Contents

[Agricultural Organic Soil Subsidence 2](#_Toc16234384)

[Climate 2](#_Toc16234385)

[Ratings 2](#_Toc16234386)

[Criteria Table 3](#_Toc16234387)

[Soil Script Breakdown 4](#_Toc16234388)

[Creat AoI Table 4](#_Toc16234389)

[Creates summary acres for each landunit 5](#_Toc16234390)

[Populate intersected soil polygon table with geometry 5](#_Toc16234391)

[Populate soil geometry with landunit attribute 6](#_Toc16234392)

[Create Table to Store Survey Area Datestamps (sacatalog.saverest) 6](#_Toc16234393)

[Create Table to Store Landunit Metadata (survey area and saverest) Which Comes From #DateStamps 6](#_Toc16234394)

[Populate #SDV with Interp Metadata 7](#_Toc16234395)

[Populate soil map unit acres, aggregated by mukey (merges polygons together) 8](#_Toc16234396)

[Create Table to Store Survey Area Datestamps (sacatalog.saverest) 9](#_Toc16234397)

[XML Parsing 10](#_Toc16234398)

[Set Interp Rulekey and Ruledesign as a Variable To Be Used in Cointerp Query 10](#_Toc16234399)

[Add Not Rated Phrase to @rating Variables 10](#_Toc16234400)

[Append the Rating classes for this Interp to the #RatingClasses Table 11](#_Toc16234401)

[Populate the #RatingDomain Table with a Unique Rating\_key for this Interp 12](#_Toc16234402)

[Populate Component Level Ratings Using the Currently Set Soil Interpretation 13](#_Toc16234403)

[Populate Component Level Ratings with Adjusted Component Percent to Account for the Un-used Minor Components 16](#_Toc16234404)

[Populates Component Acres by Multiplying Map Unit Acres with Adjusted Component Percent 18](#_Toc16234405)

[Aggregate the Classes and Sum up the Component Acres by Landunit (Tract and Field number) 22](#_Toc16234406)

[Group of Insert Statements to Populate the Final Output Tables 22](#_Toc16234407)

[Determine Dominant Critical 23](#_Toc16234408)

[Landunit Ratings CART 24](#_Toc16234409)

[Final CART Soil Interpretation Ratings for Each Landunit 25](#_Toc16234410)

[References 25](#_Toc16234411)

# Agricultural Organic Soil Subsidence

Jason Nemecek, Steve Peaslee, Bob Dobos, Cathy Seybold, Skye Wills, and Steve Campbell

2019-07-15

Soil health is primarily influenced by human management, which is not captured in soil survey data at this time. The agricultural organic soil subsidence interpretation provides information on inherent soil properties that influence our ability to build healthy soils through management.

## Climate

Organic soils used in agricultural production are subject to a loss of volume and depth of organic material due to oxidation caused by above normal microbial activity resulting from excessive drainage, soil disturbance, or extended drought. Microbial-mediated oxidation is the primary driver of volume reduction once excess water is removed. Soil shrinkage and compaction due to dewatering is considered secondary. Any drawdown resulting in water levels below the soil surface can increase subsidence rates. The subsidence rate can also be influenced by agricultural practices. Certain types of tillage operation, such as plowing, disc harrowing and switch plowing, and moldboard plowing, increase the oxidation rate. No-till practices are recommended to slow the subsidence. Any aggressive tillage measure increases microbiological activity and decreases carbon sequestration. Drainage can be managed to control the water table and thereby slow the subsidence rate.

Several soil and site properties influence the rate of organic matter oxidation and subsidence. Organic soils are generally in cooler climates; thus, organic soils farmed in warmer climates are vulnerable. Periodic saturation of the organic soil tends to decrease the rate of oxidation. The decrease results from anaerobic decomposition being slower than aerobic decomposition. The degree of pre-existing decomposition also affects the subsidence rate because as organic matter decomposes, the remaining material becomes more resistant to decay. Acidity in soils tends to slow microbial growth; acid soils, therefore, are less prone to subsidence.

## Ratings

The degree to which each of the specified soil properties promotes oxidation is rated. The average degree of acceleration of microbial oxidation of organic matter is taken as the overall rating. The ratings are both categorical and numeric.

**Numeric ratings indicate the suitability of the individual soil properties.** Numeric ratings indicate the likelihood of subsidence for each soil. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the most severe propensity for subsidence (1.00) and the point at which the soil has no propensity for subsidence, such as a mineral soil (0.00).

Categorical, or rating class, terms indicate the rate at which the soils are likely to subside considering all the soil features that are examined for this rating. “Severe subsidence” indicates that the soil has features that are very favorable for the aerobic soil organisms that cause subsidence. Very careful management is needed to slow the subsidence rate. “Moderate subsidence” indicates that the soil has features that are moderately favorable for aerobic soil organisms. The soil can be made more sustainable by careful management. “Low subsidence” indicates that the soil has one or more features that are unfavorable for aerobic soil organisms. If carefully managed, the soil can be used for crop production and be nearly sustainable. Soils that are not organic are rated “Mineral soil.” These soils do not subside due to organic matter oxidation.

In the accompanying “Summary by Map Unit” table in Web Soil Survey or the “Aggregation Report” in Soil Data Viewer, the map unit components listed for each map unit are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to clarify the percentage of each map unit that has the listed rating.

