

SOIL TAXONOMY

Pedon 24
 SOIL Typic Hapludalf SOIL Nos. 864Tenn-79-3 LOCATION Shelby County, Tennessee

SOIL SURVEY LABORATORY Beltsville, Maryland LAB. Nos. 64355 - 64361

General methods: 1A, 1B1b, 2A1, 2B

Depth (cm)	Horizon	Size class and particle diameter (mm) SAI											3B2 Cm	Coarse fragments 3B1			
		1B1b Total				Sand				Silt				2A2 ≥ 2 < 75 Pct.	2-19 Pct.	19-75 Pct. of < 75mm	
		Sand (2-0.05)	Silt (0.05- 0.002)	Clay (< 0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	0.05-0.02	0.02- 0.002	0.2-0.02					(2-0.1)
0-25	Ap	0.8	84.0	15.2	0.1	0.1	0.1	0.1	0.4	25.9	58.1	26.3	0.4	1.00	0		
25-36	A2	1.7	82.2	16.1	0.1	0.2	0.3	0.5	0.6	29.3	52.9	30.1	1.1	1.00	0		
36-56	B21tg	1.0	70.3	28.7	0.1	0.2	0.2	0.1	0.4	23.3	47.0	23.7	0.6	1.00	0		
56-99	B22tg	1.1	70.5	28.4	0.1	0.2	0.2	0.2	0.4	22.8	47.7	23.2	0.7	1.00	0		
99-140	B23tg	3.1	69.1	27.8	0.5	0.8	0.4	0.5	0.9	30.0	39.1	31.1	2.2	1.00	0		
140-190	B3g	4.0	71.1	24.9	0.6	1.1	0.6	0.6	1.1	34.4	36.7	35.8	2.9	1.00	0		
190-305	Cg	1.9	75.7	21.3	0.4	0.6	0.4	0.5	1.1	40.9	34.8	42.3	3.0	1.00	0		

Depth (cm)	6A1a Organic carbon g/ Pct.	6B2 Nitrogen Pct.	C/N	6E1c Carbonate as CaCO ₃ Pct.	6C2a Est. iron as Fe Pct.	Bulk density			4D1 COLI	Water content			4C1 WRD cm/cm	pH			
						4A1e 1g-bar g/cc	4A1h Oven-dry g/cc	4A1f g/cc		4B1c 1g-bar Pct.	4B2 15-bar Pct.	4C1b Est. paste KCl		4C1c KCl (1:1)	4C1a H ₂ O (1:1)		
0-25	0.51	0.07	7		0.7			1.38	1.42	0.010		25.4	6.6	0.26	8.4	5.0	6.2
25-36	0.57	0.05	11		0.3										6.8	3.3	4.9
36-56	0.38	0.04	10		0.6			1.47	1.59	0.027		22.4	12.4	0.15	4.8	3.2	4.5
56-99	0.16				0.5			1.52	1.60	0.018		21.4	12.4	0.14	5.8	4.5	5.8
99-140	0.05				0.7			1.50	1.57	0.016		23.4	13.4	0.15	7.4	5.5	7.0
140-190	0.10			tr.	0.8			1.41	1.54	0.031		25.6	13.0	0.18	7.5	5.9	7.4
190-305	-			1	0.6			1.48	1.59	0.016		25.2	10.6	0.22	7.5	6.3	7.6

Depth (cm)	Extractable bases 5B1a				6H2a Est. acidity	CEC		6D1d Est. Al	b/5D1 Exch. Na Pct.	Ratios to clay 5D1			5C1 Ca/Mg	Base saturation		
	6M1d Ca	6M2b Mg	6P2a Na	6Q2a K		Sum	5A1a Sum cations			5A2a NaOAc	CEC sum	Est. iron		15-bar water	5C3 Sum cations Pct.	5C2 NaOAc Pct.
0-25	7.1	1.2	0.2	0.1	8.6	3.4	12.0	11.8	tr.	2	0.79	0.05	0.43	5.9	72	73
25-36	2.6	1.0	0.3	0.1	4.0	5.1	9.3	10.0	1.3	3	0.57	0.02		2.6	44	40
36-56	4.4	3.2	1.3	0.2	9.1	8.4	17.5	20.2	2.5	6	0.61	0.02	0.43	1.4	52	45
56-99	5.2	5.4	3.0	0.2	13.8	2.3	16.1	17.9	tr.	17	0.57	0.02	0.44	1.0	86	77
99-140	6.4	7.4	5.8	0.2	19.8	1.1	20.9	23.2	tr.	25	0.75	0.03	0.48	0.9	95	85
140-190	7.0	7.8	5.8	0.3	20.9	0.9	21.8	24.0	tr.	24	0.88	0.03	0.52	0.9	96	87
190-305	9.4	7.1	4.9	0.2	21.6	0.2	21.8	21.0	tr.	23	1.02	0.03	0.50	1.3	99	

a/5.2 kg/m² to 1.5 n (method 6A) (bulk density of A2 horizon estimated).
 b/Based on NaOAc CEC.

Pediton 24

Classification: Typic Hetaqualf, fine-silty, mixed, thermic.

