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CALIFORNIA

Natural Resources Conservation Service

Using Web Soil Survey – the Four Steps

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Access digital soils data in four easy steps

1 Define.

Use the **Area of Interest** tab to define your area of interest. You can navigate to an area by zooming in on a map or by selecting from a Quick Navigation choice list. After you find the area, define it as the Area of Interest (AOI) by drawing a rectangle or a polygon around it using a map tool. You must complete this step before you can go on to the next three steps.

2 View.

Click the **Soil Map** tab to view or print a map of the soils in your area and view a description of the soils.

3 Explore.

Click the **Soil Data Explorer** tab to access soil data for your area and determine the suitability of the soils for a particular use. The items you want saved in a report can be added to your shopping cart.

4 Check Out.

Use the **Shopping Cart** tab to get your custom report immediately or download it later.

https://websoilsurvey.sc.egov.usda.gov/

START WSS

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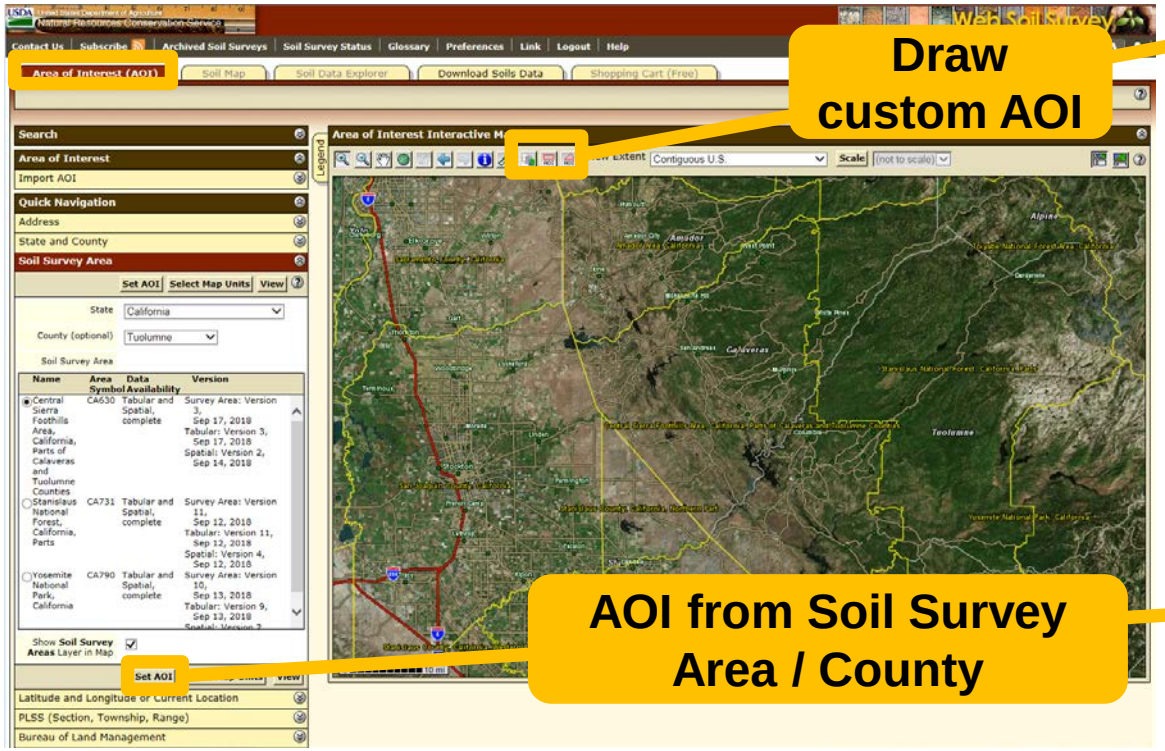
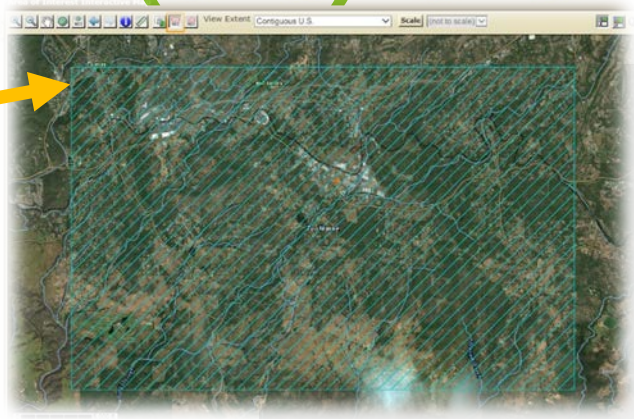
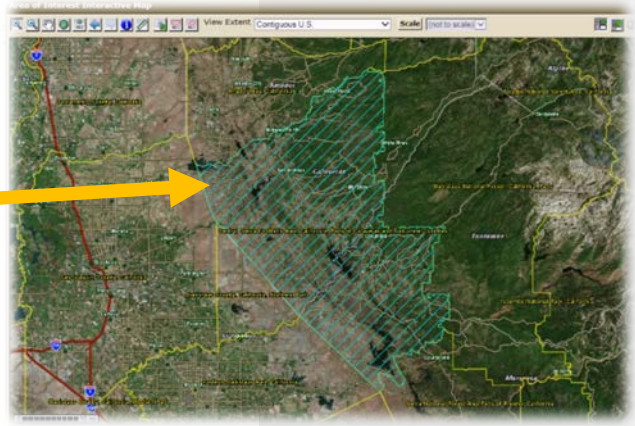
1. DEFINE an Area of Interest (AOI)







There are many ways to **define your AOI** in WSS.

You can also **import multipart areas** from a **shapefile**!

