Draft Minutes: National Technical Committee for Hydric Soils (NTCHS)
2009 Annual Meeting, April 14-16, 2009
Albuquerque, New Mexico

Members Present: Chris Noble (USACE), Steve Monteith (TN, NRCS), Lenore Vasilas (DC, NRCS), Ralph Spagnolo (EPA), Wade Hurt (Univ. of Florida), Mike Vepraskas (North Carolina State Univ.), Richard Griffin (Prairie View A&M Univ.), Cindy Stiles, (National Soil Survey Center, NRCS), Chien-Lu Ping (Univ. of Alaska), Jim Dick, (USFWS), and Chair, Chris Smith (NSSC, NRCS).
Note: Cindy Stiles replaced Jimmy Richardson and Ed Blake (NW NRCS) resigned and will need to be replaced.

Members Absent: Randy Davis (FS), Bill Ypsilantis (BLM), Wayne Skaggs (North Carolina State Univ.), Dave Zuberer (Texas A&M Univ.), Randy Dahlgren (UC, Davis), and Jimmie Richardson (North Dakota State Univ.).

Resource Personnel Present: Ed Dunkinson (National Soil Survey Center, NRCS), Ken Scheffe (NM, NRCS), Jim Herrington (EPA), Santiago Misquez (NM, NRCS, and Bob Hill, (NM, NRCS).

Meeting was called to order by Smith at 8:05 am Tuesday April 14. After introductions Scheffe provided an overview of the state, its water resources and climate. Smith requested comments on the draft minutes of the previous meeting and Hurt distributed a few copies. Members suggested no corrections. A motion for approval of the draft minutes was made by Noble and seconded by Griffin. The motion passed.

Noble provided an update of COE manual Regionalization efforts. Status is as follows:

Region	Date of First Release
• Alaska	2006
• Arid West	2006
• Western Mountains, Valleys, and Coast	2008
• Great Plains	2008
• Midwest	2008
• Atlantic and Gulf Coastal Plain	2008
• Caribbean Islands	2009
• Northcentral and Northeast	2008
• Eastern Mountains and Piedmont	2010
• Hawaii and Caribbean Islands	2010

Noble provided requested changes to hydric soil indicators and their use in LRRs K, L, R, (LRR N, MLRA 136 of LRR P, and MLRAs 147 and 148 of LRR S and LRR V) and the NTHSC took action. Nobel's requests and NTCHS actions are as follows:

Proposed Changes to Indicators Used in the NC/NE Region (LRRs K, L, and R)

Indicator		Change
A3	Black Histic	Remove from MLRA 143 of LRR R
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Needs data. Note if structureless vs. structured facilitates separation	
A10	2cm Muck	Add for testing in Long Island/Cape Cod (MLRA 149B of LRR S)
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	This is already approved for testing in all of LRR S.	
A16	Coast Prairie Redox	Add for testing in LRR S except for Long Island/Cape Cod (MLRA 149B of LRR S)
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: A plan to test this indicator needs to be in place within the next two years.	
S1	Sandy Mucky Mineral	Remove from use in LRR R
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Needs data.	
S3	5cm Mucky Peat or Peat	Remove for testing in LRR R
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Needs data.	
S3	5cm Mucky Peat or Peat	Add for testing in LRRs K and L
	No change, discuss at annual meeting	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: A plan to test this indicator needs to be in place within the next two years.	
S6	Stripped Matrix	Remove from use in LRR R
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Needs data.	

S7	Dark Surface	Remove from use in LRR R
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Needs data.	
S7	Dark Surface	Make applicable to Long Island/Cape Cod Subregion (MLRA 149B of LRR S)
x	No change	

	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: This is already approved for use in all of LRR S.	
S7	Dark Surface	Add for testing in LRRs K and L
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: A plan to test this indicator needs to be in place within the next two years.	
S8	Polyvalue Below Surface	Make applicable to LRR R and the Long Island/ Cape Cod Subregion (MLRA 149B of LRR S)
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: This is already approved for use in all of LRR S. This indicator can only be made a testing indicator in R until data is collected to confirm that it is applicable in this region.	
S9	Thin Dark Surface	Make applicable to LRR R and the Long Island/ Cape Cod Subregion (MLRA 149B of LRR S)
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: This is already approved for use in all of LRR S. This is a coastal plain MLRA that because of scale was put in a non-coastal plain region. This is not accepted for LRR R due to lack of data.	
F12	Iron-Manganese Masses	Add for testing in LRR K, L, and R
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: A plan to test this indicator needs to be in place within the next two years.	

