Soil Survey Investigations Report No. 23

Soil Survey Laboratory Data and Descriptions for Some Soils of...

...NEVADA

SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE
In cooperation with
NEVADA AGRICULTURAL EXPERIMENT STATION

Soil survey investigations reports already published are listed below:

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SSIR No. 4	Kansas
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SSIR No. 20	New England States
SSIR No. 21	A Toposequence of Soils in Tonalite Grus in the Southern California Peninsular Range
SSIR No. 22	Soil Survey Laboratory Data and Descriptions for Some Soils of Alabama and Florida

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...NEVADA

May 1970

SOIL CONSERVATION SERVICE • U.S. DEPARTMENT OF AGRICULTURE
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      tr(s): trace, detectable only by qualitative procedure more sensitive than quantitative procedure used
      - : analysis run but none detected
      -(s): none detected by sensitive qualitative test
      blank: analysis not run
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      <: less than reported amount or none present
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         a. Aluminon III
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PREFACE

This publication is one in a new U.S. Department of Agriculture series established to preserve and make available technical information resulting from soil survey investigations. These investigations have been going on for about two decades. Data from them have been distributed in unpublished form to those immediately concerned. Some of the data and descriptions have appeared in technical journals, in regional bulletins, in USDA technical bulletins, and in the text of published soil surveys. But most were not available to all who might use them.

We intend to publish in this series all data from the soil survey laboratories that form reasonably complete characterizations of soils. Already-assembled data and descriptions will be published just as rapidly as they can be prepared for printing. Fragmentary data collected as reference points for specific soil surveys will not be included.

While these data were being assembled, there were many changes in laboratory methods. Some were improved and some new ones were devised. Consequently, laboratory data for different soils cannot always be directly compared without allowance for the method.

The method used is indicated by symbol in the column headings of the data table. These symbols are identified in the code sheet on the opposite page. Each method is described in the first number of this series, "Soil Survey Laboratory Methods and Procedures for Collecting Soil Samples," SSIR No. 1.

Ways of describing soils have also changed. Soil descriptions have become explicit on more and more features. The systems for designating horizons and for classifying soils have been changed.

The soil descriptions published here were prepared as working documents to meet a specific need of a soil survey at the time the soil samples were collected. The soil scientists who wrote them had no idea they would be published. Editing has been limited for the most part to that necessary for conformance to the "Soil Survey Manual." Field textural estimates have been retained, even though some are at variance with the laboratory data, because the field estimates themselves are important data.

There were several reasons for sampling these soils. Some were sampled to study soil genesis, some to facilitate classification, and some to obtain data to permit more useful interpretations. Those sampled for genesis or classification studies do not always fit neatly into our present concepts of soil series. Partly because of these studies, our concepts of some soil series have been modified. As a consequence, the soil series name assigned a soil at the time of sampling is not always the name that would be assigned today. Soil series names in this publication follow 1965 series definitions.

Soil Survey
Soil Conservation Service

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1/ County numbers (the number following "Nev" in the Soil Survey No.) are as follows:

1. Churchill
2. Clark
3. Douglas
4. Elko
5. Esmeralda
6. Eureka
7. Humboldt
8. Lander
9. Lincoln
10. Lyon
11. Mineral
12. Nye
13. Ormsby
14. Pershing
15. Storey
16. Washoe
17. White Pine

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Abruptic Haplic Durargid, fine-loamy, mixed, mesic (Tickapoo taxadjunct)

SURVEY NOS. 59Nev-9-41 **LAB. NOS.** 59859 - 59867

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	A1	9.7	22.1	10.6	19.7	11.1	21.6	5.2	33.6	10.5	22.	cosl
3- 5	B&A	5.0	22.0	11.8	16.1	6.5	16.7	21.9	21.0	10.9	19	scl
5- 9	B2t	3.9	12.1	9.8	16.7	7.1	14.6	35.8	22.3	8.8	36	sc- scl
9-17	IIB3t	16.7	29.8	16.0	17.0	3.1	2.6	14.8	12.2	1.1	56	cosl
17-25	IIIC1si	14.1	24.7	16.0	17.2	4.3	9.4	14.3	16.9	4.8	60	cosl
25-32	IIIC2si	11.1	16.8	10.1	20.0	10.4	14.4	17.2	29.1	7.4	56	cosl
32-45	IIIC3ca	12.6	19.4	10.5	19.2	10.8	12.4	15.1	28.2	6.3	55	cosl
45-60	IVC4ca	11.3	19.3	16.4	27.3	9.4	6.1	10.2	28.2	2.3	38	lcos
60-66	IVC5 sicam	10.1	20.5	14.3	22.1	8.1	7.9	17.0	24.1	3.7	44	cosl

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.9	9.0	0.15	0.021	7.1	tr	0.8	-	5.5	2.3	1.16	0.9	4.4
7.5	8.5	0.10	0.021	4.8	tr	0.4	-	3.3	1.4	0.37	0.9	8.0
7.5	8.6	0.28	0.044	6.4	tr	0.6	-	4.3	0.3	0.28	0.9	13.2
8.0	9.1	0.15	0.022		2	0.5	-	4.5	0.1	0.19	0.8	8.1
8.2	9.4	0.06			1	0.6	-	5.9		0.22	0.8	7.4
8.3	9.3	0.04			1	0.6	-	4.0	0.6	0.18	0.8	9.2
8.2	9.4	0.05			3	0.6	-	4.6	0.5	0.17	0.7	8.5
8.1	9.4	0.01			1	1.8	-	3.0	4.5	0.18	0.8	6.5
7.9	9.2	0.05			3	3.6	-	2.5	N.D.	0.17	0.6	8.8

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A1 8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
11.7	12.6	2.9		0.3	2.0	2	2.4	1.2	5.4	0.0	1.0	18.2
18.6	10.2	3.2		0.5	2.5	2	1.9	1.1	2.5	0.0	0.5	20.8
26.4	16.7	4.2		0.3	2.5	9	2.2	1.1	2.6	0.2	1.4	35.5
16.2	23.1	3.1		0.7	2.3	4	3.5	0.7	1.6	0.0	<0.1	26.0
16.2	16.9	3.0		1.2	1.8	7	5.0	0.4	1.7	1.0	1.2	21.4
16.8	21.0	4.7		2.4	2.0	14	5.2	0.3	1.5	0.0	1.0	28.5
22.3	20.0	4.5		2.5	1.8	11	5.6	0.2	1.6	0.0	1.0	26.3
15.6	17.3	3.9		2.6	1.5	17	14.0	0.6	2.6	0.0	9.8	25.0
17.7	22.0	4.3		3.0	1.5	17	24.5	0.5	6.7	1.3	22.1	30.3

1/ Percent of <1 inch fraction.

\+ Including cations from carbonates in some horizons.

Series not designated 1/
59Nev-9-41

Soil Survey Area: Penoyer Valley, Lincoln County, Nevada.
Location: 0.25 mile E and 0.25 mile S of NW cor., sec. 3, T. 1 S., R. 55 E.
Collectors: R. E. Nelson, C. D. Henry, E. A. Naphan, Donald Bagley, and Lloyd Rooke Sampled: November 1959.
Description by: Edward A. Naphan
Elevation: About 5,000 feet
Vegetation: About 8 percent density, consisting of galleta 47 percent, shadscale 25 percent, bud sage 25 percent, annuals 3 percent.
Physiography: Moderately old alluvial fan dissected by V-shaped drainageways 500 to 1,000 ft. apart
Slope: 2 to 3 percent to the east
Drainage and Permeability: Well drained - runoff is medium; permeability is moderate to moderately slow.
Parent Material: Alluvium from olivine basalt, welded tuffs and andesite
Classification: **Abruptic Haplic Durargid, fine-loamy, mixed, mesic (Tickapoo taxadjunct)**
Climate: Annual rainfall about 8 inches; average January temperature 35° F., July 71° F., the mean annual temperature about 52° F., and the frost-free period 130 to 150 days.

Riverside Lab. Nos.
59859 through 59867

A1 0- 3" Light brownish gray (10YR 6/2) gravelly sandy loam, dark brown (10YR 4/3) when moist; weak coarse platy structure; soft, friable, nonsticky, nonplastic; plentiful fine, very fine and few medium roots; many very fine, fine and few medium vesicles; noncalcareous with a few spots that are slightly calcareous; pH_5 8.4; clear smooth boundary.

B&A 3- 5" Light brownish gray (7.5YR 6/2) gravelly sandy clay loam, brown (7.5YR 5/4) when moist; weak fine platy structure breaking readily to moderate fine subangular blocky fragments and with further pressure to moderate fine granules; soft, friable, sticky, plastic; plentiful fine, very fine and few medium roots; many fine and very fine vesicles; many fine and very fine interstitial pores; thin patchy clay films on peds and bridges between sand grains; few horizontal filaments of A_2; noncalcareous; pH_5 8.4; clear wavy boundary.

B2t 5- 9" Brown (7.5YR 5/4) gravelly sandy clay (30% gravel), dark brown (7.5YR 4/4) when moist; moderate medium and moderate fine subangular blocky structure; slightly hard, friable, very sticky, very plastic; plentiful fine, very fine and few medium roots; many fine and very fine tubular pores; many fine and very fine cracks between peds; thick patchy clay films on ped faces and moderately thick clay films on sand grains; noncalcareous, but slightly calcareous in a few spots; pH_5 8.4; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Abruptic Haplic Durargid, fine-loamy, mixed, mesic (Tickapoo taxadjunct)

SURVEY NOS. 59Nev-9-41 **LAB. NOS.** 59859 - 59867

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	A1	9.7	22.1	10.6	19.7	11.1	21.6	5.2	33.6	10.5	22.	cosl
3- 5	B&A	5.0	22.0	11.8	16.1	6.5	16.7	21.9	21.0	10.9	19	scl
5- 9	B2t	3.9	12.1	9.8	16.7	7.1	14.6	35.8	22.3	8.8	36	sc- scl
9-17	IIB3t	16.7	29.8	16.0	17.0	3.1	2.6	14.8	12.2	1.1	56	cosl
17-25	IIC1si	14.1	24.7	16.0	17.2	4.3	9.4	14.3	16.9	4.8	60	cosl
25-32	IIIC2si	11.1	16.8	10.1	20.0	10.4	14.4	17.2	29.1	7.4	56	cosl
32-45	IIIC3ca	12.6	19.4	10.5	19.2	10.8	12.4	15.1	28.2	6.3	55	cosl
45-60	IVC4ca	11.3	19.3	16.4	27.3	9.4	6.1	10.2	28.2	2.3	38	lcos
60-66	IVC5 sicam	10.1	20.5	14.3	22.1	8.1	7.9	17.0	24.1	3.7	44	cosl

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.9	9.0	0.15	0.021	7.1	tr	0.8	-	5.5	2.3	1.16	0.9	4.4
7.5	8.5	0.10	0.021	4.8	tr	0.4	-	3.3	1.4	0.37	0.9	8.0
7.5	8.6	0.28	0.044	6.4	tr	0.6	-	4.3	0.3	0.28	0.9	13.2
8.0	9.1	0.15	0.022		2	0.5	-	4.5	0.1	0.19	0.8	8.1
8.2	9.4	0.06			1	0.6	-	5.9		0.22	0.8	7.4
8.3	9.3	0.04			1	0.6	-	4.0	0.6	0.18	0.8	9.2
8.2	9.4	0.05			3	0.6	-	4.6	0.5	0.17	0.7	8.5
8.1	9.4	0.01			1	1.8	-	3.0	4.5	0.18	0.8	6.5
7.9	9.2	0.05			3	3.6	-	2.5	N.D.	0.17	0.6	8.8

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca + 6N2b	5B1a Mg + 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLES A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
11.7	12.6	2.9		0.3	2.0	2	2.4	1.2	5.4	0.0	1.0	18.2
18.6	10.2	3.2		0.5	2.5	2	1.9	1.1	2.5	0.0	0.5	20.8
26.4	16.7	4.2		0.3	2.5	9	2.2	1.1	2.6	0.2	1.4	35.5
16.2	23.1	3.1		0.7	2.3	4	3.5	0.7	1.6	0.0	<0.1	26.0
16.2	16.9	3.0		1.2	1.8	7	5.0	0.4	1.7	1.0	1.2	21.4
16.8	21.0	4.7		2.4	2.0	14	5.2	0.3	1.5	0.0	1.0	28.5
22.3	20.0	4.5		2.5	1.8	11	5.6	0.2	1.6	0.0	1.0	26.3
15.6	17.3	3.9		2.6	1.5	17	14.0	0.6	2.6	0.0	9.8	25.0
17.7	22.0	4.3		3.0	1.5	17	24.5	0.5	6.7	1.3	22.1	30.3

1/ Percent of <1 inch fraction.

\+ Including cations from carbonates in some horizons.

IIB3t	9-17"	Brown (10YR 5/4) very gravelly coarse sandy loam (55% gravel; 1% cobble), dark brown (10YR 4/3) when moist; weak medium and fine subangular blocky structure; slightly hard, friable, sticky, plastic; plentiful fine and very fine roots; common fine and very fine tubular pores; thin patchy clay films on ped faces and on sand grains; slightly calcareous but strongly calcareous where few lime veins occur and where lime occurs on the lower side of pebbles; pH_5 8.6; clear wavy boundary.
IIC1si	17-25"	Brown (10YR 5/3) very gravelly coarse sandy loam (55% gravel, 2% cobble), dark brown (10YR 4/3) when moist; massive; slightly hard with few lenses and irregular masses of lime-cemented material in places; friable, slightly sticky, slightly plastic; few fine and very fine roots; common fine and very fine tubular pores; thin patchy clay films on sand grains; slightly calcareous but very strongly calcareous where lime veins occur and where lime occurs on pebbles and cobbles; pH_5 8.8; clear wavy boundary.
IIIC2si	25-32"	Pale brown (10YR 6/3) very gravelly coarse sandy loam (55% gravel, 1% cobble), dark brown (10YR 4/3) when moist; massive; hard with lime lenses and cemented masses as in the horizon above; friable, nonsticky, nonplastic; few fine and very fine roots; common to many very fine, fine and medium interstitial pores; slightly calcareous but very strongly calcareous where lime veins and lime-cementing material occurs; pH_5 8.8; clear wavy boundary.
IIIC3ca	32-45"	Similar in color, structure, texture, and content of gravel and cobble to the horizon above; massive; hard, very friable, nonsticky, nonplastic; devoid of plant roots; common fine and very fine tubular pores; slightly calcareous but strongly calcareous where many medium and coarse faint white (10YR 8/2) lime veins occur and where lime is attached to pebbles and cobbles; pH_5 8.8; clear wavy boundary.
IVC4ca	45-60"	Pale brown (10YR 6/3) gravelly loamy coarse sand (40% gravel, 5% cobble), dark brown (10YR 4/4) when moist; massive; slightly hard with harder material where lime occurs as veins and on cobbles; friable, nonsticky, nonplastic; no roots; many very fine and fine interstitial pores; slightly calcareous matrix but very strongly calcareous where lime has accumulated as common medium and coarse faint white (10YR 8/2) lime veins and as coatings on pebbles; pH_5 8.8; abrupt wavy boundary.
IVC5sicam	60-66"	White (10YR 8/2) very gravelly coarse sandy loam (about 45% gravel), light gray (10YR 7/2) when moist; massive; very hard because of moderate lime cementation; friable to firm, nonsticky, nonplastic; no roots; many very fine and fine interstitial pores; very strongly calcareous; pH_5 8.8.

Remarks: Weak desert pavement on bare areas between shrubs.

1/ The Tickapoo series is in a fine, montmorillonitic, mesic family of Haplic Nadurargids (see pedon S59Nev-9-39). This pedon is a taxadjunct because it has a fine-loamy control section and doesn't have enough exchangeable Na for a natric horizon.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Abruptic Haplic Durargid, fine, montmorillonitic, mesic (Tickapoo taxadjunct)

SURVEY NOS. 59Nev-9-40 **LAB. NOS.** 59850 - 59858

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	A1	12.2	21.4	12.8	16.2	10.7	21.9	4.8	29.2	12.1	16	cosl- lcs
3- 5	B1t	8.5	17.6	12.0	13.1	6.0	17.2	25.6	17.4	12.2	7	scl
5-11	B21t	7.3	14.9	11.0	11.1	3.4	9.3	43.0	11.1	6.5	9	sc
11-17	B22t	6.8	14.8	10.5	11.2	4.1	11.4	41.2	13.6	7.2	20	sc
17-22	IIIC1sica	13.1	25.3	12.0	13.4	5.8	14.7	15.7*	17.6	9.5	40	
22-44	IIIC2	16.0	32.1	20.4	17.0	3.4	5.4	5.7*	13.1	2.9	38	
44-50	IIIC3sicam	11.3	40.3	19.2	15.2	3.7	5.3	5.0*	12.8	2.9	50	
50-60	IIIC4	16.0	46.6	19.9	13.4	1.0	1.1	2.0*	6.2	1.0	33	
60-64+	IIIC5 sicam	10.6	45.3	18.7	12.7	3.5	3.6	5.6*	10.8	1.6	50	

8C1b pH Saturated Paste 1:1	8C1a pH 1:10	6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.1	9.0	0.09	0.017	5.3	tr	0.6	-	4.0	N.D.	0.83	0.8	4.3
7.5	8.6	0.09	0.021	4.3	tr	0.5	-	2.7	N.D.	N.D.	0.9	9.8
7.5	8.8	0.28	0.038	7.4	tr	0.8	-	4.4	1.2	0.60	0.7	19.3
8.1	9.2	0.35	0.041	8.5	4	1.4	-	3.5	1.9	0.76	0.6	19.5
8.0	9.2	0.26	0.031	8.4	16	2.6	-	2.6	6.0	0.68	0.3	11.8
7.8	8.9	0.06			6	5.3	-	1.8	40.6	0.38	0.5	5.5
7.8	8.6	0.11			14	5.4	-	1.4	34.4	0.54	0.1	5.9
7.9	8.9	0.00			1	4.0	-	1.3	28.3	0.37	0.4	3.0
7.6	8.1	0.21			14	5.3	-	1.7	45.6	0.39	0.9	7.1

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
13.4	7.6	3.7		0.8	2.5	6	3.5	0.9	2.3	0.0	0.5	14.9
22.8	11.3	3.8	0.7	1.7	3.9	7	3.9	0.5	0.8	0.8	0.5	23.5
34.3	19.6	6.8	1.0	3.0	4.0	9	5.9	0.6	1.4	0.4	2.9	45.2
33.0	28.4	6.5		3.3	4.3	10	10.3	0.9	2.7	0.7	8.2	46.9
25.5	21.1	4.2		2.6	1.8	10	18.0	1.1	5.1	0.8	14.8	41.3
11.6	17.4	2.4		2.0	1.7	17	13.0	0.5	24.4	2.1	19.0	27.2
11.3	19.2	2.3		2.1	1.5	19	27.5	0.8	31.0	2.4	20.1	38.9
7.7	12.9	1.7		1.3	1.0	17	23.8	0.8	20.7	1.2	12.5	28.3
10.0	41.3	3.6		1.6	1.2	16	26.3	1.0	31.5	7.3	22.6	41.0

1/ Percent of the <1 inch fraction

* Incompletely dispersed

\+ Including cations from carbonates in some horizons

Series not designated [1/]
59Nev-9-40

Soil Survey Area: Penoyer Valley
Location: 1000 ft. south and 870 ft. east of NW cor., Sec. 9, T. 4 S., R 54 E., Penoyer Valley, Lincoln County, Nevada.
Collectors: R. E. Nelson, C. D.Henry, E. A.Naphan, Donald Bagley, and Lloyd Rooke , November 1959.
Description by: Edward A. Naphan
Elevation: About 5000 feet
Vegetation: About 7 percent; this consists of hopsage 20 percent, horsebrush 25 percent, bur sage 20 percent, galleta 25 percent, upland greasewood 5 percent, annuals 5 percent, a trace of shadscale.
Physiography: Alluvial fan pediment or moderately old alluvial fan with broad drainage way about every 1/8 mile.
Slope: 3 percent to the east
Drainage and Permeability: Well drained; runoff is medium; permeability is moderate to moderately slow and slow through the calcium carbonate pan.
Parent Material: Alluvium from olivine basalt, welded tuffs and andesite.
Classification: Abruptic Haplic Durargid, fine, montmorillonitic, mesic (Tickapoo taxadjunct)
Climate: Precipitation is about 8 inches per year; the average January temperature is 35° F., July 71° F., the mean annual temperature is about 52° F., and the frost-free season 130 to 150 days.

Riverside Lab. Nos.
59850 through 59858

A_1 0- 3" Light gray (10YR 7/2) gravelly coarse sandy loam, brown (10YR 5/3) when moist; weak coarse platy structure; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; many very fine, fine and few medium vesicles; noncalcareous in most of this horizon but slightly calcareous in spots; pH_5 8.5; abrupt smooth boundary.

B_{1t} 3- 5" Light gray (10YR 7/2) sandy clay loam, yellowish brown (10YR 5/4) when moist; weak fine subangular aggregates that break to weak fine granules; slightly hard, friable, sticky, plastic; plentiful fine and very fine roots; many very fine and fine interstitial pores; thin to moderately thick clay films on ped faces; noncalcareous; pH_5 8.2; clear wavy boundary.

B_{21t} 5-11" Brown (7.5YR 5/4) sandy clay, dark brown (7.5YR 4/4) when moist; moderate medium prismatic structure; slightly hard, friable, sticky, plastic; plentiful fine, very fine and few medium roots; many fine and very fine tubular pores and many cracks between peds; moderately thick patchy clay films on ped faces and in pores; noncalcareous; pH_5 8.2; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Abruptic Haplic Durargid, fine, montmorillonitic, mesic (Tickapoo taxadjunct)

SURVEY NOS. 59Nev-9-40 **LAB. NOS.** 59850 - 59858

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	A1	12.2	21.4	12.8	16.2	10.7	21.9	4.8	29.2	12.1	16	cosl-lcs
3- 5	B1t	8.5	17.6	12.0	13.1	6.0	17.2	25.6	17.4	12.2	7	scl
5-11	B21t	7.3	14.9	11.0	11.1	3.4	9.3	43.0	11.1	6.5	9	sc
11-17	B22t	6.8	14.8	10.5	11.2	4.1	11.4	41.2	13.6	7.2	20	sc
17-22	IIC1sicm	13.1	25.3	12.0	13.4	5.8	14.7	15.7*	17.6	9.5	40	
22-44	IIIC2	16.0	32.1	20.4	17.0	3.4	5.4	5.7*	13.1	2.9	38	
44-50	IIIC3sicm	11.3	40.3	19.2	15.2	3.7	5.3	5.0*	12.8	2.9	50	
50-60	IIIC4	16.0	46.6	19.9	13.4	1.0	1.1	2.0*	6.2	1.0	33	
60-64+	IIIC5 sicem	10.6	45.3	18.7	12.7	3.5	3.6	5.6*	10.8	1.6	50	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.1	9.0	0.09	0.017	5.3	tr	0.6	-	4.0	N.D.	0.83	0.8	4.3
7.5	8.6	0.09	0.021	4.3	tr	0.5	-	2.7	N.D.	N.D.	0.9	9.8
7.5	8.8	0.28	0.038	7.4	tr	0.8	-	4.4	1.2	0.60	0.7	19.3
8.1	9.2	0.35	0.041	8.5	4	1.4	-	3.5	1.9	0.76	0.6	19.5
8.0	9.2	0.26	0.031	8.4	16	2.6	-	2.6	6.0	0.68	0.3	11.8
7.8	8.9	0.06			6	5.3	-	1.8	40.6	0.38	0.5	5.5
7.8	8.6	0.11			14	5.4	-	1.4	34.4	0.54	0.1	5.9
7.9	8.9	0.00			1	4.0	-	1.3	28.3	0.37	0.4	3.0
7.6	8.1	0.21			14	5.3	-	1.7	45.6	0.39	0.9	7.1

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
13.4	7.6	3.7		0.8	2.5	6	3.5	0.9	2.3	0.0	0.5	14.9
22.8	11.3	3.8	0.7	1.7	3.9	7	3.9	0.5	0.8	0.8	0.5	23.5
34.3	19.6	6.8	1.0	3.0	4.0	9	5.9	0.6	1.4	0.4	2.9	45.2
33.0	28.4	6.5		3.3	4.3	10	10.3	0.9	2.7	0.7	8.2	46.9
25.5	21.1	4.2		2.6	1.8	10	18.0	1.1	5.1	0.8	14.8	41.3
11.6	17.4	2.4		2.0	1.7	17	13.0	0.5	24.4	2.1	19.0	27.2
11.3	19.2	2.3		2.1	1.5	19	27.5	0.8	31.0	2.4	20.1	38.9
7.7	12.9	1.7		1.3	1.0	17	23.8	0.8	20.7	1.2	12.5	28.3
10.0	41.3	3.6		1.6	1.2	16	26.3	1.0	31.5	7.3	22.6	41.0

1/ Percent of the <1 inch fraction

* Incompletely dispersed

\+ Including cations from carbonates in some horizons

B_{22t} 11-17" Brown (7.5YR 5/4) sandy clay with many medium and coarse faint pinkish white (7.5YR 8/2) lime filaments, dark brown (7.5YR 4/4) when moist; weak medium and fine subangular blocky structure; slightly hard, friable, sticky, plastic; abundant fine and very fine roots; few very fine and fine tubular pores; many fine interstitial pores; common thin patchy clay films on ped faces, as coatings on sand grains and as bridges between sand grains; strongly calcareous; pH_5 8.5; abrupt wavy boundary.

IIC1sica 17-22" Pale brown (10YR 7/3) gravelly coarse sandy loam (60% gravel), brown (10YR 5/3) when moist; massive; slightly hard, friable, nonsticky, nonplastic; abundant fine and very fine roots; many very fine and fine interstitial, few fine and very fine tubular pores; very strongly calcareous and contains a few thin lenses where calcium carbonate has cemented the material; pH_5 8.5; clear wavy boundary.

IIIC2 22-44" Light gray (10YR 7/2) gravelly coarse sand (60% gravel) with a few lenses where lime has moderately cemented the material, brown (10YR 5/3) when moist; single grain; loose when dry and moist, nonsticky, nonplastic; plentiful fine and very fine roots; many fine, very fine and medium interstitial pores; moderately calcareous; pH_5 8.5; abrupt wavy boundary.

IIIC3sicam 44-50" White (10YR 8/1) gravelly coarse sand (60% gravel), light gray (10YR 7/2) when moist; massive; moderately cemented with calcium carbonate; very hard, firm, nonsticky, nonplastic; few fine and very fine roots; few fine and very fine tubular pores and few fine and very fine vesicles; very strongly calcareous; pH_5 8.5; clear wavy boundary.

IIIC4 50-60" Light brownish gray (10YR 6/2) gravelly coarse sand (60% gravel), grayish brown (10YR 5/2) when moist; single grain; loose when dry and moist; nonsticky, nonplastic; few fine and very fine roots; many fine, very fine and medium interstitial pores; very slightly calcareous; pH_5 8.3; clear wavy boundary.

IIIC5sicam 60-64" White (10YR 8/2) gravelly coarse sand (60% gravel), light gray (10YR 7/2) when moist; massive; extremely hard, extremely firm; practically no roots; many micro and fine very fine interstitial pores; very strongly calcareous and lime-cemented; pH_5 8.5.

Remarks: Most areas without vegetation have a weakly developed fine gravel erosion pavement.

1/ The Tickapoo series is in a fine, montmorillonitic, mesic family of Haplic Nadurargids (see pedon S59Nev-9-39). This pedon contains too little exchangeable Na to be a Nadurargid.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Indian Creek stony loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Haplic Xerollic Durargid, fine, montmorillonitic, mesic

SURVEY NOS. S60Nev-3-1 **LAB. NOS.** 6035 - 6043

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A11	5.0	6.5	3.2	8.3	11.9	48.2	16.9	16.9	37.2	44	1
2- 4	A12	4.7	7.2	3.5	7.6	9.9	47.2	19.9	32.8	29.4	23	1
4- 5	A&B	3.2	6.1	3.4	7.0	8.8	43.1	28.4	28.3	28.1	19	cl
5-10	B21t	2.9	5.6	3.1	6.5	7.9	36.1	37.9	25.3	22.9	22	cl
*10-18 2/	B22t	2.6	4.7	2.6	5.4	6.2	30.9	47.6	16.0	24.6	44	c
18½-21	IIC1sica	27.2	44.4	8.4	6.4	2.6	6.9	4.1*	9.0	3.8	57	
21-38	IIC2sica	20.9	39.6	8.2	7.9	4.3	12.9	6.2*	13.6	8.1	51	
38-55	IIC3ca	21.4	35.5	8.7	6.8	3.0	15.0	9.6*	11.7	9.5	66	
55-63+	IIC4	14.5	48.0	8.8	6.8	2.9	9.1	9.9*	9.3	6.0	65	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3 (milliequivalents per liter)	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
6.5	7.4	0.45	0.035	12.9		0.3	-	2.7			1.7	7.3
6.5	7.5	0.35	0.030	12.7		0.2	-	1.5			1.8	8.3
6.4	7.6	0.36	0.032	10.9		0.2	-	1.2			1.5	11.5
6.3	7.7	0.35	0.034	10.3		0.2	-	1.3			1.5	18.5
6.5	7.9	0.27				0.2	-	1.4			1.4	24.2
8.0	8.8	0.17			5	0.4	-	3.4			0.5	10.9
8.0	8.9	0.05			2	0.3	-	2.2			0.6	10.4
7.7	8.6	0.02			<0.5	0.6	-	1.6			0.8	12.6
7.6	8.0	0.01				0.4	-	1.5			1.0	12.1

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
17.5	9.4	4.4	9.7	0.2	0.8	60	1.0	0.3	1.9	0.2	0.6	27.3
19.2	10.6	4.1	7.8	0.3	0.6	67	1.0	0.1	1.2	-	0.2	25.4
25.0	14.5	5.1	7.7	0.4	0.5	73	1.1	0.2	0.5	-	0.3	30.9
36.4	22.2	7.4	8.1	0.8	0.4	79	1.3	<0.1	1.3	-	0.3	49.5
45.5	27.0	12.4	7.4	1.1	0.5	85	1.4	0.1	0.8	-	0.3	61.8
31.2	26.3	10.3	-	1.1	0.2		2.6	<0.1	1.7	0.1	0.9	41.4
25.8	25.0	6.0	-	0.8	0.3		1.6	<0.1	1.0	-	0.4	41.4
32.5	22.1	6.5	-	0.9	0.4		2.6	0.1	1.3	-	3.1	33.0
31.1	19.9	6.3	6.3	0.9	0.3	81	2.0	0.1	1.2	0.4	0.8	32.4

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

1/ Percent of <1 inch fraction; amount of >1 inch material recorded in profile description.

2/ B3 horizon - 18 to 18-1/2 inch - not sampled.

INDIAN CREEK STONY LOAM
S60Nev-3-1

Location: The site is located approximately 500 feet east and 1800 feet north of the south 1/4 corner sec. 1, T. 11 N., R. 20 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, R. Malchow, and L. H. Grant, April 20, 1960
Description by: L. N. Langan
Relief: Very slightly convex to smooth nearly level to gently sloping terrace
Physiography: Old alluvial terrace
Drainage: Well drained; runoff is slow during periods of normal rainfall because of the stony erosion pavement on the surface; internal drainage is very slow. Soil permeability is very slow through the B and upper part of the C horizons and is rapid in the lower part of the C. The water table is very deep, being estimated at over 300 feet.
Parent Material: Gravelly, cobbly, and stony loamy alluvium derived from mixed rock sources, consisting primarily of granite with admixtures of basalt, rhyolite, gneiss, and slate.
Use: Available forage grown on this site is utilized for livestock grazing during late winter and spring months. Heavy wildlife utilization of available forage is made during late fall and winter months resulting from the Sierra Nevada deer herd migration.
Vegetation: Vegetation has a density of approximately 15 percent, consisting of low sage 90 percent, juniper 5 percent, bitterbrush 1 percent, cheatgrass 1 percent, annual weeds 3 percent and trace of squirreltail.
Climate: The site is characterized by a cool, semi-arid climate with cold, moist winters and hot, dry summers. Average rainfall is approximately 12 to 16 inches, average annual temperature is 49 to 51 degrees F., and has an average frost-free season of 95 to 105 days.
Remarks: These samples are paired with S60Nev-3-2-1 through 10.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Abruptic Haplic Xerollic Durargid, fine, montmorillonitic, mesic.

A11 0- 2" Light brownish gray (10YR 6/2) stony and gravelly loam, very dark grayish brown (10YR 3/2) when moist; moderate medium platy structure; slightly hard, friable, slightly sticky, slightly plastic; abundant very fine roots; many very fine and fine vesicular pores; contains many bleached sand grains; pH 6.6; abrupt smooth boundary; cobblestones greater than one inch (20% by volume) were not sampled.
RSL No. 6035

A12 2- 4" Gray (10YR 6/1) gravelly loam, very dark grayish brown (10YR 3/2) when moist; weak coarse platy breaking to moderate fine and very fine granular structure; soft, very friable, slightly sticky, slightly plastic; few fine and abundant very fine roots; common fine vesicular and few fine and very fine tubular pores; contains few bleached sand grains; occasional thin clay films in pores; pH 6.6; abrupt wavy boundary; pebbles greater than one inch (5% by volume) were not sampled.
RSL No. 6036

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Indian Creek stony loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Haplic Xerollic Durargid, fine, montmorillonitic, mesic

SURVEY NOS. S60Nev-3-1 **LAB. NOS.** 6035 - 6043

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A11	5.0	6.5	3.2	8.3	11.9	48.2	16.9	16.9	37.2	44	1
2- 4	A12	4.7	7.2	3.5	7.6	9.9	47.2	19.9	32.8	29.4	23	1
4- 5	A&B	3.2	6.1	3.4	7.0	8.8	43.1	28.4	28.3	28.1	19	cl
5-10	B21t	2.9	5.6	3.1	6.5	7.9	36.1	37.9	25.3	22.9	22	cl
*10-18	2/ B22t	2.6	4.7	2.6	5.4	6.2	30.9	47.6	16.0	24.6	44	c
18½-21	IIC1sica	27.2	44.4	8.4	6.4	2.6	6.9	4.1*	9.0	3.8	57	
21-38	IIC2sica	20.9	39.6	8.2	7.9	4.3	12.9	6.2*	13.6	8.1	51	
38-55	IIC3ca	21.4	35.5	8.7	6.8	3.0	15.0	9.6*	11.7	9.5	66	
55-63+	IIC4	14.5	48.0	8.8	6.8	2.9	9.1	9.9*	9.3	6.0	65	

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
							milliequivalents per liter					
6.5	7.4	0.45	0.035	12.9		0.3	-	2.7			1.7	7.3
6.5	7.5	0.35	0.030	12.7		0.2	-	1.5			1.8	8.3
6.4	7.6	0.36	0.032	10.9		0.2	-	1.2			1.5	11.5
6.3	7.7	0.35	0.034	10.3		0.2	-	1.3			1.5	18.5
6.5	7.9	0.27				0.2	-	1.4			1.4	24.2
8.0	8.8	0.17			5	0.4	-	3.4			0.5	10.9
8.0	8.9	0.05			2	0.3	-	2.2			0.6	10.4
7.7	8.6	0.02			<0.5	0.6	-	1.6			0.8	12.6
7.6	8.0	0.01				0.4	-	1.5			1.0	12.1

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	5B Exch 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
17.5	9.4	4.4	9.7	0.2	0.8	60	1.0	0.3	1.9	0.2	0.6	27.3
19.2	10.6	4.1	7.8	0.3	0.6	67	1.0	0.1	1.2	-	0.2	25.4
25.0	14.5	5.1	7.7	0.4	0.5	73	1.1	0.2	0.5	-	0.3	30.9
36.4	22.2	7.4	8.1	0.8	0.4	79	1.3	<0.1	1.3	-	0.3	49.5
45.5	27.0	12.4	7.4	1.1	0.5	85	1.4	0.1	0.8	-	0.3	61.8
31.2	26.3	10.3	-	1.1	0.2		2.6	<0.1	1.7	0.1	0.9	41.4
25.8	25.0	6.0	-	0.8	0.3		1.6	<0.1	1.0	-	0.4	41.4
32.5	22.1	6.5	-	0.9	0.4		2.6	0.1	1.3	-	3.1	33.0
31.1	19.9	6.3	6.3	0.9	0.3	81	2.0	0.1	1.2	0.4	0.8	32.4

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

1/ Percent of <1 inch fraction; amount of >1 inch material recorded in profile description.

2/ B3 horizon - 18 to 18-1/2 inch - not sampled.

A&B RSL No. 6037	4- 5"	Light brownish gray (10YR 6/2) gravelly clay loam, dark brown (10YR 3/3) when moist; strong very fine subangular blocky structure; slightly hard, friable, sticky, plastic; abundant very fine and few fine and medium roots; many very fine tubular, and many very fine and fine interstitial pores; many thin clay films on ped surfaces; few bleached sand grains; pH 6.6; abrupt wavy boundary; pebbles greater than one inch (5% by volume) were not sampled.
B21t RSL No. 6038	5-10"	Dark brown (10YR 4/3) gravelly light clay, dark brown (10YR 3/3) when moist; strong medium columnar breaking to strong medium and coarse subangular blocky structure; extremely hard, very firm, very sticky, very plastic; abundant very fine and few fine and medium roots; common very fine and few fine tubular, common very fine and fine interstitial pores; many pressure cutans; pH 6.6; clear smooth boundary; pebbles greater than one inch (20% by volume) were not sampled.
B22t RSL No. 6039	10-18" (BPR)	Dark brown (10YR 4/3) gravelly clay, dark brown (10YR 3/3) when moist; strong medium prismatic structure; extremely hard, very firm, very sticky, very plastic; plentiful very fine and few fine and medium roots, mostly exped; very few very fine tubular, and common very fine and fine interstitial exped pores; many pressure cutans; pH 6.8; abrupt wavy boundary.
B3t Not sampled	18-18½	Brown (7.5YR 5/4) sandy clay loam, dark brown (7.5Y 4/4) when moist; moderate fine subangular blocky structure; hard, friable, sticky, plastic; abundant very fine and few fine roots; few very fine and fine tubular, common very fine and fine interstitial pores; many thin and a few moderately thick clay films on ped faces and in pores; mildly calcareous; pH 7.2; abrupt wavy boundary.
IIC1sica RSL No. 6040	18 -21"	Very pale brown (10YR 8/3) strongly cemented duripan of very gravelly and cobbly coarse sandy texture; light yellowish brown (10YR 6/4) when moist; massive; extremely hard to very hard, extremely firm to very firm, nonsticky, nonplastic; plentiful very fine and few fine roots along cleavage planes; nonporous; common moderately thick clay films on cleavage faces; soil matrix is strongly calcareous and very strongly calcareous on cleavage faces; pH 8.6; clear wavy boundary; cobblestones greater than one inch (50% by volume) were not sampled.
IIC2sica RSL No. 6041	21-38"	Light yellowish brown (10YR 6/4) very gravelly and cobbly loamy coarse sand, yellowish brown (10YR 5/4) when moist; massive; very hard, firm, nonsticky, nonplastic; few very fine and fine roots; many very fine interstitial pores; mildly calcareous in soil matrix, and very strongly calcareous where gravels are lime coated; pH 7.8; gradual wavy boundary; cobblestones greater than one inch (35% by volume) were not sampled.
IIC3ca RSL No. 6042	38-55"	Light yellowish brown (10YR 6/4) very gravelly and cobbly loamy coarse sand, yellowish brown (10YR 5/4) when moist; massive; hard, very friable, nonsticky, nonplastic; very few very fine roots; many very fine and fine interstitial pores; noncalcareous to mildly calcareous in soil matrix, and strongly calcareous where gravels and cobbles are lime coated; pH 7.6; gradual wavy boundary; cobblestones greater than one inch (50% by volume) were not sampled.
IIC4 RSL No. 6043	55-63"+	Pale brown (10YR 6/3) very gravelly loamy coarse sand, dark brown (10YR 4/3) when moist; massive; hard, very friable, nonsticky, nonplastic; no roots apparent; many fine interstitial pores; pH 7.4; cobblestones greater than one inch (15% by volume) were not sampled.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Indian Creek stony loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Haplic Xerollic Durargid, fine, montmorillonitic, mesic

SURVEY NOS. S60Nev-3-2 **LAB. NOS.** 6044 - 6053

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	A_{11}	1.1	2.2	1.7	8.0	12.0	47.2	27.8	37.4	27.7	43	cl-l
1- 3	A_{12}	0.9	2.6	1.8	7.4	11.5	48.8	27.0	37.0	28.8	20	l-cl
3- 5	A & B	0.8	2.5	1.7	6.8	9.6	42.6	36.0	30.2	27.0	15	cl
5-11	$B_{21}t$	1.4	3.5	1.5	5.0	6.7	33.2	48.7	22.2	21.3	30	c
11-19	$B_{22}t$	1.1	2.5	1.2	3.6	5.1	26.5	60.0	16.7	17.4	31	c
19-20	B_3t	6.3	13.3	6.1	8.8	4.2	19.4	41.9	13.5	14.8	47	c
20-25*	IIC1sica	28.0	32.6	13.3	13.0	3.1	3.9*	6.1	10.7	2.1	71	
25-36	IIC2sica	9.8	34.1	19.8	18.4	5.7	6.4*	5.8	18.0	2.8	57	
36-51	IIC_3ca	17.8	31.4	13.4	11.3	4.3	9.1*	12.7	13.2	5.6	61	
51-64+	IIC4	12.8	27.2	14.7	11.6	3.4	9.8*	20.5	12.0	6.4	44	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 S il water 15 atmos. Pct.
							milliequivalents per liter					
6.5	7.3	0.96	0.081	11.9		0.5	-	3.8			1.7	10.8
6.1	7.1	0.65	0.056	11.6		0.3	-	1.6			2.0	9.9
6.0	7.0	0.44	0.043	10.2		0.2	-	1.0			1.8	12.9
6.0	7.2	0.37	0.037	10.0		0.2	-	1.5			1.5	21.5
6.4	7.5	0.35	0.030	11.7		0.3	-	1.5			1.8	27.7
6.8	7.5	1.05	0.104	10.1	<0.5	Sample exhausted						
7.7	8.6	0.21			4	0.5	-	2.9			0.6	18.9
7.8	8.6	0.05			3	1.0	-	2.8			0.8	13.3
7.6	8.4	0.02			1	1.4	-	5.2			1.0	15.0
7.4	8.0	0.03				1.8	-	1.4			1.0	15.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
23.5	12.0	.4	8.1	0.2	1.4	71	1.0	0.8	3.1	0.8	3.6	38.2
21.7	10.8	5.1	7.9	0.2	1.1	69	1.2	0.4	1.3	1.2	0.7	32.9
28.3	14.5	6.7	7.7	0.3	1.1	75	1.2	0.3	0.9	0.9	0.3	36.3
42.7	24.0	10.0	8.7	0.7	0.8	80	1.2	<0.1	1.0	0.8	0.2	48.4
54.5	26.7	18.4	6.3	1.1	0.6	88	1.6	<0.1	1.3	0.5	0.6	67.8
Sample exhausted												
43.5	24.9	20.1	-	1.5	0.3		2.7	<0.1	1.8	0.7	2.1	60.1
32.5	21.7	7.5	-	1.5	0.3		5.2	<0.1	3.3	1.0	3.2	45.5
27.7	21.8	7.4	-	1.7	0.4		7.1	0.1	4.9	1.6	4.5	44.7
33.9	19.9	7.4	6.0	1.5	0.4	83	8.1	0.2	6.3	2.3	8.1	40.4

1/ Percent of <1 inch fraction; amount>1 inch recorded in profile description.
* Incompletely dispersed.
\+ Including cations from carbonates in some horizons.

INDIAN CREEK STONY LOAM
S60Nev-3-2

Location: The site is located approximately 1,520 feet west and 1,500 feet north of the southeast corner of sec. 12, T. 11 N., R. 20 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N.Langan, R. E. Nelson, R. Malchow, and L. H. Grant, April 20, 1960
Description by: L. N. Langan
Relief: Slightly convex to smooth, nearly level to gently sloping alluvial terrace
Physiography: Old alluvial terrace
Drainage: Well drained; runoff is slow during periods of normal rainfall as a result of a stony erosion pavement. Internal drainage is very slow. Soil permeability is very slow through the B and upper part of the C horizon but is rapid in the lower part of the C. Water table is very deep, being estimated at over 300 feet.
Parent Material: Stony, cobbly, gravelly, coarse-textured alluvium derived from mixed rock sources consisting primarily of granite, basalt, andesite, gneiss, and slate.
Use: Available forage grown on this soil is being utilized for livestock grazing during the late winter and spring months. Heavy utilization is being made by the migratory Sierra Nevada deer herd during late fall, winter, and early spring months.
Vegetation: Vegetation has a plant density of approximately 10 percent, consisting of low sage 98 percent, cheatgrass, astragalus 1 percent, trace of squirreltail.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. Average rainfall is approximately 12 to 16 inches, average annual temperature is 49 to 51 degrees F., and the average frost-free season is 95 to 110 days.
Remarks: These samples are paired with S60Nev-3-1-1 through 9.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Abruptic Haplic Xerollic Durargid, fine, montmorillonitic, mesic.

A11 0- 1" Gray (10YR 6/1) stony loam, very dark grayish brown (10YR 3/2) when moist; weak coarse platy breaking to moderate fine platy structure; soft, friable, slightly sticky, slightly plastic; abundant very fine roots; common fine and very fine vesicular pores; few bleached sand grains; pH 6.6; abrupt wavy boundary; cobblestones and pebbles greater than one inch (60% by volume) were not sampled.
RSL No. 6044

A12 1- 3" Brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) when moist; weak coarse subangular blocky breaking to strong fine granular structure; soft, friable, slightly sticky, slightly plastic; abundant very fine, plentiful fine, and few medium roots; many fine and very fine interstitial pores; many bleached sand grains; pH 6.4; abrupt wavy boundary; cobblestones greater than one inch (5% by volume) were not sampled.
RSL No. 6045

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Indian Creek stony loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Haplic Xerollic Durargid, fine, montmorillonitic, mesic

SURVEY NOS. S60Nev-3-2 **LAB. NOS.** 6044 - 6053

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	A_{11}	1.1	2.2	1.7	8.0	12.0	47.2	27.8	37.4	27.7	43	cl-l
1- 3	A_{12}	0.9	2.6	1.8	7.4	11.5	48.8	27.0	37.0	28.8	20	l-cl
3- 5	A &B	0.8	2.5	1.7	6.8	9.6	42.6	36.0	30.2	27.0	15	cl
5-11	B_{21t}	1.4	3.5	1.5	5.0	6.7	33.2	48.7	22.2	21.3	30	c
11-19	B_{22t}	1.1	2.5	1.2	3.6	5.1	26.5	60.0	16.7	17.4	31	c
19-20	B_{3t}	6.3	13.3	6.1	8.8	4.2	19.4	41.9	13.5	14.8	47	c
20-25*	IIC_{1sica}	28.0	32.6	13.3	13.0	3.1	3.9*	6.1	10.7	2.1	71	
25-36	IIC_{2sica}	9.8	34.1	19.8	18.4	5.7	6.4*	5.8	18.0	2.8	57	
36-51	IIC_{3ca}	17.8	31.4	13.4	11.3	4.3	9.1*	12.7	13.2	5.6	61	
51-64+	IIC_4	12.8	27.2	14.7	11.6	3.4	9.8*	20.5	12.0	6.4	44	

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.5	7.3	0.96	0.081	11.9		0.5	-	3.8			1.7	10.8
6.1	7.1	0.65	0.056	11.6		0.3	-	1.6			2.0	9.9
6.0	7.0	0.44	0.043	10.2		0.2	-	1.0			1.8	12.9
6.0	7.2	0.37	0.037	10.0		0.2	-	1.5			1.5	21.5
6.4	7.5	0.35	0.030	11.7		0.3	-	1.5			1.8	27.7
6.8	7.5	1.05	0.104	10.1	<0.5	Sample exhausted						
7.7	8.6	0.21			4	0.5	-	2.9			0.6	18.9
7.8	8.6	0.05			3	1.0	-	2.8			0.8	13.3
7.6	8.4	0.02			1	1.4	-	5.2			1.0	15.0
7.4	8.0	0.03				1.8	-	1.4			1.0	15.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
23.5	12.0	.4	8.1	0.2	1.4	71	1.0	0.8	3.1	0.8	3.6	38.2
21.7	10.8	5.1	7.9	0.2	1.1	69	1.2	0.4	1.3	1.2	0.7	32.9
28.3	14.5	6.7	7.7	0.3	1.1	75	1.2	0.3	0.9	0.9	0.3	36.3
42.7	24.0	10.0	8.7	0.7	0.8	80	1.2	<0.1	1.0	0.8	0.2	48.4
54.5	26.7	18.4	6.3	1.1	0.6	88	1.6	<0.1	1.3	0.5	0.6	67.8
Sample exhausted												
43.5	24.9	20.1	-	1.5	0.3		2.7	<0.1	1.8	0.7	2.1	60.1
32.5	21.7	7.5	-	1.5	0.3		5.2	<0.1	3.3	1.0	3.2	45.5
27.7	21.8	7.4	-	1.7	0.4		7.1	0.1	4.9	1.6	4.5	44.7
33.9	19.9	7.4	6.0	1.5	0.4	83	8.1	0.2	6.3	2.3	8.1	40.4

1/ Percent of <1 inch fraction; amount>1 inch recorded in profile description.
* Incompletely dispersed.
\+ Including cations from carbonates in some horizons.

A&B 3- 5" RSL No. 6046 — Brown (10YR 5/3) gravelly heavy clay loam, dark brown (10YR 3/3) when moist; strong fine subangular blocky structure; hard, friable, very sticky, very plastic; abundant very fine, plentiful fine, and few medium roots; common very fine and fine tubular and common fine and very fine interstitial pores; few bleached sand grains observed; many fine clay films on ped faces; pH 6.1; abrupt wavy boundary; pebbles greater than one inch (5% by volume) were not sampled.

B21 5-11" RSL No. 6047 — Dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) when moist; strong medium columnar structure; extremely hard, very firm, very sticky, very plastic; abundant very fine, plentiful fine, and few medium roots, mostly exped; common very fine and fine tubular pores, mostly exped; many pressure cutans; pH 6.4; clear smooth boundary; cobblestones greater than one inch (5% by volume) were not sampled.

B22 11-19" (BPR) RSL No. 6048 — Dark brown (7.5YR 4/2) gravelly clay, dark brown (7.5YR 3/2) when moist; strong medium prismatic structure; extremely hard, very firm, very sticky, very plastic; plentiful very fine and few fine and medium roots, mostly exped; few very fine and fine tubular pores, mostly exped; many pressure cutans; pH 7.0; abrupt wavy boundary.

B3 19-20" RSL No. 6049 — Brown (10YR 5/4) gravelly clay, dark brown (7.5YR 3/4) when moist; moderate fine subangular blocky structure; hard, friable, very sticky, very plastic; plentiful very fine and few fine and medium roots; few fine tubular and common fine and very fine interstitial pores; common moderately thick clay films on ped faces and in pores; mildly calcareous; pH 7.2; abrupt wavy boundary.

IIC1sica 20-25" RSL No. 6050 — White (10YR 8/2) strongly cemented duripan having an apparent texture of very gravelly loamy coarse sand, light yellowish brown (10YR 6/4) when moist; massive; extremely hard to very hard, extremely firm to very firm, nonsticky, nonplastic; few very fine and fine roots; few very fine interstitial pores; very strongly calcareous; pH 8.6; abrupt wavy boundary; cobblestones greater than one inch (40% by volume) were not sampled.

IIC2sica 25-36" RSL No. 6051 — Light gray (10YR 7/2) very gravelly and cobbly loamy coarse sand, dark grayish brown (10YR 4/2) when moist; massive; hard, very friable, nonsticky, nonplastic; very few very fine and fine roots; many fine interstitial pores; matrix is mildly calcareous but strongly calcareous in spots where gravels and cobbles are lime coated on undersides; pH 7.8; clear wavy boundary; cobblestones greater than one inch (65% by volume) were not sampled.

IIC3ca 36-51" RSL No. 6052 — Light brownish gray (10YR 6/2) very gravelly and cobbly loamy coarse sand, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; very few very fine roots; many fine interstitial pores; mildly calcareous but strongly calcareous where gravels are lime coated on undersides; pH 7.4; gradual smooth boundary; cobblestones greater than one inch (60% by volume) were not sampled.

IIC4 51-64"+ RSL No. 6053 — Light brownish gray (10YR 6/2) very gravelly and cobbly coarse sandy loam, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; no roots apparent; many fine interstitial pores; pH 7.0; cobblestones greater than one inch (40% by volume) were not sampled.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Xerollic Durargid, fine-loamy, mixed, mesic (Reno taxadjunct)

SURVEY NOS. S59Nev-3-3 **LAB. NOS.** 59584 - 59590

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	A_1	Not sampled										
1-2½	A_2	6.6	10.9	9.3	22.1	15.0	28.8	7.3	41.4	16.5	21	fsl
2½- 5	A & B	Not sampled										
5-15	B_{21t}	2.8	8.5	7.5	18.6	11.0	13.3	38.3	29.1	6.8	3	sc
15-19	B_{22t}	4.3	7.4	6.2	19.3	15.8	14.4	32.6	36.6	6.5	12	scl
19-24	IIL_{3t}	14.5	17.1	11.9	16.6	7.3	12.8	19.8	20.9	7.8	44	cosl-scl
24-32	$IIIC_1$	31.1	40.3	10.3	7.0	0.5	3.5	7.3	4.9	1.8	39	s- lcos
32-44	$IIIC_{2ca}$	16.7	23.8	16.0	19.4	5.5	11.6	7.0	20.4	6.5	57	lcos
44-55+	IVC3	5.4	18.8	25.9	37.4	5.7	3.3	3.5	23.2	1.6	37	s

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 S 11 water 15 atmos. Pct.
							milliequivalents per liter					
		Not sampled										
6.3	6.8	0.39	0.031	12.6		0.2	-	0.9			1.8	3.8
		Not sampled										
6.7	7.7	0.32	0.037			0.2	-	1.3			1.3	18.9
6.8	7.8	0.34	0.038			0.2	-	1.8			1.6	17.0
6.8	7.6	0.25	0.027			0.4	-	2.1			1.2	11.0
7.5	7.4	0.09	0.010			0.2	-	2.1			0.6	5.1
8.1	9.0	0.34	0.031		10	0.4	-	4.3			0.6	8.7
8.1	9.0	0.03			1	0.3	-	2.3			0.9	6.3

5A2a CATION EXCHANGE CAPACITY (+ Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
		Not sampled										
8.1	4.4	1.8	2.7	0.1	0.4	71	0.8	0.3	1.2		0.5	18.1
		Not sampled										
38.4	23.1	10.3	2.8	0.4	0.7	92	0.6	0.1	1.4		1.1	55.0
37.9	23.0	9.8	3.8	0.5	0.6	90	0.8	0.1	1.6	0.2	0.2	53.7
24.0	14.5	6.2	2.3	0.3	0.5	90	1.2	0.1	3.2	0.2	1.3	34.3
9.2	6.0	2.7	1.3	0.1	0.4	88	1.0	0.1	1.8		0.2	22.2
19.1	16.2	4.9	-	0.4	0.8		2.1	0.3	2.8	0.8	0.2	31.6
14.2	12.0	3.6	-	0.3	0.4		1.1	0.1	1.6	0.4	0.2	31.6

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

Series not designated [1/]
S59Nev-3-3

Location: The site is located approximately 4,600 feet south and 900 feet west of the northeast corner of sec. 2, T. 12 N., R. 20 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N.Langan, R. E.Nelson, and C. D.Henry, October 1, 1959
Description by: L. N. Langan
Relief: Smooth to gently rolling old alluvial terrace
Physiography: Old alluvial terrace
Drainage: Well drained; runoff is slow during periods of normal rainfall; internal drainage is slow; soil permeability is slow through the B, very slow through the Cca and rapid below this. This soil is not being irrigated as it is located above existing irrigation distribution systems.
Parent Material: Alluvium derived from mixed rock sources. It is primarily from granite with admixtures of basalt, rhyolite, andesite, and assorted metamorphic rocks.
Use: This site is utilized for limited livestock grazing during late fall, winter, and early spring months.
Vegetation: Vegetation has a density of approximately 10 percent, consisting of sagebrush 84 percent, cheatgrass 10 percent, horsebrush 5 percent, squirreltail 1 percent, and a trace of juniper.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches; the average annual temperature is 49 to 51 degrees F., and the average frost-free season is 95 to 110 days.
Remarks: These samples are paired with S59Nev-3-4-1 through 9
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Abruptic Xerollic Durargid, fine-loamy, mixed, mesic (Reno taxadjunct).

A1	0- 1"	Light brownish gray (10YR 6/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) when moist; single grained; loose dry or moist,
Not sampled		nonsticky, nonplastic, few very fine roots; many very fine interstitial pores; pH 6.2; abrupt smooth boundary.
A2	1-2½	Light gray (10YR 7/2) fine sandy loam, dark brown (10YR 3/3) when moist; moderate medium platy structure; slightly hard, friable, non-
RSL No. 59584		sticky, nonplastic; few fine and abundant very fine roots; common fine and many very fine vesicular pores; pH 6.4; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Xerollic Durargid, fine-loamy, mixed, mesic (Reno taxadjunct)

SURVEY NOS. S59Nev-3-3 **LAE. NOS.** 59584 - 59590

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	A_1	Not sampled										
1-2½	A_2	6.6	10.9	9.3	22.1	15.0	28.8	7.3	41.4	16.5	21	fsl
2½- 5	A & B	Not sampled										
5-15	B_{21t}	2.8	8.5	7.5	18.6	11.0	13.3	38.3	29.1	6.8	3	sc
15-19	B_{22t}	4.3	7.4	6.2	19.3	15.8	14.4	32.6	36.6	6.5	12	scl
19-24	$IIIB_{3t}$	14.5	17.1	11.9	16.6	7.3	12.8	19.8	20.9	7.8	44	cosl-scl
24-32	$IIIC_1$	31.1	40.3	10.3	7.0	0.5	3.5	7.3	4.9	1.8	39	lcos
32-44	$IIIC_{2ca}$	16.7	23.8	16.0	19.4	5.5	11.6	7.0	20.4	6.5	57	lcos
44-55+	IVC3	5.4	18.8	25.9	37.4	5.7	3.3	3.5	23.2	1.6	37	s

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Condue. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
		Not sampled					milliequivalents per liter					
6.3	6.8	0.39	0.031	12.6		0.2	-	0.9			1.8	3.8
		Not sampled										
6.7	7.7	0.32	0.037			0.2	-	1.3			1.3	18.9
6.8	7.8	0.34	0.038			0.2	-	1.8			1.6	17.0
6.8	7.6	0.25	0.027			0.4	-	2.1			1.2	11.0
7.5	7.4	0.09	0.010			0.2	-	2.1			0.6	5.1
8.1	9.0	0.34	0.031		10	0.4	-	4.3			0.6	8.7
8.1	9.0	0.03			1	0.3	-	2.3			0.9	6.3

5A2a CATION EXCHANGE CAPACITY	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
← (Na)	milliequivalents per 100g. soil →						← milliequivalents per liter →					
		Not sampled										
8.1	4.4	1.8	2.7	0.1	0.4	71	0.8	0.3	1.2		0.5	18.1
		Not sampled										
38.4	23.1	10.3	2.8	0.4	0.7	92	0.6	0.1	1.4		1.1	55.0
37.9	23.0	9.8	3.8	0.5	0.6	90	0.8	0.1	1.6	0.2	0.2	53.7
24.0	14.5	6.2	2.3	0.3	0.5	90	1.2	0.1	3.2	0.2	1.3	34.3
9.2	6.0	2.7	1.3	0.1	0.4	88	1.0	0.1	1.8	[illegible]	0.2	22.2
19.1	16.2	4.9	-	0.4	0.8		2.1	0.3	2.8	0.8	0.2	31.6
14.2	12.0	3.6	-	0.3	0.4		1.1	0.1	1.6	0.4	0.2	31.6

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

A&B Not sampled	2½-5"	Grayish brown (10YR 5/2) sandy clay loam, dark brown (10YR 3/3) when moist; strong very fine subangular blocky structure; slightly hard, friable, sticky, plastic; few fine and abundant very fine roots; many very fine interstitial pores; common thin clay films on ped faces and in pores; pH 6.4; abrupt wavy boundary.
B21t RSL No. 59585	5-15"	Dark brown (10YR 4/3) sandy clay, dark yellowish brown (10YR 3/4) when moist; strong medium columnar structure; extremely hard, very firm, very sticky, very plastic; few fine and plentiful very fine roots; few very fine interstitial and tubular pores; many pressure cutans; pH 6.6; clear smooth boundary.
B22t RSL No. 59586	15-19"	Dark brown (10YR 4/3) sandy clay loam, dark yellowish brown (10YR 3/4) when moist; moderate medium prismatic breaking to strong coarse subangular blocky structure; extremely hard, very firm, very sticky, very plastic; few very fine and fine roots; few very fine tubular and interstitial pores; many pressure cutans; pH 6.6; clear wavy boundary.
IIB3t RSL No. 59587	19-24"	Pale brown (10YR 6/3) very gravelly light sandy clay loam, dark brown (10YR 4/3) when moist; massive; hard, friable, slightly sticky, slightly plastic; few very fine and fine roots; few very fine tubular and common very fine interstitial pores; common medium clay bridges between sand grains and common medium clay films in pores; pH 6.8; abrupt wavy boundary; cobblestones greater than one inch (10% by volume) were not sampled.
IIIC1 RSL No. 59588	24-32"	Light yellowish brown (10YR 6/4) very gravelly coarse sand, dark brown (10YR 4/3) when moist; single grained; loose dry or moist, nonsticky, nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; pH 7.3; abrupt wavy boundary; cobblestones greater than one inch (15% by volume) were not sampled.
IIIC2ca RSL No. 59589	32-44"	Very pale brown (10YR 8/3) very gravelly loamy coarse sand, light yellowish brown (10YR 6/4) when moist; massive; extremely hard, very firm, nonsticky, nonplastic; few very fine roots in upper 3 inches; few very fine interstitial pores; strongly calcareous; pH 7.8; abrupt wavy boundary; cobblestones greater than one inch (15% by volume) were not sampled.
IVC3 RSL No. 59590	44-55"+	Pale brown (10YR 6/3) very gravelly sand, dark brown (10YR 4/3) when moist; single grained, loose dry or moist, nonsticky, nonplastic; no roots observed; many very fine and fine interstitial pores; mildly calcareous with few gravels that are lime coated on undersides; pH 8.4; cobblestones greater than one inch (10% by volume) were not sampled.