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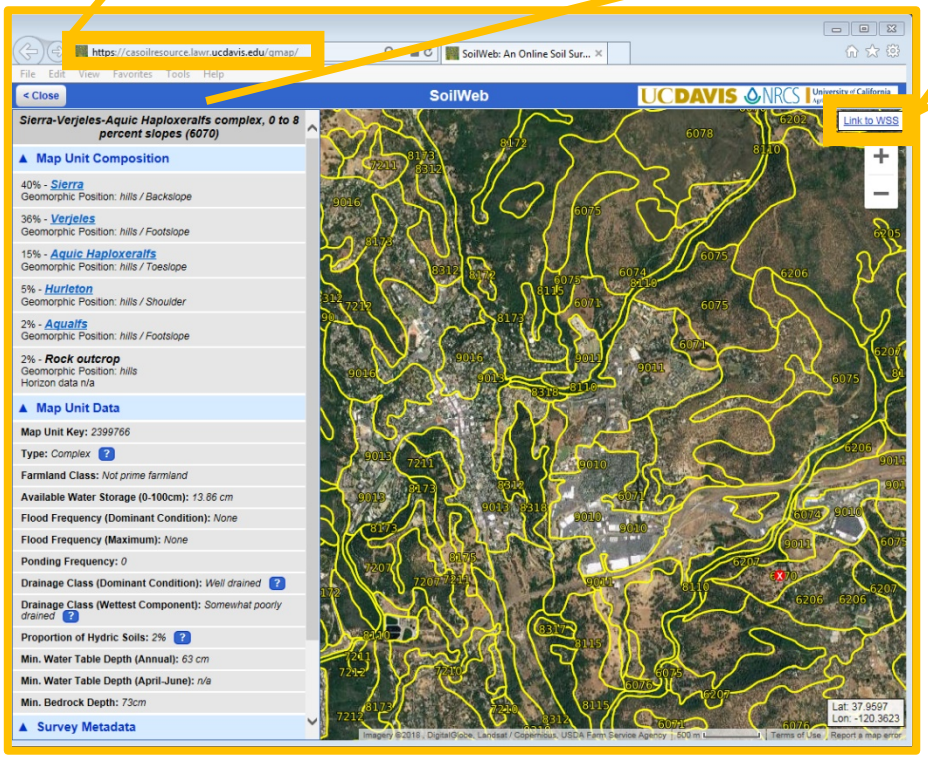
1. DEFINE an Area of Interest (SoilWeb)

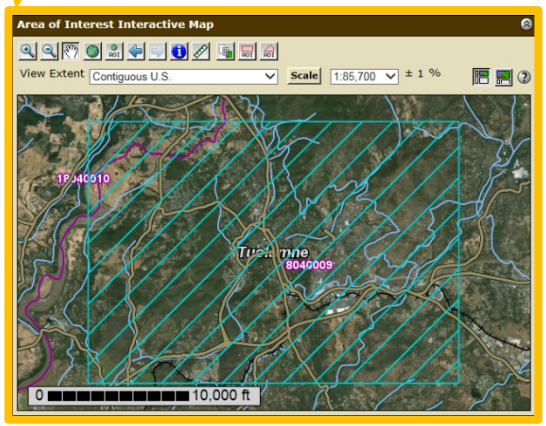
1. Navigate to UCDavis CA Soil Resource Lab Google Maps App
https://casoilresource.lawr.ucdavis.edu/gmap/

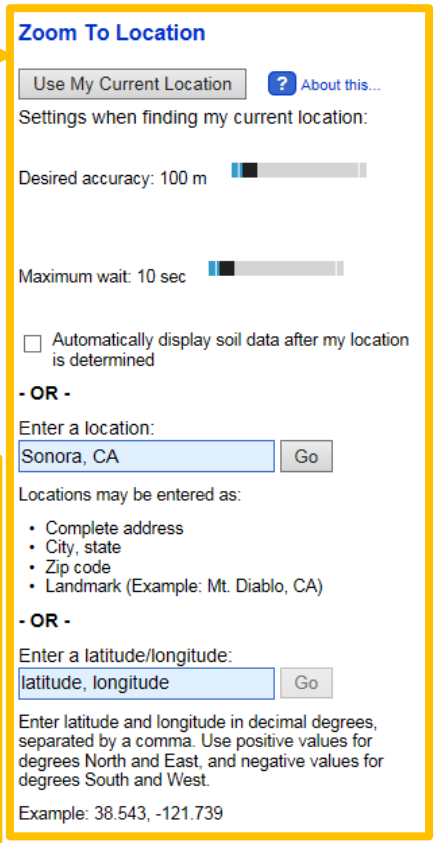
2. Open the Menu to Zoom To Location

3. Click 'Link to WSS'

4. View SoilWeb AOI in Web Soil Survey







Alternately, you can find your AOI using the SoilWeb Google Maps App - just click "Link to WSS" in the top-right corner to import the map panel as your AOI.

