Understanding North Bay Soils

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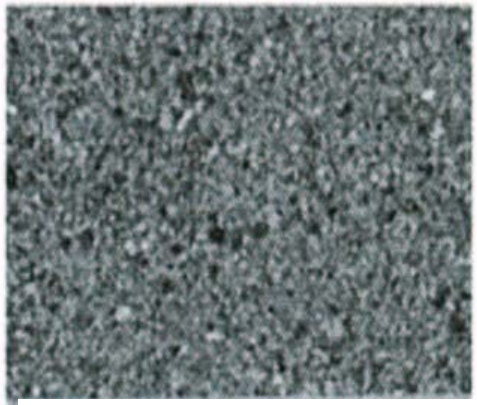
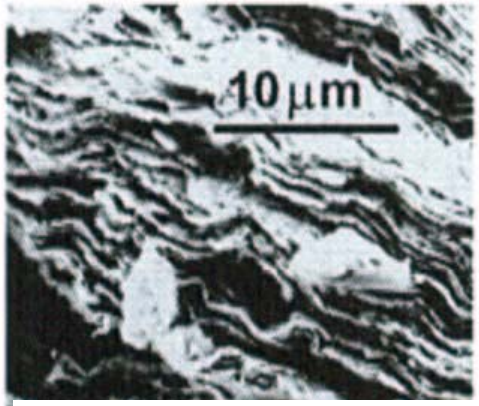
Today's Goals:

1. Introduction to a few fundamental soil properties

2. Highlight certain soil features that reflect problem soils

3. Introduction to soil survey and a few problem soils in your area

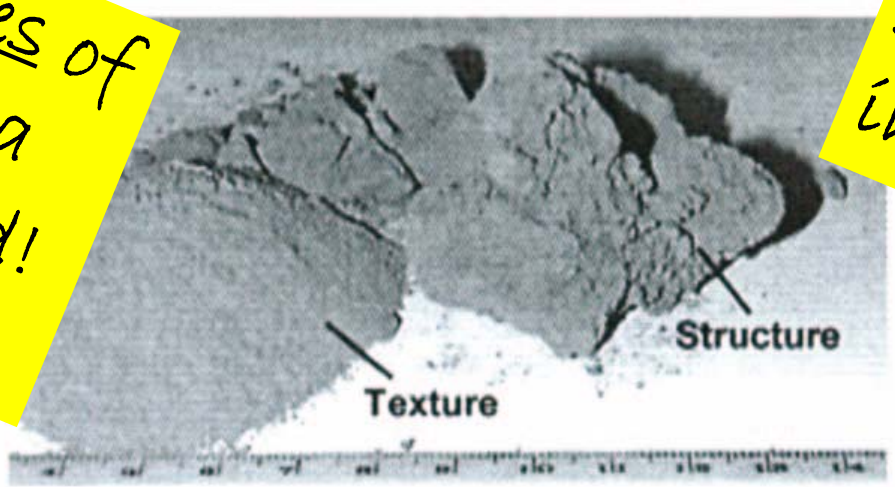
Soil Texture

Sand	Silt	Clay
		
2.0-0.05 mm	0.05-0.002 mm	<0.002 mm

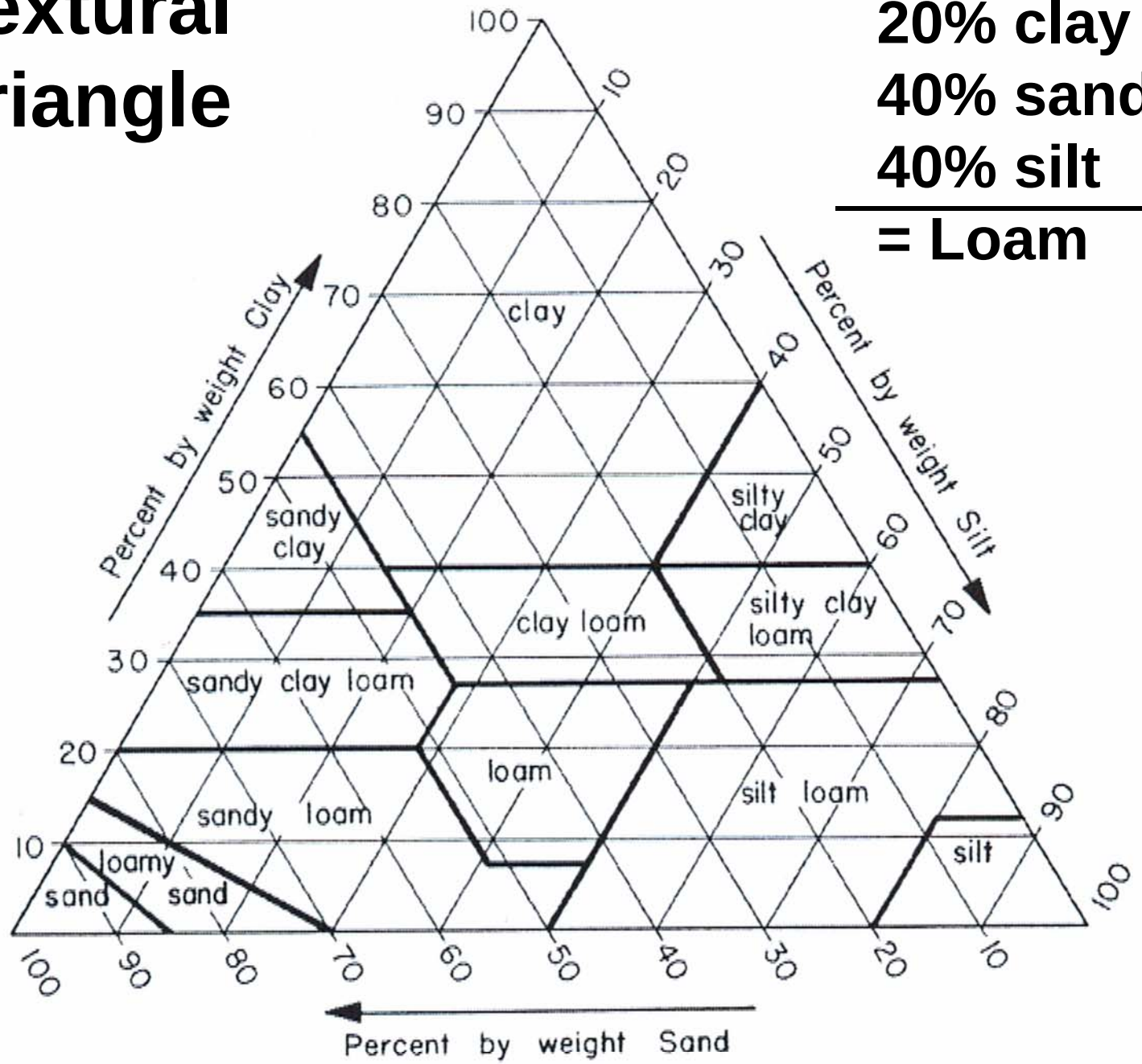
.0005 acres of surface area in 1 lb. sand!

90 acres of surface area in 1 lb. clay!

