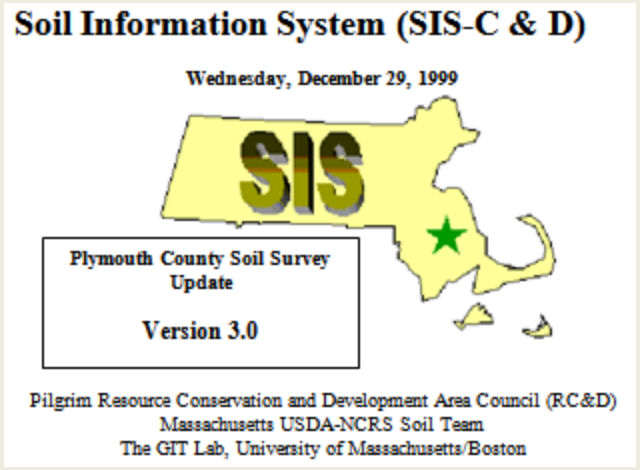
Started 1996, one of the first soil survey WebPages. Provided update data, farmland lists, series info, data, soil description database, geophysical info

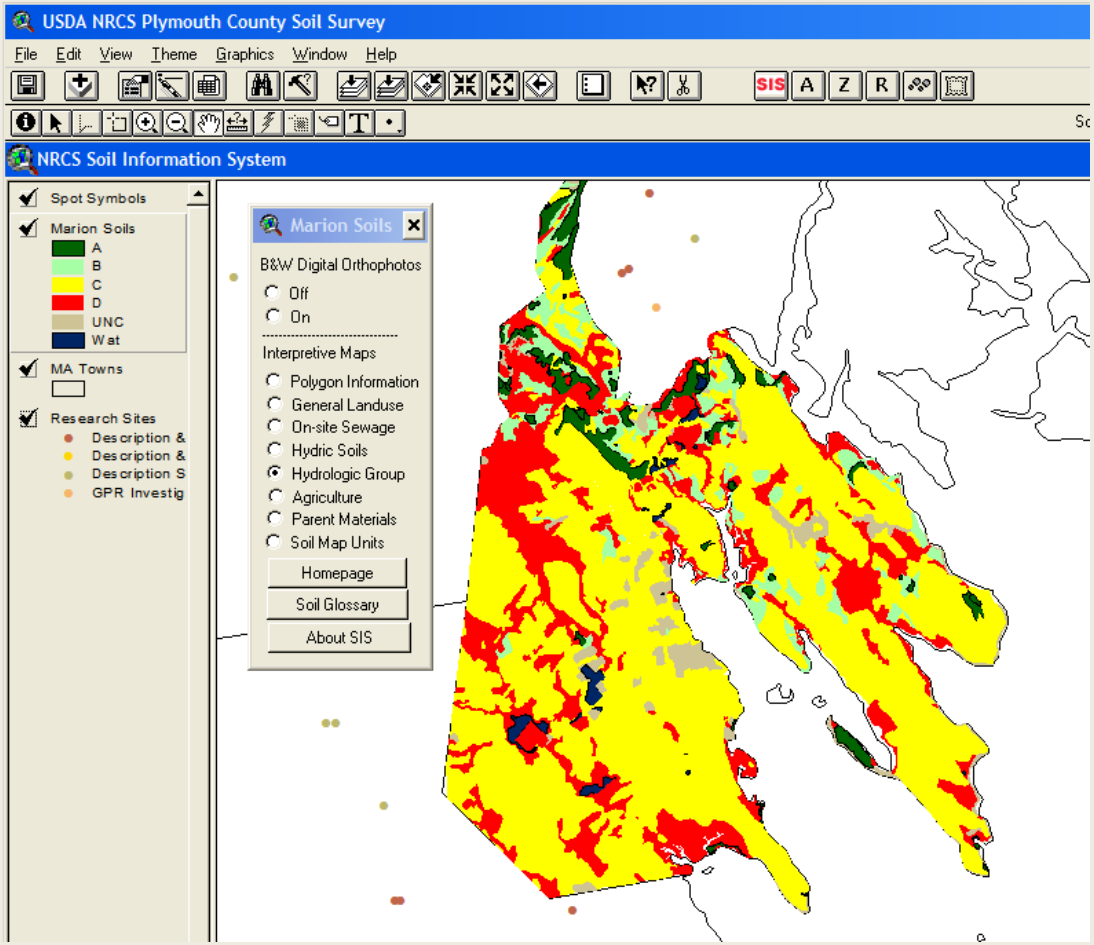
Over 2 million hits since inception – now **nesoil.com**



SIS (Soil Information System)

Developed in 1998 with RC&D one of first GIS projects to provide soil interpretive data using the updated mapping. Hundreds of copies of the CD sent out.





GPS and GIS in Field

Using Global Positioning Systems To Increase Accuracy in Soil Survey Field Mapping

By Jim Turenne **(This article was written and posted in 1996 some information may be outdated).**

Using GPS, GPR, and GIS to inventory peat deposits
Instructions on how to download GPS data and create contour maps

Introduction

A soil survey update is underway in Plymouth County Massachusetts. The updated soil survey report is employing state of the art technology such as ground penetrating radar, high resolution CIR photography, and global positioning systems (GPS) to produce highly detailed and accurate soil maps. The updated soil mapping is at a scale of 1:12,000, which allow minimum delineations down to 1 - 2, acres.

