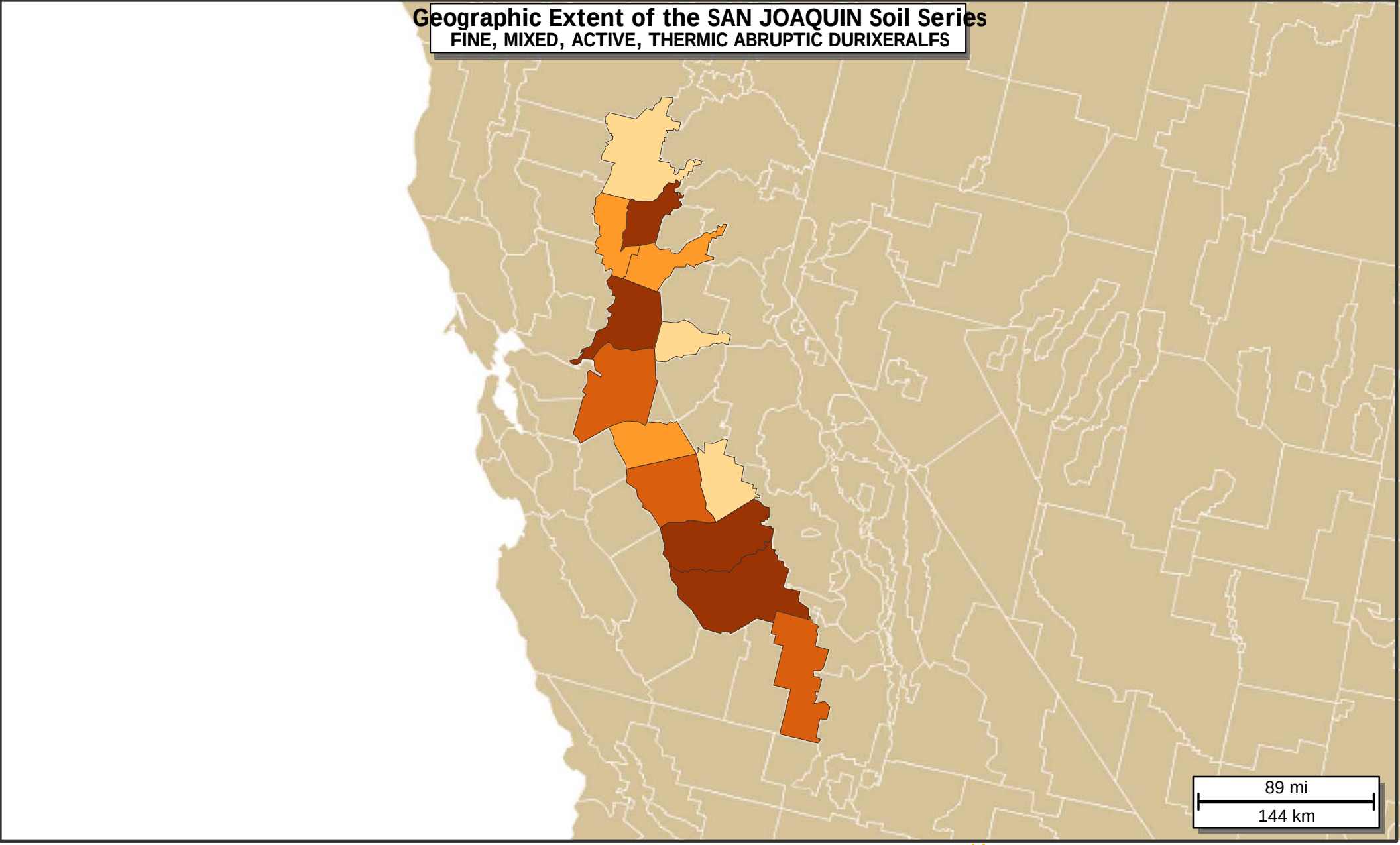
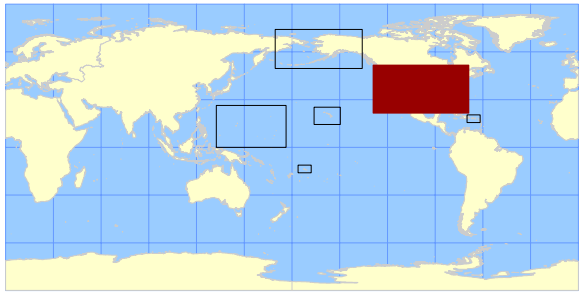
Geographic Extent of the SAN JOAQUIN Soil Series