Yolo Silt Loam



Textural Triangle

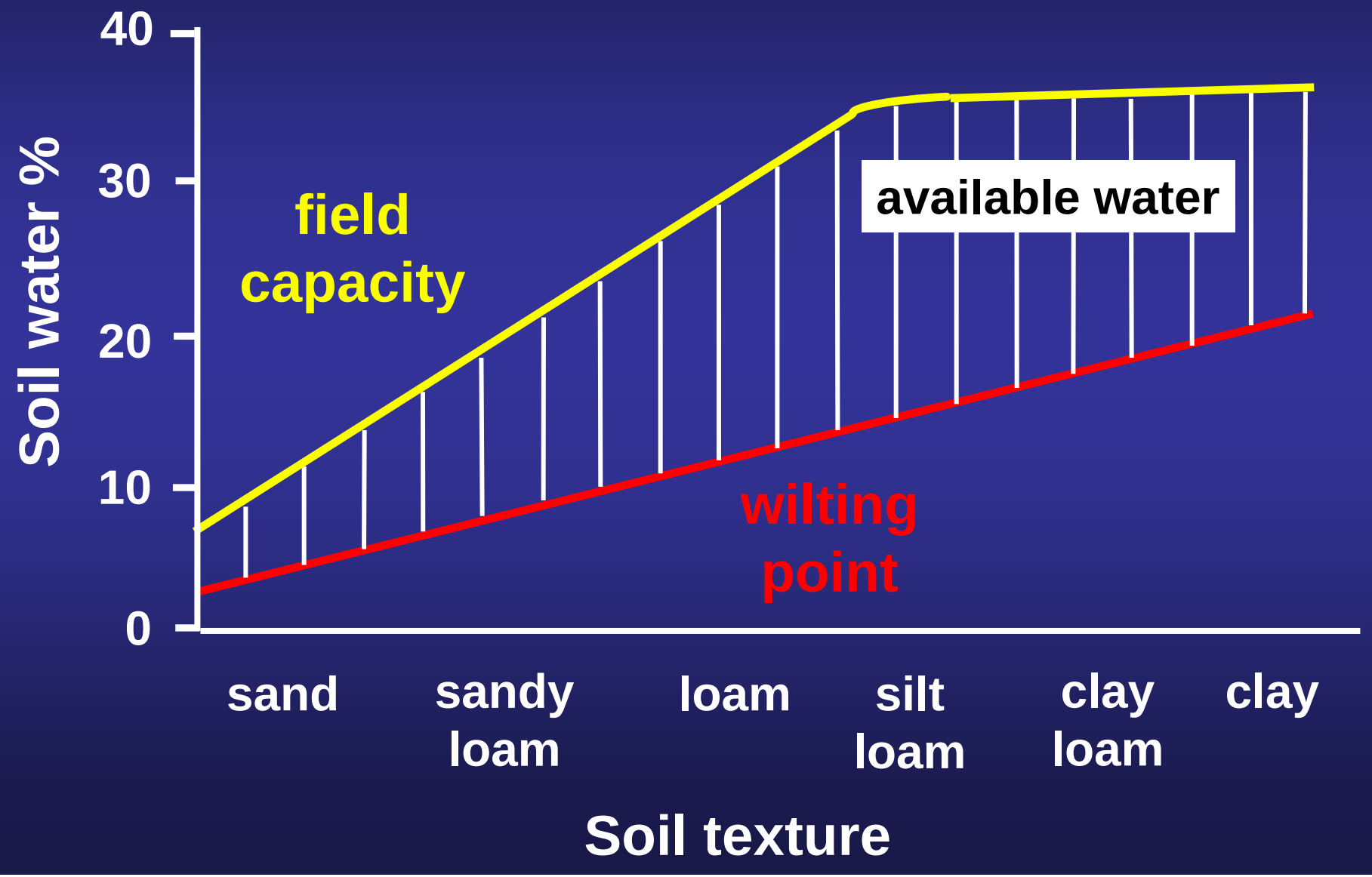


20% clay
40% sand
40% silt

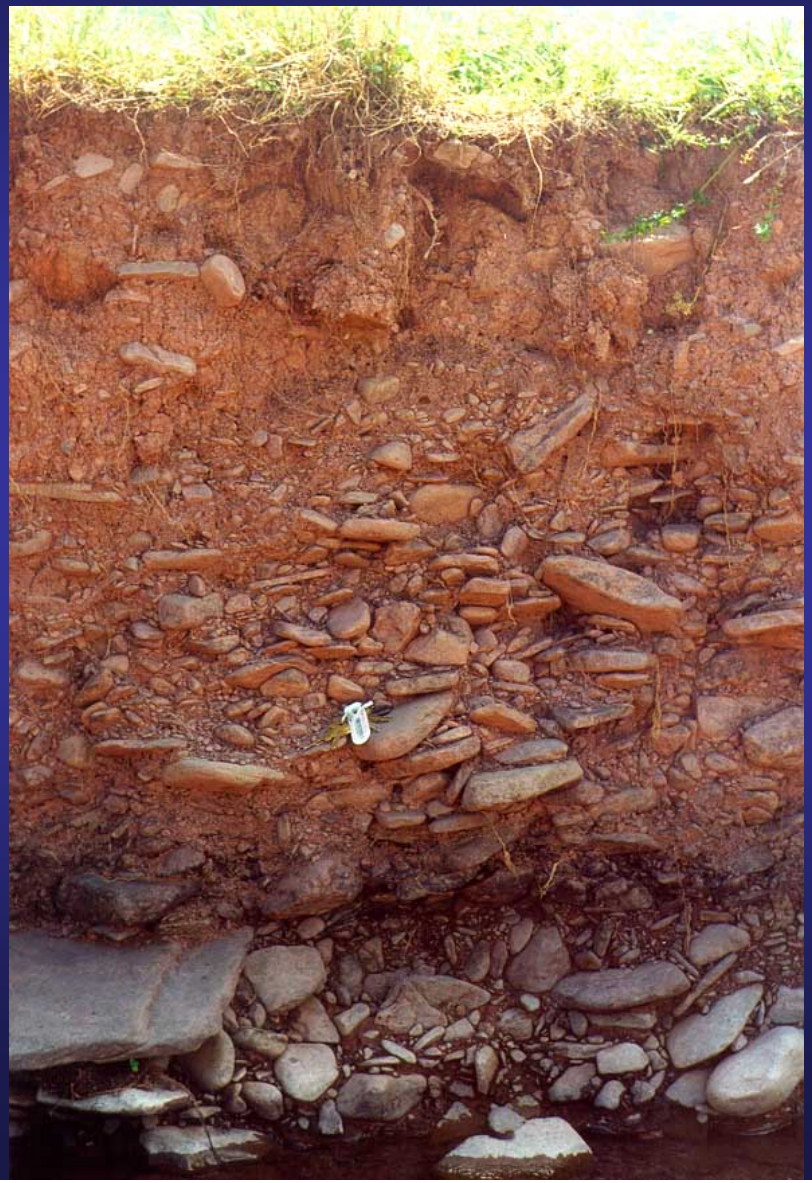
= Loam

Property/behavior	Sandy	loamy	Clayey
Water-holding capacity	Low	Med-high	High
Plant available water	Low	High	Medium
Root penetration	High	Medium	Low
Surface crusting	Low	High	Moderate
Aeration	Good	Medium	Poor
Drainage	Excessive	Slow-med.	Very slow
Warm-up in spring	Rapid	Moderate	Slow
Compactability	Low	Medium	High
Erodibility	Med-low	High	Low
Shrink-swell potential	Very low	Low	Mod-high
Pollutant leaching	High	Medium	Low
Nutrient storage	Poor	Med-high	High
Acidity buffer	Low	Medium	High

Plant available water is retained in the soil against the force of gravity yet readily accessible by plants