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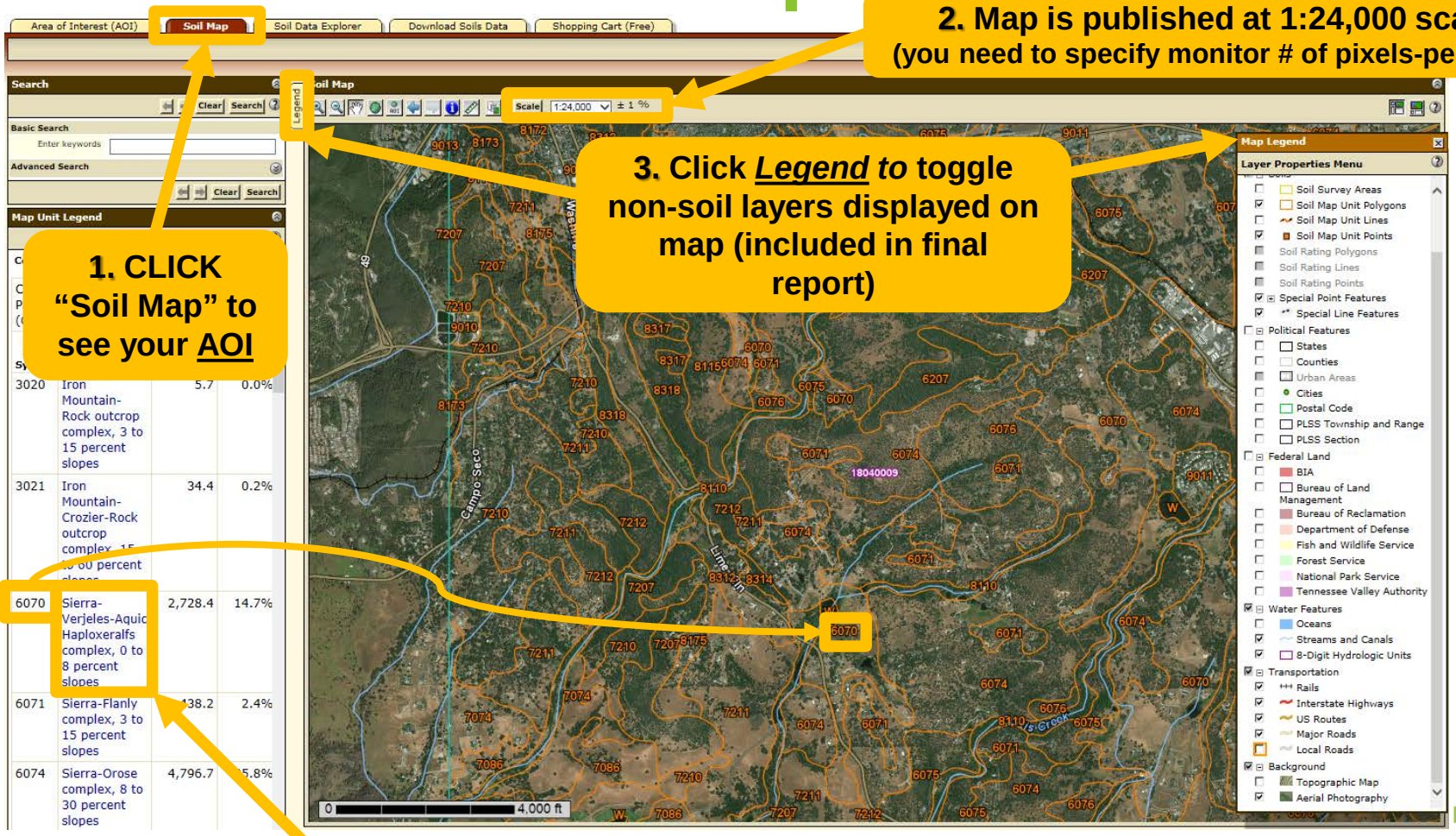
2. VIEW the Soil Map



1. CLICK "Soil Map" to see your AOI

2. Map is published at 1:24,000 scale (you need to specify monitor # of pixels-per-inch)

3. Click *Legend* to toggle non-soil layers displayed on map (included in final report)

4. CLICK on links in the *Map Unit Legend* to view individual *Map Unit Descriptions*

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3. EXPLORE the Data (*Map Unit Descriptions*)

Map Unit Description

Printable Versio

Report — Map Unit Description

Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties

6070– **Sierra-Verjeles-Aquic Haploxeralfs complex**, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2lk4t
Elevation: 1,160 to 2,710 feet
Mean annual precipitation: 30 to 41 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 205 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition

Sierra and similar soils: 40 percent
Verjeles and similar soils: 36 percent
Aquic haploxeralfs and similar soils: 15 percent
Minor components: 9 percent

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

Description of Sierra

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Colluvium over residuum derived from granitoid

Typical profile

A - 0 to 4 inches: fine sandy loam
BA - 4 to 8 inches: loam
Bt1 - 8 to 20 inches: loam
Bt2 - 20 to 32 inches: clay loam
BCt - 32 to 59 inches: paragravelly clay loam

Properties and qualities

Slope: 0 to 8 percent
Percent of area covered with surface fragments: 0.0 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 high (0.20 to 0.60 in/hr)

Where is the map unit used? What it is called?

What soils occur in the map unit?

Major (named) components:

- **Setting (landform, parent material)**
- **Typical profile (horizons, depths, texture)**
- **Properties and restrictions**
- **Interpretive classes and groups**

Interpretive groups

Land capability classification (irrigated): 5e
Land capability classification (nonirrigated): 5e
Hydrologic Soil Group: C
Ecological site: Thermic Granitic Foothills 27-40 PZ (F018XI205CA)
Hydric soil rating: No

Minor Components

Hurleton, very cobbly

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: Thermic Granitic Foothills 27-40 PZ (F018XI205CA)
Hydric soil rating: No

Aqualfs

Percent of map unit: 2 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: Low Gradient, Concave Depressions (R018XI111CA)
Hydric soil rating: Yes