Other components, which may have different ratings, are present in some map units. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

## Criteria Table

| **Soil or Site Feature** | **Less limiting** | **Somewhat limiting** | **Limiting** | **Impact** |
| --- | --- | --- | --- | --- |
| Organic layer thickness (cm) | Less than 40 | 40 to 130 | Greater than 130 | Thicker organic layer allows more subsidence. |
| Mineral layer thickness (percent) | More than 50 | 1 to 50 | 0 | Mineral layers retard oxidation. |
| Decay resistance | Highly decomposed plant material, muck | Moderately decomposed plant material, partially decomposed plant material, mucky peat | Undecomposed plant material, slightly decomposed plant material, peat | Humified organic matter is more difficult to oxidize. |
| Frost-free days | Less than 90 | 90 to 270 | Greater than 270 | More heat for a longer time favors decomposition. |
| Flooding frequency and duration | “long” duration and “frequent” frequency or “very long” duration“ | “long” duration, “rare” or “occasional” frequency“ | none | Flooding excludes oxygen. |
| Ponding frequency and duration | “long” duration and “frequent” frequency or “very long” duration“ | “long” duration, “rare” or “occasional” frequency“ | none | Ponding excludes oxygen. |
| Electrical conductivity (dS/m) | Greater than 8 | 4 to 8 | Less than 4 | Saltiness lowers the activity of water. |
| Depth to saturation (cm) | Less than 30 | 30 to 100 | Greater than 100 | Saturation excludes oxygen. |
| pH | Less than 3.5 or Greater than 9.5 | Between 3.5 and 5.0 or between 7 and 9.5 | Between 5.0 and 7.0 | There is an optimal pH for microbial activity. |

## Soil Script Breakdown

### Creat AoI Table

CREATE TABLE #AoiTable

( aoiid INT IDENTITY (1,1),

landunit CHAR(20),

aoigeom GEOMETRY);

* Create AOI table with polygon geometry. Coordinate system must be WGS1984 (EPSG 4326).

SELECT @aoiGeom = GEOMETRY::STGeomFromText('MULTIPOLYGON (((-102.12335160658608 45.959173206572416, -102.13402890980223 45.959218442561564, -102.13386921506947 45.944643788188387, -102.12327175652177 45.944703605814198, -102.12335160658608 45.959173206572416)))', 4326);

SELECT @aoiGeomFixed = @aoiGeom.MakeValid().STUnion(@aoiGeom.STStartPoint());

INSERT INTO #AoiTable ( landunit, aoigeom )

VALUES ('T9981 Fld3', @aoiGeomFixed);

SELECT @aoiGeom = GEOMETRY::STGeomFromText('MULTIPOLYGON (((-102.1130336443976 45.959162795100383, -102.12335160658608 45.959173206572416, -102.12327175652177 45.944703605814198, -102.1128892282776 45.944710506326032, -102.1130336443976 45.959162795100383)))', 4326);

SELECT @aoiGeomFixed = @aoiGeom.MakeValid().STUnion(@aoiGeom.STStartPoint());

INSERT INTO #AoiTable ( landunit, aoigeom )

VALUES ('T9981 Fld4', @aoiGeomFixed);

#### Creates summary acres for each landunit

CREATE TABLE #AoiAcres

( aoiid INT,

landunit CHAR(20),

landunit\_acres FLOAT

);

INSERT INTO #AoiAcres (aoiid, landunit, landunit\_acres )

SELECT aoiid, landunit,

SUM( ROUND( ( ( GEOGRAPHY::STGeomFromWKB(aoigeom.STAsBinary(), 4326 ).STArea() ) / 4046.8564224 ), 3 ) ) AS landunit\_acres

FROM #AoiTable

GROUP BY aoiid, landunit;

| **aoiid** | **landunit** | **landunit\_acres** |
| --- | --- | --- |
| 1 | T9981 Fld3 | 328.952 |
| 2 | T9981 Fld4 | 318.722 |

#### Populate intersected soil polygon table with geometry

-- Create intersected soil polygon table with geometry

CREATE TABLE #AoiSoils

( polyid INT IDENTITY (1,1),

aoiid INT,

landunit CHAR(20),

mukey INT,

soilgeom GEOMETRY

);

INSERT INTO #AoiSoils (aoiid, landunit, mukey, soilgeom)

SELECT A.aoiid, A.landunit, M.mukey, M.mupolygongeo.STIntersection(A.aoigeom ) AS soilgeom

FROM mupolygon M, #AoiTable A

WHERE mupolygongeo.STIntersects(A.aoigeom) = 1;

#### Populate soil geometry with landunit attribute

-- Soil geometry with landunits

CREATE TABLE #AoiSoils2

( aoiid INT,

polyid INT,

landunit CHAR(20),

mukey INT,

poly\_acres FLOAT,

soilgeog GEOGRAPHY

);

-- Populate Soil geometry with landunit attribute

INSERT INTO #AoiSoils2

SELECT aoiid, polyid, landunit, mukey, ROUND((( GEOGRAPHY::STGeomFromWKB(soilgeom.STAsBinary(), 4326 ).STArea() ) / 4046.8564224 ), 3 ) AS poly\_acres, GEOGRAPHY::STGeomFromWKB(soilgeom.STAsBinary(), 4326 ) AS soilgeog

FROM #AoiSoils;