Proposed Changes to Indicator Use in the Eastern Mountains Region (LRR N, MLRA 136 of LRR P, and MLRAs 147 and 148 of LRR S)

Indicator		Change
A6	Organic Bodies	Remove from application in MLRA 136 of LRR P
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: MLRA 136 is a piedmont section of LRR P. This indicator is for coastal plain soils and should be limited to use in the coastal plain portions of LRR P.	
A7	5cm Mucky Mineral	Remove from application in MLRA 136 of LRR P
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: MLRA 136 is a piedmont section of LRR P. This indicator is for coastal plain soils and should be limited to use in the coastal plain portions of LRR P.	
A9	1cm Muck	Remove from application in MLRA 136 of LRR P
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: MLRA 136 is a piedmont section of LRR P. This indicator is for	

	coastal plain soils and should be limited to use in the coastal plain portions of LRR P.	
A10	2cm Muck	Remove from testing in MLRA 148 of LRR S
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
	Comments of alternate change:	
S6	Stripped Matrix	Remove from application in MLRA 136 of LRR P and MLRAs 147 and 148 of LRR S
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Need data	
S7	Dark Surface	Remove from application in MLRA 136 of LRR P and MLRAs 147 and 148 of LRR S
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: Needs data.	
S8	Polyvalue Below Surface	Remove from application in MLRA 136 of LRR P and MLRAs 147 and 148 of LRR S
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
	Comments of alternate change: Needs data.	

Proposed Change to Indicator Use in the Pacific Islands Region Only (LRR V)

Indicator		Change
F6	Redox Dark Surface	Add the highlighted text below
	A layer that is at least 10 cm (4 inches) thick entirely within the upper 30 cm (12 inches) of the mineral soil. The thickness requirement is waived if the layer lies directly on bedrock or lava. The mineral soil has either: a. Matrix value of 3…	
x	No change	
	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: You may want to consider a national test indicator Thin Redox Dark Surface. However, a new test indicator can be adopted. You cannot change a national indicator for just one region.	
S1	Sandy Mucky Mineral	Add for testing in LRR V (Pacific Islands)
	No change	
x	Accept change as requested	
	Not familiar enough with this Region to make an informed decision	
x	Comments of alternate change: A plan to test this indicator needs to be in place within the next two years.	

In discussions of the requested changes to F6 to allow the thickness requirement to be waived if bedrock is present it was decided that a test indicator TF12 for shallow soils meeting all requirements of F6 except thickness due to the soil not being thick enough to meet the 6 inch requirement.

TF12. Very Shallow Dark Surface. *For testing in all LRRs.* In depressions and other concave

landforms, one of the following

a. if bedrock occurs between 15 cm (6 inches) and 25 cm (10 Inches), a layer at least 15 cm (6 inches) thick starting within 10 cm (4 inches) of the soil surface with value 3 or less and chroma 1 or less, and the remaining soil to bedrock must have the same colors as above or any color that has a chroma of 2 or less.
b. If the bedrock occurs within 15 cm (6 inches), more than half the soil thickness must have value 3 or less and chroma 1 or less, and the remaining soil to bedrock must have the same colors as above or any color that has a chroma 2 or less.

At the last Annual Meeting of the NTCHS Mark Stolt (Univ. of RI) presented several proposed addition, changes, and deletions to hydric soil used in the New England states, the NTCHS provided a written response to the requests, and Stolt provided additional information as follows:

1. Proposed Indicator:

A__. Mesic Spodic. For use in MLRA 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 2 or less that is underlain by either: **a)** a layer(s) 8cm (3 inches) or more thick occurring within 30 cm (12 inches) of the surface that has value and chroma 3 or less that shows evidence of the accumulation of translocated organic matter; or **b)** a layer(s) 5 cm (2 inches) or more thick occurring within 30 cm (12 inches) of the mineral soil surface that has value 4 or more and chroma 2 or less that is directly underlain by a layer(s) 8cm (3 inches) or more thick with value and chroma 3 or less that shows evidence of the accumulation of translocated organic matter.