FINE, MIXED, ACTIVE, THERMIC ABRUPTIC DURIXERALFS





enter soil series name and click "map series"

SAN JOAQUIN

MAP SERIES

- [x] Hillshade layer visible
- [ ] MLRA layer visible
- [x] Soil Series fill visible

acres per soil survey area

No Data	1 to 100	11765 to 19351	20656 to 42533	48826 to 116945

LOCATION SAN JOAQUIN CA

Established Series
Rev. MAM-JHR-DJE-CEJ-CAF
09/1999

SAN JOAQUIN SERIES

The San Joaquin series consists of moderately deep to a duripan, well and moderately well drained soils that formed in alluvium derived from mixed but dominantly granitic rock sources. They are on undulating low terraces with slopes of 0 to 9 percent. The mean annual precipitation is about 15 inches and the mean annual temperature is about 61 degrees F.

TAXONOMIC CLASS: Fine, mixed, active, thermic Abruptic Durixeralfs

TYPICAL PEDON: San Joaquin loam - on east facing complex slope of 1 percent in a vineyard at elevation of 40 feet. (Colors are for dry soil unless otherwise stated. When described on May 3, 1983, the soil was moist throughout).

Ap--0 to 6 inches; brown (7.5YR 5/4) loam, dark brown (7.5YR 3/4) moist; moderate medium and fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular and interstitial and few fine tubular pores; few fine very dark gray (10YR 3/1) Fe-Mn concretions and stains; neutral (pH 7.3); clear wavy boundary. (5 to 15 inches thick)

Bt1--6 to 10 inches; brown (7.5YR 5/4) loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular and common very fine interstitial pores; few thin clay films on ped faces and bridging mineral grains; few fine very dark gray (10YR 3/1) Fe-Mn concretions and stains; moderately acid (pH 5.7); clear wavy boundary. (0 to 8 inches thick)

Bt2--10 to 16 inches; brown (7.5YR 5/4) loam, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; very hard, friable, sticky and plastic; many very fine and few fine tubular and common very fine interstitial pores; few thin clay films on ped faces, common thin clay film bridging mineral grains; common light gray (10YR 7/2) fine sand or silt grains on ped faces and lining pores; few fine very dark gray (10YR 3/1) Fe-Mn concretions; moderately acid (pH 5.9); abrupt wavy boundary. (0 to 12 inches thick)

2Bt3--16 to 21 inches; brown (7.5YR 5/4) clay; strong brown (7.5YR 4/6) moist; moderate medium prismatic structure; extremely hard, firm, sticky and very plastic; few very fine, fine and medium roots; common very fine tubular and few very fine interstitial pores; common moderately thick clay films on ped faces, many thin clay films bridging mineral grains; common slickensides that do not intersect; about 3 percent fine very dark gray diameter Fe-Mn concretions; neutral (pH 7.0); gradual wavy boundary. (4 to 10 inches thick)

2Bt4--21 to 26 inches; brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) moist; moderate medium prismatic structure; extremely hard, firm, sticky and plastic; few very fine, fine and medium roots; common very fine tubular and few very fine interstitial pores; common moderately thick clay films on ped faces and common thin clay films as bridges between mineral grains; about 3 percent very dark gray

(10YR 3/1) Fe-Mn concretions and stains; neutral (pH 7.3); abrupt wavy boundary. (3 to 5 inches thick)