### Create Table to Store Survey Area Datestamps (sacatalog.saverest)

CREATE TABLE #DateStamps

(landunit CHAR(20),

datestamp VARCHAR(32));

| **landunit** | **datestamp** |
| --- | --- |
| T9981 Fld3 | ND001 2018-09-12 19:21:50 |
| T9981 Fld3 | SD105 2018-09-12 23:49:29 |
| T9981 Fld4 | ND001 2018-09-12 19:21:50 |

INSERT INTO #DateStamps

SELECT DISTINCT AM.landunit, ([SC].[areasymbol] + ' ' + CONVERT(VARCHAR(32),[SC].[saverest],120) ) AS datestamp

FROM #M4 AM

INNER JOIN mapunit Mu ON AM.mukey = Mu.mukey

INNER JOIN legend LG ON Mu.lkey = LG.lkey

INNER JOIN sacatalog SC ON Lg.areasymbol = SC.areasymbol;

* Get survey area dates for all soil mapunits involved

### Create Table to Store Landunit Metadata (survey area and saverest) Which Comes From #DateStamps

CREATE TABLE #LandunitMetadata

(landunit CHAR(20),

soils\_metadata VARCHAR(150)

);

INSERT INTO #LandunitMetadata

SELECT DISTINCT

landunit,

STUFF((SELECT ' | ' + CAST([datestamp] AS VARCHAR(30))

FROM #DateStamps dt2

WHERE dt1.landunit = dt2.landunit

FOR XML PATH ('') ), 1, 2, '') AS soils\_metadata

FROM #DateStamps dt1;

* Populate landunit soils-metadata

| **landunit** | **soils\_metadata** |
| --- | --- |
| T9981 Fld3 | ND001 2018-09-12 19:21:50 SD105 2018-09-12 23:49:29 |
| T9981 Fld4 | ND001 2018-09-12 19:21:50 |

### Populate #SDV with Interp Metadata

CREATE TABLE #SDV

(attributekey BIGINT,

attributename CHAR(60),

attributetablename CHAR(30),

attributecolumnname CHAR(30),

attributelogicaldatatype CHAR(20),

attributefieldsize SMALLINT,

attributeprecision TINYINT,

attributedescription NVARCHAR(MAX),

attributeuom NVARCHAR(60),

attributeuomabbrev NVARCHAR(30),

attributetype CHAR(20),

nasisrulename CHAR(60),

ruledesign NVARCHAR(60),

notratedphrase CHAR(15),

mapunitlevelattribflag TINYINT,

complevelattribflag TINYINT,

cmonthlevelattribflag TINYINT,

horzlevelattribflag TINYINT,

tiebreakdomainname CHAR(40),

tiebreakruleoptionflag TINYINT,

tiebreaklowlabel CHAR(20),

tiebreakhighlabel CHAR(20),

tiebreakrule SMALLINT,

resultcolumnname CHAR(10),

sqlwhereclause CHAR(255),

primaryconcolname CHAR(30),

pcclogicaldatatype CHAR(20),

primaryconstraintlabel CHAR(30),

secondaryconcolname CHAR(30),

scclogicaldatatype CHAR(20),

secondaryconstraintlabel CHAR(30),

dqmodeoptionflag TINYINT,

depthqualifiermode CHAR(20),

layerdepthtotop FLOAT,

layerdepthtobottom FLOAT,

layerdepthuom CHAR(20),

monthrangeoptionflag TINYINT,

beginningmonth CHAR(9),

endingmonth CHAR(9),

horzaggmeth CHAR(30),

interpnullsaszerooptionflag TINYINT,

interpnullsaszeroflag TINYINT,

nullratingreplacementvalue CHAR(254),

basicmodeflag TINYINT,

maplegendkey SMALLINT,

maplegendclasses TINYINT,

maplegendxml XML,

nasissiteid BIGINT,

wlupdated DATETIME,

algorithmname CHAR(50),

componentpercentcutoff TINYINT,

readytodistribute TINYINT,

effectivelogicaldatatype CHAR(20),

rulekey CHAR(30)

);

INSERT INTO #SDV (attributename, nasisrulename, rulekey, ruledesign, notratedphrase, resultcolumnname, maplegendxml, attributedescription)

SELECT sdv.attributename, sdv.nasisrulename, md.rulekey, md.ruledesign, sdv.notratedphrase, sdv.resultcolumnname, sdv.maplegendxml, sdv.attributedescription

FROM sdvattribute sdv

LEFT OUTER JOIN distinterpmd md ON sdv.nasisrulename = md.rulename

WHERE sdv.attributename IN ('Agricultural Organic Soil Subsidence', 'Soil Susceptibility to Compaction', 'Organic Matter Depletion', 'Surface Salt Concentration', 'Hydric Rating by Map Unit', 'Suitability for Aerobic Soil Organisms', 'Ponding Frequency Class','Flooding Frequency Class',

'Available Water Storage','Depth to Water Table', 'Drainage Class', 'Farmland Classification')

GROUP BY md.rulekey, sdv.attributename, sdv.nasisrulename, sdv.resultcolumnname, md.ruledesign, sdv.notratedphrase, sdv.maplegendxml, sdv.attributedescription;

* Begin populating static tables. These are for the base soils data and metadata. No interp data yet.
* Create a table containing necessary interp data.
* Please note that if we instead get ruledesign from sdvattribute, those values change to integer as in 1:limitation, 2:suitability.