Rock Fragments Decrease Plant Available Water Holding Capacity

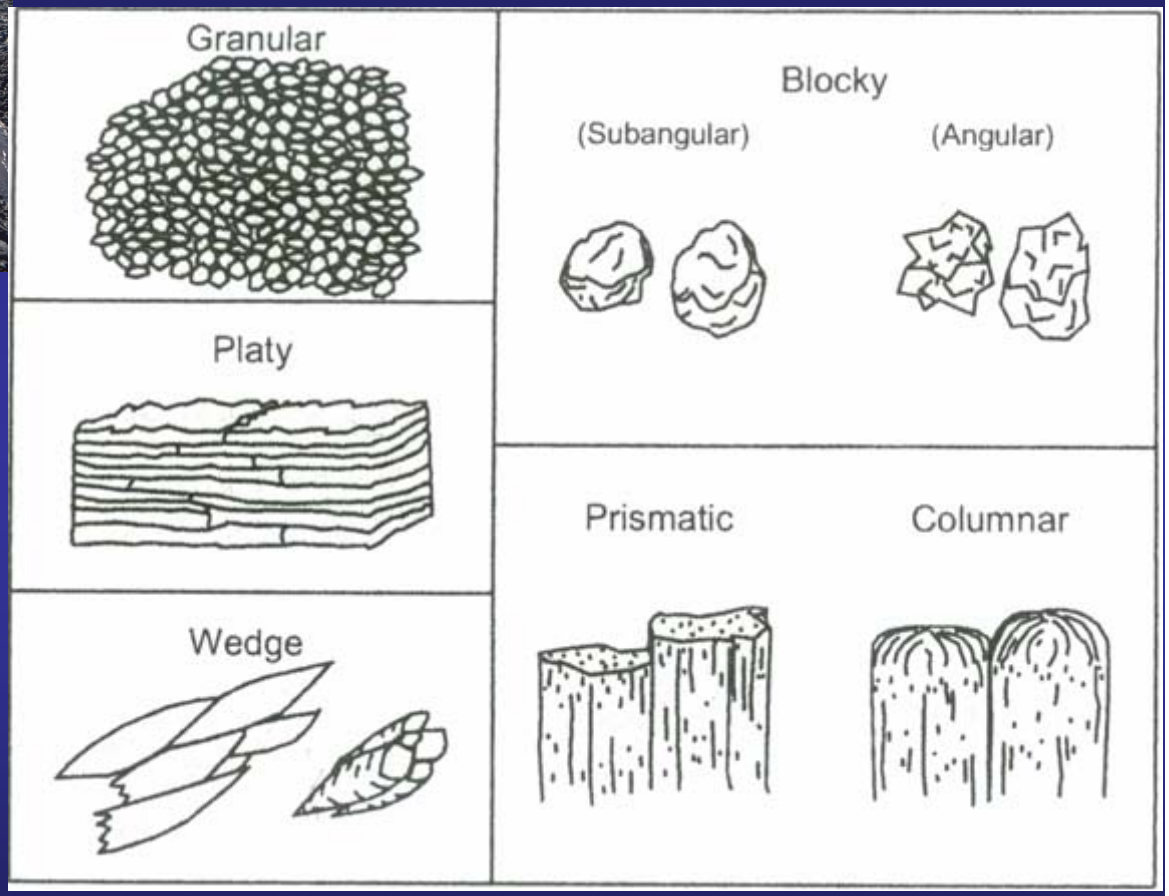


Rock fragments can't hold water and limit rooting depth when abundant

What else limits available water?

Rooting Volume
-soil depth
-effective rooting depth

Soil Structure



The aggregation of soil particles into larger units of identifiable shape

Strong Granular Structure:

Optimizes:
root penetration
drainage
aeration
seedling emergence
water availability

Coarse Prismatic Structure

Large aggregates that are extremely hard limit rooting volume

Platy Structure

Causes runoff, erosion, reduces infiltration and hinders seedling emergence

Surface plates can be avoided using mulch

Structure-less conditions “Massive”

Plow pans are compacted layers, a result of heavy and/or frequent traffic. Plow pans have low pore space, root penetration & water infiltration. Can result in poor drainage and increased runoff.

Effects of plow pans on root growth

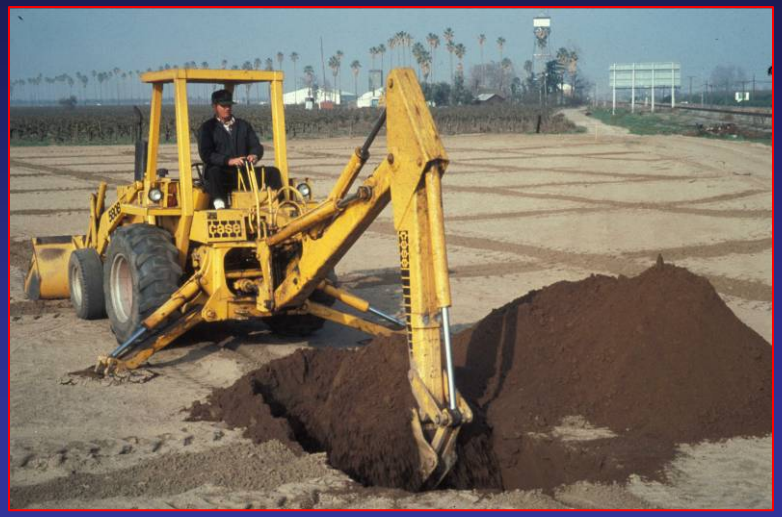
Limit traffic when soils are wet

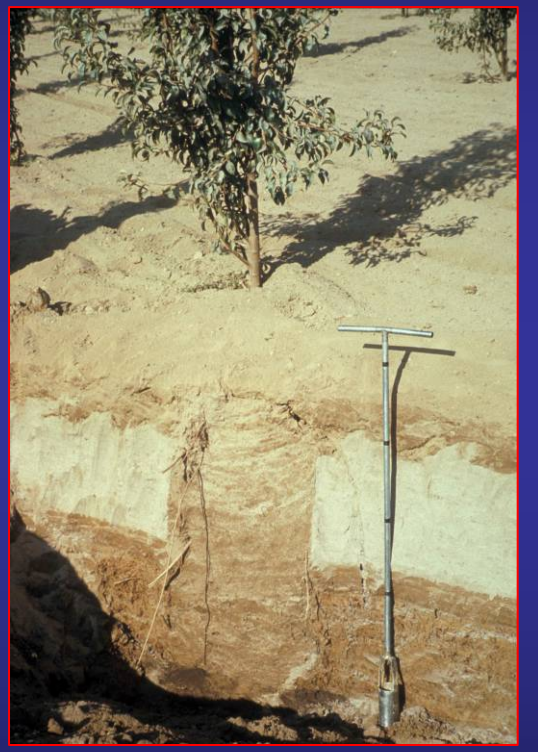
Effects of compaction on infiltration and water use efficiency

Claypans - have abrupt and large clay increase

Claypans require thorough mixing when soil is dry to optimize root penetration and drainage

Layered soil profiles-deposited by water





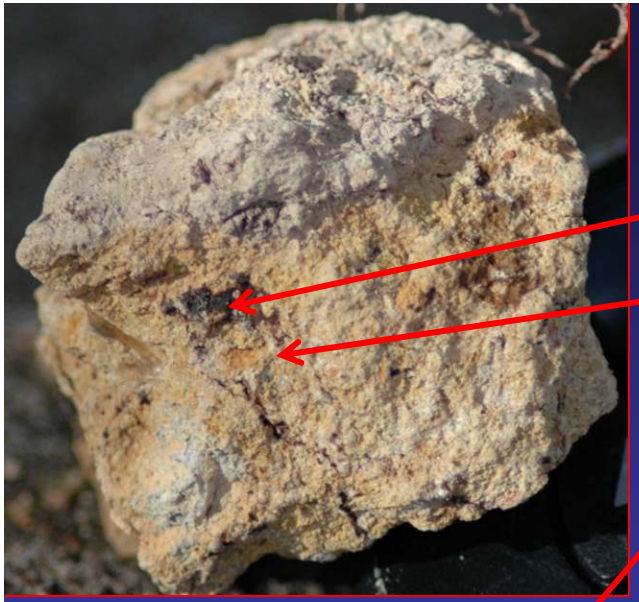
Layered soils can restrict water & roots even with slight differences in texture, hence require thorough mixing.

Color; Indicator of Drainage

Variegated color patterns of dull gray and bright orange called *redoximorphic features* are indicative of seasonal saturation.