2Bqm1--26 to 29 inches; variegated brown (7.5YR 5/4) and light brown (7.5YR 6/4) indurated duripan, brown (7.5YR 4/4) moist; extremely hard and brittle; silica and sesquioxide cementation in more than 90 percent of the matrix; few fine Fe-Mn concretions; strongly effervescent with secondary lime in fractures; common very fine close tubular pores; moderately alkaline (pH 8.0); gradual smooth boundary. (1 to 10 inches thick)

2Bqm2--29 to 48 inches; variegated brown (7.5YR 5/4) and strong brown (7.5YR 4/6) duripan, dark brown (7.5YR 3/4) moist; extremely hard and brittle; silica and sesquioxide cementation in more than 90 percent of the matrix; common fine Fe-Mn concretions and stains; strongly effervescent with segregated lime in fractures; common very fine closed tubular pores; moderately alkaline (pH 8.0); clear wavy boundary. (1 to 25 inches thick)

2Bq--48 to 60 inches; brown (7.5YR 5/4) duripan, dark brown (7.5YR 3/4) moist; extremely hard and brittle; silica and sesquioxide cementation in 70 to 90 percent of matrix; common fine Fe-Mn concretions; many very fine interstitial pores; moderately alkaline (pH 8.0).

TYPE LOCATION: San Joaquin County, California; about 5 miles northeast of Lodi, 3,700 feet west of intersection of Southern Pacific Railroad and Forest Lake Road; 1,100 feet south of Forest Lake Road and about 100 feet west into vineyard; 1,700 feet north and 2,600 feet east of the southwest corner of sec. 3, T. 4 N., R. 6 E., MDB&M.; Lodi North quadrangle.

RANGE IN CHARACTERISTICS: Depth to the duripan ranges from 20 to 40 inches. The mean annual soil temperature varies from 60 degrees to 64 degrees F and the soil temperature is not below 47 degrees F at any time. The soil, at depths of about 7 to 24 inches or directly above the duripan, is dry in all parts from June to November and is moist in some or all parts the rest of the year. Clay increases by more than 15 percent absolute.

The Ap or A horizon has colors of 7.5YR 4/4, 5/2, 5/4, 5/6, 6/2, 6/4, 6/6, 7/6, 7/8; 5YR 4/3, 4/4, 4/6, 5/3, 5/4, 5/6, 5/8; 10YR 4/3, 5/3, 5/4, 6/3 or 6/4. Moist colors are 1 or 2 units darker in value. It is sandy loam, silt loam, fine sandy loam or loam. Reaction is moderately acid or slightly acid, but may be neutral where liming has taken place. Base saturation is greater than 75 percent.

The Bt horizon when present has colors of 7.5YR 5/4, 5/6, 6/6 and 5YR 5/6. Moist colors are 7.5YR 4/4; 5YR 4/4. Textures are sandy clay loam, loam or silt loam. It is moderately acid to neutral.

The 2Bt horizon has colors of 7.5YR 6/6, 6/4, 5/6, 5/4, 5/2, 4/6, 4/4; 5YR 5/8, 5/6, 4/6, 5/4, 4/4, 3/4, 4/3, 3/3; 2.5YR 5/4, 4/8, 4/6, 4/4 or 3/4. Moist colors are 1 or 2 units of value darker. It is clay loam or clay but average clay content is 35 to 50 percent. It is slightly acid to slightly alkaline.

There is an abrupt boundary at or within the upper part of the argillic horizon with an absolute clay increase of at least 15 percent.

The duripan has colors of 10YR 7/3, 6/4, 5/6, 5/4; 7.5YR 7/2, 6/4, 5/6, 5/4, 5/2, 4/6, 4/4, 4/2; 5YR 3/3, 4/3, 4/4, 5/6 or 5/8 and is usually variegated. It is cemented with iron and or silica becoming less indurated with depth. Segregated carbonates do not line fractures in some pedons.

COMPETING SERIES: These are the Yuvas and Redding series. Redding soils have base saturation of 35 to 75 percent in the A and Bt horizon and are gravelly or cobbly in the control section. Yuvas soils

have a paralithic contact at 21 to 40 inches.