Location: Shelby County, Tenn. Penal Farm.

Physiographic position: Undulating loessial uplands.

Topography: Nearly level - about 1 percent slope.

Drainage: Poorly drained.

Vegetation: Mostly dog fennel and a few vines.

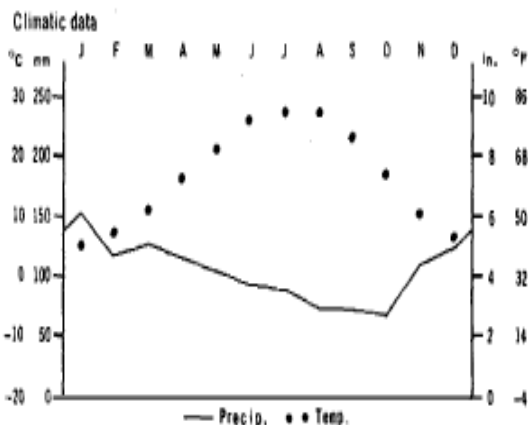
Parent Material: Loess.

Sampled by: D. P. Franzmeier, E. J. Pedersen, D. K. Springer,
E. C. Sease, C. L. Mangrum, and W. C. Moore.

Soil No.: S64Tenn-79-3

Colors are for the moist soil.

- Ap 0-25 cm (0-10 in.). Brown (10YR 5/3) with common light brownish gray (10YR 6/2) mottles; light silt loam; weak fine granular structure; friable (moist); many roots; clear smooth boundary.
- A2 25-36 cm (10-14 in.). Gray (10YR 6/1) with a few fine and medium yellowish brown (10YR 5/4) and light yellowish brown (10YR 6/4) mottles; light silt loam; angular blocky structure, some evidence of platy structure; friable (moist); common fine roots; abrupt wavy boundary.
- B21tg 36-56 cm (14-22 in.). Gray (10YR 6/1) silt or silt loam commonly thickly coated with grayish brown (2.5Y 5/2) weak coarse columnar structure; yellowish brown (10YR 5/4) and reddish brown (5YR 5/4) stains follow old root channels; common streaks and pockets of clay in the gray silt loam matrix, light silty clay loam when mixed; few pin holes; few fine roots; gradual wavy boundary.
- B22tg 56-99 cm (22-39 in.). Mixture of grayish brown (2.5Y 5/2) seams, coatings, and pockets of silty clay loam in the gray (10YR 6/1) silt loam matrix; weak coarse columnar structure; firm (moist); yellowish brown (10YR 5/4) and black (10YR 2/1) stains along old root channels; light silty clay loam when mixed; many pin holes; few fine roots; gradual irregular boundary.
- B23tg 99-140 cm (39-55 in.). Mottled grayish brown (2.5Y 5/2), light brownish gray (10YR 6/2) and gray (10YR 6/1) light silty clay loam; weak coarse columnar structure; firm (moist); few faint fine black (10YR 2/1) and very dark grayish brown (10YR 3/2) stains; few small iron and manganese concretions; few fine roots; gradual irregular boundary.
- B3g 140-190 cm (55-74 in.). Grayish brown (2.5Y 5/2) with common fine and medium mottles of gray (10YR 6/1), yellowish brown (10YR 5/4), light yellowish brown (10YR 6/4), and brownish yellow (10YR 6/6); heavy silt loam; massive; firm (moist); few fine calcium carbonate concretions; gradual irregular boundary.
- Cg 190-305 cm (74-120 in.). Grayish brown (2.5Y 5/2) with common yellowish brown (10YR 5/4) and gray (10YR 6/1) mottles; heavy silt loam; massive; friable (moist).



Pedon 36

Classification: Typic Calciorthid, fine-loamy, mixed, thermic.
Location: Dona Ana County, N. Mex., 0.8 km (½ mi.) E. of Interstate Highway 25 and 30 m S. of Dripping Springs Road. About 5 km (3 mi.) SE. of the center of Las Cruces.

Physiographic position: Alluvial fan; 1,260 m elevation.
Topography: Crest of slight ridge; nearly level transversely, with subdued drainageways about 30 cm deep on either side of pit; longitudinal slope along the ridge crest is 2 percent to the west.

Vegetation: Creosotebush (*Larrea divaricata* or *Larrea tridentata*) about ½ m high and ½ to 3 m apart.

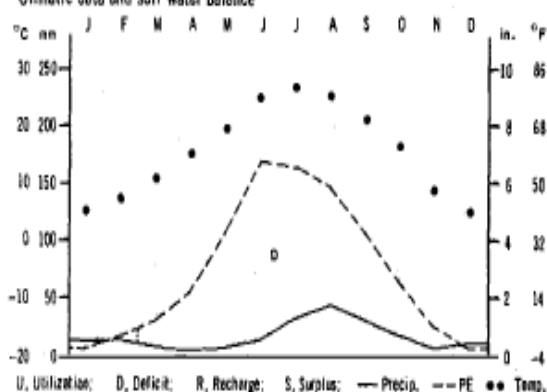
Parent material: Fan alluvium derived from rhyolite, andesite, and from sand and rounded gravel of mixed composition.