Soil Survey is the Rockwell International Precision Lightweight
tely 10x4x2 inches and weighs 3 pounds with batteries. The small
durable plastic case is sealed for all-weather use. The unit has a built
and other accessories. The PLGR unit provides accuracy to within 4
llows for increased accuracy with out the need for post-processing.

r Field Soil Mapping

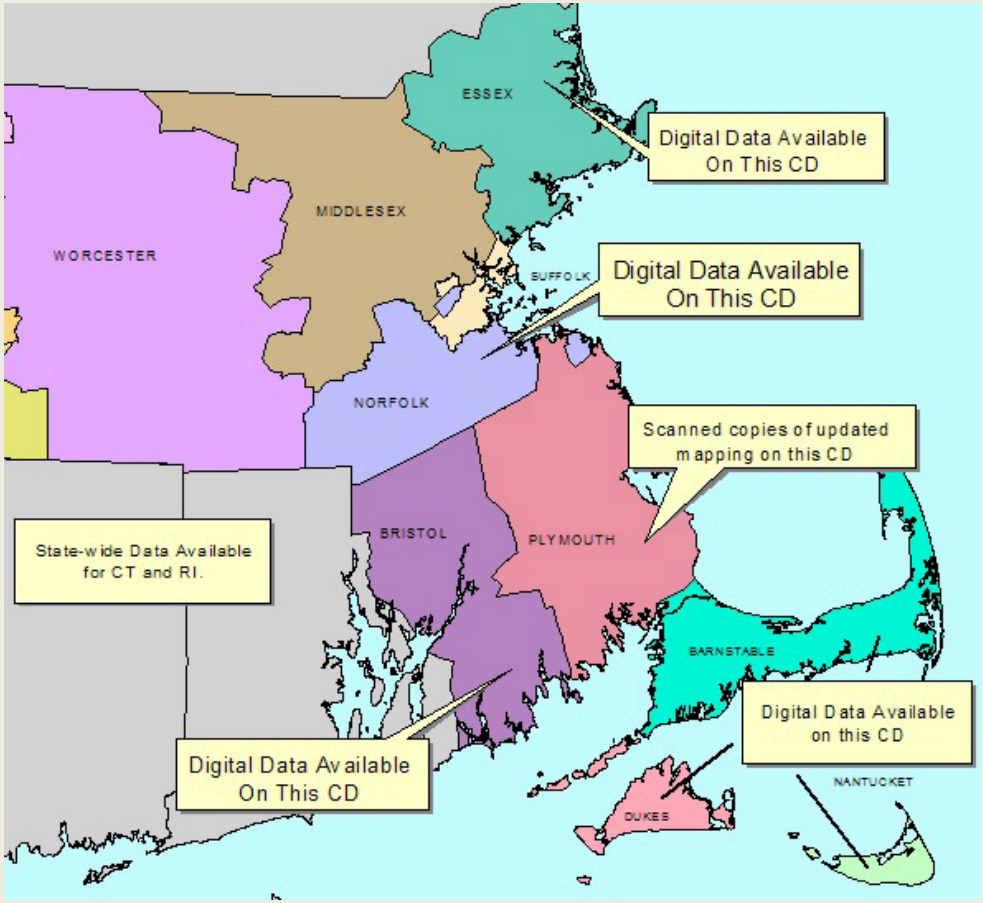
urvey in 1994 to determine the potential use of the PLGR's for the
the unit by locating known areas and comparing the coordinates to
ownloaded onto a PC and Digital Ortho-photography was overlain
the imagery. The GPS unit accurately plotted the correct location for
its uses for field mapping.

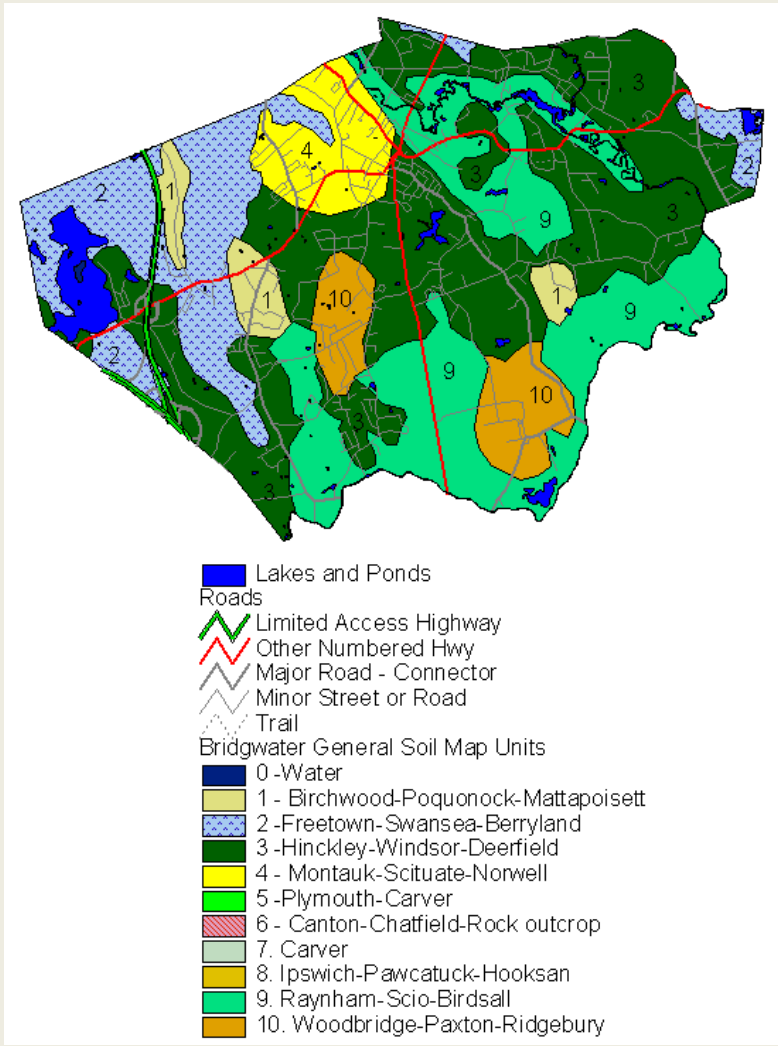
The (Original)Soil Tunnel (aka Wormhole)

Developed by two volunteers from U.K (Nicky Shirt and Michael Bonner. Educational display taken to schools to teach about soils, curriculum written and interns trained. Featured at the National Mall in Washington DC.