Rock outcrop, mafic plutonic

Percent of map unit: 2 percent
Landform: Hills
Hydric soil rating: No

Minor components: emphasize landform and ecological site differences

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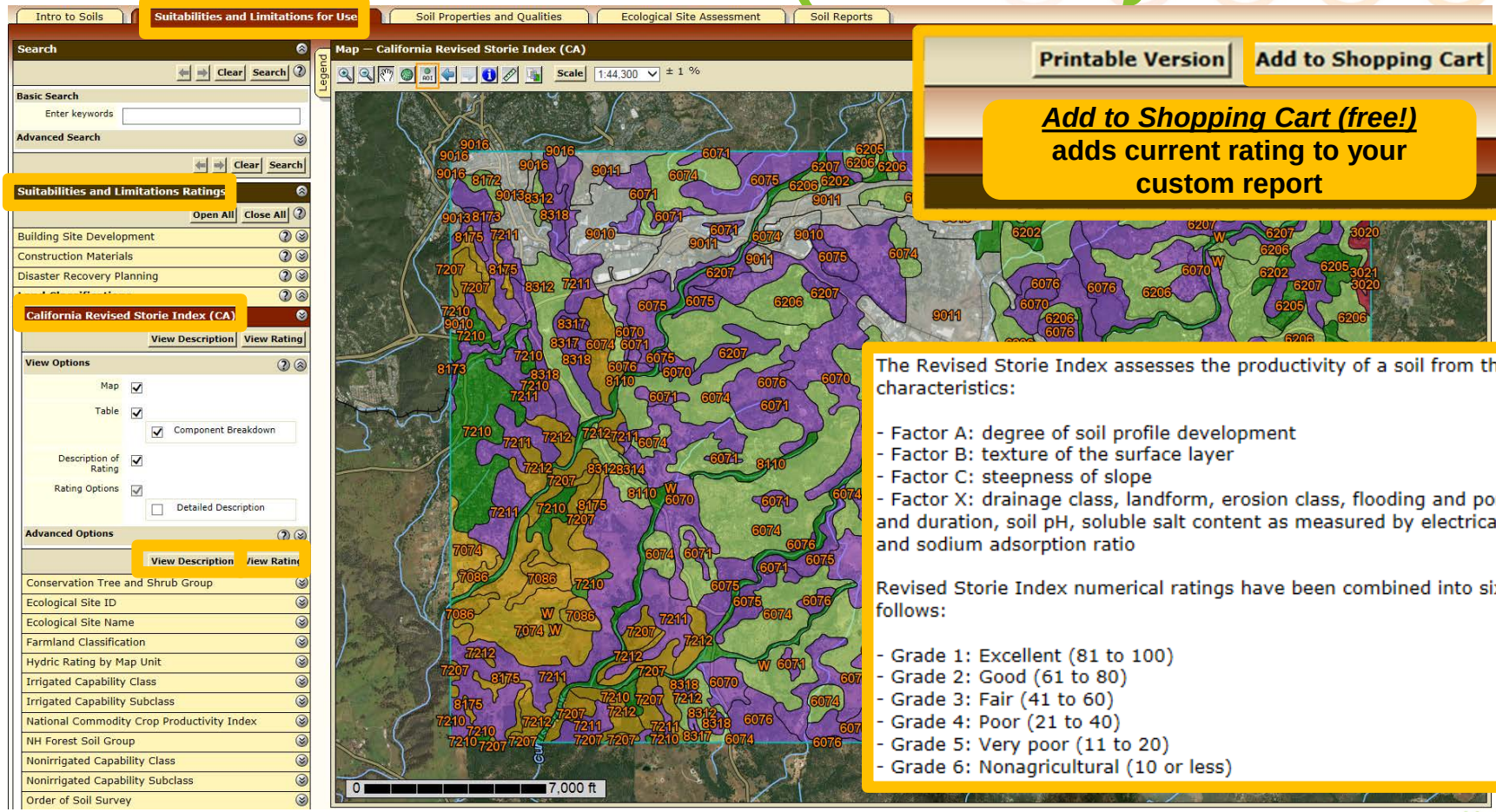
3. EXPLORE the Data (*Suitability / Limitations*)



EXAMPLE 1. *VIEWING A RATING* - California (Revised) Storie Index

View Rating **colors polygons with rating classes**

View Description **describes the factors considered in the rating**

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3. EXPLORE the Data (*Suitability / Limitations*)

Tables — California Revised Storie Index (CA) — Summary By Map Unit

Summary by Map Unit — Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties (CA630)

Summary by Map Unit — Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties (CA630)

Map unit symbol	Map unit name	Rating	Component name (percent)	Acres in AOI	Percent of AOI
3020	Iron Mountain-Rock outcrop complex, 3 to 15 percent slopes	Grade 5 - Very Poor	Iron Mountain (75%)	5.7	0.0%
3021	Iron Mountain-Crozier-Rock outcrop complex, 15 to 60 percent slopes	Grade 6 - Nonagricultural	Iron Mountain (40%)	34.4	0.2%
6070	Sierra-Verjeles-Aquic Haploxeralfs complex, 0 to 8 percent slopes	Grade 3 - Fair	Verjeles (36%)	2,728.4	14.7%
			Aquic Haploxeralfs (15%)		
6071	Sierra-Flanly complex, 3 to 15 percent slopes	Grade 3 - Fair	Flanly (40%)	438.2	2.4%
			Hurleton (10%)		
6074	Sierra-Orose complex, 8 to 30 percent slopes	Grade 2 - Good	Sierra (70%)	4,796.7	25.8%
6075	Sierra-Flanly complex, 30 to 60 percent slopes	Grade 3 - Fair	Sierra (50%)	1,194.5	6.4%
			Flanly (30%)		
6076	Auberry-Hurleton-Rock outcrop complex, 20 to 60 percent slopes	Grade 3 - Fair	Auberry (45%)	902.2	4.8%
6202	Musick-Ultic Haploxeralfs, moderately well drained, complex, 1 to 8 percent slopes	Grade 1 - Excellent	Musick (60%)	202.6	1.1%
6205	Musick fine sandy loam, 3 to 8 percent slopes	Grade 1 - Excellent	Musick (88%)	116.2	0.6%
			Wukusick (5%)		
6206	Musick-Hotaw complex, 8 to 30 percent slopes	Grade 2 - Good	Musick (64%)	1,569.2	8.4%
			Wukusick (5%)		
6207	Musick-Hotaw-Chawanakee complex, 30 to 60 percent slopes	Grade 3 - Fair	Musick (55%)	964.0	5.2%
			Hotaw (20%)		
			Wukusick (5%)		

Storie Grade: lower grade is "better" (more suited to irrigated ag.)