#### Populate soil map unit acres, aggregated by mukey (merges polygons together)

-- Soil map unit acres, aggregated by mukey (merges polygons together)

CREATE TABLE #M2

( aoiid INT,

landunit CHAR(20),

mukey INT,

mapunit\_acres FLOAT

);

INSERT INTO #M2

SELECT DISTINCT M1.aoiid, M1.landunit, M1.mukey,

ROUND (SUM (M1.poly\_acres) OVER(PARTITION BY M1.landunit, M1.mukey), 3) AS mapunit\_acres

FROM #AoiSoils2 AS M1

GROUP BY M1.aoiid, M1.landunit, M1.mukey, M1.poly\_acres;

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** |
| --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 |
| 1 | T9981 Fld3 | 354648 | 0.287 |
| 1 | T9981 Fld3 | 2494708 | 1.729 |
| 1 | T9981 Fld3 | 2525720 | 56.699 |
| 1 | T9981 Fld3 | 2525732 | 1.35 |
| 1 | T9981 Fld3 | 2525733 | 0.129 |
| 1 | T9981 Fld3 | 2525739 | 28.479 |
| 1 | T9981 Fld3 | 2525745 | 4.983 |
| 1 | T9981 Fld3 | 2525746 | 16.106 |
| 1 | T9981 Fld3 | 2525754 | 12.638 |
| 1 | T9981 Fld3 | 2525764 | 17.691 |
| 1 | T9981 Fld3 | 2525766 | 0.032 |
| 1 | T9981 Fld3 | 2525769 | 181.356 |
| 1 | T9981 Fld3 | 2755648 | 2.449 |
| 1 | T9981 Fld3 | 2755654 | 4.599 |
| 2 | T9981 Fld4 | 2525720 | 8.623 |
| 2 | T9981 Fld4 | 2525724 | 0.458 |
| 2 | T9981 Fld4 | 2525730 | 31.514 |
| 2 | T9981 Fld4 | 2525745 | 62.205 |
| 2 | T9981 Fld4 | 2525746 | 63.55 |
| 2 | T9981 Fld4 | 2525754 | 23.138 |
| 2 | T9981 Fld4 | 2525767 | 3.86 |
| 2 | T9981 Fld4 | 2525769 | 103.909 |
| 2 | T9981 Fld4 | 2755639 | 0.443 |
| 2 | T9981 Fld4 | 2755643 | 9.641 |
| 2 | T9981 Fld4 | 2755648 | 11.382 |

| **aoiid** | **landunit** | **aoigeom** |
| --- | --- | --- |
| 1 | T9981 Fld3 | POLYGON ((-102.13386921506947 45.944643788188387, -102.12327175652177 45.9447036058142, -102.12335160658608 45.959173206572416, -102.13402890980223 45.959218442561564, -102.13386921506947 45.944643788188387)) |
| 2 | T9981 Fld4 | POLYGON ((-102.12327175652177 45.9447036058142, -102.1128892282776 45.944710506326032, -102.1130336443976 45.959162795100383, -102.12335160658608 45.959173206572416, -102.12327175652177 45.9447036058142)) |

### Create Table to Store Survey Area Datestamps (sacatalog.saverest)

CREATE TABLE #DateStamps

(landunit CHAR(20),

datestamp VARCHAR(32));

SELECT @attributeName = 'Agricultural Organic Soil Subsidence';

SELECT @minPct = 10;

SELECT @minAcres = 10;

* Defines the soil interpretion
* Sets the minimun cutoff pecent for a resource concern at 10 percent or 10 acres for a given landunit

### XML Parsing

SELECT @rating1 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[1]', 'VARCHAR(100)');

SELECT @rating2 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[2]', 'VARCHAR(100)');

SELECT @rating3 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[3]', 'VARCHAR(100)');

SELECT @rating4 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[4]', 'VARCHAR(100)');

SELECT @rating5 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[5]', 'VARCHAR(100)');

SELECT @rating6 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[6]', 'VARCHAR(100)');

* Get ordered set of interphrc values from sdvattribute.maplegendxml. This is assumed to begin with the ‘worst’ rating. Need to double-check this for all interps.

### Set Interp Rulekey and Ruledesign as a Variable To Be Used in Cointerp Query

SELECT @ruleKey = (SELECT rulekey FROM #SDV WHERE attributename = @attributeName);

SELECT @ruleDesign = (SELECT ruledesign FROM #SDV WHERE attributename = @attributeName)

SELECT @notRatedPhrase = (SELECT notratedphrase FROM #SDV WHERE attributename = @attributeName);

### Add Not Rated Phrase to @rating Variables

IF @notRatedPhrase IS NOT NULL

IF @rating1 IS NULL (SELECT @rating1 = @notRatedPhrase)

ELSE

IF @rating2 IS NULL (SELECT @rating2 = @notRatedPhrase)

ELSE

IF @rating3 IS NULL (SELECT @rating3 = @notRatedPhrase)

ELSE

IF @rating4 IS NULL (SELECT @rating4 = @notRatedPhrase)

ELSE

IF @rating5 IS NULL (SELECT @rating5 = @notRatedPhrase)

ELSE

IF @rating6 IS NULL (SELECT @rating6 = @notRatedPhrase)

### Append the Rating classes for this Interp to the #RatingClasses Table

INSERT INTO #RatingClasses (attributename, ruledesign, rating1, rating2, rating3, rating4, rating5, rating6)