User Notes: This indicator is used to identify wet soils with spodic materials or that meet the definition of a Spodosols in MLRA 144A, 145, Region R and 149B of Region S only. The layer that has value 4 or more and chroma 2 or less is typically described as an E or Eg horizon (these typically have a color pattern referred to as stripped or partially stripped matrices). The layer with evidence of the accumulation of tranlocated organic matter is typically described as Bh, Bhs, Bhsm, Bsm, or Bs horizon. These layers typically have several color patterns or cementation indicative of translocated iron, aluminum, and/or organic matter.

The NTCHS approved the following test indicator:

TA6. Mesic Spodic. For test *in MLRA 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 2 or less that is underlain by either:
1. a layer(s) 8cm (3 inches) or more thick occurring within 30 cm (12 inches) of the mineral soil surface that has value and chroma 3 or less that shows evidence of spodic development; or
2. a layer(s) 5 cm (2 inches) or more thick occurring within 30 cm (12 inches) of the mineral soil surface that has value 4 or more and chroma 2 or less that is directly underlain by a layer(s) 8cm (3 inches) or more thick with value and chroma 3 or less that shows evidence spodic development.

User Notes: This indicator is used to identify wet soils with spodic materials or that meet the definition of a Spodosols in MLRA 144A, 145, Region R and 149B of Region S only. The layer that has value 4 or more and chroma 2 or less is typically described as an E or Eg horizon (these typically have a color pattern referred to as stripped or partially stripped matrices). The layer with evidence of the accumulation of translocated organic matter is typically described as Bh, Bhs, Bhsm, Bsm, or Bs horizon. These layers typically have several color patterns or cementation indicative of translocated iron, aluminum, and/or organic matter.

2. Proposed Indicator:

S__. Sandy Redox. For use in LRR R and MLRA 149B of LRR S. A layer at least 3 cm (1 inch) thick with a matrix value 4 or more and chroma 3 or less, with 2 percent or more redox depletions and/or concentrations, starting within 25 cm (10 inches) of the top of the mineral soil material and directly underlying a mineral surface layer with value 3 or less and chroma 2 or less.

User Notes; With or without an O horizon. This is found in many landscapes such as those on glacial outwash and floodplains which are dominated by highly permeable soils.

The NTCHS did not approve this indicator as either a test or use indicator with the comment that existing indicators should be evaluated for soils with these morphologies.

Ping proposed the following indicator:

Indicator Clear color change

A layer at least 19 cm (4 inches) thick with 60 percent or more hue 2.5Y or yellower starting within 20 cm (12 inches) of the soil surface. The presence of a long-term water table is evidenced by a change in soil color within 30 cm (12 inches of the soil surface. The color change occurs along a relatively clear smooth horizontal boundary. Above the boundary, matrix colors are primarily reddish. Below the boundary matrix colors are primarily yellowish.

The NTCHS did not approve this indicator as either a test or use indicator with the comments that data submitted to support the indicator did not actually support the indicator and that existing indicators should be evaluated for soils with these morphologies.

Vasilas reported that no progress on Red Parent Material has been made over the past year.

Hurt proposed chances to Indicators A5 and S9 as follows:

Existing Indicator

A5. Stratified Layers. ***For use in LRRs C, F, K, L, M, N, O, P, R, S, T, and U; for testing in LRRs V and Z.*** **Several stratified layers starting within the upper 15 cm (6 inches) of the soil surface. One or more of the layers has value 3 or less with chroma 1 or less and/or it is muck, mucky peat, peat, or mucky modified mineral texture. The remaining layers have**

chroma 2 or less.
Stratified Layers User Notes: Use of this indicator may require assistance from a trained soil scientist with local experience. The minimum organic carbon content of at least one layer of this indicator is slightly less than required for indicator A7 (Mucky Modified Mineral Texture); at least 70 percent of soil material is covered, coated, or similarly masked with organic matter. An undisturbed sample must be observed. Individual strata are dominantly less than 2.5 cm (1 inch) thick. A hand lens is an excellent tool to aid in the identification of this indicator. Many alluvial soils have stratified layers at greater depths; these are not hydric soils. Many alluvial soils have stratified layers at the required depths but lack chroma 2 or less; these do not fit this indicator. Stratified Layers occur in any type soil material.