Digital Products

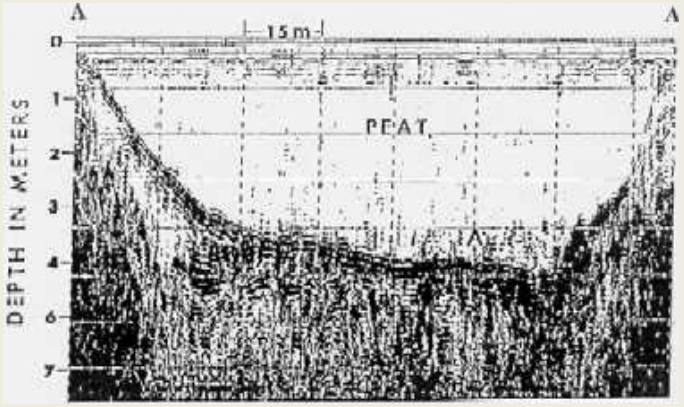
Soil CD with digital maps and attribute info, General soil maps for towns, catena charts, scanned atlas sheets, soil interp data.





Plymouth County Soil Scientist Technical Assistance

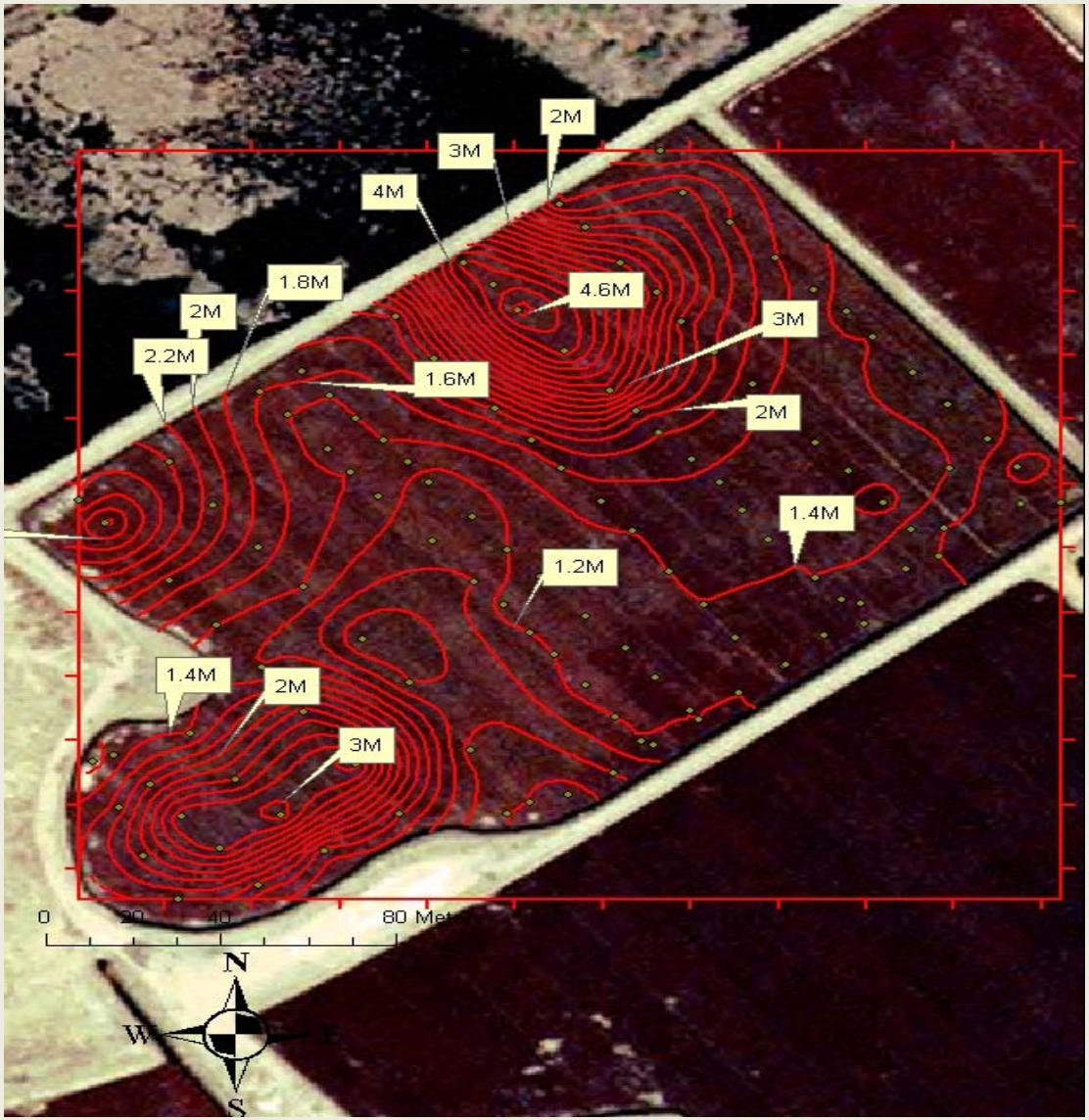
- Ground Penetrating Radar Investigations
- Water Table Monitoring Well Program
- Title 5 Workshops
- Farm Bill Technical Assistance 9 County Area
- Rapid Carbon Assessment (RaCA)
- ERT Technical Assistance
- Hydric Soil Workshops
- New England Hydric Soils Technical Committee (NEHSTC)
- Basic Soil Services



New Technologies
GPR with integrated GPS Capability

GPR - 2D - Peat Thickness

(http://nesoil.com/gpr/gprgis.htm)

