

Web Soil Survey

Overview and Objectives

Typical Web Soil Survey Session

- Navigating to Web Soil Survey (WSS)
- Setting your area of interest (AOI)
- Accessing your soil map
- Understanding the map unit description
- Accessing interpretations and reports
 - Selecting correct methods and rating criteria
- Compiling maps, interpretations, and reports and “checking out”

Starting Web Soil Survey

- A simple Google search, or following the link below will get you to the WSS home page:
 - <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- Click the large green “START WSS” button to begin.



You are here: Web Soil Survey Home

Search

Enter Keyword

All NRCS Sites


Browse by Subject

- Soils Home
- National Cooperative Soil Survey (NCSS)
- Archived Soil Surveys
- Status Maps
- Official Soil Series Descriptions (OSD)
- Soil Series
- Extent Mapping Tool
- Geospatial Data Gateway
- eFOTG
- National Soil Characterization Data

The simple yet powerful way to access and use soil data.

START WSS

Welcome to Web Soil Survey (WSS)

 Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

Soil surveys can be used for general farm

I Want To...

- Start Web Soil Survey (WSS)
- Know Web Soil Survey Requirements
- Know Web Soil Survey operation hours
- Find what areas of the U.S. have soil data
- Find information by topic
- Know how to hyperlink from other documents to Web Soil Survey
- Know the SSURGO data structure

USDA United States Department of Agriculture
Natural Resources Conservation Service

Contact Us | Subscribe | Archived Soil Surveys | Soil Survey Status | Glossary | Preferences | Link | Logout | Help

Area of Interest (AOI) | Soil Map | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