Proposed Revision

A5. Stratified Layers. ***For use in LRRs C, F, K, L, M, N, O, P, R, S, T, and U; for testing in LRRs V and Z.*** **Several stratified layers starting within the upper 15 cm (6 inches) of the soil surface. At least one of the layers has value 3 or less with chroma 1 or less or it is muck, mucky peat, peat, or mucky modified mineral texture. The remaining layers have chroma 2 or less. Any sandy material that constitutes the layer with value 3 or less and chroma 1 or less must have at least 70% of the visible soil particles covered, coated, or similarly masked with organic material.**

Stratified Layers User Notes: Use of this indicator may require assistance from a trained soil scientist with local experience. The minimum organic carbon content of at least one layer of this indicator is slightly less than required for indicator A7 (Mucky Modified Mineral Texture). An undisturbed sample must be observed. Individual strata are dominantly less than 2.5 cm (1 inch) thick. A hand lens is an excellent tool to aid in the identification of this indicator. Many alluvial soils have stratified layers at greater depths; these are not hydric soils. Many alluvial soils have stratified layers at the required depths but lack chroma 2 or less; these do not fit this indicator. Stratified Layers occur in any type soil material.

Comments: This is no change just a clarification and I am proposing the clarification read similar to indicators A11 and A12.

Existing Indicator

S8. Polyvalue Below Surface. ***For use in LRRs R, S, T, and U; for testing in LRRs K and L.*** **A layer with value 3 or less and chroma 1 or less starting within 15 cm (6 inches) of the soil surface underlain by a layer(s) where translocated organic matter unevenly covers the soil material forming a diffuse splotchy pattern. At least 70% of the visible soil particles in the upper layer must be covered, coated, or masked with organic material. Immediately below this layer, the organic coating occupies 5% or more of the soil volume and has value 3 or less and chroma 1 or less. The remainder of the soil volume has value 4 or more and chroma 1 or less to a depth of 30 cm (12 inches) or to the spodic horizon, whichever is less.**
Polyvalue Below Surface User Notes: This indicator describes soils with a very dark gray or black surface or near surface layer less than 10 cm (4 inches) thick underlain by a layer where organic matter has been differentially distributed within the soil by water movement. The

mobilization and translocation of organic matter results in splotchy coated and uncoated soil areas as described in the Sandy Redox and Stripped Matrix Indicators except that for S8 the whole soil is in shades of black and gray. The chroma 1 or less is critical because it limits application of this indicator to only those soils which are depleted of iron. This indicator includes the indicator previously termed “streaking.”

Proposed revision

S8. Polyvalue Below Surface. ***For use in LRRs R, S, T, and U; for testing in LRRs K and L.*** **A layer with value 3 or less and chroma 1 or less starting within 15 cm (6 inches) of the soil surface. At least 70% of the visible soil particles in the upper layer must be covered, coated, or masked with organic material. Immediately below this layer, 5% or more of the soil volume has value 3 or less and chroma 1 or less and the remainder of the soil volume has value 4 or more and chroma 1 or less to a depth of 30 cm (12 inches) or to the spodic horizon, whichever is less.**
Polyvalue Below Surface User Notes: This indicator describes soils with a very dark gray or black surface or near surface layer less than 10 cm (4 inches) thick underlain by a layer where organic matter has been differentially distributed within the soil by water movement. The mobilization and translocation of organic matter results in splotchy coated and uncoated soil areas as described in the Sandy Redox and Stripped Matrix Indicators except that for S8 the whole soil is in shades of black and gray. The chroma 1 or less is critical because it limits application of this indicator to only those soils which are depleted of iron. This indicator includes the indicator previously termed “streaking.”

Comments: The “organic coating” statement has been confusing users as is really not needed and it was unclear that the underlying value 3 or less and chroma 1 or less material had to extent to 12 inches (or spodic).