1/ The Reno series is in a fine, montmorillonitic, mesic family of Durargids (see pedon S59Nev-3-4). This pedon is in a fine-loamy family of the same subgroup.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Reno gravelly fine sandy loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Xerollic Durargid, fine, montmorillonitic, mesic

SURVEY NOS. S59Nev-3-4 **LAB. NOS.** 59591 - 59599

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	A_1	6.3	10.4	10.7	30.7	26.6	11.5	3.8	56.5	2.2	41	ls
1- 5	A_2	4.8	8.8	10.1	25.3	18.2	26.0	6.8	43.4	17.3	14	fsl
5-8½	A & B	3.2	10.7	11.6	28.1	18.3	16.3	11.8	42.5	9.9	9	fsl
8½-17	B_{21t}	2.9	6.8	6.7	12.6	7.7	11.6	51.7	20.3	6.0	5	c
17-22	B_{22t}	5.0	13.9	11.7	18.7	9.0	17.3	24.4	15.6	11.2	15	scl
22-28	IIB_{3t}	4.8	14.3	13.1	22.1	12.4	22.6	10.7	34.2	13.6	13	sl
28-40	IIC_1	10.7	19.7	13.0	15.5	6.4	18.3	16.4	20.0	12.8	36	cosl
40-54	IIC_{2ca}	23.0	28.9	12.6	12.1	4.1	10.1	9.2	13.6	6.3	64	lcos-cosl
54-60+	$IIIC_3$	2.1	7.2	4.8	17.9	22.8	38.6	6.6	57.7	16.1	3	vfsl

8C1b pH Saturated Paste 1:1	8C1a pH 1:10	6A1a Organic Matter Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C	6I1a Saturation Ext. Soluble CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.3	6.8	0.73	0.049	14.9		0.3	-	1.8			1.7	3.2
6.5	6.9	0.21	0.020			0.3	-	0.8			1.7	3.1
6.2	7.0	0.20	0.019			0.2	-	0.9			1.7	4.2
6.6	8.2	0.33	0.036			0.3	-	1.4			1.4	24.9
7.1	8.3	0.23	0.025			0.7	-	2.7			1.4	14.2
7.7	9.0	0.22	0.026			2.6	-	2.8			1.1	13.6
7.6	8.1	0.23	0.024		1	12.8	-	4.1			1.1	12.7
7.8	7.9	0.30	0.031		13	10.0	-	2.4			0.5	11.5
7.8	9.0	0.30			1	2.4	-	1.8			1.1	11.5

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
6.5	2.8	1.1	2.8	<0.1	0.4	61	0.2	0.7	1.6	0.6	0.2	27.9
6.8	3.5	1.4	1.9	0.2	0.4	74	0.8	0.3	1.4	-	-	15.8
8.5	4.2	2.1	2.3	0.3	0.2	75	1.3	<0.1	0.6	-	-	17.5
48.2	24.8	13.4	3.5	2.4	0.8	92	2.0	0.1	1.0	-	0.5	68.4
30.9	17.0	9.1	2.1	2.1	0.5	93	5.4	<0.1	1.6	0.4	3.9	39.9
35.5	20.1	10.5	1.8	3.0	0.5	95	12.6	<0.1	5.6	2.4	18.4	44.2
27.8	28.9	10.0	-	3.2	0.4		42.8	0.4	55.3	33.2	71.3	36.8
24.0	37.8	7.0	-	2.2	0.3		31.8	0.3	49.4	19.1	66.2	37.4
28.0	21.5	7.8	-	1.6	0.4		8.9	0.2	8.0	4.0	17.8	34.2

\+ Including cations from carbonates in some horizons

1/ Percent of the <1 inch fraction

RENO GRAVELLY FINE SANDY LOAM
S59Nev-3-4

Location: The site is located approximately 1,500 feet north and 900 feet west of the SE corner of sec. 35, T. 13 N., R. 20 E., Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 1, 1959
Description by: L. N. Langan
Relief: Very gently rolling to smooth alluvial terraces
Physiography: Alluvial terrace that has been truncated by intermittent streams
Drainage: Well drained; runoff is slow during periods of normal rainfall; internal drainage is slow and soil permeability is slow through the B and upper part of the C horizons, but is rapid in the lower portions of the C. The water table is very deep, being estimated at depths ranging from 50 to 100 feet.
Parent Material: Gravelly and sandy alluvium derived from mixed rock sources. It is derived primarily from granite with admixtures of basalt, rhyolite, andesite, and metamorphic rocks.
Use: This site is utilized for limited sheep grazing during the winter and spring months.
Vegetation: Vegetation has a plant density of approximately 15 percent consisting of big sage 90 percent, cheatgrass 8 percent, and squirreltail 2 percent.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 10 to 12 inches; the average annual temperature is 49 to 51 degrees F., and the average frost-free period is 90 to 105 days.
Remarks: These samples are paired with S59Nev-3-3-1 through 7
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Abruptic Xerollic Durargid, fine, montmorillonitic, mesic.

A1	0- 1"	Light brownish gray (10YR 6/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) when moist; single grained; loose dry or moist, nonsticky, nonplastic; few fine roots; many very fine interstitial pores; pH 6.2; abrupt smooth boundary.
RSL No. 59591		
A2	1- 5"	Light gray (10YR 7/2) fine sandy loam, dark grayish brown when moist; moderate coarse platy structure; slightly hard, friable, nonsticky, nonplastic; few fine and plentiful very fine roots; few fine and many very fine vesicular pores; pH 6.4; abrupt wavy boundary.
RSL No. 59592		
A&B	5-8½"	Dark brown (10YR 4/3) light sandy clay loam with many very fine bleached light gray (10YR 7/2) sand grains, dark yellowish brown (10YR 3/4) when moist; moderate medium platy structure; slightly hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; few fine interstitial and common very fine tubular pores; few thin clay films as bridges between sand grains and in pores; pH 6.4; abrupt wavy boundary.
RSL No. 59593		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Reno gravelly fine sandy loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Abruptic Xerollic Durargid, fine, montmorillonitic, mesic

SURVEY NOS. S59Nev-3-4 **LAB. NOS.** 59591 - 59599

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	A_1	6.3	10.4	10.7	30.7	26.6	11.5	3.8	56.5	2.2	41	ls
1- 5	A_2	4.8	8.8	10.1	25.3	18.2	26.0	6.8	43.4	17.3	14	fsl
5-8½	A & B	3.2	10.7	11.6	28.1	18.3	16.3	11.8	42.5	9.9	9	fsl
8½-17	B_{21t}	2.9	6.8	6.7	12.6	7.7	11.6	51.7	20.3	6.0	5	c
17-22	B_{22t}	5.0	13.9	11.7	18.7	9.0	17.3	24.4	15.6	11.2	15	scl
22-28	IIB_{3t}	4.8	14.3	13.1	22.1	12.4	22.6	10.7	34.2	13.6	13	sl
28-40	IIC_1	10.7	19.7	13.0	15.5	6.4	18.3	16.4	20.0	12.8	36	cosl
40-54	IIC_{2ca}	23.0	28.9	12.6	12.1	4.1	10.1	9.2	13.6	6.3	64	lcos-cosl
54-60+	$IIIC_3$	2.1	7.2	4.8	17.9	22.8	38.6	6.6	57.7	16.1	3	vfsl

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.3	6.8	0.73	0.049	14.9		0.3	-	1.8			1.7	3.2
6.5	6.9	0.21	0.020			0.3	-	0.8			1.7	3.1
6.2	7.0	0.20	0.019			0.2	-	0.9			1.7	4.2
6.6	8.2	0.33	0.036			0.3	-	1.4			1.4	24.9
7.1	8.3	0.23	0.025			0.7	-	2.7			1.4	14.2
7.7	9.0	0.22	0.026			2.6	-	2.8			1.1	13.6
7.6	8.1	0.23	0.024		1	12.8	-	4.1			1.1	12.7
7.8	7.9	0.30	0.031		13	10.0	-	2.4			0.5	11.5
7.8	9.0	0.30			1	2.4	-	1.8			1.1	11.5

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
6.5	2.8	1.1	2.8	<0.1	0.4	61	0.2	0.7	1.6	0.6	0.2	27.9
6.8	3.5	1.4	1.9	0.2	0.4	74	0.8	0.3	1.4	-	-	15.8
8.5	4.2	2.1	2.3	0.3	0.2	75	1.3	<0.1	0.6	-	-	17.5
48.2	24.8	13.4	3.5	2.4	0.8	92	2.0	0.1	1.0	-	0.5	68.4
30.9	17.0	9.1	2.1	2.1	0.5	93	5.4	<0.1	1.6	0.4	3.9	39.9
35.5	20.1	10.5	1.8	3.0	0.5	95	12.6	<0.1	5.6	2.4	13.4	44.2
27.8	28.9	10.0	-	3.2	0.4		42.8	0.4	55.3	33.2	71.3	36.8
24.0	37.8	7.0	-	2.2	0.3		31.8	0.3	49.4	19.1	66.2	37.4
28.0	21.5	7.8	-	1.6	0.4		8.9	0.2	8.0	4.0	17.8	34.2

\+ Including cations from carbonates in some horizons

1/ Percent of the <1 inch fraction

B21t RSL No. 59594	8½-17"	Dark brown (10YR 4/3) clay, dark yellowish brown (10YR 3/4) when moist; strong medium columnar structure; extremely hard, very firm, very sticky, very plastic; few fine and plentiful very fine roots; few very fine interstitial and tubular pores; moderately thick continuous clay films on ped surfaces and in pores; pH 6.4; clear smooth boundary.
B22t RSL No. 59595	17-22"	Dark brown (10YR 4/3) gravelly sandy clay loam, dark yellowish brown (10YR 3/4) when moist; massive; extremely hard, firm, sticky, plastic; few fine and plentiful very fine roots; few very fine tubular and interstitial pores; many moderately thick clay films as bridges between sand grains and in pores; pH 6.4; clear wavy boundary.
IIB3t RSL No. 59596	22-28"	Pale brown (10YR 6/3) very gravelly loam, dark brown (10YR 3/3) when moist; massive; very hard, friable, very slightly sticky, very slightly plastic; plentiful very fine roots; few fine and common very fine tubular pores; noncalcareous but calcareous where few fine and medium distinct white (10YR 8/2) lime segregations occur; pH 7.4; gradual wavy boundary; cobblestones greater than one inch (8% by volume) were not sampled.
IIC1 RSL No. 59597	28-40"	Dark brown (10YR 4/3) gravelly coarse sandy loam, dark brown (10YR 3/3) when moist; massive; slightly hard to hard, friable, nonsticky, nonplastic; plentiful fine roots; few very fine tubular and interstitial pores; mildly calcareous, and strongly calcareous where there are many fine and medium distinct white (10YR 8/2) lime segregations; pH 8.4; clear wavy boundary; cobblestones greater than one inch (15% by volume) were not sampled.
IIC2ca RSL No. 59598	40-54"	Very pale brown (10YR 7/4) very gravelly loamy coarse sand, yellowish brown (10YR 5/4) when moist; massive; extremely hard, firm, nonsticky, nonplastic; very few fine roots; few very fine tubular pores; strongly calcareous; pH 8.6; abrupt smooth boundary; cobblestones greater than one inch (12% by volume) were not sampled.
IIIC3 RSL No. 59599	54-60"+	Pale brown (10YR 6/3) loam, dark grayish brown (10YR 4/2) when moist, with few fine faint dark yellowish brown (10YR 4/4) mottles; massive; hard to very hard, friable to firm, nonsticky, nonplastic; no roots observed; few very fine tubular pores; mildly calcareous with common medium to coarse distinct white (10YR 8/2) lime segregations; pH 8.6.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Belted sandy loam **LOCATION** Penoyer Valley, Lincoln County

Haplic Durargid, fine-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-36 **LAB. NOS.** 59820 - 59826

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	A1	11.3	21.3	11.3	20.0	9.1	16.8	10.2	23.7	13.6	3	cosl
3- 7	B2t	4.4	13.4	10.8	22.6	10.3	17.7	24.8	50.3	10.1	2	scl
7-11	C1sim	6.5	16.1	12.6	26.9	13.0	13.5	11.4	35.2	7.6	4	sl
11-24	C2	7.4	16.6	12.9	25.4	13.2	16.0	8.5	34.6	10.0	6	sl
24-32	C3	4.7	10.6	10.9	27.6	13.1	24.2	8.9	37.8	16.4	2	fsl
32-40	IIC4	2.3	5.4	4.8	14.6	12.0	44.7	16.2	31.5	34.4	1	l
40-60+	IIIC5	0.5	2.6	1.8	7.3	9.2	54.1	24.5	25.5	42.9	0	sil

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3 (milliequivalents per liter)	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
8.2	9.2	0.17	0.023	7.4	2	1.0	0	6.3	ND	0.59	0.4	6.3
8.1	9.1	0.28	0.036	7.8	tr	0.6	0	4.3	ND	0.82	0.4	14.9
8.3	9.2	0.22	0.023		1	0.6	0	4.8	0.4	0.28	0.4	7.6
8.6	9.3	0.04			tr	0.5	0	4.0	1.2	0.20	0.4	6.3
8.1	9.4	0.02			tr	2.8	0	2.6	2.1	0.14	0.5	7.0
7.5	8.8	0.09			1	12.9	0	2.1	13.0	0.04	0.7	14.8
7.3	8.3	0.07			1	18.7	0	3.3	ND	0.05	1.1	22.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b (milliequivalents per 100g. soil)	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na (milliequivalents per liter)	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
19.4	20.0	2.7		1.0	3.9	5	6.4	1.5	3.1	0.2	2.9	16.5
27.8	20.0	2.5		1.5	6.9	5	3.4	1.2	1.9	0.1	0.5	25.7
20.3	17.2	1.1		1.6	5.2	8	3.9	0.9	1.4	0.2	1.0	28.3
17.4	12.4	0.9		2.3	4.2	13	8.4	0.9	2.1	0.0	0.5	23.3
20.6	11.8	0.9		5.5	2.7	27	22.0	0.5	3.2	0.0	20.5	24.3
33.3	23.0	1.7		9.5	2.5	28	87.5	0.7	34.9	6.5	110.4	44.0
40.1	28.5	2.7		10.8	2.0	27	106.0	3.1	30.1	4.0	18.0	51.0

1/ Percent of the whole soil

\+ Including cations from carbonates

BELTED SANDY LOAM
59Nev-9-36

Soil Survey Area: Penoyer Valley
Location: 950 ft. N and 500 ft. W of the S1/4 cor., sec. 17, T. 3 S., R. 55 E.
Collectors: R. E. Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, and Lloyd Kooke Sampled: November 1959.
Description by: W. G. Harper
Elevation: 4780 feet
Vegetation: Density about 7 percent - this consists of shadscale 60 percent, Kochia vestita 35 percent, nutalls saltbush 3 percent, annual buckwheat 2 percent.
Physiography: Terrace or toe slopes of alluvial fans superimposed on alluvial basin or lake-laid sediments
Slope: About 1 percent to the NW
Drainage and Permeability: Well drained - runoff is none to moderate, depending upon the intensity of rainfall; permeability is slow through the pan horizon, moderate through the rest of the profile.
Parent Material: Alluvium from welded tuffs and olivine basalt and andesite
Classification: **Haplic Durargid, fine-loamy, mixed, mesic.**
Climate: Precipitation is about 8 inches; the average January temperature is 35° F., July 71° F., the mean annual temperature about 52° F., and the frost-free period is 130 to 150 days.

Riverside Lab. Nos.
59820 through 59826

A1 0- 3" Light gray (10YR 7/2) coarse sandy loam, white (10YR 8/2) when crushed, brown (10YR 5/3) when moist; weak thick platy structure; soft, friable, nonsticky, nonplastic; devoid of plant roots; many very fine and fine vesicles; strongly calcareous; pH_5 8.8; abrupt wavy boundary.

B2 3- 7" Light gray (10YR 7/2) sandy clay loam, dark brown (10YR 4/3) when moist, brown (10YR 5/3) when moist and rubbed; weak thick platy structure that breaks readily to moderate and medium fine granules; slightly hard, very friable, slightly sticky, slightly plastic; plentiful very fine and fine roots; few fine tubular pores; many very fine and fine interstitial pores; few thin clay films in pores; slightly calcareous; pH_5 8.6; abrupt smooth boundary.

Clsim 7-11" Very pale brown (10YR 7/3) sandy loam, dark brown (10YR 4/3) when moist, brown (10YR 5/3) when moist and rubbed; strong platy structure; extremely hard, firm to very firm, nonsticky, nonplastic; abundant very fine, fine and medium roots between plates; common fine tubular pores, many very fine and fine interstitial pores; no clay films; noncalcareous on the interior of plates, very strongly calcareous on the outer faces of the plates where segregated lime is visible; pH_5 8.8; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Belted sandy loam LOCATION Penoyer Valley, Lincoln County

Haplic Durargid, fine-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-36 LAB. NOS. 59820 - 59826

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	A1	11.3	21.3	11.3	20.0	9.1	16.8	10.2	23.7	13.6	3	cosl
3- 7	B2t	4.4	13.4	10.8	22.6	10.3	17.7	24.8	50.3	10.1	2	scl
7-11	C1sim	6.5	16.1	12.6	26.9	13.0	13.5	11.4	35.2	7.6	4	sl
11-24	C2	7.4	16.6	12.9	25.4	13.2	16.0	8.5	34.6	10.0	6	sl
24-32	C3	4.7	10.6	10.9	27.6	13.1	24.2	8.9	37.8	16.4	2	fsl
32-40	IIC4	2.3	5.4	4.8	14.6	12.0	44.7	16.2	31.5	34.4	1	l
40-60+	IIIC5	0.5	2.6	1.8	7.3	9.2	54.1	24.5	25.5	42.9	0	sil

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3 (milliequivalents per liter)	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
8.2	9.2	0.17	0.023	7.4	2	1.0	0	6.3	ND	0.59	0.4	6.3
8.1	9.1	0.28	0.036	7.8	tr	0.6	0	4.3	ND	0.82	0.4	14.9
8.3	9.2	0.22	0.023		1	0.6	0	4.8	0.4	0.28	0.4	7.6
8.6	9.3	0.04			tr	0.5	0	4.0	1.2	0.20	0.4	6.3
8.1	9.4	0.02			tr	2.8	0	2.6	2.1	0.14	0.5	7.0
7.5	8.8	0.09			1	12.9	0	2.1	13.0	0.04	0.7	14.8
7.3	8.3	0.07			1	18.7	0	3.3	ND	0.05	1.1	22.3

5A2a CATION EXCHANGE CAPACITY (← Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a (milliequivalents per 100g. soil →)	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl (← milliequivalents per liter →)	8A MOISTURE AT SATURATION %
19.4	20.0	2.7		1.0	3.9	5	6.4	1.5	3.1	0.2	2.9	16.5
27.8	20.0	2.5		1.5	6.9	5	3.4	1.2	1.9	0.1	0.5	25.7
20.3	17.2	1.1		1.6	5.2	8	3.9	0.9	1.4	0.2	1.0	28.3
17.4	12.4	0.9		2.3	4.2	13	8.4	0.9	2.1	0.0	0.5	23.3
20.6	11.8	0.9		5.5	2.7	27	22.0	0.5	3.2	0.0	20.5	24.3
33.3	23.0	1.7		9.5	2.5	28	87.5	0.7	34.9	6.5	110.4	44.0
40.1	28.5	2.7		10.8	2.0	27	106.0	3.1	30.1	4.0	18.0	51.0

1/ Percent of the whole soil

\+ Including cations from carbonates

C_2 11-24" Light gray (10YR 7/2) sandy loam, brown (10YR 5/3) when moist; massive; hard, friable, nonsticky, nonplastic; very few very fine and medium roots; common fine tubular pores; many very fine interstitial pores; noncalcareous but slightly to strongly calcareous where few thin white lime filaments occur; pH5 8.8; clear smooth boundary.

C_3 24-32" Light gray (10YR 7/2) fine sandy loam, brown (10YR 5/3) when moist; massive; hard, friable, nonsticky, nonplastic; very few very fine, fine and medium roots; few fine tubular pores; many fine interstitial pores; effervescence, lime, and pH5 as in horizon above; abrupt smooth boundary.

IIC4 32-40" Light gray (10YR 7/2) loam or silt loam, brown (10YR 5/3) when moist, with few fine, medium and coarse iron mottlings that are reddish brown (5YR 4/4), dark reddish brown (5YR 3/4) when moist; massive; very hard, very firm, slightly sticky, slightly plastic; few fine roots; few micro and very fine interstitial pores; generally noncalcareous but slightly calcareous where faint lime mottlings occur as filaments or in pockets; pH5 8.6; clear smooth boundary.

IIIC5 40-60"+ Similar in color to the horizon above. Silt loam; massive; hard, friable, slightly sticky, slightly plastic; few fine roots; noncalcareous except for occasional filament, vein or pocket of light gray calcium carbonate; pH5 8.6.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Prey loamy sand **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Haplic Xerollic Durargid, coarse-loamy, mixed, mesic

SURVEY NOS. S60Nev-3-3 **LAB. NOS.** 6054 - 6063

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A_{11}	8.8	28.8	20.2	26.5	8.3	5.0	2.4	26.0	1.0	21	cos
2- 5	A_{12}	8.6	22.2	17.2	25.8	9.4	11.5	5.3	28.6	6.0	15	lcos
5-13	A_{13}	8.9	24.2	17.1	23.6	8.5	8.9	8.8	25.5	4.2	16	ls
13-16	B_{1t}	5.0	23.8	16.3	24.3	8.1	9.1	13.4	25.6	4.5	21	cosl
16-20	B_{21t}	4.2	22.8	14.0	23.7	8.5	11.9	14.9	25.8	7.9	11	cosl
20-26	B_{22t}	4.6	27.4	13.2	20.5	6.8	10.8	16.7	21.2	7.2	22	cosl
26-30	B_{3t}	5.3	30.4	14.0	20.3	6.2	8.6	15.2	19.8	5.7	18	cosl
30-35	C_{1sim}	6.5	29.9	15.3	22.8	7.4	10.5	7.6	23.6	6.6	20	lcos
35-52	C_{2sim}	4.3	25.4	14.9	25.7	8.1	12.4	9.2	26.5	7.9	14	cosl-lcos
52-60+	C_3	4.0	24.9	14.7	25.6	8.9	15.4	6.5	27.9	10.4	12	lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.0	6.1	0.31	0.021	14.8		0.1	-	0.7			1.8	1.6
6.3	6.4	0.44	0.034	12.9		0.1	-	0.7			1.7	2.5
6.4	6.5	0.28	0.026			0.1	-	0.8			1.9	3.2
6.4	6.6	0.19				0.2	-	0.7			1.6	5.3
6.0	6.7	0.13				0.2	-	0.8			1.8	6.7
5.6	7.0	0.12				0.2	-	0.6			1.6	7.6
6.3	6.9	0.07				0.2	-	1.0			1.5	7.4
7.7	7.7	0.25				0.4	-	3.1			1.3	7.3
7.8	8.1	0.15				0.3	-	3.0			1.3	5.5
7.5	7.7	0.08				0.2		1.0			1.2	4.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
3.5	1.3	0.5	5.7	0.1	0.2	27	0.5	0.2	0.6	0.4	0.1	25.1
7.1	3.4	0.9	6.9	0.2	0.3	41	0.5	0.2	0.4	0.6	0.2	19.9
7.8	4.0	1.0	6.8	0.1	0.2	44	0.5	0.1	0.6	0.4	0.1	21.1
11.4	6.5	2.3	3.7	0.2	0.2	71	0.9	0.1	0.6	0.4	0.1	20.9
14.5	8.9	2.9	3.6	0.3	0.2	77	1.0	<0.1	0.5	0.3	0.6	23.0
19.0	11.1	3.8	4.4	0.5	0.2	78	2.5	<0.1	0.3	0.4	0.3	25.3
18.0	11.3	3.8	3.6	0.6	0.2	82	1.4	<0.1	0.7	0.4	0.4	25.5
18.9	12.3	4.0	2.8	0.8	0.1	86	2.1	<0.1	1.9	0.6	0.4	32.0
12.1	8.8	2.7	2.0	0.4	0.1	86	1.7	<0.1	1.4	0.4	0.2	24.3
10.2	6.6	2.1	2.0	0.4	0.1	82	1.2	<0.1	0.5	0.2	0.3	23.4

1/ Percent of <1 inch material

PREY LOAMY SAND
S60Nev-3-3

Location: The site is located approximately 1,100 feet east and 2,200 feet north of the S 1/4 corner of sec. 6, T. 14 N., R. 20 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan, R. Malchow, R. E. Nelson, and L. H. Grant, April 22,1960
Description by: L. N. Langan
Relief: Very gently rolling to smooth alluvial terrace
Physiography: Intermediate terrace of old valley fill material
Drainage: Well drained; runoff is slow during periods of normal rainfall; internal drainage is medium and soil permeability is moderately rapid through the B and moderate through the C horizons. Water table is very deep being estimated at approximately 100 feet.
Parent Material: Sandy alluvium derived primarily from granite but with slight admixtures of gneiss, slate, quartzite, and some andesite
Use: This site is being utilized as small tract homesteads and very limited livestock grazing during the spring and summer months. Heavy wildlife utilization of the available forage is being made by the Sierra Nevada deer herd during the winter months.
Vegetation: Vegetation has a plant density of approximately 20 percent, consisting of big sage 63 percent, bitterbrush 20 percent, desert peach 2 percent, rabbitbrush 5 percent, cheatgrass 4 percent, squirreltail 2 percent, stipa 1 percent, trace of Indian ricegrass, and assorted annuals 3 percent.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 12 to 16 inches; average annual temperature is 49 to 51 degrees F., and the average frost-free period is 90 to 105 days.
Remarks: These samples were not paired.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue in prepared 1:5 dilutions.
Classification: Haplic Xerollic Durargid, coarse-loamy, mixed, mesic.

A11 0- 2" Light gray (10YR 7/2) fine gravelly sand, dark grayish brown (10YR 4/2) when moist; single grained; loose dry or moist, nonsticky, nonplastic; abundant very fine roots; many very fine interstitial pores; pH 6.3; abrupt smooth boundary.
RSL No. 6054

A12 2- 5" Grayish brown (10YR 5/2) loamy coarse sand, very dark grayish brown (10YR 3/2) when moist; weak medium platy structure breaking with ease to single grained; soft, very friable, nonsticky, nonplastic; abundant very fine, plentiful fine, and few medium roots; many very fine and common fine tubular and many very fine and fine interstitial pores; pH 6.4; abrupt slightly wavy boundary.
RSL No. 6055

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Prey loamy sand **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Haplic Xerollic Durargid, coarse-loamy, mixed, mesic

SURVEY NOS. S60Nev-3-3 **LAB. NOS.** 6054 - 6063

DEPTH INCHES	HORIZON	1D1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A_{11}	8.8	28.8	20.2	26.5	8.3	5.0	2.4	26.0	1.0	21	cos
2- 5	A_{12}	8.6	22.2	17.2	25.8	9.4	11.5	5.3	28.6	6.0	15	lcos
5-13	A_{13}	8.9	24.2	17.1	23.6	8.5	8.9	3.8	25.5	4.2	16	ls
13-16	B_{1t}	5.0	23.8	16.3	24.3	8.1	9.1	13.4	25.6	4.5	21	cosl
16-20	B_{21t}	4.2	22.8	14.0	23.7	8.5	11.9	14.9	25.8	7.9	11	cosl
20-26	B_{22t}	4.6	27.4	13.2	20.5	6.8	10.8	16.7	21.2	7.2	22	cosl
26-30	B_{3t}	5.3	30.4	14.0	20.3	6.2	8.6	15.2	19.8	5.7	18	cosl
30-35	C_{1sim}	6.5	29.9	15.3	22.8	7.4	10.5	7.6	23.6	6.6	20	lcos
35-52	C_{2sim}	4.3	25.4	14.9	25.7	8.1	12.4	9.2	26.5	7.9	14	cosl-lcos
52-60+	C_3	4.0	24.9	14.7	25.6	8.9	15.4	6.5	27.9	10.4	12	lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							millieq.	uivalents per liter				
6.0	6.1	0.31	0.021	14.8		0.1	-	0.7			1.8	1.6
6.3	6.4	0.44	0.034	12.9		0.1	-	0.7			1.7	2.5
6.4	6.5	0.28	0.026			0.1	-	0.8			1.9	3.2
6.4	6.6	0.19				0.2	-	0.7			1.6	5.3
6.0	6.7	0.13				0.2	-	0.8			1.8	6.7
5.6	7.0	0.12				0.2	-	0.6			1.6	7.6
6.3	6.9	0.07				0.2	-	1.0			1.5	7.4
7.7	7.7	0.25				0.4	-	3.1			1.3	7.3
7.8	8.1	0.15				0.3	-	3.0			1.3	5.5
7.6	7.7	0.08				0.2		1.0			1.2	4.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
3.5	1.3	0.5	5.7	0.1	0.2	27	0.5	0.2	0.6	0.4	0.1	25.1
7.1	3.4	0.9	6.9	0.2	0.3	41	0.5	0.2	0.4	0.6	0.2	19.9
7.8	4.0	1.0	6.8	0.1	0.2	44	0.5	0.1	0.6	0.4	0.1	21.1
11.4	6.5	2.3	3.7	0.2	0.2	71	0.9	0.1	0.6	0.4	0.1	20.9
14.5	8.9	2.9	3.6	0.3	0.2	77	1.0	<0.1	0.5	0.3	0.6	23.0
19.0	11.1	3.8	4.4	0.5	0.2	78	2.5	<0.1	0.3	0.4	0.3	25.3
18.0	11.3	3.8	3.6	0.6	0.2	82	1.4	<0.1	0.7	0.4	0.4	25.5
18.9	12.3	4.0	2.8	0.8	0.1	86	2.1	<0.1	1.9	0.6	0.4	32.0
12.1	8.8	2.7	2.0	0.4	0.1	85	1.7	<0.1	1.4	0.4	0.2	24.3
10.2	6.6	2.1	2.0	0.4	0.1	82	1.2	<0.1	0.5	0.2	0.3	23.4

1/ Percent of <1 inch material

A13 5-13" Grayish brown (10YR 5/2) gravelly loamy sand, very dark grayish brown (10YR 3/2) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine, and few fine and medium roots; many very fine and fine interstitial pores; pH 6.4; clear wavy boundary; cobblestones greater than one inch (3% by volume) were not sampled.
RSL No. 6056

B1t 13-16" Brown (10YR 5/3) light sandy loam, dark yellowish brown (10YR 3/4) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine and fine interstitial pores; common very fine clay films as bridges between sand grains; pH 6.4; clear smooth boundary.
RSL No. 6057

B21t 16-20" Yellowish brown (10YR 5/4) coarse sandy loam, dark yellowish brown (10YR 3/4) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine and fine interstitial pores; thin continuous clay films as bridges and as coatings on sand grains; pH 6.4; clear smooth boundary.
RSL No. 6058

B22t 20-26" Brown (10YR 5/3) heavy coarse sandy loam, dark yellowish brown (10YR 3/4) when moist; massive; hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine and fine interstitial pores; thin continuous clay films as bridges between sand grains and as coatings on sand grains; pH 6.4; abrupt irregular boundary.
RSL No. 6059

B3t 26-30" Light yellowish brown (10YR 6/4) gravelly coarse sandy loam containing a gravel erosion line, yellowish brown (10YR 5/6) when moist; massive; hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine and fine interstitial pores; few moderately thick dark yellowish brown (10YR 3/4) clay films as bridges between sand grains; pH 8.6; abrupt wavy boundary.
RSL No. 6060

C1sim 30-35" Very pale brown (10YR 7/3) gravelly loamy coarse sand, dark brown (10YR 4/3) when moist; massive; hard with many thin (1/32 to 1/8") extremely hard discontinuous silica cemented platelets, firm and very firm, nonsticky, nonplastic; few very fine and fine roots; few very fine and fine tubular pores; pH 6.6; clear smooth boundary.
RSL No. 6061

C2sim 35-52" Light gray (10YR 7/2) heavy loamy coarse sand, brown (10YR 5/3) when moist; massive; very hard, friable, nonsticky, nonplastic; no roots apparent; few very fine and fine tubular pores; pH 6.8; clear smooth boundary.
RSL No. 6062

C3 52-60"+ Very pale brown (10YR 7/3) loamy coarse sand, brown (10YR 5/3) when moist; massive; hard, very friable, nonsticky, nonplastic; no roots apparent; few very fine and fine interstitial pores; pH 7.0.
RSL No. 6063

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Haplic Xerollic Durargid, fine-loamy, mixed, mesic
SOIL SERIES: Cherry Springs very fine sandy loam SOIL Nos. S66Nev-6-1 LOCATION Eureka County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66628 - 66635

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2	2 - 19	19 -76
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm														Pct.	Pct. of < 76 mm	
0-3	A11	21.5	64.4	14.1	1.3	2.0	1.2	4.3	12.1	31.5	32.9	46.7	9.4	0	14	4	4	tr
3-7	A12	19.6	65.1	15.3	1.7	1.5	0.8	3.0	12.6	32.4	32.7	47.1	7.0	0	15	3	3	tr
7-15	A3	23.9	62.3	13.8	2.7	1.8	1.1	3.3	15.0	34.9	27.4	52.2	8.9	0	14	4	4	tr
15-29	IIB2t	24.4	50.2	25.4	3.3	3.0	1.8	3.7	12.4	28.1	22.1	42.9	12.0	0	25	9	8	1
29-36	IIB3tsica	34.2	53.7	12.1	7.3	7.9	4.2	6.2	8.6	28.8	24.9	40.8	25.6	0	12	11	11	tr
36-44	IIIC1sicam	71.6	20.1	8.3	24.5	21.6	9.0	10.0	6.5	11.6	8.5	23.4	65.1	0	8	23	23	tr
44-54	IVC2sicam	75.4	16.3	8.3	21.7	26.9	10.9	10.7	5.2	6.6	9.7	17.0	70.2	0	8	53	51	2
54-59+	VC3sica	67.2	19.8	13.0	27.5	21.8	8.7	5.7	3.5	7.4	12.4	13.3	63.7	0	13	63	52	11

Depth (in.)	6A1a Organic carbon Pct	6B1a Nitrogen Pct	C/N	6E1b Carbonate as $CaCO_3$ <19 mm. Pct.	6E1b Carbonate as $CaCO_3$ Pct	Field water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-3	1.71	0.138	12		-	1	1.23	1.27		0.98	3	24.2	9.6	0.009	0.009		7.1	7.5
3-7	0.71	0.087	8		-	9	1.22	1.25		0.99	3	20.9	9.9	0.007	0.007		7.4	7.7
7-15	0.44	0.065	7		-	10	1.39	1.44		0.98	3	21.6	9.1	0.012	0.012		7.6	7.9
15-29	0.26				-	12	1.45	1.59		0.95	4	23.6	12.8	0.032	0.030	7.1	7.7	8.4
29-36	0.16				1	10	1.31	1.33		0.94	4	27.7	11.8	0.004	0.004	7.9	8.5	9.2
36-44	0.17			1	5	10	1.63	1.65		0.84	4	16.6	12.4	0.004	0.003	8.1	8.7	9.3
44-54	0.10				1	10	1.64	1.64		0.59	4	15.4	11.7	0.000	0.000	7.9	8.5	9.2
54-59+	0.07			tr.	-	8	1.60	1.65		0.49	3	16.8	10.4	0.011	0.005	7.9	8.4	9.1

Depth (in.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	6H2a Ext. Acidity	Cation Exch. Capacity 5A1a NH_4OAc	Water extract from saturated paste 8A1 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K	6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity mmho/cm
	meq/100 g						meq/liter								
0-3	10.6	2.8	0.2	2.6		19.2									
3-7	10.3	3.7	0.2	3.2		20.0									
7-15	10.0	3.6	0.4	2.4		18.4									
15-29	12.4	5.4	1.5	2.2		22.6	0.7	0.4	3.0	0.3	-	2.8	0.4		0.45
29-36	10.1	4.2	2.5	2.0		20.9	0.8	0.5	5.0	0.3	-	5.4	0.4		0.67
36-44	14.7	5.2	3.4	1.9		25.1	2.2	0.5	6.9	0.3	-	8.1	0.3		0.90
44-54	11.1	3.7	2.9	1.8		21.8	0.8	0.8	6.9	0.4	-	4.8	1.5		1.00
54-59+	10.6	3.4	2.0	1.3		18.5	1.6	0.6	7.5	0.4	-	4.6	2.6		1.13

Depth (in.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1 Mont.	Ill-ite	Kaolinite 7A2	Others
		meq./100 g.						X-ray			
0-3		10.6*	2.8*	0.2					xx	tr	Qtz., flds.
3-7		10.3*	3.7*	0.2							
7-15		10.0*	3.6*	0.4							
15-29	41.4	12.4	5.4	1.4	6.2	4.0		xx	xxx	x	Qtz., flds.
29-36	37.2	10.1	4.2	2.3	11.0	6.2					
36-44	38.7	14.6	5.2	3.1	12.4	5.9		x	x	tr	Qtz., flds., calcite
44-54	36.2	11.1	3.7	2.6	11.9	7.7					
54-59+	28.1	10.6	3.4	1.8	9.7	7.2		xxx	xxx	tr	Qtz., flds.

1/ From characterization samples (5 kg.) except that the 19-76 mm. percentages of the IVC2sicam and VC3sica are from field weights.

Micromorphology

Sands and silts consist of volcanic rock fragments, quartz, feldspar, glass shards, and chlorite. Vesicles of the A11 horizons are free of cutans. There are a few clay skins and clay bridges in the IIB2t and thin continuous clay skins in pores of the IIB3tsica and continuing down through the horizons below to the base of the VC3sica.

* The salt content is considered to be very low for these horizons, hence all extractable cations are listed as exchangeable.

CHERRY SPRINGS VERY FINE SANDY LOAM

S66Nev-6-1

Location: Eureka County, Nevada. The site is about 10 miles northeast of Carlin and about 900 feet west of Maggie Creek County Road. It is about 1,850 feet north and 1,600 feet west of the SE corner of Section 24, T.35N., R.51E., Mount Diablo base line and meridian. Date of Sampling: May 6, 1966. Description by: E. Spencer and L. N. Langan. Collectors: D. Nettleton, B. Brasher, and E. Spencer. Classification: **Haplic Xerollic Durargid, fine-loamy, mixed, mesic.**
Vegetation: Big sagebrush with an understory of Thurber's needlegrass, Sandberg bluegrass, and squirreltail. Climate: Mean annual rainfall is estimated at 8 to 10 inches; mean annual soil temperature at 47° F., and mean summer soil temperature at 64° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from the Humboldt formation (interbedded pyroclastics, sandstone, siltstone, and conglomerate), andesite and tuffs. Topography: Alluvial fan with 2 to 8 percent slope gradient. Elevation: Approximately 5,300 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution.

HORIZON

A11 RSL 66628	0 to 3 inches, light brownish gray (10YR 6/2)* very fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse platy structure; slightly hard, friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine and fine, and few medium vesicular pores; neutral (pH 6.6); abrupt smooth boundary.
A12 RSL 66629	3 to 7 inches, grayish brown (10YR 5/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; strong medium platy structure; slightly hard, friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine and fine, and few medium vesicular pores; neutral (pH 6.7); abrupt smooth boundary.
A3 RSL 66630	7 to 15 inches, light grayish brown (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky, nonplastic; abundant very fine and fine, and few medium vesicular pores; neutral (pH 6.8); clear smooth boundary.
IIB2t RSL 66631	15 to 29 inches, pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak medium prismatic structure; hard, friable, sticky, plastic; abundant very fine and fine roots; few very fine and fine tubular, and common fine and very fine interstitial pores; common thin clay films lining pores and few thin clay films on ped faces; neutral (pH 7.0); clear smooth boundary.
IIB3tsica RSL 66632	29 to 36 inches, light brownish gray (10YR 6/2) loam that is weakly silica-cemented and containing many fine white (10YR 8/1) silica and lime filaments, brown (10YR 4/3) moist; weak medium and fine subangular blocky structure; very hard, firm, slightly sticky, slightly plastic; few fine roots; few fine tubular, and many fine and very fine interstitial pores; common thin clay films in pores and few on ped faces; effervescent in matrix; strongly alkaline (pH 8.8); clear wavy boundary.
IIIC1sicam RSL 66633	36 to 44 inches, pale brown (10YR 6/3) strongly cemented gravelly duripan with many fine and medium white (10YR 8/1) lime filaments and flecks, dark grayish brown (10YR 4/2) moist; weak medium and thick platy structure; extremely hard, extremely firm and very firm, brittle; very few very fine roots along fracture planes; many very fine and fine interstitial pores; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
IVC2sicam RSL 66634	44 to 54 inches, white (10YR 8/1) strongly cemented duripan with discontinuous thin ($\frac{1}{2}$ mm) brown (10YR 5/3) silica laminae, pale brown (10YR 6/3) and brown (10YR 4/3) moist; weak thick platy structure; extremely hard and very hard, extremely firm and very firm; very few very fine roots; many very fine and fine interstitial pores; violently effervescent but noneffervescent in silica bands; strongly alkaline (pH 8.8); clear wavy boundary.
VC3sica RSL 66635	54 to 59+ inches, pale brown (10YR 6/3) strongly cemented gravelly duripan with discontinuous thin (less than 1 mm) brown (10YR 5/3) silica laminae, brown (10YR 4/3) moist; massive; very hard, very firm, brittle; no roots observed; many very fine and fine interstitial pores; many thin silica bridges between sand grains and silica coatings; matrix is noneffervescent but effervescent in spots; moderately alkaline (pH 8.4).

* Colors are for dry conditions unless otherwise noted.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Xerollic Durargid, coarse-loamy, mixed, mesic

SOIL SERIES: Acana gravelly loam SOIL Nos. S66Nev-9-23 LOCATION Lincoln County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 6669 - 6675

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (<0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Noncarbonate clay	1/ Coarse fragments 1A2a >2 Pct.	2-19	19-76
		Size class and particle diameter (mm) 3A1 — Pct. of <2 mm															Pct. of <76 mm	
0-3	A1	68.4	20.9	10.7	18.9	20.4	9.5	11.5	8.1	11.4	9.5	24.9	60.3	0	11	38	30	8
3-10	B2t	57.9	25.5	16.6	10.6	15.9	9.5	13.1	8.8	14.4	11.1	29.7	49.1	0	17	33	23	10
10-17	IIC1sica	52.9	24.7	22.4	11.9	12.8	8.2	12.8	7.2	11.6	13.1	25.4	45.7	15	7	31	20	11
17-24	IIC2sicam	69.8	19.0	11.2	18.9	19.1	10.6	12.9	8.3	9.1	9.9	24.1	61.5	5	6	48	29	19
24-32	IIC3sica	76.3	15.7	8.0	23.2	23.6	11.7	11.9	5.9	7.7	8.0	19.3	70.4	3	5	50	40	10
32-40	IIC4ca	76.4	16.0	7.6	16.5	20.6	14.1	17.4	7.8	8.6	7.4	25.0	68.6	1	7	47	42	5
40-53+	IIC5	87.4	7.8	4.8	29.4	28.7	14.1	12.0	3.2	3.9	3.9	12.2	84.2	0	5	53	43	10

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	Carbonate as $CaCO_3$ Whole soil Pct.	6E1b Carbonate as $CaCO_3$ <2 mm. Pct.	Field water content April 1966 <2mm. basis	Bulk density: 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH: 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-3	0.62	0.048	13		-	1	1.46	1.54		0.75	1	11.6	6.0	0.018	0.013	6.8	7.2	7.3
3-10	1.05	0.091	12		6	8	1.34	1.41		0.80	2	16.1	9.5	0.016	0.013	7.6	8.1	8.7
10-17	0.74			27	33	14					2		13.7			7.7	8.2	8.9
17-24	0.56			15	22	12	1.32	1.34		0.68	2	27.2	12.3	0.004	0.003	7.9	8.3	8.9
24-32	0.41			9	12	8					1		9.4			8.0	8.4	8.9
32-40	0.13				9	6	1.50	1.50		0.67	1	17.5	7.0	0.000	0.000	8.2	8.7	9.3
40-53+	0.05				1	6					1		5.6			8.7	9.4	9.7

Depth (In.)	Extractable bases: 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a		Sum of bases*	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-3	9.0	2.4	0.3	1.2		12.8		15.4	2.5	0.8	0.4	0.3		-	3.1	0.2		0.37
3-10	15.5	2.3	0.4	0.8		18.8		19.0	4.5	0.8	0.5	0.2		-	4.8	-		0.51
10-17	11.8	2.4	0.8	0.3		15.0		13.3	3.2	1.0	1.3	0.1		-	3.8	0.1		0.46
17-24	10.6	2.9	0.9	0.3		14.5		13.1	3.6	1.2	1.7	0.1		-	3.3	0.3		0.47
24-32	9.5	3.2	1.2	0.5		14.1		12.9	5.6	1.3	2.5	0.1		-	3.6	0.4		0.51
32-40	8.1	3.4	1.3	0.5		12.9		14.1	1.6	1.0	8.7	0.1		-	4.2	2.6		1.08
40-53+	5.4	2.9	3.5	0.7		12.2		15.2	0.7	0.4	13.3	tr		0.4	5.2	1.2		1.36

Depth (In.)	8A Water at Saturation Pct.	Exch. bases: 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1: Mont.	Ill-ite	Kaol.	Kaolin in ground whole soil 7A3 DTA	
		meq./100 g.						7A2 X-ray				
0-3	22.6	8.9	2.4	0.3				xxx	x	tr		
3-10	34.7	15.3	2.3	0.4				xxxx	x	x		
10-17	45.8	11.6	2.4	0.7	5						0	
17-24	39.8	10.4	2.9	0.9	7							
24-32	37.0	9.3	3.2	1.1	8							
32-40	32.8	8.0	3.4	1.0	7			xxxx	-	tr		
40-53+	26.1	5.4	2.9	3.2	21							

1/ 2-19 mm. from characterization sample (5 kg.); 19-76 mm. from field weights.

* Extractable Ca, Mg, and Na (corrected for soluble salts and gypsum) plus extractable K (uncorrected).

ACANA GRAVELLY SAND LOAM
S66Nev-9-23

Location: Lincoln County, Nevada. The site is located approximately 1,320 feet south and 1,320 feet west of the NE corner of Section 9, T.2S., R.69E., Mount Diablo base line and meridian. Date of Sampling: April 7, 1966.
Description by: H. J. Borup. Collectors: H. J. Borup, D. Nettleton.
Classification: **Xerollic Durargid, coarse-loamy, mixed, mesic.**
Vegetation: Principal plants include black sagebrush (90%), low Douglas rabbitbrush (5%), Utah juniper (5%), and traces of big sagebrush, Nevada ephedra, squirreltail, Indian ricegrass, and needle-and-thread grass. Use: Limited livestock and wildlife forage. Climate: Precipitation 8 to 10 inches. Mean annual air temperature about 49° F., January 29° F., July 69° F. Parent Material: Alluvium from rhyolite, tuff, and reworked lacustrine sediments high in ash. Topography: Slightly convex to smooth, gently sloping dissected terrace. **Slope,** 3 percent, west **facing. Elevation: 5,850 feet. Drainage: Well drained. Runoff is slow. Permeability is very slow. Soil Moisture: Slightly moist to 12 inches at time of sampling.**
Remarks: Field pH determinations by Thymol blue and Cresol red indicators in 1:5 dilutions. These samples were not paired.

HORIZON

A1 RSL 6669	0 to 3 inches, pale brown (10YR 6/3) gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky, nonplastic; no roots observed; common fine interstitial pores; noneffervescent; mildly alkaline (pH 7.8); abrupt smooth boundary.
B2t RSL 6670	3 to 10 inches, pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak medium prismatic structure; slightly hard, very friable, slightly sticky, slightly plastic; abundant fine and few coarse roots; common fine interstitial and tubular pores; few thin clay bridges between sand grains, and few thin clay films on ped faces and in some pores; strongly effervescent; strongly alkaline (pH 8.5); abrupt smooth boundary.
IIC1sica RSL 6671	10 to 17 inches, very pale brown (10YR 8/3) gravelly loamy sand, pale brown (10YR 6/3) moist; massive; hard, very friable, nonsticky, nonplastic; plentiful very fine and fine, and few medium roots; many very fine and medium interstitial pores; contains few very thin (1/64 inch or less), discontinuous silica laminae; violently effervescent with many white (10YR 8/2) lime bridges between sand grains and coatings on sand grains and gravel; very strongly alkaline (pH 9.6); abrupt wavy boundary.
IIC2sicam RSL 6672	17 to 24 inches, very pale brown (10YR 8/3) crudely stratified weakly and strongly lime-cemented material that textures gravelly loamy sand, that is continuously capped by, and stratified with few, very thin (1/16 inch or less) light yellowish brown (10YR 6/4) silica laminae, pale brown (10YR 6/3) and yellowish brown (10YR 5/4) moist; massive; hard to extremely hard, very friable to extremely firm, nonsticky, nonplastic; plentiful very fine and fine roots mostly matted on silica laminae; many very fine and fine interstitial pores; violently effervescent with many white (10YR 8/2) lime coatings on laminae and gravel, and bridges between sand grains; very strongly alkaline (pH 9.6); abrupt wavy boundary.
IIC3sica RSL 6673	24 to 32 inches, very pale brown (10YR 8/3) very gravelly loamy sand, with many very thin (less than 1/16 inch) light yellowish brown (10YR 6/4) silica laminae coating gravel and bridging sand grains, pale brown (10YR 6/3) and light yellowish brown (10YR 6/4) moist; massive; hard, friable and very friable, nonsticky, nonplastic; few very fine and fine roots; many very fine and fine, and few medium interstitial pores; contains thin discontinuous weakly silica and lime-cemented strata that are very hard and firm; violently effervescent with white (10YR 8/2) lime coatings on gravel; strongly alkaline (pH 9.0); abrupt wavy boundary.
IIC4ca RSL 6674	32 to 40 inches, very pale brown (10YR 8/3) gravelly loamy sand, pale brown (10YR 6/3) moist; massive; hard, very friable, nonsticky, nonplastic; few very fine roots; many very fine and fine, and few medium interstitial pores; violently effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.
IIC5 RSL 6675	40 to 53 inches +, pale brown (10YR 6/3) gravelly loamy sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky, nonplastic; few very fine roots; many very fine and fine interstitial pores; contains few, thin discontinuous hard and friable very pale brown (10YR 8/3) weakly lime-cemented lenses, pale brown (10YR 6/3) moist; matrix is strongly effervescent; very strongly alkaline (pH 9.6).

NOTE: Weakly developed gravel pavement sampled with A1 horizon.

Micromorphology

0-3"	**A1**	**Skeletal fabric, common very thin clay skins on sands.**
3-10"	**B2t**	**Skeletal fabric, many thin clay skins on sands, some clay bridges between grains.**
10-17"	**IIC1sica**	**Lime and silica coat grains and partially fill voids.**
32-40"	**IIC4ca**	**Lime coats grains and soft lime is dispersed throughout the matrix.**

SOIL SURVEY LABORATORY Riverside, California

OIL TYPE Bitterspring very gravelly loam **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Haplargid, coarse-loamy, mixed, thermic

SURVEY NOS. S59Nev-2-16 **LAB. NOS.** 59107 thru 59111

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 1/	TEXTURAL CLASS
0-1½	A1	3.2	4.6	2.8	14.0	14.3	43.8	17.3	42.3	26.6	10	l
1½-3	B2t	5.2	7.1	4.0	19.3	17.9	27.9	18.6	48.3	12.2	14	fsl
3-7	B3tca	6.5	8.1	3.9	19.2	19.9	29.6	12.8	50.8	13.2	25	fsl
7-14	IIC1ca	15.4	11.5	4.8	14.0	15.4	22.7	16.2	38.7	9.5	46	cosl
14-22+	IIIC2	16.2	14.7	8.1	15.8	15.1	18.0	12.1	37.8	6.2	39	cosl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6C1b Free Fe_2O_3 %	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0	-	9.2	0.08	0.013		0.7	1.3	12	1.1			8.1
7.9	-	9.3	0.02	0.009		1.4	2.0	8	1.0			8.2
7.5	-	8.3	0.03	0.009		1.1	15.8	7	0.9			5.5
7.2	-	7.8	0.02			1.3	40.4	10	0.8			5.7
7.3	-	8.0	0.03			0.7	25.8	5	0.8			4.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
16.0				1.2	1.8	8	8.3	0.5	3.0	1.0	5.8	16.9
14.4				1.1	1.6	8	11.5	0.7	5.0	1.2	10.2	24.9
7.5				1.2	0.7	16	48.8	1.5	148.7	29.2	111.0	29.7
6.2				0.8	0.3	13	65.6	0.7	388.9	87.4	255.1	31.2
5.3				0.7	0.3	13	60.9	0.7	303.5	74.4	208.5	25.7

* Saturation Extract Soluble

1/ Percent of <1 inch fraction

BITTERSPRING VERY GRAVELLY LOAM
S59Nev-2-16

Description: L. N. Langan and V. D. Leavitt
Collectors: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson, March, 1959.
Location: West 1.3 miles from Mesquite Post Office on Highway 91, turn left at the Bunkerville turnoff, proceed south and west 4.2 miles on "old" U.S. Highway 91 to Bunkerville Park road, south on graveled road to park. Sample site is approximately 350 feet northwest of park, Clark County, Nevada.
Relief: Smooth gently sloping alluvial fan broken by deep broad washes.
Physiography: Old alluvial fan.
Drainage: Well drained. Runoff is rapid as the well developed desert pavement does not permit rainfall to enter into the soil. The soil has a moderate permeability. Water table is estimated to be at 150 feet.
Parent Material: Mixed general alluvium derived from gneiss, schist, limestone, and quartzite.
Use: Utilized for limited livestock grazing.
Vegetation: Vegetative cover consists of a sparse cover of white bur-sage creosote bush, cacti, and assorted annuals. The plant density is approx. 3 percent.
Climate: The Virgin River area is characterized by a hot arid climate with mild winters and hot dry summers. Average annual rainfall is approximately 5 inches. The mean annual temperature is 68° F., the mean July temperature is 87°, and the mean January temperature is 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: Well developed desert pavement covering approximately 93 percent of the soil. Some pebbles exhibit a weak to moderate desert varnish. Occasionally a strong varnish. Pebbles are generally subangular, but some are well rounded. Average sizes range from 1/8 to 3", a few cobbles up to 6" in diameter.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in prepared 1:5 dilution.
Classification: Typic Haplargid, coarse-loamy, mixed, thermic.

Riverside Lab. Nos.
59107 through 59111

A1	0-1½"	Pink (7.5YR 7/4) loam, dark brown (7.5YR 4/4) when moist; moderate coarse platy structure; hard, friable, slightly sticky, plastic; very few fine fibrous roots; many fine and medium vesicular and few very fine tubular pores; thin continuous clay skins in pores; strongly calcareous; pH 8.8; abrupt slightly wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Bitterspring very gravelly loam **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Haplargid, coarse-loamy, mixed, thermic

SURVEY NOS. S59Nev-2-16 **LAB. NOS.** 59107 thru 59111

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-1½	A1	3.2	4.6	2.8	14.0	14.3	43.8	17.3	42.3	26.6	10	l
1½-3	B2t	5.2	7.1	4.0	19.3	17.9	27.9	18.6	48.3	12.2	14	fsl
3-7	B3tca	6.5	8.1	3.9	19.2	19.9	29.6	12.3	50.8	13.2	25	fsl
7-14	IIC1ca	15.4	11.5	4.8	14.0	15.4	22.7	16.2	38.7	9.5	46	cosl
14-22+	IIIC2	16.2	14.7	3.1	15.8	15.1	18.0	12.1	37.8	6.2	39	cosl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6C1b Free Fe_2O_3 %	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0	-	9.2	0.08	0.013		0.7	1.3	12	1.1			8.1
7.9	-	9.3	0.02	0.009		1.4	2.0	8	1.0			8.2
7.5	-	8.3	0.03	0.009		1.1	15.8	7	0.9			5.5
7.2	-	7.8	0.02			1.3	40.4	10	0.8			5.7
7.3	-	8.0	0.03			0.7	25.8	5	0.8			4.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLES 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
16.0				1.2	1.8	8	8.3	0.5	3.0	1.0	5.8	16.9
14.4				1.1	1.6	8	11.5	0.7	5.0	1.2	10.2	24.9
7.5				1.2	0.7	16	48.8	1.5	148.7	29.2	111.0	29.7
6.2				0.8	0.3	13	65.6	0.7	388.9	87.4	255.1	31.2
5.3				0.7	0.3	13	60.9	0.7	303.5	74.4	208.5	25.7

* Saturation Extract Soluble

1/ Percent of <1 inch fraction

B2t	1½- 3"	Light reddish brown (5YR 6/4) light sandy clay loam, reddish brown (5YR 4/4) when moist; weak fine and medium platy breaking to moderate fine and medium subangular blocky structure; hard, friable, sticky, plastic; very few fine fibrous roots; common fine and medium vesicular and tubular pores; thin continuous clay films on ped surfaces and in pores and as bridges between sand grains; strongly calcareous; pH 8.6; abrupt wavy boundary.
B3tca	3- 7"	Reddish brown (5YR 4/4, moist) sandy loam with few fine and medium distinct pink (7.5YR 8/4) lime veins, splotches and soft lime nodules, massive; soft, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores; horizon contains approximately 10 percent gravels 1/4 to 1 inch in diameter, average 3/8" in diameter; strongly calcareous; pH 8.4; abrupt wavy boundary.
IIC1ca	7-14"	Brown (7.5YR 5/4, moist) gravelly sandy loam, massive; hard, friable, slightly sticky, slightly plastic; few very fine fibrous roots; few very fine tubular pores: horizon contains 35 percent lime coated gravels that range from 1/4 to 3 inches in diameter and average 1/2 inch in diameter; strongly calcareous; pH 8.3; clear wavy boundary.
IIIC2	14-22"+	Reddish brown (5YR 4/4, moist) very gravelly loam with few fine and common distinct pinkish white (5YR 8/2) veins and streaks of lime; massive; hard, friable, slightly sticky, slightly plastic; very few very fine fibrous roots; few very fine tubular pores; horizon contains approximately 85 percent gravels, some have thin lime coatings on bottoms, 1/8 to 3 inches in diameter, average 3/8 inch in diameter; strongly calcareous; pH 8.3.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Bitterspring very gravelly loam **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Haplargid, coarse-loamy, mixed, thermic

SURVEY NOS. S59Nev-2-18 **LAB. NOS.** 59112 thru 59116

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 1/	TEXTURAL CLASS
0- 2	A1	4.1	6.1	4.2	22.8	18.6	33.9	10.3	48.5	21.0	21	fsl
2-4½	B2t	5.6	9.1	6.3	29.0	17.7	17.0	15.3	45.1	10.0	29	fsl
4½-15	IIB3tca	15.7	12.6	6.4	21.9	18.3	14.3	10.8	42.3	5.9	54 2/	cosl
15-18	IIIC1ca	8.2	10.4	7.1	21.7	17.7	17.5	17.4	41.1	8.7	31 3/	fsl
18-27+	IIIC2	12.4	13.5	9.8	24.4	14.1	14.7	11.1	35.9	7.2	40	cosl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6C1b Free Fe_2O_3 %	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0	0	8.9	0.14	0.017	8.2	2.9	0.6	11	1.1			5.6
8.1	0	9.1	0.05	0.008	6.3	2.0	0.3	8	0.8			5.8
8.2	0	9.1	0.03	0.005	6.0	1.9	0.3	6	0.7			3.9
8.1	0	9.2	0.04			1.8	1.7	15	0.7			5.9
8.1	0	9.3	0.01			1.9	2.7	12	0.6			4.4

5A2a CATION EXCHANGE CAPACITY (+ Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
14.2				0.2	1.0	1	1.2	0.3	3.2	0.8	0.5	15.8
14.6				0.2	1.0	1	0.9	0.3	1.9	0.3	0.3	17.1
6.5				0.2	0.5	3	0.9	0.2	1.4	0.4	0.3	26.2
7.7				1.0	0.4	13	5.4	0.2	3.2	1.6	11.1	35.5
6.5				0.9	0.2	14	19.9	0.1	3.0	2.0	17.7	28.6

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of <1 inch fraction.

2/ 25% >1 inch gravel discarded.

3/ 15% >1 inch gravel discarded.

BITTERSPRING VERY GRAVELLY LOAM
S59Nev-2-18

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Collectors: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: West 1.3 miles from Mesquite Post Office to Bunkerville turnoff on Highway 91, turn left onto old Highway 91 and proceed south and west 8.8 miles to Riverside Bridge, turn west on gravel road and go 1.4 miles to the sample site. It is located approximately 200 feet south of road and approximately .3 of a mile east of the Bundy ranch house, Clark County, Nevada.
Relief: Smooth gently sloping alluvial fan broken by deep broad washes.
Physiography: Old alluvial fan.
Drainage: Well drained. Runoff is rapid as the well developed desert pavement does not permit rainfall to enter into the soil. The soil has a moderate permeability. Water table is estimated to be at 100 feet.
Parent Material: Mixed general alluvium derived from gneiss, schist, limestone, and quartzite.
Use: Utilized for limited livestock grazing.
Vegetation: Vegetative cover consists of a sparse cover of white bur-sage creosote bush, cacti, and assorted annuals. The plant density is approximately 3 percent.
Climate: The Virgin River area is characterized by a hot arid climate with mild winters and hot, dry summers. Average annual rainfall is approximately 5 inches. The mean annual temperature is 68° F., the mean July temperature is 87° F., and the mean January temperature is 44° F. The relative humidity is low, evaporation is high, and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: The soil surface has a well developed desert pavement covering approximately 95 percent of the soil surface. Pebbles exhibit a weak desert varnish. They range in size from 1/2 to 12 inches.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in prepared 1:5 dilution.
Classification: Typic Haplargid, coarse-loamy, mixed, thermic.