Grades 5 and 6:
Very shallow soils on wide range of slopes

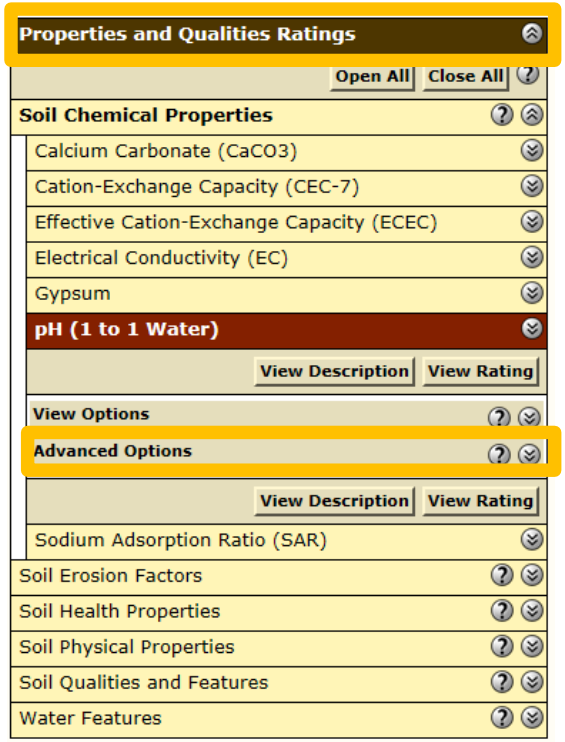
Grade 3:
Moderately deep soils on low slopes (<15%)

Grades 2 and 3:
Deep or moderately deep soils (on steeper slopes)

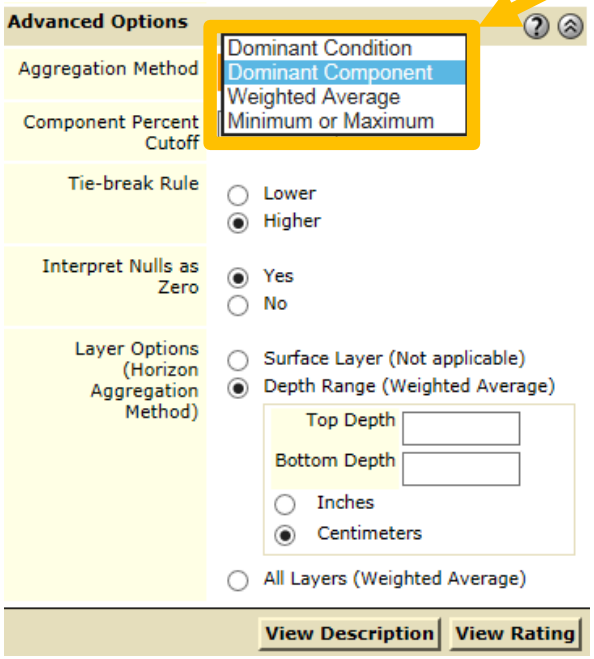
Grade 1:
Very deep soils on low slopes

EXAMPLE 1. *VIEWING A RATING* - California (Revised) Storie Index

3. EXPLORE the Data (*Soil Properties*)



Using *Advanced Options*, you can change the way ratings are generated for Map Units that have *several soil components*

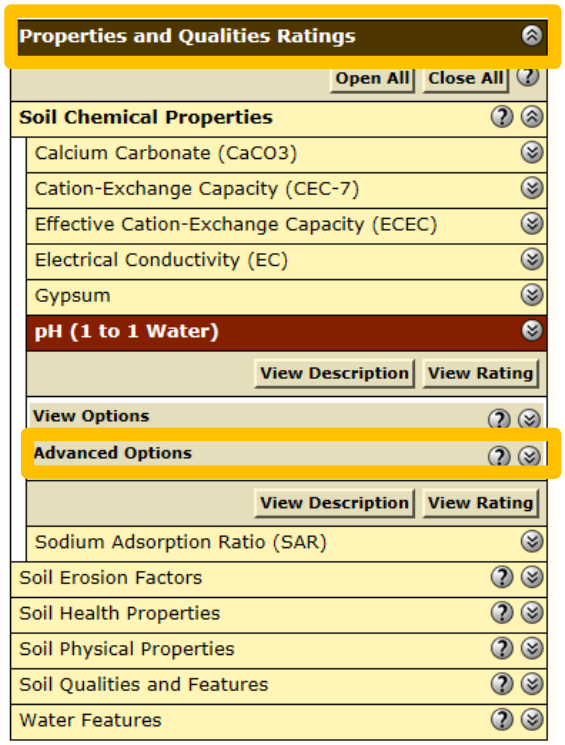


COMPONENT AGGREGATION METHODS

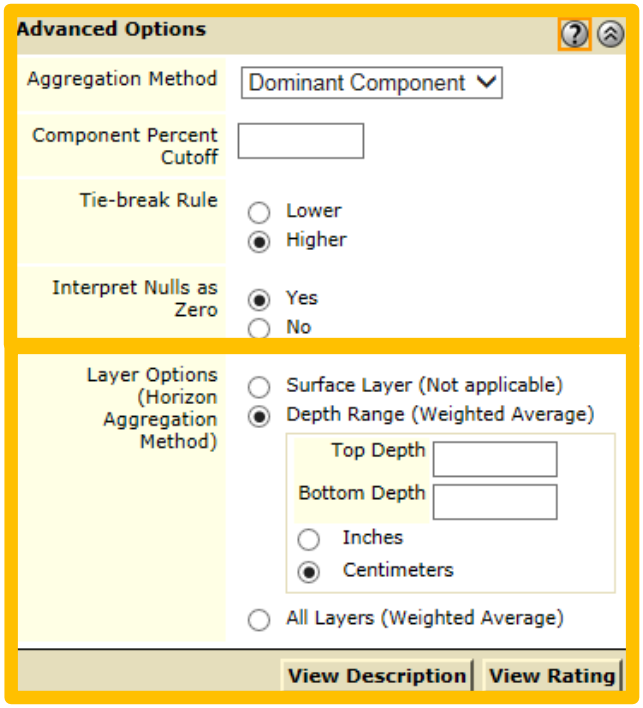
- *Dominant Condition*: apply rating to all components; add percentages in each rating class; returns rating for **most prevalent rating class**
- *Dominant Component*: returns rating of **component with highest percentage**
- *Weighted-average*: apply rating to all components; returns the **component-percentage-weighted-average rating**
- *Minimum or Maximum*: apply rating to all components; returns the **most/least limiting/suitable rating**

EXAMPLE 2. ADVANCED COMPONENT AGGREGATION

3. EXPLORE the Data (*Soil Properties*)



Also, in *Advanced Options* you can set rules for excluding data/components, as well as averaging horizon data (across depth) within components