Causes: perched water, high ground water table, poor soil structure, high clay content, hence poor aeration

Poor drainage; what to look for



Manganese coatings

Iron concentrations

Redox depletions in a high chroma matrix

Redox depletions

Comparison of compacted vs uncompacted soil

Shrink-Swell

Soil Series:
Clear Lake

Damages roots, foundations, fences, roads…

Soil Survey in Google Maps
http://casoilresource.lawr.ucdavis.edu/soilsurvey

California Soil Resource Lab

Home Links Online Soil Survey People Projects Software Site Map

SoilWeb: An Online Soil Survey Browser

- Accessing Soil Survey Data via Web-Services
- Dynamic Export of Soil Survey Data to KML through Soil-Web
- Initial SoilWeb Concept on Paper
- Major updates to CA, AZ, NV online soil survey system
- Migrating to Ka-Map! Online Soil Survey for AZ, CA and NV
- Planned Improvements in SoilWeb
- Saving Chunks of SSURGO Data in SoilWeb for Google Earth
- Soil Properties Visualized on a 1km Grid
- SoilWeb for the iPhone
- Streaming Soil Survey Data in Google Earth (updates)
- Three New Soils-Related KMZ Demos
- Updated SoilWeb for the iPhone + Alpha Android Version
- Updated SoilWeb Usage Statistics
- Updates to SoilWeb

Navigation

- blogs

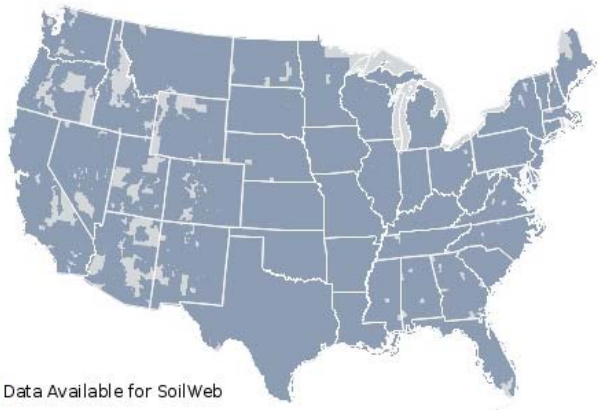
SoilWeb: An Online Soil Survey Browser

Submitted by dylan on Fri, 2010-02-26 16:13.

Our online soil survey can be used to access NRCS-NCSS 1:24,000 scale detailed soil survey data (SSURGO) in many parts of the lower 48 states. Where this data is not yet available, 1:250,000 scale generalized soils data (STATSGO) can be accessed instead (AZ, CA, NV only). An interactive map interface allows for panning and zooming, with highways, streets, and aerial photos to assist navigation (Figure 1). Soil polygons become visible near a scale of 1:30,000. Alternatively, a GPS point, CA Zip code, or a street address can be used to zoom in on a specific location. General usage notes and information on how our online soil survey work can be found here. Statistics on who is using our online soil survey can be found here. Technical details on SoilWeb can be found in this publication. Please note that we are currently transitioning to a new server, and planning to have our local copy of the SSURGO, STATSGO, and OSD databases updated in the coming months.

SSURGO Map Units

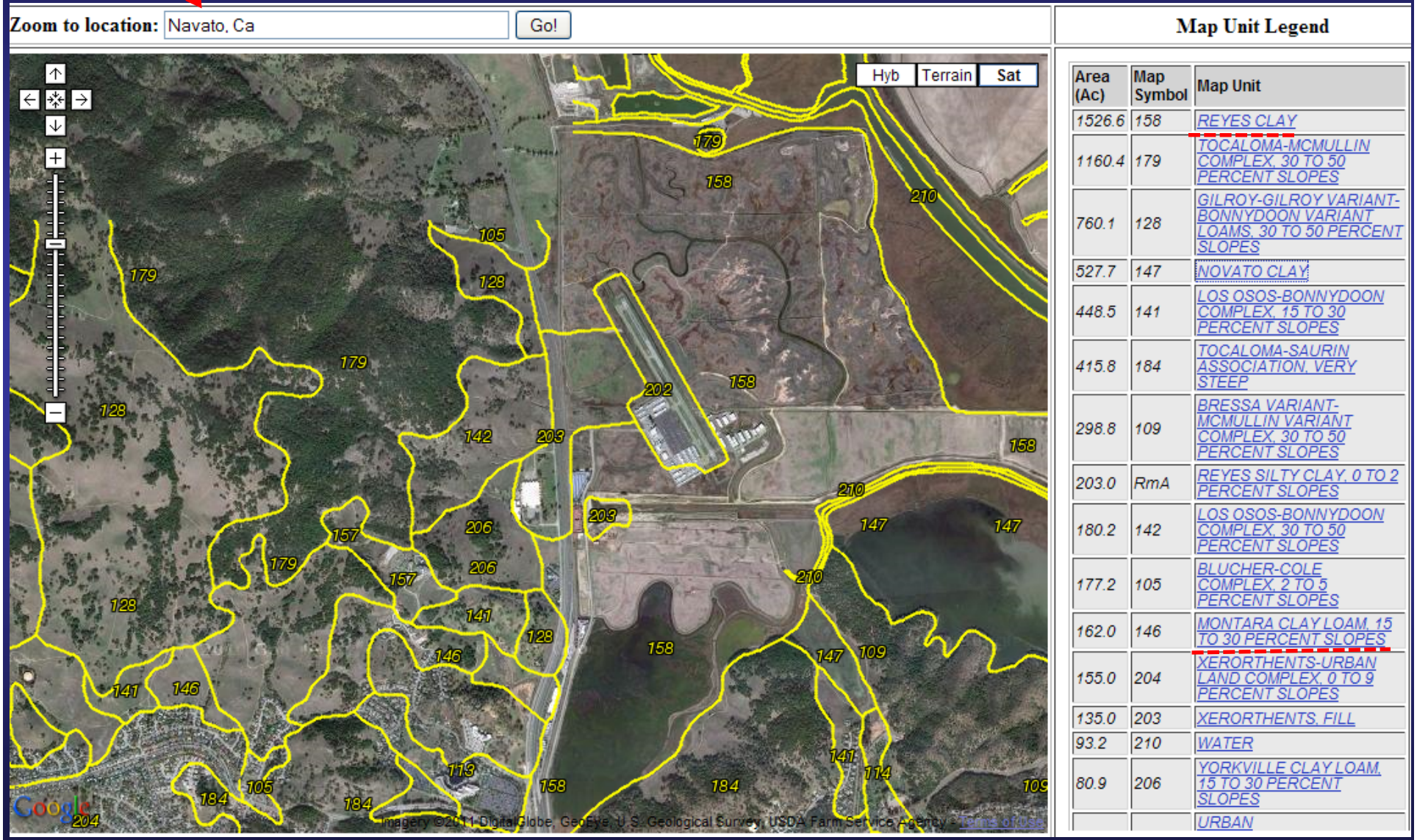
STATSGO Map Units



Select an Interface to SoilWeb

- An iPhone App for real-time, location-based soil queries! [details] [SSSA News Brief] [ANR News Article] [UCD Aggie Article]
- Similar App for AndroidOS smartphones
- Google Maps interface
- Google Earth Interface
- A Text-only interface to SSURGO