SELECT @attributeName AS attributename, @ruleDesign AS ruledesign, @rating1 AS rating1, @rating2 AS rating2, @rating3 AS rating3, @rating4 AS rating4, @rating5 AS rating5, @rating6 AS rating6;

| **id** | **rating\_key** | **attributename** | **rating** | **rating\_num** |
| --- | --- | --- | --- | --- |
| 1 | Surface Salt Concentration:1 | Surface Salt Concentration | High surface salinization risk or already saline | 1 |
| 2 | Surface Salt Concentration:2 | Surface Salt Concentration | Surface salinization risk | 2 |
| 3 | Surface Salt Concentration:3 | Surface Salt Concentration | Low surface salinization risk | 3 |
| 4 | Surface Salt Concentration:4 | Surface Salt Concentration | Not rated | 4 |
| 5 | Soil Susceptibility to Compaction:1 | Soil Susceptibility to Compaction | High | 1 |
| 6 | Soil Susceptibility to Compaction:2 | Soil Susceptibility to Compaction | Medium | 2 |
| 7 | Soil Susceptibility to Compaction:3 | Soil Susceptibility to Compaction | Low | 3 |
| 8 | Soil Susceptibility to Compaction:4 | Soil Susceptibility to Compaction | Not rated | 4 |
| 9 | Organic Matter Depletion:1 | Organic Matter Depletion | OM depletion high | 1 |
| 10 | Organic Matter Depletion:2 | Organic Matter Depletion | OM depletion moderately high | 2 |
| 11 | Organic Matter Depletion:3 | Organic Matter Depletion | OM depletion moderate | 3 |
| 12 | Organic Matter Depletion:4 | Organic Matter Depletion | OM depletion moderately low | 4 |
| 13 | Organic Matter Depletion:5 | Organic Matter Depletion | OM depletion low | 5 |
| 14 | Organic Matter Depletion:6 | Organic Matter Depletion | Not rated | 6 |
| 15 | Agricultural Organic Soil Subsidence:1 | Agricultural Organic Soil Subsidence | Severe subsidence | 1 |
| 16 | Agricultural Organic Soil Subsidence:2 | Agricultural Organic Soil Subsidence | Moderate subsidence | 2 |
| 17 | Agricultural Organic Soil Subsidence:3 | Agricultural Organic Soil Subsidence | Low subsidence | 3 |
| 18 | Agricultural Organic Soil Subsidence:4 | Agricultural Organic Soil Subsidence | Mineral soil | 4 |
| 19 | Agricultural Organic Soil Subsidence:5 | Agricultural Organic Soil Subsidence | Not rated | 5 |
| 20 | Suitability for Aerobic Soil Organisms:1 | Suitability for Aerobic Soil Organisms | Not favorable | 1 |
| 21 | Suitability for Aerobic Soil Organisms:2 | Suitability for Aerobic Soil Organisms | Somewhat favorable | 2 |
| 22 | Suitability for Aerobic Soil Organisms:3 | Suitability for Aerobic Soil Organisms | Very favorable | 3 |
| 23 | Suitability for Aerobic Soil Organisms:4 | Suitability for Aerobic Soil Organisms | Not rated | 4 |

### Populate the #RatingDomain Table with a Unique Rating\_key for this Interp

SELECT @ratingKey = RTRIM(@attributeName) + ':1'

IF NOT @rating1 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating1, 1)

SELECT @ratingKey = RTRIM(@attributeName) + ':2'

IF NOT @rating2 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating2, 2)

SELECT @ratingKey = RTRIM(@attributeName) + ':3'

IF NOT @rating3 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating3, 3)

SELECT @ratingKey = RTRIM(@attributeName) + ':4'

IF NOT @rating4 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating4, 4)

SELECT @ratingKey = RTRIM(@attributeName) + ':5'

IF NOT @rating5 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating5, 5)

SELECT @ratingKey = RTRIM(@attributeName) + ':6'

IF NOT @rating6 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating6, 6)

| **id** | **rating\_key** | **attributename** | **rating** | **rating\_num** |
| --- | --- | --- | --- | --- |
| 15 | Agricultural Organic Soil Subsidence:1 | Agricultural Organic Soil Subsidence | Severe subsidence | 1 |
| 16 | Agricultural Organic Soil Subsidence:2 | Agricultural Organic Soil Subsidence | Moderate subsidence | 2 |
| 17 | Agricultural Organic Soil Subsidence:3 | Agricultural Organic Soil Subsidence | Low subsidence | 3 |
| 18 | Agricultural Organic Soil Subsidence:4 | Agricultural Organic Soil Subsidence | Mineral soil | 4 |
| 19 | Agricultural Organic Soil Subsidence:5 | Agricultural Organic Soil Subsidence | Not rated | 5 |

### Populate Component Level Ratings Using the Currently Set Soil Interpretation

TRUNCATE TABLE #M5

INSERT INTO #M5

SELECT M4.aoiid, M4.landunit, M4.mukey, mapunit\_acres, M4.cokey, M4.compname, M4.comppct\_r, TP.interphrc AS rating, SUM (M4.comppct\_r) OVER(PARTITION BY M4.landunit, M4.mukey) AS mu\_pct\_sum

FROM #M4 AS M4

LEFT OUTER JOIN cointerp AS TP ON M4.cokey = TP.cokey AND rulekey = @ruleKey

WHERE M4.majcompflag = 'yes';