Griffin moved that the changes (with a grammatical correction late noted) be approved, Stiles seconded, and the motion passed..

Hurt proposed as requested by Texas NRCS that the hydric soil web pages be changed as follows:

1. At http://soils.usda.gov/use/hydric/
From: List of Hydric Soils
To: List of Soil Map Units which Potentially Contain Hydric Soils; confirmation of the presence or absence of a hydric soil has to be made on-site.

2. At http://soils.usda.gov/use/hydric/list/soils_series.html
From: The National Hydric Soils List contains the soil map components identified as hydric in the United States.
To: The National Hydric Soils List contains the soil map components identified as potentially hydric in the United States; confirmation of the presence or absence of a hydric soil has to be made on-site.

Noble moved that the changes be made, Griffin seconded the motion, and the motion passed.

Wes Miller (retired Texas, NRCS) proposed an indicator that is similar to the existing indicator F3 (Depleted Matrix) that would not require redox concentrations to have diffuse boundaries. Vasilas and Vepraskas pointed out that although the NTCHS has indicated that redox concentrations that have abrupt (sharp) boundaries may be indicative of relict morphologies, F3 and other indicators requiring redox concentrations gave no redox concentration boundary requirements and therefore the NTCHS took no action on the proposal.

Vepraskas presented a status report of Hydric Saturation evaluation in Vertisols. Work is progressing.

Monteith proposed a change to Indicator F3 (Depleted Matrix) that would alter the indicator significantly; the NTCHS took no action.

Vasilas proposed that a subcommittee be established to review the regional supplements to determine if some of the materials contained there should be added to the next publication of Field Indicators of Hydric Soils if the United States (scheduled for March, 2010). Subcommittee of Vasilas, Griffin, Noble, and Hurt was established. Noble is to provide other subcommittee members with copies of the latest regional supplement.

Smith led a discussion concerning funds for the new publication; EPA, NRCS, and USACE mentioned as possible sources.

Vasilas and Smith led a discussion concerning John Kelly's (retired NC, NRCS) photos of the field indicators. Because of their high quality and therefore large memory requirement placement on a share file may be difficult. Vepraskas will determine if NCSU can host the share file.

Smith outlined a joint EPA/NRCS wetland project. The project is to sample the soils at 1000 locations nationwide. EPA wants three 0-50cm soil samples and one 0-150 cm soil sample at each location. Hydric soils and subaqueous soils may be sampled. The second phase of the project may be a functional assessment of each location.

Griffin presented research of a wetland where both horizontal and vertical variability of redox features at 21 sites in the wetland were determined and suggested that horizontal and vertical variability should be assessed, especially when we are researching hydric soil functions.

Ping stated that he has initiated a project to study Andisols hydric soil morphology.

Scheffe and Herrington discussed New Mexico's hydric soils and wetlands with an emphasis on soils and wetlands of the Rio Grande flood plain especially those of the field trip of April 15. They made several proposed changes to the field indicators; the NTCHS took no Action.

The 2009 meeting of the NTCHS temporally adjourned at 5:15 pm.

April 15

Starting at about 7:30 am the NTCHS conducted a field visit on the flood plain of the Rio Grande south of Albuquerque. The purpose of the field trip was to examine problematic hydric soils at three stops in the Rio Grande Valley south of Albuquerque. The following field notes were compiled by Vepraskas and reviewed by NTCHS members.

Major questions included:

1. Do hydric soil field indicators form in the soils that have high soil pH's?
2. In areas where field indicators are not present, is this likely due to a lack of required hydrology, or the presence of soil factors that might hinder formation, or the presence of "Red Parent Material (Vasilas)?
3. Should the "high chroma rule", which stipulates that soil layers above indicators must have chromas less than or equal to 2 or be less than 6 inches thick, be modified or eliminated from use in the Southwestern U.S.

Stop 1: Bosquecito Station. General soil landscape is shown below.