Enter city name, address, or GPS coordinates here

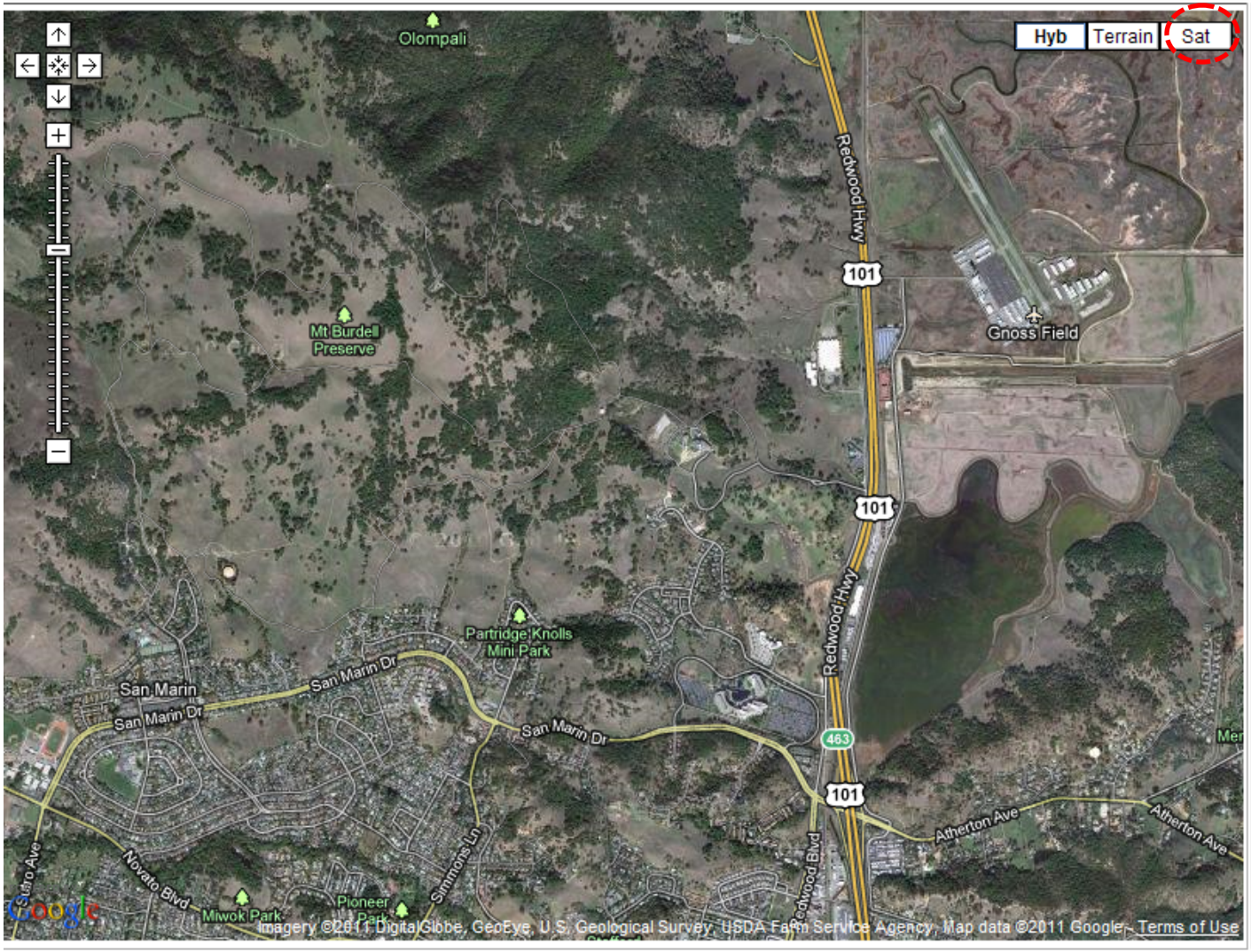


Map Unit Legend

Area (Ac)	Map Symbol	Map Unit
1526.6	158	REYES CLAY
1160.4	179	TOCALOMA-MCMULLIN COMPLEX, 30 TO 50 PERCENT SLOPES
760.1	128	GILROY-GILROY VARIANT-BONNYDOON VARIANT LOAMS, 30 TO 50 PERCENT SLOPES
527.7	147	NOVATO CLAY
448.5	141	LOS OSOS-BONNYDOON COMPLEX, 15 TO 30 PERCENT SLOPES
415.8	184	TOCALOMA-SAURIN ASSOCIATION, VERY STEEP
298.8	109	BRESSA VARIANT-MCMULLIN VARIANT COMPLEX, 30 TO 50 PERCENT SLOPES
203.0	RmA	REYES SILTY CLAY, 0 TO 2 PERCENT SLOPES
180.2	142	LOS OSOS-BONNYDOON COMPLEX, 30 TO 50 PERCENT SLOPES
177.2	105	BLUCHER-COLE COMPLEX, 2 TO 5 PERCENT SLOPES
162.0	146	MONTARA CLAY LOAM, 15 TO 30 PERCENT SLOPES
155.0	204	XERORTHENTS-URBAN LAND COMPLEX, 0 TO 9 PERCENT SLOPES
135.0	203	XERORTHENTS, FILL
93.2	210	WATER
80.9	206	YORKVILLE CLAY LOAM, 15 TO 30 PERCENT SLOPES
		URBAN

Toggle between views

Zoom to location: Navato, Ca Go!



Map Unit Legend

Area (Ac)	Map Symbol	Map Unit
1175.2	158	REYES CLAY
973.9	179	TOCALOMA-MCMULLIN COMPLEX, 30 TO 50 PERCENT SLOPES
903.6	184	TOCALOMA-SAURIN ASSOCIATION, VERY STEEP
765.1	128	GILROY-GILROY VARIANT-BONNYDOON VARIANT LOAMS, 30 TO 50 PERCENT SLOPES
455.1	204	XERORTHENTS-URBAN LAND COMPLEX, 0 TO 9 PERCENT SLOPES
421.1	142	LOS OSOS-BONNYDOON COMPLEX, 30 TO 50 PERCENT SLOPES
368.9	141	LOS OSOS-BONNYDOON COMPLEX, 15 TO 30 PERCENT SLOPES
234.8	201	URBAN LAND-BALLARD COMPLEX, 0 TO 9 PERCENT SLOPES
189.4	146	MONTARA CLAY LOAM, 15 TO 30 PERCENT SLOPES
143.1	164	SAURIN-BONNYDOON COMPLEX, 50 TO 75 PERCENT SLOPES
132.3	163	SAURIN-BONNYDOON COMPLEX, 30 TO 50 PERCENT SLOPES
120.4	203	XERORTHENTS, FILL
110.1	202	URBAN LAND-XERORTHENTS COMPLEX, 0 TO 9 PERCENT SLOPES
101.0	105	BLUCHER-COLE COMPLEX, 2 TO 5 PERCENT SLOPES

California Soil Resource Lab

Map Unit Composition

Map units consist of 1 or more soil types, commonly referred to as "components".

Component Name	Geomorphic Position	Area Fraction	Component Type	Horizon Data
Soil Type 1 **Montara**	hills / Backslope	85%	Major Soil Type	YES
Soil Type 2 **Yorkville**		2%	Inclusion	Similar Data [1] *
Soil Type 3 **Henneke**		2%	Inclusion	None
Soil Type 4 **Unnamed shallow**		2%	Inclusion	None
Soil Type 5 **Rock outcrop**		2%	Inclusion	None
Soil Type 6 **Unnamed stony**		2%	Inclusion	None

*Note: links to horizon data marked with an * are approximate.*

Map Unit Data *What is a Map Unit?*

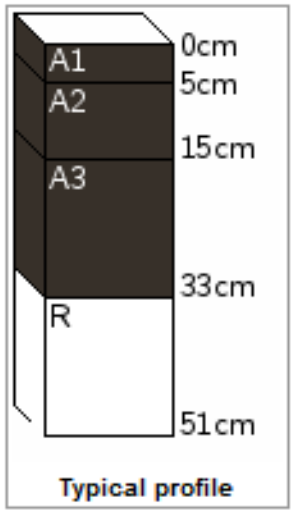
Cartographic information about this map unit.

Map Unit Name:	MONTARA CLAY LOAM, 15 TO 30 PERCENT SLOPES
Map Unit Type:	Consociation
Map Unit Symbol:	146
Map Unit Acres:	205 acres total in survey area
Raw Map Unit Data	
Raw Component Data (All Components)	

Map Unit Aggregated Data

Generalized soils information within this map unit.