Sampled by: L. W. Gile, R. B. Crossman, J. L. Millet and F. P. Peterson, April 12, 1960.

Remarks: The site occurs on the Picacho geomorphic surface which is of mid-Wisconsinan age. Measurements in the general area indicate that the current dust fall contains carbonate.

Soil No.: 860Nex-7-2.

Climatic data and soil water balance



Colors are for the dry soil unless otherwise indicated.

Soil surface. Desert pavement covers 70 to 80 percent of the surface and is composed of angular rhyolite pebbles less than about 5 cm in diameter with some angular andesite and a few rounded pebbles of mixed lithology. Most pebbles have thin discontinuous desert varnish. A thin layer of loose pale brown sand occurs between the pebbles.

- A1 0-5 cm (0-2 in.). Pinkish gray (7.5YR 6/2) gravelly fine sandy loam, brown (7.5YR 4/2) moist; weak coarse plates; soft (dry); no roots; moderately vesicular; lenses 0.5 mm thick of reddish brown sand occur throughout; effervesces strongly; abrupt smooth boundary; sample includes desert pavement.
- Bca 5-10 cm (2-4 in.). Light reddish brown (6YR 6/4) sandy clay loam, reddish brown (6YR 4/4) moist; moderate fine to very fine granular with few weak very fine subangular blocks; soft (dry) and loose (dry); very few roots; few carbonate filaments on ped surfaces; few pebbles with discontinuous carbonate coatings less than 1 mm thick on undersides; effervesces strongly; abrupt wavy boundary.
- C1ca 10-36 cm (4-14 in.). Dominantly pinkish white (7.5YR 8/2) sandy clay loam, pink (7.5YR 7/4) moist; with lesser amounts of light brown (7.5YR 6.5/4, 5.5/4) moist; weak and very weak medium to fine subangular blocks; material digs out as a mixture of peds and loose soil; loose parts soft (dry) and peds hard (dry); few roots; few reddish brown (5YR 4/4) bodies 1 to 3 mm in diameter; common carbonate nodules; carbonate filaments on stronger peds and thin discontinuous carbonate coatings on pebbles; effervesces strongly; horizon split for sampling at 23 cm; clear wavy boundary.
- C2ca 36-58 cm (14-23 in.). Dominantly light brown (7.5YR 6.5/4) sandy clay loam, brown (7.5YR 5.5/4) moist; weak to moderate coarse to medium subangular blocks; most parts very hard (dry); few roots; some brown (7.5YR 4.5/4) parts; many weakly to moderately defined aggregates of cylindroidal shape, 1 to 3 cm in diameter and light brown in color; effervesces strongly; clear wavy boundary.
- C3ca 58-89 cm (23-35 in.). Light brown (7.5YR 5.5/4) sandy loam, brown (7.5YR 4/4) moist; massive and weak coarse subangular blocks; soft (dry) and slightly hard (dry); few roots; few light brown aggregates of cylindroidal shape which are not well differentiated from matrix; thin discontinuous carbonate coatings on pebbles; effervesces strongly; clear wavy boundary.
- IIIC4ca 89-120 cm (35-47 in.). White (10YR 9/2) very gravelly sandy loam, very pale brown (10YR 7/3) moist; massive; dominantly hard (dry) and very hard (dry) with parts soft (dry); very few roots; most pebbles and sand grains continuously coated with carbonate; carbonate-cemented clusters of pebbles common; effervesces strongly; the very gravelly material discontinuous and laterally grades into low-gravel material in which carbonate occurs as scattered nodules; abrupt smooth boundary.
- IIIC5ca 120-135 cm (47-53 in.). Light brown (7.5YR 6.5/4) gravelly sandy loam, brown (7.5YR 5/4) moist; massive; slightly hard (dry); no roots; thin discontinuous carbonate coatings on sand grains and pebbles; effervesces strongly.

Micromorphology, Method 461b. Thin sections of the upper half of the Bca horizon were examined. Fine-grain carbonate forms a continuous open network with the interstices partly filled by sand grains and small volumes of clay. In parts low in carbonate

Pedon 38

Classification: Typic Calcicquoll, fine-silty, mixed, mesic.

Location: Ford County, Ill., 265 m S. and 23 m W. of cross-roads center at NE. corner sec. 20, T. 23 N., R. 7 E. About 150 km (95 mi.) SW. of Chicago.

Physiographic position: Elevation about 200 m.

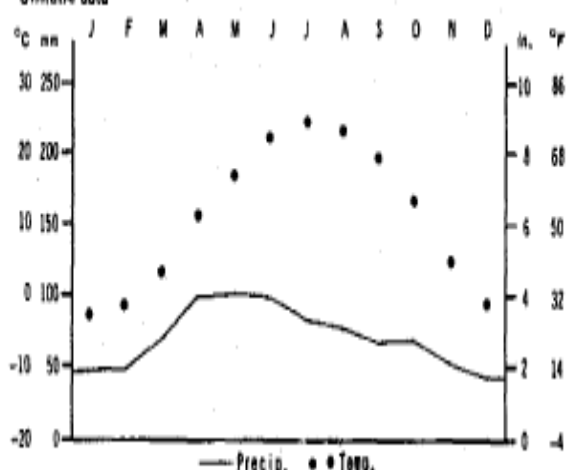
Topography: Slight depression, 1/2 percent slope.