Web Soil Survey

Search

Area of Interest

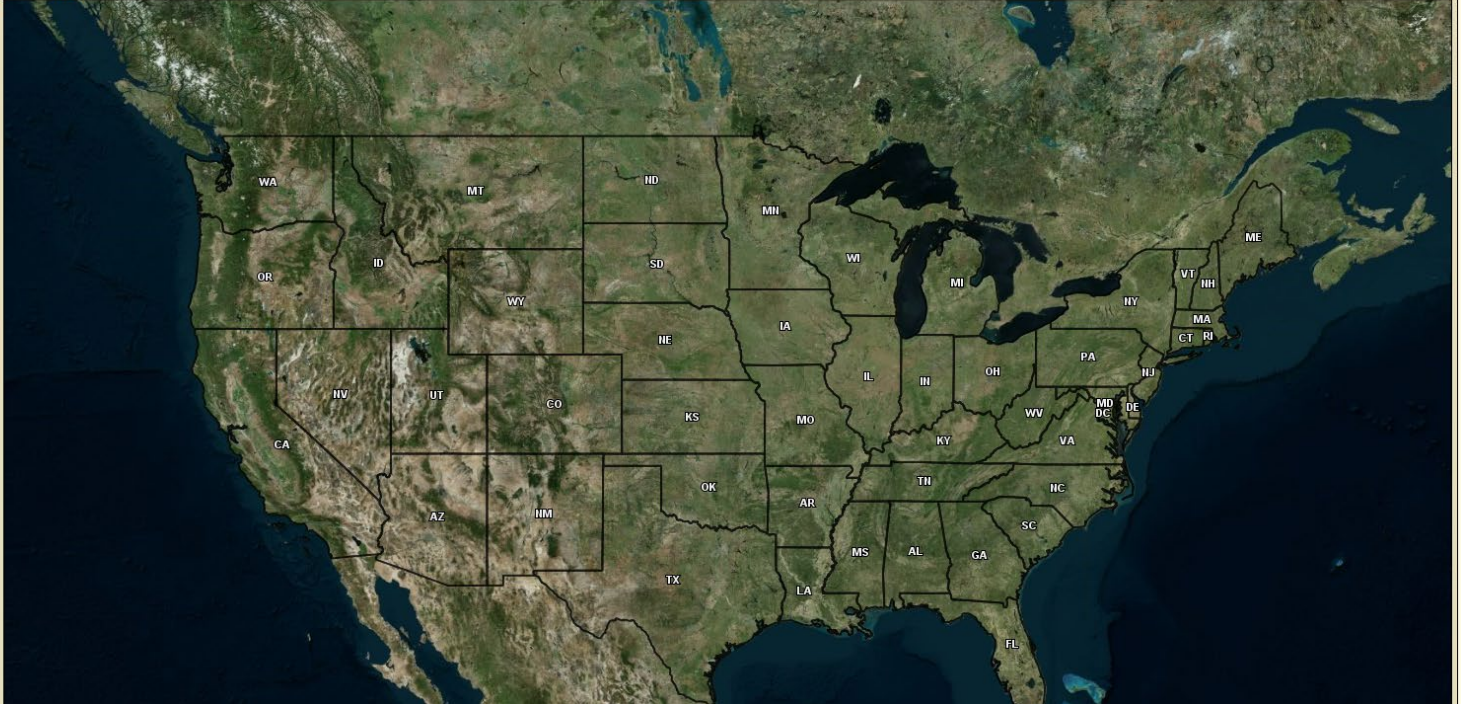
Import AOI

Quick Navigation

- Address
- State and County
- Soil Survey Area
- Latitude and Longitude or Current Location
- PLSS (Section, Township, Range)
- Bureau of Land Management
- Department of Defense
- Forest Service
- National Park Service
- Hydrologic Unit

Area of Interest Interactive Map

View Extent: Contiguous U.S. | Scale: (not to scale)



Selecting Area of Interest

Search

Area of Interest

Import AOI

Quick Navigation

Address

State and County

View ?

State: Washington

County (optional): Grays Harbor

View

Soil Survey Area

Latitude and Longitude or Current Location

PLSS (Section, Township, Range)

Bureau of Land Management

Department of Defense

Forest Service

National Park Service

Hydrologic Unit

Area of Interest Interactive Map

View Extent: Contiguous U.S. | Scale: (not to scale)

Select and use these tools to zoom and pan

Area of Interest (AOI) | Soil Map | Soil Data Explorer | Download Soils Data | Shopping Cart (Free)

Area of Interest Interactive Map

Search

Area of Interest

Import AOI

Quick Navigation

Address

State and County

View

State: Washington

County (optional): Grays Harbor

View

Soil Survey Area

Latitude and Longitude or Current Location

PLSS (Section, Township, Range)

Bureau of Land Management

Department of Defense

Forest Service

National Park Service

Hydrologic Unit

Legend

View Extent: Contiguous U.S. | Scale: (not to scale)