GEOGRAPHIC SETTING: San Joaquin soils are on hummocky, nearly level to undulating terraces at elevations of about 20 to 500 feet. Some areas have been leveled. Slopes range from 0 to 9 percent. They formed in alluvium from mixed but mainly granitic rock sources. The climate is dry with hot dry summers and cool moist and foggy winters. Mean annual precipitation varies from 10 to 22 inches. Average January temperature is 45 degrees F; average July temperature is 80 degrees F; mean annual temperature is 60 to 63 degrees F. Frost-free period is 250 to 300 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Exeter, Fiddyment, Madera, Alamo and Cometa soils. Alamo soils are clayey throughout. Cometa soils lack a duripan. Exeter soils lack an abrupt boundary with at least 15 percent clay increase within the argillic horizon. Fiddyment soils average less than 35 percent within the control section. Madera soils have montmorillonitic mineralogy.

DRAINAGE AND PERMEABILITY: Well and moderately well drained; medium to very high runoff; very slow permeability. Some areas are subject to rare or occasional flooding.

USE AND VEGETATION: Cropland and livestock grazing; crops are small grains, irrigated pasture and rice; vineyards, fruit and nut crops.

DISTRIBUTION AND EXTENT: Eastern side of the Sacramento and San Joaquin Valleys. The soils are extensive in MLRA-17.

MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Fresno County, California, 1900.

REMARKS: This soil series is bordering on the Typic Durixeralf subgroup. The type location of this series has been moved to better reflect the central concept as historically mapped. (Textures from lab data reflect slightly different values than field estimates. NSSL S83CA-077-042.)

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - the zone from the surface to a depth of 6 inches (Ap)

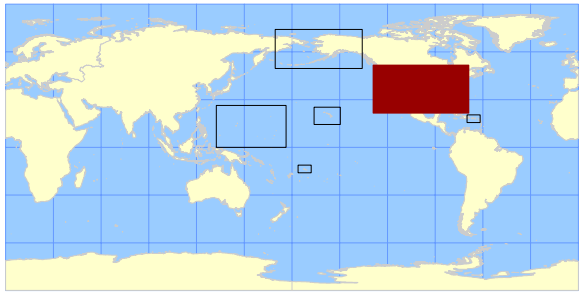
Argillic horizon - the zone from 16 to 26 inches (2Bt3, 2Bt4)

Duripan - the zone from 26 to 60 inches (2Bqm1, 2Bqm2, 2Bq)

National Cooperative Soil Survey
U.S.A.

Geographic Extent of the HICKSVILLE Soil Series

FINE-LOAMY, MIXED, SUPERACTIVE, THERMIC MOLLIC HAPLOXERALFS



enter soil series name and click "map series"

HICKSVILLE

MAP SERIES

- [x] Hillshade layer visible
- [ ] MLRA layer visible
- [x] Soil Series fill visible

23 mi

37 km

acres per soil survey area

No Data	10	4232	9999

LOCATION HICKSVILLE CA

Established Series
Rev. JMW-AJT-MAM-CEJ
01/2003

HICKSVILLE SERIES

The Hicksville series consists of deep and very deep, moderately well drained soils that formed in alluvium derived from mixed rock sources. Hicksville soils are on low stream terraces and alluvial flats along drainageways of terraces and hills. Slopes are 0 to 5 percent. The mean annual precipitation is about 17 inches and the mean annual temperature is about 60 degrees F.

TAXONOMIC CLASS: Fine-loamy, mixed, superactive, thermic Mollic Haploxeralfs

TYPICAL PEDON: Hicksville loam - on a smooth, east facing slope of less than 1 percent under annual grasses and forbs at an elevation of 80 feet. When described March 22, 1977, the soil was slightly moist throughout. (Colors are for dry soil unless otherwise stated.)