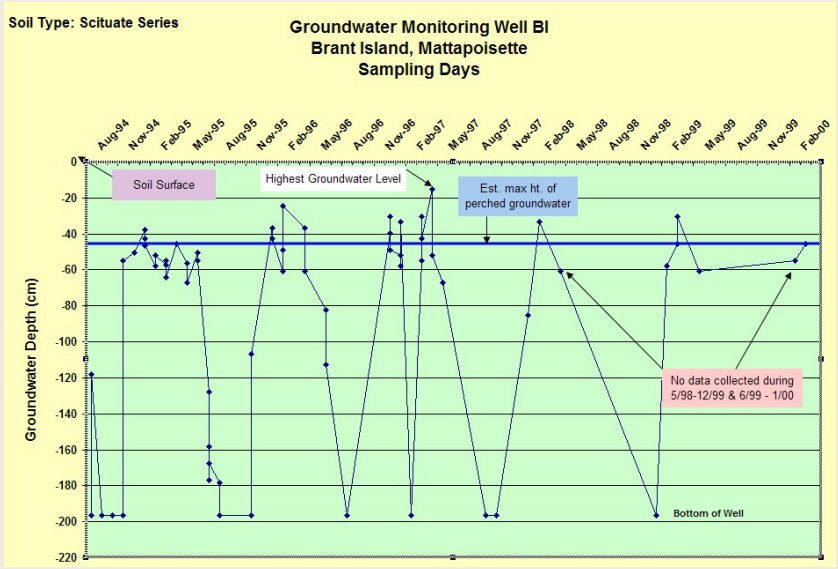


Procedure developed to utilize GPS and GIS to provide detailed maps of peat thickness in bogs.

Southeastern Massachusetts Index Monitoring Well Network

http://nesoil.com/obswell/index.htm

- Network of over 38 well sites setup in SE Mass.
- Town request (Board of Health Officers) / Watershed Groups
- Assist w/ new Soil Series definition and NASIS data population
- Data confirms and assists with revisions of established Soil Series definitions
- Info used in Hydric Soil Identification (National & Regional Keys)



Title 5 - Soil Evaluator Workshops

Began in 1994 and continued through current. Sessions eductated professionals on soil evaluation for septic system siting. Money went to District to hire contract mappers to accelerate the survey.

Rapid Carbon Assessment (RaCA)

Current National Initiative to determine soil organic carbon content. Assessment uses a spectrometer to analyze the soil samples collected.

Environmental Review Team (ERT)

- Purpose – Provide local officials, boards, and commissions with accurate natural resource information and interpretations to make wise land use decisions
- Project Areas:

  Quivet Neck, Dennis

  Viall Farm, Rehoboth

  Cole Property, Carver

Tidal flats at Quivet Neck, Dennis

Hydric Soil Workshops

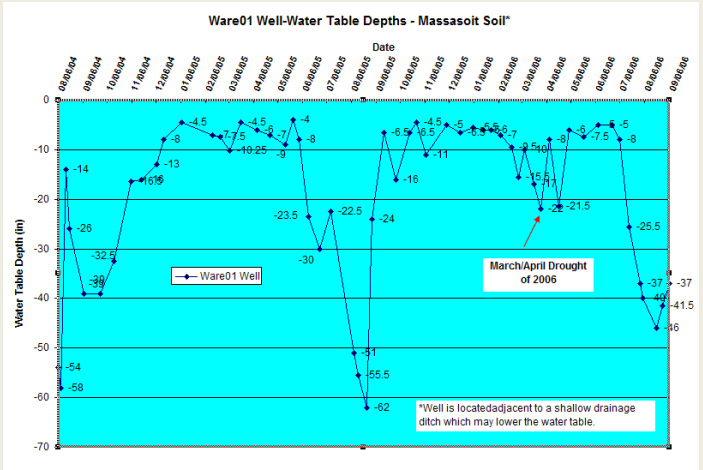
The Workshop from hell – Barnstable MA.

New England Hydric Soils Technical Committee (NEHSTC)

TA6. Mesic Spodic. *For testing in MLRAs 144A and 145 of LRR R and MLRA 149B of LRR S.* A layer 5 cm (2 inches) or more thick, starting within 15 cm (6 inches) of the mineral soil surface, that has value of 3 or less and chroma of 2 or less and is underlain by either:

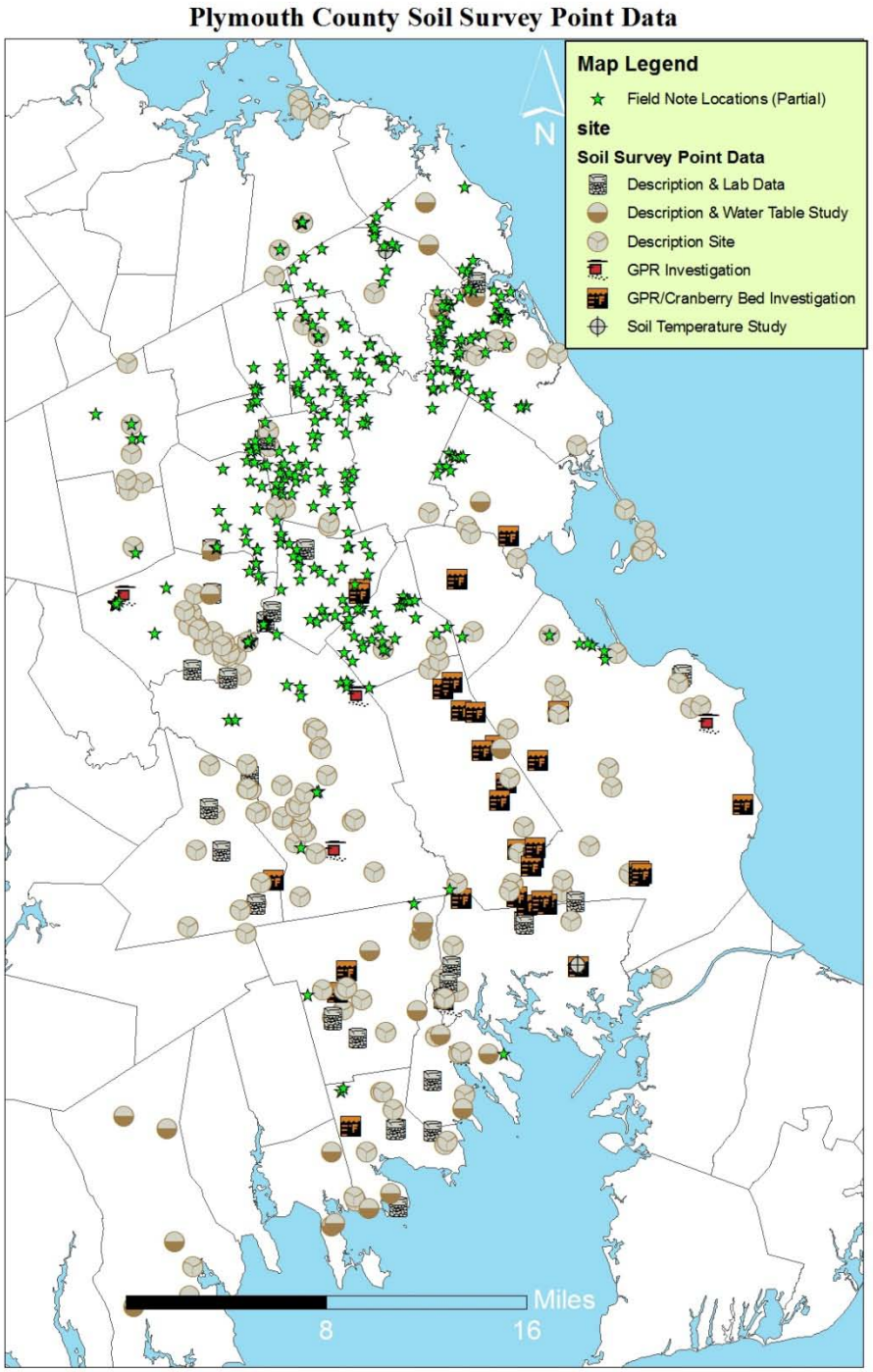
a. A layer(s) 8 cm (3 inches) or more thick occurring within 30 cm (12 inches) of the mineral soil surface, having value and chroma of 3 or less, and showing evidence of spodic development; or