ADVANCED OPTIONS

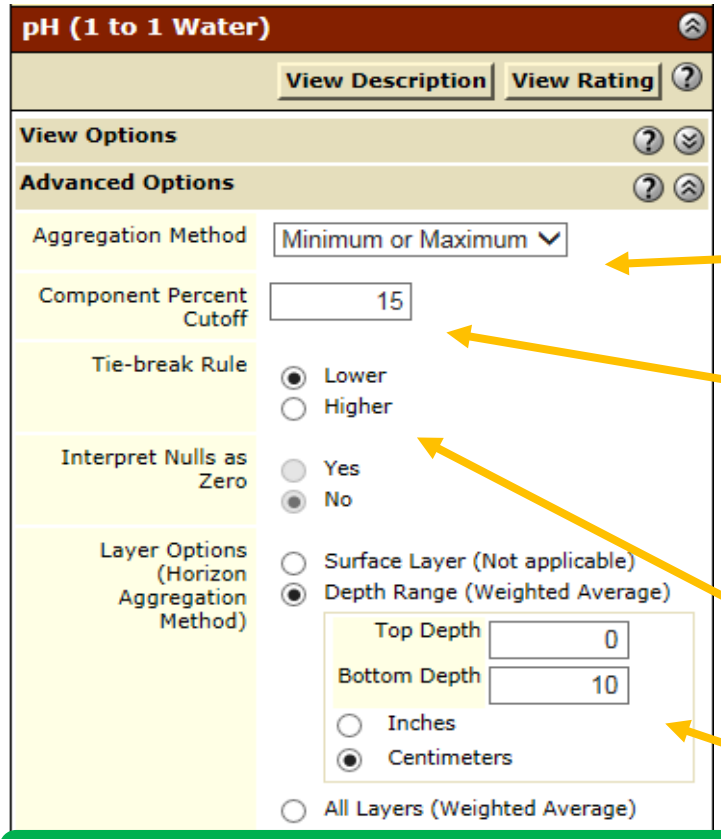
- *Component Percent Cutoff:* ignore all components with percentage less than this number
- *Tie-break Rule:* In case of a tie when determining dominance, return the lower or higher rating?
- *Interpret Nulls as Zero*: Fill in empty values with zero? (*be careful*)

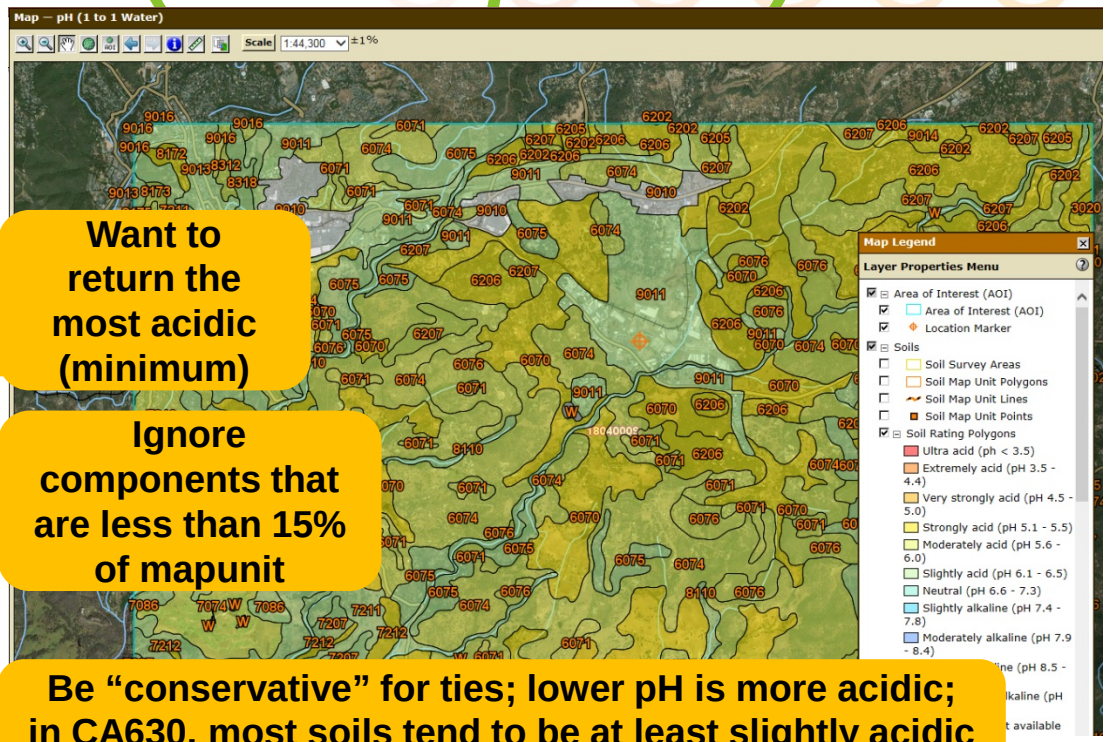
HORIZON AGGREGATION

- *Surface layer*: only use surface horizon?
- *All Layers*: rate by depth-weighted-average of all layers in each component
- *Depth range*: Calculate depth-weighted average of the layers in range specified

EXAMPLE 2 (continued). ADVANCED HORIZON AGGREGATION

3. EXPLORE the Data (*Soil Properties*)





Want to return the most acidic (minimum)

Ignore components that are less than 15% of mapunit

Be "conservative" for ties; lower pH is more acidic; in CA630, most soils tend to be at least slightly acidic and the *lower* values will *generally* be "more limiting"

Calculate the depth weighted-average pH for each component for soil layers within 0-10cm depth interval

EXAMPLE 2 (continued). pH 1:1 water 0-10cm rating

GOAL: Show the "most limiting" soil pH in upper 10 cm (4 inches)