Location: Bosquecito Station, North off Hwy 380, east of San Antonio. Terrace of Rio Grande River, also known as alkali flat						
Site 1: 20 ft. north of well BRN EZ04A			Field Indicators: F8 possibly met in vicinity but occurrence of ponding debatable.			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-2	7.5YR 3/2	SiCL	--	--	
Ap2	2-4	7.5YR 4/2	SiCL	2%, 7.5YR 4/4	--	
B	4-6+	2.5YR 5/3 nearly 5/2	SiCL	--	--	
Comments: Well data should be available. Contact: Santiago.misquez@nm.usda.gov.						

Location: Bosquecito Station, North off Hwy 380, east of San Antonio. Terrace of Rio Grande River, also known as alkali flat						
Site 2: 100 ft. South of well.			Field Indicators: NIM, but F8 suggested for some depressions in vicinity. Occurrence of ponding debatable.			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-1	7.5YR 3/2	SiCL	--	--	
Ap2	1-4	7.5YR 4/3	SiCL	3%, 7.5YR 4/4	3%, 7.5YR 5/2	
B	4-10+	5YR 5/3	SiCL	3%, 7.5YR 4/4	7%, 7.5YR 4/2	SAMPLE TAKEN-CHRIS S.
Comments: Water table observed at 18 in. Contrast of some concentrations faint. Horizons not recorded, best estimates shown above.						

Location: Bosquecito Station, North off Hwy 380, east of San Antonio. Terrace of Rio Grande River, also known as alkali flat						
Site 3: 100 yards South of well			Field Indicators: No Indicator Met. Indicator F8 was suggested for some depressions in vicinity, but occurrence of ponding debatable. Mn confirmed for nearby depression, so F12 also suggested for portions of flood plain.			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-1	7.5YR 3/2	SiCL	--	--	
Ap2	1-2.5	7.5YR 4/2	SiCL	1%, 7.5YR 4/6	--	
B1	2.5-5.5	7.5YR 4/3 (60%)	SiCL	3%, 7.5YR 4/6	40%, 7.5YR 4/2	
B2	5.5-12+	7.5YR 4/3	SiCL	5%, 7.5YR 4/6	2%, 7.5YR 4/2	
Comments: Tree stumps with open centers had water to surface. Old roots probably penetrated to sandy layer below which was confined aquifer. Water level controlled by river. Horizons not recorded, best estimates shown above.						

Sites 4 and 5 were in a seep on the edge of the terrace near the upland.

Location: Bosquecito Station, North off Hwy 380, east of San Antonio. Seep						
Site 4: 150 yards west of road, edge of terrace. Near to IRIS tube no. 106			Field Indicators: F3; Hurt suggests F8 and F12 in vicinity. Standing water present in some spots.			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap	0-3	7.5YR 4/2	SiL	3%, 7.5YR 4/6	--	Depths estimated
B1	3-9	7.5YR 4/2	SiL	6%, 10YR 4/6	--	Depths estimated
B2	9-12+	5YR 4/2 (60%) 5YR 4/3 (30%)	SiL	10%, 5YR 4/4	--	Depths estimated
Comments: Carbonates present						

Location: Bosquecito Station, North off Hwy 380, east of San Antonio. Seep water affects site						
Site 5: 250 yards west of road			Field Indicators: F3 by 2 inch rule;			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap	0-1.5	7.5YR 3/2	SiCL	--	--	
B1	1.5-7	7.5YR 4/2	SiC	10%, 7.5YR 4/4	--	Salts present
B2	7-11	5YR 4/2 (55%) 5YR 4/3 (40%)	SiC	5%, 5YR 4/6	--	
Ab	11-12+	7.5YR 3/2	SiCL	--	--	

La Joya Stop. General Landscape Pattern is shown below.

Location: La Joya, Wildlife Refuge, East of I-25						
Site 1: near IRIS tube 0702			Field Indicators: F3 by 2 inch rule;			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-1	10YR 3/3	LS	--	--	
Ap2	1-3	10YR 5/4	SiCL	5%, 10YR 4/4	15%, 10YR 4/2	
Ap3	3-7	10YR 4/2	C	10%, 10YR 4/4	--	
C1	7-13	7.5YR 5/3	LS	5%, 7.5YR 4/6	20%, 7.5YR 5/2	
C2	13-15+	7.5YR 5/2	LS	5%, 5YR 5/6	--	
Comments: Salts on surface, pit dug in bare spot lacking plants. Site is near Waypoint 115. IRIS tube 115 examined and no Fe was removed. Site is separated from river by railroad bed, and a canal which may block water flow (surface and subsurface flow) to site. Believed that site is not saturating now. Horizons not recorded, best estimates shown above.						