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

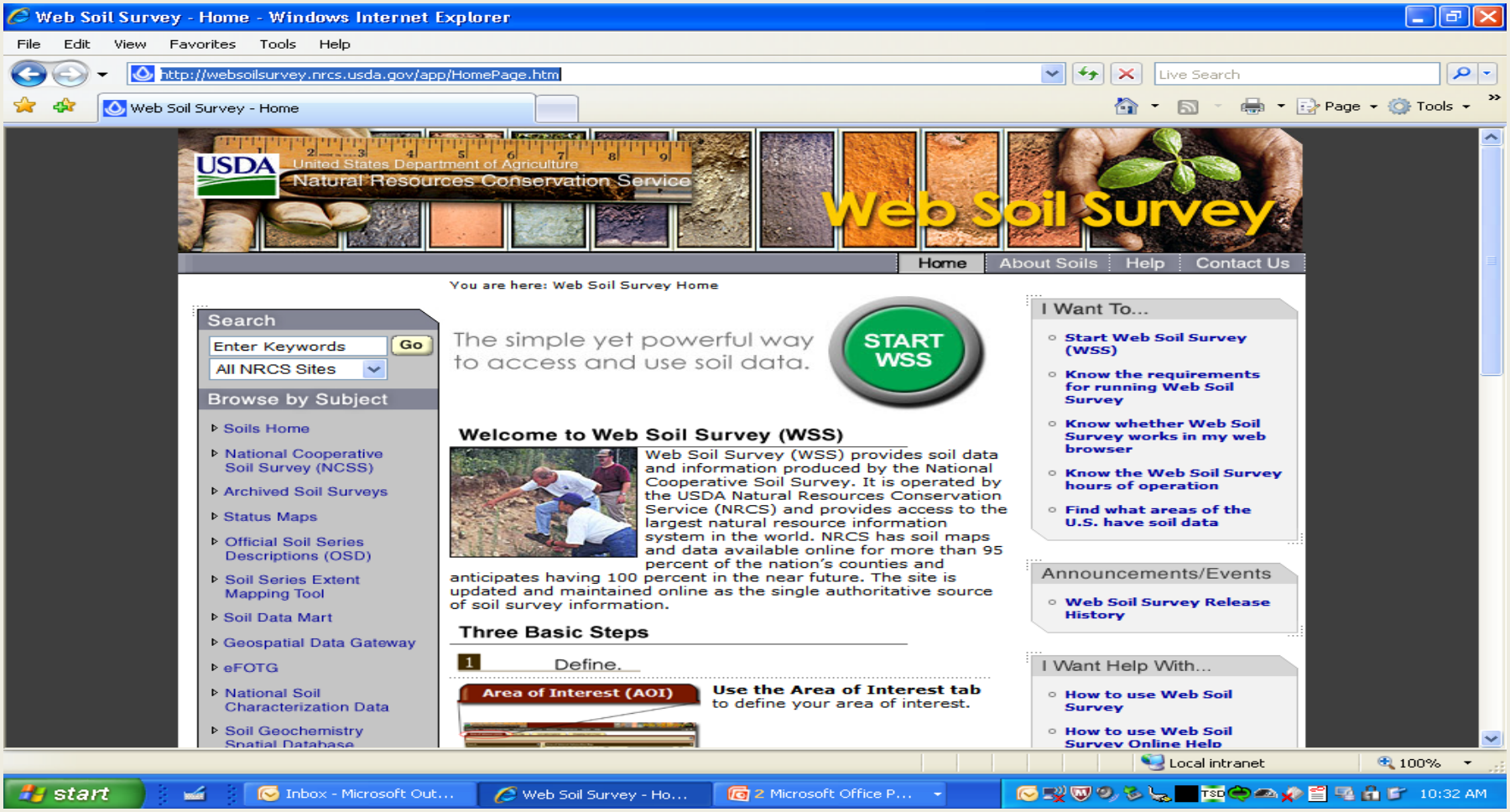


Geo-referenced Site and Field Notes

All data collected during the survey has been geo-located and the point data made available to users via WWW (Google Earth). Data includes pedon descriptions, lab sampling data, water table and climate sites, GPR investigations, field notes.