Drainage: Poorly drained.

Sampled by: J. B. Fehrenbacher and G. O. Walker, November 17, 1964.

Soil No.: 86411-27-1.

Climatic data



Colors are for the moist soil.

- Apc_a 0-23 cm (0-9 in.). Black (10YR 2/1) silty clay loam; weak to moderate fine granular structure; firm (moist); many small shells and few pebbles; strong effervescence; abrupt smooth boundary.
- Al2ca 23-46 cm (9-18 in.). Very dark brown (10YR 2/2) silty clay loam; weak to moderate; fine to medium granular structure; firm (moist); many small shells and few pebbles; strong effervescence; clear smooth boundary.
- B1g 46-64 cm (18-25 in.). Dark grayish brown (2.5Y 4/2) silty clay loam with common fine faint light olive brown (2.5Y 5/4) mottles; moderate to weak fine to medium angular blocky structure; continuous very dark gray (10YR 3/1) coatings; firm (moist); few small shells and pebbles; weak effervescence; gradual smooth boundary.
- B21g 64-79 cm (25-31 in.). Dark gray (5Y 4/1) silty clay loam with few fine faint olive (5Y 4/4) and dark yellowish brown (10YR 4/4) mottles; moderate medium prisms break to moderate fine to medium angular blocks; continuous very dark gray (10YR 3/1) coatings; firm (moist); few small shells and pebbles; weak effervescence; gradual smooth boundary.
- B22g 79-91 cm (31-36 in.). Dark gray (5Y 4/1) silty clay loam with common medium distinct olive brown (2.5Y 4/4) and few fine prominent yellowish brown (10YR 5/6) mottles; weak coarse prisms break to weak medium angular blocks; thin discontinuous very dark gray (10YR 3/1) coatings; few pebbles; very weak effervescence; gradual smooth boundary.
- B3g 91-105 cm (36-41 in.). Mixed olive brown (2.5Y 4/4), olive yellow (2.5Y 6/6) and gray (5Y 5/1) light silty clay loam; weak coarse angular blocky structure; very thin patches of gray (10YR 5/1) coatings; firm (moist); few pebbles; weak effervescence; gradual smooth boundary.
- Cgca 105-140 cm (41-56 in.). Mixed gray (5Y 5/2) and light olive brown (2.5Y 5/6) silt loam with few coarse prominent dark yellowish brown (10YR 4/4) mottles; massive; firm (moist); few pebbles; strong effervescence; clear smooth boundary.

Pedon 39

Classification: Typic Gypsiorthid, fine-loamy, gypsic, thermic.

Location: Reeves County, Tex., 0.4 km (0.25 mi.) E. of Texas Highway 17, 2.6 km (1.6 mi.) S. of U.S. Highway 80. About 160 km (100 mi.) SE. of El Paso.

Physiographic position: Probably terrace of Pecos River, elevation about 1,000 m.

Topography: Level plain with gradient less than $\frac{1}{8}$ percent.

Drainage: Poorly drained.

Vegetation: Fourwing saltbush (*Atriplex canescens*), tarbush (*Flourensia cernua*), occasional mesquite (*Prosopis juliflora*) with traces of plains bristlegrass (*Setaria macrostachya*) and alkali sacaton (*Sporobolus airoides*).

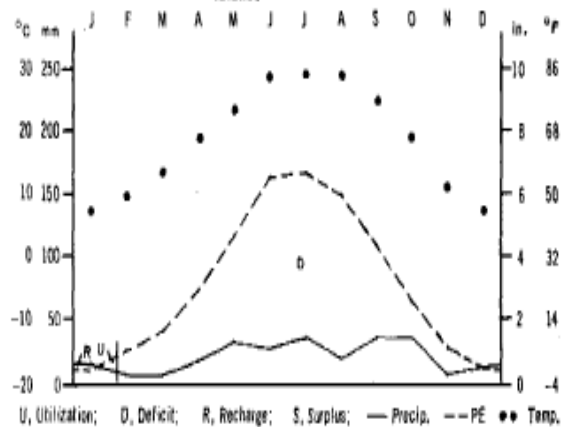
Parent material: Calcareous, gypsiciferous alluvium--mostly from limestone but some from igneous sources.

Sampled by: J. R. Coover, R. E. Daniell, R. H. Jordan and E. D. Rivers, October 26, 1961.

Remarks: Gypsic horizon is moist.

Soil No.: 861Tex-195-3.

Climatic data and soil water balance



Colors are for the dry soil unless otherwise indicated.