Select to draw polygon around your desired AOI

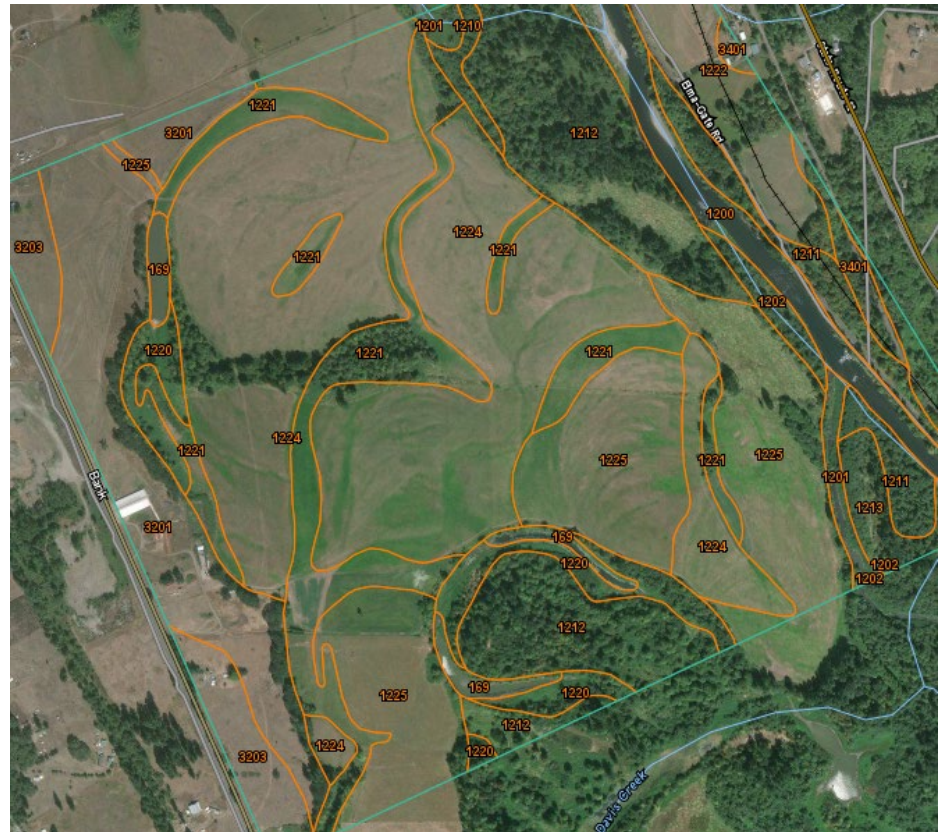
Selecting Area of Interest – Final Step

Natural
Resources
Conservation
Service

nrcs.usda.gov

Important Things to Note about Soil Map Units

- **Map unit definition: Areas defined and named the same in terms of their soil components**
- **A map unit can contain more than one soil (component) in it.**
- **The map unit description provides details about the different soil components and their likely locations (landform or geomorphic position) within the map unit.**



Area of Interest (AOI) **Soil Map** Soil Data Explorer Download Soils Data Shopping Cart (Free)


Search

Map Unit Legend

1221	Rennie silty clay loam, 0 to 5 percent slopes	56.3	10.5%
1222	Maytown-Rennie complex, 0 to 10 percent slopes	5.2	1.0%
1224	Chehalis-Maytown complex, 0 to 10 percent slopes	172.8	32.1%
1225	Eld-Fordprairie complex, 0 to 12 percent slopes	80.4	14.9%
3201	Daviscreek-Huttula complex, 0 to 10 percent slopes	58.8	10.9%
3203	Grandmound gravelly sandy loam, 0 to 15 percent slopes	20.3	3.8%

Soil Map

Scale: 1:7,920 ±1%



The map unit name contains a hot link to the map unit description.

Map Unit Description

Understanding the Map Unit Description

Map Unit Description Printable Version

Report — Map Unit Description

Grays Harbor County Area, Pacific and Wahkiakum Counties, Washington
1224—Chehalis-Maytown complex, 0 to 10 percent slopes

Map Unit Setting ← **Map Unit Name**

National map unit symbol: 2w94n
Elevation: 20 to 180 feet
Mean annual precipitation: 47 to 71 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 150 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chehalis and similar soils: 55 percent
Maytown, frequently flooded, and similar soils: 30 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chehalis ← **Component Name**
Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Alluvium

Typical profile

Ap1 - 0 to 5 inches: silt loam
Ap2 - 5 to 20 inches: silt loam
Bw1 - 20 to 28 inches: silty clay loam
Bw2 - 28 to 48 inches: silty clay loam
Bw3 - 48 to 59 inches: loam

Properties and qualities

Slope: 0 to 10 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 2.13 in/hr)
Depth to water table: About 47 to 79 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water storage in profile: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Forage suitability group: Soils with Few Limitations (G002XS501WA)
Hydric soil rating: No

Overview of map unit

Typical component percentages

Component Information

Where on the landform will I likely find this soil?