Riverside Lab. Nos. 59112 through 59116		PROFILE DESCRIPTION
A1	0- 2'	Light brown (7.5YR 6/4) loam, dark brown (7.5YR 4/4) when moist; moderate medium platy structure; hard, friable, slightly sticky, slightly plastic; few very fine fibrous roots; many fine vesicular pores; thin continuous clay films in pores; strongly calcareous; pH 8.6; abrupt slightly wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Bitterspring very gravelly loam **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Haplargid, coarse-loamy, mixed, thermic

SURVEY NOS. S59Nev-2-18 **LAB. NOS.** 59112 thru 59116

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A1	4.1	6.1	4.2	22.8	18.6	33.9	10.3	48.5	21.0	21	fsl
2-4½	B2t	5.6	9.1	6.3	29.0	17.7	17.0	15.3	45.1	10.0	29	fsl
4½-15	IIB3tca	15.7	12.6	6.4	21.9	18.3	14.3	10.8	42.3	5.9	54 2/	cosl
15-18	IIIC1ca	8.2	10.4	7.1	21.7	17.7	17.5	17.4	41.1	8.7	31 3/	fsl
18-27+	IIIC2	12.4	13.5	9.8	24.4	14.1	14.7	11.1	35.9	7.2	40	cosl

8C1b pH SATURATED PASTE 1:1	6I1a CO3* meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b CaCO3 equivalent %	6C1b Free Fe2O3 %	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0	0	8.9	0.14	0.017	8.2	2.9	0.6	11	1.1			5.6
8.1	0	9.1	0.05	0.008	6.3	2.0	0.3	8	0.8			5.8
8.2	0	9.1	0.03	0.005	6.0	1.9	0.3	6	0.7			3.9
8.1	0	9.2	0.04			1.8	1.7	15	0.7			5.9
8.1	0	9.3	0.01			1.9	2.7	12	0.6			4.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
14.2				0.2	1.0	1	1.2	0.3	3.2	0.8	0.5	15.8
14.6				0.2	1.0	1	0.9	0.3	1.9	0.3	0.3	17.1
6.5				0.2	0.5	3	0.9	0.2	1.4	0.4	0.3	26.2
7.7				1.0	0.4	13	5.4	0.2	3.2	1.6	11.1	35.5
6.5				0.9	0.2	14	19.9	0.1	3.0	2.0	17.7	28.6

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of <1 inch fraction.

2/ 25% >1 inch gravel discarded.

3/ 15% >1 inch gravel discarded.

B2t	2-4½"	Reddish brown (5YR 4/4) gravelly light sandy clay loam, yellowish red (5YR 4/6) when moist; weak medium and fine subangular blocky structure; hard to slightly hard, friable, slightly sticky, slightly plastic; few very fine fibrous roots; common very fine interstitial pores, thin continuous clay films in pores, on ped surfaces, and as bridges between sand grains; horizon contains approximately 20 percent fine gravels; strongly calcareous; pH 8.4; abrupt wavy boundary.
IIB3tca	4½-15"	Reddish brown (5YR 5/4, moist) gravelly sandy loam with many fine and medium distinct pinkish white (7.5YR 8/2) lime veins and splotches; some gravels are lime coated, massive; slightly hard, very friable, very slightly sticky, very slightly plastic; few very fine fibrous roots; common very fine interstitial pores; horizon contains approximately 35 percent 1/4 to 3 inch gravels, some of which are lime coated; strongly calcareous; pH 8.8; abrupt wavy boundary.
IIIC1ca	15-18"	Reddish brown (5YR 5/4) moist, very gravelly loam, moderate medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; few fine fibrous roots; few fine tubular pores; horizon contains approximately 50 percent gravel, 80 percent of which are pinkish white (7.5YR 8/2) and 20 percent of which are pink (5YR 3/4) lime coated, many soft lime nodules 1/2" in diameter; strongly calcareous; pH 9.0; abrupt wavy boundary.
IIIC2	18-27"+	Reddish brown (5YR 4/5) very gravelly loam with many fine and medium pinkish white (7.5YR 8/2) veins and splotches of lime; massive; very hard, friable, very slightly sticky very slightly plastic; few very fine fibrous roots, few very fine tubular pores; horizon contains approximately 60 percent gravels and 5 percent cobbles, some of which are lime coated; strongly calcareous; pH 8.8.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Washoe cobbly sandy loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, loamy-skeletal, mixed, mesic

SURVEY NOS. S59Nev-3-9 **LAB. NOS.** 59633 - 59640

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A1	12.5	34.8	15.1	18.5	9.2	8.1	1.8	24.7	2.7	14	c s
2- 5	A_{12}	9.3	23.5	15.0	21.4	10.9	15.4	4.5	30.0	8.0	11	lcos
5- 8	A_3	8.3	19.8	14.7	22.0	11.6	15.8	7.8	31.7	8.0	11	cosl-lcos
8-11	B_{1t}	9.4	19.7	13.1	19.6	10.4	16.4	11.4	28.8	8.7	14	cosl
11-20	B_{2t}	13.0	20.1	11.2	14.8	6.7	15.0	19.2	21.3	8.3	21	cosl-scl
20-28	IIB_{31t}	24.1	36.6	8.2	6.0	2.0	6.4	16.7	7.1	4.0	18	cosl
28-42	IIB_{32t}	20.4	26.9	10.3	11.1	4.3	13.0	14.0	15.0	7.6	28	cosl
42-53+	IIC_1	16.6	39.9	16.2	11.2	2.7	4.6	8.8	10.2	2.2	19	lcos

8C1b pH Saturated Paste 1:1	8C1a pH 1:10	6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.1	6.5	0.45	0.029	15.5		0.2	-	0.9			1.3	2.6
6.4	6.7	0.54	0.043	12.6		0.1	-	0.7			1.5	4.1
6.5	6.8	0.43	0.039	11.0		0.2	-	1.0			1.4	4.8
6.7	6.9	0.36	0.045			0.2	-	1.6			1.6	6.2
6.5	7.2	0.31	0.039			0.2	-	1.6			1.6	9.5
6.5	7.2	0.17				0.2	-	1.1			1.2	7.2
6.5	7.1	0.10				0.2	-	1.2			1.3	8.3
6.9	6.9	0.10				0.1	-	0.8			0.8	4.5

5A2a CATION EXCHANGE CAPACITY (-Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
5.2	1.6	0.4	2.3	<0.1	0.3	50	0.5	0.3	0.3	0.2	0.2	22.4
7.6	1.4	0.3	2.7	0.3	0.5	48	<0.1	0.3	0.9	-	0.2	19.2
8.8	4.4	1.0	3.0	0.3	0.5	67	0.3	0.3	1.2	-	0.2	19.4
12.1	5.6	1.5	3.4	0.1	0.4	69	0.4	0.3	1.4	0.1	0.2	22.8
16.3	8.3	2.5	3.4	<0.1	0.5	77	0.5	0.2	1.1	0.4	0.2	28.6
15.9	8.8	2.9	2.8	<0.1	0.3	81	0.5	<0.1	1.0	0.4	0.6	24.6
16.3	8.9	3.0	2.4	0.1	0.2	83	0.7	<0.1	0.8	0.2	0.2	23.7
8.8	4.5	1.8	1.6	0.1	0.1	80	0.5	<0.1	0.4	-	0.2	23.1

1/ Percent of <1 inch fraction

WASHOE COBBLY SANDY LOAM
S59Nev-3-9

Location: The site is located approximately 300 feet south of the Dressler dump area. It is approximately 300 feet east and 75 feet south of center of sec. 28, T. 12 N., R. 20 E., Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 5, 1959
Description by: L. N. Langan
Relief: Smooth alluvial terrace with slight undulations
Physiography: Broad alluvial terrace at the confluence of the east and west forks of the Carson River
Drainage: Well drained; runoff is very slow during periods of normal rainfall; internal drainage is medium and soil permeability is moderately slow through the B horizon and rapid through the C horizon. Water table is very deep, being estimated at depths between 50 and 100 feet.
Parent Material: Gravelly, cobbly, and stony alluvium derived from mixed rock sources. The soil is derived primarily from granite with admixtures of basalt, andesite, rhyolite, and gneiss, and metavolcanics.
Use: Available forage is utilized for limited livestock grazing during the late fall, winter, and early spring months. Some utilization of the available forage is being made by the migratory Sierra Nevada deer herd during the winter months.
Vegetation: Vegetation has a plant density at this site of approximately 15 percent, consisting of sagebrush 75 percent, Mormon tea 5 percent, rabbitbrush 10 percent, cheatgrass 2 percent, squirreltail 2 percent, and desert peach 6 percent.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers; the average rainfall is approximately 10 to 12 inches; average annual temperature is 49 to 51 degrees F., and the average frost-free period is 90 to 105 days.
Remarks: These samples are paired with S59Nev-3-10-1 through 8
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue in prepared 1:5 dilutions.
Classification: Xerollic Haplargid, loamy-skeletal, mixed, mesic.

A1 0- 2" Brown (10YR 5/3) coarse sand, very dark grayish brown (10YR 3/2) when moist; single grained; loose dry or moist, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine and fine interstitial pores; pH 6.5; abrupt smooth boundary.
RSL No. 59633

A12 2- 5" Pale brown (10YR 6/3) cobbly light coarse sandy loam, very dark grayish brown (10YR 3/2) when moist; weak medium platy breaking to weak medium and fine granular structure; soft, very friable, nonsticky, nonplastic; plentiful fine and abundant very fine roots; common fine and very fine vesicular pores; pH 6.4; abrupt smooth boundary; cobblestones greater than one inch (15% by volume) were not sampled.
RSL No. 59634

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Washoe cobbly sandy loam LOCATION Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, loamy-skeletal, mixed, mesic

SURVEY NOS. S59Nev-3-9 LAB. NOS. 59633 - 59640

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 1/	TEXTURAL CLASS
0- 2	A1	12.5	34.8	15.1	18.5	9.2	8.1	1.8	24.7	2.7	14	cos
2- 5	A_{12}	9.3	23.5	15.0	21.4	10.9	15.4	4.5	30.0	8.0	11	lcos
5- 8	A_3	8.3	19.8	14.7	22.0	11.6	15.8	7.8	31.7	8.0	11	cosl-lcos
8-11	B_{1t}	9.4	19.7	13.1	19.6	10.4	16.4	11.4	28.8	8.7	14	cosl
11-20	B_{2t}	13.0	20.1	11.2	14.8	6.7	15.0	19.2	21.3	8.3	21	cosl scl
20-28	IIB_{31t}	24.1	36.6	8.2	6.0	2.0	6.4	16.7	7.1	4.0	18	cosl
28-42	IIB_{32t}	20.4	26.9	10.3	11.1	4.3	13.0	14.0	15.0	7.6	28	cosl
42-53+	IIC_1	16.6	39.9	16.2	11.2	2.7	4.6	8.8	10.2	2.2	19	lcos

8C1b pH Saturated Paste 1:1	8C1a pH 1:10	6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.1	6.5	0.45	0.029	15.5		0.2	-	0.9			1.3	2.6
6.4	6.7	0.54	0.043	12.6		0.1	-	0.7			1.5	4.1
6.5	6.8	0.43	0.039	11.0		0.2	-	1.0			1.4	4.8
6.7	6.9	0.36	0.045			0.2	-	1.6			1.6	6.2
6.5	7.2	0.31	0.039			0.2	-	1.6			1.6	9.5
6.5	7.2	0.17				0.2	-	1.1			1.2	7.2
6.5	7.1	0.10				0.2	-	1.2			1.3	8.3
6.9	6.9	0.10				0.1	-	0.8			0.8	4.5

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
5.2	1.6	0.4	2.3	<0.1	0.3	50	0.5	0.3	0.3	0.2	0.2	22.4
7.6	1.4	0.3	2.7	0.3	0.5	48	<0.1	0.3	0.9	-	0.2	19.2
8.8	4.4	1.0	3.0	0.3	0.5	67	0.3	0.3	1.2	-	0.2	19.4
12.1	5.6	1.5	3.4	0.1	0.4	69	0.4	0.3	1.4	0.1	0.2	22.8
16.3	8.3	2.5	3.4	<0.1	0.5	77	0.5	0.2	1.1	0.4	0.2	28.6
15.9	8.8	2.9	2.8	<0.1	0.3	81	0.5	<0.1	1.0	0.4	0.6	24.6
16.3	8.9	3.0	2.4	0.1	0.2	83	0.7	<0.1	0.8	0.2	0.2	23.7
8.8	4.5	1.8	1.6	0.1	0.1	80	0.5	<0.1	0.4		0.2	23.1

1/ Percent of <1 inch fraction

A3	5- 8"	Brown (10YR 5/3) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) when moist; moderate medium and fine granular structure, soft, friable, nonsticky, nonplastic; plentiful fine and abundant very fine roots; common fine and very fine interstitial and few very fine tubular pores; pH 6.6; abrupt smooth boundary; cobblestones greater than one inch (10% by volume) were not sampled.
RSL No. 59635		
B1t	8-11"	Brown (10YR 5/3) gravelly coarse sandy loam, dark brown (10YR 3/3) when moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; few fine and abundant very fine roots; common very fine and few fine tubular pores; moderate very thin patchy clay films on ped faces and in pores; pH 6.5; abrupt wavy boundary; cobblestones greater than one inch (15% by volume) were not sampled.
RSL No. 59636		
B2t	11-20"	Dark brown (7.5YR 4/3) gravelly light sandy clay loam, dark brown (7.5YR 3/3) when moist; massive; very hard, friable, sticky, plastic; very few fine and plentiful very fine roots; few fine and very fine interstitial and few fine tubular pores; thin continuous clay films as bridges and in pores; gravels and cobbles show visible signs of weathering; pH 6.5; clear wavy boundary; cobblestones greater than one inch (20% by volume) were not sampled.
RSL No. 59637		
IIB31t	20-28"	Dark brown (7.5YR 4/4) gravelly coarse sandy loam, dark brown (7.5YR 3/4) when moist; massive; hard to very hard, friable, slightly sticky, slightly plastic; few very fine roots; few fine and very fine interstitial pores; thin continuous clay films as bridges and as coatings on sand grains; most gravels and cobbles show visible signs of weathering; pH 6.5; gradual wavy boundary.
RSL No. 59638		
IIB32t	28-42"	Dark brown (7.5YR 4/4) very gravelly coarse sandy loam, dark brown (7.5YR 3/2) when moist; massive; hard, friable, slightly sticky, slightly plastic; very few very fine roots; many very fine and fine interstitial pores; moderate thin clay films as coatings on sand grains and as bridges between sand grains; few gravels and cobbles show visible signs of weathering; pH 6.6; gradual wavy boundary.
RSL No. 59639		
IIC1	42-53"+	Light yellowish brown (10YR 6/4) very gravelly loamy coarse sand, yellowish brown (10YR 5/4) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; no roots observed; many very fine and fine interstitial pores; pH 6.6; pebbles greater than one inch (35% by volume) were not sampled.
RSL No. 59640		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Washoe cobbly sandy loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, loamy-skeletal, mixed, mesic

SURVEY NOS. S59Nev-3-10 **LAB. NOS.** 59641 - 59648

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A_{11}	9.3	30.5	14.2	20.7	9.8	12.0	3.5	28.8	3.9	23	lcos
2- 4	A_{12}	8.4	22.5	11.6	17.9	9.2	24.9	5.5	30.9	13.3	16	cosl
4- 7	A_3	7.2	18.8	13.0	19.8	9.7	21.9	9.6	30.0	12.6	16	cosl
7- 9	B_{1t}	6.6	16.2	12.9	21.5	10.8	21.9	10.1	32.9	12.0	15	sl
9-18	B_{2t}	9.6	15.2	7.6	10.8	5.0	12.2	39.6	16.4	6.6	19	sc
18-26	IIB_{31t}	25.8	26.5	9.3	9.1	3.0	8.0	18.3	11.2	4.1	30	cosl
26-43	IIB_{32t}	30.7	29.6	7.8	7.6	2.7	8.3	13.3	9.8	4.9	34	cosl
43-53+	IIC_1	20.9	39.9	15.2	9.1	2.0	4.1	8.8	7.9	1.9	44	lcos

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
5.9	6.4	1.04	0.076	13.7		0.3	-	2.0			1.5	4.8
6.5	6.7	0.42	0.037	11.4		0.3	-	1.3			1.9	5.3
6.6	6.9	0.31	0.033			0.3	-	1.4			2.0	5.3
6.5	7.2	0.33	0.034			0.3	-	1.3			1.9	5.5
6.2	7.4	0.47	0.051			0.2	-	1.5			1.2	17.6
6.4	7.3	0.09				0.2	-	1.0			1.3	11.0
6.6	7.3	0.05				0.2	-	1.5			0.9	9.8
7.1	7.1	0.05				0.2	-	1.6			1.1	6.8

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
8.8	3.6	1.2	3.4	0.2	0.6	62	0.3	0.6	1.2	0.7	0.2	26.3
8.9	4.4	1.5	2.6	<0.1	0.6	71	0.8	0.4	1.1	0.3	0.2	18.7
11.0	5.5	2.0	2.7	0.3	0.4	75	0.7	0.2	1.0	0.6	0.2	17.9
10.9	6.0	2.7	2.7	<0.1	0.5	77	0.6	0.2	1.7	-	0.2	17.9
38.9	19.5	9.7	4.1	0.3	0.6	88	0.7	0.1	1.4	-	0.2	47.3
26.6	14.2	6.9	2.9	0.1	0.4	88	0.7	<0.1	0.9	0.4	0.2	29.4
19.9	12.2	6.0	2.5	0.2	0.3	88	0.6	<0.1	0.6	0.3	0.2	27.6
17.4	8.8	4.4	2.1	0.1	0.3	87	0.5	<0.1	0.6	0.3	0.2	27.4

1/ Percent of <1 inch fraction.

WASHOE COBBLY SANDY LOAM
S59Nev-3-10

Location: The site is located approximately 200 feet east and 500 feet south of the center of sec. 16, T. 12 N., R. 20 E., Mount Diablo Base and Meridian.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 5, 1959
Description by: L. N. Langan
Relief: Smooth nearly level alluvial terrace with slight undulations and cut by several shallow, narrow drainageways.
Physiography: Broad alluvial terraces at the confluence of the east and west forks of the Carson River.
Drainage: Well drained; runoff is very slow during periods of normal rainfall; internal drainage is medium; soil permeability is moderately slow through the B horizon and rapid through the C horizon. Water table is very deep, being estimated at depths between 50 and 100 feet.
Parent Material: Gravelly, cobbly, and stony alluvium derived from mixed rock sources. The soil is derived primarily from granite with admixtures of basalt, andesite, rhyolite, gneiss, and metavolcanics.
Use: Available forage is utilized for limited livestock grazing during the late fall, winter, and early spring months. Some utilization of the available forage is being made by the migratory Sierra Nevada deer herd during the winter months.
Vegetation: Vegetation has a density of approximately 12 percent, consisting of big sagebrush 78 percent, Mormon tea 10 percent, desert peach 5 percent, squirreltail 5 percent, and cheatgrass 2 percent.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 10 to 12 inches; average annual temperature is 49 to 51 degrees F., and the average frost-free period is 90 to 105 days.
Remarks: These samples are paired with S59Nev-3-9-1 through 8.
Reaction: Measure of free carbonate obtained by observing reaction to HCl. pHs determined with bromthymol blue in prepared 1:5 dilutions.
Classification: Xerollic Haplargid, loamy-skeletal, mixed, mesic.

A11	0- 2"	Brown (10YR 5/3) cobbly loamy coarse sand, very dark grayish brown (10YR 3/2) when moist; single grained; loose dry or moist, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine and fine interstitial pores; pH 6.4; abrupt smooth boundary; cobblestones greater than one inch (20% by volume) were not sampled.
RSL No. 59641		
A12	2- 4"	Pale brown (10YR 6/3) cobbly coarse sandy loam, very dark grayish brown (10YR 3/2) when moist; moderate coarse platy structure; slightly hard, friable, nonsticky, nonplastic; plentiful fine and abundant very fine roots; common fine and many very fine vesicular pores; pH 6.4; abrupt smooth boundary; cobblestones greater than one inch (10% by volume) were not sampled.
RSL No. 59642		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Washoe cobbly sandy loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, loamy-skeletal, mixed, mesic

SURVEY NOS. S59Nev-3-10 **LAB. NOS.** 59641 - 59648

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A_{11}	9.3	30.5	14.2	20.7	9.8	12.0	3.5	28.8	3.9	23	lcos
2- 4	A_{12}	8.4	22.5	11.6	17.9	9.2	24.9	5.5	30.9	13.3	16	cosl
4- 7	A_3	7.2	18.8	13.0	19.8	9.7	21.9	9.6	30.0	12.6	16	cosl
7- 9	B_{1t}	6.6	16.2	12.9	21.5	10.8	21.9	10.1	32.9	12.0	15	sl
9-18	B_{2t}	9.6	15.2	7.6	10.8	5.0	12.2	39.6	16.4	6.6	19	sc
18-26	IIB_{31t}	25.8	26.5	9.3	9.1	3.0	8.0	18.3	11.2	4.1	30	cosl
26-43	IIB_{32t}	30.7	29.6	7.8	7.6	2.7	8.3	13.3	9.8	4.9	34	cosl
43-53+	IIC_1	20.9	39.9	15.2	9.1	2.0	4.1	8.8	7.9	1.9	44	lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
5.9	6.4	1.04	0.076	13.7		0.3	-	2.0			1.5	4.8
6.5	6.7	0.42	0.037	11.4		0.3	-	1.3			1.9	5.3
6.6	6.9	0.31	0.033			0.3	-	1.4			2.0	5.3
6.5	7.2	0.33	0.034			0.3	-	1.3			1.9	5.5
6.2	7.4	0.47	0.051			0.2	-	1.5			1.2	17.6
6.4	7.3	0.09				0.2	-	1.0			1.3	11.0
6.6	7.3	0.05				0.2	-	1.5			0.9	9.8
7.1	7.1	0.05				0.2	-	1.6			1.1	6.8

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
8.8	3.6	1.2	3.4	0.2	0.6	62	0.3	0.6	1.2	0.7	0.2	26.3
8.9	4.4	1.5	2.6	<0.1	0.6	71	0.8	0.4	1.1	0.3	0.2	18.7
11.0	5.5	2.0	2.7	0.3	0.4	75	0.7	0.2	1.0	0.6	0.2	17.9
10.9	6.0	2.7	2.7	<0.1	0.5	77	0.6	0.2	1.7	-	0.2	17.9
38.9	19.5	9.7	4.1	0.3	0.6	88	0.7	0.1	1.4	-	0.2	47.3
26.6	14.2	6.9	2.9	0.1	0.4	88	0.7	<0.1	0.9	0.4	0.2	29.4
19.9	12.2	6.0	2.5	0.2	0.3	88	0.6	<0.1	0.6	0.3	0.2	27.6
17.4	8.8	4.4	2.1	0.1	0.3	87	0.5	<0.1	0.6	0.3	0.2	27.4

1/ Percent of <1 inch fraction

A3 RSL N . 59643	4- 7"	Brown (10YR 5/3) cobbly sandy loam, dark brown (10YR 3/3) when moist; moderate medium and fine granular structure; slightly hard, friable, nonsticky, nonplastic; plentiful fine and abundant very fine roots; common fine and many very fine interstitial pores; pH 6.6; abrupt smooth boundary; cobblestones greater than one inch (15% by volume) were not sampled.
B1t RSL No. 59644	7- 9"	Grayish brown (10YR 5/2) cobbly sandy loam, very dark grayish brown (10YR 3/2) when moist; moderate medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; plentiful fine and abundant very fine roots; few very fine tubular and common very fine and fine interstitial pores; few thin clay films on ped faces and in pores; pH 6.5; abrupt slightly wavy boundary; cobblestones greater than one inch (20% by volume) were not sampled.
D2t (BPR) RSL No. 59645	9-18"	Brown (7.5YR 5/4) gravelly light sandy clay, dark brown (7.5YR 3/4) when moist; generally massive as gravels and cobbles obscure structure, some areas have weak medium prismatic structure; very hard, friable, very sticky, very plastic; few fine and plentiful very fine roots; common very fine interstitial and few fine and very fine tubular pores; thin continuous clay films in pores and as clay bridges between sand grains; pH 6.5; clear wavy boundary; cobblestones greater than one inch (15% by volume) were not sampled.
IIB31t RSL No. 59646	18-26"	Brown (7.5YR 5/4) very gravelly coarse sandy loam, dark brown (7.5YR 4/2) when moist; massive; very hard to hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; few fine and many very fine interstitial pores; common moderately thick clay bridges between sand grains and common moderately thick clay films coating sand grains; pH 6.5; gradual very wavy boundary; cobblestones greater than one inch (25% by volume) were not sampled.
IIB32t RSL No. 59647	26-43"	Light yellowish brown (10YR 6/4) very gravelly coarse sandy loam, dark brown (10YR 4/3) when moist; massive; hard, friable, slightly sticky, slightly plastic; few very fine roots; common fine and many very fine interstitial pores; few thin clay films coating sand grains and few moderately thick clay bridges between sand grains; pH 6.5; gradual wavy boundary; cobblestones greater than one inch (25% by volume) were not sampled.
IIC1 RSL No. 59648	43-53"+	Brown (10YR 5/3) very gravelly coarse sand, dark brown (10YR 4/3) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; very few very fine roots; many fine interstitial pores; pH 6.6; cobblestones greater than one inch (45% by volume) were not sampled.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Turria loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, fine-loamy, mixed, mesic

SURVEY NOS. S59Nev-3-5 **LAB. NOS.** 59600 - 59608

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 4	A_1	0.6	2.9	5.0	26.1	26.3	29.1	10.0	58.7	15.1	0	vfsl
4- 7	B_{1t}	0.4	2.4	4.2	21.1	22.6	25.9	23.4	49.6	13.9	0	scl
7-12	B_{2t}	0.1	1.1	3.5	15.5	10.5	34.5	34.8	38.2	16.9	0	cl
12-17	B_{3t}	0.1	0.8	1.4	5.6	11.8	45.9	34.4	33.3	29.2	0	sicl-cl
17-25	C_1	0.1	1.6	2.3	5.7	10.5	49.3	30.5	40.9	22.6	0	cl-sicl
25-36	IIC_2	0.9	5.4	6.5	24.3	23.7	24.3	14.9	52.4	11.3	0	vfsl
36-45	IIC_3	1.6	8.7	7.9	28.6	29.3	16.1	7.8	60.2	5.1	0	vfsl-lfs
45-50	IIC_4	2.5	12.6	9.4	21.8	22.4	24.2	7.1	51.1	9.7	3	vfsl
50-57+	$IIIC_5$	4.5	37.4	19.3	18.3	8.9	7.8	3.8	23.5	2.8	0	cos-lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
						milliequivalents per liter						
6.6	7.4	0.64	0.055	11.6		0.5	-	1.8				5.3
6.9	7.9	0.41	0.044	9.4		0.4	-	1.7				10.1
7.2	8.3	0.35	0.045			0.4	-	2.5				16.3
7.5	8.6	0.31	0.042			0.4	-	3.2				17.4
7.7	8.6	0.25	0.038			0.4	-	3.0				16.8
7.9	8.8	0.13				0.4	-	2.6				7.8
8.0	8.9	0.07				0.6	-	2.1				5.7
8.0	9.0	0.09			<0.5	0.8	-	2.9				6.2
8.4	9.2	0.03				0.4	-	3.0				2.9

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
11.2	5.3	2.7	3.1	0.3	2.0	77	0.5	1.8	1.6	0.6	0.4	24.2
16.1	9.3	4.7	2.9	0.2	3.0	86	0.7	1.7	3.0	-	0.5	29.1
30.9	15.9	7.0	3.0	0.2	4.7	90	0.5	1.4	1.4	-	0.2	45.4
37.2	20.1	7.6	1.7	0.1	4.5	95	0.5	1.6	2.0	0.2	0.4	49.7
37.3	21.7	7.7	1.8	0.3	3.6	95	0.5	1.3	2.0	0.9	0.2	52.3
19.2	13.5	4.3	1.4	0.3	1.0	93	0.8	0.4	2.6	0.4	0.2	29.6
14.8	11.6	3.2	1.3	0.3	0.2	92	1.7	0.1	2.7	1.2	1.1	28.6
17.4	15.3	3.5	-	0.5	0.1		3.7	0.1	3.5	1.0	2.4	26.7
7.7	7.1	1.6	1.0	0.3	0.1	90	3.0	0.1	1.7	-	0.7	21.9

+ Including cations from carbonates in some horizons.

TURRIA LOAM
S59Nev-3-5

Location: The site is located approximately 100 feet south and 300 feet east of the north 1/4 corner of sec. 15, T. 13 N., R. 20 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 2, 1959
Description by: L. N. Langan
Relief: Smooth nearly level alluvial fan. The surface is dissected by several shallow, narrow gullies.
Physiography: Alluvial fan emanating from narrow flood plain that truncates older alluvial terraces.
Drainage: Well drained; runoff is slow during periods of normal rainfall; internal drainage is medium; soil permeability is moderately slow through the B horizon and moderate through the C horizons. The water table is estimated at depths ranging from 7 to 12 feet. This soil is not being irrigated.
Parent Material: Loamy alluvium derived from mixed rock sources including granite, basalt, rhyolite, andesite, and assorted sedimentary and metamorphic rocks.
Use: This site is utilized for livestock grazing for limited periods throughout the year.
Vegetation: Vegetation has a density of approximately 30 percent, consisting of saltbush (Atriplex lentiformus) 64 percent, white sage 1 percent, bud sage 15 percent, horsebrush 5 percent, spiny hopsage 15 percent, and a trace of cheatgrass.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is 8 to 10 inches; the annual temperature is 49 to 51 degrees F., and the average frost-free period is 95 to 105 days.
Remarks: These samples are paired with S59Nev-3-6-1 through 10.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined by bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Xerollic Haplargid, fine-loamy, mixed, mesic.

A1	0- 4"	Light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) when moist; massive; hard, friable, nonsticky, nonplastic; few fine and plentiful very fine roots; common very fine vesicular pores; pH 6.8; abrupt wavy boundary.
RSL No. 59600		
B1t	4- 7"	Brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) when moist; weak coarse platy breaking to moderate fine subangular blocky structure; slightly hard, friable, sticky, plastic; abundant very fine and few fine roots; many very fine and fine tubular pores; few thin clay films on ped faces and in pores; pH 6.8; abrupt smooth boundary.
RSL No. 59601		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Turria loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, fine-loamy, mixed, mesic

SURVEY NOS. S59Nev-3-5 **LAB. NOS.** 59600 - 59608

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 4	A_1	0.6	2.9	5.0	26.1	26.3	29.1	10.0	58.7	15.1	0	vfsl
4- 7	B_{1t}	0.4	2.4	4.2	21.1	22.6	25.9	23.4	49.6	13.9	0	scl
7-12	B_{2t}	0.1	1.1	3.5	15.5	10.5	34.5	34.8	38.2	16.9	0	cl
12-17	B_{3t}	0.1	0.8	1.4	5.6	11.8	45.9	34.4	33.3	29.2	0	sicl-cl
17-25	C_1	0.1	1.6	2.3	5.7	10.5	49.3	30.5	40.9	22.6	0	cl-sicl
25-36	IIC_2	0.9	5.4	6.5	24.3	23.7	24.3	14.9	52.4	11.3	0	vfsl
36-45	IIC_3	1.6	8.7	7.9	28.6	29.3	16.1	7.8	60.2	5.1	0	vfsl-lfs
45-50	IIC_4	2.5	12.6	9.4	21.8	22.4	24.2	7.1	51.1	9.7	3	vfsl
50-57+	$IIIC_5$	4.5	37.4	19.3	18.3	8.9	7.8	3.8	23.5	2.8	0	cos-lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3 (milliequivalents per liter)	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
6.6	7.4	0.64	0.055	11.6		0.5	-	1.8				5.3
6.9	7.9	0.41	0.044	9.4		0.4	-	1.7				10.1
7.2	8.3	0.35	0.045			0.4	-	2.5				16.3
7.5	8.6	0.31	0.042			0.4	-	3.2				17.4
7.7	8.6	0.25	0.038			0.4	-	3.0				16.8
7.9	8.8	0.13				0.4	-	2.6				7.8
8.0	8.9	0.07				0.6	-	2.1				5.7
8.0	9.0	0.09			<0.5	0.8	-	2.9				6.2
8.4	9.2	0.03				0.4	-	3.0				2.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a (milliequivalents per 100g. soil)	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl (milliequivalents per liter)	8A MOISTURE AT SATURATION %
11.2	5.3	2.7	3.1	0.3	2.0	77	0.5	1.8	1.6	0.6	0.4	24.2
16.1	9.3	4.7	2.9	0.2	3.0	86	0.7	1.7	3.0		0.5	29.1
30.9	15.9	7.0	3.0	0.2	4.7	90	0.5	1.4	1.4	-	0.2	45.4
37.2	20.1	7.6	1.7	0.1	4.5	95	0.5	1.6	2.0	0.2	0.4	49.7
37.3	21.7	7.7	1.8	0.3	3.6	95	0.5	1.3	2.0	0.9	0.2	52.3
19.2	13.5	4.3	1.4	0.3	1.0	93	0.8	0.4	2.6	0.4	0.2	29.6
14.8	11.6	3.2	1.3	0.3	0.2	92	1.7	0.1	2.7	1.2	1.1	28.6
17.4	15.3	3.5	-	0.5	0.1		3.7	0.1	3.5	1.0	2.4	26.7
7.7	7.1	1.6	1.0	0.3	0.1	90	3.0	0.1	1.7		0.7	21.9

+ Including cations from carbonates in some horizons.

B2t	7-12"	Brown (10YR 5/3) clay loam, dark brown (10YR 3/3) when moist; moderate medium prismatic structure; hard, friable, sticky, plastic; plentiful fine and abundant very fine roots; many very fine and fine tubular pores; pH 6.8; clear wavy boundary.
RSL No. 59602		
B3t	12-17"	Pale brown (10YR 6/3) silty clay loam, dark brown (10YR 3/3) when moist; weak fine prismatic breaking to moderate medium subangular blocky structure; hard, friable, sticky, plastic; abundant very fine and plentiful fine roots; many very fine and common fine tubular pores; common thin clay films on ped faces and thin continuous clay films in pores; pH 6.8; clear smooth boundary.
RSL No. 59603		
C1	17-25"	Light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, friable, sticky, plastic; few fine and plentiful very fine roots; common fine and many very fine tubular pores; thin continuous clay films in pores; pH 7.0; abrupt smooth boundary.
RSL No. 59604		
IIC2	25-36"	Pale brown (10YR 6/3) loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; few fine and common very fine tubular pores; pH 7.4; clear smooth boundary.
RSL N . 59605		
IIC3	36-45"	Pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) when moist; massive; soft, very friable, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine interstitial pores; pH 7.6; abrupt smooth boundary.
RSL No. 59606		
IIC4	45-50"	Pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) when moist; massive; soft, very friable, nonsticky, nonplastic; very few fine and few very fine roots; few very fine tubular and common very fine interstitial pores; strongly calcareous; pH 7.8; abrupt smooth boundary.
RSL No. 59607		
IIIC5	50-57"+	Pale brown (10YR 6/3) coarse sand, dark brown (10YR 4/3) when moist; single grained; loose dry or moist, nonsticky, nonplastic; very few fine and few very fine roots; many very fine and fine interstitial pores; pH 8.4.
RSL No. 59608		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Turria loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, fine-loamy, mixed, mesic

SURVEY NOS. S59Nev-3-6 **LAB. NOS.** 59609 - 59618

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 2	A_1	0.8	2.9	6.2	26.8	25.4	24.6	13.3	56.8	11.8	0	vfsl
2- 5	B_{1t}	0.1	1.1	2.8	13.8	18.6	25.1	38.5	42.0	11.5	0	cl
5- 9	B_{2t}	0.1	0.4	1.0	6.6	15.4	40.8	35.7	36.3	25.1	0	cl
9-12	B_{3t}	0.1	0.7	1.4	16.0	28.4	32.7	20.7	58.0	16.1	0	l
12-20	C_1	0.3	2.6	4.4	14.1	21.1	45.8	11.7	52.5	24.3	0	l
20-32	IIC_2	0.2	1.4	2.3	16.8	33.3	37.9	8.1	68.7	15.7	0	vfsl
32-39	$IIIC_3$	0.0	0.2	0.5	7.9	19.9	56.0	15.5	52.2	30.2	0	sil
39-44	$IIIC_4$	0.1	0.2	0.3	4.9	16.9	65.9	11.7	56.3	30.6	0	sil
44-55	IVC_5	0.1	0.2	0.4	7.5	34.3	50.5	7.0	74.6	16.7	0	sil-l-vfsl
55-62+	IVC_6	0.1	0.3	0.7	8.8	24.2	51.0	14.9	55.6	26.7	0	sil-l

8C1b pH Saturated Paste 1:1	8C1a pH 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3 milliequivalents per liter	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
7.1	7.7	0.53	0.045	11.8		0.6	-	4.1				6.3
6.7	7.9	0.26	0.039			0.2	-	0.8				16.4
6.7	7.9	0.24	0.039			0.2	-	1.2				19.9
7.0	7.9	0.16	0.027			0.2	-	1.6				11.9
7.4	8.2	0.17				0.3	-	2.0				9.9
7.8	8.7	0.11				0.3	-	1.2				8.2
7.8	8.8	0.16			1	0.3	-	3.5				12.6
7.9	9.0	0.16			1	0.3	-	2.7				12.1
8.0	9.2	0.11			<0.5	0.4	-	3.7				8.0
7.8	9.3	0.13			<0.5	0.7	-	3.6				11.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
13.2	6.0	4.0	2.4	<0.1	1.4	83	0.6	1.2	3.6	0.9	1.1	25.9
31.5	16.5	8.2	3.8	0.2	3.0	88	0.4	0.6	1.6	-	0.2	47.4
40.9	21.4	9.2	3.5	0.3	3.3	91	0.4	0.6	0.8	0.5	0.2	55.9
26.6	14.8	5.9	2.5	0.1	2.3	90	0.4	0.8	1.2	-	-	39.5
25.1	15.2	5.5	1.9	0.1	2.1	92	0.4	0.6	1.9	-	0.7	35.5
21.0	14.8	4.9	1.7	0.2	0.9	92	0.5	0.3	1.8	-	0.2	33.5
34.7	25.9	7.1	-	0.4	0.7		1.1	0.1	1.6	0.4	0.7	40.1
34.0	25.8	6.3	-	0.7	0.4		1.8	<0.1	1.6	0.8	1.1	41.6
23.4	19.4	4.3	-	1.2	0.2		3.0	<0.1	1.2	-	0.2	39.6
33.7	25.4	5.4	-	2.4	0.4		5.1	<0.1	1.4	-	2.5	40.0

+ Including cations from carbonates in some horizons.

TURRIA LOAM
S59Nev-3-6

Location: Site is located approximately 1,300 feet south and 750 feet west of the north 1/4 corner sec. 10, T. 13 N., R. 20 E., Carson Valley, Douglas Co.,Nevada.
Sampled by: L. N. Langan, R. E.Nelson, and C. D. Henry, October 3, 1959
Description by: L. N. Langan
Relief: Smooth to very gently convex alluvial fan; the surface is dissected by a few moderately deep, narrow gullies.
Physiography: Broad alluvial fan emanating from narrow alluvial flood plains that have truncated older alluvial terraces
Drainage: Well drained; runoff is slow during periods of normal rainfall; internal drainage is medium; soil permeability is moderately slow through the B and moderate through the C horizon. Water table is estimated at depths ranging from 8 to 12 feet. This soil is not being irrigated.
Parent Material: Loamy alluvium derived from mixed rock sources including granite, andesite, basalt, rhyolite, and assorted sedimentary and metamorphic rocks
Use: This site is used for periodic livestock grazing through the year.
Vegetation: Vegetation density is approximately 20 percent, consisting of spiny hopsage 20 percent, big sagebrush 5 percent, bud sage 20 percent, saltbush (Atriplex lentiformus) 51 percent, cheatgrass 1 percent, trace of squirreltail, and horsebrush 3 percent.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches; the average annual temperature is 49 to 51° F., and the average frost-free period is 95 to 105 days.
Remarks: These samples are paired with S59Nev-3-5-1 through 9.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Xerollic Haplargid, fine-loamy, mixed, mesic.

A1	0- 2"	Light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) when moist; moderate medium and fine platy structure; slightly hard, friable, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine and few fine vesicular pores; pH 7.0; abrupt smooth boundary.
RSL No. 59609		
B1t	2- 5"	Brown (10YR 5/3) clay loam, dark brown (10YR 4/3) when moist; weak medium prismatic breaking to moderate fine platy structure; hard, friable, sticky, plastic; few fine and plentiful very fine roots; few fine and very fine tubular and many very fine interstitial pores; few thin clay films on ped faces and many thin clay films in pores; pH 6.8; abrupt wavy boundary.
RSL No. 59610		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Turria loam **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Xerollic Haplargid, fine-loamy, mixed, mesic

SURVEY NOS. S59Nev-3-6 **LAB. NOS.** 59609 - 59618

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 2	A_1	0.8	2.9	6.2	26.8	25.4	24.6	13.3	56.8	11.8	0	vfsl
2- 5	B_{1t}	0.1	1.1	2.8	13.8	18.6	25.1	38.5	42.0	11.5	0	cl
5- 9	B_{2t}	0.1	0.4	1.0	6.6	15.4	40.8	35.7	36.3	25.1	0	cl
9-12	B_{3t}	0.1	0.7	1.4	16.0	28.4	32.7	20.7	58.0	16.1	0	l
12-20	C_1	0.3	2.6	4.4	14.1	21.1	45.8	11.7	52.5	24.3	0	l
20-32	IIC_2	0.2	1.4	2.3	16.8	33.3	37.9	8.1	68.7	15.7	0	vfsl
32-39	$IIIC_3$	0.0	0.2	0.5	7.9	19.9	56.0	15.5	52.2	30.2	0	sil
39-44	$IIIC_4$	0.1	0.2	0.3	4.9	16.9	65.9	11.7	56.3	30.6	0	sil
44-55	IVC_5	0.1	0.2	0.4	7.5	34.3	50.5	7.0	74.6	16.7	0	sil-l-vfsl
55-62+	IVC_6	0.1	0.3	0.7	8.8	24.2	51.0	14.9	55.6	26.7	0	sil-l

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C	Saturation Ext. Soluble 6I1a CO_3 (milliequivalents per liter)	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
7.1	7.7	0.53	0.045	11.8		0.6	-	4.1				6.3
6.7	7.9	0.26	0.039			0.2	-	0.8				16.4
6.7	7.9	0.24	0.039			0.2	-	1.2				19.9
7.0	7.9	0.16	0.027			0.2	-	1.6				11.9
7.4	8.2	0.17				0.3	-	2.0				9.9
7.8	8.7	0.11				0.3	-	1.2				8.2
7.8	8.8	0.16			1	0.3	-	3.5				12.6
7.9	9.0	0.16			1	0.3	-	2.7				12.1
8.0	9.2	0.11			<0.5	0.4	-	3.7				8.0
7.8	9.3	0.13			<0.5	0.7	-	3.6				11.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
13.2	6.0	4.0	2.4	<0.1	1.4	83	0.6	1.2	3.6	0.9	1.1	25.9
31.5	16.5	8.2	3.8	0.2	3.0	88	0.4	0.6	1.6	-	0.2	47.4
40.9	21.4	9.2	3.5	0.3	3.3	91	0.4	0.6	0.8	0.5	0.2	55.9
26.6	14.8	5.9	2.5	0.1	2.3	90	0.4	0.8	1.2	-	-	39.5
25.1	15.2	5.5	1.9	0.1	2.1	92	0.4	0.6	1.9	-	0.7	35.5
21.0	14.8	4.9	1.7	0.2	0.9	92	0.5	0.3	1.8	-	0.2	33.5
34.7	25.9	7.1	-	0.4	0.7		1.1	0.1	1.6	0.4	0.7	40.1
34.0	25.8	6.3	-	0.7	0.4		1.8	<0.1	1.6	0.8	1.1	41.6
23.4	19.4	4.3	-	1.2	0.2		3.0	<0.1	1.2	-	0.2	39.6
33.7	25.4	5.4	-	2.4	0.4		5.1	<0.1	1.4	-	2.5	40.0

+ Including cations from carbonates in some horizons.

B2t	5- 9"	Brown (10YR 5/3) clay loam, dark brown (10YR 3/3) when moist; weak medium prismatic breaking to strong medium subangular blocky structure; hard, friable, sticky, plastic; few fine and abundant very fine roots; few fine and common very fine tubular and few very fine interstitial pores; many thin clay films on ped surfaces and thin continuous clay films in pores; pH 6.8; abrupt wavy boundary.
RSL No. 59611		
B3t	9-12"	Brown (10YR 5/3) loam, dark brown (10YR 4/3) when moist; weak medium platy breaking to moderate medium and coarse subangular blocky structure; hard, friable, slightly sticky, slightly plastic; plentiful fine and abundant very fine roots; common fine and many very fine tubular pores; common thin clay films on ped faces and thin continuous clay films in pores; pH 6.8; clear smooth boundary.
RSL No. 59612		
C1	12-20"	Pale brown (10YR 6/3) loam, dark brown (10YR 4/3) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few fine and abundant very fine roots; few fine and common very fine tubular pores; pH 7.0; clear smooth boundary.
RSL No. 59613		
IIC2	20-32"	Pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few fine and plentiful very fine roots; common fine and very fine tubular pores; pH 7.4; clear smooth boundary.
RSL No. 59614		
IIIC3	32-39"	Pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, nonsticky, nonplastic; few fine and plentiful very fine roots; common fine and very fine tubular pores; matrix is noncalcareous but strongly calcareous where common fine distinct white (10YR 8/2) lime segregations occur; pH 7.4; clear wavy boundary.
RSL No. 59615		
IIIC4	39-44"	Pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, very slightly sticky, very slightly plastic; plentiful very fine roots; few fine and common very fine tubular pores; mildly calcareous with few fine distinct white (10YR 8/2) lime segregations; clear smooth boundary.
RSL No. 59616		
IVC5	44-55"	Pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) when moist; massive; soft, very friable, very slightly sticky, very slightly plastic; plentiful very fine roots; many very fine interstitial pores; mildly calcareous; pH 7.8; clear smooth boundary.
RSL No. 59617		
IVC6	55-62"+	Pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine roots; common very fine and few fine tubular pores; mildly calcareous with few fine distinct white (10YR 8/2) lime segregations; pH 7.8.
RSL No. 59618		

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tickapoo loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Haplic Nadurargid, fine, montmorillonitic, mesic

SURVEY NOS. 59Nev-9-39 **LAB. NOS.** 59843 - 59849

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A1	3.5	12.5	9.9	14.4	9.3	35.9	14.5	28.9	23.9	10	1-fsl
2- 5	B21t	2.2	11.0	10.3	11.0	2.9	17.2	45.4	10.1	15.0	3	c
5-10	B22t	2.3	11.1	9.7	9.9	2.5	15.3	49.2	9.5	12.5	4	c
10-15	B3t	5.2	17.0	12.3	11.6	3.2	14.1	36.6	10.5	11.8	9	sc
15-26	IIC1sicam	7.1	17.8	13.3	19.1	10.3	22.8	9.6*	31.2	12.3	30	
26-48	IIIC2	14.4	24.8	18.5	24.9	6.2	6.6	4.6*	21.7	3.3	31	
48-62	IIIC3sim	6.9	22.3	20.0	29.0	9.6	7.9	4.3*	29.1	3.6	17	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.8	9.6	0.12	0.017	7.1	tr	1.5	0	4.6	N.D.	0.95	1.0	7.3
7.7	8.8	0.33	0.039	8.5	1	11.7	0	1.9	6.4	1.52	0.7	17.0
7.7	8.8	0.38	0.047	8.1	5	12.3	0	2.1	19.6	0.19	0.6	20.4
7.7	8.7	0.21	0.030		3	14.8	0	3.2	50.3	0.02	0.6	16.8
7.6	8.4	0.17			12	14.4	0	2.1	39.7	0.02	0.4	17.3
7.8	8.0	0.06			4	9.4	9	1.1	66.2	0.04	0.7	6.7
7.7	8.0	0.06			4	10.9	0	1.6	104.0	0.02	0.4	12.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
19.2	12.0	3.3		3.5	2.9	18	13.3	0.6	2.3	0.0	8.4	17.2
34.0	27.8	6.6		6.7	4.1	20	117.5	2.3	40.7	6.0	145.5	48.0
34.4	31.4	7.3		8.7	3.3	25	108.8	1.8	36.1	7.1	138.3	57.5
29.1	28.2	6.5		8.1	2.2	28	106.3	1.6	45.5	3.5	114.5	43.1
28.5	30.3	5.5		9.1	2.7	32	103.8	1.6	40.4	7.0	107.0	42.5
15.2	41.4	3.0		3.8	1.9	25	71.9	1.6	29.2	5.5	39.0	31.4
27.9	45.0	6.4		6.2	2.5	22	87.5	2.0	32.7	4.2	53.6	45.9

* Incompletely dispersed.

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

TICKAPOO LOAM
59Nev-9-39

Soil Survey Area: Penoyer Valley, Lincoln County, Nevada.
Location: 0.2 mile east of west 1/4 cor., Sec. 10, T. 4 S., R. 54 E.
Collectors: R. E. Nelson, C. D. Henry, E. A. Naphan, Donald Bagley, and Lloyd Rooke Sampling date: November, 1959.
Description by: Edward A. Naphan
Elevation: 5090 feet
Vegetation: About 7 percent density - this consists of hopsage 20 percent, horsebrush 20 percent, bud sage 20 percent, galleta 30 percent, upland greasewood 5 percent, shadscale 1 percent, annuals 4 percent.
Physiography: Alluvial fan pediment or moderately old alluvial fan with broad drainage ways about every 1/8 to 1/4 mile - drainageways dissecting fans are relatively shallow, broad across, and swale-shaped.
Slope: About 3 percent to the northeast
Drainage and Permeability: Well drained; runoff is medium - permeability is moderate to moderately slow, slow through pan horizons.
Parent Material: Alluvium from olivine basalt, welded tuffs and andesite
Classification: Haplic Nadurargid, fine, montmorillonitic, mesic.
Climate: Precipitation is about 8 inches; the average January temperature is 35° F., July 71° F., the mean annual temperature about 52° F., and the frost-free growing season 130 to 150 days.

Riverside Lab. Nos.
59843 through 59849

A1 0- 2" Light gray (10YR 7/2) loam, brown (10YR 5/3) when moist; weak coarse platy structure; slightly hard, friable, slightly sticky, slightly plastic; few fine and very fine roots; many very fine, fine and few medium vesicles; generally noncalcareous but slightly calcareous in spots; pH_5 8.3; abrupt smooth boundary.

B21t . 2- 5" Brown (7.5YR 5/4) clay, dark brown (7.5YR 4/4) when moist; moderate fine subangular blocky breaking to moderate fine granular structure; slightly hard, friable, sticky, plastic; plentiful fine and very fine roots; many very fine and fine tubular, and many very fine interstitial pores; thick patchy clay films on ped faces and as bridges between sand grains; noncalcareous in most of this horizon but slightly calcareous in some parts; pH_5 8.3; clear smooth boundary.

B22t 5-10" Similar in color to the horizon above with few fine white (10YR 8/2) lime filaments, clay, weak medium prisms that break readily to moderate medium subangular blocky and moderate fine subangular blocky aggregates; slightly hard, friable, sticky, plastic; abundant fine, very fine and few medium roots; many very fine, fine and few medium tubular pores; thick patchy clay films on ped faces; slightly calcareous; pH_5 8.5; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tickapoo loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Haplic Nadurargid, fine, montmorillonitic, mesic

SURVEY NOS. 59Nev-9-39 **LAB. NOS.** 59843 - 59849

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A1	3.5	12.5	9.9	14.4	9.3	35.9	14.5	28.9	23.9	10	1-fsl
2- 5	B21t	2.2	11.0	10.3	11.0	2.9	17.2	45.4	10.1	15.0	3	c
5-10	B22t	2.3	11.1	9.7	9.9	2.5	15.3	49.2	9.5	12.5	4	c
10-15	B3t	5.2	17.0	12.3	11.6	3.2	14.1	36.6	10.5	11.8	9	sc
15-26	IIC1sicam	7.1	17.8	13.3	19.1	10.3	22.8	9.6*	31.2	12.3	30	
26-48	IIIC2	14.4	24.8	18.5	24.9	6.2	6.6	4.6*	21.7	3.3	31	
48-62	IIIC3sim	6.9	22.3	20.0	29.0	9.6	7.9	4.3*	29.1	3.6	17	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.8	9.6	0.12	0.017	7.1	tr	1.5	0	4.6	N.D.	0.95	1.0	7.3
7.7	8.8	0.33	0.039	8.5	1	11.7	0	1.9	6.4	1.52	0.7	17.0
7.7	8.8	0.38	0.047	8.1	5	12.3	0	2.1	19.6	0.19	0.6	20.4
7.7	8.7	0.21	0.030		3	14.8	0	3.2	50.3	0.02	0.6	16.8
7.6	8.4	0.17			12	14.4	0	2.1	39.7	0.02	0.4	17.3
7.8	8.0	0.06			4	9.4	9	1.1	66.2	0.04	0.7	6.7
7.7	8.0	0.06			4	10.9	0	1.6	104.0	0.02	0.4	12.3

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
19.2	12.0	3.3		3.5	2.9	18	13.3	0.6	2.3	0.0	8.4	17.2
34.0	27.8	6.6		6.7	4.1	20	117.5	2.3	40.7	6.0	145.5	48.0
34.4	31.4	7.3		8.7	3.3	25	108.8	1.8	36.1	7.1	138.3	57.5
29.1	28.2	6.5		8.1	2.2	28	106.3	1.6	45.5	3.5	114.5	43.1
28.5	30.3	5.5		9.1	2.7	32	103.8	1.6	40.4	7.0	107.0	42.5
15.2	41.4	3.0		3.8	1.9	25	71.9	1.6	29.2	5.5	39.0	31.4
27.9	45.0	6.4		6.2	2.5	22	87.5	2.0	32.7	4.2	53.6	45.9

* Incompletely dispersed.

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

B3t 10-15" Similar in color to the horizon above, sandy clay, with many medium faint very pale brown (10YR 8/2) lime filaments; weak medium subangular structure; slightly hard, friable, slightly sticky, slightly plastic; plentiful fine and very fine roots; many fine and very fine tubular pores; few thin patchy clay films on ped faces and as bridges between sand grains; slightly calcareous; pH_5 8.5; clear wavy boundary.

IIC1sicam 15-26" Very pale brown (10YR 8/3) fine gravelly sandy loam (estimate 25% gravel), brown (10YR 5/3) when moist; moderate medium platy structure which contains in some parts thin (1/16 inch) lenses of material that are indurated or cemented by lime; hard, friable, nonsticky, nonplastic; plentiful fine and very fine roots; common very fine and fine tubular pores; very strongly calcareous; pH_5 8.4; clear wavy boundary.

IIIC2 26-48" Light gray (10YR 7/2) gravelly coarse sand (estimate 40% gravel), brown (10YR 5/3) when moist; massive; soft, very friable, nonsticky, nonplastic; few fine and very fine roots; many very fine and fine interstitial pores; noncalcareous except where lime occurs in spots and as coatings on pebbles; pH_5 8.1; clear wavy boundary.

IIIC3sim 48-62" Brown (7.5YR 5/4) gravelly loamy coarse sand, dark brown (7.5YR 4/4) when moist with many medium and coarse faint white (10YR 8/2) lime streaks on plates; moderate coarse platy structure (this consists of thin platy layers, the surface of which is usually lime-cemented and somewhat indurated - this thin indurated material 1/8-to 1/4-inch thick overlies soft limy material that separates lime-cemented plates); extremely hard, very firm, nonsticky, nonplastic; practically no roots; few fine and very fine tubular pores; moderately calcareous; pH_5 8.1.

REMARKS:

Most areas without vegetation have a weakly developed fine gravel erosion pavement.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tickapoo sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Haplic Nadurargid, fine, montmorillonitic, mesic

SURVEY NOS. 59Nev-9-42 **LAB. NOS.** 59868 - 59877

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 1/ > 2	TEXTURAL CLASS
0- 3	A_2	10.1	18.7	12.2	19.7	12.6	21.4	5.3	36.5	8.8	28	cosl
3- 5	A&B	3.0	7.3	7.0	12.4	7.4	39.6	23.3	27.4	26.6	23	sl
5-11	B_2	3.4	7.0	5.7	10.7	6.1	18.4	48.7	17.7	13.0	11	c
11-21	C_{1ca}	4.6	11.3	8.0	18.8	11.3	26.0	20.0	31.7	17.0	13	scl-fsl
21-26	C_{2ca}	5.1	17.6	11.2	24.9	13.6	20.1	7.5	37.8	11.2	13	sl
26-34	C_{3ca}	3.8	17.6	12.6	27.1	13.2	16.9	8.8	37.4	8.5	19	sl
34-43	C_{4ca}	19.9	33.6	11.5	13.0	4.5	11.2	6.3	15.6	6.9	58	lcos
43-49	C_5	8.3	24.4	15.4	25.3	10.0	11.6	5.0	30.0	5.7	31	lcos
49-57	C_{6ca}	10.3	21.8	11.1	22.8	11.5	17.5	5.0	33.4	9.3	26	lcos
57-70+	C_7	8.4	18.4	11.7	24.8	14.2	18.1	4.4	40.4	7.4	17	lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 S il water 15 atmos. Pct.
							milliequivalents per liter					
7.9	8.3	0.08	0.014	5.7	tr	0.5	0	3.7	0.8	0.31	0.9	3.5
8.1	9.2	0.09	0.020	4.5	tr	0.9	0	5.1	N.D.	0.45	1.7	8.3
8.1	9.4	0.43	0.050	8.6	3	2.6	0	4.4	2.6	0.21	0.8	22.2
8.0	9.3	0.39	0.043	8.6	7	6.4	0	2.7	8.2	0.05	0.5	17.5
7.9	9.4	0.12			5	9.3	0	5.6	12.5	0.03	0.5	11.9
7.8	8.9	0.16			9	11.7	0	2.7	76.9	0.06	0.5	12.2
7.9	8.8	0.08			11	12.5	0	2.6	73.6	0.05	0.5	6.9
8.1	9.4	0.03			3	10.2	0	2.4	65.7	0.05	0.6	5.1
8.3	9.7	0.05			9	8.7	0	3.0	24.0	0.05	0.5	5.7
8.3	9.8	0.02			4	7.5	0	4.3	28.0	0.04	0.7	5.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
8.5	4.4	2.4	0.4	0.6	1.3	7	3.0	0.5	1.8	0.0	0.5	16.1
18.9	8.6	3.0	0.8	3.3	2.4	17	7.2	0.3	2.4	0.0	3.6	20.6
38.1	28.8	7.7	-	7.3	4.1	19	21.0	0.5	2.7	0.0	17.1	58.5
30.8	28.7	6.0	-	5.0	2.3	16	56.5	0.8	8.0	1.4	59.0	45.9
22.0	19.0	4.3	-	3.8	1.9	17	69.8	1.0	23.9	5.3	69.5	34.7
20.6	40.8	5.1	-	6.1	1.8	30	92.5	1.3	29.7	6.2	60.6	44.4
12.3	20.4	3.0	-	4.4	1.2	36	91.9	1.5	29.9	5.8	56.5	34.4
12.2	16.1	2.2	-	4.6	1.2	38	88.8	1.3	20.6	4.0	45.7	27.1
11.8	15.6	2.4	-	5.5	1.4	47	66.9	0.8	6.8	0.0	48.6	29.8
12.4	16.2	2.5	-	6.2	1.5	50	65.6	0.8	6.0	0.0	39.9	28.4

1/ Percent of the <1 inch fraction.

\+ Includes cations from carbonates in some horizons.

TICKAPOO SANDY LOAM
59Nev-9-42

Soil Survey Area: Penoyer Valley, Lincoln County, Nevada.
Location: 75 feet south of north 1/4 cor., Sec. 2, T.1 S., R.55 E.
Collectors: R. E. Nelson, C. D. Henry, E. A. Naphan, Donald Bagley, and Lloyd Rooke. Sampled: November 1959.
Description by: Edward A. Naphan
Elevation: About 5,000 feet
Vegetation: Density 7 percent - this consists of galleta 50 percent, shadscale 20 percent, bud sage 25 percent, annuals 5 percent.
Physiography: Moderately old alluvial fan dissected by U-shaped drainage ways, 300 - 1,000 ft. apart.
Slope: Between 2 and 3 percent to the east
Drainage and Permeability: Well drained, runoff is medium; permeability moderate to moderately slow
Parent Material: Alluvium from olivine basalt, welded tuffs and andesite.
Classification: **Haplic Nadurargid, fine, montmorillonitic, mesic.**
Climate: Precipitation is about 8 inches; the average January temperature is 35° F., July 71° F., the mean annual temperature about 52° F., and the frost-free period 130 to 150 days.

Riverside Lab. Nos.
59868 through 59877

A_2 0- 3" Light gray (10YR 7/2) gravelly sandy loam (10% gravel, 1% cobble), dark grayish brown (10YR 4/2) when moist; weak coarse platy structure; soft, friable, nonsticky, nonplastic; few fine and very fine roots; many very fine, fine and few medium vesicles; noncalcareous; pH 8.2; abrupt smooth boundary.

A & B 3- 5" Pale brown (10YR 6/3) heavy gravelly loam, brown (10YR 5/3) when moist; moderate medium to fine platy structure; slightly hard, friable, sticky, plastic; plentiful fine and very fine roots; many very fine and fine vesicles; common very fine and fine tubular pores; thin patchy clay films on ped faces and in pores; few to common very thin filaments or bands of A_2 material; noncalcareous; pH 8.3; clear wavy boundary.

