Red Soil Updates in MLRA 145

- **MLRA 145-Connecticut Valley**

Auer Farm, Bloomfield – Evaluated 6 soil pits in red till soils of a woodland soil catena and a wet meadow soil catena

Wadsworth Estate, Middletown – Evaluated 5 Soil pits of a woodland soil catena in Red till soils (Ludlow, Wilbraham and Menlo Series)

Wallingford, CT , 3 paired sites in red till

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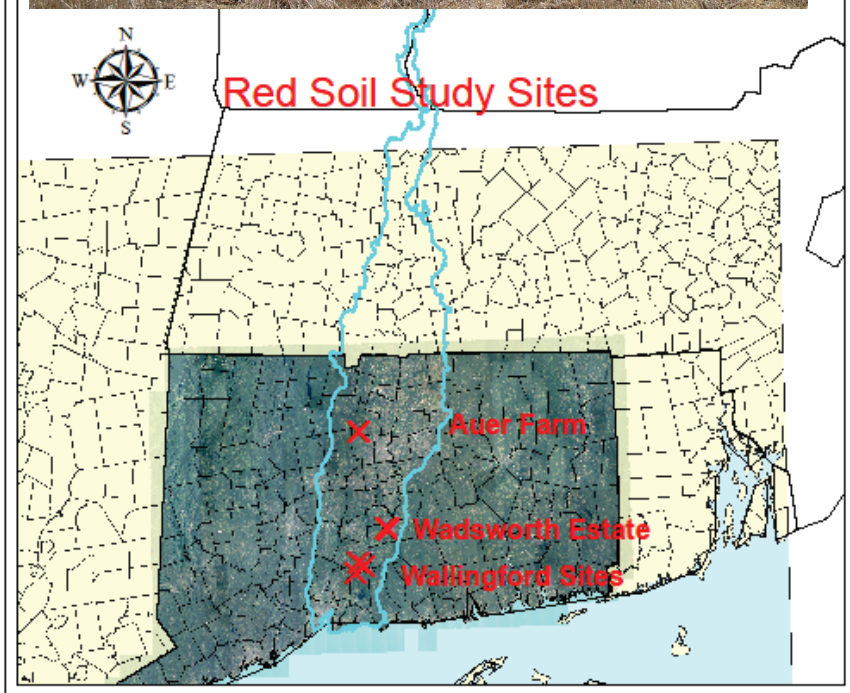
Auer Farm

Wadsworth Estate


N
W
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S
Red Soil Study Sites
Auer Farm
Wadsworth Estate
Wallingford Sites

Wallingford

Auer Farm Site 5

Poorly Drained Wilbraham Soil

Redox in a Red Soil

Problematic Red Soils

- Color Change Propensity Index (CCPI)
- A value of 30 or less is problematic *(Rabenhorst and Parikh, 2000)*
- Auer Farm Bw Horizon CCPI = 21.71
- Auer Farm C Horizon CCPI = 17.08
- Wadsworth Estate Bw Horizon = 18.37
- All samples are problematic *(Rabenhorst, 2008)*

F21. New Indicator for testing in SNE

- **F21. Red Parent Material.** *For use in MLRAs 147 and 148 of LRR S and MLRA 127 of LRR N; for testing in all soils derived from red parent materials.* A layer derived from red parent materials (see glossary) that is at least 10 cm (4 inches) thick, **starting within 25 cm (10 inches)** of the soil surface with a hue of 7.5YR or redder. The matrix has a value and chroma greater than 2 and less than or equal to 4. The layer **must contain 10 percent or more depletions and/or distinct or prominent redox concentrations occurring as soft masses or pore linings.** Redox depletions should differ in color by having:
- Value one or more higher and chroma one or more lower than the matrix,
- Or Value of 4 or more and chroma of 2 or less.

IRIS TUBES

URI Graduate Student Eric Ford is conducting research on the red wetland soils of MLRA 145

Positive Reaction to alpha, alpha-dipyridyl

Site	F21	TF2	Other	Missed	Notes
Auer Farm-1	yes	yes	A11,F6, F3	no	VPD, Aquoll, wet meadow
Auer Farm -2	yes	yes	no	no	PD, Wilbraham, wet meadow
Auer Farm -3	yes	yes	no	no	PD, Wilbraham, wet meadow, near boundary
Auer Farm -4	no	no	no	no	MWD, Ludlow Series, not Hydric, woodland
Auer Farm -4-A	yes	yes	no	no	PD, Wilbraham, on the line, woodland
Auer Farm -5	yes	yes	F3	no	PD, Wilbraham, often ponded, A is depleted matrix
Wadsworth-1	no	no	no	no	MWD, Ludlow Series, not Hydric, woodland
Wadsworth -2	no	yes	no	yes	5% distinct or prominent redox beginning @33cm, only 2% above, near the line.
Wadsworth-3	no	yes	no	yes	20% distinct redox starting @28cm, very close!
Wadsworth -4	no	yes	no	yes	15% distinct redox starting @28cm, very close again!
Wadsworth -5	no	yes	A11	no	VPD, Aquoll, woodland
Wallingford -1	no	yes	no	yes	5% faint redox 15 to 40 cm
Wallingford -2	no	no	no	no	MWD, Ludlow Series, woodland
Wallingford -3	no	yes	no	yes	10% faint redox beginning @28cm
Wallingford -4	no	no	no	no	MWD, Ludlow Series, woodland
Wallingford -5	no	yes	no	no	> 10% redox begins @ 27cm, very close
Wallingford -6	no	yes	no	no	Did not meet Hydrology standard in 2012, false positive with TF-2

MLRA- 145 Red Soil Study Sites

- F21 worked 65% of the time at the study locations, no false positives

- TF2 worked 94 to 100 % of the time at the study locations, with one **possible** false positive, it lacked the hydrology standard in spring of 2012, but had a strong positive reaction to alpha-alpha @ 14cm on 3/15/2012, within standards for a CT wetland delineation and version 3 of the New England Field Indicators.

Recommendations

- Continue monitoring the Wallingford sites into the spring of 2013, conduct a field Tour with the NEHSTC
- Describe additional red soils in MLRA 145, need to evaluate redox % and contrast.
- Assemble and analyze **all** the data
- Propose a **new** indicator for use in MLRA 145, similar to TF2

Cast of Characters

- Thank you to all that helped out on these projects over the years including staff from: NRCS,USACOE, SSSSNE, URI, UMASS, UCONN, University of Maryland, Auer Farm, North Central Conservation District, City of Middletown, New England Hydric Soils Technical Committee, City of Wallingford, and Tom Pietras, Soil Science and Environmental Services, Inc.