Location: La Joya, Wildlife Refuge, East of I-25						
Site 2: see diagram; in bare spot with continuous surface coverage of "fluffy" salt, few plants			Field Indicators: No Indicator Met at pit—Hurt believes F8 met if site ponds; site manager claims site is not ponded, because ponding is controlled and water not allowed to inundate this site.			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-1	10YR 5/3	SiL	3%, 10YR 4/4	--	
Ap2	1-7	10YR 4/3	SiL	10%, 10YR 4/6	15%, 10YR 5/2	
C	7-14+	10YR 5/4	LS	10%, 10YR 5/6	5%, 10YR 5/2	
Comments: Site is approximately 300 yards from site 1, further away from river. Horizons not recorded, best estimates shown above.						

Stop 3. Whitfield-proposed restoration site. Appeared to be terrace of Rio Grande?

Location: Whitfield, south of Albuquerque, north of La Joya., east of I-25, may be stream

terrace

Site 1: Near IRIS tube 108. Virtually all Fe removed from tube, but installation may have induced reduction			Field Indicators: No Indicator Met at pit— none found in area. Site was furthest from river			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-1.5	7.5YR 3/3	SiCL	--	--	
Ap2	1.5-6.5	5YR 4/3	CL	1%, 5YR 4/4		Sand bodies from below, 7.5YR 6/3 (3 mm dia.), mixed in
C	6.5-13+	7.5YR 4/3	LS	3%, 5YR 5/6 1%, Mn-5Y 2/1	2%, 7.5YR 6/2	

Comments: IRIS tubes were installed in 3 inch dia. auger hole that was backfilled. All Fe removed from five tubes. We suspect this installation created a "cup" for water that allowed soil around tubes to become reduced unnaturally. Therefore, tubes here may not reflect actual conditions.

Location: Whitfield, south of Albuquerque, north of La Joya., east of I-25, may be stream terrace

Site 2: Near IRIS tube 109. Less than 30% Fe removed in upper 8 inches. Nearly all Fe removed below 8 inches			Field Indicators: No Indicator Met at pit			
Horizon	Depth (in.)	Matrix	Texture	Concentrations	Depletions	Comments
Ap1	0-2	7.5YR 3/3	L	--	--	
Ap2	2-8	5YR 4/3	SL	3%, 5YR 4/6 1%, Mn-5Y 2/1	3%, 5YR 5/2	
C	8-16+	7.5YR 4/2	LS	15%, 7.5YR 4/4 3%, Mn-5Y 2/1		

Comments: IRIS tubes were installed properly, and depths that Fe was removed on tubes

matched soils depths with low chroma colors. Believed that IRIS tube data confirmed saturation and reduction occurred at depths of 8 inches and below.

Summary: On the basis of the profile descriptions completed at each site, major findings include:

1. Field indicators (predominantly F3) were observed in at least some sites of the Bosquecito and La Joya stops. While no field indicator was met at the Whitfield stop, clear evidence of Fe reduction was seen in the soil below a depth of 8 inches as well as on the IRIS tubes installed at that site. These observations indicated that iron-reducing reactions are occurring in these soils when the proper conditions are met.

2. Sites where field indicators were not met were most likely not saturated long enough to develop an indicator. Monitoring with wells or piezometers is needed to confirm this. However, field indicator F3 occurred often enough to suggest that soil conditions (including high contents of salt and Mn, or red parent material) were not consistently inhibiting Fe reduction. This was clearly seen in the seep where soil layers meeting the F3 indicator were found to thin as distance from the seep increased. This is most likely due to the durations of saturation within 12 inches of the surface becoming shorter as one moved further from the seep.

3. At NO site did the "high chroma rule" prevent an indicator from being met. The NTCHS found no evidence that this rule needs to be modified for these soils.