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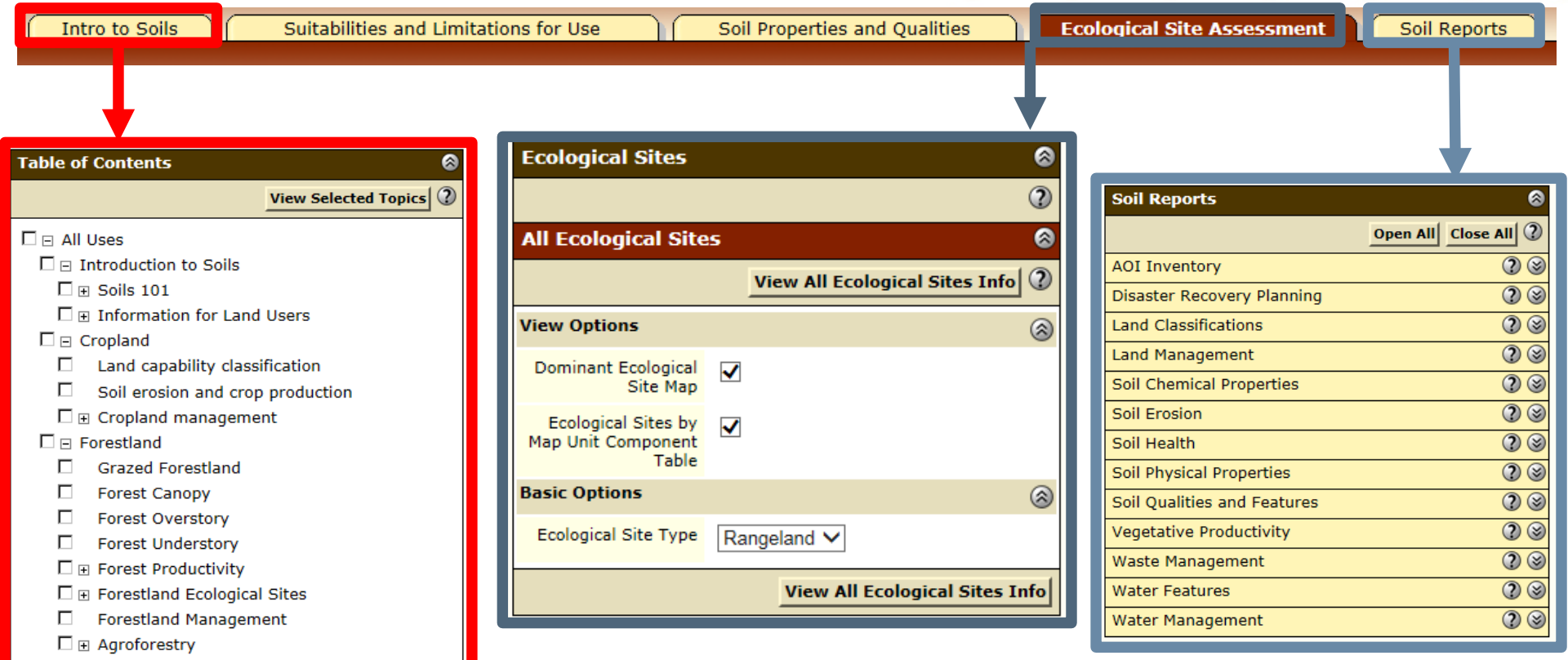
3. EXPLORE the Data (Soil Data Explorer)



In addition to suitability/limitation/property ratings, the *Soil Data Explorer* tab allows you to review basic soil science definitions and Ecological Site information.

Also, you can generate independent Soil Reports to summarize various classifications, interpretations and soil properties in a tabular format.

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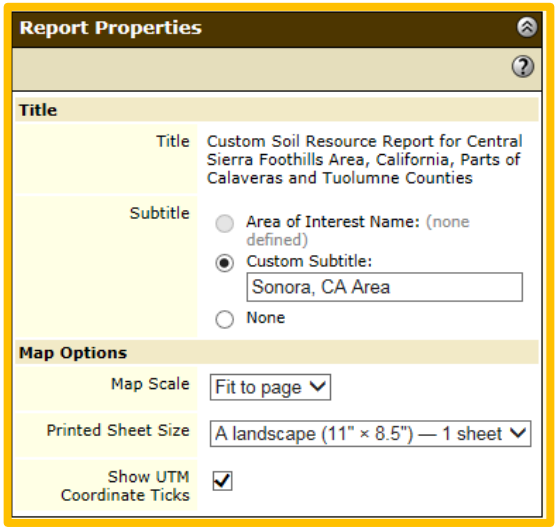
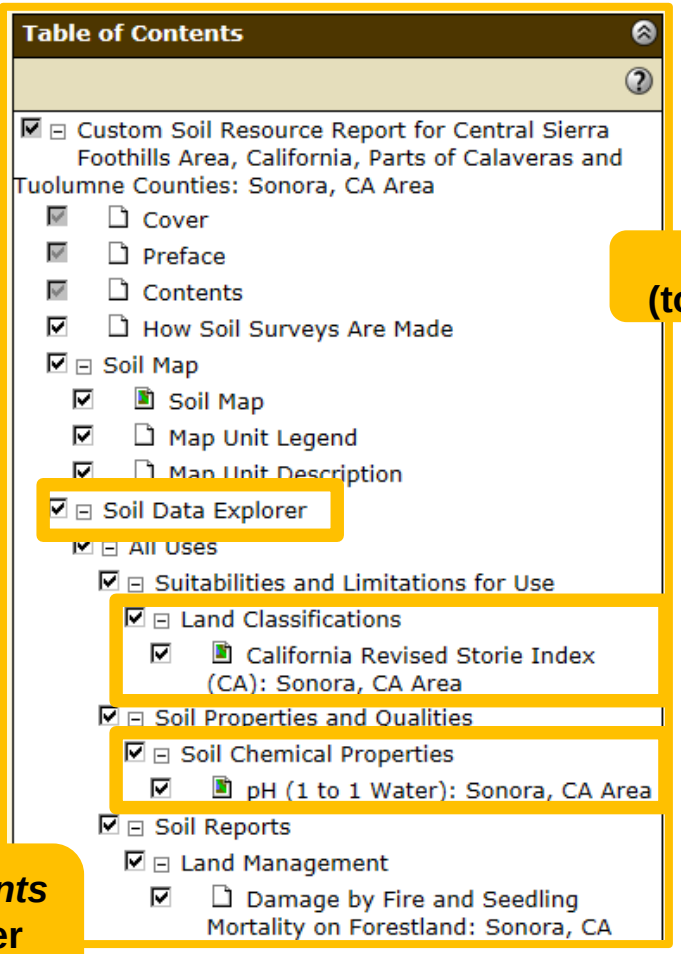
4. CHECK OUT (make custom resource report)