B_2 5-11" Brown (7.5YR 5/4) heavy gravelly loam or gravelly clay, dark brown (7.5YR 4/4) when moist; moderate medium and fine prismatic structure; slightly hard, friable, sticky, plastic; plentiful fine and very fine roots, few medium roots; common fine and very fine tubular pores, many cracks between aggregates; thick patchy clay films on ped faces, as coatings on sand grains and as bridges between sand grains; slightly calcareous but noncalcareous in some parts; pH 8.6; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tickapoo sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Haplic Nadurargid, fine, montmorillonitic, mesic

SURVEY NOS. 59Nev-9-42 **LAB. NOS.** 59868 - 59877

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 1/ > 2"	TEXTURAL CLASS
0- 3	A_2	10.1	18.7	12.2	19.7	12.6	21.4	5.3	36.5	8.8	28	co sl
3- 5	A&B	3.0	7.3	7.0	12.4	7.4	39.6	23.3	27.4	26.6	23	sl
5-11	B_2	3.4	7.0	5.7	10.7	6.1	18.4	48.7	17.7	13.0	11	c
11-21	C_{1ca}	4.6	11.3	8.0	18.8	11.3	26.0	20.0	31.7	17.0	13	scl-fsl
21-26	C_{2ca}	5.1	17.6	11.2	24.9	13.6	20.1	7.5	37.8	11.2	13	sl
26-34	C_{3ca}	3.8	17.6	12.6	27.1	13.2	16.9	8.8	37.4	8.5	19	sl
34-43	C_{4ca}	19.9	33.6	11.5	13.0	4.5	11.2	6.3	15.6	6.9	58	lcos
43-49	C_5	8.3	24.4	15.4	25.3	10.0	11.6	5.0	30.0	5.7	31	lcos
49-57	C_{6ca}	10.3	21.8	11.1	22.8	11.5	17.5	5.0	33.4	9.3	26	lcos
57-70+	C_7	8.4	18.4	11.7	24.8	14.2	18.1	4.4	40.4	7.4	17	lcos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	Organic Matter C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							millieq. per liter					
7.9	8.3	0.08	0.014	5.7	tr	0.5	0	3.7	0.8	0.31	0.9	3.5
8.1	9.2	0.09	0.020	4.5	tr	0.9	0	5.1	N.D.	0.45	1.7	8.3
8.1	9.4	0.43	0.050	8.6	3	2.6	0	4.4	2.6	0.21	0.8	22.2
8.0	9.3	0.39	0.043	8.6	7	6.4	0	2.7	8.2	0.05	0.5	17.5
7.9	9.4	0.12			5	9.3	0	5.6	12.5	0.03	0.5	11.9
7.8	8.9	0.16			9	11.7	0	2.7	76.9	0.06	0.5	12.2
7.9	8.8	0.08			11	12.5	0	2.6	73.6	0.05	0.5	6.9
8.1	9.4	0.03			3	10.2	0	2.4	65.7	0.05	0.6	5.1
8.3	9.7	0.05			9	8.7	0	3.0	24.0	0.05	0.5	5.7
8.3	9.8	0.02			4	7.5	0	4.3	28.0	0.04	0.7	5.4

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	millieq. per 100g. soil						millieq. per liter					
8.5	4.4	2.4	0.4	0.6	1.3	7	3.0	0.5	1.8	0.0	0.5	16.1
18.9	8.6	3.0	0.8	3.3	2.4	17	7.2	0.3	2.4	0.0	3.6	20.6
38.1	28.8	7.7	-	7.3	4.1	19	21.0	0.5	2.7	0.0	17.1	58.5
30.8	28.7	6.0	-	5.0	2.3	16	56.5	0.8	8.0	1.4	59.0	45.9
22.0	19.0	4.3	-	3.8	1.9	17	69.8	1.0	23.9	5.3	69.5	34.7
20.6	40.8	5.1	-	6.1	1.8	30	92.5	1.3	29.7	6.2	60.6	44.4
12.3	20.4	3.0	-	4.4	1.2	36	91.9	1.5	29.9	5.8	56.5	34.4
12.2	16.1	2.2	-	4.6	1.2	38	88.8	1.3	20.6	4.0	45.7	27.1
11.8	15.6	2.4	-	5.5	1.4	47	66.9	0.8	6.8	0.0	48.6	29.8
12.4	16.2	2.5	-	6.2	1.5	50	65.6	0.8	6.0	0.0	39.9	28.4

1/ Percent of the <1 inch fraction.

\+ Includes cations from carbonates in some horizons.

C_{1ca} 11-21" Pale brown (10YR 6/3) hard sandy loam or sandy clay loam, dark brown (10YR 4/3) when moist; moderate medium to coarse platy structure; very hard, firm to friable, very slightly sticky, slightly plastic; abundant fine and very fine roots; common fine and very fine tubular pores, many cracks between peds; few thin clay films as coatings on sand grains; very strongly calcareous where lime occurs as common fine and medium faint white (10YR 8/2) lime filaments; pH_5 8.7; clear wavy boundary.

C_{2ca} 21-26" Light gray (10YR 7/2) sandy loam, brown (10YR 5/3) when moist; massive; soft, very friable, nonsticky, nonplastic; abundant fine and very fine roots; many fine and very fine tubular pores; strongly calcareous with a few thin lens of white (10YR 8/2) moderately lime-cemented material; pH_5 8.8; clear wavy boundary.

C_{3ca} 26-34" Light gray (10YR 7/2) gravelly sandy loam (10% gravel, 2% cobble), brown (10YR 5/3) when moist; weak coarse platy structure; very hard, firm, nonsticky, nonplastic; plentiful fine and very fine roots; few fine and very fine tubular pores; many very fine and fine interstitial pores; strongly calcareous but very strongly calcareous where a few lenses of white (10YR 8/2) moderately lime-cemented material occurs; pH_5 8.9; clear wavy boundary.

C_{4ca} 34-43" White (10YR 8/2) very gravelly loamy coarse sand (50% gravel and cobble), pale brown (10YR 6/3) when moist; weak coarse platy structure; hard, firm, nonsticky, nonplastic; few very fine and fine roots; common fine and very fine tubular pores; strongly calcareous but very strongly calcareous where lime occurs as very thin coatings on pebbles and cobbles; pH_5 8.2; clear wavy boundary.

C_5 43-49" White (10YR 8/2) gravelly loamy coarse sand (30% gravel and cobble), light brownish gray (10YR 6/2) when moist; massive; hard, firm, nonsticky, nonplastic; few fine and very fine roots; many micro and very fine interstitial pores; strongly calcareous and weakly lime-cemented in places; pH_5 8.6; clear irregular boundary.

C_{6ca} 49-57" White (10YR 8/2) gravelly loamy coarse sand, light brownish gray (10YR 6/2) when moist; massive; hard, firm, friable, nonsticky, nonplastic; few fine and very fine roots; many very fine and micro interstitial pores; strongly calcareous with some weak lime-cemented lenses; pH_5 9.0; clear wavy boundary.

C_7 57-70"+ White (10YR 8/2) gravelly loamy coarse sand consisting of stratified material of coarse sandy loam and fine sandy loam, grayish brown (10YR 5/2) when moist; massive; slightly hard, friable, nonsticky, nonplastic; no roots; many very fine and fine interstitial pores; strongly calcareous; pH_5 9.0.

Remarks: Weak desert pavement on bare areas between shrubs.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Xerollic Nadurargid, fine, montmorillonitic, mesic
SOIL SERIES: Cortez very fine sandy loam SOIL Nos. S66Nev-6-2 LOCATION Eureka County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66636 - 66644

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Noncarbonate clay	1/ Coarse fragments 1A2a > 2	2 - 19	19 -76
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm														Pct.	Pct of < 76 mm	
0-2	A11	25.6	65.3	9.1	1.8	2.8	1.9	5.9	13.2	33.6	31.7	50.6	12.4	0	9	2	2	0
2-5	A12	22.3	68.3	9.4	1.5	2.2	1.3	3.9	13.4	33.2	35.1	49.3	8.9	0	9	1	1	0
5-10	B1t	29.6	60.4	10.0	2.4	3.6	2.3	5.6	15.7	31.6	28.8	50.9	13.9	0	10	7	4	3
10-15	IIB2t	21.9	37.2	40.9	1.9	3.0	2.1	5.2	9.7	18.7	18.5	31.5	12.2	0	41	36	4	32
15-22	IIB3tca	22.0	23.5	54.5	5.2	4.7	2.5	4.5	5.1	10.0	13.5	17.6	16.9	1	54	20	9	11
22-31*	IIC1sicam	64.8	17.8	17.4	20.2	18.2	7.8	11.3	7.3	8.2	9.6	21.3	57.5	5	12			4
31-39*	IIC2sicam	72.1	19.3	8.6	22.5	19.3	9.2	12.9	8.2	9.0	10.3	23.8	63.9	4	5			39
39-48*	IIC3sicam	75.6	16.9	7.5	24.8	20.1	10.1	13.5	7.1	7.9	9.0	21.7	68.5	2	6			63
48-53+	IIIC4si	79.1	12.7	8.2	24.9	23.9	11.5	12.9	5.9	5.3	7.4	17.1	73.2	0	8	71	21	50

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	E1b Carbonate as $CaCO_3$ <19mm. Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	Bulk density g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-2	1.47	0.133	11		-	-	1.24	1.26		0.99	2	21.5	9.6	0.006	0.006	7.1	7.3	7.7
2-5	0.60	0.072	8		-	1	1.45	1.46		0.99	3	21.2	8.6	0.002	0.002	7.4	7.9	8.3
5-10	0.28				-	4	1.35	1.36		0.96	3	17.4	8.5	0.003	0.003	7.4	8.2	8.7
10-15	0.52				-	10	1.22	1.52		0.79	7	33.0	22.6	0.076	0.058	7.8	8.4	9.5
15-22	0.64				10	16	1.13	1.45		0.90	9	41.8	45.4	0.086	0.076	8.3	8.6	9.7
22-31*	0.58				45	11					4		17.9			8.0	8.2	9.0
31-39*	0.26				34	8	1.35	1.35			4	24.7	13.3	0.000		7.9	8.0	8.2
39-48*	0.19				20	8	1.22	1.22			4	28.5	11.5	0.000		7.9	8.1	9.0
48-53+	0.11			1	4	8	1.54	1.54		0.45	5	17.5	12.1	0.000	0.000	7.6	8.0	9.0

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K	6I1a CO_3	6J1a HCO_3	6K1a Cl	6L1a SO_4	8A1a Electrical conductivity
	meq/100 g							meq/liter								mmho/cm
0-2	8.5	3.1	0.5	3.3			18.1	7.4	4.4	3.0	2.1	-	14.4	0.6		1.56
2-5	8.0	3.6	1.0	3.1			17.4	1.6	0.8	6.1	0.8	-	6.2	0.4		0.76
5-10	8.2	2.9	3.1	1.2			15.9	0.9	0.5	7.2	0.2	-	8.0	1.2		1.10
10-15	17.6	6.5	13.6	1.6			38.3	1.2	0.4	16.4	0.1	-	9.6	6.1		1.78
15-22	21.8	7.6	20.5	2.0			45.6	2.0	0.7	23.6	0.1	-	8.8	10.7	7.0	2.62
22-31*	16.4	2.6	10.5	0.8			18.3	26.0	9.6	77.0	2.2	-	4.9	11.4	102	9.0
31-39*	55.5	2.2	8.3	0.5			14.6	27.0	9.0	83.0	2.2	-	3.7	16.7	113	10.0
39-48*	11.4	3.1	10.5	0.5			19.4	25.0	10.4	86.0	1.4	-	2.8	30.4	102	10.0
48-53+	17.6	5.2	12.4	0.7			27.1	34.0	16.8	100.0	1.0	-	2.7	77.2	41.4	12.5

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct	SAR	6F1a Gypsum Pct.	Clay mineralogy (<0.002 mm.) 7A1 Mont.	Illite	Chlorite	Others
		meq./100 g.						7A2 X-ray			
0-2	44.0	8.2	2.9	0.4	2	1.2		xx	xx	tr.	Qtz., flds.
2-5	32.2	8.0	3.6	0.8	5	5.6					
5-10	28.9	8.2	2.9	2.9	18	8.6					
10-15	65.7	17.5	6.5	12.5	33	18		xxxx	x	tr.	Qtz., flds.
15-22	94.6	21.6	7.5	18.3	40	20					
22-31*	45.8	15.2	2.2	7.0	38	18	tr.	xxxx			Calcite
31-39*	38.5	8.1	1.8	5.1	35	20	4				
39-48*	39.7	10.4	2.7	7.4	38	20	tr.				
48-53+	36.4	16.4	4.6	8.8	32	22	tr.	xxxx			Flds.

1/ A11 2-19 mm percentages and the 19-76 mm percentage of the A2 are from characterization samples (5 kg.), other 19-76 mm percentages are from field weights. The <19 mm fractions of the IIC1, IIC2, and IIC3 were ground to <2 mm hence all data for these horizons are on a <19 mm basis except bulk density, 1/3 bar water and COLEf.

* The <19 mm soil was ground whole.

CORTEZ VERY FINE SANDY LOAM
S66Nev-6-2

Location: Eureka County, Nevada. This site is located approximately 1½ miles north of U. S. Interstate Highway 80 on the east side of Bob's Bench. It is about 1,200 feet south and 1,900 feet west of the northeast corner of Section 7, T.32N., R.50E., Mount Diablo base line and meridian. Date of Sampling: May 9, 1966.
Description by: L. N. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, L. N. Langan, and E. Spencer.
Classification: **Xerollic Nadurargid, fine, montmorillonitic, mesic.**
Vegetation: Big sagebrush with an understory of cheatgrass, Sandberg bluegrass, squirreltail, and basin wildrye. Climate: Mean annual rainfall is estimated at 8 to 10 inches; mean annual soil temperature at 47° F.; and mean summer soil temperature at 64° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from the Humboldt formation (interbedded pyroclastics, sandstone, siltstone and conglomerate), andesite and tuffs. Topography: Alluvial fan with a 2 to 8 percent slope gradient. Elevation: Approximately 5,500 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution.

HORIZON

A11 RSL 66636	0 to 2 inches, light brown gray (10YR 6/2)* very fine sandy loam, dark brown (10YR 3/3) moist; strong thick platy structure; slightly hard, very friable, nonsticky, slightly plastic; few micro and very fine roots; many micro, and common very fine vesicular pores; neutral (pH 6.8); abrupt smooth boundary.
A12 RSL 66637	2 to 5 inches, light brownish gray (10YR 6/2) very fine sandy loam; brown (10YR 4/3) moist; moderate very thin platy structure; slightly hard, very friable, nonsticky, slightly plastic; plentiful micro and very fine, and fine medium roots, few micro vesicular, few fine and very fine tubular and many very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.
B1t RSL 66638	5 to 10 inches, light gray (10YR 7/2) loam, dark yellowish brown (10YR 3/4) moist; massive parting to weak medium subangular blocky structure; hard, very friable, slightly sticky, slightly plastic; few micro, very fine, and fine roots; many micro tubular pores; few thin clay films in pores; neutral (pH 6.8); abrupt smooth boundary.
IIB2t RSL 66639	10 to 15 inches, brown (10YR 5/3) clay with very dark grayish brown (10YR 3/2) and dark brown (10YR 3/3) coatings on ped faces, brown (10YR 4/3) moist; strong medium prismatic structure; hard, firm, very sticky, very plastic; few micro and very fine exped roots; few micro tubular pores; common moderately thick clay films in pores; few slickensides and many pressure cutans on ped faces; neutral (pH 6.6); abrupt smooth boundary.
IIB3tca RSL 66640	15 to 22 inches, brown (10YR 5/3) gravelly clay with common moderately thick brown (10YR 4/3) clay bridges between sand grains and many very fine white (10YR 8/2) lime seams, dark brown (10YR 3/3) and dark yellowish brown (10YR 4/4) moist; massive; hard, firm, very sticky, very plastic; few micro and very fine roots; few micro tubular pores; continuous moderately thick clay films in pores and many moderately thick clay bridges between sand grains; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
IIC1sicam RSL 66641	22 to 31 inches, very pale brown (10YR 7/3) indurated duripan with many moderately thick yellow (10YR 7/6) clay coatings in the upper 3 inches, very pale brown (10YR 7/4) and light yellowish brown (10YR 6/4) moist; massive; extremely hard, extremely firm; few micro and very fine roots matting on pan surface; common very fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
IIC2sicam RSL 66642	31 to 39 inches, very pale brown (10YR 8/3) indurated duripan with very thin white (10YR 7/3, 8/3, and 7/4) moist; massive; extremely hard, extremely firm, no roots observed, few very fine interstitial pores, many thin silica coatings on sand grains and common thin silica coatings lining pores; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.
IIC3sicam RSL 66643	39 to 48 inches, very pale brown (10YR 8/3) strongly silica and lime cemented duripan with randomly oriented discontinuous white (10YR 8/1) and pale brown (10YR 6/3) silica and lime laminae that are 1/8 inch or less thick, very pale brown (10YR 7/3) and 8/3) and light yellowish brown (10YR 6/4) moist; massive; matrix is hard and firm while laminae are extremely hard and very firm; no roots observed; few very fine and fine interstitial pores; many thin silica and lime coatings on sand grains and common thin coatings in pores; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
IIIC4si RSL 66644	48 to 53+ inches, pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky, nonplastic; no roots observed; many very fine interstitial pores; common thin silica coatings on sand grains and gravel and few thin silica bridges between sand grains; upper 3 inches are violently effervescent with lime coatings on gravel undersides and lower 2 inches are noneffervescent with occasional lime coating on gravel undersides; strongly alkaline (pH 8.6).

* Colors for dry conditions unless otherwise stated.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Duric Natrargid, fine-loamy, mixed, mesic
SOIL SERIES: Beowawe very fine sandy loam SOIL Nos. S66Nev-6-3 LOCATION Eureka County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66610 - 66616

Depth (In)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct	2 - 19 (Pct. of < 76 mm)	19 -76 (Pct. of < 76 mm)
		Pct. of < 2 mm																
0-3	A11	47.3	51.2	8.5	5.4	8.2	4.7	9.4	13.6	31.1	20.1	49.5	26.7	0	9	6	6	0
3-9	A12	35.4	54.4	10.3	4.5	6.7	3.9	7.8	13.4	29.9	25.5	46.9	21.9	0	10	4	4	0
9-16	IIB2t	35.6	41.3	23.1	3.9	9.7	5.4	8.3	9.3	19.2	22.1	32.7	26.3	0	23	4	4	0
16-23	IIC1sica	41.0	38.5	20.5	5.8	9.2	6.3	9.9	9.8	16.3	22.2	31.2	31.2	3	18	5	5	0
23-35	IIC2sica	61.0	28.4	5.6	18.8	15.9	8.8	13.7	10.8	15.7	10.7	33.9	57.2	2	4	13	13	0
35-56	IIC3sica	72.5	22.5	5.0	19.7	18.4	9.3	13.5	11.4	14.8	7.7	33.3	61.1	2	3	18	18	0
72-82+	IIIC4	91.4	7.7	3.9	28.3	29.7	14.9	12.3	3.2	4.3	3.4	12.0	85.2	0	4	42	40	2

Depth (In)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	6E1b Carbonate as $CaCO_3$ <19mm. Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B4 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-3	1.01	0.106	10		tr.	12	1.49	1.52		0.97	2	16.3	6.8	0.008	0.008	7.4	7.8	8.5
3-9	0.22	0.035	6		tr.	6	1.55	1.57		0.98	2	14.8	6.7	0.005	0.005	7.8	8.5	8.9
9-16	0.39				tr.	9	1.33	1.45		0.98	5	23.7	14.2	0.029	0.029	7.9	8.6	9.5
16-23	0.30				9	11	1.27	1.32		0.98	4	26.3	14.7	0.012	0.012	8.3	8.9	9.8
23-35	0.25			5	20	13	1.39	1.40		0.93	4	18.6	12.8	0.003	0.003	8.3	8.9	9.8
35-56	0.20				21	9	1.33	1.33		0.90	3	22.4	9.4	0.000	0.000	8.5	8.9	9.8
72-82+	0.02			1	1	1					2		3.6			8.0	8.2	8.5

Depth (In)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	8A1 6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-3	8.3	2.1	2.2	3.4				16.5	20.2	8.1	18.8	3.8		-	5.6	2.5	6.9*	5.20
3-9	7.8	2.6	7.0	2.6				18.3	11.2	5.1	60.8	0.8		-	5.2	35.4	41.0*	7.6
9-16	15.0	4.5	15.9	0.8				33.0	1.6	0.7	29.6	0.3		-	9.4	23.3	4.2*	3.80
16-23	10.2	3.5	20.5	0.3				28.4	2.5	1.4	72.0	0.4		-	6.4	46.8	24.6	7.4
23-35	8.0	1.8	18.8	0.2				21.0	4.0	1.8	89.0	0.4		-	5.4	25.2	76.5	9.0
35-56	6.3	1.4	14.1	0.3				17.3	4.0	2.0	97.0	0.4		-	5.0	38.1	67.8	9.5
72-82+	22.4	1.0	9.3	0.3				10.8	29.0	9.8	152.	0.4		-	3.4	85.7	124.	16.4

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca (meq./100 g.)	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	6F1a Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3B1 Mont. (X-ray)	Illite	Chlorite 7A2	Others
0-3	33.0	7.6	1.8	1.6	10	5.0		xx	xx	tr.	Qtz., flds.
3-9	24.3	7.5	2.5	5.5	30	21					
9-16	43.2	14.9	4.5	14.6	44	28		xxxx	x	tr.	Qtz., flds.
16-23	46.1	10.1	3.4	17.2	61	52					
23-35	42.6	7.8	1.7	15.0	71	52					
35-56	37.4	6.2	1.3	10.5	61	56					
72-82+	24.7	18.2	0.8	5.5	51	35	tr.	xx	tr.	tr.	Qtz., flds.

1/ From characterization sample (5 kg.).

* Indicator destroyed indicating nitrites.

Micromorphology

Sands and silts of the A11 and A12 horizons consist of volcanic rock fragments, feldspar, quartz, glass shards, and chlorite. A few of the vesicles of the A11 are interconnected, none have cutans. Other pores of the A11 and A12 horizons have silt skins. In the IIB2t there are a few well formed clay skins; common clay bridges.

BEOWAWE VERY FINE SANDY LOAM
S66Nev-6-3

Location: Eureka County, Nevada. The site is about 5 miles southeast of Beowawe, and about 1,500 feet west and 200 feet north of the southeast corner of Section 3, T.30N., R.49E., Mount Diablo base line and meridian. Date of Sampling: May 10, 1966.
Description by: L. N. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, L. Langan, and E. Spencer.
Classification: **Duric Natrargid, fine-loamy, mixed, mesic.**
Vegetation: Shadscale and bud sagebrush with an understory of cheatgrass, squirreltail and annuals. Climate: Mean annual rainfall is estimated at 6 to 8 inches; mean annual soil temperature at 51° F.; and mean summer soil temperature at 66° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from tuff, andesite, rhyolite, and basalt. Topography: Alluvial fan with an 0 to 8 percent slope gradient. Elevation: Approximately 4,900 feet. Drainage: Well drained. Soil Moisture: Dry throughout at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution. The site was difficult to sample because of rodent activity. Tongues of A1 and B2t materials occur in the C horizons. Below the C1sica horizon rodent activity has destroyed continuous horizonation, but some complete profile sequences are preserved. These horizons were sampled in selected areas most closely approximating the description. Strata, up to 7 inches thick, containing fine to coarse gypsum and lime filaments occur in rodent disturbed areas. Sample RSL 66616 was obtained by augering for minerlogical purposes.

HORIZON	
A11 RSL 66610	0 to 3 inches, pale brown (10YR 6/3)* very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate thick platy structure; hard, very friable, slightly sticky, slightly plastic; abundant very fine roots; many very fine and fine vesicular pores; effervescent in a few spots; neutral (pH 7.0); clear wavy boundary.
A12 RSL 66611	3 to 9 inches, pale brown (10YR 6/3) loam, dark grayish brown (10YR 4/2) moist; moderate thick platy structure; slightly hard, friable, slightly sticky, slightly plastic; many very fine and few fine roots; many very fine and fine tubular pores; neutral (pH 6.8); abrupt smooth boundary.
B2t RSL 66612	9 to 16 inches, brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; weak medium prismatic, and weak medium and coarse angular blocky structure; hard, friable, sticky, plastic; abundant medium, fine, and very fine roots; many very fine and fine tubular pores; few thin clay films on ped faces and in pores; strongly alkaline (pH 8.6); abrupt wavy boundary.
C1sica RSL 66613	16 to 23 inches, brown (10YR 5/3) weakly silica and lime cemented very fine sandy loam, brown (10YR 4/3) moist; massive; hard, firm, brittle; abundant very fine, and few fine roots; common very fine interstitial pores; common thin silica films in pores, bridges between sand grains, and discontinuous laminae; effervescent but strongly effervescent where many coarse, soft, white (10YR 8/2) lime seams and coatings occur; strongly alkaline (pH 8.6); diffuse wavy boundary.
C2sica RSL 66614	23 to 35 inches, pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky, slightly plastic; plentiful very fine roots; many very fine interstitial and common very fine tubular pores; contains about 25 percent very hard, firm, brittle durinodes that are ¼ to ½ inch in size; strongly effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
C3sica RSL 66615	35 to 56+ inches, light gray (10YR 7/2) weakly silica and lime-cemented fine sandy loam, pale brown (10YR 6/3) moist; massive; hard, firm, brittle; plentiful very fine roots; many fine interstitial, and few very fine tubular pores; few thin silica films in pores and between sand grains; violently effervescent; strongly alkaline (pH 8.6).
IIC4 RSL 66616	72 to 82+ inches, (augered mineralogical sample), **very pale brown (10YR 7/3) gravelly coarse sand, brown (10YR 5/3) moist; structureless, single grain; loose, nonsticky, nonplastic.**

* Colors for dry conditions unless otherwise noted.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tippipah sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Duric Natrargid, fine-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-34 **LAB. NOS.** 59802 - 59810

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 4	A1	6.9	20.0	16.1	20.2	9.7	20.3	6.8	25.7	14.5	6	cos1
4-10	A&B	7.8	19.7	15.1	19.7	6.7	17.5	13.5	22.4	11.4	7	cos1
10-19	B21t	7.2	14.1	12.2	17.0	5.7	14.0	29.8	17.9	10.4	8	sc1
19-26	B22t	7.8	14.8	13.8	23.3	8.4	12.9	19.0	24.5	9.4	10	s1-sc1
26-35	B3t	12.5	22.8	17.9	25.1	7.9	5.4	8.4*	24.0	2.2	14	
35-41	IIC1	25.7	28.7	14.1	16.0	4.5	4.3	6.7*	15.1	1.4	15	
41-46	IIC2si	20.5	32.9	16.7	15.2	4.0	4.6	6.1*	14.0	1.6	30	
46-51	IIC3sicam	18.0	32.5	16.7	14.9	5.5	5.6	6.8*	15.8	2.3	40	
51-66+	IIIC4 sicam	7.1	14.0	11.7	22.0	11.2	21.3	12.7*	32.9	12.3	17	

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.2	9.2	0.16	0.020	8.0	1	1.0	0.4	3.8	1.2	0.72	0.7	4.9
8.0	9.2	0.17	0.022	7.7	tr	0.7	0	5.3	0.5	0.24	0.7	6.2
8.0	9.4	0.29	0.039	7.4	4	2.2	0	4.8	1.0	0.13	0.6	13.3
8.1	9.4	0.14			3	3.4	0	3.2	2.0	0.07	0.5	10.9
7.0	6.9	0.02			tr	9.0	0	1.8	42.6	0.04	0.5	6.9
6.5	6.4	0.05			tr	10.2	0	1.6	41.9	0.06	0.5	6.2
7.1	6.9	0.05			tr	6.3	0	1.1	14.9	0.04	0.4	5.9
7.8	8.9	0.12			4	7.3	0	2.3	6.6	0.03	0.3	9.3
7.8	9.1	0.07			10	7.6	0	1.5	4.8	0.02	0.5	11.1

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
13.8	15.3	3.2		1.2	3.2	9	6.2	1.4	2.3	0.2	3.2	15.9
15.3	13.0	2.3	1.0	1.3	3.7	8	4.9	1.1	1.5	0.0	1.4	17.3
27.9	22.3	4.4		4.6	5.2	16	17.1	1.2	2.3	0.0	13.9	39.0
25.8	20.7	4.5		5.1	5.1	20	24.6	1.3	3.4	0.2	23.7	37.2
17.0	8.6	2.4	0.6	3.8	2.6	22	61.3	2.7	32.2	1.4	48.6	26.9
14.7	11.0	2.3	1.1	3.6	2.6	24	64.4	2.7	85.1	12.6	58.2	26.3
13.3	6.5	2.0	0.1	3.8	2.3	29	45.0	2.0	12.1	0.4	45.2	29.8
19.7	17.9	3.5	0.3	4.3	2.3	22	47.5	2.0	12.1	2.1	57.2	41.1
25.9	22.4	4.3		5.6	3.9	22	53.8	2.1	10.9	2.1	61.6	36.5

* Incompletely dispersed.

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

TIPPIPAH SANDY LOAM
59Nev-9-34

Soil Survey Area: Penoyer Valley
Location: 520 ft. N of the S1/4 cor., sec. 35, T. 3 S., R. 54 E.
Collectors: R. E. Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, and Lloyd Rooke, November 1959.
Description by: W. G. Harper
Elevation: About 5,130 feet
Vegetation: Density 5 percent - this consists of galleta 40 percent, shadscale 50 percent, bud sage 5 percent, white sage 5 percent, a trace of annuals, mainly buckwheat.
Physiography: Alluvial fan pediment
Slope: About 2 percent to the northeast
Drainage and Permeability: Well drained - runoff is slow; soil is moderately permeable to a depth of 26 inches, rapidly permeable below that depth.
Parent Material: Alluvium from welded tuffs and olivine basalt
Classification: Duric Natrargid, fine-loamy, mixed, mesic.
Climate: Precipitation is about 8 inches; the average January temperature is about 55° F., July 71° F., the mean annual temperature about 52° F., and the frost-free growing season 130 to 150 days.

Riverside Lab Nos.
59802 through 59810

A1	0- 4"	The surface soil to a depth of 1/8 to 1/4 inch is crusted and hard when dry. Light gray (10YR 7/2) coarse sandy loam, dark brown (10YR 4/3) when moist; medium thick platy structure; slightly hard, very friable, slightly sticky, slightly plastic; few fine roots; many very fine and fine vesicles; noncalcareous; pH_5 8.6; abrupt wavy boundary.
A&B	4-10"	Pale brown (10YR 6/3) coarse sandy loam, dark grayish brown (10YR 4/2) when moist; weak medium to fine granular structure; slightly hard, very friable, slightly sticky, slightly plastic; plentiful very fine, fine and a few medium roots; many very fine, fine and medium interstitial pores; few very fine and fine tubular pores; thin patchy clay films in pores and as bridges between sand grains; noncalcareous; pH_5 8.5; abrupt irregular boundary.
B_{21t}	10-19"	Light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 5/4) when moist; moderate medium columns that break to moderate thick platy material in the upper part and moderate to fine subangular blocky aggregates in the lower part; hard, friable, sticky, plastic; plentiful very fine and few fine roots; few very fine tubular pores, many interstitial pores; thin continuous clay films on ped faces and in pores; moderately calcareous, very strongly calcareous where lime is visible as common, fine and medium distinct white lime filaments and mottlings; pH_5 8.3; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tippipah sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Duric Natrargid, fine-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-34 **LAB. NOS.** 59802 - 59810

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 4	A1	6.9	20.0	16.1	20.2	9.7	20.3	6.8	25.7	14.5	6	cosl
4-10	A&B	7.8	19.7	15.1	19.7	6.7	17.5	13.5	22.4	11.4	7	cosl
10-19	B21t	7.2	14.1	12.2	17.0	5.7	14.0	29.8	17.9	10.4	8	scl
19-26	B22t	7.8	14.8	13.8	23.3	8.4	12.9	19.0	24.5	9.4	10	sl-scl
26-35	B3t	12.5	22.8	17.9	25.1	7.9	5.4	8.4*	24.0	2.2	14	
35-41	IIC1	25.7	28.7	14.1	16.0	4.5	4.3	6.7*	15.1	1.4	15	
41-46	IIC2si	20.5	32.9	16.7	15.2	4.0	4.6	6.1*	14.0	1.6	30	
46-51	IIC3sicm	18.0	32.5	16.7	14.9	5.5	5.6	6.8*	15.8	2.3	40	
51-66+	IIIC4 sicam	7.1	14.0	11.7	22.0	11.2	21.3	12.7*	32.9	12.3	17	

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.2	9.2	0.16	0.020	8.0	1	1.0	0.4	3.8	1.2	0.72	0.7	4.9
8.0	9.2	0.17	0.022	7.7	tr	0.7	0	5.3	0.5	0.24	0.7	6.2
8.0	9.4	0.29	0.039	7.4	4	2.2	0	4.8	1.0	0.13	0.6	13.3
8.1	9.4	0.14			3	3.4	0	3.2	2.0	0.07	0.5	10.9
7.0	6.9	0.02			tr	9.0	0	1.8	42.6	0.04	0.5	6.9
6.5	6.4	0.05			tr	10.2	0	1.6	41.9	0.06	0.5	6.2
7.1	6.9	0.05			tr	6.3	0	1.1	14.9	0.04	0.4	5.9
7.8	8.9	0.12			4	7.3	0	2.3	6.6	0.03	0.3	9.3
7.8	9.1	0.07			10	7.6	0	1.5	4.8	0.02	0.5	11.1

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
13.8	15.3	3.2		1.2	3.2	9	6.2	1.4	2.3	0.2	3.2	15.9
15.3	13.0	2.3	1.0	1.3	3.7	8	4.9	1.1	1.5	0.0	1.4	17.3
27.9	22.3	4.4		4.6	5.2	16	17.1	1.2	2.3	0.0	13.9	39.0
25.8	20.7	4.5		5.1	5.1	20	24.6	1.3	3.4	0.2	23.7	37.2
17.0	8.6	2.4	0.6	3.8	2.6	22	61.3	2.7	32.2	1.4	48.6	26.9
14.7	11.0	2.3	1.1	3.6	2.6	24	64.4	2.7	85.1	12.6	58.2	26.3
13.3	6.5	2.0	0.1	3.8	2.3	29	45.0	2.0	12.1	0.4	45.2	29.8
19.7	17.9	3.5	0.3	4.3	2.3	22	47.5	2.0	12.1	2.1	57.2	41.1
25.9	22.4	4.3		5.6	3.9	22	53.8	2.1	10.9	2.1	61.6	36.5

* Incompletely dispersed.

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

$B_{22}t$	19-26"	Similar in color to the horizon above with similar but slightly more lime mottling; heavy sandy loam; medium to fine subangular blocky structure; hard, friable, slightly sticky, slightly plastic; abundant very fine, fine and medium roots; few fine tubular pores and many very fine interstitial pores; thin patchy clay films on ped faces; slightly calcareous except where lime is visible; pH_5 8.2; abrupt wavy boundary.
B_3t	26-35"	Pink (7.5YR 7/4) very gravelly coarse sandy loam (45% gravel), brown (7.5YR 5/4) when moist; weak coarse and medium subangular blocky structure; hard, friable, nonsticky, nonplastic; few fine roots; many very fine and fine interstitial pores; few thin patchy clay films on ped faces; generally noncalcareous but moderately calcareous where few very fine and fine faint lime mottlings occur; pH_5 8.5; abrupt wavy boundary.
IIC1	35-41"	Pale brown (10YR 6/3) gravelly loamy coarse sand (65% gravel), dark yellowish brown (10YR 4/4) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few fine roots; many very fine and fine interstitial pores; noncalcareous; pH_5 8.4; clear wavy boundary.
IIC2si	41-46"	Very pale brown (10YR 7/3) very gravelly loamy coarse sand (80% gravel), dark brown (10YR 4/3) when moist; massive; hard, and friable, loose, nonsticky, nonplastic; few fine roots; many very fine, fine and medium interstitial pores; noncalcareous, pH_5 8.9; abrupt wavy boundary.
IIC3sicam	46-51"	White (10YR 8/4) very gravelly loamy coarse sand (80% gravel) light yellowish brown (10YR 6/4) when moist; massive; extremely hard, extremely firm, nonsticky, nonplastic; no roots; many micro and few very fine and fine cavities or pores; strongly calcareous; pH_5 8.8; abrupt wavy boundary.
IIIC4sicam	51-66"+	This consists of several layers or buried horizons, part of which is light brown (7.5YR 6/4), yellowish brown (10YR 5/4) when moist and other parts are very pale brown (10YR 8/3), pale brown (10YR 6/3) when moist; gravelly sandy loam; massive; hard, friable, slightly sticky, slightly plastic; no roots; many fine and medium interstitial pores, strongly vesicular in places; strongly calcareous; pH_5 8.7. A part of this lower horizon is slightly lime cemented.

REMARKS: The platy upper part of the B_{21} appears to be weakly cemented by alkali soluble material. Alkali soluble pan fragments occur in the B_3 and in horizons below the B_3.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tippipah sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Duric Natrargid, fine-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-35 **LAB. NOS.** 59811 - 59819

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 4	A1	3.7	19.3	16.6	28.7	15.2	12.3	4.2	37.5	6.0	10	ls
4- 8	A&B	1.4	10.2	10.4	15.2	7.5	40.2	15.1	26.4	29.2	15	l
8-18	B21t	2.9	14.6	10.0	14.0	4.4	25.5	28.6	14.9	21.8	10	scl
18-24	B22t	2.9	16.7	14.3	19.4	5.5	17.1	24.1	17.9	14.4	20	
24-28	B3t	5.9	24.9	18.0	24.7	6.4	8.1	12.0*	20.9	5.7	33	
28-44	IIC1	9.1	20.8	18.0	28.7	9.0	7.8	6.6*	27.8	4.4	20	
44-49	IIC2sim	9.4	23.1	17.4	27.8	7.0	9.8	5.5*	24.5	6.6	32	
49-55	IIC3	22.1	28.4	15.3	18.0	3.9	8.0	4.3*	14.1	6.3	38	
55-65+	IIC4	15.2	37.4	22.2	17.0	2.3	2.4	3.5*	9.4	2.1	26	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.2	9.0	0.18	0.021	8.6	tr	1.0	-	8.3	0.8	0.35	0.7	3.2
8.0	9.3	0.16	0.022	7.3	1	1.1	-	6.9	ND	0.35	1.1	7.1
8.2	9.4	0.31	0.040	7.8	2	2.2	-	8.2	1.3	0.28	0.6	15.8
7.9	9.2	0.14			1	7.8	-	17.1	6.1	0.04	0.6	12.4
7.6	7.9	0.09			1	13.2	-	2.7	42.9	0.04	0.4	9.5
7.8	8.1	0.03			2	11.1	-	1.9	50.5	0.03	0.5	5.5
7.8	8.1	0.08			7	11.0	-	2.9	51.6	0.03	0.4	5.7
7.8	8.6	0.03			5	11.0	-	2.7	53.4	0.08	0.3	4.9
8.0	9.2	0.00			tr	6.0	-	0.6	7.5	0.08	0.5	3.3

5A2a CATION EXCHANGE CAPACITY ← Na →	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
10.6	8.0	2.0	0.1	0.5	2.2	5	3.7	1.7	5.0	0.2	1.4	20.9
18.7	18.9	3.2		2.1	5.2	11	8.1	1.3	2.0	0.0	3.2	18.5
34.6	27.5	4.1		7.9	4.5	23	19.3	0.7	2.7	0.1	13.3	44.0
27.4	22.1	3.5		7.7	2.9	28	62.5	1.0	12.5	0.0	63.7	38.2
21.5	45.6	2.5		5.5	2.3	26	100.0	1.3	42.7	0.0	90.0	32.2
15.0	27.1	1.6		4.7	1.9	31	81.8	1.3	32.6	1.0	62.5	28.2
17.0	29.1	1.8		5.1	2.3	30	86.3	1.4	32.7	1.6	56.5	32.3
14.1	21.7	2.0		4.4	2.0	31	86.3	1.8	29.9	4.7	61.3	26.9
9.7	5.2	1.2		3.2	1.7	33	47.0	1.1	4.6	1.2	17.3	25.1

* Incompletely dispersed.

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons

TIPPIPAH SANDY LOAM
59Nev-9-35

Soil Survey Area: Penoyer Valley
Location: 300 ft. S, 400 ft. E of NW cor., sec. 31, T. 3 S., R. 55 E.
Collectors: R. E. Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, and Lloyd Rooke, November 1959.
Description by: W. G. Harper
Elevation: 5,100 feet
Vegetation: Density 5 percent - this consists of galleta 40 percent, shadscale 50 percent, bud sage 5 percent, white sage 5 percent, a trace of annuals, mainly buckwheat.
Physiography: Alluvial fan pediment
Slope: About 2 percent to the northeast
Drainage and Permeability: Well drained - runoff is very slow; permeability is moderate to about 24 inches and rapid below that depth.
Parent Material: Alluvium from welded tuffs and olivine basalt
Classification: Duric Natrargid, fine-loamy, mixed, mesic.
Climate: Annual precipitation is about 8 inches; January average temperature is 35° F., July 71° F., the mean annual temperature about 52° F., and the frost-free growing season 130 to 150 days.

Riverside Lab. Nos.
59811 through 59819

A1 0- 4" The surface soil to a depth of 1/8 to 1/4 inch is crusted and hard when dry. Light gray (10YR 7/2) loamy sand, dark grayish brown (10YR 4/2) when moist; weak thick platy structure; soft, very friable, nonsticky, nonplastic; few very fine roots; many medium and fine vesicles; noncalcareous; pH_5 8.5; abrupt wavy boundary.

A&B 4- 8" Pale brown (10YR 6/3) loam, with a sprinkling of A_2 or grayer colors that appear to be progressing down into this horizon, dark brown (10YR 4/3) when moist; compound weak medium columnar and weak thick platy structure; slightly hard, friable, slightly sticky, slightly plastic; few fine and very fine roots; many very fine and fine medium vesicles in the topmost 1 inch; below this are common to many very fine and fine interstitial pores; few thin patchy clay films on peds; noncalcareous; pH_5 8.5; abrupt irregular boundary.

B_{21t} 8-18" Light brown (7.5YR 6/4) sandy clay loam, brown (7.5YR 5/4) when moist; strong medium columns breaking to weak thick plates in the upper part and to moderate medium to fine subangular blocky structure in the lower part; hard to very hard, friable, slightly sticky, slightly plastic; few medium and plentiful very fine and fine roots; many fine vesicles in platy part and very fine cracks between columns; thin and thick patchy clay films on ped faces; mostly noncalcareous but slightly to strongly calcareous where a few fine to medium faint white lime filaments occur; pH_5 8.6; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Tippipah sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Duric Natrargid, fine-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-35 **LAB. NOS.** 59811 - 59819

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 4	A1	3.7	19.3	16.6	28.7	15.2	12.3	4.2	37.5	6.0	10	ls
4- 8	A&B	1.4	10.2	10.4	15.2	7.5	40.2	15.1	26.4	29.2	15	l
8-18	B21t	2.9	14.6	10.0	14.0	4.4	25.5	28.6	14.9	21.8	10	scl
18-24	B22t	2.9	16.7	14.3	19.4	5.5	17.1	24.1	17.9	14.4	20	
24-28	B3t	5.9	24.9	18.0	24.7	6.4	8.1	12.0*	20.9	5.7	33	
28-44	IIC1	9.1	20.8	18.0	28.7	9.0	7.8	6.6*	27.8	4.4	20	
44-49	IIC2sim	9.4	23.1	17.4	27.8	7.0	9.8	5.5*	24.5	6.6	32	
49-55	IIC3	22.1	28.4	15.3	18.0	3.9	8.0	4.3*	14.1	6.3	38	
55-65+	IIC4	15.2	37.4	22.2	17.0	2.3	2.4	3.5*	9.4	2.1	26	

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.2	9.0	0.18	0.021	8.6	tr	1.0	-	8.3	0.8	0.35	0.7	3.2
8.0	9.3	0.16	0.022	7.3	1	1.1	-	6.9	ND	0.35	1.1	7.1
8.2	9.4	0.31	0.040	7.8	2	2.2	-	8.2	1.3	0.28	0.6	15.8
7.9	9.2	0.14			1	7.8	-	17.1	6.1	0.04	0.6	12.4
7.6	7.9	0.09			1	13.2	-	2.7	42.9	0.04	0.4	9.5
7.8	8.1	0.03			2	11.1	-	1.9	50.5	0.03	0.5	5.5
7.8	8.1	0.08			7	11.0	-	2.9	51.6	0.03	0.4	5.7
7.8	8.6	0.03			5	11.0	-	2.7	53.4	0.08	0.3	4.9
8.0	9.2	0.00			tr	6.0	-	0.6	7.5	0.08	0.5	3.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
10.6	8.0	2.0	0.1	0.5	2.2	5	3.7	1.7	5.0	0.2	1.4	20.9
18.7	18.9	3.2		2.1	5.2	11	8.1	1.3	2.0	0.0	3.2	18.5
34.6	27.5	4.1		7.9	4.5	23	19.3	0.7	2.7	0.1	13.3	44.0
27.4	22.1	3.5		7.7	2.9	28	62.5	1.0	12.5	0.0	63.7	38.2
21.5	45.6	2.5		5.5	2.3	26	100.0	1.3	42.7	0.0	90.0	32.2
15.0	27.1	1.6		4.7	1.9	31	81.8	1.3	32.6	1.0	62.5	28.2
17.0	29.1	1.8		5.1	2.3	30	86.3	1.4	32.7	1.6	56.5	32.3
14.1	21.7	2.0		4.4	2.0	31	86.3	1.8	29.9	4.7	61.3	26.9
9.7	5.2	1.2		3.2	1.7	33	47.0	1.1	4.6	1.2	17.3	25.1

* Incompletely dispersed

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons

B_{22t} 18-24" Similar in color to the horizon above, gravelly sandy clay loam (est. 25% gravel); very weak medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; few very fine and fine roots; many very fine cracks between peds; thin patchy clay films on ped faces; noncalcareous but strongly calcareous where a few distinct lime filaments are visible and where lime coats the lower sides of pebbles; pH_5 8.6; clear wavy boundary.

B_{3t} 24-28" Similar in color to the horizon above, gravelly loamy coarse sand (est. 35 - 40% gravel); very weak fine subangular blocky structure; slightly hard, very friable, nonsticky; nonplastic; plentiful very fine and fine roots; few fine cracks between peds; clay films occur as bridges between sand grains; noncalcareous in much of this horizon but slightly to strongly calcareous in a few places where lime occurs as filaments or where it forms a thin film on pebbles; pH_5 8.2; clear wavy boundary.

IIC_1 28-44" Very pale brown (10YR 7/3) gravelly loamy coarse sand, dark brown (10YR 4/3) when moist (est. 45% gravel); massive; slightly hard, very friable, nonsticky, nonplastic; plentiful fine roots; many very fine and fine interstitial pores; very strongly calcareous where a lime crust is attached to pebbles; a very small amount of powdered or segregated lime throughout this material; pH_5 8.2; abrupt wavy boundary.

IIC2sica 44-49" White (10YR 8/2) very gravelly loamy coarse sand (est. 65% gravel), grayish brown (10YR 5/2) when moist; massive; hard, friable, nonsticky, nonplastic; few very fine roots; many very fine and fine interstitial pores; strongly calcareous; pH_5 8.6; abrupt wavy boundary.

IIC3 49-55" Light gray (10YR 7/2) very gravelly coarse sand (est. 75% gravel), grayish brown (10YR 5/2) when moist; massive; slight hard, loose, nonsticky, nonplastic; few very fine roots; many very fine and fine interstitial pores; very strongly calcareous where few thin lenses of lime occur, slightly to moderately calcareous elsewhere; pH_5 8.7; abrupt wavy boundary.

IIC4 55-65"+ Light brownish gray (10YR 6/2) very gravelly coarse sand (est. 75 - 80% gravel), dark grayish brown (10YR 4/2) when moist; massive; slightly hard, loose, nonsticky, nonplastic; devoid of plant roots; many very fine and fine interstitial pores; noncalcareous; pH_5 8.5.

REMARKS: The platy upper part of the B_2 horizon appears to be weakly cemented by alkali soluble material. Alkali soluble pan fragments occur in the B_3 horizon.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Gardnerville clay loam **LOCATION** Carson Valley, Douglas County

SOIL FAMILY: Durixerollic Natrargid, fine, montmorillonitic, mesic

SURVEY NOS. S59Nev-3-1 **LAB. NOS.** 59567 - 59575

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 2/	TEXTURAL CLASS
0- 2	A1	4.7	13.9	10.2	14.4	10.7	38.0	8.1	33.3	23.3	3	fsl
2- 2½	IIB1t	Not sampled										
2½- 5½	IIB21t	1.7	6.5	4.9	5.8	3.4	28.4	49.3	13.0	21.7	0	c
5½- 8	IIB22t	1.3	7.5	5.7	6.0	2.4	23.0	54.1	11.6	16.8	0	c
8-16	IIIB3t	3.9	19.6	15.3	15.4	4.8	12.3	28.7	16.6	7.8	2	scl
16-24	IIIC1sim	3.6	22.1	17.9	23.5	7.1	10.2	15.6	24.7	3.8	2	cosl
24-35	IIIC2sim	5.6	28.8	19.8	19.6	5.2	9.8	11.2	20.9	2.8	3	cosl
35-48	IVC3sim	5.4	27.4	21.3	23.2	6.7	8.0	8.0	22.3	2.5	4	lcos
48-58	VC4sim	5.9	22.9	17.9	27.1	8.5	9.9	7.8	29.9	2.4	5	lcos
58-67+	VIC5	13.2	40.9	18.7	15.0	3.7	3.8	4.7	13.3	1.3	7	cos

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3 1/	6J1a HCO_3 1/	6L1a SO_4	6M1a NO_3	4A3a Bulk Density g/cc	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.4	7.1	0.57	0.031	18.4	-	17.4	-	1.7				3.8
		Not sampled										
6.9	8.0	0.51	0.042	12.1	-	4.4	-	2.1				20.5
7.1	8.1	0.54	0.041	13.2	-	6.5	-	1.8				26.5
7.7	9.0	0.40	0.023	17.4	1	12.7	-	2.8	1.5		1.5	14.1
7.8	9.1	0.29	0.013		<0.5	10.9	-	3.5				7.7
7.6	7.7	0.26	0.010		<0.5	8.9	-	1.7				6.2
7.6	8.0	0.28	0.006		-	6.4	-	1.1	1.6		1.6	5.3
7.5	7.3	0.21			-	4.8	-	0.9	1.6		1.6	4.8
7.7	8.0	0.22			-	1.8	-	0.9	1.6		1.6	3.8

5A2a CATION EXCHANGE CAPACITY	5B1a Ca + 6N2b	EXTRACTABLE CATIONS 5E1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A1 8A MOISTURE AT SATURATION %
← (Na)		milliequivalents per 100g. soil →					← milliequivalents per liter →					
8.8	4.7	1.6	2.7	2.8	0.6	32	96.3	1.5	43.2	13.1	127.3	19.2
		Not sampled										
39.5	20.0	6.7	3.6	6.5	1.6	16	31.0	0.4	6.4	3.2	34.3	70.7
44.8	24.1	8.0	3.5	9.3	1.8	21	39.8	0.4	12.1	1.6	52.5	59.5
27.8	20.8	5.9	-	7.4	0.8	27	75.0	0.6	33.2	6.5	90.7	44.8
15.5	13.7	3.5	-	4.6	0.5	30	67.5	0.6	29.7	7.5	61.1	25.9
14.8	12.2	2.8	-	3.7	0.4	25	55.6	0.6	21.7	9.5	27.1	23.8
10.8	7.2	2.1	1.4	2.1	0.3	19	44.0	0.5	26.5	1.2	10.2	20.7
9.5	10.4	1.9	1.8	1.3	0.4	14	24.5	0.6	22.5	9.7	5.3	21.9
7.3	4.5	1.7	1.6	1.0	0.3	14	11.3	0.3	3.8	2.2	4.4	22.8

* Bulk Density values are average of duplicate samples.

1/ Saturation extract soluble - milliequivalents per liter.

2/ Percent of the whole soil. + Including cations from carbonates.

GARDNERVILLE CLAY LOAM
S59Nev-3-1

Location: The site is located approximately 400 feet north of access road into Carson-Tahoe airport. It is approximately 900 feet south and 300 feet east of the center of sec. 8, T. 13 N., R. 20 E., Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, September 29, 1959
Described by: L. N. Langan
Relief: Smooth, nearly level toe of alluvial fan
Physiography: Toe of alluvial fan where it merges with high alluvial terrace of the floodplain
Drainage: Imperfectly drained; runoff is slow during periods of normal rainfall and internal drainage is slow. Soil permeability is slow through the B and upper part of the C but is rapid in the lower portion of the C. The water table is at 6 feet. This soil is not being irrigated as it is located above existing irrigation distribution systems.
Parent Material: Loamy alluvium derived from mixed rock sources, consisting primarily of granite with admixtures of basalt, rhyolite, and assorted sedimentary and metamorphic rocks.
Use: This site is idle because it is within the Tahoe-Douglas airport boundary.
Vegetation: Vegetation has a density of approximately 10 percent, consisting of sagebrush 90 percent, atriplex 4 percent, rabbitbrush 3 percent, and annual weeds 3 percent.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches, the average annual temperature is 49 to 51° F., and the average frost-free season is 95 to 110 days.
Remarks: This soil is slightly saline-alkali. It has a conductivity extract of 4 to 8 millimhos per centimeter at 25° C. Sodium adsorption ratio may range from 12 to 25. Some areas included in this mapping unit are strongly saline-alkali affected. These samples are paired with S59Nev-3-2-1 through 8.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Durixerollic Natrargid, fine, montmorillonitic, mesic.

A1 RSL No. 59567	0- 2"	Gray (10YR 6/1) fine sandy loam, dark gray (10YR 4/1) when moist; weak coarse platy structure; slightly hard, friable, very slightly sticky, very slightly plastic; plentiful very fine and fine roots; many fine and medium vesicular pores; pH 6.6; abrupt wavy boundary.
B1 Not sampled	2-2½"	Grayish brown to light brownish gray (10YR 5/2 to 6/2) clay loam, very dark grayish brown to dark grayish brown (10YR 3/2 to 4/2) when moist; weak medium platy structure; very hard, friable, slightly sticky, slightly plastic; plentiful very fine and fine roots; few very fine interstitial and many very fine tubular pores; few thin patchy clay films in pores and on ped faces; pH 6.8; abrupt broken boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Gardnerville clay loam **LOCATION** Carson Valley, Douglas County

SOIL FAMILY: Durixerollic Natrargid, fine, montmorillonitic, mesic

SURVEY NOS. S59Nev-3-1 **LAB. NOS.** 59567 - 59575

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 2/	TEXTURAL CLASS
0- 2	A1	4.7	13.9	10.2	14.4	10.7	38.0	8.1	33.3	23.3	3	fsl
2- 2½	IIB1t	Not sampled										
2½- 5½	IIB21t	1.7	6.5	4.9	5.8	3.4	28.4	49.3	13.0	21.7	0	c
5½- 8	IIB22t	1.3	7.5	5.7	6.0	2.4	23.0	54.1	11.6	16.8	0	c
8-16	IIIB3t	3.9	19.6	15.3	15.4	4.8	12.3	28.7	16.6	7.8	2	scl
16-24	IIIC1sim	3.6	22.1	17.9	23.5	7.1	10.2	15.6	24.7	3.8	2	cosl
24-35	IIIC2sim	5.6	28.8	19.8	19.6	5.2	9.8	11.2	20.9	2.8	3	cosl
35-48	IVC3sim	5.4	27.4	21.3	23.2	6.7	8.0	8.0	22.3	2.5	4	lcos
48-58	VC4sim	5.9	22.9	17.9	27.1	8.5	9.9	7.8	29.9	2.4	5	lcos
58-67+	VIC5	13.2	40.9	18.7	15.0	3.7	3.8	4.7	13.3	1.3	7	cos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3 1/	6J1a HCO_3 1/	6L1a SO_4	6M1a NO_3	4A3a Bulk Density g/cc	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
6.4	7.1	0.57	0.031	18.4	-	17.4	-	1.7				3.8
		Not sampled										
6.9	8.0	0.51	0.042	12.1	-	4.4	-	2.1				20.5
7.1	8.1	0.54	0.041	13.2	-	6.5	-	1.8				26.5
7.7	9.0	0.40	0.023	17.4	1	12.7	-	2.8	1.5		1.5	14.1
7.8	9.1	0.29	0.013		<0.5	10.9	-	3.5				7.7
7.6	7.7	0.26	0.010		<0.5	8.9	-	1.7				6.2
7.6	8.0	0.28	0.006		-	6.4	-	1.1	1.6		1.6	5.3
7.5	7.3	0.21			-	4.8	-	0.9	1.6		1.6	4.8
7.7	8.0	0.22			-	1.8	-	0.9	1.6		1.6	3.8

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5I1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
8.8	4.7	1.6	2.7	2.8	0.6	32	96.3	1.5	43.2	13.1	127.3	19.2
		Not sampled										
39.5	20.0	6.7	3.6	6.5	1.6	16	31.0	0.4	6.4	3.2	34.3	70.7
44.8	24.1	8.0	3.5	9.3	1.8	21	39.8	0.4	12.1	1.6	52.5	59.5
27.8	20.8	5.9	-	7.4	0.8	27	75.0	0.6	33.2	6.5	90.7	44.8
15.5	13.7	3.5	-	4.6	0.5	30	67.5	0.6	29.7	7.5	61.1	25.9
14.8	12.2	2.8	-	3.7	0.4	25	55.6	0.6	21.7	9.5	27.1	23.8
10.8	7.2	2.1	1.4	2.1	0.3	19	44.0	0.5	26.5	1.2	10.2	20.7
9.5	10.4	1.9	1.8	1.3	0.4	14	24.5	0.6	22.5	9.7	5.3	21.9
7.3	4.5	1.7	1.6	1.0	0.3	14	11.3	0.3	3.8	2.2	4.4	22.8

* Bulk Density values are average of duplicate samples.

1/ Saturation extract soluble - milliequivalents per liter.

2/ Percent of the whole soil. + Including cations from carbonates.

IIB21t RSL No. 59568	2½- 5½"	Brown (10YR 5/3) clay, dark brown (10YR 4/3) when moist; weak medium prismatic breaking to strong very fine subangular blocky structure; hard, friable, very sticky, very plastic; plentiful very fine and fine roots; many very fine interstitial and few very fine tubular pores; thin continuous clay films on ped faces and in pores; pH 6.8; abrupt smooth boundary.
IIB22t RSL No. 59569	5½- 8"	Brown (10YR 5/3) clay, dark brown (10YR 4/3) when moist; weak medium prismatic breaking to moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; plentiful very fine and fine roots; few very fine tubular and common very fine and fine interstitial pores; thin continuous clay films on ped faces and in pores; pH 7.0; clear wavy boundary.
IIIB3t RSL No. 59570	8-16"	Grayish brown (10YR 5/2) sandy clay loam, dark brown (10YR 4/3) when moist; massive; hard, friable, sticky, plastic; few very fine and fine roots; few very fine and fine interstitial and tubular pores; common thin clay bridges between sand grains and common thin clay films in pores; mildly calcareous but strongly calcareous where common fine and very fine distinct white (10YR 8/2) lime mottles occur; pH 7.8; clear wavy boundary.
IIIC1sim RSL No. 59571	16-24"	Brown (10YR 5/3) coarse sandy loam, dark brown (10YR 3.5/3) when moist, with few fine distinct dark brown (7.5YR 3/2) iron mottles; massive; hard, brittle, very slightly sticky, very slightly plastic; weakly cemented; very few very fine roots; few fine and very fine interstitial pores; few thin silica sheets as bridges between sand grains; noncalcareous but mildly calcareous where few fine and very fine distinct white (10YR 8/2) lime mottles occur; pH 7.8; clear smooth lower boundary.
IIIC2sim RSL No. 59572	24-35"	Brown (10YR 5/3) coarse sandy loam, dark brown (10YR 3/3) when moist; massive; hard, brittle, nonsticky, nonplastic; weakly cemented; very few very fine roots; few fine and very fine interstitial pores; noncalcareous but mildly calcareous where few fine distinct white (10YR 8/2) lime mottles occur; pH 7.6; clear smooth boundary.
IVC3sim RSL No. 59573	35-48"	Brown (10YR 5/3) loamy coarse sand, dark brown (10YR 3/3) when moist, with common medium and coarse distinct dark brown (7.5YR 3/2) iron mottles; massive; slightly hard, brittle, nonsticky, nonplastic; weakly cemented; very few very fine roots; few fine and very fine interstitial pores; pH 7.6; clear smooth boundary.
VC4sim RSL No. 59574	48-58"	Pale brown (10YR 6/3) loamy coarse sand, dark brown (10YR 4/3) when moist, with common medium and coarse distinct dark brown (7.5YR 3/2) iron mottles; massive; slightly hard, slightly brittle, nonsticky, nonplastic; weakly cemented; no roots observed; few fine and very fine interstitial pores; pH 7.6; clear smooth boundary.
IIC5 RSL No. 59575	58-67"+	Yellow (10YR 7/6) coarse sand, yellowish brown (10YR 5/8) when moist, with common coarse prominent black (5YR 2/1) manganese and common coarse distinct dark brown (7.5YR 4/3) iron mottles; single grained; loose, dry or moist, nonsticky, nonplastic; no roots observed; many fine interstitial pores; pH 7.2.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Duri xerollic Natrargid, fine, montmorillonitic, mesic

SOIL SERIES Gardnerville clay loam SOIL Nos. 859Nev-3-2 LOCATION Carson Valley, Douglas County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 59576 - 59583

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Noncarbonate clay	Coarse fragments 2A2 ≥ 2 Pct	2 - 19 (Pct of < 76 mm)	19-76 (Pct of < 76 mm)
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm																
0- 2	A11	65.2	33.8	1.0	9.2	10.5	6.5	15.9	23.1	15.5	18.3	49.5	42.1			4		
2- 4	IIB1t		Not	sampled														
4- 9	IIB2t	38.6	19.2	42.2	3.0	7.3	6.0	12.3	10.0	7.9	11.3	25.4	28.6			0		
9-16	IIB3t	49.6	17.5	32.9	3.8	9.1	7.9	16.8	12.0	7.5	10.0	29.7	37.6			1		
16-21	IIC1sim	68.7	17.5	13.8	4.4	9.6	8.2	25.7	20.8	8.1	9.4	46.1	47.9			2		
21-28	IIC2sim	80.1	9.9	10.0	7.1	8.2	7.1	33.5	24.2	6.9	3.0	55.2	55.9			5		
28-36	IIIC3sim	85.8	5.2	9.0	13.8	21.2	18.5	23.6	8.7	3.4	1.8	23.2	77.1			12		
36-52	IVC4	96.5	1.8	1.7	5.1	28.9	34.7	24.7	3.1	1.4	0.4	13.9	93.4			4		
52-65+	VC5sim	92.6	5.9	1.5	28.4	16.8	10.6	23.6	13.2	4.5	1.4	32.6	79.4			29		

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	Bulk density g/cc	Water content Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEF in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:10
0- 2	0.32	0.012	26.7								1.7			7.1	7.6
2- 4															
4- 9	0.63	0.043	14.7								20.8			6.9	7.7
9-16	0.45	0.036	12.5								16.3			7.2	7.9
16-21	0.12	0.020									9.7			7.6	8.6
21-28	0.05				1						6.2			7.7	8.9
28-36	0.05										5.5			7.8	9.1
36-52	0.02										1.8			8.0	7.6
52-65+	0.02										1.5			8.2	7.2

Depth (In.)	Extractable bases 5B1a 6N2b Ca 1/	5B1a 6O2c Mg 1/	5B1b 6P2a Exch. Na	5B1b 6Q2a Exch. K	Sum of bases	6H2a Ext. H	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0- 2	0.9	0.6	1.4	0.7		1.3	4.4		4.0	-	4.0	0.2		-	2.3	1.0		0.4
2- 4																		
4- 9	19.7	9.0	6.7	0.7		2.5	37.8		21.1	9.1	43.0	0.3		-	1.2	64.4		8.4
9-16	16.4	7.6	5.7	0.6		2.5	29.6		28.5	5.6	42.5	0.3		-	1.1	70.6		8.8
16-21	15.5	5.8	3.6	0.4		1.2	20.4		54.3	5.5	49.8	0.4		-	1.7	93.1		11.7
21-28	10.6	3.8	2.5	0.3		-	12.2		23.7	14.1	40.0	0.4		-	1.5	71.8		9.0
28-36	9.2	3.1	1.9	0.4		1.1	10.7		17.3	1.6	25.8	0.4		-	1.8	34.5		5.2
36-52	2.3	1.0	1.4	0.2		1.2	3.9		2.0	0.4	7.0	0.1		-	1.2	5.5		1.1
52-65+	4.2	0.7	0.4	0.1		1.3	3.9		2.2	0.4	6.2	0.1		-	1.9	3.2		1.0

Depth (In.)	8A Water at Saturation Pct.	5D1 Exchangeable Na Pct.	5B1b Exch. Na meq./100g.	Gypsum Pct.	Base Sat. Pct.	Clay mineralogy (<0.002 mm.) 7A Mont.	Verm.	Mica	Kaolin.
						X-ray			
0- 2	13.4	32							
2- 4									
4- 9	56.8	18							
9-16	50.1	19							
16-21	32.2	18							
21-28	27.2	20							
28-36	23.3	21							
36-52	23.5	36							
52-65+	16.5	10							

1/ Including cations from carbonates.