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **rating** | **mu\_pct\_sum** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Mineral soil | 90 |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Mineral soil | 90 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Mineral soil | 85 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Mineral soil | 85 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Mineral soil | 81 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Mineral soil | 81 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Mineral soil | 88 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Mineral soil | 88 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Mineral soil | 72 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Mineral soil | 72 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Mineral soil | 75 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Mineral soil | 75 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Mineral soil | 78 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Mineral soil | 78 |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Mineral soil | 75 |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Mineral soil | 78 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | Mineral soil | 75 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | Mineral soil | 55 |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Not rated | 100 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Mineral soil | 88 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Mineral soil | 88 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Mineral soil | 78 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Mineral soil | 78 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Mineral soil | 85 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Mineral soil | 85 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Mineral soil | 85 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Mineral soil | 85 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Mineral soil | 85 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Mineral soil | 85 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Mineral soil | 85 |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Mineral soil | 75 |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Mineral soil | 78 |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | Mineral soil | 75 |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Not rated | 100 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Mineral soil | 80 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Mineral soil | 80 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Mineral soil | 88 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Mineral soil | 78 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Mineral soil | 78 |

### Populate Component Level Ratings with Adjusted Component Percent to Account for the Un-used Minor Components

TRUNCATE TABLE #M6

INSERT INTO #M6

SELECT aoiid, landunit, mukey, mapunit\_acres, cokey, compname, comppct\_r, rating, mu\_pct\_sum, (1.0 \* comppct\_r / mu\_pct\_sum) AS adj\_comp\_pct

FROM #M5;

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **rating** | **mu\_pct\_sum** | **adj\_comp\_pct** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Mineral soil | 90 | 0.277777778 |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Mineral soil | 90 | 0.722222222 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Mineral soil | 85 | 0.294117647 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Mineral soil | 85 | 0.705882353 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Mineral soil | 81 | 0.604938272 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Mineral soil | 81 | 0.395061728 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Mineral soil | 88 | 0.375 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Mineral soil | 88 | 0.625 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Mineral soil | 72 | 0.763888889 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Mineral soil | 72 | 0.236111111 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Mineral soil | 75 | 0.666666667 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Mineral soil | 75 | 0.333333333 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Mineral soil | 78 | 0.256410256 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Mineral soil | 78 | 0.743589744 |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Mineral soil | 75 | 1 |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Mineral soil | 78 | 1 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | Mineral soil | 75 | 1 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | Mineral soil | 55 | 1 |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Not rated | 100 | 1 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Mineral soil | 88 | 0.545454545 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Mineral soil | 88 | 0.454545455 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Mineral soil | 78 | 0.743589744 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Mineral soil | 78 | 0.256410256 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Mineral soil | 85 | 0.705882353 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Mineral soil | 85 | 0.294117647 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Mineral soil | 88 | 0.375 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Mineral soil | 88 | 0.625 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Mineral soil | 85 | 0.352941176 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Mineral soil | 85 | 0.235294118 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Mineral soil | 85 | 0.411764706 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Mineral soil | 85 | 0.8 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Mineral soil | 85 | 0.2 |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Mineral soil | 75 | 1 |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Mineral soil | 78 | 1 |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | Mineral soil | 75 | 1 |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Not rated | 100 | 1 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Mineral soil | 88 | 0.545454545 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Mineral soil | 88 | 0.454545455 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Mineral soil | 80 | 0.775 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Mineral soil | 80 | 0.225 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Mineral soil | 88 | 0.340909091 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Mineral soil | 88 | 0.454545455 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Mineral soil | 88 | 0.204545455 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Mineral soil | 78 | 0.743589744 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Mineral soil | 78 | 0.256410256 |

### Populates Component Acres by Multiplying Map Unit Acres with Adjusted Component Percent

TRUNCATE TABLE #M8

INSERT INTO #M8

SELECT aoiid, landunit, mukey, mapunit\_acres, cokey, compname, comppct\_r, rating, MU\_pct\_sum, adj\_comp\_pct, ROUND ( (adj\_comp\_pct \* mapunit\_acres), 4) AS co\_acres

FROM #M6;