Farmland Class:	Not prime farmland
Available Water Storage (0-100cm):	5.61 cm
Max Flood Freq:	None
Drainage Class (Dominant Condition):	Well drained
Drainage Class (Wettest Component):	Well drained
Hydric Conditions:	Not hydric
[Annual] Min. Water Table Depth:	n/a



Newer surveys call it magnesic

Soil Taxonomy

Order:	*Mollisols*
Suborder:	*Xerolls* *[Map of Suborders]*
Greatgroup:	*Haploxerolls*
Subgroup:	*Lithic Haploxerolls*
Family:	*Loamy, serpentinitic, thermic Lithic Haploxerolls*
Soil Series:	*Montara* *(Link to OSD)* *(Link to SM Tool)*
Data:	*[Lab Data]* *[Nitrate Groundwater Pollution Hazard Index]*
Raw Data	*Component* *All Horizons*

Land Classification

Storie Index	*26*
Land Capability Class **[non-irrigated]**	*6-e*
Land Capability Class **[irrigated]**	*6-e*
Ecological Site Description	*SHALLOW FINE LOAMY SERPENTINE*
Forage Suitability Group	

Soil Suitability Ratings

Waste Related	*Engineering*
Urban/Recreational	*Irrigation*
Wildlife	*Runoff*

Hydraulic and Erosion Ratings

Wind Erodibility Group	*6*
Wind Erodibility Index	*48*
T Erosion Factor	*1*
Runoff	*Very high*
Drainage	*Well drained*
Hydric Rating / Hydrologic Group	*No [Group D]*
Parent Material:	*residuum weathered from serpentinite*
Total Plant Available Water (cm):	*5.61*

Soils derived from serpentinite have fertility problems and possibly metal toxicity

Official Series Description

MONTARA SERIES

The Montara series consists of shallow well drained soils that formed in material weathered from serpentinitic rocks. Montara soils are on uplands and ridge tops and have slopes of 5 to 75 percent. The mean annual precipitation is about 28 inches and the mean annual air temperature is about 60 degrees F.

TAXONOMIC CLASS: Loamy, magnesic, thermic Lithic Haploxerolls

TYPICAL PEDON: Montara clay loam - annual grasses and forbs. (Colors are for dry soil unless otherwise stated.)

A1--0 to 2 inches; dark gray (10YR 4/1) clay loam, black (10YR 2/1) moist; moderate fine and medium granular structure; hard, friable, sticky and plastic; few fine roots; many fine and very fine pores; common small serpentine fragments; moderately alkaline (pH 8.0); clear wavy boundary (0 to 2 inches thick)

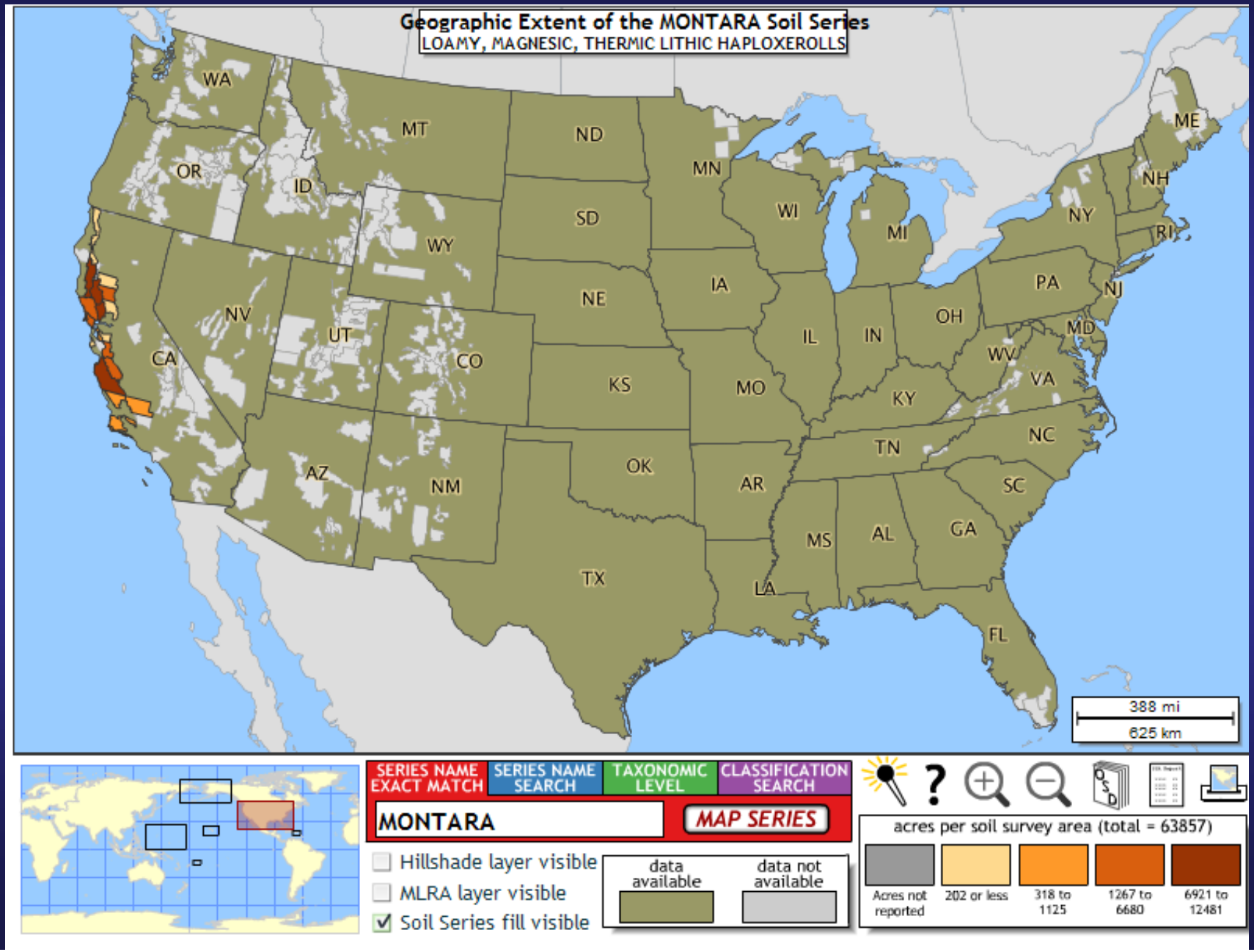
A2--2 to 6 inches; very dark gray (10YR 3/1) clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; hard, very friable, sticky and plastic; common very fine roots; many very fine and fine pores; few krotovina; many small and medium stone fragments; moderately alkaline (pH 8.0); clear wavy boundary. (4 to 10 inches thick)

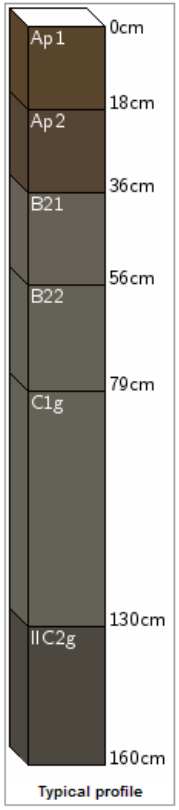
A3--6 to 13 inches; very dark gray (10YR 3/1) clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; few very fine roots; common fine and very fine pores; many small and medium sized fragments of serpentine; moderately alkaline (pH 8.0); abrupt irregular boundary. (4 to 8 inches thick)

R--13 to 20 inches; greenish gray (5BG 5/1) serpentine.

TYPE LOCATION: Santa Clara County, California; Edenvale Hills near Morgan Hill; 1/2 mile north of Pigeon Point on a private farm road to the O'Connel Ranch, T. 8 S., R. 3 E.