- A11 0-1/2 cm (0-1/4 in.). Light gray (10YR 6.5/2) loam, brown (10YR 4.5/3) moist; platy crust; slightly hard (dry), very friable (moist); strongly effervescent; vesicular peds; evaporite specks; abrupt boundary.
- A12 1/2-5 cm (1/4-2 in.). Light gray (10YR 6.5/2) loam, brown (10YR 4.5/3) moist; weak to moderate medium platy structure; slightly hard (dry), very friable (moist); strongly effervescent; clear boundary.
- A13 5-13 cm (2-5 in.). Light brownish gray (10YR 6.5/2) loam, brown (10YR 4.5/3) moist; weak to moderate fine subangular blocky structure; hard (dry), friable (moist); strongly effervescent; gradual boundary.
- B21ca 13-33 cm (5-13 in.). Pink (7.5YR 7/3) clay loam, light brown (7.5YR 5/4) moist; weak to moderate and medium fine subangular blocky structure; hard (dry), friable (moist); strongly effervescent with few films and threads of calcium carbonate; few to common wormcasts; insect cavities, root channels; diffuse boundary.
- B22ca 33-56 cm (13-22 in.). Pink (7.5YR 7/4) clay loam, light brown (7.5YR 5.5/4) moist; weak fine subangular blocky structure; consistence, reaction, wormcasts, insect cavities, root channels and calcium carbonate as above; abrupt wavy boundary varying from 46 to 66 cm below the surface.
- C1ca 56-84 cm (22-33 in.). Very pale brown (10YR 8/3) weakly cemented gypsiciferous calcareous loam, very pale brown (10YR 7/3) moist; very hard (dry); friable (moist) and somewhat brittle; few roots; few old root channels filled with grayish brown or brown clay; few fine seams coated with gypsum and darker material.
- C2ca 84-115 cm (33-46 in.). Similar to the horizon above; split for sampling; gradual boundary.
- C3ca 115-140 cm (46-55 in.). Light gray (10YR 7/2), grayish brown (10YR 5/2) moist; similar to above but contains less calcium carbonate and probably more fine earth; gradual boundary.
- C4ca 140-180 cm (55-70 in.) plus. Very pale brown (10YR 7/3), brown (10YR 5/3) moist; similar to horizon above.

Pedon 41
 SOIL Typic Salorthid SOIL Nos. 855Calif-36-3 LOCATION San Bernardino County, California
 SOIL SURVEY LABORATORY Riverside, California (LAB. Nos. 5517 - 5523)

Depth (cm)	Horizon	1B1b Size class and particle diameter (mm) 3A1													Coarse fragments (A2a)		
		Total			Sand					Silt					> 2 Pct. of whole soil	1-19 Pct. of <76mm	19-76
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	(0.05-0.02)	Int. III (0.02-0.002)	Int. II (0.2-0.02)	2-0				
0-5	O1	12.4	25.4	62.2	0.2	0.5	0.5	3.9	7.3	1.3	24.1	11.9	5.1	1			
5-15	C2sa	10.2	24.7	65.1	0.1	0.4	0.6	3.3	5.8	1.8	22.9	10.2	4.4	0			
15-25	C3sa	8.9	45.4	45.7	0.3	0.5	0.5	2.9	4.7	13.2	32.2	20.1	4.2	0			
25-58	C4sa	6.8	29.5	63.7	0.1	0.2	0.3	1.8	4.4	2.2	27.3	8.0	2.4	0			
58-86	C5sa	4.4	30.5	65.1	0.1	0.3	0.2	1.1	2.7	2.1	28.4	5.6	1.7	0			
86-105	C6sa	5.4	24.0	70.6	0.2	0.4	0.4	1.5	2.9	2.4	21.6	6.5	2.5	0			
105-135	C7	1.9	34.1	64.0	0.0	0.1	0.0	0.5	1.3	2.6	31.5	4.3	0.6	0			

Depth (cm)	6A1a Organic carbon %/Pct.	6B1a Nitrogen Pct.	C/N	6C2b Ext. iron as Fe Pct.	Carbonate as CaCO ₃			Bulk density			3B2 Cn	Water content		4D1 Extensibility COLEf cm/cm	4D1 Extensibility COLE on/on	pH		
					6E1b <2 mm		3A1a <0.002 mm Pct.	4A1f 1/3-bar g/cc	4A1b Oven-dry g/cc	g/cc		4B1c 1/3-bar Pct.	4B2 15-bar Pct.			8C1b Saturated paste H ₂ O 1:10	8C1a H ₂ O 1:1	8C1c IN KCl 1:1
					Pct.	Pct.	Pct.	Pct.	Pct.	Pct.		Pct.	Pct.			Pct.	Pct.	Pct.
0-5	0.10	0.013			13.6							14.6				8.6	9.8	
5-15	0.17	0.012			13.6							17.0				8.5	9.1	
15-25	0.20	0.013			13.9							17.7				8.4	9.0	
25-58	0.16	0.015			16.7							18.6				8.4	9.4	
58-86	0.18				21.9							18.9				8.5	9.7	
86-105	0.19				24.0							18.6				8.6	9.7	
105-135	0.13				28.5							18.1				8.6	9.8	