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **rating** | **MU\_pct\_sum** | **adj\_comp\_pct** | **co\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Mineral soil | 90 | 0.277777778 | 0.1183 |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Mineral soil | 90 | 0.722222222 | 0.3077 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Mineral soil | 85 | 0.294117647 | 0.0844 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Mineral soil | 85 | 0.705882353 | 0.2026 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Mineral soil | 81 | 0.604938272 | 1.0459 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Mineral soil | 81 | 0.395061728 | 0.6831 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Mineral soil | 88 | 0.375 | 21.2621 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Mineral soil | 88 | 0.625 | 35.4369 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Mineral soil | 72 | 0.763888889 | 1.0312 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Mineral soil | 72 | 0.236111111 | 0.3187 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Mineral soil | 75 | 0.666666667 | 0.086 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Mineral soil | 75 | 0.333333333 | 0.043 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Mineral soil | 78 | 0.256410256 | 7.3023 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Mineral soil | 78 | 0.743589744 | 21.1767 |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Mineral soil | 75 | 1 | 4.983 |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Mineral soil | 78 | 1 | 16.106 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | Mineral soil | 75 | 1 | 12.638 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | Mineral soil | 55 | 1 | 17.691 |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Not rated | 100 | 1 | 0.032 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Mineral soil | 88 | 0.545454545 | 98.9215 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Mineral soil | 88 | 0.454545455 | 82.4345 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Mineral soil | 78 | 0.743589744 | 1.8211 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Mineral soil | 78 | 0.256410256 | 0.6279 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Mineral soil | 85 | 0.705882353 | 3.2464 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Mineral soil | 85 | 0.294117647 | 1.3526 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Mineral soil | 88 | 0.375 | 3.2336 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Mineral soil | 88 | 0.625 | 5.3894 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Mineral soil | 85 | 0.352941176 | 0.1616 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Mineral soil | 85 | 0.235294118 | 0.1078 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Mineral soil | 85 | 0.411764706 | 0.1886 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Mineral soil | 85 | 0.8 | 25.2112 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Mineral soil | 85 | 0.2 | 6.3028 |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Mineral soil | 75 | 1 | 62.205 |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Mineral soil | 78 | 1 | 63.55 |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | Mineral soil | 75 | 1 | 23.138 |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Not rated | 100 | 1 | 3.86 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Mineral soil | 88 | 0.545454545 | 56.6776 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Mineral soil | 88 | 0.454545455 | 47.2314 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Mineral soil | 80 | 0.775 | 0.3433 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Mineral soil | 80 | 0.225 | 0.0997 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Mineral soil | 88 | 0.340909091 | 3.2867 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Mineral soil | 88 | 0.454545455 | 4.3823 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Mineral soil | 88 | 0.204545455 | 1.972 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Mineral soil | 78 | 0.743589744 | 8.4635 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Mineral soil | 78 | 0.256410256 | 2.9185 |

### Aggregate the Classes and Sum up the Component Acres by Landunit (Tract and Field number)

TRUNCATE TABLE #M10

INSERT INTO #M10

SELECT landunit, rating, SUM (co\_acres) AS rating\_acres

FROM #M8

GROUP BY landunit, rating

ORDER BY landunit, rating\_acres DESC;

| **landunit** | **rating** | **rating\_acres** |
| --- | --- | --- |
| T9981 Fld3 | Mineral soil | 328.9209 |
| T9981 Fld4 | Mineral soil | 314.863 |
| T9981 Fld3 | Not rated | 0.032 |
| T9981 Fld4 | Not rated | 3.86 |

### Group of Insert Statements to Populate the Final Output Tables

INSERT INTO #LandunitRatingsDetailed1 (aoiid, landunit, attributename, rating, rating\_key, rating\_num, rating\_pct, rating\_acres, landunit\_acres)

SELECT aoiid, M10.landunit, @attributeName AS attributename, M10.rating, RD.rating\_key, RD.rating\_num,

ROUND ((rating\_acres/ landunit\_acres) \* 100.0, 2) AS rating\_pct,

ROUND (rating\_acres,2) AS rating\_acres,

ROUND ( landunit\_acres, 2) AS landunit\_acres

FROM #M10 M10

LEFT OUTER JOIN #AoiAcres ON #AoiAcres.landunit = M10.landunit

INNER JOIN #RatingDomain RD ON M10.rating = RD.rating

WHERE RD.attributename = @attributeName

GROUP BY aoiid, M10.landunit, M10.rating, rating\_key, rating\_acres, landunit\_acres, rating\_num

ORDER BY landunit, attributename, rating\_num DESC;

| **aoiid** | **landunit** | **attributename** | **rating** | **rating\_num** | **rating\_key** | **rating\_pct** | **rating\_acres** | **landunit\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | Agricultural Organic Soil Subsidence | Mineral soil | 4 | Agricultural Organic Soil Subsidence:4 | 99.99 | 328.92 | 328.95 |
| 1 | T9981 Fld3 | Agricultural Organic Soil Subsidence | Not rated | 5 | Agricultural Organic Soil Subsidence:5 | 0.01 | 0.03 | 328.95 |
| 2 | T9981 Fld4 | Agricultural Organic Soil Subsidence | Mineral soil | 4 | Agricultural Organic Soil Subsidence:4 | 98.79 | 314.86 | 318.72 |
| 2 | T9981 Fld4 | Agricultural Organic Soil Subsidence | Not rated | 5 | Agricultural Organic Soil Subsidence:5 | 1.21 | 3.86 | 318.72 |

* Detailed Landunit Ratings1: rating acres and rating percent by area for each soil-landunit polygon
* These will be summarized to a single set of interp ratings for each landunit. Currently there are 5 interps.

### Determine Dominant Critical

INSERT INTO #LandunitRatingsDetailed2 (landunit, attributename, rating, rating\_num, rating\_key, rating\_pct, rating\_acres, landunit\_acres, rolling\_pct, rolling\_acres)

SELECT landunit, attributename, rating, rating\_num, rating\_key, rating\_pct, rating\_acres, landunit\_acres,

rolling\_pct = SUM(rating\_pct) OVER

(

PARTITION BY landunit

ORDER BY rating\_key ROWS UNBOUNDED PRECEDING

),

rolling\_acres = SUM(rating\_acres) OVER

(

PARTITION BY landunit

ORDER BY rating\_key ROWS UNBOUNDED PRECEDING

)