Soil Extent Mapping Tool





Soil Taxonomy

Order:	*Entisols*
Suborder:	*Aquents* *[Map of Suborders]*
Greatgroup:	*Fluvaquents*
Subgroup:	*Sulfic Fluvaquents*
Family:	*Fine, mixed, acid, thermic Sulfic Fluvaquents*
Soil Series:	*Reyes* *(Link to OSD)* *(Link to SM Tool)*
Data:	*[Lab Data]* *[Nitrate Groundwater Pollution Hazard Index]*
Raw Data	*Component* *All Horizons*

Land Classification

Storie Index	*41*
Land Capability Class **[non-irrigated]**	*4-w9*
Land Capability Class **[irrigated]**	*4-w9*
Ecological Site Description	*ACID SUBIRRIGATED*
Forage Suitability Group	

Soil Suitability Ratings

Waste Related	*Engineering*
Urban/Recreational	*Irrigation*
Wildlife	*Runoff*

Hydraulic and Erosion Ratings

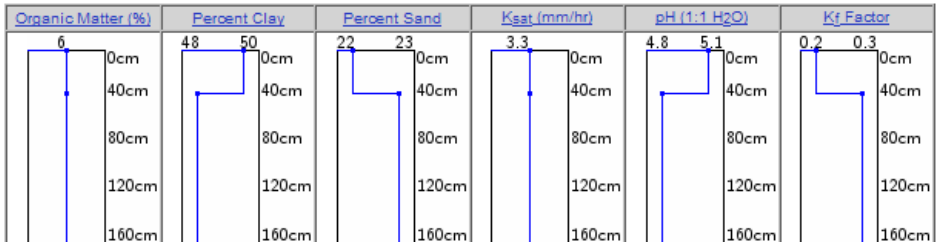
Wind Erodibility Group	*4*
Wind Erodibility Index	*86*
T Erosion Factor	*5*
Runoff	*Medium*
Drainage	*Somewhat poorly drained*
Hydric Rating / Hydrologic Group	*Yes (Neither wooded nor farmable under natural conditions)* *[Group D]*
Parent Material:	*alluvium derived from igneous, metamorphic and sedimentary rock*
Total Plant Available Water (cm):	*8.56*

Geomorphology

Landform	*tidal marshes* *[Backslope]*	
Landscape	*esturaries*	

Plants

Symbol	Scientific Name	Common Name	Range Prod.
ATSE	*Atriplex semibaccata*	*Australian saltbush*	*70*
BAPI	*Baccharis pilularis*	*coyotebrush*	*15*
DISTI	*Distichlis*	*saltgrass*	*15*



Reyes Series
Clues for problems:
Acid thermic Sulfic fluvaquent

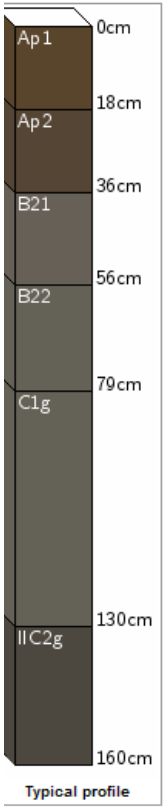
Land-use interpretations

Hydraulic properties
Pale grey colors, drainage class, hydrologic group

Soil property depth profiles

Land Use Interpretations

Urban / Recreational		
URB/REC - Lawn, Landscape, Golf Fairway (CA)	**Limitations**	
	1. Saturation < 12 depth	*(Wetness - either, 30 to 60cm - MO2)*
	2. Clay in surface >= 40%	*(Clay %, in surface, crisp - MO2)*
	3. AWC 2-4 to 40	*(AWC 2-4 in 0-100cm - MO2)*
	4. Surface EC 6 to 8 mmhos/cm	*(Salinity, surface (4-8 mmhos/cm) - MO2)*
URB/REC - Playgrounds (CA)	**Limitations**	
	1. Saturation < 18 depth	*(Wetness - either, 45 to 75cm - MO2)*
	2. Surface clay >= 40%	*(Clay %, in surface - MO2)*
	3. Permeability is .06-.6/hr	*(Perm (slow perc) w/ tax modifier (.4-4 um/sec) to 40)*
	5. Surface EC 4-8 mmhos/cm	*(Salinity, surface (>8 mmhos/cm)-MO2)*
URB/REC - Picnic Areas (CA)	**Limitations**	
	1. Saturation < 12 depth	*(Wetness - either, 30 to 75cm - MO2)*
	2. Surface clay >= 40%	*(Clay %, in surface - MO2)*
	3. Permeability is .06-.6/hr	*(Perm (slow perc) w/ tax modifier (.4-4 um/sec) to 40)*
	5. Surface EC 4-8 mmhos/cm	*(Salinity, surface (>8 mmhos/cm)-MO2)*
URB/REC - Camp Areas (CA)	**Limitations**	
	1. Saturation < 18 depth	*(Wetness - either, 45 to 75cm - MO2)*
	2. Flooding >= rare	*(Flooding, >=Rare =Severe - MO2)*
	3. Surface clay >= 40%	*(Clay %, in surface - MO2)*
	4. Permeability is .06-.6/hr	*(Perm (slow perc) w/ tax modifier (.4-4 um/sec) to 40)*
	6. Surface EC 6 to 8 mmhos/cm	*(Salinity, surface (4-8 mmhos/cm) - MO2)*
URB/REC - Off-Road Motorcycle Trails (CA)	**Limitations**	
	1. Saturation < 12 depth	*(Wetness - either, 30 to 60cm - MO2)*
	2. Surface clay >= 40%	*(Clay %, in surface - MO2)*
URB/REC - Paths and Trails (CA)	**Limitations**	
	1. Saturation < 12 depth	*(Wetness - either, 30 to 60cm - MO2)*
	2. Surface clay >= 40%	*(Clay %, in surface - MO2)*
Irrigation		
WMS - Excavated Ponds (Aquifer-fed)	**Very limited**	
	1. Salinity and saturated zone	*(Salinity EC > 4 and Apparent Water Table)*
	2. Slow refill	*(Percolation Rate (Layers Within an Apparent Water*
	3. Cutbanks cave	*(Cutbank Caving and Apparent Water Table)*
WMS - Pond Reservoir Area (CA)	**No limitations**	
WMS - Furrow Irrigation (CA)	**Limitations**	
	1. Saturation < 24 depth during growing season	*(Wetness - either, growing season, 60-90cm - MO2)*
	2. EC > 8 dS/m	*(Salinity, EC 4-8, fuzzy, to 100cm - MO2)*
	3. AWC < 2 to 40	*(AWC 4-6 in 0-100cm - MO2)*
	4. Permeability <=.2/hr AND not smectitic mineralogy	*(Perm (slow perc) surface and smectitic - MO2)*
WMS - Graded Border Irrigation (CA)	**Limitations**	



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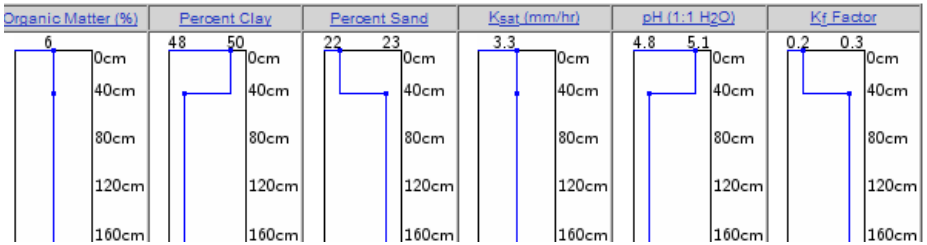


Clues for Problems:

Acid thermic Sulfic fluvaquent

Soil Suitability ratings

Hydraulic properties

Pale grey colors

Soil property depth profiles

Links to Definitions

618.35 Hydrologic Group

A. Definition

1. The complete definition and official criteria for hydrologic soil groups are available online at (Title 210, National Engineering Handbook, Part 630, Chapter 7, "Hydrologic Soil Groups").

2. "Hydrologic group" is a group of soils having similar runoff potential under similar storm and cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently.

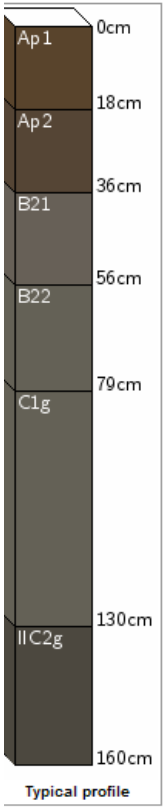
B. Classes.—The soils in the United States are placed into four groups, A, B, C, and D, and three dual classes, A/D, B/D, and C/D.