Depth (cm)	Extractable bases				6H2a Ext. acidity	5A2a CEC Na OAc	5D1 Ex-change-able sodi-um Pct.	5E Sodium adsorption ratio	8A Water at saturation Pct.	Water extract from saturated paste 8A1								8A1a Electrical conductivity meho/cm
	6H4c Ca 5B3a	6H4c Mg 5B3a	6P2a Exch. Na 5B1b	6Q2a Exch. K 5B1b						6P1a Na	6Q1a K	6I1a CO ₃	6J1a HCO ₃	6K1a Cl-	6L1a SO ₄			
	meq/100 g	meq/100 g	meq/100 g	meq/100 g						meq/liter	meq/liter	meq/liter	meq/liter	meq/liter	meq/liter			
0-5			20.2	6.2		33.0	61	107	47.7	2.1		110	5.0					10.8
5-15			24.5	6.2		32.8	75	352	43.9	34.4		1460	45.0					92.6
15-25			28.6	5.3		31.3	91	399	44.1	30.6		1560	30.0					99.0
25-58			24.5	6.2		33.7	73	181	53.4	34.2		750	27.0					63.8
58-86			22.6	4.3		35.4	64	154	64.4	13.3		396	10.0					36.4
86-105			26.1	4.0		36.2	72	153	56.4	8.2		310	10.0					30.2
105-135			25.8	3.1		33.3	77	153	59.1	3.9		213	6.8					22.0

Ratios to clay 8D1	6F1a
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Pedon 41

Classification: Typic Salorthid, very-fine, montmorillonitic, thermic.

Location: San Bernardino County, Calif. About 8 km northeast of Lucerne Valley. 122 m west and 61 m south of center of sec. 24, T. 5 N., R. 1 W.

Physiographic position: Playa, elevation about 915 m.

Topography: Nearly level.

Drainage: Well drained.

Vegetation: A few clumps of shad scale (*Atriplex canescens*), about 60 cm high.

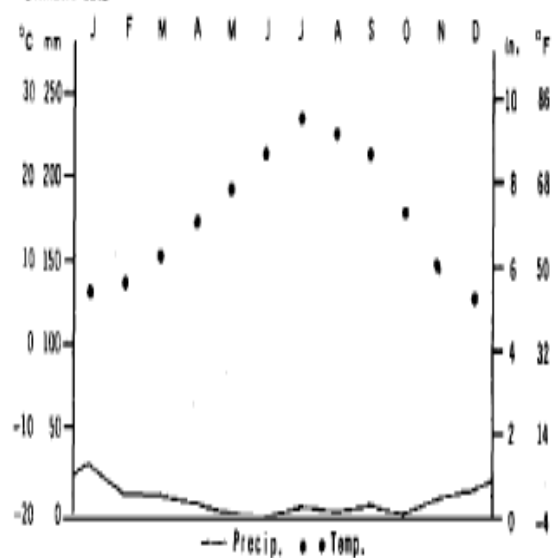
Parent material: Alluvium, mainly from granitic rocks.

Sampled by: Fred Eggers, W. G. Harper, and R. E. Nelson, January, 1955.

Remarks: Weakly defined very coarse prisms are present in the C2sa and C3sa horizons.

Soil No. 855Calif-36-3.

Climatic data



Colors are for the dry soil unless indicated otherwise.

- C1 0-5 cm (0-2 in.). Pale brown (10YR 6/3) clay, yellowish brown (10YR 5/4) moist; weak coarse prisms breaking to strong very fine subangular blocks; very hard (dry), firm (moist); violently effervescent; few pebbles; abrupt smooth boundary.
- C2sa 5-15 cm (2-6 in.). Light yellowish brown (10YR 6/4) clay, yellowish brown (10YR 5/4) moist; strong very fine granules; soft (dry), very friable (moist); very few roots; 5 to 10 percent by volume of salt crystals up to 3 mm in diameter; abrupt wavy boundary.
- C3sa 15-25 cm (6-10 in.). Yellowish brown (10YR 5/4) silty clay, dark yellowish brown (10YR 4/4) moist; weak very coarse prisms breaking to moderate very fine to medium granules; slightly hard (dry), friable (moist); violently effervescent; few shad scale roots; abrupt smooth boundary.
- C4sa 25-58 cm (10-23 in.). Brown (10YR 5/3) clay, brown (10YR 5/3) moist; very weak medium to coarse prisms breaking to weak fine subangular blocks; very hard (dry), firm (moist); violently effervescent; few shad scale roots; clear smooth boundary.
- C5sa 58-86 cm (23-34 in.). Brown (10YR 5/3) clay moist; weak medium subangular blocks; hard (dry), firm (moist); violently effervescent; very few fine shad scale roots; abrupt smooth boundary.
- C6sa 86-105 cm (34-41 in.). Brown (10YR 5/3) clay moist; massive; very hard (dry), firm (moist); violently effervescent, common fine to medium white (10YR 8/1) carbonate nodules; very few roots; abrupt smooth boundary.
- C7 105-135 cm (41-53 in.). Pale brown (10YR 6/3) clay moist; massive; very hard (dry), firm (moist); violently effervescent, many white (10YR 8/2) carbonate nodules.