4. IRIS tubes proved useful for evaluating hydric soil conditions. However, they need to be in contact with undisturbed soil. Placing IRIS tubes into auger holes that are backfilled with loose soil may produce invalid results if the backfilled areas allow rainfall to saturate the soil around the tube. While placing IRIS tubes into carefully backfilled holes seems reasonable, it clearly should not be done in clayey soils.

5. Some members of the NTCHS felt that field indicator F8, Redox Depressions, may have been present in some depressions at the Bosquecto and La Hoya stops. Strong evidence of ponding was lacking at most locations, and in some instances the state soil scientist believed, with good reason, that ponding did not occur. If the F8 field indicator is to be used in this region, then some water level monitoring needs to be done to settle the issue as to whether the small depressions actually contain ponded water at some periods.

6. It appears that there is not a clear understanding of what is meant by saturated soil layers. Saturated layers essentially lie beneath a water table. They do not occur above a water table. The capillary fringe is NOT considered to be saturated soil by the NTCHS. Saturation is confirmed by observing a water table or "free water surface" in bored holes, wells, or piezometers. It is NOT confirmed by observing moist soil layers.

The field trip was concluded at about 6:30pm.

April 16

The annual meeting of the NTCHS reconvened at 8:10 am.

A summary of the field trip was provided by Vasilas. She concluded with the statement that additional monitoring needs to be conducted and interpreted according to the protocol established by the Hydric Soil Technical Standard. Vasilas interpreted additional New Mexico sites monitored by IRIS tubes. Some of the tubes indicate a need for a recommendation from NTCHS to study wet saline and gypsum soils in order to develop better indicators.

Stiles provided an overview of the IRIS tube and Reduction Indicator Rods (RIR) program of the National Soil Survey Center, NRCS and twice iterated that the RIR program was for NRCS sponsored projects only.

Monteith summarized a study on the comparison of flat versus round IRIS tubes and the use of scanning versus visual interpretation of the data provided by IRIS tube use.

Noble requested that NTCHS provide him a copy of publications that explain the use or development of Hydric Soil Indicators so he can provide them to the work groups developing the regional supplements of the wetlands manual.

Vasilas explained the NRCS' Web Soil Survey has a major problem in that it interprets map units with 95% hydric components and 5% nonhydric components and map units with 95% non hydric components and 5% hydric components the same: "partially hydric" and provided the following suggestion (as provided by Joe McClosky, SSS, MN NRCS):

Hydric soil rating classes:

o Not Hydric – No listed components in the data map unit meet hydric criteria

o Hydric Inclusions – Listed Major components are upland; some minor components hydric

o Partially Hydric – Listed Major component(s) hydric and nonhydric (complexes)

o Predominantly Hydric – Listed Major components hydric; minor nonhydric inclusions

o Hydric – All listed components meet hydric criteria

Griffin moved that the NTCHS recommend to NRCS that the agency adopt the suggested hydric soil rating classed, seconded by Ping, and the motion passed.

NTCHS discussed the use and misuse of Hydric Soil Indicators by various USDA programs and interpreted and misinterpreted by various USDA documents. Griffin moved that the following statement be included in the minutes of this meeting:

"The National Technical Committee is adamant that Hydric Soil Indicators are "proof positive" and that any statement to the contrary should be removed from all USDA documents."

Ping seconded the motion and the motion passed.

Smith led a discussion concerning the 2 NRCS NTCHS membership vacancies. The general

consensus was that some regions are possibly over represented such as the south (Skaggs, Noble, Vepraskas, Griffin, etc.) and the midwest (Stiles, Dawn Ferris, Richardson, etc.) while other regions are underrepresented (arid west and LRR S).

Smith will canvas arid west and LRR R NRCS State Soil Scientists for their recommendations of NRCS employees and their qualifications to fill the vacancies.

Hurt moved that Indicator F12 be added as a test indicator in LRR D and that the addition be re-visited in two years. Griffin seconded the motion and the motion passed.

Next years meeting will be in Gainesville, Florida during the first or second week of January. It will be hosted by the University of Florida and NRCS.

Noble moved for adjournment, Griffin seconded, and the motion passed at 11: 40 am.