A--0 to 5 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine interstitial and few very fine tubular pores; moderately acid (pH 6.0); clear smooth boundary. (4 to 9 inches thick)

AB--5 to 13 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine interstitial and few very fine tubular pores; slightly acid (pH 6.3); clear smooth boundary. (0 to 12 inches thick)

Bt1--13 to 18 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few very fine roots, common very fine interstitial and tubular pores; few thin colloid stains bridging mineral grains; slightly acid (pH 6.5); clear smooth boundary.

Bt2--18 to 31 inches; brown (7.5YR 5/4) clay loam, dark brown (10YR 4/3) moist; few light gray (10YR 7/1) dry bleached sand grains on ped faces; moderate medium and coarse subangular blocky structure; very hard, firm, sticky and plastic; few very fine roots; common very fine interstitial and few very fine tubular pores; common moderately thick clay films on ped faces and lining pores; neutral (pH 7.0); gradual smooth boundary.

Bt3--31 to 43 inches; brown (7.5YR 5/4) sandy clay loam, dark brown (10YR 4/3) moist; common light gray (10YR 7/1) dry bleached sand grains on ped faces; moderate medium and coarse subangular blocky structure; very hard, firm, sticky and plastic; few very fine interstitial and tubular pores; many moderately thick clay films on ped faces and lining pores; slightly alkaline (pH 7.5); gradual wavy boundary. (combined thickness of the Bt horizons is 16 to 35 inches)

BCt--43 to 65 inches; pale brown (10YR 6/3) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate coarse subangular blocky structure; very hard, firm, sticky and plastic; few very fine interstitial and tubular pores; many moderately thick strong brown (7.5YR 4/6) clay films on ped faces,

lining pores and bridging mineral grains; dark yellowish brown (10YR 4/4) moist; slightly alkaline (pH 7.8).

TYPE LOCATION: Sacramento County, California; about 1.3 miles northeast of Herald, 700 feet north and 800 feet west of the southeast corner of sec. 5, T. 5 N., R. 7 E.

RANGE IN CHARACTERISTICS: Solum thickness ranges from 25 to 60 inches or more. The mean annual soil temperature is 64 to 67 degrees F and the temperature remains above 47 degrees F throughout the year. The soil is dry between 6 and 18 inches in most years from June 1 to October 15, moist in all parts from December 1 to May 1 and moist in some part the rest of the year. Weighted average clay content of the upper 20 inches of the argillic horizon is 27 to 35 percent.

The A horizon is 10YR 4/3, 5/2 or 5/3. Moist color is 10YR 3/2, 3/3; or 7.5YR 3/2. Texture is loam, gravelly loam or sandy clay loam with 18 to 27 percent clay. Content of gravel is 0 to 35 percent. Organic matter is 1 to 3 percent in the upper 4 inches. Some subhorizons are massive and hard or organic matter content decreases with depth to less than 1 percent at 9 inches. Reaction is moderately acid or slightly acid.

Some pedons have an AB horizon. Color and reaction are similar to the A horizon. Content of clay is 1 to 4 percent greater than the A horizon.

The Bt horizon is 10YR 4/3, 5/2, 5/3, 5/4, 6/3, 6/4; 7.5YR 4/4, 5/4 or 6/4. Moist color is 10YR 3/2, 3/3, 4/3, 4/4; or 7.5YR 4/4, 3/4. Bleached sand grains with dry color of 10YR 7/1, 7/2, or 6/5 occur on ped faces of lower subhorizons. Texture is sandy clay loam or clay loam with 27 to 35 percent clay. Content of gravel is 5 to 35 percent. Reaction is slightly acid to slightly alkaline. Base saturation (SUM) is 75 to 100 percent.

The BCt and 2Bt horizon is 10YR 5/3, 5/4, 6/3, 6/4 or 7.5YR 5/4. Moist color is 10YR 4/3, 4/4; 7.5YR 4/4. Bleached sand grains with dry color of 10YR 6/3, 7/1 or 7/2 occur on ped faces. Texture is sandy loam or sandy clay loam with 15 to 25 percent clay. Content of gravel is 5 to 15 percent. Reaction is slightly acid to slightly alkaline.