GARDNERVILLE CLAY LOAM

S59Nev-3-2

Location: The site is located approximately 30 feet east and 50 feet south of the northwest corner of the Douglas-Tahoe airport. It is approximately 1,290 feet west and 50 feet south of the northeast corner of sec. 8, T. 13 N., R. 20E. Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, September 29, 1959
Description by: L. N. Langan
Relief: Smooth, nearly level toe of alluvial fan
Physiography: Toe of alluvial fan where it merges onto high alluvial terrace of the floodplain
Drainage: Imperfectly drained; runoff is slow during periods of normal rainfall. Internal drainage is slow. Soil permeability is slow through the B and upper part of the C but is rapid in the lower portion of the C. The water table is at 7 feet. This soil is not being irrigated as it is located above existing irrigation distribution systems.
Parent Material: Loamy alluvium derived from mixed rock sources. It is primarily from granite with admixtures of basalt, rhyolite, and assorted sedimentary and metamorphic rocks.
Use: This site is idle because it is within the Tahoe-Douglas airport boundary.
Vegetation: Vegetation has a density of approximately 20 percent, consisting of sagebrush 60 percent, rabbitbrush 25 percent, shadscale 10 percent, squirreltail 1 percent, cheatgrass 1 percent, annual weeds 3 percent, and trace of basin wildrye.
Climate: This site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches, the average annual temperature is 49 to 51° F., and the average frost-free season is 95 to 110 days.
Remarks: This soil is slightly saline and alkali. It has a conductivity extract of 4 to 8 millimhos per centimeter at 25° C. The sodium adsorption ratio may range from 12 to 25. Some areas included in this mapping unit are strongly saline-alkali affected. These samples are paired with S59Nev-3-1-1 through 9.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Durixerollic Natrargid, fine, montmorillonitic, mesic.

A1 RSL No. 59576	0- 2"	Light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2 when moist; massive; soft, friable, nonsticky, nonplastic; few very fine and fine roots; many fine and medium vesicular pores; pH 7.0; abrupt slightly wavy boundary.
IIB1t Not sampled	2- 4"	Dark grayish brown (10YR 4/2) light clay loam, dark brown (10YR 3/3) when moist; strong very fine subangular blocky structure; hard to slightly hard, friable, sticky, plastic; abundant very fine and fine roots; many very fine and fine interstitial pores; few thin patchy clay films on ped surfaces and in pores; pH 6.6; abrupt wavy boundary.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Duri xerollic Natrargid, fine, montmorillonitic, mesic

SOIL SERIES Gardnerville clay loam SOIL Nos. S59Nev-3-2 LOCATION Carson Valley, Douglas County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 59576 - 59583

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	Coarse fragments 2A2 > 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct of < 76 mm	
0- 2	A11	65.2	33.8	1.0	9.2	10.5	6.5	15.9	23.1	15.5	18.3	49.5	42.1			4		
2- 4	IIB1t		Not	sampled														
4- 9	IIB2t	38.6	19.2	42.2	3.0	7.3	6.0	12.3	10.0	7.9	11.3	25.4	28.6			0		
9-16	IIB3t	49.6	17.5	32.9	3.8	9.1	7.9	16.8	12.0	7.5	10.0	29.7	37.6			1		
16-21	IIC1sim	68.7	17.5	13.8	4.4	9.6	8.2	25.7	20.8	8.1	9.4	46.1	47.9			2		
21-28	IIC2sim	80.1	9.9	10.0	7.1	8.2	7.1	33.5	24.2	6.9	3.0	55.2	55.9			5		
28-36	IIIC3sim	85.8	5.2	9.0	13.8	21.2	18.5	23.6	8.7	3.4	1.8	23.2	77.1			12		
36-52	IVC4	96.5	1.8	1.7	5.1	28.9	34.7	24.7	3.1	1.4	0.4	13.9	93.4			4		
52-65+	VC5sim	92.6	5.9	1.5	28.4	16.8	10.6	23.6	13.2	4.5	1.4	32.6	79.4			29		

Depth (in.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	Water content Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEF in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:10
0- 2	0.32	0.012	26.7								1.7			7.1	7.6
2- 4															
4- 9	0.63	0.043	14.7								20.8			6.9	7.7
9-16	0.45	0.036	12.5								16.3			7.2	7.9
16-21	0.12	0.020									9.7			7.6	8.6
21-28	0.05				1						6.2			7.7	8.9
28-36	0.05										5.5			7.8	9.1
36-52	0.02										1.8			8.0	7.6
52-65+	0.02										1.5			8.2	7.2

Depth (in.)	Extractable bases 5B1a 6N2b Ca 1/	5B1a 6O2c Mg 1/	5B1b 6P2a Exch. Na	5B1b 6Q2a Exch. K	Sum of bases	6H2a Ext. H	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0- 2	0.9	0.6	1.4	0.7		1.3	4.4		4.0	-	4.0	0.2		-	2.3	1.0		0.4
2- 4																		
4- 9	19.7	9.0	6.7	0.7		2.5	37.8		21.1	9.1	43.0	0.3		-	1.2	64.4		8.4
9-16	16.4	7.6	5.7	0.6		2.5	29.6		28.5	5.6	42.5	0.3		-	1.1	70.6		8.8
16-21	15.5	5.8	3.6	0.4		1.2	20.4		54.3	5.5	49.8	0.4		-	1.7	93.1		11.7
21-28	10.6	3.8	2.5	0.3		-	12.2		23.7	14.1	40.0	0.4		-	1.5	71.8		9.0
28-36	9.2	3.1	1.9	0.4		1.1	10.7		17.3	1.6	25.8	0.4		-	1.8	34.5		5.2
36-52	2.3	1.0	1.4	0.2		1.2	3.9		2.0	0.4	7.0	0.1		-	1.2	5.5		1.1
52-65+	4.2	0.7	0.4	0.1		1.3	3.9		2.2	0.4	6.2	0.1		-	1.9	3.2		1.0

Depth (in.)	8A Water at Saturation Pct.	5D1 Exchangeable Na Pct.	5B1b Exch. Na meq./100g.	Gypsum Pct.	Base Sat. Pct.	Clay mineralogy (<0.002 mm.) 7A Mont.	Verm.	Mica	Kaolin.	
						X-ray				
0- 2	13.4	32								
2- 4										
4- 9	56.8	18								
9-16	50.1	19								
16-21	32.2	18								
21-28	27.2	20								
28-36	23.3	21								
36-52	23.5	36								
52-65+	16.5	10								

1/ Including cations from carbonates.

IIB2t RSL No. 59577	4- 9"	Dark brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) when moist; moderate very fine columnar structure; hard, firm, very sticky, very plastic; very few medium, plentiful fine, and abundant very fine roots; common very fine and fine interstitial and few very fine tubular pores; moderately thick continuous clay films on ped faces and in pores; pH 6.6; clear wavy boundary.
IIB3t RSL No. 59578	9-16"	Brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) when moist; moderate medium subangular blocky structure; hard, friable, sticky, plastic; very few medium, plentiful very fine and fine roots; common very fine and fine interstitial and few very fine tubular pores; thin continuous clay films on ped faces and in pores; pH 6.6; clear wavy boundary.
IIC1sim RSL No. 59579	16-21"	Brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) when moist; massive; hard, brittle, very slightly sticky, very slightly plastic; weakly cemented; few very fine and fine roots; few very fine tubular and interstitial pores; few thin clay bridges between sand grains and few thin clay films in some pores; noncalcareous but mildly to strongly calcareous where few fine distinct white (10YR 8/2) unoriented lime mottles, few fine and very fine distinct pinkish gray (7.5YR 6/2) vertical lime mottles and common fine and medium distinct pinkish gray (7.5YR 6/2) horizontal lime mottles occur; pH 7.8; clear smooth boundary.
IIC2sim RSL No. 59580	21-28"	Light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) when moist; massive; hard, brittle, nonsticky, nonplastic; weakly cemented; few very fine and fine roots; few very fine and fine interstitial and tubular pores; mildly calcareous; pH 8.2; clear smooth boundary.
IIIC3sim RSL No. 59581	28-36"	Pale brown (10YR 6/3) loamy sand, dark brown (10YR 4/3) when moist; massive; hard, brittle, nonsticky, nonplastic; weakly cemented; very few very fine roots; few very fine tubular and interstitial pores; pH 8.0; clear wavy boundary.
IVC4 RSL No. 59582	36-52"	Very pale brown (10YR 7/3) coarse sand stratified with sand, dark brown (10YR 4/3) when moist; single grained; loose dry and moist, nonsticky, nonplastic; no roots observed; many very fine and fine interstitial pores; pH 7.4; abrupt smooth boundary.
VC5sim RSL No. 59583	52-65"+	Light gray (2.5Y 7/2) gravelly coarse sand stratified with fine sand and sand, dark grayish brown (2.5Y 4/2) when moist; massive; hard, brittle, nonsticky, nonplastic; weakly cemented; no roots observed; common fine interstitial pores; pH 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Catnip very stony loam **LOCATION** Washoe County, Nevada

SOIL FAMILY: Xerollic Natrargid, very fine, montmorillonitic, frigid

SURVEY NOS. S61Nev-16-1 **LAB. NOS.** 61589 - 61596

DEPTH INCHES	HORIZON	1B1b VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 1/	TEXTURAL CLASS
		PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)										
0-3	A1	4.2*	3.8*	1.9*	9.8	6.8	48.6	24.9	29.5	32.3	33	l
3-5	A2	3.2	2.2	1.4	9.0	7.1	57.5	19.6	33.3	37.2	11	sil
5-7	B21t	1.5	1.3	0.9	4.1	3.2	30.7	58.3	15.0	21.5	0	c
7-11	B22t	0.8	1.4	0.7	2.5	2.1	21.9	70.6	10.5	15.1	0	c
11-16	B23t	0.6	1.5	0.8	2.3	2.0	21.9	70.9	9.8	15.5	0	c
16-19	B24tca	1.6	1.3	0.7	1.8	1.8	21.9	70.9	10.1	14.7	0	c
19-26	B3tca	1.7	1.4	0.7	1.9	2.3	24.2	67.8	10.5	17.2	0	c
26-32+	R											

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	SATURATION EXTRACT SOLUBLE 8A 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^=$	6J1a HCO_3^-
						← milliequivalents per liter →						
6.5		7.0	5.64	0.405	14	3.0	0.7	2.4	2.1	0.6	-	7.3
6.4		7.2	2.33	0.183	13	4.5	0.2	0.5	1.1	0.8	-	4.8
6.5		7.9	1.20	0.101	12	7.2	0.1	0.2	0.9	3.0	-	3.8
7.1		8.4	1.13	0.099	11	7.1	0.1	0.9	1.4	6.2	-	4.4
7.7		8.9	0.92	0.078	12	18.8	0.1	2.2	2.0	17.6	tr.	4.3
7.9		8.9	0.67	0.054	12	31.0	0.2	5.0	4.6	30.3	-	3.1
7.9		8.7	0.42	0.029	14	47.2	0.2	19.4	12.3	32.4	-	2.9

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	Ext. Iron % Fe 6C1a	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →											
34.0	18.0	6.8	7.0	1.1	2.7	3	1.3	0.73	-		18.5	69.7
26.4	12.0	4.8	5.9	1.9	1.2	7	1.3	0.58	-		12.3	49.5
52.2	26.8	12.9	5.1	8.3	1.0	16	1.2	0.82	-		33.5	86.6
65.4	30.4	19.7	2.8	10.0	1.1	15	1.0	1.21	-		39.2	106.8
64.0	30.8	28.9	0.7	13.1	1.1	20	1.0	2.40	tr.		39.5	120.9
66.4	43.1	22.4	-	15.0	1.0	23	1.0	4.21	2		36.6	121.3
63.3	43.3	21.4	-	15.0	0.9	24	1.0	6.6	1	-	33.5	111.0

1/ Percent of <1 inch fraction.

* Sand includes some organic matter.

\+ Including cations from carbonates in some horizons.

CATNIP VERY STONY LOAM
S61Nev-16-1

Location: Near the northwest corner of section 15, T. 46 N., R. 19 E., Mount Diablo Base and Meridian, on the plateau adjacent to the north flank of Bally Mountain summit, Washoe County, Nevada. Date of Sampling: August 3, 1961.
Samples Collected By: L. N. Langan, R. L. Malchow and R. Nelson. Description By: L. N. Langan and R. L. Malchow.
Classification: **Xerollic Natrargid, very fine, montmorillonitic, frigid.**
Vegetation: Low sagebrush (Artemesia arbuscula), Sandbergs bluegrass, phlox, chicken weed, buckwheat, rock clover, and assorted annual weeds; plant density is approximately 40 percent. Use: Limited livestock grazing. Climate: Cool, continental climate with cold, moist winters and warm, dry summers; an annual precipitation of 12 to 14 inches, most of it coming as winter snow; a mean annual temperature of 44° F.; and a mean July temperature of 64° F. The relative humidity is low, evaporation is high, and diurnal temperature changes are wide. The frost-free period is less than 90 days. Parent Material: Predominantly basaltic residuum with some admixture of tuffaceous alluvium. Relief: Smooth, gentle slopes having a slope gradient of 2 to 4 percent. Physiography: High plateau or tableland at an elevation of 7,000 feet. Drainage: Moderately well drained; medium runoff; medium internal drainage; slow permeability.
Remarks: This soil characteristically has a very stony or very cobbly erosion surface, but is stone and cobble free within the profile. Effervescence obtained by observing reaction to dilute HCl. pH determined with bromthymol blue in a prepared 1:5 dilution. This profile was not paired.

HORIZON

A1 RSL No. 61589 — 0 to 3 inches, grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) when moist; weak fine granular structure; soft, very friable, nonsticky, very slightly plastic; abundant very fine roots; many very fine interstitial pores; pH 6.8; abrupt wavy boundary. (70% of this horizon consists of 1 inch plus gravel, cobbles and stones and was discarded from the sample.)

A2 RSL No. 61590 — 3 to 5 inches, pinkish gray (7.5YR 7/2) loam, dark grayish brown (10YR 4/2) when moist; weak medium platy structure; slightly hard, friable, slightly sticky, slightly plastic; abundant very fine and few fine roots; many very fine interstitial pores; pH 6.8; very abrupt slightly wavy boundary.

B21t RSL No. 61591 — 5 to 7 inches, brown (7.5YR 5/2) clay, brown (7.5YR 5/4) when moist; strong medium columnar structure with columns having pinkish gray (7.5YR 7/2) and grayish brown (10YR 4/2) moist coatings on column caps and sides; extremely hard, very firm, very sticky, very plastic; plentiful very fine exped roots and few fine inped and exped roots; common very fine tubular and few very fine interstitial pores; continuous pressure cutans; pH 7.0; abrupt slightly wavy boundary.

B22t RSL No. 61592 — 7 to 11 inches, brown (7.5YR 4/2) clay, dark brown (7.5YR 3/2) when moist; strong fine prismatic structure; extremely hard, firm, very sticky, very plastic; few fine and plentiful very fine exped roots; common very fine tubular and interstitial pores; continuous pressure cutans; pH 7.2; abrupt slightly wavy boundary.

B23t RSL No. 61593 — 11 to 16 inches, brown (7.5YR 5/4) both dry and moist clay; moderate medium prismatic structure; extremely hard, firm, very sticky, very plastic; plentiful very fine roots; common very fine tubular and interstitial pores; continuous pressure cutans; common slickensides in lower part of horizon; pH 7.4; clear smooth boundary.

B24tca RSL No. 61594 — 16 to 19 inches, brown (7.5YR 5/3) clay with common coarse distinct white (10YR 8/2) lime mottles; dark brown (7.5YR 4/2) when moist; weak medium and coarse subangular blocky structure; extremely hard, firm, very sticky, very plastic; few very fine roots; plentiful very fine tubular and interstitial pores; many moderately thick clay films in pores and on ped faces; matrix slightly effervescent; pH 7.4; abrupt slightly wavy boundary.

B3tca RSL No. 61595 — 19 to 26 inches, light brown (7.5YR 6/4) clay with few increasing to common with depth, coarse distinct white (10YR 8/2) lime mottles, and few medium distinct black (N 2/) (manganese) mottles, strong brown (7.5YR 5/6) when moist; massive; very hard, friable, very sticky, very plastic; very few very fine roots; few moderately thick clay films in pores; soil matrix noneffervescent; pH 7.4; abrupt irregular boundary.

R RSL No. 61596 — 26 to 32 inches +, dark gray (N 4/) fractured basalt bedrock with common medium distinct white (10YR 8/2) lime coatings on fractured rock surfaces, very dark gray (N 3/) when moist; common moderately thick light brown (7.5YR 6/4) clay films, strong brown (7.5YR 5/6) when moist; in cleavage planes.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Arada fine sand **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Calciorthid, sandy, mixed, thermic

SURVEY NOS S59Nev-2-9 **LAB. NOS.** 5946 thru 5951

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-6	C1	0.1	3.7	28.2	58.1	6.3	1.3	2.3	34.8	0.0	1	fs
6-16	C2	1.0	4.5	18.0	59.0	8.6	2.2	6.7	41.3	0.0	2	fs
16-27	IIC3	0.7	5.5	17.5	52.9	10.9	5.7	6.8	43.8	1.8	4	lfs
27-37	IIC4ca	1.6	9.5	22.7	47.0	7.6	4.8	6.8	35.3	1.5	9	ls-fsl
37-43	IIIC5ca	9.6	12.6	12.9	28.8	8.2	15.7	12.2	30.3	9.0	56	sl
43+	IVC6ca	15.7	23.8	14.5	19.3	4.5	12.5	9.7	17.6	8.6	60	cosl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.5	-	9.0	0.02	0.005		1.8	0.2	3	1.70			1.1
8.4	-	9.1	0.06	0.004		2.2	0.3	4	1.61			2.7
8.4	-	9.1	0.05			2.0	0.3	4	1.52			3.5
8.3	-	9.0	0.03			1.8	0.3	7				3.5
8.3	-	8.9	0.13			1.8	0.4	26				7.1
8.3	-	9.1	0.10			2.6	0.7	19				5.8

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
3.0				<0.1	0.2	<3	0.2	0.5	1.6	0.2	0.1	24.0
5.0				0.1	0.4	2	0.4	0.4	1.8	0.2	0.3	23.0
4.2				<0.1	0.5	<3	0.4	0.3	1.7	0.3	0.4	27.9
4.1				0.1	0.5	2	0.4	0.3	1.8	0.2	0.1	28.1
5.4				0.1	0.6	2	1.0	0.3	2.5	0.4	0.4	40.4
7.6				0.6	0.7	8	3.8	0.3	2.0	0.5	2.0	32.3

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of <1 inch fraction; see profile description for >1 inch material.

ARADA FINE SAND
S59Nev-2-9

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: The site is located approximately 1,000 feet south and 350 feet east of the apparent NW corner Section 26, T15S, R67E adjacent to Stringtown Road, Clark County, Nevada.
Relief: Rolling or hummocky low dunes.
Physiography: Low dunes superimposed upon old terrace.
Drainage: Excessively drained. Runoff is very slow, internal drainage is very rapid, and the permeability is very rapid. The water table is reported to be greater than 50 feet.
Parent Material: Aeolian sands derived from mixed sedimentary rock sources.
Use: Limited livestock grazing.
Vegetation: The vegetation consists of white bur-sage, creosote bush, Indian ricegrass, big galleta grass, desert primrose and assorted annual weeds. The plant density is approximately 5 percent.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68° F., a mean July temperature of 87° F., and mean January temperature of 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: This soil is quartzose in nature.
Reaction: Measure of free carbonate obtained by observing reaction of dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Typic Calciorthid, sandy, mixed, thermic.

Riverside Lab.Nos.
5946 through 5951

C_1	0- 6"	Yellowish red (5YR 5/6, moist) fine sand; single grained; loose, nonsticky, plastic; common very fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.2; clear smooth boundary.
C_2	6-16"	Yellowish red (5YR 5/6, moist) fine sand; single grained; loose, loose, nonsticky, nonplastic; common very fine and few fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.8; clear smooth boundary.
IIC3	16-27"	Brown (7.5YR 5/4, moist) fine sand with few medium faint light brown (7.5YR 6/4) lime mottles, 3 to 5% 1/2 inch gravels; single grained; loose, nonsticky, nonplastic; common very fine and very few fine fibrous roots; many very fine interstitial pores; strongly calcareous, pH 8.8; clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Arada fine sand **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Calciorthid, sandy, mixed, thermic

SURVEY NOS S59Nev-2-9 **LAB. NOS.** 5946 thru 5951

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-6	C1	0.1	3.7	28.2	58.1	6.3	1.3	2.3	34.8	0.0	1	fs
6-16	C2	1.0	4.5	18.0	59.0	8.6	2.2	6.7	41.3	0.0	2	fs
16-27	IIC3	0.7	5.5	17.5	52.9	10.9	5.7	6.8	43.8	1.8	4	lfs
27-37	IIC4ca	1.6	9.5	22.7	47.0	7.6	4.8	6.8	35.3	1.5	9	ls-fsl
37-43	IIIC5ca	9.6	12.6	12.9	28.8	8.2	15.7	12.2	30.3	9.0	56	sl
43+	IVC6ca	15.7	23.8	14.5	19.3	4.5	12.5	9.7	17.6	8.6	60	cosl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM 25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.5	-	9.0	0.02	0.005		1.8	0.2	3	1.70			1.1
8.4	-	9.1	0.06	0.004		2.2	0.3	4	1.61			2.7
8.4	-	9.1	0.05			2.0	0.3	4	1.52			3.5
8.3	-	9.0	0.03			1.8	0.3	7				3.5
8.3	-	8.9	0.13			1.8	0.4	26				7.1
8.3	-	9.1	0.10			2.6	0.7	19				5.8

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
3.0				<0.1	0.2	<3	0.2	0.5	1.6	0.2	0.1	24.0
5.0				0.1	0.4	2	0.4	0.4	1.8	0.2	0.3	23.0
4.2				<0.1	0.5	<3	0.4	0.3	1.7	0.3	0.4	27.9
4.1				0.1	0.5	2	0.4	0.3	1.8	0.2	0.1	28.1
5.4				0.1	0.6	2	1.0	0.3	2.5	0.4	0.4	40.4
7.6				0.6	0.7	8	3.8	0.3	2.0	0.5	2.0	32.3

* Saturation Extract Soluble milliequivalents per liter.

1/ Percent of <1 inch fraction; see profile description for >1 inch material.

IIC4ca **27-37"** **Brown (7.5YR 5/4, moist) loamy fine sand with common medium faint light brown (7.5YR 6/4) lime mottles and unoriented lime coatings on pebbles; soft, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores;** horizon contains approximately 15 percent 3/4-inch gravels; strongly calcareous, pH 8.8; abrupt wavy boundary.

IIIC5ca **37-43"** **Light brown (7.5YR 6/4, moist) very gravelly sandy loam; massive; very hard to hard, firm, nonsticky, nonplastic; very few very fine fibrous roots; very few very fine tubular pores; horizon** contains approximately 85 percent gravels and 5 percent cobbles, of which 40 percent 1-inch plus gravels and cobbles were discarded; strongly calcareous; pH 8.8; abrupt wavy boundary.

IVC6ca **43"+** **Very pale brown (10YR 7/3, moist) very gravelly loamy coarse sand; massive; hard, friable, nonsticky, nonplastic; very few very fine fibrous roots; very few very fine tubular pores;** horizon contains approximately 90 percent gravels and 5 percent cobbles, of which 30 percent 1"+ gravels and all cobbles were discarded; strongly calcareous; pH 9.0.

SOIL SURVEY LABORATORY Riverside, California

SOIL McCarran fine sandy loam **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Calciorthid, coarse-loamy, gypsic, thermic

SURVEY NOS. S56Nev- 2-4 **LAB. NOS.** 5653-58

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-1/2	A1											
1/2-14	C1cs											
14-27	IIC2cs		Particle size distribution not reported; soil could not be dispersed satisfactorily.									
27-36	IIC3cs											
36-47	IIC4cs											
47-57	IIC5											

8C1b pH SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9		8.0	0.52	0.056	9.3		3.3	19	58.0			7.7
8.0		8.0	0.10	0.023			2.9	<0.5	124.0			26.6
8.1		8.3	0.17				11.3	5	104.0			26.1
8.3		8.4	0.18				20.6	26	74.0			24.5
8.3		8.6	0.28				28.4	38	74.0			23.7
8.4		8.7	0.23				24.0	68	31.6			10.7

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
9.4				0.5	0.4	5	3.6	0.9	40.0			36.4
10.0				0.1	0.1	1	1.0	0.4	36.7			78.2
10.5				1.1	0.3	10	63.0	2.7	46.8			65.7
20.9				3.6	0.9	17	180.0	7.4	66.3			78.4
17.6				3.4	1.2	19	254.0	9.1	80.6			83.2
10.4				2.1	0.7	20	212.0	8.5	71.5			85.3

McCARRAN FINE SANDY LOAM
S56Nev-2-4

Collectors: Reuben E. Nelson, L. Dunn, L. N. Langan, February 1956.

Description: L. N. Langan

Location: Approximately 3-1/2 miles southeast of McCarran Air Field. 120 feet north and 300 feet west of 1/4 cor., sec. 14 and sec. 13, T. 22 S., R. 61 E., located in the SE1/4, NE1/4, sec. 14, T. 22 S., R. 61 E., Las Vegas SCD, Clark County, Nevada. It is 310 feet west of a north-south dirt road.

Elevation: Approximately 2,200 feet

Use: Desert range.

Relief: Slightly rolling nearly level old terrace. There is a regular micro-relief of 4-6 inches due to wind erosion and deposition. High spots are under shrubs, low spots are essentially barren. Slope is approximately 1 percent slightly convex, towards the east.

Vegetation: Very sparse (about 2 %) cover of shrubs. The composition of the vegetation is 45 percent creosote bush, 40 percent shadscale, 10 percent white bur-sage, 5 percent catclaw, and traces of jointfir (Mormon tea).

Drainage: Runoff medium. Internal soil drainage is medium to 14 inches and slow to very slow below this depth. This soil was moist from 27 to 57 inches at the time of sampling.

Parent Material: Derived from gypsiferous strata of the Muddy Creek Formation which is Miocene in age.

Climate: Las Vegas Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is less than 5 inches. The relative humidity is low, evaporation is high, and ranges in temperature wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: Included within this soil delineation are several small sand dunes (Brazito soil material). They comprise less than 1 percent of the total soil delineation. These dunes are from 4 to 8 feet in height and 300 to 600 feet in diameter. The vegetation on these dunes is catclaw with sufficient density that active wind erosion is not evident. The soil surface of the McCarran fine sandy loam is characterized by a slight desert pavement. Fine sands, containing fine crystal fragments of gypsum, are found around the base of shrubs in the form of small hummocks. Many small gypsum crystals were precipitated on the walls of the sample pit in the interim between digging and sampling. This occurs between 14 to 57 inches in the profile.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. The pH's are determined with thymol blue in about 1:5 soil indicator dilution and with a Hellige-Truog combination soil-tester kit.

Classification: Typic Calciorthid, coarse-loamy, gypsic, thermic.

SOIL SURVEY LABORATORY Riverside, California

SOIL McCarran fine sandy loam **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Calciorthid, coarse-loamy, gypsic, thermic

SURVEY NOS. S56Nev-2-4 **LAB. NOS.** 5653-58

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-1/2	A1	Particle size distribution not reported; soil could not be dispersed satisfactorily.										
1/2-14	C1cs											
14-27	IIC2cs											
27-36	IIC3cs											
36-47	IIC4cs											
47-57	IIC5											

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9		8.0	0.52	0.056	9.3		3.3	19	58.0			7.7
8.0		8.0	0.10	0.023			2.9	<0.5	424.0			26.6
8.1		8.3	0.17				11.3	5	404.0			26.1
8.3		8.4	0.18				20.6	26	74.0			24.5
8.3		8.6	0.28				28.4	38	74.0			23.7
8.4		8.7	0.23				24.0	68	31.6			10.7

5A2a CATION EXCHANGE CAPACITY ←(Na)	5B1a EXTRACTABLE CATIONS 5B Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
9.4				0.5	0.4	5	3.6	0.9	40.0			36.4
10.0				0.1	0.1	1	1.0	0.4	36.7			78.2
10.5				1.1	0.3	10	63.0	2.7	46.8			65.7
20.9				3.6	0.9	17	180.0	7.4	66.3			78.4
17.6				3.4	1.2	19	254.0	9.1	80.6			83.2
10.4				2.1	0.7	20	212.0	8.5	71.5			85.3

S56-Nev-2-4-1
A1 0- ½" Pink (7.5YR 8/4, dry) to brown (7.5YR 5/4, moist) fine sandy loam. Very weakly vesicular. Weak, medium platy. Soft, very friable. Few roots. Very strongly calcareous. pH 8.4. Abrupt smooth boundary. 0-1" thick.

S56-Nev-2-4-2
C1cs ½-14" Pinkish white (7.5YR 8/2, dry) to pink (7.5YR 8/4, moist) fine sandy loam containing some gypsum. Massive structure. Soft, very friable. Numerous roots. Calcareous. pH 7.8. Abrupt wavy boundary. 7-15" thick.

S56-Nev-2-4-3
IIC2cs 14-27" White (N 8/0, dry) to pink (7.5YR 8/4, moist) loam containing over 50 percent gypsum. Massive. Hard, firm. Calcareous. pH 7.8. Clear wavy boundary.

S56-Nev-2-4-4
IIC3cs 27-36" Pink (7.5YR 8/4, moist) light clay loam with low bulk density. Contains few, faint, distinct white lime mottlings. Massive. Hard, firm. Strongly calcareous. pH 8.2. Clear wavy boundary. Contains many medium to large gypsum crystals.

S56-Nev-2-4-5
IIC4cs 36-47" Pink (7.5YR 8/4, moist) loam with low bulk density. Contains few, fine, faint pinkish white lime mottlings. Massive. Hard, firm. Strongly calcareous. pH 8.2. Clear wavy boundary. Contains many medium to large gypsum crystals.

S56-Nev-2-4-6
IIC5 47-57" Pinkish white (7.5YR 8/2, moist) loam with low bulk density. Massive. Slightly hard, firm, slightly sticky. Strongly calcareous. pH 8.2.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Calciorthid, coarse-loamy, mixed, thermic (McCarran taxadjunct)

SURVEY NOS. S56Nev -2-3 **LAB. NOS.** 5645-52

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-1	A1	Particle size distribution not reported; soil could not be dispersed satisfactorily.										
1-11	C1cs											
11-17	C2cs											
17-24	C3cs											
24-34	C4											
34-42	IIC5											
42-53	IIIC6cs											
53-59	IIIC7cacsm											

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0		8.3	0.27	0.026	10.4		3.1	12	44.0			6.1
8.1		8.4	0.14	0.010			12.9	5	132.0			15.3
8.5		8.5	0.07				17.8	20	156.0			11.7
8.4		8.5	0.04				11.9	21	78.0			9.1
8.2		8.5	0.04				9.5	21	45.2			5.0
8.1		8.4	0.12				10.8	30	58.0			9.0
8.1		8.4	0.08				10.1	18	116.0			18.2
8.3		8.4	0.06				6.8	73	112.0			10.1

5A2a CATION EXCHANGE CAPACITY (Na)	5B1a EXTRACTABLE CATIONS Ca 6N2b	5B1a Mg 6O2c	6H1a H	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	5D1 EXCH. Na %	6P1a SATURATION EXTRACT SOLUBLE Na	6Q1a K	6O1a Ca+Mg	8A1	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
7.2				0.2	0.2	3	2.2	0.4	39.9			27.5
9.5				0.3	0.3	3	64.0	6.1	105.5			46.2
9.9				0.5	0.4	5	106.3	11.3	156.0			32.7
6.9				0.7	0.5	10	64.5	7.2	94.1			33.5
5.3				0.3	0.4	6	48.0	5.1	81.1			24.8
9.4				0.6	0.8	6	54.5	5.2	93.0			36.8
23.5				1.9	1.6	8	52.0	4.7	88.0			73.3
10.0				0.8	0.6	8	41.0	4.1	60.8			32.2

Series not designated [1/]
S56Nev-2-3

Collectors: Reuben E. Nelson, L. Dunn, L. N. Langan, February 1956.

Description: L. N. Langan

Location: Approximately 2 miles east of McCarran Air Field. 170 feet north and 60 feet east of the center corner, sec. 35, T. 21 S., R. 61 E., located in SW1/4, NE1/4, sec. 35, T. 21 S., R. 61 E., Las Vegas SCD, Clark County, Nevada. It is 30 feet east of a north-south dirt road.

Elevation: Approximately 2,100 feet.

Use: Desert range.

Relief: Slightly rolling nearly level terrace. There is a regular microrelief of 6 to 8 inches due to wind erosion and deposition. High spots are under shrubs, low spots are essentially barren. Slope is approximately 1 percent, slightly convex, towards the east.

Vegetation: Very sparse (about 2% density) cover of shrubs and grasses. The composition of the vegetation is 55 percent rabbitbrush, 10 percent sandpaper plant, 5 percent creosote bush 30 percent alkali sacaton and traces of saltbush and jointfir (Mormon tea). Along shallow waterways, the density cover increases to approximately 5 percent. This is composed of 60 percent alkali sacaton and 40 percent rabbitbrush.

Drainage: Runoff medium. Internal soil drainage is medium to 24 inches and slow to very slow below this depth. This soil was moist from 11 to 34 inches and at field capacity from 34 to 53 inches at the time of sampling.

Parent Material: Derived from gypsiferous sands, silts and clays of the Miocene Muddy Creek Formation.

Climate: Las Vegas Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is less than 5 inches. The relative humidity is low, evaporation is high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by a slight desert pavement. Fine sands are found in small hummocks (approximately 6 inches to 8 inches high and 16 to 24 inches in diameter). Alkali sacaton is found primarily along waterways. Many small gypsum crystals were precipitated on the walls of the sample pit in the interim between digging and sampling. This occurred in the 11 to 53 inch zone of the profile.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. The pH is determined with thymol blue in about 1:5 soil indicator dilution and with a Hellige-Truog combination soil-tester kit.

Classification: Typic Calciorthid, coarse-loamy, mixed, thermic (McCarran taxadjunct).

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Calciorthid, coarse-loamy, mixed, thermic (McCarran taxadjunct)

SURVEY NOS. S56Nev -2-3 **LAB. NOS.** 5645-52

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-1	A1	Particle size distribution not reported; soil could not be dispersed satisfactorily.										
1-11	C1cs											
11-17	C2cs											
17-24	C3cs											
24-34	C4											
34-42	IIC5											
42-53	IIIC6cs											
53-59	IIIC7gacsm											

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0		8.3	0.27	0.026	10.4		3.1	12	44.0			6.1
8.1		8.4	0.14	0.010			12.9	5	132.0			15.3
8.5		8.5	0.07				17.8	20	156.0			11.7
8.4		8.5	0.04				11.9	21	78.0			9.1
8.2		8.5	0.04				9.5	21	45.2			5.0
8.1		8.4	0.12				10.8	30	58.0			9.0
8.1		8.4	0.08				10.1	18	116.0			18.2
8.3		8.4	0.06				6.8	73	112.0			10.1

5A2a CATION EXCHANGE CAPACITY (Na)	5B1a EXTRACTABLE CATIONS Ca 6N2b	5B1a Mg 6Q2c	6H1a H	5B Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	6P1a SATURATION EXTRACT SOLUBLES Na	6Q1a K	6O1a Ca+Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter				
7.2				0.2	0.2	3	2.2	0.4	39.9		27.5
9.5				0.3	0.3	3	64.0	6.1	105.5		46.2
9.9				0.5	0.4	5	106.3	11.3	156.0		32.7
6.9				0.7	0.5	10	64.5	7.2	94.1		33.5
5.3				0.3	0.4	6	48.0	5.1	81.1		24.8
9.4				0.6	0.8	6	54.5	5.2	93.0		36.8
23.5				1.9	1.6	8	52.0	4.7	88.0		73.3
10.0				0.8	0.6	8	41.0	4.1	60.8		32.2

S56-Nev-2-3-1
A1 0- 1" Pink (7.5YR 8/4, dry) to light brown (7.5YR 6/4, moist) loamy fine sand. Weakly vesicular. Weak, medium platy. Slightly hard, very friable. Numerous roots. Strongly calcareous. pH 8.4. Abrupt smooth boundary. 1/2-1 1/4" thick.

S56-Nev-2-3-2
C1cs (?) 1-11" Pinkish white (7.5YR 8/2, dry) to pinkish gray (7.5YR 6/2, moist) loamy fine sand with common, medium, faint pink mottlings adjacent to roots. Numerous roots. Very weak, fine granular. Slightly hard, very friable. Calcareous. pH 8.0. Abrupt wavy boundary. 8-12" thick.

S56-Nev-2-3-3
C2cs 11-17" Pink (7.5YR 8/4, dry) to pink (7.5YR 7/4, moist) fine sandy loam with common, fine distinct white mottlings. Massive. Hard, friable. Few roots. Calcareous. pH 8.0. Clear wavy boundary.

S56-Nev-2-3-4
C3cs 17-24" Pink (7.5YR 8/4, dry) to pink (7.5YR 7/4, moist) fine sandy loam. Massive. Slightly hard, very friable. Calcareous. pH 7.8. Clear wavy boundary.

S56-Nev-2-3-5
C4 24-34" Pink (7.5YR 8/4, dry) to pink (7.5YR 7/4, moist) loam. Massive. Hard, firm. Calcareous. pH 7.8. Clear wavy boundary. Contains many medium to large crystals of gypsum.

S56-Nev-2-3-6
IIC5 34-42" Pale yellow (5Y 7/3, moist) light clay loam containing common, fine prominent white and few, medium, prominent light brown mottlings. Massive. Hard, firm. Calcareous. pH 8.0. Clear wavy boundary. Contains many medium to large crystals of gypsum.

S56-Nev-2-3-7
IIIC6cs 42-53" Pale olive (5Y 6/3, moist) silty clay with many fine prominent white mottlings. Massive. Hard, firm, slightly sticky, plastic. Calcareous. pH 8.0. Abrupt wavy boundary.

S56-Nev-2-3-8
IIIC7cacsm 53-59" White (5Y 8/2, moist) indurated lime-silica hardpan. Massive. Extremely hard, extremely firm. Very strongly calcareous. Abrupt wavy boundary.

1/ The McCarran series is in a coarse-loamy, gypsic, thermic family of Typic Calciorthids (see pedon S59Nev-2-4). This pedon contains too little gypsum to be in a gypsic family.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Calciorthid, coarse-loamy, mixed, thermic (Arada taxadjunct)

SURVEY NOS. S59Nev-2-10 **LAB. NOS.** 5952 thru 5957

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (Hr mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	C1	1.7	8.4	23.7	53.6	8.9	1.6	2.1	37.1	0.0	2	fs
3-17	C2	1.4	6.1	20.5	51.2	12.0	4.4	4.4	43.1	0.8	3	fs
17-24	IIC3	3.2	9.1	13.5	35.3	17.0	10.8	11.1	45.7	3.5	12	fsl
24-27	IIC4ca	3.4	9.5	11.2	29.6	15.6	17.0	13.7	40.3	10.3	20	fsl
27-40	IIIC5ca	2.6	5.8	8.8	22.7	13.3	29.7	17.1	35.5	21.7	16	fsl
40-46+	IVC6ca	11.5	11.4	10.9	22.5	11.9	18.6	13.2	32.9	10.8	68	sl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 meq./l.	8G1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.4	-	8.7	0.03	0.005		1.6	0.2	1	1.71			1.1
8.3	-	8.7	0.05	0.005		1.8	0.2	3	1.63			2.2
8.3	-	8.8	0.14			2.1	0.3	7				5.9
8.2	-	8.6	0.15			1.7	0.3	15				7.0
8.2	-	8.7	0.18			1.9	0.3	33				7.8
8.0	-	8.9	0.10			2.0	2.1	18				7.4

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
2.9				0.1	0.2	3	0.2	0.3	1.6	0.1	0.5	23.0
3.9				0.1	0.4	3	0.3	0.5	1.6	0.1	0.3	22.0
6.4				<0.1	0.6	<2	0.6	0.3	1.0	Tr	0.2	32.1
5.7				<0.1	0.5	<2	0.4	0.2	1.9	0.3	0.3	39.2
5.1				<0.1	0.3	<2	1.0	0.1	1.8	0.4	0.7	39.8
6.4				0.9	0.6	14	15.4	0.4	4.0	1.0	9.8	36.3

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of <1 inch fraction; see profile description for gravel >1 inch.

Series not designated 1/

S59Nev-2-10

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: The site is located approximately 1,750 feet south and 250 feet west of the North 1/4 corner Section 1, T17S, R67E, adjacent to the north end of the Overton Airstrip, Clark County, Nevada.
Relief: Rolling or hummocky low dunes.
Physiography: Low dunes superimposed upon old terraces.
Drainage: Excessively drained. Runoff is very slow, internal drainage is very rapid, and the permeability is very rapid. The water table is reported to be greater than 50 feet.
Parent Material: Aeolian sands derived from mixed sedimentary rock sources including sandstone, limestone, and sandy Miocene lake sediments.
Use: Limited livestock grazing.
Vegetation: Vegetation consists of white bur-sage creosote bush, Indian rice-grass, big galleta grass, desert primrose, and assorted annual weeds. The plant density is approximately 5 percent.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68° F., a mean July temperature of 87° F., and mean January temperature of 44° F. The relative humidity is low, evaporation is high, and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: This soil is quartzose in nature.
Reaction: Measure of free carbonate obtained by observing reaction of dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Typic Calciorthid, coarse-loamy, mixed, thermic (Arada taxadjunct).

Riverside Lab. Nos.
5952 through 5957

C_1 0- 3" Reddish yellow (5YR 6/6) fine sand, yellowish red (5YR 5/6) when moist; single grained; loose, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular and many very fine interstitial pores; strongly calcareous; pH 8.2; clear smooth boundary.

C_2 3-17" Yellowish red (5YR 5/6, moist) fine sand; very weak medium and fine granular structure breaking to single grained; loose to soft, nonsticky, nonplastic; few very fine and fine fibrous roots; many very fine interstitial and few very fine tubular pores; contains approximately 3 percent fine gravels; strongly calcareous; pH 8.8; clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated LOCATION Clark County, Nevada

SOIL FAMILY: Typic Calciorthid, coarse-loamy, mixed, thermic (Arada taxadjunct)

SURVEY NOS. S59Nev-2-10 LAB. NOS. 5952 thru 5957

DEPTH INCHES	HORIZON	1D1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	C1	1.7	8.4	23.7	53.6	8.9	1.6	2.1	37.1	0.0	2	fs
3-17	C2	1.4	6.1	20.5	51.2	12.0	4.4	4.4	43.1	0.8	3	fs
17-24	IIC3	3.2	9.1	13.5	35.3	17.0	10.8	11.1	45.7	3.5	12	fsl
24-27	IIC4ca	3.4	9.5	11.2	29.6	15.6	17.0	13.7	40.3	10.3	20	fsl
27-40	IIIC5ca	2.6	5.8	8.8	22.7	13.3	29.7	17.1	35.5	21.7	16	fsl
40-46+	IVC6ca	11.5	11.4	10.9	22.5	11.9	18.6	13.2	32.9	10.8	68	sl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.4	-	8.7	0.03	0.005		1.6	0.2	1	1.71			1.1
8.3	-	8.7	0.05	0.005		1.8	0.2	3	1.63			2.2
8.3	-	8.8	0.14			2.1	0.3	7				5.9
8.2	-	8.6	0.15			1.7	0.3	15				7.0
8.2	-	8.7	0.18			1.9	0.3	33				7.8
8.0	-	8.9	0.10			2.0	2.1	18				7.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5D1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
2.9				0.1	0.2	3	0.2	0.3	1.6	0.1	0.5	23.0
3.9				0.1	0.4	3	0.3	0.5	1.6	0.1	0.3	22.0
6.4				<0.1	0.6	<2	0.6	0.3	1.0	Tr	0.2	32.1
5.7				<0.1	0.5	<2	0.4	0.2	1.9	0.3	0.3	39.2
5.1				<0.1	0.3	<2	1.0	0.1	1.8	0.4	0.7	39.8
6.4				0.9	0.6	14	15.4	0.4	4.0	1.0	9.8	36.3

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of <1 inch fraction; see profile description for gravel >1 inch.

IIC3	17-24"	Brown (7.5YR 5/4, moist) light fine sandy loam; weak medium and fine granular structure; slightly hard, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores; contains approximately 5 percent fine gravel; strongly calcareous; pH 8.6; clear wavy boundary.
IIC4ca	24-27"	Brown (7.5YR 5/4, moist) gravelly fine sandy loam with common medium distinct pink (7.5YR 7/4) lime mottles, lime coated pebbles and soft lime nodules; weak fine and medium granular structure; slightly hard, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores; strongly calcareous; pH 8.6; abrupt wavy boundary. Discarded from the sample was 10 percent 1-inch gravel, 10 percent cobbles and 3 percent stones.
IIIC5ca	27-40"	Pink (7.5YR 8/4, moist) gravelly loam; massive, hard to slightly hard, firm to friable, slightly sticky, slightly plastic; very few very fine fibrous roots; very few very fine tubular pores; strongly calcareous; pH 8.8; clear wavy boundary. Discarded from the sample were 35 percent 1-inch-plus gravels and 15 percent cobbles.
IVC6ca	40-46"+	Light brown (7.5YR 6/4, moist) very gravelly loamy sand; massive; slightly hard, very friable, nonsticky, nonplastic, very few very fine fibrous roots; many very fine interstitial pores; horizon contains approximately 80 percent gravels and 5 percent cobbles, of these 30 percent 1"+ gravels and all cobbles were discarded; strongly calcareous; pH 8.6.

1/ The Arada series is in a sandy, mixed, thermic family of Typic Calciorthids (see pedon S59Nev-2-9). This pedon is in a coarse-loamy family of the same subgroup.

SCS-420

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Duric Camborthid, coarse-loamy, mixed, mesic (Orovada taxadjunct)
SOIL SERIES Series not designated SOIL Nos. S61Nev-7-1 LOCATION Humboldt County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 61524 - 61531

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)			Coarse fragments >2 1/ Pct	2-19	19-76
		Size class and particle diameter (mm) 3A1															Pct. of < 76 mm	
		Pct. of < 2 mm																
0-4	A1	35.2	53.4	11.4	3.6	3.9	2.4	10.0	15.3	25.8	27.6	48.3	19.9			3		
4-11	B21	30.7	54.4	14.9	2.2	2.9	1.9	9.4	14.3	26.0	28.4	47.2	16.4			6		
11-24	B22	38.2	57.1	4.7	6.0	6.1	2.9	9.7	13.5	29.4	27.7	49.9	24.7			13		
24-35	C1si	52.7	43.1	4.2	11.1	11.6	4.9	9.9	15.2	26.4	16.7	48.0	37.5			12		
35-45	C2sica	40.5	51.4	8.1	5.3	6.0	3.0	9.6	16.6	30.2	21.2	53.4	23.9			7		
45-57	C3sica	37.8	52.9	9.3	4.8	5.1	2.6	7.7	17.6	32.1	20.8	55.0	20.2			8		
57-62	C4si	38.3	52.2	9.5	6.2	7.2	2.1	6.0	16.8	32.9	19.3	53.9	21.5			10		
62-73+	C5	31.1	62.4	6.5	3.1	3.9	2.4	6.7	15.0	32.5	29.9	52.2	16.1			2		

Depth (In.)	6A1b Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C1a Ext. Iron as Fe Pct.	6B1b Carbonate as $CaCO_3$ Pct	Bulk density g/cc	Bulk density g/cc	Bulk density g/cc	Water content Pct	Water content Pct.	4B2 15 bar Pct	pH 8C1b Saturated Paste	pH 8C1a 1:10
0-4	0.70	0.071	10	0.3	-						7.8	6.6	7.0
4-11	0.41	0.050	8	0.3	-						9.9	6.8	7.2
11-24	0.27	0.037		0.3	-						6.1	7.8	7.8
24-35	0.13			0.2	1						5.1	8.3	9.3
35-45	0.13			0.3	2						6.2	8.4	9.6
45-57	0.16			0.3	1						6.5	8.1	9.3
57-62	0.09			0.3	-						5.9	7.8	8.4
62-73+	0.09			0.3	1						6.9	7.7	8.4

Depth (In.)	Extractable bases 5B1a + Ca 6N2b	5B1a + Mg 6O2c	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	Sum of bases	6H2a Ext. Acidity	5A2a CEC NaOAc	Water extract from saturated paste 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K	6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g							meq/liter								mmho/cm
0-4	10.2	3.6	0.3	1.5	15.6	2.6	19.2	1.2	0.8	1.2	0.3	-	2.3	0.7		0.34
4-11	13.3	4.8	0.6	0.6	19.3	2.3	22.4	0.9	0.6	1.4	0.1	-	2.0	0.5		0.25
11-24	10.3	3.5	0.9	0.3	15.0	0.9	16.2	1.3	0.7	2.8	0.0	-	4.1	0.7		0.42
24-35	15.9	3.1	2.8	0.3	22.1	-	15.1	0.7	2.4	7.8	0.1	-	10.7	1.0		0.77
35-45	15.7	3.6	5.9	1.4	26.6	-	15.7	3.3	1.8	44.0	0.4	-	6.9	29.5		4.44
45-57	17.4	3.8	5.1	1.5	27.8	-	16.2	9.0	6.2	91.5	1.2	-	4.2	50.0		8.2
57-62	13.8	3.5	4.6	1.5	23.4	-	14.8	29.0	16.3	123.0	1.8	-	2.5	76.9		13.8
62-73+	16.8	3.6	4.9	1.6	26.9	-	16.2	31.0	16.2	125.5	1.7	-	2.2	84.4		12.8

Depth (In.)	8A Water at Saturation Pct.	6F1a Gypsum Pct.	5D1 Exch. Na Pct.
0-4	36.0		2
4-11	34.3		3
11-24	35.9		6
24-35	28.8		18
35-45	28.7		38
45-57	32.2		32
57-62	28.2	0.1	31
62-73+	31.6	0.1	30

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

Series not designated 1/

S61Nev-7-1

Location: 450 feet west and 200 feet south of the northeast corner of section 34, T. 43 N., R. 37 E., Mount Diablo Base and Meridian, 0.4 miles west of Orovada Mercantile Store, Orovada, Humboldt County, Nevada. Date of Sampling: August 7, 1961.
Samples Collected By: R. E. Nelson, L. N. Langan, D. G. Bagley, Leland I. Larsen, and Harry Summerfield. Description By: Leland I. Larsen.
Classification: **Duric Camborthid, coarse-loamy, mixed, mesic (Orovada taxadjunct).**
Vegetation: Big sage, cheatgrass, and annual weeds with a plant density of approximately 5 percent. Use: Livestock range. Climate: Cool continental climate having hot, dry summers and cold, moist winters; an average annual temperature of 47 to 50° F.; an average January temperature of about 27° F.; an average July temperature of about 71° F.; an average frost-free season of 110 to 120 days; and an average annual precipitation of 8 to 10 inches. Relative humidity is low and evaporation is high. Parent Material: Loamy alluvium from mixed rocks including phyllite, slate, quartzite, granodiorite, and volcanic ash. Relief: Smooth, slope of less than 1 percent. Physiography: Alluvial fan. Elevation: Approximately 4,250 feet. Drainage: Well drained; very slow runoff during periods of normal rainfall; moderate permeability.
Remarks: The soils are weakly cemented with alkali soluble materials and are usually nonsaline and nonalkali in the upper part. Effervescence obtained by observing reaction to dilute HCl. pH determined using thymol blue in a prepared 1:5 dilution. Paired profile is S61Nev-7-2.

HORIZON

A1 RSL No. 61524 — 0 to 4 inches, light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) when moist; moderate fine and medium platy structure in upper 2 inches and moderate coarse platy structure in bottom 2 inches; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine tubular, many very fine and fine interstitial, and few very fine vesicular pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

B21 RSL No. 61525 — 4 to 11 inches, light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine tubular and common very fine interstitial pores; moderately alkaline (pH 8.2); clear smooth boundary.

B22 RSL No. 61526 — 11 to 24 inches, light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) when moist; massive; soft, friable, nonsticky, and nonplastic; plentiful very fine and few fine roots; few very fine and fine tubular, and few very fine interstitial pores: bottom half contains about 10 percent very fine gravel; moderately alkaline (pH 8.3); clear smooth boundary.

C1si RSL No. 61527 — 24 to 35 inches, pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; few very fine tubular and many very fine interstitial pores; horizon contains about 20 percent 1 inch durinodes that are very hard and firm; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2sica RSL No. 61528 — 35 to 45 inches, pale brown (10YR 6/3) fine sandy loam with few fine distinct white (10YR 8/2) lime mottles, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, friable, nonsticky, nonplastic; plentiful very fine and few fine roots; few very fine tubular and common very fine interstitial pores; horizon contains about 40 percent hard, firm durinodes; strongly effervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.

C3sica RSL No. 61529 — 45 to 57 inches, pale brown (10YR 6/3) loam with few fine distinct white (10YR 8/2) lime mottles, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; abundant very fine roots; few very fine tubular and common very fine interstitial pores; horizon contains 5 percent hard, firm durinodes; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

C4si RSL No. 61530 — 57 to 62 inches, pale brown (10YR 6/3) loam with few fine distinct white (10YR 8/2) lime mottles, brown (10YR 4/3) when moist; massive; hard, firm, slightly sticky, slightly plastic; few very fine roots; few very fine and fine tubular pores; mildly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.

C5 RSL No. 61531 — 62 to 73 inches +, pale brown (10YR 6/3) silt loam with very few fine to medium white (10YR 8/2) lime mottles, brown (10YR 4/3) when moist; massive; hard, friable, slightly sticky, slightly plastic; no roots visible; few very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6).

1/ **The Orovada series is in a coarse-loamy, mixed, mesic family of Durixerollic Camborthids. This pedon is a taxadjunct because it contains too little organic carbon.**

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Humboldt County, Nevada

SOIL FAMILY: Duric Camborthid, coarse-loamy, mixed, mesic (Orovada taxadjunct)

SURVEY NOS. S61Nev-7-2 **LAB. NOS.** 61532 - 61539

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-5	A1	4.9	9.5	4.1	11.8	14.8	44.2	10.7	45.4	21.7	4	1
5-9	B21	4.2	9.6	4.4	13.1	15.5	41.3	11.9	43.8	21.9	5	1
9-17	B22	6.3	12.6	5.6	12.7	12.2	40.6	10.0	39.8	21.0	7	1
17-27	C1sica	3.4	9.4	4.7	10.5	12.2	42.7	17.1	38.9	22.6	3	1
27-42	C2sica	4.5	9.1	4.1	11.8	14.7	49.7	* 6.1	49.5	22.9	3	
42-47	C3	2.6	2.5	2.8	25.6	28.4	33.6	*4.5	67.6	13.0	1	
47-60	C4	0.4	0.8	1.8	18.6	32.9	42.2	*3.3	79.1	10.1	0	
60-74	IIC5	0.7	1.1	1.1	8.5	26.6	58.6	*3.4	74.0	18.1	1	

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	6P1a SATURATION EXTRACT SOLUBLE 8A Na (milliequivalents per liter)	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^{=}$	6J1a HCO_3^-
6.8		7.4	0.70	0.076	9	2.2	1.3	0.5	0.4	1.3	-	2.7
7.2		7.9	0.39	0.046	8	2.8	0.4	0.9	0.6	0.5	-	2.9
7.9		9.0	0.22	0.033		43.5	0.6	29.3	12.6	15.4	-	5.6
7.9		8.5	0.17			147.0	2.3	18.9	14.5	94.2	-	3.5
7.9		9.3	0.09			124.0	1.2	5.5	5.5	102.5	-	1.9
8.0		9.4	0.04			67.8	0.6	4.3	3.6	64.4	-	1.7
8.0		9.4	0.03			50.8	0.5	6.4	4.6	47.5	-	1.5
7.8		9.2	0.03			53.5	0.5	2.5	0.8	52.5	-	1.4

5A2a CATION EXCHANGE CAPACITY (Na)	5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	8C1a Elec. Condc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	6C1a Ext. Iron % Fe	4B2 Moist. at 15 atmos %	8A MOISTURE AT SATURATION %
	EXTRACTABLE CATIONS 5B (milliequivalents per 100g. soil)											
16.0	8.7	2.9	1.9	0.3	2.4	2	0.93	-		0.3	6.7	27.8
15.8	8.4	3.0	1.3	1.0	2.4	6	0.36	-		0.6	7.3	23.2
14.4	6.7	2.8	0.6	3.1	0.7	22	2.80	-	-	0.3	7.1	29.9
19.3	25.7	4.4	-	5.9	0.3	31	17.0	2	0.2	0.3	9.4	34.8
15.9	20.3	4.0	*	5.1	0.4	32	12.8	6		0.3	6.2	30.8
13.2	16.7	3.5	-	3.9	0.8	30	7.3	1		0.2	4.6	31.5
13.1	9.0	3.3	-	3.2	0.9	24	5.43	tr.		0.3	4.6	36.5
15.7	13.3	3.7	-	3.6	1.0	23	6.2	1		0.3	5.8	39.8

1/ Percent of the <1 inch fraction.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

Series not designated 1/
S61Nev-7-2

Location: 400 feet north and 500 feet west of the east quarter corner of section 31, T. 43 N., R. 37 E., Mount Diablo Base and Meridian, 2 miles west and 0.4 miles south of Orovada, Humboldt County, Nevada. Date of Sampling: August 7, 1961.
Samples Collected By: R. E. Nelson, L. N. Langan, D. G. Bagley, Leland I. Larsen and Harry Summerfield. Description By: Leland I. Larsen.
Classification: **Duric Camborthid, coarse-loamy, mixed, mesic (Orovada taxadjunct)**
Vegetation: Plant density is approximately 7 percent consisting of big sage, cheatgrass and annual weeds. Use: Livestock range. Climate: Cool continental climate having hot, dry summers and cold, moist winters; an average annual temperature of 47 to 50° F.; an average January temperature of about 27° F.; an average July temperature of about 71° F.; an average frost-free season of 110 to 120 days; and an average annual precipitation of 8 to 10 inches. Relative humidity is low and evaporation is high. Parent Material: Loamy alluvium from mixed rocks including phyllite, slate, quartzite, granodiorite, and volcanic ash. Relief: Smooth, slope of less than 1 percent. Physiography: Alluvial fan. Elevation: Approximately 4250 feet. Drainage: Well drained; very slow runoff during periods of normal rainfall; moderate permeability.
Remarks: The soils are weakly cemented with alkali soluble materials and are usually nonsaline and nonalkali in the upper part. Effervescence obtained by observing reaction to dilute HCl. pH determined using thymol blue in a prepared 1:5 dilution. Paired profile is S61Nev-7-1.

HORIZON

A1 RSL No. 61532 — 0 to 5 inches, light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) when moist; weak very coarse prismatic structure in place but breaking into moderate fine and medium platy structure when disturbed; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine and fine tubular and common very fine interstitial pores; moderately alkaline (pH 8.0); abrupt wavy boundary.

B21 RSL No. 61533 — 5 to 9 inches, light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) when moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; many very fine and few fine tubular pores; moderately alkaline (pH 8.4); abrupt wavy boundary.