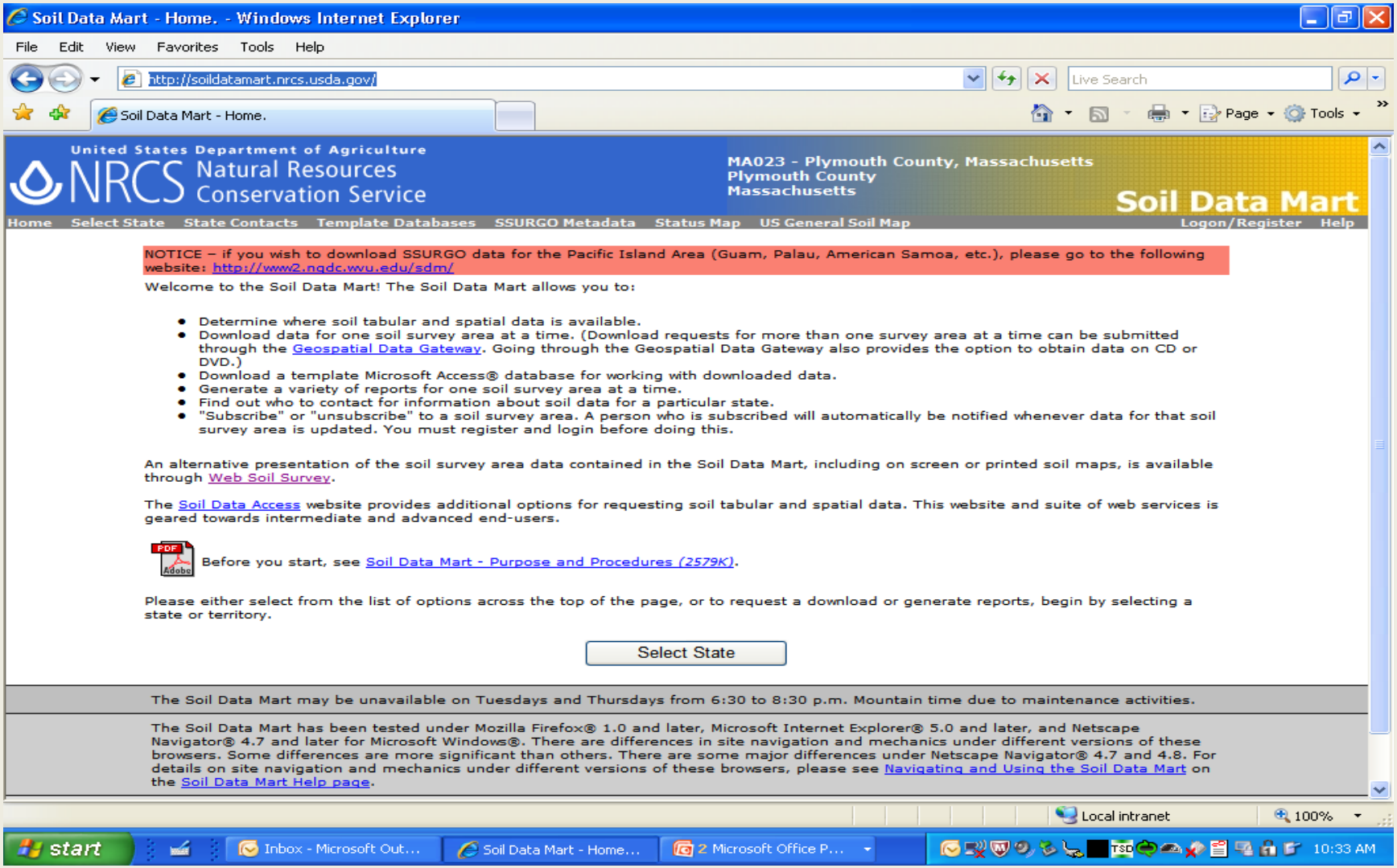


Web Soil Survey (http://websoilsurvey.nrcs.usda.gov



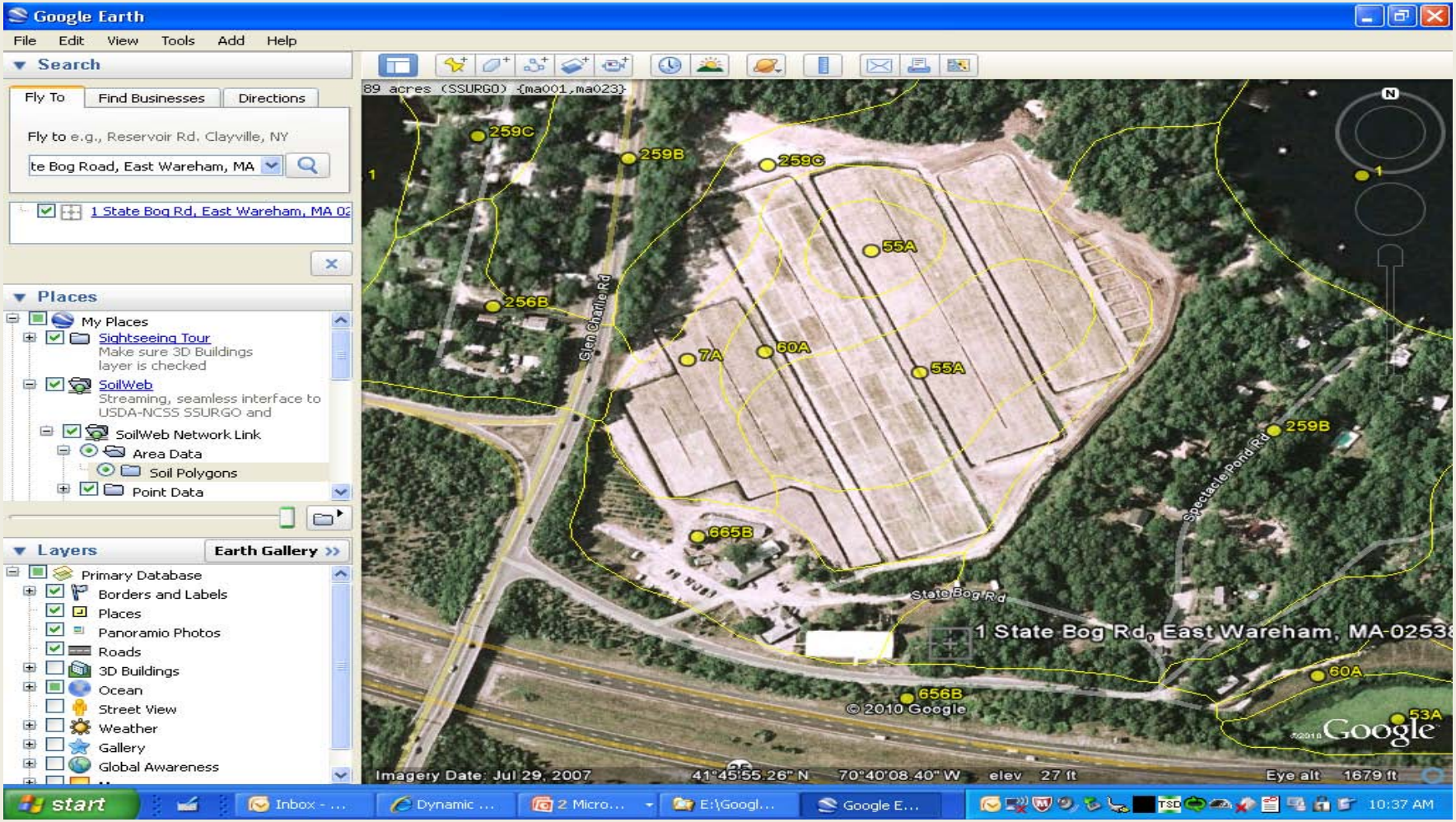
Also: http://www.mass.gov/mgis/massgis.htm