C. Significance.—Hydrologic groups are used in equations that estimate runoff from rainfall. These estimates are needed for solving hydrologic problems that arise in planning watershed-protection and flood-prevention projects and for planning or designing structures for the use, control, and disposal of water.

D. Measurements.—The original classifications assigned to soils were based on the use of rainfall-runoff data from small watersheds and infiltrometer plots. From these data, relationships between soil properties and hydrologic groups were established.

E. Estimates.— Assignment of soils to hydrologic groups is based on the relationship between soil properties and hydrologic groups. Wetness characteristics, water transmission after prolonged wetting, and depth to very slowly permeable layers are properties used in estimating hydrologic groups.

F. Entries.—Enter the soil hydrologic group, such as A, B, C, D, A/D, B/D, or C/D.



Soil Taxonomy

Order:	*Entisols*
Suborder:	*Aquents* *[Map of Suborders]*
Greatgroup:	*Fluvaquents*
Subgroup:	*Sulfic Fluvaquents*
Family:	*Fine, mixed, acid, thermic Sulfic Fluvaquents*
Soil Series:	*Reyes* *(Link to OSD)* *(Link to SM Tool)*
Data:	*[Lab Data]* *[Nitrate Groundwater Pollution Hazard Index]*
Raw Data	*Component* *All Horizons*

Land Classification

Storie Index	*41*
Land Capability Class **[non-irrigated]**	*4-w9*
Land Capability Class **[irrigated]**	*4-w9*
Ecological Site Description	*ACID SUBIRRIGATED*
Forage Suitability Group	

Soil Suitability Ratings

Waste Related	*Engineering*
Urban/Recreational	*Irrigation*
Wildlife	*Runoff*

Hydraulic and Erosion Ratings

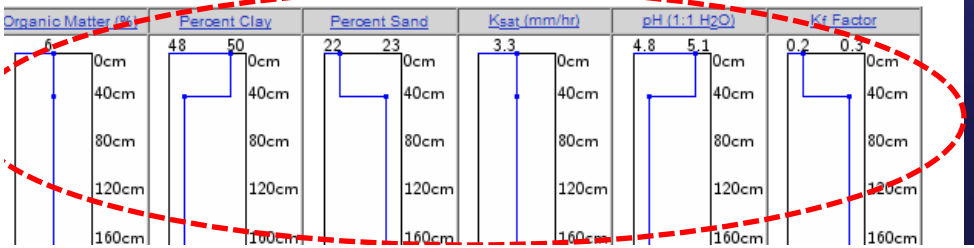
Wind Erodibility Group	*4*
Wind Erodibility Index	*86*
T Erosion Factor	*5*
Runoff	*Medium*
Drainage	*Somewhat poorly drained*
Hydric Rating / Hydrologic Group	*Yes (Neither wooded nor farmable under natural conditions)* *[Group D]*
Parent Material:	*alluvium derived from igneous, metamorphic and sedimentary rock*
Total Plant Available Water (cm):	*8.56*

Geomorphology

Landform	*tidal marshes* *[Backslope]*	
Landscape	*esturaries*	

Plants

Symbol	Scientific Name	Common Name	Range Prod.
ATSE	*Atriplex semibaccata*	*Australian saltbush*	*70*
BAPI	*Baccharis pilularis*	*coyotebrush*	*15*
DISTI	*Distichlis*	*saltgrass*	*15*



Clues for problems:

Acid thermic Sulfic fluvaquent

Soil Suitability ratings

Hydraulic properties
Pale grey colors

Soil property depth profiles

Soil Property Depth Profiles

Note the extremely low pH (acidic), high clay%, high EC and high LEP

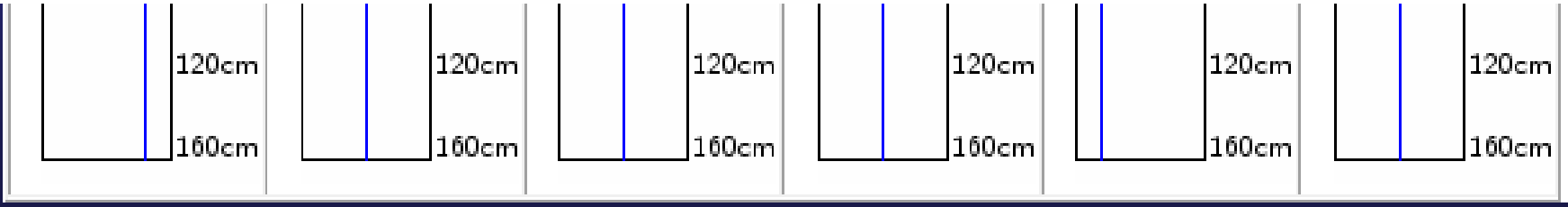
Organic Matter (%)	Percent Clay	Percent Sand	K_{sat} (mm/hr)	pH (1:1 H_2O)	K_f Factor
6	48 50	22 23	3.3	4.8 5.1	0.2 0.3

618.37 Linear Extensibility Percent

A. Definition.—"Linear extensibility percent" is the linear expression of the volume difference of natural soil fabric at 1/3-bar or 1/10-bar water content and oven dryness. The volume change is reported as percent change for the whole soil.

Depth Range (cm)	Horizon Designation	Percent Clay	Percent Sand	Percent Organic Matter	pH by water Extraction	Sat. Hydraulic Conductivity (mm/hr)	EC (dS/m)	SAR (%)	Carbonates (% of < 2 mm)	Gypsum (% of < 20 mm)	CEC at pH 7 (cmol charge / kg soil)	K Factor	LEP
0 - 36	*H1*	*50*	*22.1*	*6*	*5.1*	*3.276*	*6*	*0*	*0*	*0*	*40*	*.20*	*7.5*
36 - 160	*H2*	*47.5*	*23.3*	*6*	*4.8*	*3.276*	*16*	*0*	*0*	*0*	*38*	*.32*	*7.5*

C. Significance.—If the shrink-swell potential is rated moderate to very high, shrinking and swelling can damage buildings, roads, and other structures. The high degree of shrinkage associated with high and very high shrink-swell potentials can damage plant roots.



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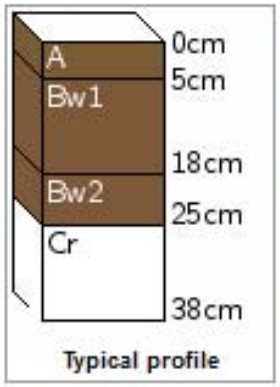

Typical profile

Soil Taxonomy

Order:	*Inceptisols*
Suborder:	*Ochrepts* *[Map of Suborders]*
Greatgroup:	*Xerochrepts*
Subgroup:	*Dystric Lithic Xerochrepts*
Family:	*Loamy, mixed, mesic Dystric Lithic Xerochrepts*
Soil Series:	*Maymen* *(Link to OSD)* *(Link to SM Tool)*
Data:	*[Lab Data]* *[Nitrate Groundwater Pollution Hazard Index]*
Raw Data	*Component* *All Horizons*

Land Classification

Storie Index	8
Land Capability Class [non-irrigated]	7-e
Land Capability Class [irrigated]	7-e
Ecological Site Description	STEEP SHALLOW COARSE LOAMY
Forage Suitability Group	

Soil Suitability Ratings

Waste Related	*Engineering*
Urban/Recreational	*Irrigation*
Wildlife	*Runoff*

Hydraulic and Erosion Ratings

Wind Erodibility Group	6
Wind Erodibility Index	48
T Erosion Factor	1
Runoff	*High*
Drainage	*Somewhat excessively drained*
Hydric Rating / Hydrologic Group	*No [Group D]*
Parent Material:	*residuum weathered from sandstone and shale*
Total Plant Available Water (cm):	3.3

Maymen Series:

Shallow to bedrock (R or Cr)

Very low Storie Index

low plant available water

Smartphone App: SoilWeb

Available for free download at the android market place or iphone app store

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http://casoilresource.lawr.ucdavis.edu/soilsurvey