B22 RSL No. 61534 — 9 to 17 inches, pale brown (10YR 6/3) sandy loam, dark grayish brown (10YR 4/2) when moist; strong very coarse subangular blocky structure; very hard, firm, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine tubular and common fine interstitial pores; strongly alkaline (pH 8.6); abrupt wavy boundary.

C1sica RSL No. 61535 — 17 to 27 inches, light brownish gray (2.5Y 6/2) loam with common coarse distinct white (2.5Y 8/2) lime mottles, dark grayish brown (2.5Y 4/2) when moist; massive; very hard, firm (although not as firm as above), slightly sticky, slightly plastic; weakly alkali cemented; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine interstitial pores; violently effervescent; very strongly alkaline (pH 9.6); clear smooth boundary.

C2sica RSL No. 61536 — 27 to 42 inches, light brownish gray (2.5Y 6/2) sandy loam with few fine to medium white (10YR 8/2) lime mottles, dark grayish brown (2.5Y 4/2) when moist; massive; hard, friable to weakly brittle, very slightly sticky, nonplastic; very weakly alkali-cemented; few very fine roots; few very fine and fine tubular and interstitial pores; strongly effervescent; strongly alkaline (pH 9.6); clear smooth boundary.

C3 RSL No. 61537 — 42 to 47 inches, light brownish gray (2.5Y 6/2) very fine sandy loam, dark grayish brown (2.5Y 4/2) when moist; massive, slightly hard, friable, nonsticky, nonplastic; no roots; few fine tubular pores; soil matrix is noneffervescent but is mildly effervescent in spots; strongly alkaline (pH 8.6); clear smooth boundary.

C4 RSL No. 61538 — 47 to 60 inches, light brownish gray (2.5Y 6/2) very fine sandy loam, dark grayish brown (2.5Y 4/2) when moist; massive, soft, very friable, nonsticky, nonplastic; no roots; few fine tubular pores; soil matrix is noneffervescent but is mildly effervescent where few very fine white (2.5Y 8/2) lime veins occur; strongly alkaline (pH 8.6); abrupt smooth boundary.

IIC5 RSL No. 61539 — 60 to 74 inches +, light brownish gray (2.5Y 6/2) silt loam with common fine distinct yellowish brown (10YR 4/4) iron mottles, dark grayish brown (2.5Y 4/2) moist; moderate fine platy structure; slightly hard, friable, nonsticky, nonplastic; no roots; few very fine tubular pores; strongly alkaline (pH 8.6).

1/ The Orovada series is in a coarse-loamy, mixed, mesic family of Durixerollic Camborthids. This pedon is too low in organic matter to be in a Xerollic subgroup.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Duric Camborthid, coarse-loamy, mixed, mesic (Squim taxadjunct)
SOIL SERIES: Series not designated SOIL Nos. S66Nev-4-5 LOCATION Elko County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66711 - 66721

Depth (In)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct.	2 - 19 (Pct of < 76 mm)	19-76 (Pct of < 76 mm)
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm																
0-3	A11	63.1	29.5	7.4	7.4	12.0	8.1	19.2	16.4	17.2	12.3	45.3	46.7	0	7	8	8	0
3-5	A12	56.7	29.4	13.9	4.0	8.9	7.7	19.0	17.1	14.3	15.1	43.2	39.6	0	14	5	5	0
5-12	A13	50.1	33.2	16.7	3.9	5.9	5.2	16.5	18.6	16.2	17.0	45.7	31.5	0	17	2	2	0
12-18	B2	47.1	38.7	14.2	3.2	5.4	4.8	15.4	18.3	18.6	20.1	47.0	28.8	0	14	2	2	0
18-28	C1si	53.4	27.1	19.5	6.7	8.7	6.8	17.8	13.4	10.8	16.3	34.8	40.0	0	20	3	3	0
28-39	C2sica	50.1	29.6	20.3	5.7	6.8	5.2	16.4	16.0	12.8	16.8	39.6	34.1	0	20	7	6	1
39-55	IIC3sica	48.2	44.2	7.6	0.8	1.4	1.7	17.0	27.3	23.8	20.4	64.2	20.9	0	8	1	1	0
55-68	IIC4sicam	47.1	49.4	3.5	1.0	2.3	2.1	15.1	26.6	27.1	22.3	65.3	20.5	0	4	0	0	0
68-77	IIC5sim	66.6	28.5	4.9	5.1	8.9	7.1	23.8	21.7	12.4	16.1	49.8	44.9	0	5	2	2	0
77-106	IIC6	48.9	40.2	10.9	2.0	6.6	5.8	17.2	17.3	14.3	25.9	42.8	31.6	0	11	0	0	0
106-112	IIIC7	68.1	23.6	8.3	6.5	12.2	10.4	22.4	16.6	11.2	12.4	41.0	51.5	0	8	3	3	0
12-18	durinodes	49.0	36.4	14.6	2.9	6.8	5.5	16.0	17.8	17.1	19.3	44.8	31.2	0	15			
12-18	bands	44.1	36.6	19.3	2.6	5.1	4.7	14.4	17.3	17.6	19.0	44.2	26.8	0	19			
18-28	durinodes																	
39-55	bands	44.1	53.5	2.4	0.3	1.2	1.4	13.6	27.6	27.8	25.7	66.0	16.5	0	2			

Depth (In)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content May 1966 Pct.	Bulk density: 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLE f in./in.	4D1 Extensibility COLE in./in.	pH: 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-3	0.52	0.049			-	-					2					6.5	6.9	7.2
3-5	0.24				-	5	1.29	1.32		0.98	3	16.3	8.3	0.009	0.008	6.2	6.9	7.3
5-12	0.23				-	8	1.26	1.31		0.99	4	18.2	10.1	0.014	0.014	6.4	7.2	7.8
12-18	0.31				-	6	1.27	1.30		0.99	3	18.6	9.5	0.009	0.009	7.5	8.0	8.5
18-28	0.24				-	6	1.52	1.56		0.98	4	17.7	12.4	0.008	0.007	8.3	8.7	9.6
28-39	0.31				2	6	1.34	1.39		0.96	4	22.3	12.9	0.014	0.013	8.1	8.3	9.4
39-55	0.38				1	4	1.38	1.40		0.99	4	21.7	11.0	0.005	0.005	7.9	8.3	9.3
55-68	0.37				1	4	1.36	1.37		1.00	4	20.2	10.9	0.002	0.002	8.0	8.0	8.3
68-77	0.09				1	1	1.52	1.52		0.99	2	11.2	6.7	0.000	0.000	8.0	8.0	8.0
77-106	0.04				1	7					6		16.2			7.7	7.7	8.2
106-112	0.03				-	2					4		11.1			7.6	7.8	8.3
12-18					-								10.0				7.3	8.1
12-18					-								11.7					
18-28					tr.													
39-55					tr.								11.5				8.0	8.8

Depth (In.)	Extractable bases: 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	6L1a SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-3	6.6	2.2	0.2	1.0				12.0	1.1	0.9	1.0	0.4		-	1.8	0.4		0.35
3-5	8.4	3.5	0.5	1.2				15.8	0.8	0.5	1.5	0.3		-	1.2	0.5		0.36
5-12	9.6	4.1	2.1	1.0				19.3	0.4	0.3	2.6	0.1		-	1.8	0.4		0.36
12-18	9.4	3.9	3.0	0.8				19.1	0.6	0.4	4.2	0.1		-	3.7	0.7		0.51
18-28	10.0	4.4	7.6	1.7				25.4	2.4	1.5	19.8	0.6		-	5.1	12.2	6.4	2.26
28-39	13.0	4.9	10.2	2.3				25.4	12.4	7.4	65.6	1.2		-	4.3	44.6	42.0	7.9
39-55	13.0	4.9	10.9	2.8				22.6	28.0	16.6	96.0	2.2		-	3.4	66.7	80.2	12.1
55-68	25.0	4.8	10.6	3.2				22.3	36.0	18.0	104.0	4.1		-	4.7	75.9	86.9	13.0
68-77	26.7	2.4	5.5	2.0				13.1	38.0	19.2	76.0	3.8		-	3.8	63.2	70.5	11.0
77-106	27.6	7.3	10.0	3.0				33.4	61.0	31.0	93.0	3.1		-	4.0	134.	53.1	15.5
106-112	13.8	5.1	6.1	2.2				24.6	27.0	14.2	62.0	2.6		-	2.0	75.2	15.4	9.1
12-18			3.1	1.0				19.4										
12-18			2.7	1.0				21.6										
18-28								22.9										
39-55			11.2	3.3				23.0										

Depth (In.)	8A Water at Saturation Pct.	Exch. bases: 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	6F1a Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1: Mont.	Ill-ite	Kaolinite 7A	Others
		meq./100 g.						X-ray			
0-3	31.3	6.6	2.2	0.2	2	1.0					
3-5	27.0	8.4	3.5	0.5	3	2.0		xx	x	tr.	Qtz., flds.
5-12	32.3	9.6	4.1	2.0	10	4.4					
12-18	51.1	9.4	3.9	2.8	15	5.9		xx	x	tr.	
18-28	39.3	9.9	4.3	6.8	27	14.					
28-39	40.0	12.5	4.6	7.5	30	21.					
39-55	40.8	11.9	4.2	7.0	31	20.	tr.				
55-68	47.6	11.7	3.9	5.6	25	20.	1	xx	x	tr.	Qtz., flds.
68-77	34.0	2.1	1.8	2.9	22	14.	2				
77-106	45.2	24.8	5.9	5.8	17	14.	tr.				
106-112	34.1	12.9	4.6	4.3	17	14.		xx	x		Qtz.
12-18		9.5	4.1	2.9				xx	x	tr.	Qtz. flds. calcite
12-18		10.9	4.8	2.5				xx	x	tr.	Qtz., flds.
18-28											
39-55		13.0	5.2	7.3							

1/ From characterization sample (5 kg.).

Micromorphology

Sands and silts consist of volcanic rock fragments, quartz, feldspar, glass shards, and chlorite. Vesicles of the A11 lack cutans. Thin clay skins on sands and some clay bridges in all horizons. Silica and carbonate bands outline durinodes. There are discontinuous laminae of silica and silica lining pores in the IIC5sim horizon.

Series not designated 1/
S66Nev-4-5

Location: Elko County, Nevada. The site is about 5 miles north of Carlin. It is 2,650 feet east and 800 feet north of the SW corner of Section 1, T.33N., R.52E., Mount Diablo base line and meridian. Date of Sampling: May 9, 1966.
Description by: L. N. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, L. Langan and E. Spencer.
Classification: **Duric Camborthid, coarse-loamy, mixed, mesic (Squim taxadjunct)**
Vegetation: Big sagebrush with an understory of cheatgrass, Indian ricegrass, squirreltail, and basin wildrye. Climate: Mean annual rainfall is estimated at 7 to 9 inches; mean annual soil temperature at 48° F.; and mean summer soil temperature at 64° F. Parent Material: A loess mantle high in volcanic ash superimposed over alluvium from the Humboldt formation (interbedded pyroclastics, sandstone, siltstone and conglomerate), andesite and tuffs. Topography: Alluvial fan with slope gradients of 0 to 16 percent. Elevation: Approximately 5,100 feet. Drainage: Well drained. Soil Moisture: Dry at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution. Lower samples (RSL 66720 and 66721) were obtained by augering.

HORIZON	
A11 RSL 66711	0 to 3 inches, light brownish gray (10YR 6/2)* fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; slightly hard, very friable, slightly sticky, slightly plastic; very few medium and coarse, and many very fine and fine roots; common fine and medium vesicular and tubular pores; neutral (pH 6.8); clear smooth boundary.
A12 RSL 66712	3 to 5 inches, pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky, slightly plastic; plentiful micro, and few fine and medium roots; many very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.
A13 RSL 66713	5 to 12 inches, light brownish gray (10YR 6/2) very fine sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky, slightly plastic; very few coarse and medium, and many very fine and fine roots, few fine and medium tubular, and many very fine interstitial pores; neutral (pH 7.0); clear wavy boundary.
B2 RSL 66714	12 to 18 inches, pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky, nonplastic; very few medium and coarse, and plentiful very fine and fine roots; few fine tubular, and many very fine interstitial pores; neutral (pH 7.0); clear wavy boundary.
C1si RSL 66715	18 to 28 inches, very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky, nonplastic; few very fine roots; few very fine and fine tubular pores; many very hard, firm, brittle, 0.3 to 1 inch long durinodes; neutral (pH 7.0); clear smooth boundary.
C2sica RSL 66716	28 to 39 inches, very pale brown (10YR 7/3) fine sandy loam, with many medium and coarse distinct white (10YR 8/1) lime and silica segregations, brown (10YR 4/3) moist; massive; hard, firm, nonsticky, slightly plastic; few micro and very fine roots; few fine and very fine tubular pores; many very hard, very firm, brittle, 0.3 to 1 inch long durinodes; common thin silica films in pores; effervescent in matrix but violently effervescent in spots; moderately alkaline (pH 8.4); clear wavy boundary.
IIC3sica RSL 66717	39 to 55 inches, light gray (10YR 7/2) fine sandy loam, with many fine and medium white (10YR 8/2) lime segregations, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky, slightly plastic; very few fine roots; few fine tubular pores; many very hard, firm, brittle, 0.3 to 1 inch long durinodes; effervescent in matrix but strongly effervescent in spots; moderately alkaline (pH 8.4); abrupt smooth boundary.
IIC4sicam RSL 66718	55 to 68 inches, very pale brown (10YR 7/3) very fine sandy loam containing several thin discontinuous very pale brown and white (10YR 8/3 and 8/2) silica laminae that are ¼ to ½ inch apart in the upper part but up to 3 inches apart in the lower part, brown (10YR 5/3) moist; massive; very hard, matrix firm while laminae are very firm, nonsticky, nonplastic; no roots observed in matrix but plentiful very fine roots matted on the upper laminae; common very fine interstitial pores in matrix but none in laminae; noneffervescent in matrix but violently effervescent on laminae; mildly alkaline (pH 7.6); abrupt smooth boundary.
IIC5sim RSL 66719	68 to 77 inches, pale brown (10YR 6/3) fine sandy loam containing many extremely thin discontinuous very pale brown and white (10YR 7/3 and 8/1) silica laminae with occasional light brown (7.5YR 6/4) root mat, brown (10YR 4/3) moist; massive; hard and extremely hard, firm and very firm, nonsticky, nonplastic; no roots observed except in mats on laminae; many very fine and common fine tubular pores; noneffervescent in matrix but strongly effervescent on laminae; neutral (pH 7.0); abrupt smooth boundary.
IIC6 RSL 66720	77 to 106 inches (augered sample), pale brown (10YR 6/3) fine sandy loam; massive; hard; firm, nonsticky, nonplastic; clear smooth boundary.
IIIC7 RSL 66721	106 to 112 inches (augered sample), light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky, nonplastic.

1/ **The Squim series is in a coarse-loamy, mixed, mesic family of Durixerollic Camborthids. This pedon is a taxadjunct to the Squim series because it has less organic carbon than mollic subgroups.**

* Colors for dry conditions unless otherwise noted.

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Duric Camborthid, coarse-silty, mixed, mesic (Rad taxadjunct)
SOIL SERIES: Series not designated SOIL Nos. S66Nev-7-1 LOCATION Humboldt County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66705 - 66710

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int II (0.2–0.02)	(2–0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2	2 – 19	19 – 76
		Pct. of < 2 mm														Pct	Pct of < 76 mm	
0-6	A1	55.0	39.1	5.9	0.1	0.1	0.4	7.7	46.7	30.6	8.5	83.7	8.3	0	6	0	0	0
6-12	B2	43.0	47.8	9.2	0.2	0.9	0.8	4.9	36.2	35.5	12.3	75.5	6.8	0	9	0	0	0
12-21	C1si	48.5	49.7	1.8	0.2	1.0	0.8	4.1	42.4	41.3	8.4	86.9	6.1	0	2	0	0	0
21-30	C2si	45.2	51.5	3.3	0.1	0.2	0.2	2.7	42.0	42.7	8.8	86.9	3.2	0	3	0	0	0
30-42	IIC3sica	41.3	55.0	3.7	0.3	0.6	0.5	2.9	37.0	44.8	10.2	84.1	4.3	0	4	0	0	0
42-57	IIC4si	40.2	54.9	4.9	1.8	2.4	1.8	5.1	29.1	43.3	11.6	75.9	11.1	1	4	1	1	0
12-21	durinode	43.0	54.7	2.3	0.6	1.6	1.3	4.8	34.7	45.4	9.3	82.7	8.3	0	2	0	0	0
21-30	durinode																	
30-42	bands	34.4	60.9	4.7	1.2	1.7	1.2	3.5	26.8	50.4	10.5	79.7	7.6	0	5	1	1	0

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLE in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-6	0.30	0.035	9		-	3					1		4.7			7.4	7.6	7.8
6-12	0.25	0.039	6		-	5	1.37	1.42		1.00	4	16.2	9.6	0.012	0.012	7.7	8.0	8.7
12-21	0.22				-	2	1.53	1.55		1.00	3	14.5	7.0	0.003	0.003	7.9	8.3	9.3
21-30	0.16				2	2	1.49	1.51		1.00	2	12.6	6.2	0.003	0.003	7.9	8.1	8.7
30-42	0.11				2	2	1.43	1.44		1.00	2	20.3	5.9	0.002	0.002	8.1	8.6	9.6
42-57	0.11				6	6	1.35	1.37		0.99	2	19.6	6.6	0.007	0.007	8.1	8.6	9.4
12-21	0.18				-	2					3		6.7			8.0	8.3	9.0
21-30					tr.													
30-42	0.14				4	6					2		6.3			8.3	8.8	9.7

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	6L1a SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-6	5.7	2.1	0.8	1.3				11.1	2.2	1.2	17.4	0.2		-	4.2	16.6		2.58
6-12	8.8	3.2	7.2	0.5				23.6	2.2	1.6	8.0	0.5		-	3.6	6.4	1.0*	1.50
12-21	9.7	3.5	10.5	0.5				18.5	21.4	0.8	85.0	tr.		-	5.1	87.4	25.9	11.5
21-30	12.9	2.6	11.4	0.3				14.0	37.0	15.6	126.	0.1		-	5.0	99.8	89.0	16.1
30-42	8.8	2.3	9.6	1.1				13.5	18.6	8.2	95.0	0.6		-	3.2	39.6	94.1	10.4
42-57	10.7	2.6	10.4	1.2				13.6	23.0	10.6	105.	1.4		-	2.9	44.1	107.	11.8
12-21	7.5	3.4	10.4	0.3				17.1	13.6	10.4	89.0	0.4		-	4.0	38.8	13.9	10.8
21-30								14.4										
30-42	8.1	2.3	9.6	0.9				13.1	7.2	4.3	78.4	0.5		-	3.6	96.9	56.1	8.3

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	6F1a Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3B1 Mont.	Ill-ite	Kaolinite 7A2	Others
		meq./100 g.						X-ray			
0-6	33.4	5.6	2.1	0.2	2	13		xx	xx	tr.	Qtz.
6-12	44.2	8.7	3.1	6.7	28	5.8			x		Qtz., flds.
12-21	39.9	8.8	3.5	7.0	38	26	tr.	xx	x	tr.	Qtz., flds.
21-30	39.8	11.4	2.0	6.4	46	27	tr.				
30-42	34.9	8.2	2.0	6.3	47	26	tr.	xx	x	tr.	Qtz., flds.
42-57	38.6	9.8	2.2	6.3	46	26	tr.				
12-21	39.4	7.0	3.0	6.9	40	26		tr.	x	tr.	Qtz., flds.
21-30											
30-42	39.0	7.8	2.1	6.5	50	33		xxx	xx	tr.	Calcite, gypsum

1/ From characterization sample (5 kg.)

Micromorphology

Sands and silts consist of volcanic rock fragments, quartz, feldspar, glass shards, and chlorite. There are a few polished and frosted quartz and feldspar grains in the A1 horizon. There are thin clay skins on sands throughout the profile but they are thicker in the B2 horizon bridging between some sand grains. Durinodes of the C1si horizon are approximately 3.5 cm in diameter. They have indistinct margins consisting of discontinuous bands of silica.

* Indicator destroyed indicating nitrites.

Series not designated 1/
S66Nev-7-1

Location: Humboldt County, Nevada. The site is about 1½ miles east of Winnemucca and 300 feet north of U.S. Highway 40. It is 500 feet west of the E¼ corner of Section 21, T.63N., R.38E., Mount Diablo base line and meridian. Date of Sampling: May 10, 1966.
Description by: L. N. Langan and L. Larsen. Collectors: D. Nettleton, B. Brasher, L. N. Langan, E. Spencer, and L. Larsen.
Classification: **Duric Camborthid, coarse-silty, mixed, mesic (Rad taxadjunct).**
Vegetation: Big sagebrush, spiny hopsage, and rabbitbrush with an understory of Indian ricegrass, western wheatgrass, squirreltail, and cheatgrass. Climate: Mean annual rainfall is 8 to 10 inches; mean annual soil temperature is estimated at 50° F; and mean summer soil temperature is estimated at 66° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium derived mainly from andesite, rhyolite, tuffs and mixed sedimentary rocks. Topography: Alluvial fan with 0 to 8 percent slope gradient. Elevation: About 4,460 feet. Drainage: Well drained. Soil Moisture: Dry throughout at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution.

HORIZON

Ap RSL 66705	0 to 6 inches, pale brown (10YR 6/3)* fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky, nonplastic; plentiful very fine, and few fine roots; many very fine interstitial pores; neutral (pH 7.2); clear smooth boundary.
B2 RSL 66706	6 to 12 inches, pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure parting to weak thick platy when displaced; slightly hard, very friable, slightly sticky, slightly plastic; plentiful very fine, and few fine roots; many very fine tubular pores; mildly alkaline (pH 7.4); clear smooth boundary.
C1si RSL 66707 66707A	12 to 21 inches, pale brown (10YR 6/3) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine, and few fine roots; many very fine tubular and interstitial pores; contains 15 percent hard, firm, brittle, ½ to 1½ inch diameter cylindrical durinodes (sampled as 66707A); strongly alkaline (pH 8.6); clear wavy boundary.
C2si RSL 66708 66708A	21 to 30 inches, light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) moist; massive; hard, friable, nonsticky, nonplastic; plentiful very fine, and few fine roots; few fine tubular and many very fine tubular pores; contains about 90 percent extremely hard, firm, brittle, ½ to 1½ inch diameter cylindrical durinodes (sampled as 66708A); few thin silica films line pores and bridge sand grains; matrix is non-effervescent, but is effervescent in occasional spots in the durinodes; strongly alkaline (pH 8.8); clear smooth boundary.
IIC3sica RSL 66709 66709A	30 to 42 inches, white (2.5Y 8/2) very fine sandy loam stratified with 3, ¼ to 1 inch thick discontinuous weakly silica-cemented strata (sampled as 66709A) containing many very thin (1 mm), randomly oriented, discontinuous, very pale brown (10YR 7/3) silica laminae with white (10YR 8/1) lime coating their surface, brown (10YR 4/3) moist; massive; soft and very hard, very friable and firm, nonsticky, nonplastic; few very fine and fine roots; few fine and many very fine tubular pores; common very thin silica films in pores and as bridges between sand grains in weakly cemented strata; violently effervescent; very strongly alkaline (pH 9.6); clear wavy boundary.
IIC4si RSL 66710	42 to 57+ inches, very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; many very fine and few fine tubular pores; contains about 10 percent hard, firm, brittle durinodes; effervescent; very strongly alkaline (pH 9.6).

1/ **The Rad series is in a coarse-silty, mixed, mesic family of Durixerollic Camborthids. This pedon is a taxadjunct because it contains too little organic carbon.**

*Colors for dry conditions unless otherwise noted.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Durixerollic Camborthid, coarse-loamy, mixed, mesic
SOIL SERIES: Valmy fine sandy loam SOIL Nos. S66Nev-7-2 LOCATION Humboldt County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66779 - 66785

Depth (In)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a >2 Pct.	2-19 (Pct. of < 76 mm)	19-76 (Pct. of < 76 mm)
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																
0-2½	A1	58.4	37.2	4.4	2.4	6.2	6.5	14.6	28.7	24.5	12.7	63.1	29.7	0	4	2	2	0
2½-7½	B2	51.8	40.5	7.7	1.5	5.5	6.3	13.8	24.7	22.3	18.2	56.5	27.1	0	8	2	2	0
7½-14	C1ca	52.9	41.3	5.8	3.4	8.0	9.1	14.2	18.2	22.5	18.8	49.3	34.7	0	6	3	3	0
14-19	C2sica	68.2	28.5	3.3	4.7	14.4	18.3	19.8	11.0	17.9	10.6	38.2	57.2	0	3	4	4	0
19-23	IIC3sica	76.6	19.7	3.7	5.5	18.0	22.3	21.0	9.8	12.2	7.5	31.4	66.8	0	4	5	5	0
23-31	IIC4sica	83.6	11.8	4.6	7.7	19.7	25.2	23.1	7.9	7.2	4.6	25.1	75.7	0	5	6	6	0
31-48+	IIIC5	97.3	1.3	1.4	5.9	21.2	36.8	31.4	2.0	0.4	0.9	11.4	95.3	0	1	8	8	0

Depth (In)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b Carbonate as $CaCO_3$ <19mm. Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-2½	0.44	0.051	9		-	4	1.41	1.41		0.99	1	13.4	4.5	0.000	0.000		7.5	8.2
2½-7½	0.35	0.041	9		-	3	1.35	1.36		0.99	2	14.2	6.5	0.003	0.003		8.1	8.7
7½-14	0.36				3	3	1.30	1.31		0.99	1	16.7	5.7	0.004	0.004		8.6	9.1
14-19	0.14			1	3	2	1.73	1.73		0.97	1	11.0	3.8	0.000	0.000	9.0	9.3	9.7
19-23	0.09				1	2	1.78	1.80		0.97	1	9.0	3.4	0.003	0.003	9.3	9.6	10.0
23-31	0.03				1	2					1					9.4	9.8	10.1
31-48+	0.03			tr.	-	1					0					9.9	9.9	9.9

Depth (In)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	6L1a SO_4	8A1 Water extract from saturated paste: 8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-2½	6.2	1.8	0.4	2.0				11.6										
2½-7½	8.1	2.1	0.4	3.1				13.9										
7½-14	7.3	1.5	0.1	2.6				11.1										
14-19	4.2	0.7	3.5	2.5				9.5	0.9	0.6	8.0	0.7		2.2	6.5	1.2		0.98
19-23	3.7	0.3	6.0	2.4				9.6	0.4	0.2	14.0	0.6		4.6	8.2	3.0		1.54
23-31	2.9	0.2	6.3	2.0				8.4	1.3	1.2	22.4	1.0		4.8	8.4	8.7	4.4	2.72
31-48+	1.3	0.2	4.4	1.0				5.1	0.2	0.2	24.0	0.6		6.8	7.0	9.1		2.92

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 7A1 Mont.	Illite	Kaolinite 7A2 X-ray	Other
		meq./100 g.						X-ray			
0-2½		6.2	1.8	0.4					xx	tr.	Qtz., flds.
2½-7½		8.1	2.1	0.4					x	tr.	Qtz., flds.
7½-14		7.3	1.5	0.1							
14-19	25.1	4.2	0.7	3.3	35	9					
19-23	23.3	3.7	0.3	5.7	59	26					
23-31	20.2	2.9	0.2	5.8	69	20					
31-48+	24.2	1.3	0.2	3.8	74	54		tr.	x	tr.	Hydrobiotite xx

1/ From characterization sample (5 kg.).

Micromorphology

Sands and silts consist of volcanic rock fragments, quartz, feldspar, glass shards, and chlorite. Clay skins are on the sand grains.

VALMY FINE SANDY LOAM
S66Nev-7-2

Location: Humboldt County, Nevada. The site is about 3 miles northeast of Winnemucca, and about 400 feet south of the George Hay ranch house. It is about 400 feet east and 1,100 feet south of the apparent center of Section 9, T.36N., R.38E., Mount Diablo base line and meridian. Date of Sampling: May 10, 1966.

Description by: L. N. Langan and L. Larsen. Collectors: D. Nettleton, B. Brasher, L. Langan, E. Spencer, and L. Larsen.

Classification: **Durixerollic Camborthid, coarse-loamy, mixed, mesic.**

Vegetation: Native vegetation consists mainly of big sagebrush, greasewood, spiny hopsage and rabbitbrush with an understory of cheatgrass, squirreltail, western wheatgrass, and alkali sacaton. Some areas have been cleared, and alfalfa in rotation with small grains are produced under irrigation. Climate: Mean annual rainfall is 6 to 8 inches; mean annual soil temperature is estimated at 50° F.; and mean summer soil temperature is estimated at 66° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from highly mixed rock sources. Topography: River-cut terrace with 0 to 2 percent slope gradient. Elevation: About 4,380 feet. Drainage: Well drained. Soil Moisture: Dry throughout at time of sampling.

Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution.

HORIZON	
A1 RSL 66779	0 to 2½ inches, light brownish gray (10YR 6/2)* fine sandy loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, nonsticky, nonplastic; few very fine, fine, and medium, and plentiful micro roots; many very fine tubular, and few fine and common very fine vesicular pores; neutral (pH 6.8); abrupt smooth boundary.
B2 RSL 66780	2½ to 7½ inches, light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate coarse platy structure; slightly hard, very firable, nonsticky, nonplastic; few medium and micro, and plentiful very fine and fine roots; few very fine tubular, and many very fine interstitial pores; neutral (pH 7.2); clear smooth boundary.
C1sica RSL 66781	7½ to 14 inches, very pale brown (10YR 7/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky, nonplastic; few medium and micro, and plentiful very fine and fine roots; few very fine tubular and many very fine interstitial pores; contains considerable ash; contains 10 percent hard, firm, brittle cylindrical durinodes; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
IIC2sica RSL 66782	14 to 19 inches, light brownish gray (10YR 6/2) fine sandy loam with a few very thin (1 mm), discontinuous, horizontal white (10YR 8/2) silica laminae that contain few coarse light reddish brown (5YR 6/4) iron stains, and pale brown (10YR 6/3) durinodes with common coarse distinct white (10YR 8/2) lime segregations, dark grayish brown (10YR 4/2) and light gray (10YR 7/2) moist; massive; slightly hard and very hard, very friable and firm, nonsticky, nonplastic; abundant micro and very fine, plentiful fine, and few medium roots; few very fine tubular, and common very fine interstitial pores; contains about 50 percent durinodes; matrix is noneffervescent but violently effervescent on laminae and in spots; very strongly alkaline (pH 9.4); abrupt wavy boundary.
IIC3sica RSL 66783	19 to 23 inches, light brownish gray (10YR 6/2) fine sandy loam that is weakly silica cemented and has a continuous very thin (1 mm) very pale brown (10YR 8/3) silica laminae, and contains common fine and medium distinct white (10YR 8/2) lime segregations on durinodes, dark grayish brown (10YR 4/2) and pale brown (10YR 6/3) moist; massive; very hard, firm, nonsticky, nonplastic; continuous root mat on laminae and few fine, and plentiful micro and very fine roots in matrix; few very fine tubular and common very fine interstitial pores; common very thin silica bridges between sand grains; contains 30 percent durinodes; matrix is noneffervescent but strongly effervescent in spots; strongly alkaline (pH 9.4); abrupt broken boundary.
IIC4sica RS1 66784	23 to 31 inches, light brownish gray (10YR 6/2) fine sandy loam, with common fine and medium distinct white (10YR 8/2) lime segregations on durinodes; dark grayish brown (10YR 4/2) moist; massive; soft and slightly hard, very friable and friable, nonsticky, nonplastic; plentiful micro, and few very fine and fine roots; few very fine tubular and many very fine interstitial pores; contains about 10 percent brittle durinodes and 5 percent ½" gravel; matrix is effervescent but violently effervescent in spots; strongly alkaline (pH 9.4); abrupt smooth boundary.
IIIC5 RSL 66785	31 to 48+ inches, light gray (10YR 7/2) gravelly sand, dark grayish brown (10YR 4/2) moist; single grain; loose when dry and moist; few very fine and fine roots; many very fine interstitial pores; matrix is noneffervescent but effervescent in spots; strongly alkaline (pH 8.8).

* Colors for dry conditions unless otherwise noted.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Alko loamy coarse sand LOCATION Pahranagat Valley, Lincoln County

Typic Durorthid, coarse-loamy, mixed, thermic

SURVEY NOS. 59Nev-9-33 LAB. NOS. 59794 - 59801

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	C_1	9.8	35.5	17.0	17.1	6.4	11.9	2.3	21.8	4.3	11	lcos-cos
1- 4	C_2	9.1	32.7	16.6	16.3	5.9	14.5	4.9	20.6	7.3	11	lcos
4-16	C_3	9.9	28.8	14.6	15.9	6.0	14.0	10.8	20.7	6.9	7	cosl
16-23	C4sicam	27.8	34.6	10.3	10.6	3.7	6.5	6.5*	11.3	3.9	16	lcos-cosl
23-30	C5sicam	11.3	22.8	13.4	23.0	10.2	12.8	6.5*	30.1	5.9	10	lcos
30-37	C6	14.1	24.7	15.9	23.0	9.2	9.4	3.7*	26.9	4.3	10	cos-lcos
37-55	C7sicam	23.2	23.6	11.0	17.9	8.5	11.7	4.1*	24.5	6.1	11	lcos
55-68+	IIC8	16.7	28.8	15.4	19.2	10.0	7.7	2.2*	26.0	3.3	10	cos

8C1b pH Saturated Paste 1:1	8C1a pH 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.2	8.8	0.11	0.013		3	0.4	0	3.1	0.3	0.23	0.7	3.0
8.3	8.9	0.08	0.015		5	0.4	0	2.4	0.4	0.39	0.7	3.7
8.3	8.9	0.15	0.021		7	0.3	0	2.7	0.1	0.31	0.6	6.1
8.1	8.8	0.20	0.019		14	0.4	0	3.1	0.2	0.14	0.1	7.9
8.4	9.0	0.03			9	0.4	0	3.2	0.3	0.10	0.3	6.5
8.5	9.1	0.01			3	0.5	0	3.1	0.7	0.08	0.3	6.0
8.3	9.2	0.05			14	1.0	0	2.8	3.2	0.03	0.3	8.1
8.4	9.1	-			4	0.9	0	1.8	ND	0.02	0.3	3.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
5.6	11.7	1.2		0.2	0.5	4	1.3	0.7	3.0	0.2	0.5	20.4
7.3	15.5	1.6		0.2	0.7	3	1.4	0.7	3.1	0.1	0.4	17.2
11.6	18.9	2.9		0.2	1.1	2	0.8	0.7	2.5	0.3	0.2	19.7
12.1	15.6	3.6		0.5	0.9	4	4.0	0.6	1.9	0.1	0.1	33.7
14.3	20.9	3.2		1.1	1.7	8	6.3	0.6	0.7	0.1	0.1	30.7
12.2	16.9	3.1		1.1	1.3	9	8.7	0.5	0.6	0.1	0.7	30.4
16.3	19.0	4.5		1.0	0.8	6	7.4	0.3	1.3	0.7	2.7	34.3
7.9	11.8	2.8		1.2	3.2	15	6.6	0.3	1.8	0.6	2.8	26.1

1/ Percent of the whole soil.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

ALKO LOAMY COARSE SAND
59Nev-9-33

Soil Survey Area: Pahranagat Valley Bottomlands
Location: 1.5 miles west and 0.25 miles south of Alamo high school and 135 ft. west of the south end of airport runway. 800 ft. north of the SW cor. sec. 7, T. 7 S., R. 61 E.
Collectors: R. E. Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, and Lloyd Rooke Sampled: November 1959.
Description by: W. G. Harper
Elevation: 3780 feet
Vegetation: Density 8 percent - this consists of blackbrush 30 percent, creosote bush 20 percent, desert pearl 30 percent, shadscale 10 percent, bud sage 4 percent, fourwing saltbush 6 percent. There is a trace of dalea and Joshua tree - also Mormon tea.
Physiography: Alluvial fan pediment
Slope: About 3 percent to the east
Drainage and Permeability: Well drained - runoff is very slow; permeability is rapid down to the calcium carbonate hardpan; very slow through the dense upper part of the pan.
Parent Material: Alluvium, dominantly from welded tuffs with some granodiorite and basalt
Classification: Typic Durorthid, coarse-loamy, mixed thermic.
Climate: Rainfall ranges between 5 and 8 inches annually; the mean annual temperature is between 52° F. and 56° F. and the frost-free period is 150 to 180 days.

Riverside Lab. Nos.
59794 through 59801

C_1 0- 1" Light gray (10YR 7/2) loamy coarse sand or coarse sand, grayish brown (10YR 5/2) when moist; single grained; soft, loose, nonsticky, nonplastic; practically no roots; many very fine, fine and medium interstitial pores; slightly calcareous; pH_5 8.1; abrupt smooth boundary.

C_2 1- 4" Light brownish gray (10YR 6/2) loamy coarse sand, dark grayish brown (10YR 4/2) when moist; weak medium to thick platy structure; slightly hard, very friable, nonsticky, nonplastic; few very fine and fine roots; many very fine, fine and medium vesicles; pH_5 8.3; strongly calcareous; abrupt smooth boundary.

C_3 4-16" Light gray (10YR 7/2) fine gravelly coarse sandy loam, brown (10YR 5/3) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful very fine, fine and medium roots; many very fine, fine and medium vesicles; very strongly calcareous with lime coating on most of the pebbles; pH_5 8.3; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Alko loamy coarse sand LOCATION Pahranagat Valley, Lincoln County

Typic Durorthid, coarse-loamy, mixed, thermic

SURVEY NOS. 59Nev-9-33 LAB. NOS. 59794 - 59801

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	C_1	9.8	35.5	17.0	17.1	6.4	11.9	2.3	21.8	4.3	11	lcos-cos
1- 4	C_2	9.1	32.7	16.6	16.3	5.9	14.5	4.9	20.6	7.3	11	lcos
4-16	C_3	9.9	28.8	14.6	15.9	6.0	14.0	10.8	20.7	6.9	7	cosl
16-23	C4sicam	27.8	34.6	10.3	10.6	3.7	6.5	6.5*	11.3	3.9	16	lcos-cosl
23-30	C5sicam	11.3	22.8	13.4	23.0	10.2	12.8	6.5*	30.1	5.9	10	lcos
30-37	C6	14.1	24.7	15.9	23.0	9.2	9.4	3.7*	26.9	4.3	10	cos-lcos
37-55	C7sicam	23.2	23.6	11.0	17.9	8.5	11.7	4.1*	24.5	6.1	11	lcos
55-68+	IIC8	16.7	28.8	15.4	19.2	10.0	7.7	2.2*	26.0	3.3	10	cos

8C1b pH Saturated Paste 1:1	8C1a 1:10	6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.2	8.8	0.11	0.013		3	0.4	0	3.1	0.3	0.23	0.7	3.0
8.3	8.9	0.08	0.015		5	0.4	0	2.4	0.4	0.39	0.7	3.7
8.3	8.9	0.15	0.021		7	0.3	0	2.7	0.1	0.31	0.6	6.1
8.1	8.8	0.20	0.019		14	0.4	0	3.1	0.2	0.14	0.1	7.9
8.4	9.0	0.03			9	0.4	0	3.2	0.3	0.10	0.3	6.5
8.5	9.1	0.01			3	0.5	0	3.1	0.7	0.08	0.3	6.0
8.3	9.2	0.05			14	1.0	0	2.8	3.2	0.03	0.3	8.1
8.4	9.1	-			4	0.9	0	1.8	ND	0.02	0.3	3.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
5.6	11.7	1.2		0.2	0.5	4	1.3	0.7	3.0	0.2	0.5	20.4
7.3	15.5	1.6		0.2	0.7	3	1.4	0.7	3.1	0.1	0.4	17.2
11.6	18.9	2.9		0.2	1.1	2	0.8	0.7	2.5	0.3	0.2	19.7
12.1	15.6	3.6		0.5	0.9	4	4.0	0.6	1.9	0.1	0.1	33.7
14.3	20.9	3.2		1.1	1.7	8	6.3	0.6	0.7	0.1	0.1	30.7
12.2	16.9	3.1		1.1	1.3	9	8.7	0.5	0.6	0.1	0.7	30.4
16.3	19.0	4.5		1.0	0.8	6	7.4	0.3	1.3	0.7	2.7	34.3
7.9	11.8	2.8		1.2	3.2	15	6.6	0.3	1.8	0.6	2.8	26.1

1/ Percent of the whole soil.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

C4sicam	16-23"	White (10YR 8/1) lime-cemented gravelly coarse sand; pale brown (10YR 6/3) when moist; massive; extremely hard, extremely firm, nonsticky, nonplastic; few very fine and fine roots between cemented plates; many micro pores below the immediate surface which is rather strongly cemented by reprecipitated calcium carbonate; very strongly calcareous; pH_5 8.6; abrupt wavy boundary.
C5sicam	23-30"	White (10YR 8/2) lime-cemented gravelly loamy coarse sand, (40 to 50% gravel), pale brown (10YR 6/3) when moist; massive; hard to extremely hard, very friable with some extremely firm lime-cemented fragments, nonsticky, nonplastic; plentiful very fine, fine and a few medium roots; many very fine and fine interstitial pores; very strongly calcareous with lime coating practically all of the pebbles; pH_5 9.0; clear wavy boundary.
C_6	30-37"	Very pale brown (10YR 7/2) gravelly (mainly fine gravel) loamy coarse sand (estimate of 65% gravel), brown (10YR 5/3) when moist; massive; soft, loose, nonsticky, nonplastic; abundant very fine roots; many very fine and fine interstitial pores; very strongly calcareous; pH_5 8.9; abrupt wavy boundary.
C7sicam	37-55"	Light gray (10YR 7/2) very gravelly loamy coarse sand in lens and pockets between plates of lime-cemented gravelly sand. The cemented material is white (10YR 8/2), light brownish gray (10YR 6/2) when moist; massive; extremely hard, extremely firm where cemented; soft in the lens and pockets of sandy material; nonsticky, nonplastic; very few fine roots; many very fine cavities or pores in the cemented material and elsewhere, many very fine, fine and medium interstitial pores; very strongly calcareous; pH 9.0; clear wavy boundary.
IIC_8	55-68"+	Light gray (10YR 7/2) very gravelly coarse sand (70 to 75% fine gravel), grayish brown (10YR 5/2) when moist; massive; soft, loose, nonsticky, nonplastic; devoid of plant roots; many very fine, fine and medium interstitial pores; strongly calcareous; pH_5 8.8.

NOTE: A large part of the gravel that was about 1/2" in diameter and larger was discarded from each of the samples.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Alko loamy coarse sand **LOCATION** Pahranagat Valley Bottomlands
Lincoln County, Nevada

SOIL FAMILY: Typic Durorthid, coarse-loamy, mixed, thermic

SURVEY NOS. 59Nev-9-32 **LAB. NOS.** 59787 - 59793

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	C_1	22.3	35.4	15.2	11.5	4.3	8.5	2.8	15.3	2.5	9	cos
1- 4	C_2	10.4	26.9	17.4	16.6	6.2	15.3	7.2	21.8	7.1	5	lcos-cosl
4-11	C_3	17.2	25.7	15.0	12.4	3.9	11.0	14.8*	14.2	6.0	5	cosl
11-19	C4sicam	19.0	26.4	12.1	12.6	4.9	12.4	12.6*	16.2	7.5	16	cosl
19-33	C5sicam	22.3	27.6	13.2	14.0	5.6	9.6	7.7*	17.6	4.8	9	lcos
33-43	IIC6ca	26.7	38.2	11.2	10.4	3.0	6.7	3.8*	10.5	4.0	10	cos
43-50	IIC7	27.2	42.6	11.0	8.7	2.4	5.6	2.5*	9.2	2.9	10	cos

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.3	8.6	0.08	0.012		3	0.4	0	3.4	0.3	0.08	1.2	3.3
8.3	8.8	0.08	0.014		7	0.3	0	2.5	0.3	0.13	1.7	5.2
8.3	8.8	0.17	0.028		8	0.3	0	1.6	0.2	0.16	1.0	9.2
8.4	8.8	0.21	0.028		24	0.4	0	3.4	0.4	0.12	0.2	12.8
8.7	9.3	0.06			14	0.9	0	3.6	1.3	0.10	0.2	9.0
8.5	9.2	0.04			6	2.3	0	2.5	7.3	0.07	0.3	5.2
8.0	8.9	-			1	3.5	0	1.2	24.3	0.04	0.4	4.5

5A2a CATION EXCHANGE CAPACITY (-(Na))	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
5.2	12.3	1.1		0.2	0.3	4	0.6	0.2	2.9	0.2	<0.1	19.8
5.6	15.8	1.9		0.4	0.2	7	1.1	0.5	2.3	0.4	<0.1	17.8
14.1	19.0	3.4		0.3	1.2	2	1.8	0.9	1.7	0.5	0.1	23.0
15.6	18.1	3.0		0.7	0.9	6	6.2	1.0	0.7	0.3	0.3	31.1
13.1	16.4	2.7		2.4	1.0	18	8.3	0.2	0.7	0.0	1.6	32.8
9.3	14.7	2.4		2.4	0.4	26	19.5	0.2	1.5	0.6	9.9	30.2
7.3	10.8	2.2		1.7	0.4	23	24.5	1.0	7.1	2.6	10.7	30.8

1/ Percent of the whole soil.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

ALKO LOAMY COARSE SAND
59Nev-9-32

Soil Survey Area: Pahranagat Valley Bottomlands, Lincoln County, Nevada.
Location: 0.72 mile W. of the Alamo airport and 60 ft. S. of secondary road. 1550 ft. N. of the SW. cor. sec. 12, T. 7 S., R. 60 E.
Collectors: R. E. Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, Lloyd Rooke Sampled: November 1959.
Description by: W. G. Harper
Elevation: 3820 feet
Vegetation: Density about 7 percent - this consists of shadscale, desert olive, spiny hopsage, creosote bush, cacti, and yucca.
Physiography: Alluvial fan pediment
Slope: About 4 percent to the east
Drainage and Permeability: Well drained, runoff is very slow to medium, depending upon intensity of rainfall; permeability is rapid down to the calcium carbonate pan and slow to very slow through the pan.
Parent Material: Alluvium derived mainly from welded tuffs with some basalt and granodiorite
Classification: Typic Durorthid, coarse-loamy, mixed, thermic.
Climate: Annual precipitation is between 5 and 8 inches; the annual temperature between 52° F. and 56° F., and the frost-free period 150 to 180 days.

Riverside Lab. Nos.
59787 through 59793

C_1 0- 1" This material appears as a sandy mulch on the surface. It is a light brownish gray (10YR 6/2) coarse sand, dark grayish brown (10YR 4/2) when moist; single grained; loose when dry and moist; nonsticky, nonplastic; no roots; many very fine, fine and medium interstitial pores; strongly calcareous; pH_5 8.2; abrupt smooth boundary.

C_2 1- 4" Light gray (10YR 7/2) loamy coarse sand or coarse sandy loam, dark grayish brown (10YR 4/2) when moist; moderate medium to thick platy structure breaking readily to weak medium and fine granules; soft, very friable, nonsticky, nonplastic; few very fine roots; many very fine and fine medium vesicles; very strongly calcareous; pH_5 8.3; abrupt smooth boundary.

C_3 4-11" Very pale brown (10YR 7/3) coarse sandy loam, dark brown (10YR 4/3) when moist, brown (10YR 5/3) when moist and crushed; weak medium to fine granular structure; soft, very friable, nonsticky, nonplastic; abundant very fine, fine and few medium roots; many very fine and fine interstitial pores; very strongly calcareous; pH_5 8.3; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Alko loamy coarse sand LOCATION Pahranagat Valley Bottomlands
Lincoln County, Nevada

SOIL FAMILY: Typic Durorthid, coarse-loamy, mixed, thermic

SURVEY NOS. 59Nev-9-32 LAB. NOS. 59787 - 59793

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 1	C_1	22.3	35.4	15.2	11.5	4.3	8.5	2.8	15.3	2.5	9	cos
1- 4	C_2	10.4	26.9	17.4	16.6	6.2	15.3	7.2	21.8	7.1	5	lcos-cosl
4-11	C_3	17.2	25.7	15.0	12.4	3.9	11.0	14.8*	14.2	6.0	5	cosl
11-19	C4sicam	19.0	26.4	12.1	12.6	4.9	12.4	12.6*	16.2	7.5	16	cosl
19-33	C5sicam	22.3	27.6	13.2	14.0	5.6	9.6	7.7*	17.6	4.8	9	lcos
33-43	IIC6ca	26.7	38.2	11.2	10.4	3.0	6.7	3.8*	10.5	4.0	10	cos
43-50	IIC7	27.2	42.6	11.0	8.7	2.4	5.6	2.5*	9.2	2.9	10	cos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.3	8.6	0.08	0.012		3	0.4	0	3.4	0.3	0.08	1.2	3.3
8.3	8.8	0.08	0.014		7	0.3	0	2.5	0.3	0.13	1.7	5.2
8.3	8.8	0.17	0.028		8	0.3	0	1.6	0.2	0.16	1.0	9.2
8.4	8.8	0.21	0.028		24	0.4	0	3.4	0.4	0.12	0.2	12.8
8.7	9.3	0.06			14	0.9	0	3.6	1.3	0.10	0.2	9.0
8.5	9.2	0.04			6	2.3	0	2.5	7.3	0.07	0.3	5.2
8.0	8.9	--			1	3.5	0	1.2	24.3	0.04	0.4	4.5

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
5.2	12.3	1.1		0.2	0.3	4	0.6	0.2	2.9	0.2	<0.1	19.8
5.6	15.8	1.9		0.4	0.2	7	1.1	0.5	2.3	0.4	<0.1	17.8
14.1	19.0	3.4		0.3	1.2	2	1.8	0.9	1.7	0.5	0.1	23.0
15.6	18.1	3.0		0.7	0.9	6	6.2	1.0	0.7	0.3	0.3	31.1
13.1	16.4	2.7		2.4	1.0	18	8.3	0.2	0.7	0.0	1.6	32.8
9.3	14.7	2.4		2.4	0.4	26	19.5	0.2	1.5	0.6	9.9	30.2
7.3	10.8	2.2		1.7	0.4	23	24.5	1.0	7.1	2.6	10.7	30.8

1/ Percent of the whole soil.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

C4sicam	11-19"	White (10YR 8/1) gravelly coarse sandy loam; very pale brown (10YR 7/3) when moist; weak to medium thick platy structure; extremely hard, extremely firm; few very fine and fine roots between plates of cemented hardpan. The surface 1/16 to 1/8" of this pan consists of very dense plates. These contain practically no pores. This dense material appears to be a result of reprecipitated lime that has filled pores near the surface of each one of the plates. Below this are many micro-tubular pores; few very fine, fine and medium roots between plates; very strongly calcareous; pH_5 8.7; abrupt wavy boundary.
C5sicam	19-33"	White (10YR 8/1) loamy coarse sand; very pale brown (10YR 7/3) when moist; massive; extremely hard, extremely firm; nonsticky, nonplastic; very few very fine and fine roots; many micro-tubular pores and many fine interstitial pores; very strongly calcareous; pH_5 9.6; abrupt smooth boundary.
IIC6ca	33-43"	Light gray (10YR 7/2) fine gravelly coarse sand, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful very fine and fine roots; many very fine and fine interstitial pores; strongly calcareous; pH_5 9.3; abrupt wavy boundary.
IIC7	43-50"	Light brownish gray (10YR 6/2) fine gravelly coarse sand, dark grayish brown (10YR 4/2) when moist; single grained; soft, loose, nonsticky, nonplastic; very few very fine and fine roots; many very fine, fine and medium interstitial pores; noncalcareous; pH_5 8.3.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Entic Durorthid, coarse-loamy, carbonatic, mesic
SOIL SERIES: Met very fine sandy loam SOIL Nos. S66Nev-9-21 LOCATION Lincoln County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 6685 - 6694

Depth (in)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct.	2 - 19 Pct. of < 76 mm	19 - 76 Pct. of < 76 mm	
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																	
0-2	A11	56.7	33.4	9.9	1.3	2.3	2.3	15.3	35.5	20.3	13.1	67.3	21.2	1	9	7	7	0	
2-4	A12	54.3	33.1	12.6	0.7	1.6	1.9	13.3	36.8	21.0	12.1	67.9	17.5	1	12	2	2	0	
4-13	C1	60.4	31.9	7.7	0.5	1.7	2.0	15.1	41.1	21.7	10.2	74.6	19.3	0	8	4	4	0	
13-24	C2si	50.3	27.0	22.7	2.5	5.1	6.3	18.6	17.8	12.3	14.7	41.1	32.5	10	13	22	17	5	2/
a24-31	C3sica	56.6	24.0	19.4	13.0	7.4	5.6	16.6	14.0	10.5	13.5	34.2	42.6	12	7	23		6	3/
31-37	IIC4sica	74.3	19.0	6.7	14.3	13.4	11.0	22.3	13.3	10.7	8.3	37.0	61.0	4	3	61	44	17	2/
a37-51	IIC5sicam	76.5	17.2	6.3	23.7	19.6	9.8	14.0	9.4	7.7	9.5	24.9	67.1	3	3	61		17	4/
a51-60	IIC6sicam	81.2	13.8	5.0	13.3	9.5	8.4	28.5	21.5	9.7	4.1	49.9	59.7	1	4	61		17	4/
60-70	IIIC7	78.6	18.7	2.7	0.7	4.3	6.8	32.9	33.9	12.8	5.9	69.9	44.7	0	3	66	44	22	2/
70-78+	IIIC8															8	6	2	2/

Depth (in)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	Carbonate as $CaCO_3$ 2-76 mm gravel Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content April 1966 < 2 mm. basis	Bulk density 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLE in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-2	0.45	0.048	9		10	1	1.31	1.31		0.96	2	14.4	6.7	0.002	0.001	7.9	8.4	9.0
2-4	0.30	0.039	8		10	6					2		7.7			8.0	8.5	9.1
4-13	0.34				9	6	1.32	1.34		0.98	2	11.3	6.9	0.004	0.004	8.1	8.5	9.2
13-24	0.26			61	32	11					1		10.6			7.9	8.3	9.3
a24-31	0.37				51	8	1.38	1.40		1.00 5/	1	21.4	10.2	0.005	0.005	8.0	8.6	9.4
31-37	0.43			76	43	6					1		7.7			7.8	8.2	9.0
a37-51	0.28				56		1.97	1.98		1.00 5/	1	8.3	6.0	0.001	0.001	7.6	8.4	9.2
a51-60	0.36				32						2		10.4			7.7	8.0	8.7
60-70	0.10				28	4					1		5.8			7.7	8.1	8.9
70-78+	0.09				21	5	1.37	1.37		0.96	2	12.7	6.8	0.001	0.001	7.7	8.0	8.9

Depth (in.)	Extractable bases: 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	* Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-2	11.7	2.9	0.3	2.8	17.6			14.7	3.5	1.2	0.6	1.2		-	5.2	0.4		0.56
2-4	12.0	3.1	0.3	3.9	19.2			16.4	2.1	0.7	0.6	1.5		-	3.9	0.4		0.46
4-13	10.0	3.3	0.3	4.5	18.0			15.0	1.6	0.7	0.8	2.0		-	3.8	0.4		0.47
13-24	7.4	4.1	2.1	3.1	15.4			11.7	4.7	3.9	19.0	2.7		-	2.2	20.3	0.4	3.18
a24-31	7.2	3.6	3.6	1.3	14.1			8.6	4.1	4.6	32.1	0.8		-	2.8	28.5	3.3	4.32
31-37	7.4	4.7	4.1	0.7	13.0			9.4	27.9	33.6	59.0	0.5		-	4.4	60.5	33.8	9.9
a37-51	7.6	2.7	3.4	0.9	13.3			7.4	12.2	12.4	30.4	0.2		-	3.1	11.1	37.1	4.68
a51-60	9.7	7.7	3.4	1.3	17.3			13.8	28.1	33.5	60.0	0.5		-	2.9	59.3	35.0	10.1
60-70	7.0	5.2	4.5	1.6	14.5			11.4	21.4	32.5	62.5	0.8		-	2.4	73.2	14.3	10.5
70-78+	7.5	6.7	5.4	2.0	10.8			14.5	24.1	34.2	64.0	0.9		-	1.9	73.7	13.7	11.1

Depth (in)	8A Water at Saturation Pct.	Exch. bases: 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1: Mont.	Ill-ite 7A2	Kaol.	% Kaolin in ground whole soil 7A3 DTA	
		meq./100 g.						X-ray				
0-2	26.0	11.6	2.9	0.3				x	x	-		
2-4	24.3	11.9	3.1	0.3								
4-13	34.2	9.9	3.3	0.3				x	x	-		
13-24	43.3	7.2	3.9	1.2	10							
a24-31	37.5	7.0	3.4	2.4	28			x	tr	-		
31-37	31.5	6.5	3.6	2.2	23		-					
a37-51	24.2	7.3	2.4	2.7	36		-				0	
a51-60	40.0	8.6	6.4	1.0	7		tr					
60-70	32.9	6.3	4.1	2.5	22		-					
70-78+	39.2	6.5	5.4	2.9	20		-	x	tr	-		

1/ From characterization sample (5 kg.) except as noted.
2/ 19-76 mm from field weights.
3/ 19-76 mm from field weights, 2-19 mm estimated same as C2si.
4/ Estimated same as IIC4sica.
5/ >2 mm considered soil, hence C' = 1.00.

a - <19 mm. soil was ground whole.

* Extractable Ca, Mg, and Na (corrected for soluble salts and gypsum) plus extractable K (uncorrected).

MET VERY FINE SANDY LOAM
S66Nev-9-21

Location: Lincoln County, Nevada. The site is located approximately 100 feet east of the SW corner of Section 3, T.1S., R.68E., Mount Diablo base line and meridian. Date of Sampling: April 5, 1966. Description by: E. A. Naphan and H. Borup. Collectors: H. J. Borup, E. A. Naphan, D. Nettleton. Classification: **Entic Durorthid, coarse-loamy, carbonatic, mesic.**
Vegetation: Principal plants include low Douglas rabbitbrush (90%), shadscale (10%), and traces of squirreltail, fourwing saltbush, common winterfat, and galleta. Use: Limited livestock and wildlife forage. Climate: Precipitation 7 inches. Mean annual air temperature 52° F., July 71° F., January 30° F. Parent Material: Alluvium from limestone, quartzite, and reworked lacustrine sediments high in ash. Topography: Smooth, nearly level terrace top. **Slope,** 2 percent, south facing. Elevation: 4,825 **feet. Drainage: Well drained. Surface runoff is slow. Permeability is very slow.** Soil Moisture: **Slightly moist to 24 inches at time of sampling.**
Remarks: Field pH determinations by Thymol blue in 1:5 dilutions. These samples were not paired.

HORIZON	
A11 RSL 6685	0 to 2 inches, light gray (10YR 7/2) very fine sandy loam, yellowish brown (10YR 5/4) moist; moderate thin platy structure; slightly hard, friable, nonsticky, nonplastic; few fine and very fine roots; many fine and very fine vesicular pores; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
A12 RSL 6686	2 to 4 inches, pale brown (10YR 6/3) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; moderate very fine granular structure; slightly hard, very friable, nonsticky, nonplastic; abundant fine and very fine roots; many fine and very fine interstitial pores; violently effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.
C1 RSL 6687	4 to 13 inches, pale brown (10YR 6/3) very fine sandy loam, dark yellowish brown (10YR 4/5) moist; massive; slightly hard, very friable, nonsticky, nonplastic; abundant fine and very fine, and few medium roots; many fine and very fine tubular, and many very fine interstitial pores; violently effervescent; strongly alkaline (pH 8.9); clear smooth boundary.
C2si RSL 6688	13 to 24 inches, pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; massive; very hard, very firm, brittle, slightly sticky, slightly plastic; few fine, and abundant very fine roots; few fine tubular, and common very fine interstitial pores; few vertical cracks contain white (10YR 8/1) silica and lime coats, light gray (10YR 7/2) moist; violently effervescent; very strongly alkaline (pH 9.1); clear wavy boundary.
C3sica RSL 6689	24 to 31 inches, light gray (10YR 7/2) loam, pale brown (10YR 6/3) moist; massive; very hard, firm, brittle, nonsticky, nonplastic; few fine and very fine roots; few fine and very fine tubular, and few very fine interstitial pores; many very thin, discontinuous white (10YR 8/2) silica-lime laminae along vertical cracks and at the lower boundary; violently effervescent with common medium faint white (10YR 8/2) lime segregations; few gravel; very strongly alkaline (pH 9.6); abrupt wavy boundary.
IIC4sica RSL 6690	31 to 37 inches, white (10YR 8/2) gravelly fine sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, nonsticky, nonplastic; few very fine roots; few fine, and many very fine interstitial pores; pebbles are thickly silica and lime coated; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.
IIC5sicam RSL 6691	37 to 51 inches, white (10YR 8/1) strongly cemented duripan with few thin (1/8 to 1/4 inch) discontinuous, horizontal and diagonal silica-lime laminae, light gray (10YR 7/2) moist; massive; extremely hard, extremely firm; no roots; few very fine interstitial pores; violently effervescent; strongly alkaline (pH 8.9); abrupt smooth boundary.
IIIC6sicam RSL 6692	51 to 60 inches, light gray (10YR 7/2) continuous thin silica indurated laminae stratified with white (10YR 8/2) strongly silica-lime cemented strata, yellowish brown (10YR 5/5) and pale brown (10YR 6/3) moist; strong thick platy structure; extremely hard, extremely firm; no roots; few fine interstitial pores in strongly cemented portion; effervescent in indurated laminae but violently effervescent in ped interiors; moderately alkaline (pH 8.0); clear smooth boundary.
IIIC7 RSL 6693	60 to 70 inches, light gray (10YR 7/2) gravelly loamy fine sand, yellowish brown (10YR 5/5) moist; massive; hard, firm, nonsticky, nonplastic; no roots; common very fine tubular and interstitial pores; pebbles thinly lime coated on underside only; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
IIIC8 RSL 6694	70 to 78 inches +, light gray (10YR 7/2) loamy fine sand, yellowish brown (10YR 5/6) moist; massive; hard, friable, nonsticky, nonplastic; no roots; common fine and very fine interstitial pores; few pebbles; violently effervescent; moderately alkaline (pH 8.4).