A 2Bt horizon is present in most pedons that have gravelly textures throughout. It is 5Y 6/2, 6/3; 2.5Y 6/2; or 10YR 6/3, 6/4 or 7.5YR 5/4. Moist color is 2.5Y 5/4, 6/3; 10YR 5/2, 5/3, 6/3 or 7.5YR 4/4. Coarse textured layers have bleached sand grains with dry color of 10YR 6/3, 7/1, 7/2. Texture is stratified loamy sand to clay loam. Content of coarse fragments averages 35 to 60 percent but is 0 to 35 percent in some subhorizons. Content of cobbles is 0 to 5 percent. Reaction is neutral to slightly alkaline.

COMPETING SERIES: These are the Academy (T), Bellysprings (T), Burchell, Cajalco (T), Coarsegold, Honn (T), Jacinto, Modesto, Olashes, Perkins, Pinspring (T), Pleasanton, Rescue, Sobrante, Sodabay, Trimmer and Whitney series. Coarsegold, Trimmer and Whitney soils have a paralithic contact at a depth of 20 to 40 inches. Burchell soils have a moderately or strongly alkaline argillic horizon. Jacinto and Pleasanton soils have 18 to 27 percent clay in the control section. Modesto soils have slowly permeable dense Bt horizons. Olashes soils lack bleached sand grains in the Bt horizon. Perkins and Rescue soils have a Bt horizon with hues of 5YR and 2.5YR. Sobrante soils have a lithic contact at a depth of 20 to 40 inches. Sodabay soils have 5YR hues throughout and are predominantly amorphous.

GEOGRAPHIC SETTING: Hicksville soils are on low stream terraces and on alluvial flats along drainageways of terraces and hills at elevations of 30 to 230 feet. Slopes are 0 to 5 percent. The soils

formed in alluvium from mixed rock sources. The underlying consolidated sediments are also from mixed rock sources. The climate is subhumid with hot, dry summers and cool, moist winters. Mean annual precipitation is 16 to 22 inches. Mean annual temperature is about 60 to 61 degrees F; average January temperature is about 44 degrees F; and average July temperature is about 77 degrees F. Frost-free period is 250 to 300 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Columbia, Corning, Hadselville, Redding, San Joaquin and Pentz soils. Columbia soils have a coarse-loamy textural control section and are on low flood plains. Corning soils have a fine textured control section and are on high terraces. Hadselville soils are very shallow, have a mollic epipedon and are on hills. Redding and San Joaquin soils have a duripan at a depth of 20 to 40 inches and are on high terraces and low terraces respectively. Pentz soils are shallow, have a mollic epipedon and are on hills.

DRAINAGE AND PERMEABILITY: Moderately well drained; very slow to slow runoff; moderately slow permeability. The soils are flooded occasionally for very brief periods during high intensity storms in December through April. A water table occurs in very deep pedons at depths of 60 to 72 inches for short periods in December through April. A perched water table occurs in deep pedons at a depth of 36 to 48 inches for short periods in December through April.

USE AND VEGETATION: These soils are used for livestock grazing. A few areas are used for irrigated hay and pasture and irrigated row and orchard crops. Vegetation is soft chess, wild oats, ripgut brome, needlegrass and filaree.

DISTRIBUTION AND EXTENT: Low stream terraces and alluvial flats along creeks and minor drainageways of the eastern part of the Sacramento and San Joaquin Valley. These soils are not extensive in MLRA-17.

MLRA OFFICE RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Sacramento County, California, 1985.

REMARKS: These soils were formerly mapped as the Bear Creek series in the Sacramento Area, California, 1954 Soil Survey Report.

The activity class was added to the classification in January of 2003. Competing series were not checked at that time. - ET

Diagnostic horizons and features recognized in this pedon are:

Ochric epipedon - the zone from the surface to 13 inches (A, AB)

Argillic horizon - the zone from 13 to 43 inches (Bt1, Bt2, Bt3)

National Cooperative Soil Survey
U.S.A.