FROM #LandunitRatingsDetailed1

WHERE attributename = @attributeName

ORDER BY landunit, attributename;

| **landunit** | **attributename** | **rating** | **rating\_num** | **rating\_key** | **rating\_pct** | **rating\_acres** | **landunit\_acres** | **rolling\_pct** | **rolling\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T9981 Fld3 | Agricultural Organic Soil Subsidence | Mineral soil | 4 | Agricultural Organic Soil Subsidence:4 | 99.99 | 328.92 | 328.95 | 99.99 | 328.92 |
| T9981 Fld3 | Agricultural Organic Soil Subsidence | Not rated | 5 | Agricultural Organic Soil Subsidence:5 | 0.01 | 0.03 | 328.95 | 100 | 328.95 |
| T9981 Fld4 | Agricultural Organic Soil Subsidence | Mineral soil | 4 | Agricultural Organic Soil Subsidence:4 | 98.79 | 314.86 | 318.72 | 98.79 | 314.86 |
| T9981 Fld4 | Agricultural Organic Soil Subsidence | Not rated | 5 | Agricultural Organic Soil Subsidence:5 | 1.21 | 3.86 | 318.72 | 100 | 318.72 |

* LandunitRatingsDetailed2 is populated with all information plus rolling\_pct and rolling\_acres which are using in the landunit summary rating.
* Detailed Landunit Ratings2 table columns: landunit, attributename, rating, rating\_key, rating\_num, rating\_pct, rating\_acres, landunit\_acres, rolling\_pct, rolling\_acres

### Landunit Ratings CART

INSERT INTO #LandunitRatingsCART (id, landunit, attributename, rating, rating\_key, rolling\_pct, rolling\_acres, landunit\_acres)

SELECT ROW\_NUMBER() OVER(PARTITION BY landunit ORDER BY rating\_key ASC) AS "id",

landunit, attributename, rating, rating\_key, rolling\_pct, rolling\_acres, landunit\_acres

FROM #LandunitRatingsDetailed2

WHERE attributename = @attributeName AND (rolling\_pct >= @minPct OR rolling\_acres >= @minAcres)

* Identifies the single, most limiting rating (per landunit) that comprises at least 10% by area or 10 acres.
* This record will have an id value of 1.

| **id** | **landunit** | **attributename** | **rating** | **rating\_key** | **rolling\_pct** | **rolling\_acres** | **landunit\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | Agricultural Organic Soil Subsidence | Mineral soil | Agricultural Organic Soil Subsidence:4 | 99.99 | 328.92 | 328.95 |
| 2 | T9981 Fld3 | Agricultural Organic Soil Subsidence | Not rated | Agricultural Organic Soil Subsidence:5 | 100 | 328.95 | 328.95 |
| 1 | T9981 Fld4 | Agricultural Organic Soil Subsidence | Mineral soil | Agricultural Organic Soil Subsidence:4 | 98.79 | 314.86 | 318.72 |
| 2 | T9981 Fld4 | Agricultural Organic Soil Subsidence | Not rated | Agricultural Organic Soil Subsidence:5 | 100 | 318.72 | 318.72 |

### Final CART Soil Interpretation Ratings for Each Landunit

INSERT INTO #LandunitRatingsCART2 (landunit, attributename, rating, rating\_key, rolling\_pct, rolling\_acres, landunit\_acres, soils\_metadata)

SELECT LC.landunit, LC.attributename, LC.rating, LC.rating\_key, rolling\_pct, rolling\_acres, landunit\_acres, MD.soils\_metadata

FROM #LandunitRatingsCART LC

INNER JOIN #RatingDomain RD ON LC.attributename = RD.attributename AND LC.rating = RD.rating

INNER JOIN #LandunitMetadata MD ON LC.landunit = MD.landunit

WHERE LC.id = 1

ORDER BY landunit, rating\_key;

* The LandunitRatingsCART table will have all data, but the record for the overall landunit rating will have an id = 1.

| **landunit** | **rating\_key** | **soils\_metadata** |
| --- | --- | --- |
| T9981 Fld3 | Agricultural Organic Soil Subsidence:4 | “ND001 2018-09-12 19:21:50 SD105 2018-09-12 23:49:29” |
| T9981 Fld4 | Agricultural Organic Soil Subsidence:4 | ND001 2018-09-12 19:21:50 |

## References

1. University of Idaho. 2018. The Twelve Soil Orders: Histosols. <https://www.uidaho.edu/cals/soil-orders/histosols> accessed 1 2018
2. United Nations Food and Agriculture Organization. 2001. Lecture notes on the major soils of the world. <http://www.fao.org/docrep/003/Y1899E/y1899e04.htm> (accessed 1 March 2018). ISBN 925-104637-9.
3. United States Department of Agriculture, Natural Resources Conservation Service. 2006. Procedure to calculate the Soil Conditioning Index for Histosols. <https://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=stelprdb1248578&ext=pdf> (accessed 19 July 2019).
4. United States Department of Agriculture, Natural Resources Conservation Service. 2012. Resource Concerns: Soil Subsidence. <https://efotg.sc.egov.usda.gov/references/public/AR/Soil_Quality_Degradation_Subsidence.pdf> (accessed 19 July 2019).
5. Wright, A.L., and G.H. Snyder. 2009. Soil Subsidence in the Everglades Agricultural Area. <http://edis.ifas.ufl.edu/ss523> (accessed 19 July 2019). lorida/nstitute of ood and gricultural ciences Extension Publication #SL 311.