Micromorphology

0-2"	A11	**Common very thin clay skins coat grains of a silty matrix.**
13-24"	C2si	**Common very thin clay skins coat some grains; si binds grains into nodules; lime is dispersed throughout.**
24-31"	C3sica	**Si coats grains and bridges between grains to form nodules; lime is dispersed throughout.**
31-37"	IIC4sica	**There are many thick silica coatings on grains; lime is dispersed throughout.**
37-51"	IIC5sicam	**Si and lime coat grains, bridge between grains to form nodules and some laminae.**
70-78"+	IIIC8	**There are common lime coatings and a few thin silica coatings on grains.**

SOIL FAMILY: Entic Durorthid, coarse-loamy, mixed, mesic
SOIL SERIES: Adelaide very fine sandy loam SOIL Nos. S66Nev-14-3 LOCATION Pershing County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66587 - 66598

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments > 2	1A2a 2 - 19	19-76
		Pct. of < 2 mm														Pct.	Pct. of < 76 mm	
0-2	A1	41.7	50.7	7.6	2.8	3.0	7.2	11.0	22.7	30.5	20.2	61.2	19.0	0	8	6	5	1
2-10	B2	37.6	53.9	8.5	1.4	1.7	1.4	9.8	23.3	30.4	23.5	61.4	14.3	0	9	4	4	-
10-13	C1ai	36.1	55.5	8.4	3.9	4.2	2.3	9.4	15.8	32.1	23.4	54.6	20.3	0	8	11	11	-
13-15	C2aim	47.6	43.1	9.3	8.4	10.6	4.8	11.0	12.8	24.2	18.9	43.9	34.8	0	9	15	13	2
15-17	A/Bb	36.6	44.0	19.4	3.7	5.4	3.7	10.4	13.4	18.4	25.6	35.9	23.2	1	18	7	5	2
17-23	B21tcab	39.6	22.3	47.1	3.2	4.3	3.1	9.5	10.5	9.8	12.5	26.7	20.1	0	47	10	8	2
23-27	B22tcab	38.7	22.5	38.8	5.6	6.6	4.5	10.8	11.1	9.7	12.8	27.6	27.6	2	37	40	24	16
27-32	IIB3tcscab	63.0	15.5	21.5	19.8	16.8	7.7	11.7	7.0	6.0	9.5	19.4	56.0	2	20	61	40	21
32-38	IIC1sicsmb	77.0	16.0	7.0	23.5	22.1	8.9	12.7	9.8	8.3	7.7	24.8	67.2	2	5	55	28	27
38-43	IIC2sicab	76.6	16.3	7.1	19.1	22.2	9.6	14.6	11.1	8.9	7.4	27.4	65.5	0	7	47	29	18
43-53	IIC3sicab	82.0	11.5	6.5	14.7	15.7	12.3	24.3	14.5	7.7	3.8	35.0	67.5	1	6	49	35	14
53-62	IIC4sicab	58.6	31.6	9.8	7.0	10.2	7.5	17.1	16.8	17.9	13.7	44.8	41.8	0	10	44	16	28

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N	6E1b Carbonate as $CaCO_3$ <19 mm.	6E1b Carbonate as $CaCO_3$	Field Water Content May 1966	Bulk density 4A1f 1/3 bar	Bulk density 4A1h Oven dry	Bulk density	3B2 Cm	Water content Air dry	Water content 4B1c 1/3 bar	Water content 4B2 15 bar	4D1 Extensibility COLEf	4D1 Extensibility COLE	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
	Pct	Pct.		Pct.	Pct	Pct.	g/cc	g/cc	g/cc		Pct.	Pct	Pct	in./in.	in./in.			
0-2	0.88	0.101	9		-	3	1.40	1.43		0.97	2	16.7	5.7	0.006	0.006	6.6	6.7	7.1
2-10	0.26	0.041	6		-	4	1.28	1.30		0.98	2	17.1	6.7	0.005	0.005	7.9	8.2	8.9
10-13	0.20				-	4	1.54	1.55		0.93	2	13.1	6.8	0.002	0.002	8.5	9.2	9.7
13-15	0.26				1	4	1.67	1.68		0.90	3	13.3	7.6	0.001	0.001	8.2	8.8	9.7
15-17	0.52				8	10	1.34	1.39		0.96	5	22.7	15.8	0.012	0.012	8.1	8.5	9.6
17-23	0.34				5	11	1.30	1.55		0.95	6	31.9	23.1	0.061	0.058	8.2	8.4	9.5
23-27	0.26				7	11	1.27	1.40		0.76	5	28.7	17.5	0.034	0.025	8.0	8.2	9.2
27-32	0.15				6	10	1.42	1.43		0.54	4	21.7	10.9	0.002	0.001	7.9	8.0	8.2
32-38	0.20			11	10	9	1.55	1.55		0.58	3	17.6	7.7	0.000	0.000	7.8	8.0	8.1
38-43	0.16				7	3	1.51	1.55		0.66	3	19.4	6.7	0.007	0.005	7.9	8.0	8.1
43-53	0.13			7	6	6	1.38	1.38		0.67	2	16.4	4.5	0.000	0.000	7.9	8.0	8.2
53-62	0.08				5	8	1.55	1.56		0.69	2	16.5	5.6	0.003	0.002	7.8	8.2	9.3

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity	5A1a NH_4OAc	Water extract from saturated paste 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K	6M1a NO_3	6I1a CO_3	6J1a HCO_3	8A1 6K1a Cl	6L1a SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-2	5.6	2.3	1.0	4.3				14.4	7.6	4.5	8.2	5.7	12.3	-	4.8	1.0	1.5*	2.85
2-10	5.8	1.6	7.7	3.2				16.2	23.0	1.8	42.8	1.4		-	4.4	17.0	27.7*	4.80
10-13	4.9	1.0	12.1	1.3				16.6	2.2	1.2	81.0	3.9		-	6.3	71.5	8.1*	9.0
13-15	6.8	1.5	16.8	0.7				20.2	4.0	1.8	108.	0.6		-	3.7	99.4	11.3*	11.0
15-17	12.4	3.2	27.2	0.7				31.7	9.4	3.6	173.	0.6		-	4.1	156.	18.6*	15.0
17-23	15.1	4.7	33.3	0.6				37.8	10.0	4.4	148.	0.8		-	4.4	137.	24.2	16.2
23-27	19.0	4.0	26.7	0.5				29.6	36.0	10.8	226.	0.4		-	3.4	173.	101.	20.8
27-32	52.0	2.5	17.5	0.4				19.6	45.0	13.2	246.	0.3		-	3.3	205.	111.	23.6
32-38	27.7	1.5	13.4	0.2				13.3	43.0	12.6	216.	0.4		-	3.5	204.	95.8*	22.5
38-43	32.5	1.6	12.0	0.2				12.2	40.0	11.4	182.	0.4		-	2.5	141.	95.8	19.6
43-53	21.4	1.1	8.7	0.2				8.1	40.0	12.2	185.	0.4		-	2.3	149.	82.9	29.4
53-62	8.9	1.9	13.4	0.4				12.3	50.6	21.6	278.	0.4		-	2.2	266.	89.0	

Depth (In.)	8A Water at Saturation	Exch. bases 5B3b Ca 6N4c	5B3b Mg 6O4c	5B1b Na 6P2a	5D2 Exchangeable Na	SAR	6F1a Gypsum	Clay mineralogy (<0.002 mm.) 3A1 Mont.	Ill-ite	Chlorite 7A2 X-ray	Others
	Pct.	meq./100 g.			Pct.		Pct.	X-ray			
0-2	35.3	5.3	2.1	0.7	5	1.6			xx	tr.	Qtz., flds.
2-10	31.3	5.1	1.6	6.3	39	12	-		x	tr.	Qtz., flds.
10-13	27.1	4.8	1.0	9.9	60	62					
13-15	35.2	6.7	1.4	13.0	64	63					
15-17	48.4	12.0	3.0	18.8	59	68					
17-23	75.5	14.3	4.4	22.1	58	55		xxxx		tr.	Qtz., flds.
23-27	59.4	16.9	3.4	13.3	45	47	tr.				
27-32	33.8	25.3	2.0	9.2	47	46	3				
32-38	36.7	7.8	1.0	5.5	41	41	2				
38-43	36.1	13.9	1.2	5.5	45	36	2				
43-53	27.2	7.1	0.8	3.7	46	36	1	xx	xx	tr.	Qtz,calcite,flds
53-62	25.6	7.0	1.4	6.3	51	46	tr.	xxx	xxx	tr.	Qtz,calcite,flds.

1/ 2-19 mm percentages from characterization samples (5 kg.); 19-76 mm percentages from field weights.

* Indicator destroyed indicating nitrites.

ADELAIDE VERY FINE SANDY LOAM
S66Nev-14-3

Location: Pershing County, Nevada. The site is about 11 miles south of Winnemucca and 0.7 mile west of the Sonoma Ranch headquarters. It is 300 feet west and 300 feet south of the east ¼ corner of Section 19, T.34N., R.38E., Mount Diablo base line and meridian. Date of Sampling: May 12, 1966.
Description by: L. N. Langan and L. Larsen. Collectors: D. Nettleton, B. Brasher, L. Langan, E. Spencer, L. Larsen.
Classification: **Entic Durorthid, coarse-loamy, mixed, mesic.**
Vegetation: Big sagebrush, Sandberg bluegrass, squirreltail, cheatgrass, and pepperweed. Climate: Mean annual rainfall is estimated at 8 to 10 inches; mean annual soil temperature at 51° F.; mean summer soil temperature at 65° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from shale, sandstone, chert, slate, dolomite, limestone, quartzite, and andesite. Topography: Alluvial fan with 2 to 8 percent slope gradient. Elevation: About 4,420 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution.

HORIZON	
A1 RSL 66587	0 to 2 inches, light grayish brown (10YR 6/2)* very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine, and few fine vesicular pores; neutral (pH 6.8); abrupt smooth boundary.
B2 RSL 66588	2 to 10 inches, very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine, and few fine tubular pores; mildly alkaline (pH 7.8); clear smooth boundary.
C1si RSL 66589	10 to 13 inches, light gray (10YR 7/2) weakly silica-cemented loam, with very thin (1 mm) discontinuous pale brown (10YR 6/3) silica laminae, dark grayish brown (10YR 4/2) moist; weak thick platy structure; very hard, firm, nonsticky, slightly plastic; few very fine and fine roots in the pan, but plentiful along fractures; many very fine and fine tubular pores; common thin silica films lining pores, and as bridges between sand grains; strongly alkaline (pH 8.6); clear wavy boundary.
C2sim RSL 66590	13 to 15 inches, light gray (10YR 7/2) strongly cemented duripan with pale brown (10YR 6/3) discontinuous silica laminae and many medium and fine distinct white (10YR 8/2) lime segregations and coatings, grayish brown (10YR 5/2) and dark grayish brown (10YR 4/2) moist; moderate fine angular and subangular blocky structure; extremely hard, firm and very firm; plentiful very fine, and few fine exped roots; common very fine, and many micro interstitial pores; many thin silica films coating ped faces and in pores; effervescent in matrix but violently effervescent in spots; strongly alkaline (pH 9.0); clear smooth boundary.
IIA&Bsib RSL 66591	15 to 17 inches, pale brown (10YR 6/3) loam, with light gray (10YR 7/2) lime coated sand grains, dark yellowish brown (10YR 4/4) moist; weak thin platy and moderate fine subangular blocky structure; hard, friable, slightly sticky, slightly plastic; plentiful micro roots; common very fine tubular pores; contains 40 percent very fine (less than ¼ inch), very hard, very firm durinodes; common thin silica films in pores; few thin brown (10YR 4/3) clay bridges between sand grains; strongly effervescent; strongly alkaline (pH 9.0); clear wavy boundary.
IIB21tcab RSL 66592	17 to 23 inches, brown (10YR 4/3) heavy clay loam, with continuous very pale brown and light gray (10YR 8/3 and 7/2) lime coatings on ped faces and common fine distinct white (10YR 8/2) lime segregations in ped interiors, brown (10YR 4/3) moist and yellowish brown (10YR 5/4) moist crushed; strong fine columnar structure; slightly hard, friable, very sticky, very plastic; few micro roots; common very fine, and few fine tubular pores; many thin clay films in pores; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
IIB22tcab RSL 66593	23 to 27 inches, brown (10YR 5/3) clay loam, with many medium and coarse distinct light gray (10YR 7/2) and few medium distinct very pale brown (10YR 8/3) lime coatings on ped faces, brown (10YR 4/3) moist and yellowish brown (10YR 5/4) moist crushed; weak fine prismatic and strong medium and coarse angular blocky structure; hard, friable, sticky, very plastic; few micro roots; common very fine, and few fine tubular pores; few thin clay films on ped faces and common thin in pores; matrix is strongly effervescent but is violently effervescent in spots; strongly alkaline (pH 8.8); abrupt wavy boundary.
IIIB3tcscab RSL 66594	27 to 32 inches, light gray (10YR 7/2) gravelly clay loam, with many medium and coarse distinct (10YR 8/1) gypsum and lime segregations and few medium and coarse faint brown (10YR 5/3) segregations, dark yellowish brown (10YR 4/4) moist; massive; slightly hard with soft pockets, very friable, sticky, plastic; plentiful micro roots; few very fine tubular and many micro interstitial pores; few thin clay bridges between sand grains, few moderately thick clay coatings and many thin clay films in pores; matrix is strongly effervescent but violently effervescent in spots; moderately alkaline (pH 8.4); abrupt wavy boundary.
IIIC1sicamb RSL 66595	32 to 38 inches, very pale brown (10YR 7/3) strongly cemented duripan with pockets and lenses of weakly silica-cemented and noncemented very gravelly sand, and with common to many ½ to 1 mm, discontinuous white (10YR 8/2) silica laminae, coatings, and bridges between sand grains and common light yellowish brown (10YR 6/4) silica coatings, brown (10YR 4/3) moist; massive; extremely hard to loose, very firm to loose; few micro roots; many very fine interstitial, and few very fine tubular pores; matrix is strongly effervescent but is violently effervescent in spots; moderately alkaline (pH 8.0); clear wavy boundary.
IIIC2sicab RSL 66596	38 to 43 inches, light gray (10YR 7/2) very gravelly coarse sandy loam, containing a few ½ mm, discontinuous white (10YR 8/2) silica laminae, few fine and medium distinct white (10YR 8/1) silica coatings and bridges between sand grains, and few fine and medium light reddish brown (5YR 6/4) iron stains on laminae, brown (10YR 4/3) moist; massive; slightly hard and very hard, very friable and firm, nonsticky, nonplastic; very few micro roots; many very fine interstitial, and few very fine and fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
IIIC3sicab RSL 66597	43 to 53 inches, very pale brown (10YR 8/3) strongly cemented duripan containing pockets and lenses of discontinuous indurated materials and noncemented pale brown (10YR 6/3) very gravelly sand, and with many very pale brown (10YR 7/3), pale brown (10YR 6/3) and brown (10YR 5/3) silica bridges, coatings, and films in pores, brown (10YR 5/3 and 4/3) moist; massive and single grain; extremely hard, very hard, and loose, extremely firm, very firm, and loose; no roots; common very fine tubular, and many very fine interstitial pores; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
IVC4sicab RSL 66598	53 to 62+ inches, pale brown (10YR 6/3) gravelly fine sandy loam, with common medium distinct very pale brown (10YR 8/3 and 7/3) silica and lime segregations lining pores and as small very hard, firm, brittle durinodes, brown (10YR 4/3) moist; massive; hard, friable, nonsticky, nonplastic; no roots; many very fine interstitial and common very fine tubular pores; violently effervescent; strongly alkaline (pH 8.8).

*Colors for dry conditions unless otherwise noted.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Entic Durorthid, coarse-loamy, mixed, mesic
SOIL SERIES: Adelaide very fine sandy loam SOIL Nos. S66Nev-14-4 LOCATION Pershing County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66599 - 66609

Depth (in)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (<0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a >2	2-19	19-76
		Pct. of <2 mm														Pct.	Pct. of <76 mm	
0-2	A1	36.2	57.7	6.1	0.8	1.1	1.1	9.9	23.3	34.7	23.0	65.5	12.9	0	6	1	1	-
2-12	B2	35.8	56.4	7.8	1.0	1.0	0.9	9.6	23.3	32.4	24.0	63.5	12.5	0	8	1	1	-
12-17	C1sim	47.9	45.6	6.5	5.3	7.1	3.3	9.9	22.3	25.2	20.4	54.4	25.6	0	7	6	6	-
17-20	C2sica	42.1	50.6	7.3	3.0	4.8	2.6	9.1	22.6	29.4	21.2	58.6	19.5	0	7	5	5	-
20-24	IIB11tcab	35.3	50.2	14.5	3.5	4.0	2.5	8.2	17.1	22.5	27.7	45.6	18.2	0	15	8	8	-
24-28	IIB12tcab	39.3	38.9	21.8	4.8	5.3	3.2	10.1	15.9	19.0	19.9	42.1	23.4	0	22	12	12	-
28-37	IIB2tcab	34.7	34.8	30.5	4.4	5.7	3.4	9.8	11.4	20.0	14.8	38.4	23.3	0	31	21	12	9
37-40	IIB3tcab	37.8	36.7	25.5	7.4	7.2	4.0	8.6	10.6	18.7	18.0	34.9	27.2	0	26	45	37	8
40-46	IIIC1sicab	64.0	19.2	16.8	24.9	19.2	6.9	7.6	5.4	8.1	11.1	17.4	58.6	2	15	75	56	19
46-58 ‡	IIIC2sicab			5.7														
46-58	IIIC2sicab	Nonindurated														73	53	20
58-70+	IIIC3sicab	30.1	10.8	9.1	23.8	22.6	12.4	14.7	6.6	5.5	5.3	19.4	73.5	1	8	80	58	22

Depth (in)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	6B1a C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-2	0.85	0.097	9		-	3	1.17	1.20		1.00		19.8	5.9	0.010	0.010	6.8	7.0	7.6
2-12	0.21	0.036	6		-	2	1.33	1.34		0.99		17.4	7.2	0.004	0.004	7.9	8.5	9.0
12-17	0.24				-	4	1.54	1.54		0.96		13.2	6.9	0.000	0.000	8.0	8.4	9.3
17-20	0.26				2	5							9.1			8.0	8.5	9.5
20-24	0.21				1	6							11.5			8.0	8.4	9.5
24-28	0.19				1	5							10.7			8.0	8.5	9.5
28-37	0.20				2	6	1.52	1.62		0.87		22.8	13.0	0.023	0.020	7.9	8.0	8.3
37-40	0.19				5	10	1.50	1.55		0.68		21.9	13.4	0.011	0.008	7.8	8.0	8.6
40-46	0.21				6	10							9.8			7.8	8.0	8.2
46-58 ‡	0.18				10		1.68	1.68				15.6	3.7	0.000		8.0	8.3	9.0
46-58						1							3.3				8.2	8.4
58-70+	0.21				8	5							5.1			7.8	8.3	9.0

Depth (in.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	6N1b Ca	6O1b Mg	6P1a Na	6Q1a K	6M1a NO_3	6I1a CO_3	6J1a HCO_3	6K1a Cl	6L1a SO_4	8A1a Electrical conductivity
	meq/100 g								Water extract from saturated paste 8A1 meq/liter									mmho/cm
0-2	5.1	1.6	2.3	5.1				14.8	6.5	3.7	20.2	6.0	12.6	-	8.0	3.1	5.7*	3.80
2-12	5.2	1.3	8.8	3.0				16.3	3.2	1.1	60.4	1.3		-	4.9	56.3	6.0*	6.8
12-17	7.5	1.7	12.8	0.9				19.0	15.0	5.0	145.	1.0		-	3.5	137.	20.7*	14.8
17-20	10.8	2.7	15.6	0.6				22.3	20.0	7.4	172.	0.8		-	3.1	170.	21.7	18.0
20-24	12.0	3.5	17.1	0.6				23.5	20.0	7.8	168.	0.8		-	2.9	173.	24.0	16.4
24-28	10.8	3.1	15.2	0.5				21.2	21.0	7.8	158.	0.8		-	2.1	142.	44.6	16.3
28-37	32.9	3.9	17.8	0.6				24.3	34.0	11.8	176.	0.8		-	2.5	136.	96.7	18.6
37-40	31.2	3.5	19.6	0.6				25.0	39.0	14.6	210.	0.8		-	1.6	186.	93.4	22.6
40-46	40.2	2.4	14.4	0.4				15.7	49.0	18.6	224.	0.8		-	2.3	214.	96.7	25.5
46-58 ‡	8.0	0.9	5.6	0.2				5.3	33.0	9.6	106.	0.4		-	2.6	86.4	69.4	13.8
46-58								6.3										
58-70+	7.8	1.2	7.3	0.3				7.6	41.0	15.2	154.	0.4		-	2.5	152.	71.3*	16.6

Depth (in.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	6F1a Gypsum Pct.	Clay mineralogy (<0.002 mm.) 7A1 Mont.	Illite	Chlorite	Others
		meq./100 g.						X-ray			
0-2	39.3	4.8	1.5	1.5	10	9			xx	tr.	Qtz., flds.
2-12	30.9	5.1	1.3	6.9	42	41		x	xxx	x	Qtz., flds.
12-17	32.4	7.0	1.5	8.1	43	46			x		Qtz., flds.
17-20	35.0	10.1	2.4	9.6	43	46					
20-24	38.1	11.2	3.2	10.7	46	45					
24-28	39.0	10.0	2.8	9.0	42	42	tr.				
28-37	47.5	10.5	3.3	9.4	39	37	2	xx	x	tr.	Qtz., flds.
37-40	41.9	29.9	2.9	11.0	44	41	tr.				
40-46	29.2	13.6	1.9	7.9	50	39	2				
46-58 ‡	27.4	7.1	0.6	2.7	51	23	tr.				
46-58	Gravel from 66608, ground whole.										
58-70+	24.4	6.8	0.8	3.5	46	29	tr.	x	xxx	xx	Qtz., flds, calcite

1/ 2-19 mm percentages from characterization sample (5 kg.), 19-76 mm percentages from field weights. The <19 mm indurated fraction of the IIIC2 (66608) was ground to <2 mm hence all data for this fraction are on a <19 mm basis except bulk density, 1/3 bar water, and COLEf.

‡ The <19 mm soil was ground whole.

* Indicator destroyed indicating nitrites.

ADELAIDE VERY FINE SANDY LOAM
S66Nev-14-4

Location: Pershing County, Nevada. The site is about 10 miles south of Winnemucca and 0.6 miles northwest of the Sonoma Ranch headquarters. It is about 400 feet west of the east ¼ corner of Section 18, T.34N., R.38E., Mount Diablo base line and meridian. Date of Sampling: May 12, 1966.
Description by: L. N. Langan and L. Larsen. Collectors: D. Nettleton, B. Brasher, L. Langan, E. Spencer, and L. Larsen.
Classification: **Entic Durorthid, coarse-loamy, mixed, mesic.**
Vegetation: Big sagebrush, Sandberg bluegrass, squirreltail, cheatgrass, and pepperweed. Climate: Mean annual rainfall is estimated at 8 to 10 inches; mean annual soil temperature at 51° F.; mean summer soil temperature at 65° F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from shale, sandstone, chert, slate, dolomite, limestone, quartzite and andesite. Topography: Alluvial fan with 2 to 8 percent slope gradient. Elevation: About 4,460 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at time of sampling.
Remarks: pH values determined with Bromthymol blue and Thymol blue in 1:5 dilution.

HORIZON

A1
RSL
66599
0 to 2 inches, light brownish gray (10YR 6/2)* very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky, nonplastic; plentiful micro roots; many very fine and medium vesicular pores; neutral (pH 7.2); abrupt smooth boundary.

B2
RSL
66600
2 to 12 inches, light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) moist; weak medium and thick platy structure; slightly hard, very friable, nonsticky, nonplastic; plentiful micro roots; many micro vesicular, and common very fine tubular pores; contains two discontinuous 1 mm wavy silica laminae that are very hard, very firm and brittle occur in the lower 4 inches; mildly alkaline (pH 7.6); abrupt wavy boundary.

C1sim
RSL
66601
12 to 17 inches, light gray (10YR 7/2) strongly cemented duripan with mostly horizontal but including many unoriented discontinuous silica laminae containing few coarse prominent very dark brown (10YR 2/2) organic stains on laminae surfaces, brown (10YR 4/3) moist; massive; very hard, very firm; plentiful micro roots matted on laminae surfaces; common micro tubular and interstitial pores; contains few coarse brown (10YR 4/3) silica bridges between sand grains; strongly alkaline (pH 8.6); abrupt wavy boundary.

C2sica
RSL
66602
17 to 20 inches, light gray and light brownish gray (10YR 7/2 and 6/2) very fine sandy loam with many medium and coarse distinct white (10YR 8/1) lime segregations, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, nonsticky, nonplastic; plentiful micro roots; many micro interstitial, common micro, few fine and very fine tubular pores; contains 40 percent very hard, very firm 1 to 5 mm durinodes; matrix is strongly effervescent but violently effervescent in spots; strongly alkaline (pH 8.6); abrupt wavy boundary.

IIB11tsicab
RSL
66603
20 to 24 inches, brown (10YR 5/3) loam, with many very fine and fine distinct light gray (10YR 7/2) lime coatings and segregations, and few thin bands of dark reddish brown (10YR 3/4), brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; plentiful micro roots; many micro tubular pores; few thin clay films in pores; contains 15 percent, 5 mm or less, very hard, firm, brittle durinodes; matrix is strongly effervescent but violently effervescent in spots; strongly alkaline (pH 8.8); clear wavy boundary.

IIB12tcab
RSL
66604
24 to 28 inches, brown (10YR 5/3) loam, with common very fine distinct white (10YR 8/2) lime segregations, brown (10YR 4/3) moist; weak fine subangular blocky structure; hard, friable, slightly sticky, slightly plastic; plentiful micro roots; common micro tubular pores; few thin clay films in pores; contains 5 percent, 10 mm or less, very hard, firm, brittle durinodes; matrix is strongly effervescent but violently effervescent in spots; strongly alkaline (pH 8.9); abrupt wavy boundary.

IIB2tcscab
RSL
28 to 37 inches, brown (10YR 5/3) clay loam, with common fine and medium distinct white (10YR 8/1) gypsum and lime segregations and crystals, dark yellowish brown (10YR 4/4) moist and yellowish brown (10YR 5/4) moist crushed; weak medium subangular blocky structure; hard, friable, sticky, plastic; plentiful micro roots; many very fine interstitial, and common micro tubular pores; common thin clay films in pores and very few thin on ped faces; matrix is noneffervescent but strongly effervescent in spots; strongly alkaline (pH 8.6); clear wavy boundary.

IIB3tcab
RSL
66606
37 to 40 inches, pale brown (10YR 6/3) gravelly loam, with common fine and medium distinct white and very pale brown (10YR 8/2 and 7/3) lime segregations and coatings, dark yellowish brown (10YR 4/4) moist and yellowish brown (10YR 5/4) moist crushed; weak very fine and fine subangular blocky structure; hard, friable, slightly sticky, slightly plastic; plentiful micro roots; common micro tubular, and many very fine interstitial pores; few thin clay films in pores; matrix is effervescent but violently effervescent in spots; strongly alkaline (pH 8.6); clear wavy boundary.

IIIC1sicab
RSL
66607
40 to 46 inches, very pale brown (10YR 7/3) very gravelly loamy coarse sand with few, very thin (1 mm), discontinuous white and very pale brown (10YR 8/2 and 7/3) silica and lime laminae and bridges between sand grains, brown (10YR 4/3) moist; massive; slightly hard and very hard, very friable and firm, nonsticky, nonplastic; plentiful micro roots; many very fine interstitial pores; matrix is strongly effervescent but violently effervescent in spots; moderately alkaline (pH 8.2); abrupt wavy boundary.

IIIC2sicamb
RSL
66608
46 to 58 inches, very pale brown (10YR 7/3) indurated very gravelly duripan stratified with 1 to 3 inch seams of noncemented very gravelly coarse sand of similar color, and containing continuous white and very pale brown (10YR 8/1 to 4 and 7/1 to 4) silica laminae, pale brown (10YR 6/3) moist; massive; extremely hard and soft, extremely firm and very friable; no roots observed; few micro tubular and many very fine interstitial pores; many silica coatings lining pores; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

IIIC3sicab
RSL
66609
58 to 70+ inches, pale brown (10YR 6/3) very gravelly and cobbly loamy coarse sand containing pockets and seams of noncemented and strongly cemented materials and with few to many white light gray and very pale brown (10YR 8/1, 7/2, 8/4 and 7/4) silica and lime coatings and bridges and few medium and fine brownish yellow (10YR 6/6) silica bridges and coatings, brown (10YR 5/3) moist; massive; very hard, extremely hard and loose, firm, very firm and loose; no roots; many very fine and fine interstitial pores; matrix is effervescent but violently effervescent in spots; strongly alkaline (pH 8.9).

* Colors for dry conditions unless otherwise noted.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Entic Durorthid, coarse-loamy, mixed, mesic
SOIL SERIES: Blackhawk loam SOIL Nos. S56Nev-14-14 LOCATION Pershing County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 56410 - 56421

Depth (In.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	Coarse fragments: 2A2 1/ > 2	2 – 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct of < 76 mm	
0- 3	A1	36.2	54.3	9.5	3.0	2.3	1.3	7.6	22.0	31.2	23.1	59.1	14.2			1		
3- 8	B2	31.9	59.4	8.7	2.7	2.0	0.9	6.2	20.1	32.1	27.3	57.2	11.8			1		
8-14	C1si	39.2	53.4	7.4	5.1	4.3	1.8	8.1	19.9	32.2	21.2	58.3	19.3			3		
14-16	C2sim	33.0	56.6	10.4	4.7	4.8	2.1	6.3	15.1	30.6	26.0	50.3	17.9			4		
16-18	C3si	45.8	46.1	8.1	9.1	7.8	3.1	8.3	17.5	27.8	18.3	51.1	28.3			3		
18-21	C4si	58.1	37.6	4.3	13.4	11.9	4.8	11.0	17.0	21.1	16.5	45.5	41.1			3		
21-25	C5sicam	54.3	41.5	4.2	9.8	7.1	3.3	11.7	22.4	23.6	17.9	47.4	31.9			3		
25-28	C6sicam	56.9	38.7	4.4	13.2	8.8	3.6	11.1	20.2	22.2	16.5	50.6	36.7			5		
28-30	C7sicam	61.2	35.4	3.4	13.8	11.6	4.6	11.6	19.6	21.7	13.7	49.5	41.6			9		
30-37	C8casi	68.5	27.1	4.4	22.8	16.5	5.7	10.5	13.0	15.3	11.8	35.1	55.5			17		
37-53	IIC9ca	74.8	20.9	4.3	27.1	19.3	6.7	10.7	11.0	12.3	8.6	29.9	63.8			15		
37-67	IIC10	84.8	10.3	4.9	34.5	28.4	8.9	8.5	4.5	4.6	5.7	13.5	80.3			36		

Depth (In.)	6A1a Organic carbon	6B1a Nitrogen	C/N	6C2a Ext. Iron as Fe	6E1b Carbonate as $CaCO_3$		Bulk density: 4A1f 1/3 bar	4A1h Oven dry		Water content: 4B1a 1/10 bar	4B1a 1/3 bar	4B2 15 bar	4D1 Extensibility COLEF	4D1 Extensibility COLE	pH: 8C1b Saturated Paste	8C1a H_2O 1:10
	Pct.	Pct.		Pct.	Pct.		g/cc	g/cc	g/cc	Pct.	Pct	Pct.	in./in.	in./in.		
0- 3	0.83	0.081	10.2									6.3			7.9	8.2
3- 8	0.41	0.040	10.2									6.6			8.5	9.0
8-14	0.29	0.023	12.6									5.6			8.7	8.9
14-16	0.23											6.8			8.8	8.7
16-18	0.34											6.3			8.8	8.7
18-21	0.38				tr							6.9			9.0	9.4
21-25	0.33				2							6.7			8.7	9.6
25-28	0.31				3							6.4			8.6	9.5
28-30	0.26				2							6.0			8.6	9.3
30-37	0.24				6							6.0			8.4	9.5
37-53	0.14				6					18.8	11.7	4.7			8.3	9.5
37-67	0.07				tr					6.6	4.4	2.6			7.9	8.4

Depth (In.)	Extractable bases: 5B1a 6N1b Ca 2/	5B1a 6O2c Mg 2/	5B1b 6P2a Exch. Na	5B1b 6Q2a Exch. K	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg	6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0- 3	11.6	3.0	0.8	3.2	18.6		18.9				2.7	1.1	3.7					0.73
3- 8	10.9	2.7	2.8	4.5	20.9		20.4				7.3	0.8	0.9					0.67
8-14	6.9	2.1	4.7	1.9	15.6		16.5				8.3	0.3	1.2					0.83
14-16	6.4	2.2	7.5	0.8	16.9		18.2				14.4	0.1	0.6					1.15
16-18	5.7	1.8	9.7	0.4	17.6		20.3				13.6	0.1	0.5					1.34
18-21	14.1	2.2	14.2	0.3	30.8		22.6				24.5	tr	1.1					2.6
21-25	17.9	2.4	13.6	0.3	34.2		21.3				89.0	0.1	3.6					9.2
25-28	16.9	2.4	13.2	0.3	32.8		20.3				124.0	0.1	4.6					12.9
28-30	15.8	2.8	13.5	0.3	32.4		19.2				147.0	0.1	5.7					15.1
30-37	19.6	2.6	10.6	0.3	33.1		16.7				216.0	0.1	10.8					21.7
37-53		2.4	6.6	0.3			12.2				192.0	0.2	25.4					20.0
37-67		1.7	5.1	0.3			6.9				160.0	0.4	38.6					18.2

Depth (In.)	8A Water at Saturation	5D1 Exchangeable Na	5B1b Exch. Na meq./100g.	6F1a Gypsum	Base Sat.	Clay mineralogy (<0.002 mm.) 7A: Mont.	Verm.	Mica	Kaolin.	
	Pct.	Pct.		Pct.	Pct.	X-ray				
0- 3	35.0	4								
3- 8	24.7	14								
8-14	22.6	28								
14-16	17.7	41								
16-18	39.1	48								
18-21	28.4	63		-						
21-25	31.4	64		-						
25-28	29.9	65		-						
28-30	30.0	70		-						
30-37	31.2	63		-						
37-53	29.0	54		-						
37-67	18.9	74		4.1						

1/ Percent of <1 inch fraction.

2/ Including cations from carbonates in some horizons.

BLACKHAWK LOAM
S56Nev-14-14

Location: Sonoma SCD, Pershing County, Nevada. In the NE corner of section 3, T. 32 N., R. 38 E., in Grass Valley about 21 miles south of Winnemucca. Date of Sampling: July 25, 1956.
Description by: W. G. Harper. Collectors: E. Cole, W. G. Harper, R. L. Juve, Lynn Whittig.
Classification: Entic Durorthid, coarse-loamy, mixed, mesic.
Vegetation: Shadscale ranging from 6 to 14 inches high, bud sage and cheatgrass. About 60 percent of this vegetation consists of shadscale, 36 percent bud sage and 4 percent cheatgrass; about 13 percent of the surface is covered with vegetation, the rest is barren. Climate: About 8 inches precipitation which is rather evenly distributed. The least falls in June, July and August which have less than .5 inch. Cool desert area. Parent Material: Alluvium from mixed rocks, including chert, quartzite, limestone, slate, conglomerate, quartzose grit, some calcareous shale or calcareous sandstone, also greenstone which includes chlorite schist, andesite lavas and breccias. Physiography: Alluvial fan. Relief: Smooth, with occasional drainage channels that range up to about 3 feet in depth. Elevation: 4550 feet. Slope: About 2 percent slightly north of west. Erosion: Slight gully erosion; very slight surface wash in places; practically no erosion where sample was taken. Drainage: Runoff moderate; internal drainage moderate. Salt or Alkali: Probably contains some salt and is moderately affected by alkali. Stoniness: Occasional pebbles occur on the surface.

HORIZON

A1 RSL 56410	0 to 3 inches, the surface soil has cracks 1/2 to 1-1/2 inches deep that form polygons 3 to 6 inches in diameter. The immediate surface is not smooth but has many slight micro ridges or peaks 1/4 to 1/2 inch high. Dark gray (10YR 4/1) lichens together with some white lichens grow on much of the surface, especially in the otherwise barren areas. Light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse platy structure; strongly vesicular; soft, very friable, slightly plastic; slightly sticky, noncalcareous; pH 8.5; abrupt smooth boundary.
B2 RSL 56411	3 to 8 inches, very pale brown (10YR 7/3) very fine sandy loam, brown (10YR 5/3) moist; strong fine platy structure; soft, very friable, nonsticky, nonplastic; many fine pores; many fine roots; noncalcareous; pH 8.6; abrupt smooth boundary.
C1si RSL 56412	8 to 14 inches, very pale brown (10YR 7/3) loam containing few hard durinodes up to 1/32 inch in diameter, grayish brown (10YR 5/2.5) moist; massive; slightly hard, friable, nonsticky, nonplastic; many vesicular pores; many fine roots; noncalcareous; pH 8.6; abrupt smooth boundary.
C2sim RSL 56413	14 to 16 inches, strongly silica-cemented duripan with faintly banded colors. The bands run horizontally and range from 1/16 to 1/2 inch in thickness. The darker colors are dark grayish brown (2.5Y 4/2) dry, very dark grayish brown (2.5Y 3.5/2) moist, with the lighter bands light brownish gray (between 10YR 6/2 and 2.5Y 6/2) dry and when moist dark grayish brown (between 10YR 4/2 and 2.5Y 4/2); strong fine platy structure; very hard, very firm, many fine vesicular and few fine tubular pores; common very fine horizontal roots; noncalcareous; pH 9.0 on the light-colored bands and 9.2 in the darker-colored bands; abrupt smooth boundary.
C3si RSL 56414	16 to 18 inches, pale brown (10YR 6/3) loam, brown (10YR 4/3) moist, with many hard durinodes that range up to 1/16 of an inch in diameter; weak coarse and medium platy structure; soft, very friable, nonsticky, nonplastic; many fine roots; noncalcareous; pH 9.4; clear wavy boundary.
C4si RSL 56415	18 to 21 inches, dark grayish brown (2.5Y 4/2) moist, loam containing many hard durinodes that range up to about 1/16 inch in diameter; weak medium platy structure in the lower portion but massive above this; soft, very friable, nonsticky, nonplastic; many fine roots; effervescent where a few fine white mycelia-like lime veins occur, noncalcareous elsewhere; pH 9.6; abrupt smooth boundary.
C5sicam RSL 56416	21 to 25 inches, light olive brown (2.5Y 5/3) strongly silica-cemented duripan, olive brown (2.5Y 4/3) moist, with many fine, medium, and coarse horizontal white lime veins that range up to 1/64 inch in thickness; moderate medium and coarse platy structure; extremely hard and very hard, very firm and extremely firm; few very fine and fine tubular pores; some of which are lime coated; many fine roots which run horizontally between plates; noncalcareous except where lime occurs in veins and cracks; pH 9.4; abrupt smooth boundary.
C6sicam RSL 56417	25 to 28 inches, light olive brown (2.5Y 5/3) strongly silica-cemented duripan, olive brown (2.5Y 4/3) moist with many fine, medium and coarse horizontal lime veins that range up to 1/64 inch in diameter; moderate medium and coarse platy structure; hard to extremely hard, firm to extremely firm; noncalcareous except where lime is visible; few to many fine pores; many fine roots between plates; pH 9.4; abrupt smooth boundary.
C7sicam RSL 56418	28 to 30 inches, light olive brown (2.5Y 5/3) strongly silica-cemented duripan, olive brown (2.5Y 4/3) moist, with many horizontal and a few vertical white lime veins; weak coarse platy structure; extremely hard to hard, firm to extremely firm; a few fine pores some of which have lime coatings; few fine vertical roots and many horizontal between the plates and in cracks; pH 9.4; abrupt wavy boundary.
C8casi RSL 56419	30 to 37 inches, pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist, which contains many fine mycelia-like veins and a few fine to medium white flecks of calcium carbonate; contains a few fine very hard durinodes; weak coarse and medium subangular blocky structure; very hard, very firm, nonsticky, nonplastic; a few fine lime coated pores; a few medium and common fine tubular pores; strongly effervescent; pH 9.0; abrupt wavy boundary.
IIC9ca RSL 56420	37 to 53 inches, this consists of stalactitic tongues 2 to 8 inches in diameter that are weakly lime-cemented when dry. Very pale brown (10YR 7/3), white (10YR 8/2) where lime occurs, coarse sand or loamy coarse sand, grayish brown (10YR 4.5/2) moist; massive; hard, firm to friable, nonsticky, nonplastic; many very fine and a few fine tubular pores; few fine roots; violently effervescent; pH 9.2; abrupt irregular boundary.
IIC10 RSL 56421	37 to 67 inches, brown (10YR 5/3) very gravelly coarse sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, firm, nonsticky, nonplastic; few fine roots; noncalcareous; pH 8.5; abrupt smooth boundary.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Entic Durorthid, coarse-loamy, mixed mesic
SOIL SERIES: Blackhawk loam SOIL Nos. S56Nev-14-15, S66Nev-14-2 LOCATION Pershing County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 56426 - 56432; and 66621 - 66627 *

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Total: Silt (0.05-0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct	* 2 - 19 (Pct. of < 76 mm)	* 19-76 (Pct. of < 76 mm)
		Pct. of < 2 mm																
0-½	A1	41.3	52.3	6.4	3.9	2.8	2.3	11.0	21.3	31.6	20.7	60.8	20.0			2*	2	0
½-4	C1	32.8	60.7	6.5	3.5	3.2	1.6	6.6	17.9	32.8	27.9	55.5	14.9	0	7	1*	1	0
4-12	C2si	46.0	46.7	7.3	7.0	6.5	2.9	10.0	19.6	26.7	20.0	53.6	26.4			2*	2	0
12-18	IIC3si	36.6	53.7	9.7	3.9	5.4	3.0	8.1	16.2	29.8	23.9	51.3	20.4	0	10	1*	1	0
18-20	IIC4sicam	51.3	42.9	5.8	8.3	8.2	3.6	10.3	20.9	25.7	17.2	54.1	30.4			1*	1	0
20-29	IIC5sim	56.5	37.6	5.9	9.2	9.2	4.7	13.2	20.2	23.0	14.6	52.4	36.3			5	5	0
29-38	IIC6	72.3	22.5	5.2	21.8	17.6	7.1	13.0	12.8	14.8	7.7	35.9	59.5			13		
38-48	IIC7ca	63.2	30.8	6.0	17.5	12.2	5.2	13.0	15.3	18.7	12.1	42.4	47.9	0	6	10*	10	0

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.	* Field Water Content May 1966 Pct.	Bulk density: 4A1f * 1/3 bar g/cc	4A1h * Oven dry g/cc	g/cc	3B2 * C_m	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 * 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH: 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-½	1.33	0.128	10.4				1.38	1.40		0.99			5.7	0.005	0.005	7.9		8.1
½-4	0.81	0.076	10.7			1	1.40	1.41		0.99			5.6	0.002	0.002	7.8		8.2
4-12	0.17	0.024	7.1			2	1.71	1.71		0.99			8.8	0.001	0.001	8.0		8.5
12-18	0.15					2	1.62	1.62		0.99			7.7	0.001	0.001	8.3		9.0
18-20	0.24				<1		1.62	1.63		0.99			7.8	0.002	0.002	8.4		9.4
20-29	0.09												6.4			8.1		8.9
29-38	0.05															7.9		9.2
38-48													4.6					

Depth (In.)	Extractable bases: 6N2b Ca 2/ 5B1a	6O2c Mg 2/ 5B1a	6P2a Exch. Na 5B1b	6Q2a Exch. K 5B1b	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc		Water extract from saturated paste 8A1: 6N1a 6O1a Ca & Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g									meq/liter								mmho/cm
0-½	8.9	2.5	1.4	3.2			17.2			6.8	8.3	2.2						1.52
½-4	10.3	2.7	2.5	6.3			18.1			4.6	5.5	1.4						1.22
4-12	7.1	2.7	5.6	1.6			18.3			1.4	16.3	4.4						1.85
12-18	6.6	2.2	10.3	0.3			20.0			4.2	78.0	0.1						8.4
18-20	15.9	2.5	11.0	0.3			20.9			4.1	90.0	0.1						9.8
20-29	6.0	2.5	10.4	0.2			16.9			12.5	144.0	0.1						15.9
29-38	4.6	1.4	5.9	0.2			9.7			31.5	220.0	0.2						24.2
38-48																		

Depth (In.)	8A Water at Saturation Pct.	5D2 Exchangeable Na Pct.	* SAR	6F1a Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1 X-ray: Mont.	Illite	Kaolinite	Chlorite	Others
0-½	39.9	8	4.5	-					
½-4	27.5	14	3.6	-		xx		tr.	Qtz,flds
4-12	16.9	31	19	-					
12-18	22.2	52	54	-	xx	xx	tr.		Qtz.,flds
18-20	28.6	53	63	-					
20-29	26.7	62	58	-					
29-38	16.7	61		-					
38-48					xxx	xx	x		Qtz,flds.

1/ From characterization samples (5 kg.)

2/ Includes cations from carbonates in some horizons.

* Resampled in 1966.

Micromorphology

Sands and silts consist of volcanic rock fragments, feldspar, hornblende, glass shards, and chlorite. The vesicles of the C1 horizon lack cutans but most of the pores of this horizon and those below do have cutans. Below the duripan in the IIC7ca horizon (66627) there are moderately thick, nearly continuous clay skins in the pores.

BLACKHAWK LOAM
S66Nev-14-2

Location: Pershing County, Nevada. The site is located about 21 miles south of Winnemucca in Grass Valley, at a point 1,000 feet east and 200 feet south of the northeast corner of Section 4, T. 32 N., R. 38 E., Mount Diablo base line and meridian. Date of Sampling: May 11, 1966.
Description by: L. Langan. Collectors: D. Nettleton, B. Brasher, L. Langan, L. Larsen, and E. Spencer.
Classification: Entic Durorthid, coarse-loamy, mixed, mesic.
Vegetation: Shadscale and bud sagebrush. Climate: The mean annual rainfall is estimated at 6 inches, mean annual soil temperature at 50° F., and mean summer soil temperature at 65° F. Parent Materials: A thin loess mantle high in volcanic ash superimposed over alluvium from shale, sandstone, chert, slate, dolomite, quartzite, limestone and andesite. Topography: Smooth, nearly level alluvial fan toe slope with a slope gradient of less than 1 percent. Elevation: 4,460 feet. Drainage: Well drained. Soil Moisture: Dry throughout at the time of sampling.
Remarks: Complete characterization studies were made and reported on this pedon by the Riverside Soil Survey Laboratory in "Field and Laboratory Studies of Three Profiles of Blackhawk Loam from Pershing County Nevada," October 1957. These samples were obtained from the same pit as S56Nev-14-15-1 to 8 (RSL 56426-56432). The original profile description and horizonation has been amended to conform to current standards.

HORIZON

A1 RSL 66621	0 to ½ inch, light brownish gray (10YR 6/2)* loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky, nonplastic; few very fine and fine roots; few fine and medium vesicular pores; the surface has 3- to 8-sided polygons that range from 3 to 5 inches across; prominent dark brown and white lichens occur on much of the barren surface but seldom occur under vegetation; noneffervescent; moderately alkaline (pH 8.1); abrupt smooth boundary.
C1 RSL 66622	½ to 4 inches, light brownish gray (2.5Y 6/2) loam, grayish brown (2.5Y 5/2) moist; moderate coarse platy structure; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; many very fine to medium vesicular pores; noneffervescent; moderately alkaline (pH 8.3); abrupt smooth boundary.
C2si 66623	4 to 12 inches, consists of alternate very thin (2 mm or less) bands of light brownish gray (2.5Y 6/2) and grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium and thick platy structure; hard, very friable and friable, nonsticky, nonplastic; plentiful very fine and fine, and few medium roots; many very fine tubular pores; the darker colored bands appear to be very weakly silica-cemented and are weakly brittle when wet, noneffervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
IIC3si RSL 66624	12 to 18 inches, consists of thin (2 to 5 mm) alternate bands of grayish brown (10YR 5/2) and light brownish gray (2.5Y 6/2) coarse sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; hard, friable, nonsticky, nonplastic; few very fine, fine and medium roots; many very fine tubular pores; the darker colored bands appear to be weakly silica-cemented and are brittle when wet; noneffervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
IIC4sicam RSL 66625	18 to 20 inches, brown (10YR 5/3) strongly silica and lime-cemented duripan about ½-inch thick stratified with loam that is weakly silica-cemented, brown (10YR 4/3) moist; moderate coarse platy structure; extremely hard and very hard, extremely firm and very firm; abundant very fine roots matted on duripan surfaces and few very fine roots in less cemented materials; many very fine tubular pores in weakly cemented materials and few very fine tubular pores in the remainder; many very thin (1 mm or less) discontinuous, white (10YR 8/1) silica-lime laminae that are randomly oriented; matrix of the duripan is noneffervescent but coatings and matrix of other materials are weakly or strongly effervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.
IIC5sim RSL 66626	20 to 29 inches, brown (10YR 5/3) strongly cemented duripan with many fine to coarse prominent very dark gray (N 3/0) manganese stains on plate surfaces, dark grayish brown (10YR 4/2) moist; moderate thick platy structure; very hard and extremely hard, very firm and extremely firm; no roots; few very fine tubular and common very fine interstitial pores; many, very thin (1 or 2 mm) discontinuous, randomly oriented silica laminae, silica bridges between sand grains and film lining tubular pores; noneffervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
IIC6 Not Sampled	29 to 38 inches, pale brown (10YR 6/3) coarse sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky, nonplastic; no roots observed; many very fine interstitial pores; noneffervescent; strongly alkaline (pH 8.5); clear smooth boundary.
IIC7ca RSL 66627	38 to 48 inches, light brownish gray (10YR 6/2) loam, with many fine and medium prominent dark brown (7.5YR 3/2) manganese segregations, and few to common fine and medium distinct white (10YR 8/2) mycelia-like lime veins; dark grayish brown (10YR 4/2) moist; weak thick platy structure; slightly hard, friable, nonsticky, nonplastic; no roots observed; many very fine interstitial pores; matrix noneffervescent but effervescent in spots and lime segregations; moderately alkaline (pH 8.0); abrupt smooth boundary.
IIC8simb Not Sampled	48+ inches, a buried duripan that was not sampled, nor described.

*Colors for dry conditions unless otherwise noted.

SCS-420
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Entic Xerollic Durorthid, coarse-loamy, mixed, mesic (Blackhawk taxadjunct), S56Nev-14-13

SOIL SERIES: Series not designated SOIL Nos. S66Nev-14-1 LOCATION Pershing County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 56399 - 56409 and 66617 - 66620*

Depth (In.)	Horizon	1B1b Total Sand (2–0.05)	Total Silt (0.05–0.002)	Total Clay (< 0.002)	Sand: Very coarse (2–1)	Sand: Coarse (1–0.5)	Sand: Medium (0.5–0.25)	Sand: Fine (0.25–0.1)	Sand: Very fine (0.1–0.05)	Silt: 0.05–0.02	Silt: Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	Coarse fragments: 2A2 > 2 1/ Pct.	2/ * 2 – 19	2/ * 19 – 76
		Pct. of < 2 mm														Pct. of < 76 mm		
0–1½	A1	32.5	58.6	8.9	2.0	1.6	0.8	6.9	21.2	29.3	29.3	55.8	11.3			2/ 2 *	2	0
1½–3½	B21	32.4	58.1	9.5	1.3	1.4	0.9	6.5	22.3	30.5	27.6	58.1	10.1			6		
3½–10	B22	32.3	58.5	9.2	2.0	1.7	1.0	6.4	21.2	31.0	27.5	57.5	11.1			2/ 2 *	2	0
10–13	C1	28.3	61.6	10.1	2.3	2.5	1.2	5.4	16.9	34.1	27.5	55.3	11.4			11		
13–17	C2si	30.7	61.0	8.3	2.9	3.1	1.6	6.0	17.1	33.7	27.3	55.4	13.6			10		
17–21	C3sicg	36.5	56.3	7.2	7.0	5.6	2.1	5.9	15.9	32.3	24.0	52.5	20.6			11		
21–28	IIC4sicam	39.7	48.3	12.0	9.1	7.2	2.7	7.0	13.7	24.3	24.0	42.9	26.0			2/ 13 *	13	0
28–35	IIC5ca	49.2	28.1	22.7	14.2	11.8	4.3	8.3	10.6	16.4	11.7	32.4	38.6			28		
35–42	IIC6ca	57.9	23.2	18.9	20.7	14.6	4.9	8.2	9.5	11.6	11.6	26.3	48.4			36		
42–48	IIIC7cacs	66.2	24.1	9.7	18.1	16.3	6.4	12.2	13.2	12.5	11.6	33.5	53.0			23		
48–56+	IIIC8cacs	59.2	27.3	13.5	21.0	15.4	4.7	7.8	10.3	12.0	15.3	27.2	48.9			2/ 36 *	36	0

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6G1b Carbonate as $CaCO_3$ 2-19mm. Pct.	6E1b Carbonate as $CaCO_3$ Pct.	* Field Water Content May 1966 Pct.	Bulk density: 4A1f * 1/3 bar g/cc	4A1h * Oven dry g/cc	g/cc	3B2 * Cm	Water content: Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 * Extensibility COLEf in./in.	4D1 * Extensibility COLE in./in.	pH: 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0–1½	1.06	0.099	10.7			-	1.33	1.34		0.99			7.2*	0.003	0.003	7.2		7.5
1½–3½	0.69	0.068	10.1										7.9			7.5		7.6
3½–10	0.40	0.041	9.8		1	-	1.22	1.23		0.99			7.1*	0.003	0.003	7.7		7.6
10–13	0.37				1								7.6			8.2		8.1
13–17	0.28												7.7			8.5		8.5
17–21	0.31				<0.5								7.8			8.7		9.3
21–28	0.34				4	-							8.3*			8.7		9.4
28–35	0.36				5								9.4			8.2		9.3
35–42	0.24				<0.5								8.7			7.9		9.1
42–48	0.18				4								9.8			7.8		8.5
48–56+	0.11				3	3	1.61	1.63		0.75			9.4*	0.004	0.004	7.7		8.8

Depth (In.)	Extractable bases: 5B1a Ca 3/ 6N b	5B1a Mg 3/ 6O2c	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	6N1a 6O1a Ca + Mg		Water extract from saturated paste: 6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	8A1 6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0–1½	10.5	3.0	0.6	2.5	16.6		18.3		4.4		3.2	1.0						1.1
1½–3½	11.1	3.7	1.3	3.6	19.7		20.4		2.1		4.7	0.9						0.8
3½–10	7.9	3.5	0.7	2.1	14.2		19.0		0.5		2.6	0.7						0.4
10–13	7.1	3.2	3.7	3.2	17.2		18.6		0.3		6.6	0.4						0.7
13–17	7.9	3.0	5.9	2.5	19.3		19.2		0.6		9.0	0.3						0.9
17–21	14.7	3.6	8.6	1.7	28.6		22.4		0.8		19.2	0.1						1.9
21–28	20.7	4.5	10.5	0.5	36.2		22.4		1.9		64.5	0.1						7.1
28–35	18.3	4.9	10.7	0.4	34.3		22.2		14.1		157.0	0.1						17.2
35–42	16.0	4.7	10.5	0.4	31.6		19.7		55.7		233.8	0.4						27.5
42–48	26.5	5.5	9.6	0.7	42.3		27.5		68.5		265.0	0.4						29.4
48–56+	19.7	4.7	10.0	0.7	35.1		25.4		69.9		248.8	0.4						29.7

Depth (In.)	8A Water at Saturation Pct	5D2 Exchangeable Na Pct.		6F1a Gypsum Pct.		Clay minerals <0.002 mm. 17A: Mont.	Verm.	Mica	Kaolin	
						X-ray				
0–1	36.3	3		-						
1–3	33.8	6		-						
3–10	32.4	4		-						
10–13	24.3	20		-						
13–17	26.5	31		-						
17–21	28.8	38		-						
21–28	31.5	47		-						
28–35	32.0	48		-						
35–42	30.2	53		-						
42–48	37.4	35		1.7						
48–56+	36.3	39		-						

* Resampled in 1966.

1/ Percent of the <1 inch fraction, except as noted.

2/ From characterization samples (5 kg.)

3/ Includes cations from carbonates in some horizons.

Series not designated 1/
S66Nev-14-1

Location: Pershing County, Nevada. The site is located about 21 miles south of Winnemucca in Grass Valley at a point 700 feet east and 500 feet south of the southwest corner of Section 36, T. 33 N., R. 38 E., Mount Diablo base line and meridian. Date of Sampling: May 11, 1966.
Description by: L. Langan. Collectors: D. Nettleton, B. Brasher, L. Langan, L. Larsen, and E. Spencer.
Classification: Entic Xerollic Durorthid, coarse-loamy, mixed, mesic (Blackhawk taxadjunct).
Vegetation: Shadscale and bud sagebrush with some spiny hopsage and big sagebrush with an understory of cheatgrass and Sandberg bluegrass. Climate: The mean annual rainfall is estimated at 8 inches; mean annual soil temperature at 51°F., and mean summer soil temperature at 65°F. Parent Material: A thin loess mantle high in volcanic ash superimposed over alluvium from shale, sandstone, chert, slate, dolomite, quartzite, limestone, and andesite. Topography: Smooth, moderately sloping alluvial fans with 7 percent slope gradient. Elevation: 4,870 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at time of sampling.
Remarks: Complete characterization studies were made and reported on this pedon by the Riverside Soil Survey Laboratory in "Field and Laboratory Studies of Three Profile of Blackhawk Loam from Pershing County, Nevada," October 1957. These samples were obtained from the same pit as S56Nev-14-13-1 to 11 (RSL 56399-56409). The original profile description and horizonation has been amended to conform to current standards.

HORIZON

A1 RSL 66617	0 to 1½ inches, light brownish gray (10YR 6/2)* loam, dark grayish brown (10YR 4/2) moist; weak and moderate medium and thick platy structure; slightly hard, very friable, nonsticky, nonplastic; few very fine, fine and medium roots; many fine and medium vesicular pores; the surface has 3- to 8-sided polygons that range from 3 to 5 inches across; prominent dark brown lichens occur on much of the barren surface but seldom occur under vegetation; neutral (pH 7.2); abrupt smooth boundary.
B21 Not Sampled	1½ to 3½ inches, light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; moderate medium and thin platy structure; soft, very friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine tubular pores; mildly alkaline (pH 7.4); abrupt smooth boundary.
B22 RSL 66618	3½ to 10 inches, pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and fine roots; few very fine and fine tubular pores; mildly alkaline (pH 7.4); clear smooth boundary.
C1 Not Sampled	10 to 13½ inches, light brownish gray (10YR 6/2) loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and fine roots; few very fine tubular and many very fine interstitial pores; mildly alkaline (pH 7.4); clear smooth boundary.
C2si Not Sampled	13½ to 17 inches, pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky, nonplastic; plentiful very fine and few fine roots; common very fine tubular pores; contains few spheroidal hard and firm durinodes; strongly alkaline (pH 8.2); clear smooth boundary.
C3sica Not Sampled	17 to 21 inches, pale brown (10YR 6/3) loam that is weakly silica-cemented stratified with noncemented materials, brown (10YR 4/3) moist; weak medium platy structure; hard and slightly hard, firm and friable, nonsticky, nonplastic; abundant very fine roots, most of which are horizontally oriented between weakly cemented strata, common very fine tubular and interstitial pores; noneffervescent matrix but strongly effervescent where occasional soft lime segregations occur in weakly cemented materials; strongly alkaline (pH 8.6); clear smooth boundary.
IIC4sicam RSL 66619	21 to 28 inches, brown (10YR 5/3) and pale brown (10YR 6/3) crushed sandy clay loam that is weakly silica-cemented, brown (10YR 4/3) moist; massive; hard, firm, slightly sticky, slightly plastic; few very fine and fine roots; very few fine tubular and common very fine interstitial pores; contains common very thin (less than 2 mm) randomly oriented, discontinuous white (10YR 8/1) silica and lime-cemented laminae; violently effervescent; very strongly alkaline (9.4); abrupt wavy boundary.
IIC5ca Not Sampled	28 to 35 inches, (2.5Y 5/3) gravelly sandy clay loam, with many fine distinct white (10YR 8/1) mycelic lime veins, dark grayish brown (2.5Y 4/3) moist; massive; hard, friable, slightly sticky, slightly plastic; few very fine and fine roots; few very fine and fine tubular pores; noneffervescent matrix but violently effervescent in spots; strongly alkaline (pH 8.8); abrupt wavy boundary.
IIC6ca Not Sampled	35 to 42 inches, light grayish brown (2.5Y 6/3) gravelly sandy clay loam, with common fine prominent dark brown (7.5YR 3/2) organic stains along root channels, and many fine distinct very pale brown (10YR 7/3) lime veins, dark grayish brown (2.5Y 4/2) moist; massive; hard, friable, slightly sticky, slightly plastic; plentiful very fine roots; many very fine interstitial and few very fine and fine tubular pores; noneffervescent matrix but violently effervescent in spots; strongly alkaline (pH 8.6); abrupt wavy boundary.
IIIC7cacs Not Sampled	42 to 48 inches, grayish brown (2.5Y 5/2) very gravelly and cobbly loam, with many fine and medium distinct very pale brown (10YR 7/3) lime veins, few fine to coarse distinct white (10YR 8/1) gypsum segregations, and common medium distinct dark brown (10YR 3/3) manganese stains on ped faces; brown (2.5Y 4/3) moist; weak thick platy structure; extremely hard, very friable, nonsticky, nonplastic; few very fine roots; few very fine and fine tubular pores; matrix noneffervescent but violently effervescent in spots; strongly alkaline (pH 8.7); clear wavy boundary.
IIIC8cacs RSL 66620	48 to 56+ inches, mixture of brown and dark yellowish brown (10YR 4/3 and 4/4) very gravelly loam, with many fine and medium distinct white (10YR 8/1) lime and gypsum segregations as seams, lining pores and coatings on gravel, brown (10YR 4/3) moist; weak thick platy structure; extremely hard, very friable, nonsticky, nonplastic; very few very fine roots; few very fine and fine tubular pores; effervescent and violently effervescent in spots; strongly alkaline (pH 8.6).

