

2010 New England Hydric Soil Technical Committee Soil Tour: SE Massachusetts and Rhode Island

October 19 and 201

DRAFT



Tour Organized by Pete Fletcher, Mark Stolt, Rob Tunstead, and Jim Turenne

NEW ENGLAND HYDRIC SOIL TECHNICAL COMMITTEE

COMMITTEE COMPOSITION

The New England Hydric Soil Technical Committee (NEHSTC) consists of soil scientists, wetland scientists, and representatives from state and federal regulatory agencies in New England. Its members represent the private sector, universities, organizations and societies (e.g., SSSNNE, SSSSNE, MAPSS, MAWS, AMWS, NHANRS, RIAWS, CAWS), and state and federal government agencies (such as NRCS, EPA, ACOE). A New England Interstate Water Pollution Control Commission (NEIWPCC) representative is also included as a non-voting member because of their sponsorship of the New England Indicators document and its residence on their website.

The committee has a relatively informal structure composed of co-chairs and members. It has no budget or staff. The committee's mission is to provide a platform for discussion, conducting research, and producing publications pertaining to the identification of hydric soils in New England.

MISSION STATEMENT

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2010 New England Hydric Soil Technical Committee Fall Tour: Mesic Spodosols and Mineral, Organic, or Mucky

Background: Version 7 of the National Indicators includes the only test indicator submitted by the NEHSTC – TA6 Mesic Spodic was set up to catch hydric soils with spodic morphology in 144A and 149B, this indicator was deemed needed following the 2005 vernal pool study tour in RI. During that tour most of the sites examined had spodic morphology but were not meeting any indicator despite obvious wetland hydrology. We will examine 4 test sites in SE Massachusetts and RI set up to provide the support data to move this to an approved indicator. We will also review the data collected to develop a field guide for determining amount of soil organic carbon in soils.

Tour Organizers: Mark Stolt, Peter Fletcher, and Jim Turenne

Contact info for tour: Jim Turenne Balckberry: 401-255-6206 or email jim.turenne@ri.usda.gov

Maps of field locations and times:

<http://maps.google.com/maps/ms?hl=en&ie=UTF8&msa=0&msid=113798583893585652288.0004918f3943f942494d2&ll=41.849105,-71.199646&spn=0.91658,1.760559&z=9>

Overnight Lodging for folks coming in October 18th:

OCTOBER 19, 2010

9:00 am to 12 pm: Meet at Pete Fletcher's House - 455 Summer Street, Bridgewater, MA 02324. Pete will provide light refreshments. We will work on organic data and review the Carver Pond Spodic site.

12 to 1:30 pm: Lunch and travel to Hayway Road Study site in Falmouth MA.

1:30 to 4:00 pm: Hayway Road wells.

4:00 pm: travel to Rhode Island – folks should bring EZ Pass toll for Newport Bridge is \$4.00 now. Best lodging is at Holiday Inn in North Kingston, a list of other Hotels is also available, cheapest is Hotel 6 in Newport (\$50/night). Plans are being made for evening meeting/social.

OCTOBER 20, 2010

8:00 to 10:00 am: meet at Holiday Inn Parking lot at 8 am from there we will travel to site to test organics.

10:00 to 11:30 pm: Great Swamp Spodic site.

11:30 to 12 pm: Lunch at Coffee Roasters

12 to 2 pm: Alton Jones Spodic site

2 pm: End

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:

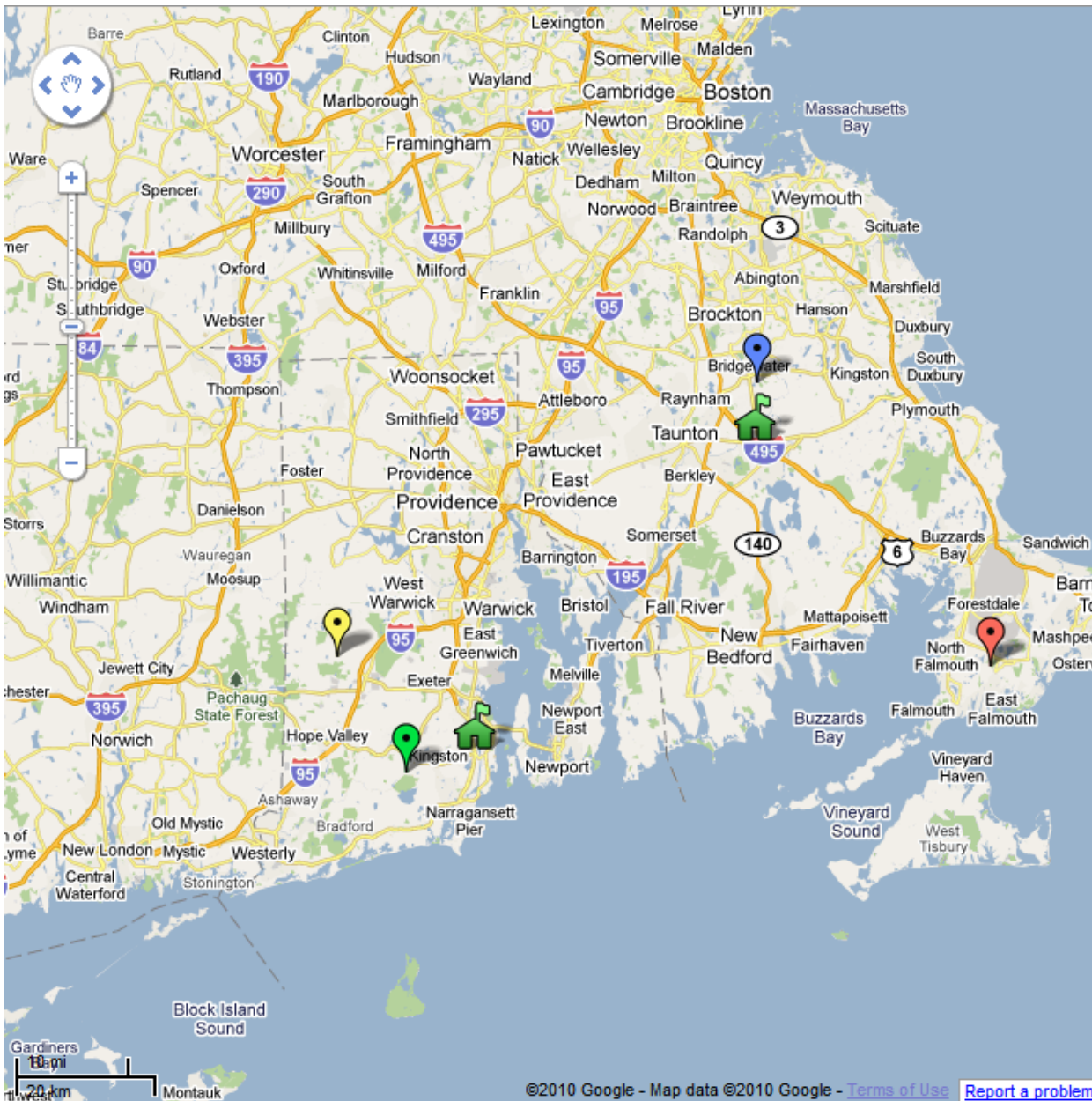
- a. A layer(s) 8 cm (3 inches) or more thick occurring within 30 cm (12 inches) of the mineral soil surface, having value and chroma of 3 or less, and showing evidence of spodic development; or
- b. A layer(s) 5 cm (2 inches) or more thick occurring within 30 cm (12 inches) of the mineral soil surface,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

User Notes: This indicator is used to identify wet soils that have spodic materials or that meet the definition of Spodosols, only in MLRAs 144A and 145 of LRR R and in MLRA 149B of LRR S. The layer

that has value of 4 or more and chroma of 2 or less is typically described as an E or Eg horizon (typically having a color pattern referred to as stripped or partially stripped matrices). The layers with evidence of the accumulation of translocated organic matter typically are described as Bh, Bhs, Bhsm, Bsm, or Bs horizons. These layers typically have several color patterns or cementation indicative of translocated iron, aluminum, and/or organic matter.



Map of Sites:



NEHSTC 2010 Tour

45 views - Public

Created on Oct 1 - Updated Oct 4

By [Jim T](#)



[Meet here Pete Fletcher's House](#)

455 Summer Street, Bridgewater, MA
9 am Oct 19th



[Hayway Road Site](#)

Parking may be issue



[Holiday Inn](#)



[Great Swamp site](#)



[Alton Jones Site](#)



[Holiday Inn Express](#)

Loding for folks coming in on the 18th.
43 Harding Street Middleboro, MA.

Tour Attendees: Carolyn Alves, Jim Turenne, Donald Parizek, Rob Tunstead, Mark Stolt, Steve Sprecher, Ruth Ladd, Mike Sheehan, Matt Richardson, Maggie Payne, Jill Phillips, Thom Villars, Karen Dudley, Jim Gove, Tom Peragallo, Art Allen, Jeff Peterson, Shawn Finn, Al Averill, Sid Pilgrim, Joe Noel, Mike Narcissi.

Summary:

Organic vs. Mineral Study: Mark Stolt and Peter Fletcher have been working to collect samples of soils for soil organic carbon (SOC) estimation using field methods. This has always been a problem when teaching and describing soils. The testing involved 10 members of the NEHSTC who provided their estimations of SOC and textural class (mineral, organic, mucky) for 10 samples on the 19th and again (different samples) on the 20th. Results of the tests will be part of a study with mid-Atlantic group. The testing was an eye opener for all those involved, the hopeful outcome will be a guide to estimating SOC in soils.