Soil Data Mart (http://soildatamart.nrcs.usda.gov/)



Google Earth Soils Information

(http://casoilresource.lawr.ucdavis.edu/drupal/node/429) Also available on Smart-Phones



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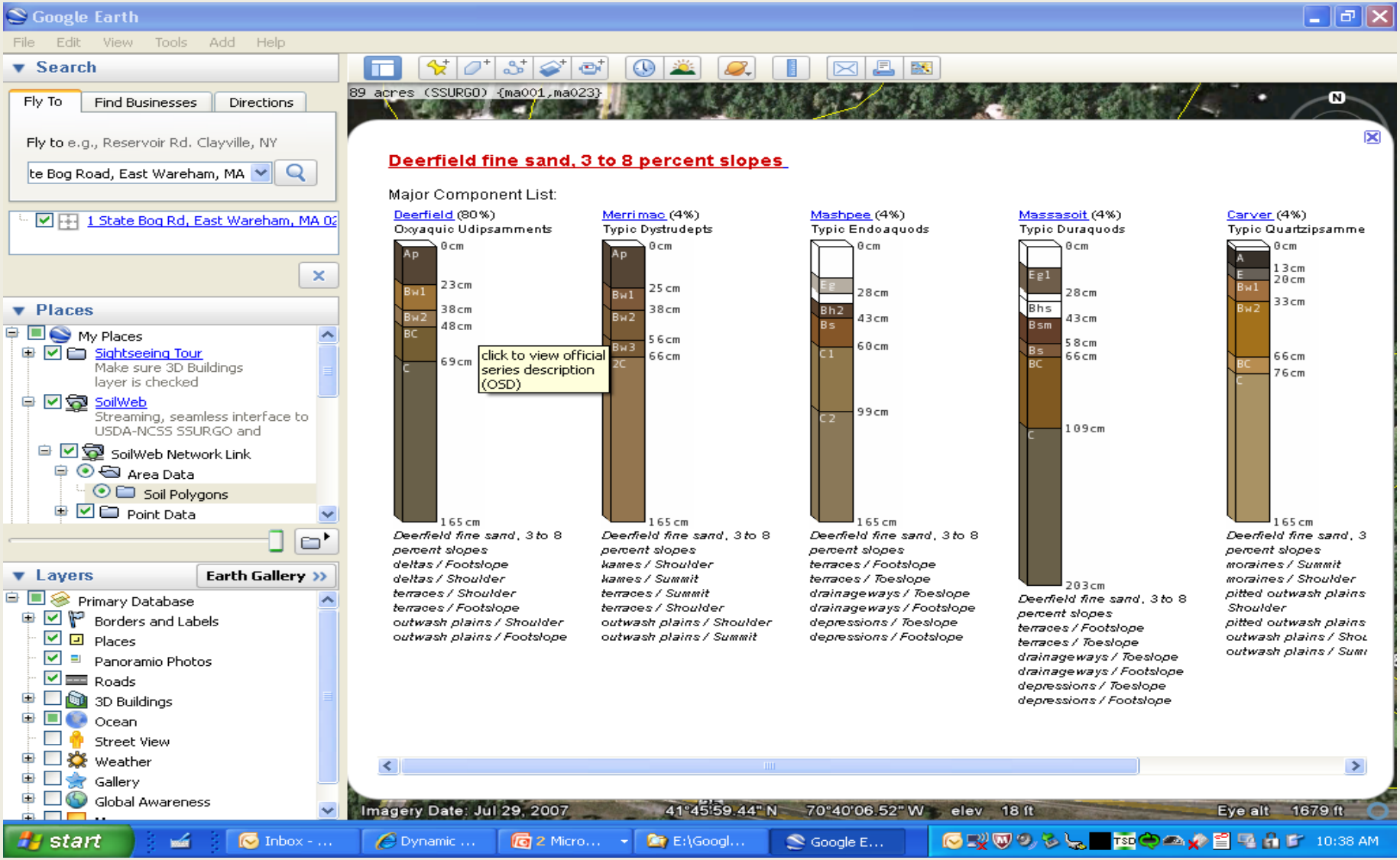
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SoilWeb
Streaming, seamless interface to USDA-NCSS SSURGO and
SoilWeb Network Link
Area Data
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Point Data
Layers
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Primary Database
Borders and Labels
Places
Panoramio Photos
Roads
3D Buildings
Ocean
Street View
Weather
Gallery
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89 acres (SSURGO) {ma001,ma023}
Deerfield fine sand, 3 to 8 percent slopes
Major Component List:
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Ap 0cm
Bw1 23cm
Bw2 38cm
BC 48cm
C 69cm
165cm
Deerfield fine sand, 3 to 8 percent slopes
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deltas / Shoulder
terraces / Shoulder
terraces / Footslope
outwash plains / Shoulder
outwash plains / Footslope
click to view official series description (OSD)
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Bw2 38cm
Bw3 56cm
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Deerfield fine sand, 3 to 8 percent slopes
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Bw2 66cm
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C 165cm