SOIL TAXONOMY

Pedon 58

SOIL Type Natrargid SOIL Nos. S64Ariz-2-20 LOCATION Cochise County, Arizona
 SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 64605 - 64611

Depth (cm)	Horizon	IBIb Size class and particle diameter (mm) 3A1													Coarse fragments 1A2a		
		Total			Sand						Silt				> 2 Pct. of whole soil	Pct. of < 75µm	
		Sand (2-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Vary coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Vary fine (0.1-0.05)	(0.05-0.02)	Int. III (0.02-0.002)	Int. II (0.2-0.02)	2-0)	1-19		19-76	
0-5	A21	60.7	23.0	8.3	0.3	3.5	7.3	34.7	22.9	13.6	9.4	59.5	45.8			tr.	
5-13	A22	56.0	34.4	9.6	0.6	3.2	5.2	25.7	21.3	17.0	17.4	55.1	34.7			tr.	
13-28	B2t	41.4	29.3	29.3	0.5	2.6	4.0	19.3	15.0	12.8	16.5	40.2	26.4			tr.	
28-61	Cca	39.2	36.5	24.3	1.2	2.3	3.2	16.3	13.0	23.5	40.3	23.0				1	
61-105	IB2tcab	41.6	30.1	28.3	0.7	2.8	5.4	18.0	14.7	10.9	19.2	37.1	26.9			5	
105-130	IIC1cab	69.8	14.0	16.2	9.6	18.1	16.1	19.1	6.9	6.3	7.7	22.2	62.9			12	
130-205	IIIc2sib C	75.7	14.1	10.2	1.9	6.3	17.4	39.4	10.7	8.2	5.9	40.4	65.0			7	

Depth (cm)	6A1a Organic carbon %/Pct.	6B1a Nitrogen Pct.	C/N	6C1a Ext. iron as Fe Pct.	Carbonate as CaCO ₃		Bulk density			3B2 Cn	Water content			4D1 Extensibility COLE _r cm/cm	4D1 Extensibility COLE _e cm/cm	pH		
					6E1b <2 mm Pct.	3A1a <0.002 mm Pct.	6A1f 1/3-bar g/cc	6A1h Over-dry g/cc	4B1c 1/3-bar Pct.		4B2 15-bar Pct.	4C1 1/300 15-bar cm/cm	8C1b Saturated paste H ₂ O (%)			8C1a H ₂ O (%)	8C1c H ₂ O (%)	
					0-5	0.40	0.042	10	0.28		3		1.57			1.57	1.00	11.5
5-13	0.29	0.032	9	0.35	tr.		1.66	1.68	1.00	13.1	4.9	0.005	0.005			9.2	9.7	
13-28	0.18	0.041	9	0.40	6	1	1.27	1.56	1.00	32.9	15.1	0.072	0.072			9.0	9.9	
28-61	0.13			0.22	15	5	1.58	1.72	0.99	19.0	11.0	0.030	0.030			9.9	10.2	
61-105	0.07			0.14	25	12	1.71	1.93	0.97	18.9	9.5	0.041	0.040			10.0	10.2	
105-130	0.03			0.23	2		1.51	1.74	0.93	23.8	10.0	0.048	0.044			9.9	10.2	
130-205	0.01			0.34	1		1.40	1.60	0.96	26.3	7.2	0.044	0.042			9.7	10.0	

Depth (cm)	Extractable bases 5B1a				6H2a Ext. acidity NH ₄ OH	5A1a CEC	5D2 Exchangeable Sodium Pct.	5E Sodium adsorption ratio	5A Water at saturation Pct.	Water extract from saturated paste 5A1								
	6N2b Ca	6O2c Mg	6P2a Na	6Q2a K						6N1a Ca	6O1a Mg	6P1a Na	6Q1a K	6I1a CO ₃	6J1a HCO ₃	6K1a Cl	6L1a SO ₄	8A1a Electrical conductivity µmho/cm
	0-5	16.8	1.6	2.0						1.0		8.2	21	9	29.9	2.7	0.6	11.5
5-13	13.0	1.3	4.1	0.8		9.5	40	18	27.7	0.5	0.3	11.2	0.2	-	5.0	3.0		1.25
13-28	16.3	2.0	17.2	0.9		20.8	72	49	59.8	1.1	0.3	41.3	0.1	-	8.5	8.3	25.5	6.35
28-61	11.2	0.5	27.9	0.9		20.3	100	197	47.0	1.0	0.3	159	0.3	10.0	12.4	10.9	138	13.2
61-105	10.8	0.6	21.7	0.6		13.0	104	312	41.4	0.5	0.3	198	0.5	15.6	12.2	11.9	161	16.7
105-130	8.4	0.8	19.8	0.5		14.7	88	155	63.1	0.5	0.5	110	0.2	5.4	13.9	7.3	85.2	10.0
130-205	3.6	0.4	12.4	0.2		11.3	84	98	57.6	0.3	0.2	50.5	0.1	1.1	8.5	4.9	35.7	5.16

Pedon 58

Classification: Typic Natrargid, fine-loamy, mixed, thermic.
Location: Cochise County, Ariz. 27 km south and 4.4 km east
of Willcox via Kansas Settlement Road. 0.4 km west and 30 m
north of E1/4 corner of sec. 27, T. 16 S., R. 25 E.