Spodic Site 1: Carver pond, Bridgewater, MA.

Site is set with a series of manual wells in a Deerfield-Mashpee/Massasoit soil catena. Soils in the areas are mainly sandy underlain by lacustrine silts below 1 meter. Pete Fletcher has been monitoring this site for about 1 year; he has water levels, soil temp and IRIS data.

During the tour we opened up 5 test pits (MW 5, wettest to MW 1 dry), general discussions for this site focused on texture which seemed to run the lvfs-sl boundary. If the textures come out loamy the S indicators can't be used, it was felt by some that being that close to the line many folks will go with sandy loam particularly in the A horizons. Colors the A, AE, A/E also came up with variations on estimating percent coated or masked with organic matter.

The wells near the hydric line were wells 3 and 2, all wells below 2 met the mesic spodic indicator. MW-3 describers have S8 checked off but upon review by Turenne I can't get it to make, chroma directly below A needs to be 1 and secondary color value 4 or more.

Conclusion: TA6 appeared to work well at this site, soil texture samples will be run and site monitored for another season.

Spodic Site 2: Hayway Road, Cape Cod, MA.

This site occurs in a drainage swale in the Mashpee Outwash Plain. Pete provided an overview of the formation of these swales prior to the site visit. Soils mapped in the area are Carver, Deerfield, and Pipestone, two continuous loggers were installed in late spring near the wetland line. During well installation the site was inundated and ponded to several inches. Mike Sheehan collected vegetation analysis on the wet and up plots. All the soils in the area showed good spodic development with thick E horizons underlain by spodic materials.

Four pits were dug and described during the visit; sites were labeled 1 (wettest) to 4 highest. Site 1 describers checked off the soil meeting A11 but E horizons are not used for depleted unless redox described, S6 is also checked but if looking strictly at the definition the two colors of the E must be "faintly contrasting" the E has two values of 4 and 7 making them distinct (needs checking), the TA6 indicator is met at this site. Site 2 has S6 being met, colors in the E total 120% and there is not shape of stripped zones (need to be rounded). The descriptions states does not meet TA6 due to depth but not sure what is meant. The AE is described as

50/50% A and E colors in my opinion this makes the dark A the matrix as it is an AE not an EA – dominant visual of the horizon leaned towards A and made the 3/1 color. So I got it to make TA6. Site 3 looks like it was on the line leaning to an upland site. Describers have the site making S6 but similar questions to site 2 no shape described, this site did not meet TA6 due to thin Bhs less than 3 inches. Site 4 (upland) has TA 6 being met but reviewer did not get it to meet due to the 4/3 Bs directly under the E, needs to be 3 or less and at least 3 inches.

Conclusion: An Odyssey Logger was re-installed to collect a full year of hydrology at the site. Describers at Site 4 need to check the description, if it still meets TA-6 need to write something about redox needed below the spodic.

Site 3: Great Swamp, Kingston, RI

Site 3 is established adjacent to a vernal pool in an area of Merrimac-Sudbury-Walpole soils. Water table, soil temp, and IRIS tubes were installed in late April in the area of the hydric/upland line. Preliminary results showed the hydric pit (Site 2/3) met the hydrology and IRIS tubes showed removal of iron. Four test pits were dug during the tour; sites were labeled 1 (wettest) to 4 (upland).

Descriptions for site 1 is missing, this site is located at lowest elevation of the vernal pool and meets hydric based on definition alone (ponded). Site 2 met S3 and also met TA-6 the 3/1 E comes in within 15 cm of mineral. The description taken during the tour for site 3 (large pit) was not available a description was made by Turenne/Stolt during the installation of the wells and the site met TA-6 and no other indicator, this site is close to the line but still in wetland. Site 4 the describers got a false-positive for meeting TA-6, the Bhs below the dark A was 100% 2.5/3 which just meets it, however the user notes looks to have two or more color patterns in the spodic and that is not described. This site will be monitored to observe hydrology in the Bhs.

Conclusion: With the exception of site 4, TA-6 seemed to work well. A possible recommendation for TA-6 is to require some redox features within a specified depth below the spodic horizon, this needs to be reviewed.

Site 4: Alton Jones, West Greenwich, RI

This site is located in a till upland along a sloping drainage swale. This site has been used for soil judging and workshops for many years. Woodbridge and Ridgebury soils are mapped in the area; the poorly drained pit has excellent spodic morphology. Due to time the pit was only examined by members and discussed.

Attachments: Copies of the soil logs, data, veg, and photos in Attachment A.

Jim Turenne

NEHSTC Member