Deerfield fine sand, 3 to 8 percent slopes
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moraines / Shoulder
pitted outwash plains / Shoulder
pitted outwash plains
outwash plains / Shoulder
outwash plains / Summit
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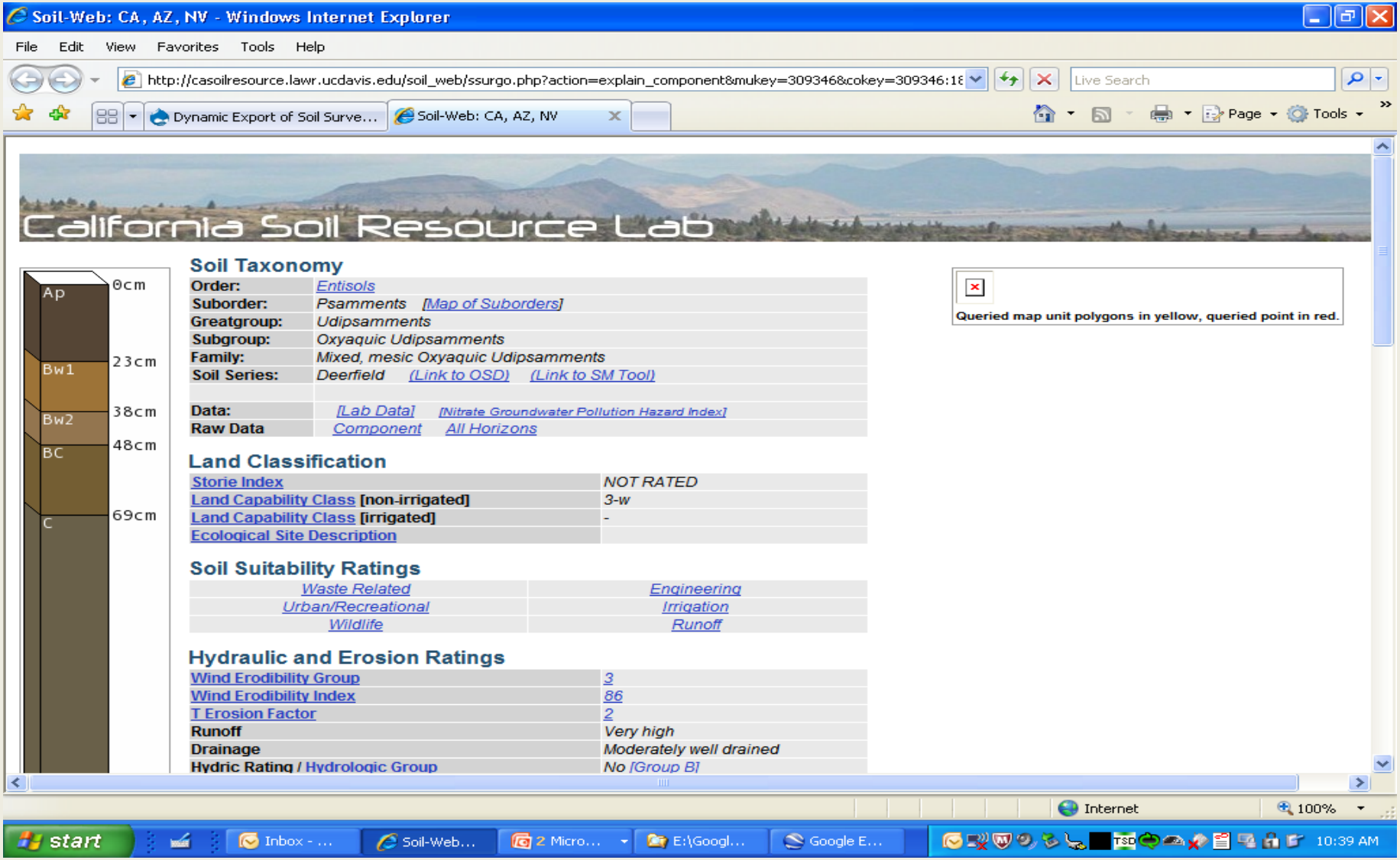
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Live Search
Dynamic Export of Soil Surve...
Soil-Web: CA, AZ, NV
Page Tools
California Soil Resource Lab
Ap 0cm
Bw1 23cm
Bw2 38cm
BC 48cm
C 69cm
Soil Taxonomy
Order: Entisols
Suborder: Psamments [Map of Suborders]
Greatgroup: Udipsamments
Subgroup: Oxyaquic Udipsamments
Family: Mixed, mesic Oxyaquic Udipsamments
Soil Series: Deerfield (Link to OSD) (Link to SM Tool)
Data: [Lab Data] [Nitrate Groundwater Pollution Hazard Index]
Raw Data Component All Horizons
Queried map unit polygons in yellow, queried point in red.
Land Classification
Storie Index NOT RATED
Land Capability Class [non-irrigated] 3-w
Land Capability Class [irrigated] -
Ecological Site Description
Soil Suitability Ratings
Waste Related Engineering
Urban/Recreational Irrigation
Wildlife Runoff
Hydraulic and Erosion Ratings
Wind Erodibility Group 3
Wind Erodibility Index 86
T Erosion Factor 2
Runoff Very high
Drainage Moderately well drained
Hydric Rating / Hydrologic Group No [Group B]
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Thanks Rob!