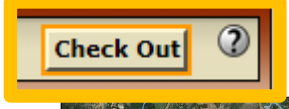


1. Set report subtitle and output size



2. Check *Table of Contents* (note items added under *Soil Data Explorer* section)

3. Check Out (top right corner of WSS window)!



4. View or print PDF output

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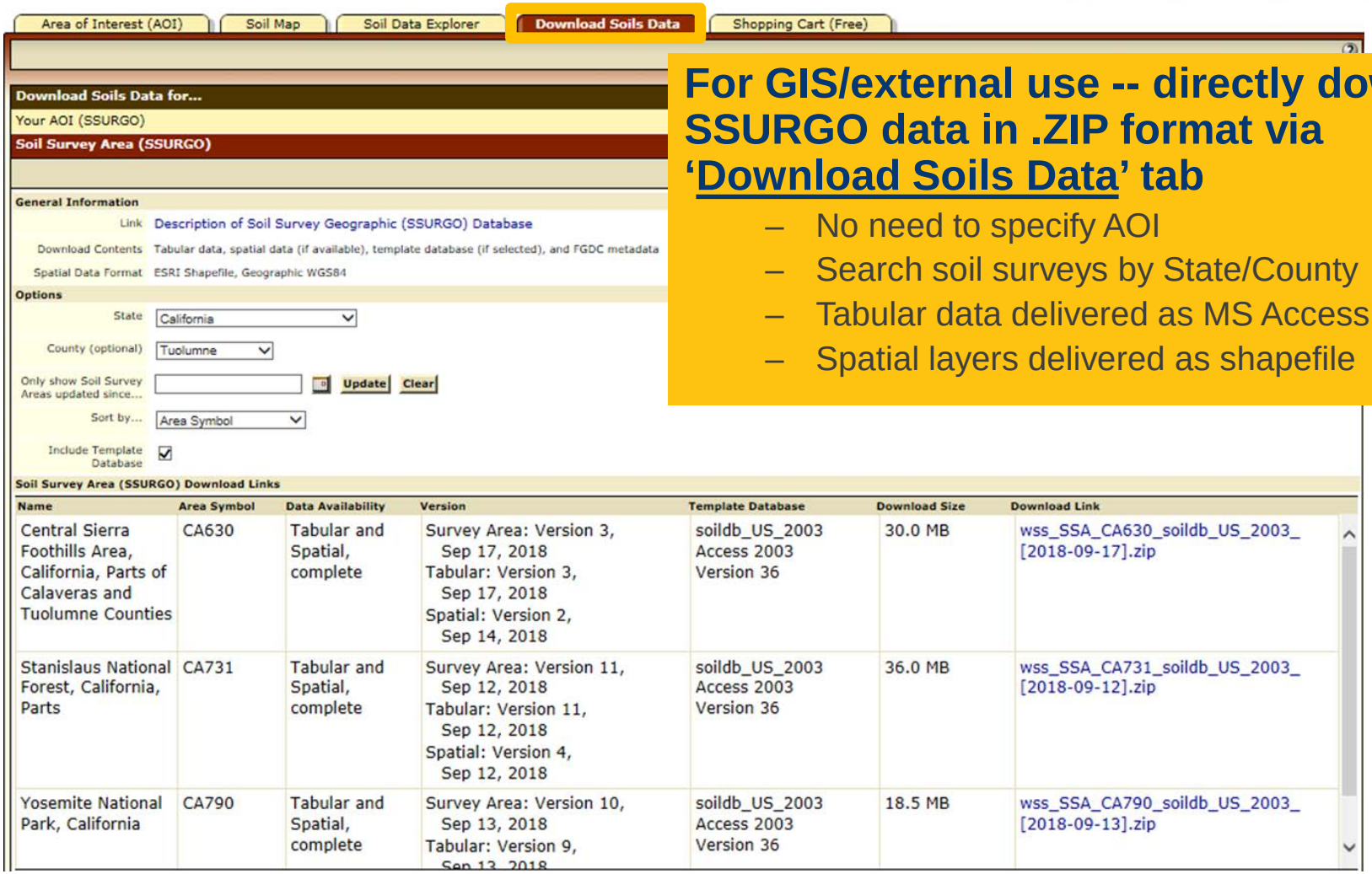
Optional: Skipping the AOI



Name	Area Symbol	Data Availability	Version	Template Database	Download Size	Download Link
Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties	CA630	Tabular and Spatial, complete	Survey Area: Version 3, Sep 17, 2018 Tabular: Version 3, Sep 17, 2018 Spatial: Version 2, Sep 14, 2018	soildb_US_2003 Access 2003 Version 36	30.0 MB	wss_SSA_CA630_soildb_US_2003_[2018-09-17].zip
Stanislaus National Forest, California, Parts	CA731	Tabular and Spatial, complete	Survey Area: Version 11, Sep 12, 2018 Tabular: Version 11, Sep 12, 2018 Spatial: Version 4, Sep 12, 2018	soildb_US_2003 Access 2003 Version 36	36.0 MB	wss_SSA_CA731_soildb_US_2003_[2018-09-12].zip
Yosemite National Park, California	CA790	Tabular and Spatial, complete	Survey Area: Version 10, Sep 13, 2018 Tabular: Version 9, Sep 13, 2018	soildb_US_2003 Access 2003 Version 36	18.5 MB	wss_SSA_CA790_soildb_US_2003_[2018-09-13].zip

For GIS/external use -- directly download SSURGO data in .ZIP format via 'Download Soils Data' tab

- No need to specify AOI
- Search soil surveys by State/County
- Tabular data delivered as MS Access database
- Spatial layers delivered as shapefile