Physiographic position: Valley plain adjacent to Willcox
Plays, elevation about 1,280 m.

Topography: Slightly concave slope of less than 0.2 percent.

Drainage: Moderately well drained; very slow runoff; very
slow permeability.

Vegetation: Grassland. Mainly alkali sacaton (*Sporobolus*
airoides) with minor amounts of tobosa grass (*Hilaria*
mutica), mesquite bushes (*Prosopis* sp.) and annual grasses.

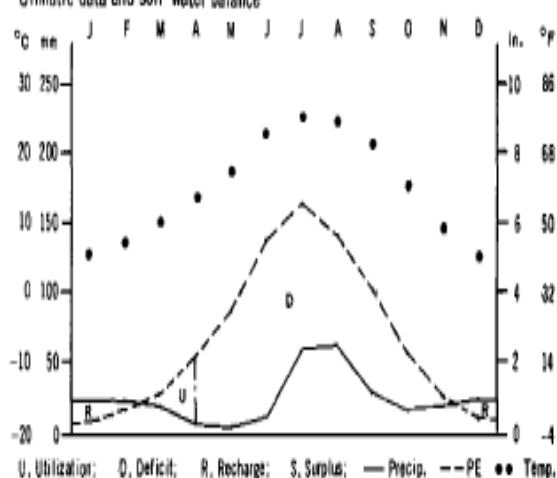
Parent material: Mixed alluvium from rhyolite, rhyolite tuff,
and andesite.

Sampled by: K. W. Flach, B. R. Brasher, J. E. Jay, M. L.
Richardson, and R. K. Preece, October 20, 1964.

Remarks: Ground water table is 15 to 30 m. The soil was
slightly moist when sampled. Two horizons, the IIC1cab
and the IIC2cass1a do not disperse well, hence, the field
estimates of texture are given in the description of these
two horizons.

Soil No.: 864Ariz-2-20.

Climatic data and soil water balance



Colors are for the dry soil unless indicated
otherwise.

- A21 0-5 cm (0-2 in.). Light brownish gray (10YR 6/2) light fine sandy loam, dark grayish brown (10YR 4/2) when moist; weak medium and fine platy structure; slightly hard (dry), very friable (moist), nonsticky and nonplastic (wet); plentiful fine and medium roots; common fine discontinuous and a few fine and medium continuous tubular pores; slightly effervescent; abrupt smooth boundary.
- A22 5-13 cm (2-5 in.). Light gray to gray (10YR 6/1) sandy loam, dark grayish brown (10YR 4/2) moist; massive; hard (dry), friable (moist), nonsticky and nonplastic (wet); plentiful fine and medium roots; many fine discontinuous and a few fine continuous tubular pores; strongly effervescent; carbonate is disseminated; abrupt smooth boundary.
- B2t 13-28 cm (5-11 in.). Grayish brown (10YR 5/2) light clay loam, dark grayish brown (10YR 4/2) when moist; moderate fine and medium prisms breaking to moderate fine and medium angular and subangular blocks; hard (dry), firm (moist), sticky and plastic (wet); common fine and medium roots; many expd interstitial and common fine and very fine tubular pores; common thin clay skins on ped faces and in pores; slightly effervescent; clear smooth boundary.
- Cca 28-61 cm (11-24 in.). Pale brown (10YR 6/3) heavy loam with many fine faint light gray (10YR 7/2) mottles, brown to dark brown (10YR 4/3) and light brownish gray (10YR 6/2) when moist; massive, breaking to strong fine subangular blocks; slightly hard (dry), friable (moist), sticky and plastic (wet); abundant fine and medium roots in upper 15 cm, plentiful in lower 18 cm; many fine expd and common fine and medium tubular pores; few thin clay skins on ped faces; strongly and violently effervescent; 1 percent gravel by volume; abrupt wavy boundary.
- IIB2tca 61-105 cm (24-42 in.). Pink (7.5YR 7/4) light loam with common medium faint ped coatings of reddish yellow (7.5YR 6/6) and many medium to large soft white (N 8/) mottles, brown (7.5YR 5/4), reddish yellow (7.5YR 6/6) and pinkish gray (7.5YR 7/2) moist; weak coarse prisms breaking to moderate medium angular and subangular blocks; very hard (dry), firm (moist), sticky and plastic (wet); plentiful expd fine roots; many fine expd and common fine and very fine tubular pores; thin continuous clay skins on ped faces and lining pores; the matrix is slightly effervescent and mottles are violently effervescent; 3 percent gravel by volume; abrupt wavy boundary.
- IIC1cab 105-130 cm (42-51 in.). Light gray (2.5Y 7/2) heavy clay loam or sandy clay with common medium faint light brownish gray (10YR 6/2) and few fine distinct black (N 2/) mottles, grayish brown (2.5Y 5/2), grayish brown (10YR 5/2) and