Good comparisons for ground truthing

Compiling Soils Data

- Soil maps, map unit descriptions, and soil reports and interpretations can be a valuable reference for the field and for future planning purposes
- Choose reports and interpretations relevant to the current and proposed land uses and management practices
- Useful reports can be compiled into a single document by clicking the “Add to Shopping Cart” button (don’t worry, it’s free)



Accessing Soils Information



Types of Soil Information Available



- 1. Suitabilities and Limitations for Use: Produces map and report for single interpretations.
Ex: Forest Productivity (tree site index)**
- 2. Soil Properties and Qualities: Produces map and report for single property. Ex: Depth to Water Table**
- 3. Soil Reports: Produces report and tables (no map) containing multiple soil properties and interpretations.
Ex: Hydric Soils**

Area of Interest (AOI) | Soil Map | **Soil Data Explorer** | Download Soils Data | Shopping Cart (Free)

View Soil Information By Use: All Uses

Intro to Soils | **Suitabilities and Limitations for Use** | Soil Properties and Qualities | Ecological Site Assessment | Soil Reports

Search


Suitabilities and Limitations Ratings

Open All | Close All

- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- Land Classifications
- Land Management
- Military Operations
- Recreational Development
- Sanitary Facilities
- Soil Health
- Vegetative Productivity**
- Crop Productivity Index
- Forest Productivity (Cubic Feet per Acre per Year)
- Forest Productivity (Tree Site Index)
- Iowa Corn Suitability Rating CSR2 (IA)
- Minnesota Crop Productivity Index
- Prod Index - Alfalfa Hay - Palouse, Northern Rocky Mtns (WA)
- Prod Index - Grass Hay - Palouse, Northern Rocky Mtns (WA)
- Prod Index - Small Grains - Palouse Prairies (WA)

Soil Map

Scale (not to scale)





Example: Forest Productivity

Example: Tree Site Index

The screenshot shows a web application window titled "Forest Productivity (Tree Site Index)". At the top, there are two tabs: "View Description" and "View Rating". Below the tabs is a "View Options" section with four checked checkboxes: "Map", "Table", "Description of Rating", and "Rating Options". There is also an unchecked checkbox for "Detailed Description". Below this is a "Basic Options" section with a "Tree" dropdown menu set to "Douglas-fir" and a text field containing "King 1966 (795)". The "Advanced Options" section includes an "Aggregation Method" dropdown set to "Dominant Condition", an empty "Component Percent Cutoff" text field, a "Tie-break Rule" section with radio buttons for "Lower" and "Higher" (where "Higher" is selected), and an "Interpret Nulls as Zero" section with radio buttons for "Yes" and "No" (where "No" is selected). At the bottom, there are two tabs: "View Description" and "View Rating".

- Set options
- Click View Rating

Setting Advanced Options: Aggregation Method

- **Recommend using Dominant Condition unless you are certain you are working with the Dominant Component**
- **Why? Example: Map unit composition =**
 - Soil A (poorly drained) = 30%
 - Soil B (poorly drained) = 30%
 - Soil C (well drained) = 40%
- **Dominant Component will base interpretation off of Soil C data**
- **Dominant Condition will base interpretation off of Soil A and B data**
- **Weighted Average is generally not recommended**
 - Will produce a result not representative of any of the individual components

Forest Productivity (Tree Site Index)

View Description View Rating

View Options

Map

Table

Description of Rating

Rating Options

Detailed Description

Basic Options

Tree Douglas-fir King 1966 (795)

