



Natural Resources Conservation Service
Southern Rocky Mountains Regional Soil Survey Office
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VIA ELECTRONIC MAIL

MLRA OFFICE 6 TECHNICAL NOTE NO. 9 (Revised)

Date: January 20, 2011

SUBJECT: SOI – Guidelines for Populating Surface Organic Layers in NASIS

Purpose. To transmit guidance for populating required data for surface organic horizons in NASIS. This is a revision of Tech Note 9 dated October 15, 2005.

Effective Date. This technical note is effective when received.

Background. The attached guidelines provide some reasonable values for use in populating NASIS Component Horizon data for surface organic horizons (duff layers) when locally measured data is not available. This guidance was developed in response to a directive from the Director, Soil Survey Division, which established a minimum data set for organic horizons.

Filing Instructions. Replace the previous Tech Note 9 dated October 2005 with the attached. Discard the previous tabulation sheet and insert the current tabulation sheet.

A handwritten signature in cursive script that reads "Steve Park".

STEVE PARK
MLRA Office Leader

Attachment

DIST: All MO6 Soil Scientists



**MLRA OFFICE 6 TECHNICAL NOTE SERIES
TABULATION SHEET**

TECH NOTE NO.	ISSUE DATE	TITLE	COMMENTS
1	22-May-97	Key to the Use of Cation-Exchange Activity Classes	
2	20-Apr-98	Identification and Description of Albic Horizons, Glossic Horizons,...	
3	2-Feb-99	Template for Taxonomic Unit Descriptions	Made obsolete by Feb 2004 Reissue
	3-Feb-04	NASIS Reports and Instructions for Generating Taxonomic Unit Descriptions	Reissue of Tech Note 3 dated Feb 1999
4	14-Jun-99	Metric-English Conversion Guides	
5	30-Mar-00	Macro to Format Map Unit Descriptions	
6	30-Mar-00	Report to Generate Map Unit Descriptions in NASIS	
7	24-Aug-04	Guidelines for Populating Slope Aspect in NASIS	
8	16-Sep-04	Suggested Order and Guidelines for Populating a New Map Unit in NASIS	Made obsolete by updated 2008 version.
	25-Jan-08	Suggested Order and Guidelines for Populating a New Map Unit in NASIS	Update 2004 version to account for NASIS changes.
9	18-Oct-05	Guidelines for Populating Surface Organic Layers in NASIS	Correction to previous guide (which was not a Tech Note)
	20-Jan-11	Guidelines for Populating Surface Organic Layers in NASIS	Revision of 18-Oct-05 version.
10	5 April 07	Guidelines for Estimating and Interpreting Carbonate Clay	
11	25-Jan-08	Guide for Populating Horizons with Stratified Textures	
12	24-Jun-10	Spreadsheet to Calculate Field Calcimeter Data	
13	18-Nov-10	Application of Soil Temperature Data to Soil Temperature Regimes	

Estimated NASIS Entries for Surface Organic Horizons

January 2011

The following soil property values are reasonable entries for unsaturated surface O horizons when local measurements or lab data are not available. The following values are based on NSSL data for surface O horizons of well drained soils in Colorado, which commonly supported ponderosa pine through spruce-fir forests. There is very little data available for O horizons in the drier woodland or rangeland (pinyon-juniper, for example). The following estimated values are applicable for the most common situations, i.e. Oi or Oe horizons ("duff" layers) of forested upland soils. As with any other guide for estimating soil properties, these values should be adjusted if better knowledge or site-specific data is available. These values are not intended for estimating properties of saturated organic layers, such as in Aquolls, Histic epipedons, or Histosols.

These values can be expected to change as they are tested and our knowledge improves. Interpretations should be verified to ensure the values entered for surface O horizons are not causing an unreasonable interpretation.

Horizon Data		
Data Element	L - RV - H	Notes
Horizon designation		Enter Oi, Oe, or Oa
Horizon Depths		
Rock fragments volumes (or wood fragments)	Volume: 0 - 1 -3 Size: 20 - 30 - 80 Kind: wood	Wood fragments are >20mm Rock fragments are >2mm (assume no rock but add as per local knowledge)
In-lieu of texture		Enter SPM, MPM, or HPM
Organic matter	70 - 85 - 95	
Bulk Density 1/3 bar	0.20 - 0.50 - 1.00	
Particle density	Not yet determined	Allowable range of entries: 1.0-6.0 g/cm ³
Ksat	100 - 300 - 600	
Available water capacity (AWC)	0.15 - 0.30 - 0.45	
1/3 bar water	30 - 60 - 80	percent by volume (rev 10/05)
15 bar water	5 - 20 - 30	percent by volume (rev 10/05)
Calcium carbonate equivalent	0 - 0 - 0	
Gypsum	0 - 0 - 0	
Sodium Absorption Ratio (SAR)	0 - 0 - 0	
Electrical conductivity (ec)	0 - 0.5 - 2.0	
pH - Populate the CaCl ₂ pH	4.5 - 5.2 - 5.5	Usually .3-.5 unit lower than pH in water

pH in water - Populate if available	5.1 - 5.6 - 6.0	
Cation Exchange Capacity (CEC-7) - populate if pH is >5.5	50 - 60 - 90	
Effective Cation Exchange Capacity -(ECEC) Populate if pH is <5.5	30 - 40- 60	Estimated by reducing CEC-7 by a factor of about 0.6
Atterberg Limits (LL, PI)	< null >	Assume Unified class is Pt
AASHTO.	A-8	
Unified	Pt	
Particle Size Separates - Populate if the organic matter content is < 35%. If the layer contains andic soil materials, then populate if the organic matter content is < 50%. Also, populate the sand fractions (total sand, vcos, cos, s, fs, and vfs) for soil layers that have => 35% organic matter (needed for wind erosion model).	<u>Sand fractions:</u> Copy percentages from the underlying mineral horizon. <u>Total silt:</u> <null> <u>Total clay:</u> Copy from underlying mineral horizon	Assume >35% organic matter Assume particle-size distribution is similar to underlying mineral layer. Clay is needed for some interpretations Note: sand, silt, clay are defined on a OM-free base, and must total 100%.
Percent Passing Sieves	<u>Rock >10</u> 0 - 0 - 0 <u>Rock 3-10</u> 0 - 0 - 0 <u>#4</u> 100 - 100 - 100 <u>#10</u> 100 - 100 - 100 <u>other sieves</u> <null>	Not required by O horizon memo, but needed for some interpretations. (Rock >10 and Rock 3-10 added 1/20/11). Revise as appropriate if there are rock fragments.
K factor	< null >	
Linear Extensibility Percent - LEP	< null >	