Advanced Options

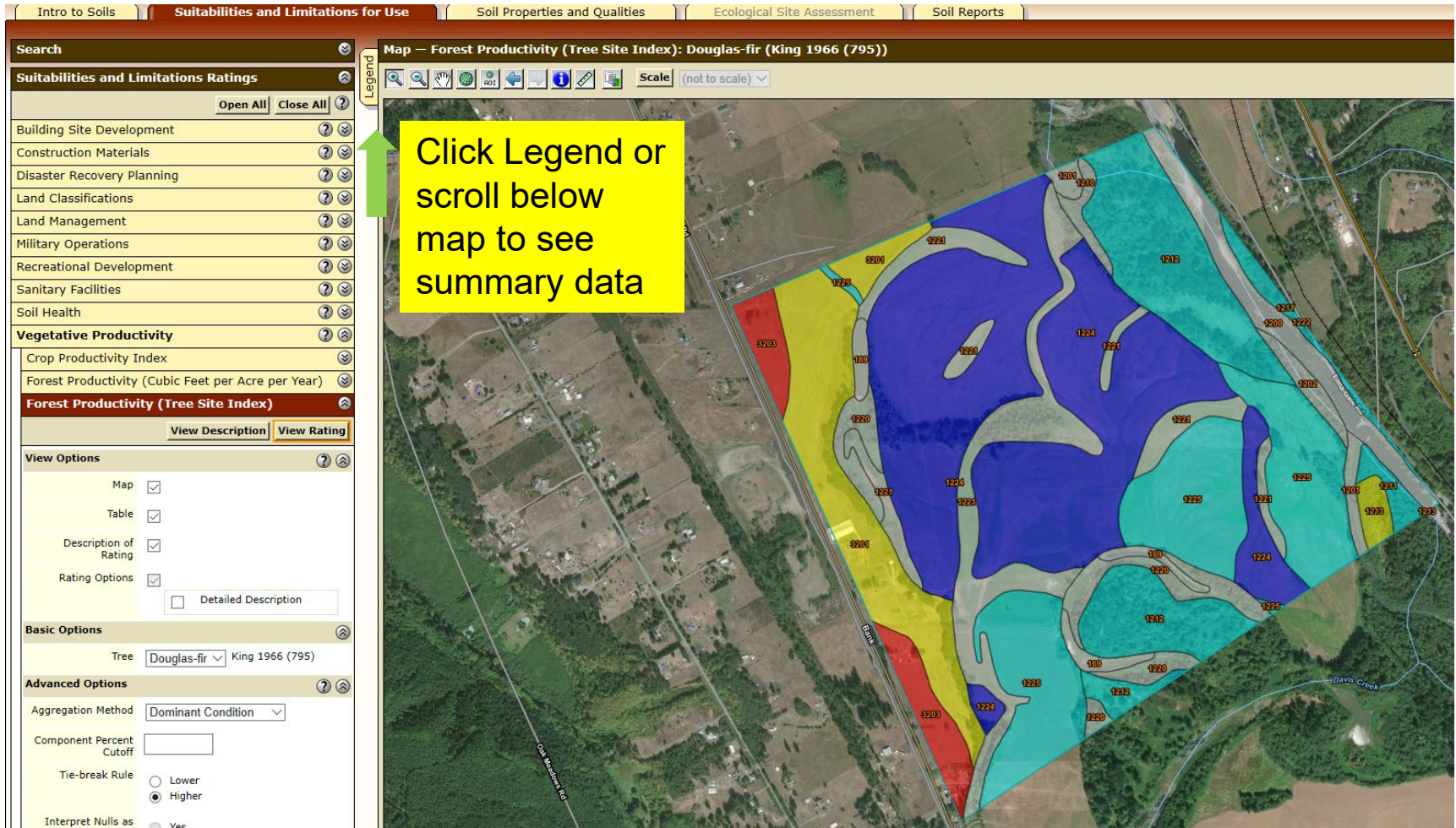
Aggregation Method **Dominant Condition**

Component Percent Cutoff

Tie-break Rule Lower Higher

Interpret Nulls as Zero Yes No

View Description View Rating



Example: Tree Site Index – Map

Tables — Forest Productivity (Tree Site Index): Douglas-fir (King 1966 (795)) — Summary By Map Unit

Summary by Map Unit — Grays Harbor County Area, Pacific and Wahkiakum Counties, Washington (WA627)

Summary by Map Unit — Grays Harbor County Area, Pacific and Wahkiakum Counties, Washington (WA627)

Map unit symbol	Map unit name	Rating (feet)	Acres in AOI	Percent of AOI
169	Water		7.4	1.4%
1200	Water-Riverwash complex, 0 to 5 percent slopes		19.2	3.6%
1201	Water-Fluvaquents complex, 0 to 3 percent slopes		4.8	0.9%
1202	Xerofluvents, 0 to 15 percent slopes		4.1	0.8%
1210	Roundtree loam, 0 to 5 percent slopes		3.1	0.6%
1211	Fordprairie-Roundtree complex, 0 to 10 percent slopes	120	8.7	1.6%
1212	Scatter-Fordprairie-Roundtree complex, 0 to 12 percent slopes	120	67.1	12.7%
1213	Elma-Fordprairie complex, 0 to 12 percent slopes	115	3.8	0.7%
1220	Salzer silty clay loam, 0 to 3 percent slopes		20.2	3.8%
1221	Rennie silty clay loam, 0 to 5 percent slopes		57.5	10.9%
1222	Maytown-Rennie complex, 0 to 10 percent slopes	120	0.0	0.0%
1224	Chehalis-Maytown complex, 0 to 10 percent slopes	130	170.3	32.3%
1225	Eld-Fordprairie complex, 0 to 12 percent slopes	120	87.1	16.5%
3201	Daviscreek-Huttula complex, 0 to 10 percent slopes	115	54.9	10.4%
3203	Grandmound gravelly sandy loam, 0 to 15 percent slopes	108	18.9	3.6%
Totals for Area of Interest			527.1	100.0%

Description — Forest Productivity (Tree Site Index)

The "site index" is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this attribute, only the representative value is used.

Rating Options — Forest Productivity (Tree Site Index): Douglas-fir (King 1966 (795))

Units of Measure: feet
Tree: Douglas-fir
Site Index Base: King 1966 (795)
Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified
Tie-break Rule: Higher
Interpret Nulls as Zero: No

Scroll below map to view summary tables

Example: Tree Site Index – Table

Useful Interpretations and Reports (Where to Find Them)

- **Suitabilities and Limitations for Use**

- Land Classifications
 - Ecological Site ID, Hydric Rating by Map Unit, Conservation Tree and Shrub Group
- Land Management
 - Fencing, Suitability for Roads, Suitability for Log Landings, Harvest Equipment Operability, Soil Rutting Hazard
- Vegetative Productivity
 - Forest Productivity (tree site index), Range Production

- **Soil Properties and Qualities**

- Soil Qualities and Features
 - Depth to Restrictive Layer, Drainage Class
- Water Features
 - Depth to Water Table, Flooding Frequency, Ponding Frequency

- **Soil Reports**

- Land Classifications
 - Hydric Soils, Land Capability Class, Forage Suitability Groups
- Water Features
 - Water Features, Hydrologic Soil Group and Surface Runoff

Example: Hydric Soils Report (2 of 2)

Report — Hydric Soils				
Grays Harbor County Area, Pacific and Wahkiakum Counties, Washington				
Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric criteria
1200—Water-Riverwash complex, 0 to 5 percent slopes	Riverwash	20	—	4
	Fluvaquents	5	Overflow stream channels	2, 3, 4
1201—Water-Fluvaquents complex, 0 to 3 percent slopes	Fluvaquents	30	Depressions, overflow stream channels	2, 3, 4
	Fluvaquents	10	Overflow stream channels	2, 3, 4
1210—Roundtree loam, 0 to 5 percent slopes	Roundtree	80	Depressions, overflow stream channels	2, 3
	Roundtree	20	Depressions, overflow stream channels	2, 3
1212—Scatter-Fordprairie-Roundtree complex, 0 to 12 percent slopes	Roundtree	15	Depressions, overflow stream channels	2, 3

Concluding Statements

1. Soil survey products are guides, not gospel.

1. Soil survey maps, interpretations, and reports are great references points, but they are not always perfect.
2. Soil surveys are a snapshot in time and are not site-specific.
3. Understanding the map unit composition and map unit description is critical.
4. On site observations are always necessary. You must ground truth!

2. What if the soil map and your on-site observations are strongly contrasting?

1. Review the map unit description. Check to see if your observations resemble any minor component in the map unit.
2. Contact NRCS State Soil Scientist or local Resource Soil Scientist to discuss the situation.

Questions?

Max Ross
Soil Scientist
USDA Natural Resource Conservation Service
1835 Black Lake Blvd.
Olympia, WA 98512
(360) 480-6578 (C)

max.ross@usda.gov

Mention of names or commercial products in this document does not imply recommendation or endorsement by the U.S. Department of Agriculture.

USDA is an equal opportunity employer, lender, and provider.

Natural
Resources
Conservation
Service

nrcs.usda.gov