1/ The Blackhawk series is in a coarse-loamy, mixed, mesic family of Entic Durorthids (see pedon S66Nev-14-2). This pedon contains enough organic carbon to be in a different subgroup.

*Colors for dry conditions unless otherwise noted.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Goodsprings gravelly loamy fine sand **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Paleorthid, loamy, mixed, thermic, shallow

SURVEY NOS. S56Nev-2-1 **LAB. NOS.** 5635-39

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-1	A1	0.6	0.9	5.6	45.1	19.8	12.9	15.1	51.7	8.7	35	fsl
1-3	B2	0.2	0.8	7.1	51.7	16.5	7.3	16.4	48.0	5.4	15	fsl
3-8	B3	1.5	1.9	7.3	46.1	13.7	13.0	16.5	44.9	7.7	24	fsl
8-16	IIC1ca	0.7	1.7	6.9	45.8	12.2	6.4	26.3	40.2	4.6	48	scl
16+	IIC2cam	5.4	3.5	6.2	47.4	10.3	5.4	21.8	40.5	4.3	69	scl

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Condc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.3		9.0	0.15	0.019			0.84	14	None	14.2	10.8	4.3
8.4		9.1	0.09	0.012			0.45	10	"	12.6	8.4	4.6
8.5		9.1	0.12	0.013			0.34	13	"	21.2	12.6	5.3
8.6		9.2	0.13				0.47	18	"	23.8	16.5	6.2
8.6		9.3	0.10				1.80	23	"	18.1	12.8	5.3

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
9.3				0.2	0.9	2	1.2	0.6	6.9			18.2
9.1				0.2	0.8	2	0.6	0.4	3.9			23.7
9.3				0.1	0.8	1	0.5	0.3	3.3			29.3
7.7				0.2	0.7	3	1.4	0.3	2.9			35.2
6.7				0.3	0.3	4	10.1	0.2	7.0			32.3

1/ Percent of <1 inch material.

GOODSPRINGS GRAVELLY LOAMY FINE SAND
S56Nev-2-1

Collectors: Reuben E. Nelson, L. Dunn, and L. N. Langan
Sampled: February 1956.
Description: L. N. Langan

Location: Approximately 5 miles southwest of McCarran Air Field. 1300 feet east and 100 feet north of 1/4 cor., sec. 13, T. 22 S., R. 60 E. and sec. 18, T. 22 S., R. 61 E., located in the SE1/4, NW1/4 sec. 18, T. 22 S., R. 61 E., Las Vegas SCD, Clark County, Nevada. It is approximately 300 feet north of the Blue Diamond Road.

Elevation: Approximately 2300 feet.

Use: Desert range

Relief: Smooth, nearly level to gently sloping, slightly convex alluvial fan. There is a regular microrelief of 2 to 4 inches due to wind erosion and deposition. High spots are under shrubs. Occasional shallow gullies are present. Slope is about 1-1/2 percent toward the southeast.

Vegetation: Very sparse (about 1 percent density) cover of shrubs. 65 percent of the shrubs are made up of white bur-sage and 35 percent is creosote bush. A trace of yucca and cactus is also present.

Drainage: Runoff medium; internal soil drainage is medium to the hardpan and very slow below.

Parent Material: Mixed, but composed mainly of sedimentary rocks with some basic igneous rocks. Included rocks are limestone, sandstone, quartzite, shale, and a little basalt.

Climate: Las Vegas Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is less than 5 inches. The relative humidity is low, evaporation high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by a moderately developed desert pavement. Fine sands are found in small hummocks (approximately 2-4 inches) under shrubs. Vegetation density and growth increases somewhat adjacent to shallow gullies. Some vertical cracking has occurred in the B_2 horizon, subsequently being filled with loamy fine sand. The approximate maximum width of the cracking is 2-1/2 inches.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. The pH is determined with thymol blue in about 1:5 soil indicator dilution.

Classification: Typic Paleorthid, loamy, mixed, thermic, shallow.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Goodsprings gravelly loamy fine sand LOCATION Clark County, Nevada

SOIL FAMILY: Typic Paleorthid, loamy, mixed, thermic, shallow

SURVEY NOS. S56Nev-2-1 LAB. NOS. 5635-39

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-1	A1	0.6	0.9	5.6	45.1	19.8	12.9	15.1	51.7	8.7	35	fsl
1-3	B2	0.2	0.8	7.1	51.7	16.5	7.3	16.4	48.0	5.4	15	fsl
3-8	B3	1.5	1.9	7.3	46.1	13.7	13.0	16.5	44.9	7.7	24	fsl
8-16	IIC1ca	0.7	1.7	6.9	45.8	12.2	6.4	26.3	40.2	4.6	48	scl
16+	IIC2cam	5.4	3.5	6.2	47.4	10.3	5.4	21.8	40.5	4.3	69	scl

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.3		9.0	0.15	0.019			0.84	14	None	14.2	10.8	4.3
8.4		9.1	0.09	0.012			0.45	10	"	12.6	8.4	4.6
8.5		9.1	0.12	0.013			0.34	13	"	21.2	12.6	5.3
8.6		9.2	0.13				0.47	18	"	23.8	16.5	6.2
8.6		9.3	0.10				1.80	23	"	18.1	12.8	5.3

5A2a CATION EXCHANGE CAPACITY ← Na →	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
9.3				0.2	0.9	2	1.2	0.6	6.9			18.2
9.1				0.2	0.8	2	0.6	0.4	3.9			23.7
9.3				0.1	0.8	1	0.5	0.3	3.3			29.3
7.7				0.2	0.7	3	1.4	0.3	2.9			35.2
6.7				0.3	0.3	4	10.1	0.2	7.0			32.3

1/ Percent of <1 inch material.

S56Nev-2-1-1
A1 0-1" Pink (7.5YR 7/4), dry) to strong brown (7.5YR 5/6, moist) gravelly loamy fine sand. Weakly vesicular. Weak, medium platy. Slightly hard, very friable. Few roots. Strongly calcareous. pH 8.4. Abrupt smooth boundary. 1/2 to 1-1/4" thick.

S56Nev-2-1-2
B2 1-3" Reddish yellow (5YR 7/6, dry) to yellowish red (5YR 5/6, moist) fine sandy loam. Weak, coarse, prismatic. Slightly hard, friable. Few roots. Strongly calcareous. pH 8.6. Abrupt wavy boundary. 2-6" thick.

S56Nev-2-1-3
B3ca 3-8" Pink (5YR 8/4, dry) to yellowish red (5YR 5/6, moist) fine sandy loam with common, fine, distinct white lime mottlings. Weak, coarse to medium subangular blocky. Slightly hard, friable. Roots are numerous. Very strongly calcareous. pH 8.8. Clear wavy boundary. Some lime coated gravels are found in this horizon. 1" plus size gravels were removed from sample and constitutes approximately 1 percent of the total volume.

S56Nev-2-1-4
IIC1ca 8-16" Reddish yellow (7.5YR 7/6, dry) to strong brown (7.5YR 5/6, moist) very gravelly loam that is weakly lime cemented. Gravels are lime coated. Massive. Few roots. Hard, friable. Very strongly calcareous. pH 8.8. Clear wavy boundary.

S56Nev-2-1-5
IIC2cam 16"+ Reddish brown (5YR 5/4, dry) to yellowish red (5YR 4/6, moist) moderately cemented lime-silica hardpan. Texture is very gravelly sandy loam. Gravels are lime coated and are pink (7.5YR 8/4, dry). Massive. Very hard, very firm, slightly sticky. Very strongly calcareous. pH 9.0. 1" plus size gravels were removed from sample and constitutes approximately 10 percent of the total volume.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Goodsprings gravelly loamy fine sand **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Paleorthid, loamy, mixed, thermic, shallow

SURVEY NOS. S56Nev-2-2 **LAB. NOS.** 5640-44

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-1	A1	1.0	1.4	5.6	40.0	20.1	17.5	14.4	49.8	12.6	28	fsl
1-4	B2	1.3	1.9	6.6	43.8	17.9	11.1	17.4	48.6	6.8	13	fsl
4-9	B3ca	2.6	2.8	7.0	39.5	17.2	16.0	14.9	47.5	8.4	33	fsl
9-14	IIC1ca	5.3	4.3	8.4	38.0	13.9	16.4	13.7	42.3	9.2	58	fsl
14+	IIC2cam	14.3	7.5	9.8	39.7	9.1	10.7	8.9	35.5	5.6	82	ls

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.5		9.0	0.12	0.016			0.58	15	None	14.8	10.7	4.6
8.4		9.1	0.09	0.012			0.50	11	"	14.3	10.7	5.5
8.5		9.1	0.10	0.013			0.34	16	"	25.1	17.7	5.6
8.5		9.0	0.12				0.44	20	"	22.8	17.0	6.0
8.5		9.2	0.09					35	"	12.4	9.4	3.7

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
7.5				0.1	0.8	1	0.9	0.4	4.3			17.3
11.0				0.1	0.9	1	0.8	0.3	3.6			21.1
8.1				0.1	0.8	1	0.4	0.3	2.4			37.1
3.7				0.1	0.6	3	0.6	0.3	3.0			35.8
3.6				0.1	0.3	3	Not Determined					

1/ Percent of <1 inch material.

GOODSPRINGS GRAVELLY LOAMY FINE SAND
S56Nev-2-2

Collectors: Reuben E. Nelson, L. Dunn, and L. N. Langan
Sampled: February 1956.
Description: L. N. Langan

Location: Approximately 6 miles southwest of McCarran Air Field. 300 feet north and 30 feet west of 1/4 cor., sec. 24, T. 22 S., R. 60 E., and sec. 19, T. 22 S., R. 61 E., located in the SE1/4, NE1/4, sec. 24, T. 22 S., R. 60 E., Las Vegas SCD, Clark County, Nevada. It is approximately 1/2 mile south of the Blue Diamond Road.

Elevation: Approximately 2300 feet.

Use: Desert range.

Relief: Smooth, gently sloping, slightly convex alluvial fan. There is a regular microrelief of 2 to 4 inches due to wind erosion and deposition. High spots are under shrubs. Shallow gullies are more numerous at this site but do not tend to alter the general smoothness of the relief. Slope is approximately 3 percent towards the east.

Vegetation: Very sparse (about 1 percent density) cover of shrubs. 64 percent of the shrubs are made up of white bur-sage, 35 percent is creosote bush and 1 percent jointfir (Mormon tea). A trace of yucca and cactus is also present. The jointfir is found along shallow gullies.

Drainage: Runoff medium. Internal soil drainage is medium to the hardpan and very slow below.

Parent Material: Mixed, but composed mainly of sedimentary rocks with some igneous rocks. Included rocks are limestone, sandstone, quartzite, conglomerate, shale, and a little basalt and rhyolite.

Climate: Las Vegas Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is less than 5 inches. The relative humidity is low, evaporation high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by a moderately developed desert pavement. Fine sands are found in small hummocks (approximately 2-4 inches) under shrubs. Vegetation density and growth increases somewhat adjacent to gullies.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl; pH's determined with thymol blue in about 1:5 soil indicator dilution.

Classification: Typic Paleorthid, loamy, mixed, thermic, shallow.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Goodsprings gravelly loamy fine sand **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Paleorthid, loamy, mixed, thermic, shallow

SURVEY NOS. S56Nev-2-2 **LAB. NOS.** 5640-44

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-1	A1	1.0	1.4	5.6	40.0	20.1	17.5	14.4	49.8	12.6	28	fsl
1-4	B2	1.3	1.9	6.6	43.8	17.9	11.1	17.4	48.6	6.8	13	fsl
4-9	B3ca	2.6	2.8	7.0	39.5	17.2	16.0	14.9	47.5	8.4	33	fsl
9-14	IIC1ca	5.3	4.3	8.4	38.0	13.9	16.4	13.7	42.3	9.2	58	fsl
14+	IIC2ca	14.3	7.5	9.8	39.7	9.1	10.7	8.9	35.5	5.6	82	ls

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Exec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.5		9.0	0.12	0.016			0.58	15	None	14.8	10.7	4.6
8.4		9.1	0.09	0.012			0.50	11	"	14.3	10.7	5.5
8.5		9.1	0.10	0.013			0.34	16	"	25.1	17.7	5.6
8.5		9.0	0.12				0.44	20	"	22.8	17.0	6.0
8.5		9.2	0.09					35	"	12.4	9.4	3.7

5A2a CATION EXCHANGE CAPACITY ←(Na)	5B1a EXTRACTABLE CATIONS Ca 6N2b	5B1a Mg 6Q2c	6H2a H	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg	8A1 6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →				
7.5				0.1	0.8	1	0.9	0.4	4.3		17.3
11.0				0.1	0.9	1	0.8	0.3	3.6		21.1
8.1				0.1	0.8	1	0.4	0.3	2.4		37.1
3.7				0.1	0.6	3	0.6	0.3	3.0		35.8
3.6				0.1	0.3	3	Not Determined				

1/ Percent of <1 inch material.

S56-Nev-2-2-1

A1 0- 1" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) gravelly sandy loam. Moderately vesicular. Weak medium platy. Slightly hard, friable. Few roots. Strongly calcareous. pH 8.4. Smooth abrupt boundary. 1/4-1" thick.

S56-Nev-2-2-2

B_2 1- 4" Pink (5YR 7/4, dry) to yellowish red (5YR 5/6, moist) gravelly sandy loam. Weak, coarse prismatic. Slightly hard, friable. Few roots. Strongly calcareous. pH 8.4. Abrupt wavy boundary. Some gravels found in this horizon. 1-4" thick.

S56-Nev-2-2-3

B3ca 4- 9" Reddish yellow (7.5YR 7/6, dry) to strong brown (7.5YR 5/6, moist) gravelly loamy fine sand, with common, fine, distinct white (7.5YR 8/2, dry) lime mottlings. Weak, medium to fine subangular blocky structure. Slightly hard, friable. Roots are numerous. Very strongly calcareous. pH 8.6. Clear wavy boundary. 1" plus size gravels were removed from sample and constitutes approximately 2 percent of the total volume.

S56-Nev-2-2-4

IIC1ca 9-14" Pink (7.5YR 7/4, dry) to strong brown (7.5YR 5/6, moist) very gravelly loamy sand that is weakly to moderately lime cemented. Massive. Hard, firm. Few roots. Very strongly calcareous. pH 8.6. Clear wavy boundary.

S56-Nev-2-2-5

IIC2cam 14"+ Pink (7.5YR 8/4, dry) to reddish yellow (7.5YR 7/6, moist) lime-silica cemented conglomerate. Texture is very gravelly sand. Massive. Extremely hard, extremely firm. Very strongly calcareous. pH 8.6. 1" plus size gravels were removed from samples and constitutes approximately 30 percent of the total volume.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Adaven loam **LOCATION** Pahranagat Valley, Lincoln County

Aquic Paleorthid, coarse-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-30 **LAB. NOS.** 59773 - 59779

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2 1/	
0- 2	A11	0.4	0.5	0.6	3.7	6.4	57.0	31.4	36.2	29.7	0	sicl
2-11	IIA12	0.2	0.7	1.8	11.1	12.6	62.8	10.8	2/56.3	26.8	0	sil
11-16	IIIC1	1.4	4.6	7.8	30.2	15.4	30.0	10.6	2/49.1	15.0	2	fsl
16-24	IIIC2	1.4	4.6	5.2	25.4	22.0	32.1	9.3	2/59.0	12.9	2	fsl
24-39	IVC3cam	6.5	16.5	9.3	21.7	13.0	23.8	9.2	2/40.8	8.8	11	sl
39-50	IVC4ca	8.6	15.5	8.9	24.2	11.5	23.0	8.3	2/41.5	7.5	14	sl
50-60	IVC5	6.1	13.8	8.9	27.5	16.2	20.4	7.1	2/48.3	5.7	12	fsl

pH		Organic Matter			6E1b	8A1a	Saturation Ext. Soluble				6C1b	4B2
8C1b Saturated Paste 1:1	8C1a 1:10	6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	$CaCO_3$ equivalent Pct.	Elec. conduc. mmhos/cm. at 25°C	6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	Free Fe_2O_3 Pct.	Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.5	9.0	3.09	0.203	15.2	13	125.0	0	13.9	1389.	0.60	0.2	24.7
8.4	9.3	1.27	0.104	12.2	13	23.8	0	9.3	74.5	0.60	0.4	16.5
8.7	9.3	0.56	0.044	12.7	13	2.5	0	7.8	6.3	0.04	0.3	10.6
8.4	8.9	0.39	0.032	12.2	9	1.1	0	5.7	3.6	0.07	0.3	12.3
8.2	8.7	0.20			16	0.8	0	3.5	2.3	0.07	0.3	11.2
8.3	8.8	0.08			8	0.7	0	2.9	1.8	0.02	0.4	7.7
8.0	8.7	0.12			6	1.0	0	2.7	5.4	0.05	0.3	6.4

5A2a	EXTRACTABLE CATIONS 5B					5D1	SATURATION EXTRACT SOLUBLE 8A1					8A
CATION EXCHANGE CAPACITY (-Na)	5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	EXCH. Na %	6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						milliequivalents per liter →					
31.8	17.8	24.3		10.5	8.5	33	2550.	185.0	105.9	79.8	485.8	54.8
29.2	9.8	10.1		11.3	1.6	39	218.8	35.0	4.4	14.3	161.1	58.8
24.8	12.4	9.3		3.8	2.1	15	19.6	3.4	1.4	1.5	7.2	47.7
22.7	14.8	10.7		1.9	3.6	8	7.4	1.1	2.0	0.7	3.7	55.9
17.2	18.2	8.0		1.2	1.9	7	4.4	0.6	2.3	1.5	1.0	43.4
15.9	18.5	6.1		2.6	1.7	5	4.5	0.5	2.2	1.0	0.5	32.6
15.5	17.6	4.8		1.1	1.6	7	4.7	0.6	3.5	1.2	1.2	31.8

1/ Percent whole soil.

2/ Incompletely dispersed.

* Including cations from carbonates in some horizons.

ADAVEN LOAM
59Nev-9-30

Soil Survey Area: Pahranagat Valley Bottomlands, Lincoln County, Nevada.
Location: N1/2 sec. 27, T. 7 S., R. 61 E., 1000 ft. W. of U.S. Hwy. 93
Collectors: R. E.Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, Lloyd Rooke Sampled: November 1959.
Description by: W. G. Harper
Elevation: 3000 feet
Vegetation: Density about 40 percent; this consists of saltgrass 40 percent, alkali sacaton 30 percent, wiregrass or rush 20 percent, annuals 10 percent, and a trace of quailbrush and fourwing saltbush.
Physiography: Toe slope of alluvial fan and near upper margin of lake
Slope: Less than 1 percent
Drainage and Permeability: Imperfectly drained - runoff is medium to slow; permeability is slow through hardpan or C_{cam} horizon.
Parent Material: Alluvium from mixed rocks, including welded tuffs, basalt, Tertiary lake beds and other igneous and sedimentary rocks
Classification: **Aquic Paleorthid, coarse-loamy, mixed, mesic**
Precipitation: Between 5 and 7 inches
Annual Temperature: 56° F. and frost-free period is approximately 170 days.

Riverside Lab. Nos.
59773 through 59779

A11 0- 2" Light brown (10YR 7/2) silty clay loam, dark grayish brown (10YR 4/2) when moist; massive; loose, soft, nonsticky, nonplastic; abundant fine and very fine roots; many fine and medium interstitial pores; strongly calcareous; pH_5 9.0; abrupt smooth boundary.

IIA12 2-11" Light brown (10YR 7/2) loam or silt loam, dark grayish brown (10YR 4/2) when moist; weak to medium fine granular structure; hard, friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine and fine interstitial pores; strongly calcareous; pH_5 9.3; abrupt wavy boundary.

IIIC1 11-16" Very pale brown (10YR 8.3) fine sandy loam, light brownish gray (10YR 6/2) when moist; few dark brown (7.5YR 3/2) organic stains in old root channels; massive; hard, friable, nonsticky, nonplastic; abundant fine and very fine and few medium roots; common very fine and fine tubular, and many fine and very fine interstitial pores; strongly calcareous; pH_5 9.3; abrupt wavy boundary.

IIIC2 16-24" White (10YR 8/2) fine sandy loam, pale brown (10YR 6/3) when moist; weak fine subangular blocky structure, hard, very friable, nonsticky, nonplastic; abundant very fine, fine and few medium roots; common very fine and fine tubular and many fine and very fine interstitial pores; strongly calcareous; few hard and soft small lime nodules; pH_5 8.9; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Adaven loam LOCATION Pahranagat Valley, Lincoln County

Aquic Paleorthid, coarse-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-30 LAB. NOS. 59773 - 59779

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 2	A11	0.4	0.5	0.6	3.7	6.4	57.0	31.4	36.2	29.7	0	sicl
2-11	IIA12	0.2	0.7	1.8	11.1	12.6	62.8	10.8	2/56.3	26.8	0	sil
11-16	IIIC1	1.4	4.6	7.8	30.2	15.4	30.0	10.6	2/49.1	15.0	2	fsl
16-24	IIIC2	1.4	4.6	5.2	25.4	22.0	32.1	9.3	2/59.0	12.9	2	fsl
24-39	IVC3ca	6.5	16.5	9.3	21.7	13.0	23.8	9.2	2/40.8	8.8	11	sl
39-50	IVC4ca	8.6	15.5	8.9	24.2	11.5	23.0	8.3	2/41.5	7.5	14	sl
50-60	IVC5	6.1	13.8	8.9	27.5	16.2	20.4	7.1	2/48.3	5.7	12	fsl

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ equivalent Pct.	8A1a Elec. conduc. mmhos/cm. at 25°C	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							millieqivalents per liter					
8.5	9.0	3.09	0.203	15.2	13	125.0	0	13.9	1389.	0.60	0.2	24.7
8.4	9.3	1.27	0.104	12.2	13	23.8	0	9.3	74.5	0.60	0.4	16.5
8.7	9.3	0.56	0.044	12.7	13	2.5	0	7.8	6.3	0.04	0.3	10.6
8.4	8.9	0.39	0.032	12.2	9	1.1	0	5.7	3.6	0.07	0.3	12.3
8.2	8.7	0.20			16	0.8	0	3.5	2.3	0.07	0.3	11.2
8.3	8.8	0.08			8	0.7	0	2.9	1.8	0.02	0.4	7.7
8.0	8.7	0.12			6	1.0	0	2.7	5.4	0.05	0.3	6.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
31.8	17.8	24.3		10.5	8.5	33	2550.	185.0	105.9	79.8	485.8	54.8
29.2	9.8	10.1		11.3	1.6	39	218.8	35.0	4.4	14.3	161.1	58.8
24.8	12.4	9.3		3.8	2.1	15	19.6	3.4	1.4	1.5	7.2	47.7
22.7	14.8	10.7		1.9	3.6	8	7.4	1.1	2.0	0.7	3.7	55.9
17.2	18.2	8.0		1.2	1.9	7	4.4	0.6	2.3	1.5	1.0	43.4
15.9	18.5	6.1		2.6	1.7	5	4.5	0.5	2.2	1.0	0.5	32.6
15.5	17.6	4.8		1.1	1.6	7	4.7	0.6	3.5	1.2	1.2	31.8

1/ Percent whole soil.

2/ Incompletely dispersed.

* Including cations from carbonates in some horizons.

IVC3cam 24-39" White (10YR 8/1) sandy loam (about 10% fine gravel), light brownish gray (10YR 6/2) when moist; with few fine and medium dark reddish brown (5YR 4/3) iron stains along root channels; massive; extremely hard, extremely firm, nonsticky, nonplastic; few very fine, fine and medium roots; common very fine, fine and medium tubular pores and many fine and medium pores that appear to be coated with lime or a combination of lime and silica; violently calcareous; pH_5 8.7; clear wavy boundary.

IVC4ca 39-50" Light gray (2.5Y 7/2) sandy loam (10 to 12% fine gravel), grayish brown (2.5Y 5/2) when moist; common fine faint yellowish brown (10YR 5/4) organic stains and a few fine dark reddish brown (5YR 3/2) iron mottlings; massive, hard, friable, nonsticky, nonplastic; plentiful very fine, fine and medium roots; few fine and medium tubular, and many fine and medium interstitial pores; violently calcareous; pH_5 8.8; clear wavy boundary.

IVC5 50-60" Light gray (2.5Y 7/2) sandy loam (10 to 12% fine gravel), grayish brown (2.5Y 5/2) when moist; common medium yellowish brown (10YR 5/4) organic stains and common very fine, fine and medium dark reddish brown (5YR 3/2) iron mottlings; massive; slightly hard, very friable, nonsticky, nonplastic; few fine and medium roots; few fine and medium tubular, many fine and medium interstitial pores; strongly calcareous; pH_5 8.7.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Adaven loam **LOCATION** Pahranagat Valley Bottomlands
Lincoln County, Nevada

Aquic Paleorthid, coarse-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-31 **LAB. NOS.** 59780 - 59786

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 6	A1	0.1	0.6	1.6	22.4	29.1	31.6	14.6	70.3	8.3	0	vfsl
6-12	C1	0.1	0.7	1.4	18.7	32.0	37.0	10.1*	73.6	10.2	1	vfsl-l
12-20	C2	0.2	1.2	1.8	20.1	32.9	34.0	9.8*	74.0	8.9	1	vfsl
20-24	C3ca	0.5	2.4	1.8	10.1	28.4	48.2	8.6*	72.6	11.9	0	l
24-36	C4cam	1.1	5.7	6.0	21.6	20.0	34.9	10.7*	54.8	15.0	0	fsl
36-46	C5ca	0.3	2.1	3.4	21.0	26.5	38.2	8.5*	67.9	12.6	0	vfsl
46-56	IIC6	0.0	0.2	0.3	1.1	3.7	73.9	20.8*	25.0	53.4	0	sil

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
							milliequivalents per liter					
9.7	10.0	0.43	0.040	10.8	11	11.7	0.2	42.9	57.3	0.07	0.3	8.0
9.5	9.9	0.26	0.027	9.6	13	3.3	tr.	17.9	11.2	0.11	0.4	8.2
9.4	9.9	0.26	0.029	9.0	14	3.8	-	15.1	6.7	0.03	0.3	10.0
9.2	9.8	0.28	0.030	9.3	23	1.8	-	11.6	6.0	0.02	0.3	10.7
8.7	9.4	0.48	0.046	10.4	26	1.7	-	9.2	3.4	0.01	0.2	16.4
8.7	9.2	0.31	0.034	9.1	19	1.3	-	6.5	3.0	0.06	0.3	12.0
8.3	9.1	0.58	0.058	10.0	23	0.3	-	6.2	6.5	0.09	0.4	25.1

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	8A1 6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
18.0	10.7	2.9		6.0	3.9	33	129.4	23.0	1.7	0.0	25.3	37.2
16.3	11.2	3.8		5.8	2.8	36	26.9	6.2	0.7	0.0	0.1	37.2
16.9	11.3	6.3		5.9	1.4	35	21.8	4.4	0.7	0.0	3.4	41.3
17.2	10.0	8.2		4.6	0.6	27	20.3	3.2	0.7	0.0	3.6	42.0
23.5	10.1	13.6		4.3	1.0	18	13.1	2.1	1.4	1.3	2.4	49.8
18.4	13.0	11.6		2.1	0.6	11	9.7	1.3	2.3	0.0	1.9	46.3
18.6	15.1	19.2		3.2	1.7	17	11.2	1.8	2.9	1.3	2.6	55.5

1/ Percent of the whole soil.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

ADAVEN LOAM
59Nev-9-31

Soil Survey Area: Pahranagat Valley Bottomlands
Location: 0.3 mile S and 420 ft. W of N1/4 cor., sec. 31, T. 8 S., R. 62 E.
Collectors: R. E. Nelson, C. D. Henry, W. G. Harper, Donald G. Bagley, and Lloyd Rooke Sampled: November 1959.
Description by: W. G. Harper
Elevation: 3000 feet
Vegetation: Saltgrass, alkali sacaton covers about 40 percent of the surface; rest is barren.
Physiography: Toe slope of alluvial fan and near upper margin of lake
Slope: Less than 1 percent to the south
Erosion: No, or very slight, wind erosion
Drainage and Permeability: Imperfectly drained - runoff medium to slow; permeability is slow through the hardpan or C_{cam} horizon.
Parent Material: Alluvium derived from mixed rocks, including welded tuffs, basalt, tertiary lake beds and other igneous and sedimentary rocks.
Classification: **Aquic Paleorthid, coarse-loamy, mixed, mesic**
Climate: Precipitation is about 5 to 7 inches; mean annual temperature about 56° F., and the frost-free period approximately 170 days.

Riverside Lab. Nos.
59780 through 59786

A1 0- 6" Very pale brown (10YR 7/3) very fine sandy loam, dark grayish brown (10YR 4/2) when moist; weak thick platy structure; slightly hard, friable; nonsticky, nonplastic; abundant very fine, fine and medium roots; common very fine tubular pores; strongly calcareous; pH_5 9.6; abrupt smooth boundary.

C1 6-12" Pale brown (10YR 6/3) very fine sandy loam or loam, brown (10YR 5/3) when moist; massive; hard, friable, nonsticky, nonplastic; abundant very fine, fine and medium roots; many very fine and fine tubular pores; strongly calcareous; pH_5 9.4; abrupt wavy boundary.

C2 12-20" Light gray (10YR 7/2) very fine sandy loam, brown (10YR 5/2) when moist; massive; slightly hard, very friable, nonsticky, slightly plastic; abundant very fine, fine and medium roots; common very fine and fine tubular pores; many very fine and fine interstitial pores; few very fine and fine white lime mottlings; very strongly calcareous; pH_5 9.4; abrupt wavy boundary.

C3ca 20-24" Light gray (10YR 7/2) loam, brown (10YR 5/3) when moist, with pale brown (10YR 6/3) where lime occurs as segregated material or as nodules; massive; hard, friable to firm, nonsticky, slightly plastic; abundant very fine and fine roots; many very fine and fine tubular pores; some very fine disseminated and segregated lime and a few nodules that range up to 1/16 to 1/4 inch in diameter; very strongly calcareous; pH_5 9.0; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL FAMILY Adaven loam LOCATION Pahranagat Valley Bottomlands
Lincoln County, Nevada

Aquic Paleorthid, coarse-loamy, mixed, mesic

SURVEY NOS. 59Nev-9-31 LAB. NOS. 59780 - 59786

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 6	A1	0.1	0.6	1.6	22.4	29.1	31.6	14.6	70.3	8.3	0	vfsl
6-12	C1	0.1	0.7	1.4	18.7	32.0	37.0	10.1*	73.6	10.2	1	vfsl-1
12-20	C2	0.2	1.2	1.8	20.1	32.9	34.0	9.8*	74.0	8.9	1	vfsl
20-24	C3ca	0.5	2.4	1.8	10.1	28.4	48.2	8.6*	72.6	11.9	0	1
24-36	C4cam	1.1	5.7	6.0	21.6	20.0	34.9	10.7*	54.8	15.0	0	fsl
36-46	C5ca	0.3	2.1	3.4	21.0	26.5	38.2	8.5*	67.9	12.6	0	vfsl
46-56	IIC6	0.0	0.2	0.3	1.1	3.7	73.9	20.8*	25.0	53.4	0	sil

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3	4B2 Soil Water 15 atmos.
							milliequivalents per liter				Pct.	Pct.
9.7	10.0	0.43	0.040	10.8	11	11.7	0.2	42.9	57.3	0.07	0.3	8.0
9.5	9.9	0.26	0.027	9.6	13	3.3	tr.	17.9	11.2	0.11	0.4	8.2
9.4	9.9	0.26	0.029	9.0	14	3.8	-	15.1	6.7	0.03	0.3	10.0
9.2	9.8	0.28	0.030	9.3	23	1.8	-	11.6	6.0	0.02	0.3	10.7
8.7	9.4	0.48	0.046	10.4	26	1.7	-	9.2	3.4	0.01	0.2	16.4
8.7	9.2	0.31	0.034	9.1	19	1.3	-	6.5	3.0	0.06	0.3	12.0
8.3	9.1	0.58	0.058	10.0	23	0.3	-	6.2	6.5	0.09	0.4	25.1

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
18.0	10.7	2.9		6.0	3.9	33	129.4	23.0	1.7	0.0	25.3	37.2
16.3	11.2	3.8		5.8	2.8	36	26.9	6.2	0.7	0.0	0.1	37.2
16.9	11.3	6.3		5.9	1.4	35	21.8	4.4	0.7	0.0	3.4	41.3
17.2	10.0	8.2		4.6	0.6	27	20.3	3.2	0.7	0.0	3.6	42.0
23.5	10.1	13.6		4.3	1.0	18	13.1	2.1	1.4	1.3	2.4	49.8
18.4	13.0	11.6		2.1	0.6	11	9.7	1.3	2.3	0.0	1.9	46.3
18.6	15.1	19.2		3.2	1.7	17	11.2	1.8	2.9	1.3	2.6	55.5

1/ Percent of the whole soil.

* Incompletely dispersed.

\+ Including cations from carbonates in some horizons.

C4cam	24-36"	White (10YR 8/2) fine sandy loam, grayish brown (10YR 5/2) when moist; massive, breaking to moderate medium to coarse angular and subangular blocky aggregates; extremely hard, with hardness due mainly to cementation by calcium carbonate, perhaps some cementation by silica; very firm, nonsticky, slightly plastic; few to common fine and very fine roots; few medium and many very fine and fine tubular pores; very strongly calcareous; pH_5 8.8; abrupt wavy boundary.
C5ca	36-46"	White (10YR 8/2) very fine sandy loam; grayish brown (10YR 5/2) when moist; massive; hard, friable, slightly sticky, slightly plastic; few very fine and fine roots, many very fine and medium tubular pores; very strongly calcareous, weakly lime cemented and with lime nodules 1/8 to 1/4" in diameter; pH_5 8.6; abrupt wavy boundary.
IIC6	46-56"	White (10YR 8/2) silt loam, grayish brown (10YR 5/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few very fine roots; many very fine and fine discontinuous tubular pores; very strongly calcareous; pH_5 8.4.

SCS-420
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Xerollic Paleorthid, loamy-skeletal, carbonatic, mesic
SOIL SERIES: Sierocliff gravelly sandy loam SOIL Nos. S66Nev-9-24 LOCATION Lincoln County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 6676 - 6684

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct.	2 - 19 (Pct. of < 76 mm)	19-76 (Pct. of < 76 mm)	
		Pct. of < 2 mm																	
0-3	A1	34.2	50.1	15.7	5.7	3.9	2.1	9.1	13.4	24.6	25.5	44.3	20.8	1	15	44	17	11	2/
3-6	B21	32.7	45.8	21.5	3.1	3.7	2.7	9.7	13.5	21.2	24.6	41.1	19.2	4	18	64	6	52	2/
6-11	B22ca	33.4	43.7	22.9	2.4	4.1	3.0	9.8	14.1	20.0	23.7	40.5	19.3	10	13	64	6	52	3/
a 11-21	C1sica	57.0	25.7	17.3	17.0	14.3	6.0	10.7	9.0	11.8	13.9	26.7	48.0	13	4	68	29	32	4/
a 21-26	C2sicam															68		32	4/
a 26-33	IIC3sicam															68		32	4/
a 33-39	IIC4sicam															68		32	4/
39-48	IIC5sicam															80	43	33	2/
48-54+	IIC6ca	72.6	21.9	5.5	15.5	16.5	10.4	18.5	11.7	12.3	9.6	33.9	60.9	2	4	68	29	32	2/

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	6E1b Carbonate as $CaCO_3$ 2-19mm gravel Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content April 1966 < 2 mm. basis	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	Bulk density g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-3	1.06	0.098	11		17	6	1.38	1.44		0.71	2	20.3	9.9	0.015	0.010	7.7	8.2	8.7
3-6	1.32	0.126	10		23	15	1.19	1.28		0.56	2	21.3	12.8	0.024	0.013	7.6	8.1	8.7
6-11	1.17			72	36	22	1.20	1.25		0.55	2	29.0	13.8	0.015	0.008	7.6	8.2	8.7
a 11-21	0.61				76	24	1.50	1.51		1.00 5/	1	21.8	12.5	0.002	0.002	7.7	8.3	9.0
a 21-26	0.69				67	29					3					8.0	8.3	8.9
a 26-33	0.28				72		2.22	2.22		1.00 5/	1	5.9	6.4	0.000	0.000	8.0	8.6	9.1
a 33-39	0.16				74						1		3.6			8.4	8.8	9.3
39-48	0.16				58						1		5.0			8.1	8.7	9.2
48-54+	0.11				49	5	1.67	1.67		0.43	1	17.1	4.5	0.001	0.001	8.2	8.7	9.2

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	* Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-3	18.3	1.6	0.2	1.2	21.2			18.3	3.3	0.4	0.4	0.2		-	4.0	0.2		0.45
3-6	20.8	1.8	0.3	0.7	23.4			20.2	4.7	0.7	0.4	0.1		-	4.7	-		0.50
6-11	16.7	2.2	0.3	0.6	19.5			16.2	4.4	0.8	0.5	0.1		-	4.5	0.2		0.50
a 11-21	8.8	1.4	0.2	0.1	10.2			5.4	4.1	1.2	0.7	0.1		-	3.8	0.3		0.49
a 21-26	8.3	1.7	0.4	0.1	10.1			4.8	2.7	1.0	1.1	0.1		-	2.9	0.3		0.42
a 26-33	7.7	1.7	0.4	0.2	9.9			4.7	3.3	1.7	2.7	0.1		-	3.6	1.2		0.64
a 33-39	6.7	1.8	0.5	0.2	9.0			4.3	4.4	1.4	0.6	0.1		-	3.1	1.0		0.47
39-48	7.1	3.5	0.5	0.3	11.3			7.1	1.2	1.1	2.5	0.1		-	3.0	0.4		0.46
48-54+	7.5	3.6	0.6	0.2	11.9			8.7	1.6	1.7	2.4	0.1		-	3.2	1.2		0.52

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1: Mont.	Ill-ite	Kaol.	% Kaolin in ground whole soil 7A3 DTA
		meq./100 g.						X-ray 7A2			
0-3	30.3	18.2	1.6	0.2				xx	x	tr	
3-6	44.6	20.6	1.8	0.3				xx	x	tr	
6-11	49.0	16.5	2.2	0.2							
a 11-21	42.4	8.6	1.3	0.2							
a 21-26	57.7	8.1	1.6	0.3	6						
a 26-33	28.8	7.6	1.7	0.4	8						0
a 33-39	28.3	6.6	1.8	0.4	9						
39-48	30.5	7.1	3.5	0.4	6						
48-54+	27.8	7.5	3.6	0.6	7			x	tr	tr	

1/ From characterization sample (5 kg.) except as noted.
2/ 19-76 and >76 mm from field weights; >2 mm includes >76 mm
3/ Estimated same as B21.
4/ Estimated same as IIC6ca.
5/ >2 mm fractions considered soil; C' = 100.

a - The <19 mm soil was ground whole.

* Extractable Ca, Mg, and Na (corrected for soluble salts and gypsum) plus extractable K (uncorrected).

Sierocliff gravelly sandy loam
S66Nev-9-24

Location: Lincoln County, Nevada. The site is located approximately 1,320 feet east and 1,200 feet north of the SE corner of Section 5, T.1N., R.67E., Mount Diablo base line and meridian. Date of Sampling: April 7, 1966.
Description by: H. J. Borup. Collectors: H. J. Borup and D. Nettleton.
Classification: **Xerollic Paleorthid, loamy-skeletal, carbonatic, mesic.**
Vegetation: Principal plants include black sagebrush (80%), cliffrose (10%) and Utah juniper (10%) with traces of Nevada ephedra, low Douglas rabbitbrush, squirreltail, and Indian ricegrass. Use: Limited livestock and wildlife grazing. Climate: Precipitation 10 inches. Mean annual air temperature 48° F., January 29° F., July 68° F. Parent Material: Alluvium from limestone, quartzite and reworked lacustrine sediments high in ash. Topography: Slightly convex, gently sloping dissected alluvial fan. **Slope, 3 percent, northeast facing.** Elevation: 6,100 feet. **Drainage: Well drained. Runoff is very slow. Soil Moisture: Slightly moist to 11 inches at time of sampling.**
Remarks: Sampled under the name of Lond but correlated Leith to remove possible typographical confusion with established Land series. Field pH determinations by Thymol blue indicator in 1:5 dilutions. These samples were not paired.

HORIZON

A1 RSL 6676	0 to 3 inches, light brownish gray (10YR 6/2) gravelly sandy loam, brown (10YR 4/3) moist; weak thick platy structure; soft, very friable, nonsticky, nonplastic; plentiful fine and few very fine roots; common fine vesicular pores; strongly effervescent; moderately alkaline (pH 8.3); abrupt smooth boundary.
B21 RSL 6677	3 to 6 inches, pale brown (10YR 6/3) light clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable; sticky, slightly plastic; plentiful fine, few very fine, and abundant coarse roots; common fine and very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
B22ca RSL 6678	6 to 11 inches, pale brown (10YR 6/3) gravelly light clay loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, sticky, slightly plastic; plentiful fine, few very fine, and abundant coarse roots; many fine, and common very fine tubular pores; many pan fragments; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
C1sica RSL 6679	11 to 21 inches, white (10YR 8/1) gravelly loam that is weakly silica-lime cemented, very pale brown (10YR 7/3) moist; massive; hard, firm, brittle, nonsticky, slightly plastic; plentiful fine roots; common very fine interstitial pores; few very thin (1/16 inch or less) discontinuous, unoriented silica-lime laminae; many pan fragments; violently effervescent; strongly alkaline (pH 8.7); abrupt wavy boundary.
C2sicam RSL 6680	21 to 26 inches, white (10YR 8/1) strongly cemented pan with very thin (1/16 inch) continuous, horizontal silica-lime laminae, pale brown (10YR 6/3) moist; strong medium and thick platy structure; very hard and extremely hard, very firm and extremely firm; no roots; common fine and very fine interstitial pores in strongly cemented material and few very fine in laminae; violently effervescent; strongly alkaline (pH 8.7); abrupt wavy boundary.
IIC3sicam RSL 6681	26 to 33 inches, very pale brown (10YR 7/3) indurated very gravelly pan with many white (10YR 8/1) coatings and seams, and containing several thin (1/8 to 1/4 inch) continuous silica-lime laminar strata, pale brown (10YR 6/3) moist; massive; extremely hard, extremely firm; no roots; common very fine interstitial pores; many very thin and thin silica bridges between sand grains; violently effervescent; strongly alkaline (pH 8.7); abrupt wavy boundary.
IIC4sicam RSL 6682	33 to 39 inches, white (10YR 8/2) strongly cemented gravelly pan with thin (1/16 inch or less) continuous silica laminae, very pale brown (10YR 7/3) moist; massive; very hard and extremely hard, very firm and extremely firm; no roots; common very fine interstitial pores in strongly cemented materials; violently effervescent; strongly alkaline (pH 8.8); clear wavy boundary.
IIC5sicam RSL 6683	39 to 48 inches, light gray (10YR 7/2) strongly cemented gravelly pan, light yellowish brown (10YR 6/4) moist; massive; very hard, very firm; no roots; common very fine interstitial pores; many very thin discontinuous unoriented silica laminae and bridges between sand grains; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
IIIC6ca RSL 6684	48 to 54 inches +, very pale brown (10YR 7/3) gravelly loamy sand, yellowish brown (10YR 5/6) moist; massive; slightly hard; very friable; nonsticky, nonplastic; no roots; many fine interstitial pores; violently effervescent; strongly alkaline (pH 8.6).

NOTE: Weakly developed gravel pavement sampled with A1 horizon.

Micromorphology

0-3"	A1	**Common thin clay skins coat grains. There are some pan fragments.**
3-6"	B21	**Common moderately thick clay skins coat grains.**
11-21"	C1sica	**There are some pan fragments of a petrocalcic horizon.**
26-33"	IIC3sicam	**Mostly carbonate and some silica coat grains, form bridges and make laminae.**

SCS-420
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Xerollic Paleorthid, fine-carbonatic, mesic, shallow

SOIL SERIES: Panaca cobbly loam SOIL Nos. S66Nev-9-20 LOCATION Lincoln County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 6695 - 66103

Depth (in.)	Horizon	1B1b Total: Sand (2–0.05)	Silt (0.05–0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2–1)	Coarse (1–0.5)	Medium (0.5–0.25)	Fine (0.25–0.1)	Very fine (0.1–0.05)	Silt: 0.05–0.02	Int. III (0.02–0.002)	Int. II (0.2–0.02)	(2–0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct	2 – 19	19 – 76	
		Pct. of < 2 mm														Pct. of < 76 mm			
0-3	A1	41.5	47.2	11.3	10.0	6.7	4.0	8.8	12.0	26.3	20.9	43.5	29.5	1	10	35	31	4	2/
3-9	C1	39.1	44.7	16.2	7.1	6.8	4.3	8.5	12.4	24.0	20.7	41.5	26.7	3	13	22	20	2	2/
9-15	C2	44.1	37.9	18.0	6.5	7.5	5.9	10.9	13.3	19.8	18.1	39.6	30.8	7	11	38	33	5	2/
15-20	C3ca	53.2	28.1	18.7	11.1	10.6	7.4	12.1	12.0	14.8	13.3	33.7	41.2	12	7	28	21	7	2/
a20-27c	C4sicam	63.1	24.1	12.8	0.1	22.0	12.0	17.1	11.9	11.9	12.2	32.5	51.2	10	3	77		30	3/
b20-27c	C4sicam	57.5	26.6	15.9	10.8	11.9	8.8	14.7	11.3	13.0	13.6	31.9	46.2	10	6	77		30	3/
a27-31c	C5sicam															77		30	3/
a27-31c	C5sicam	63.8	24.1	12.1	20.0	15.2	7.6	12.4	8.6	11.5	12.6	26.4	55.7	8	4	77		30	3/
31-40c	C6sicam															77		30	3/
40-58	C7	73.1	19.1	7.8	10.7	9.6	11.0	27.3	14.5	12.5	6.6	41.3	58.6	3	5	77	46	30	4/
58-64	C8	68.6	21.1	10.3	24.7	12.9	7.9	15.2	7.9	10.3	10.8	25.7	60.7	4	6	74	65	9	2/

Depth (in.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b Carbonate as $CaCO_3$ 2-19mm gravel Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content April 1966 <2mm. basis	Bulk density 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLE[f] in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-3	0.84	0.081	10		32	3	1.46	1.50		0.77	2	14.5	7.3	0.008	0.006	7.8	8.3	8.9
3-9	0.75	0.081	9		33	10					2					7.7	8.2	8.9
9-15	0.64			85	47	13	1.41	1.44		0.75	1	18.4	10.2	0.007	0.005	7.6	8.2	8.9
15-20	0.66			89	62	15	1.36	1.37		0.83	1	22.2	11.4	0.004	0.004	7.7	8.3	9.0
a20-27 c					76											7.8		
b20-27 c	0.57				73	16					1		10.3			7.8	8.5	9.2
a27-31 c					76		1.48	1.50		1.00 5/		21.2		0.004	0.004	7.8		
b27-31 c	0.44				78	16	1.58	1.60		1.00 5/	1	21.8	7.4	0.004	0.004	7.8	8.5	9.3
31-40 c	0.48				81						1		8.6			7.9	8.5	9.2
40-58	0.20				70	7					1		7.8			8.0	8.5	9.1
58-64	0.18				71	6	1.55	1.54		0.38	1	11.3	6.1	0.000	0.000	8.0	8.6	9.2

Depth (in.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	* Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-3	13.1	1.8	0.3	1.7	16.8			13.5	4.2	0.9	0.5	1.0		-	4.9	0.5		0.57
3-9	14.4	2.2	0.3	1.0	17.7			14.4	5.4	0.9	0.6	0.4		-	4.0	0.6		0.50
9-15	10.9	2.8	0.6	1.1	15.0			11.5	6.1	2.0	3.6	0.8		-	3.7	6.4		1.31
15-20	9.5	2.3	0.5	1.0	12.9			8.2	4.7	1.9	3.6	1.0		-	3.6	5.2		1.15
a20-27 c	7.6	1.9	0.8	0.7				4.8	3.7	2.2	7.4	1.2		-	5.3	4.3		1.39
b20-27 c	7.3	2.5	1.1	0.7	10.8			4.9	3.3	2.8	11.2	1.0		-	4.3	8.7		1.82
a27-31 c	7.4	2.9	1.2	0.7				4.6	2.5	5.3	14.0	1.2		-	4.2	12.5		2.33
b27-31 c	7.2	3.0	1.3	0.6	10.9			4.1	8.9	8.8	20.7	3.0		-	3.6	24.3	4.7	3.94
31-40 c	7.8	2.9	1.6	0.6				3.9	6.9	9.5	23.4	1.4		-	3.3	23.2	8.1	4.04
40-58	6.1	2.7	0.4	0.4				5.2	2.3	2.1	1.4	0.5		-	3.4	0.8		0.53
58-64	6.2	3.4	0.6	0.5				5.5	1.3	1.5	3.6	0.4		-	3.8	1.3		0.66
Spring water									1.6	2.1	2.2	0.1		-	4.1	0.4		0.40

Depth (in.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.		Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1: Mont.	Ill-ite	Kaol.	% Kaolin in ground whole soil 7A3 DTA	
		meq./100 g.						X-ray				
0-3	27.2	13.0	1.8	0.3	2			xx	x	tr		
3-9	35.8	14.2	2.2	0.3	2							
9-15	39.8	10.7	2.7	0.5	4			xx	x	tr		
15-20	39.8	9.3	2.2	0.4	5							
a20-27c	44.7	7.4	1.8					x	tr	-		
b20-27c	37.9	7.2	2.3	0.6	12						0	
a27-31c	45.3	7.0	2.5									
b27-31c	32.9	7.0	2.7	0.6	15							
31-40c	31.0	7.7		0.8	21							
40-58	31.4	6.1		0.3	6							
58-64	26.4	6.2		0.5	9			xxx	tr	tr		

1/ From characterization sample (5 kg.) except as noted.
2/ 19-76 mm from field weights.
3/ Estimated same as C7.
4/ 19-76 and >76 mm from field weights; >2 mm includes >76 mm
5/ >2 mm considered soil; hence C' = 1.00

The A1 has a skeletal fabric with some fragments of duricrust and allogenic carbonate. In the C3ca sand grains are mostly allogenic carbonate (marble) and have silica coatings. In the C4sicam to the C6sicam horizons laminae of si and lime occur between areas of botryoidal accumulations of silica and lime. In the C7 and C8 horizons thin silica coatings are common on the sands.

* Extractable Ca, Mg, and Na (corrected for soluble salts and gypsum) plus extractable K (uncorrected).
a - Indurated part of horizon b - Nonindurated part of horizon c - <19 mm soil ground whole

PANACA COBBLY LOAM

S66Nev-9-20

Location: Lincoln County, Nevada. The site is located approximately 2,000 feet west of the E¼ corner Section 5, T.2S., R.67E., Mount Diablo base line and meridian. Date of Sampling: April 4, 1966.
Description by: E. A. Naphan and H. Borup. Collectors: H. J. Borup, E. A. Naphan, D. Nettleton.
Classification: **Xerollic Paleorthid, fine-carbonatic, mesic, shallow.**
Vegetation: The principal plant is black sagebrush with traces of Nevada ephedra, Utah juniper, squirreltail, galleta, and miscellaneous annuals. Use: Limited livestock and wildlife forage. Climate: Precipitation 8 to 10 inches. Mean annual air temperature about 51° F., July 70° F., January 30° F.
Parent Material: Alluvium from limestone, quartzite, and reworked lacustrine sediments high in ash.
Topography: Slightly convex, moderately sloping old alluvial fan. **Slope,** 4 percent, northeast facing
Elevation: 5,170 feet. Drainage: Well drained. Runoff is slow. Permeability is very slow.
Soil Moisture: Slightly moist to 20 inches at time of sampling.
Remarks: Field pH determinations by Thymol blue in 1:5 dilutions. These samples were not paired.

HORIZON

A1 RSL 6695 — 0 to 3 inches, light brownish-gray (10YR 6/2) gravelly loam, dark brown (10YR 4/3) moist; weak thin platy structure; slightly hard, friable, slightly sticky, slightly plastic; abundant fine and very fine, and few medium roots; many fine vesicular, many fine and very fine exped tubular pores; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C1 RSL 6696 — 3 to 9 inches, pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky, slightly plastic; abundant fine and very fine roots; many fine and very fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); clear smooth boundary.

C2 RSL 6697 — 9 to 15 inches, pale brown (10YR 6/3) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine, and abundant very fine roots; many fine and very fine tubular pores; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.

C3ca RSL 6698 — 15 to 20 inches, light gray (10YR 7/2) gravelly loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine and very fine roots; many very fine and fine tubular pores; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.

C4sicam RSL 6699A&B — 20 to 27 inches, very pale brown (10YR 8/3) continuous, indurated laminae 1/8 inch thick (sampled as 6699A) with very pale brown (10YR 7/3) to brown (10YR 4/3) surface coating, underlain by white (10YR 8/1) gravelly fine sandy loam (sampled as 6699B) that is weakly silica and lime cemented and containing many thin (1/8 to 1/16 inch) discontinuous, randomly oriented laminae, very pale brown (10YR 7/3) and light gray (10YR 7/2) moist; weak thick platy structure; extremely hard and very hard, extremely firm and friable, nonsticky, nonplastic; few very fine roots; many fine and very fine interstitial and few fine and very fine tubular pores only in nonindurated portion; violently effervescent; very strongly alkaline (pH 9.2); abrupt wavy boundary.

C5sicam RSL 66100A&B — 27 to 31 inches, light gray (10YR 7/2) continuous indurated laminae 1/8 to 1/16 inch thick (sampled as 66100A) with very pale brown (10YR 7/3) to brown (10YR 4/3) surface coating, underlain by white (10YR 8/1) strongly cemented **material** that textures very gravelly sandy loam (sampled as 66100B), light brownish gray (10YR 6/2) and pale brown (10YR 6/3) moist; moderate thick platy structure; extremely hard and very hard, extremely firm and very firm; few fine and very fine roots mostly matted on plate surfaces; few fine and many very fine interstitial pores only in strongly cemented portion; contains many very thin discontinuous laminae on plate surfaces and along vertical and diagonal tracks; violently effervescent; very strongly alkaline (pH 9.2); abrupt wavy boundary.

C6sicam RSL 66101 — 31 to 40 inches, light gray (10YR 7/2) continuous, indurated laminae 1/8 to 1/6 inch thick underlain by pale brown (10YR 6/3) strongly cemented **material,** light brownish gray (10YR 6/2) and pale brown (10YR 6/3) moist; strong thick platy; extremely hard, extremely firm; few very fine and fine roots matted on upper laminar surface; many very fine vesicular pores in the strongly cemented portion; contains very thin continuous laminae on plate surfaces and discontinuous laminae along vertical and diagonal cracks; violently effervescent; very strongly alkaline (pH 9.2); clear wavy boundary.

C7 RSL 66102 — 40 to 58 inches, light gray (10YR 7/2) very gravelly fine sandy loam, brown (10YR 5/3) moist; massive; loose when displaced; very friable, nonsticky, nonplastic; no roots; many fine and very fine interstitial pores; well graded gravel and few cobbles that are silica-lime coated; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.

C8 RSL 66103 — 58 to 64 inches, light gray (10YR 7/2) very gravelly fine sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, nonsticky, nonplastic; no roots; many fine and very fine interstitial pores; well graded gravel and few cobbles that are silica-lime coated; violently effervescent with few fine distinct white (10YR 8/2) lime segregations; very strongly alkaline (pH 9.3).

NOTE: Weakly developed gravel pavement sampled with the A1 horizon.

SOIL SURVEY LABORATORY Riv rside, California

SOIL TYPE Land silty clay loam **LOCATION** Moapa Valley, Clark County, Nevada
SOIL FAMILY: Typic Salorthid, fine-silty, mixed, thermic

SURVEY NOS. S60Nev-2-1 **LAB. NOS.** 606 thru 6013

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-4½	A_1	0.1	0.1	0.1	0.8	0.4	49.6	48.9	7.6	43.0	0	sic
4½- 6 1/	C_{1sa}	0.0	0.1	0.1	0.4	0.3	44.4	54.7	5.9	39.1	0	sic
6- 8 2/	C_{2sa}	0.0	0.1	0.1	0.7	0.7	55.1	43.3	13.0	43.3	0	sic
8-14	C_{3sa}	0.0	0.1	0.2	4.2	5.7	52.8	37.0	28.0	33.9	0	sicl
14-22	IIC4	0.1	0.2	0.4	7.1	9.1	54.4	28.7	36.8	32.5	0	sicl
22-30	IIIC5	0.0	0.1	0.1	0.6	1.2	57.9	40.1	12.7	46.8	0	sic-sicl
30-42	IVC6	0.1	0.1	0.1	0.6	2.5	78.4	18.2	38.1	43.2	0	sil
42-60+	VC7	0.0	0.3	0.6	1.4	1.6	53.1	43.0	7.5	47.0	0	sic

8C1b pH SATURATED PASTE 1:1	6I1a 3/ CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a 3/ HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a Gypsum me./100 g. soil	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.4	0.0	8.6	0.69	0.064	10.8	1.4	22.5	4	26.0			
8.7	19.7	9.1	0.38	0.039	9.7	56.8	116.7	2	780.0			
8.8	0.0	9.0	0.60	0.063	9.5	337.3	122.5	3	104.0			
8.4	2.0	8.8	0.44	0.046	9.6	443.5	83.8	4	31.0			
8.4	2.2	8.8	0.27	0.030	9.0	360.4	66.7	6	29.0			
8.6	0.5	9.0	0.26	0.033	7.9	337.3	63.0	13	16.8			
8.6	0.0	9.1	0.18	0.019		175.6	37.7	11	5.2			
8.6	0.0	8.9	0.21	0.028		212.5	38.3	13	14.8			

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5/ 5B1a Na 6P2a	5/ 5B1a K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl 4/	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
38.6				20.6	3.0		255	2.2	25.0	3.6	1.4	79.4
16.7				149.8	3.0		1650	63.8	56.7	12.4	56.8	69.3
24.9				483.4	2.4		3175	62.5	56.7	9.3	337	61.6
23.2				9.2	2.9		1320	24.8	36.1	52.5	444	56.0
21.6				21.0	2.5		885	19.5	36.1	92.7	360	54.9
32.3				21.6	4.4		825	18.4	51.5	61.8	337	71.0
25.6				19.9	4.8		413	10.0	42.2	20.6	176	53.1
36.8				16.8	5.2		430	11.6	164.8	154.5	213	80.7

1/ Sample lost over 60 percent of weight on leaching.
2/ Sample lost over 40 percent of weight on leaching.
3/ Saturation Extract Soluble - milliequivalents per liter.
4/ Saturated paste upon standing became hard.
5/ High soluble salt content precludes calculation of exchangeable Na.

LAND SILTY CLAY LOAM
S60Nev-2-1

Description: W. G. Harper and J. E. McClelland.
Collectors: W. G. Harper, E. A. Naphan, J. E. McClelland, W.M. Johnson, A. A. Aandahl et al, January 23, 1960.
Classification: Typic Salorthid, fine-silty, mixed, thermic.
Salt or Alkali: Strongly saline and sodic.
Location: About 1/2 mile northwest on U.S. Highway 93 from where 93 and 91 join near Glendale, Nevada. Sample taken 150 feet north of road, or 300 feet north and 300 feet east of the SW cor., sec. 35, T14S, R66E. Moapa Valley, Clark Co.
Vegetation: Mesquite trees about 20' high, quailbush, arrowweed, small amount of inkweed, and saltgrass. About 95 percent of the surface is barren.
Precipitation: About 4½".
Parent Material: Alluvium deposited by Meadow Valley wash. This is derived from mixed rocks. Much of this is from the Muddy Creek formation, a Miocene sedimentary deposit high in gypsum and calcium carbonate.
Physiography: Flood plain of Meadow Valley wash.
Relief: Smooth.
Elevation: 1,535 feet.
Slope: Less than 1 percent to the southeast.
Erosion: Slight wind.
Drainage: Imperfect. Runoff is slow to very slow; permeability is very slow; ground water is about 10 to 12 feet below the surface, probably fluctuates between 5 and 12 feet.
Moisture: Slightly moist to 5 inches, moist below 5 inches.
Sample Numbers: S60Nev-2-1-1 through 8.

Riverside Lab. Nos.
606 through 613

The surface is characterized by polygonal cracks that are 5 to 8 inches across. The cracks are about 1/2 inch wide and extend from 1 to 4-1/4 inches below the surface.

A_1 0-4½" Grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) when moist; moderate very fine granular structure; hard, friable, very sticky, very plastic; plentiful very fine and fine roots; many very fine tubular pores; strongly calcareous; pH_5 8.6; abrupt slightly wavy boundary.

C_{1sa} 4½- 6" White (10YR 8/1) silty clay, brown (10YR 4/3) when moist; the white color is due to a mass of salt crystals; appears massive in place but breaks to moderate fine granular structure; hard (salt crystals slightly hard), firm, very sticky, very plastic; few very fine and fine roots; many very fine interstitial pores; few very fine tubular pores; slightly calcareous; abrupt, slightly wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Land silty clay loam **LOCATION** Moapa Valley, Clark County, Nevada

SOIL FAMILY: Typic Salorthid, fine-silty, mixed, thermic

SURVEY NOS. S60Nev-2-1 **LAB. NOS.** 606 thru 6013

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-4½	A_1	0.1	0.1	0.1	0.8	0.4	49.6	48.9	7.6	43.0	0	sic
4½- 6 1/	C_{1sa}	0.0	0.1	0.1	0.4	0.3	44.4	54.7	5.9	39.1	0	sic
6- 8 2/	C_{2sa}	0.0	0.1	0.1	0.7	0.7	55.1	43.3	13.0	43.3	0	sic
8-14	C_{3sa}	0.0	0.1	0.2	4.2	5.7	52.8	37.0	28.0	33.9	0	sicl
14-22	IIC4	0.1	0.2	0.4	7.1	9.1	54.4	28.7	36.8	32.5	0	sicl
22-30	IIIC5	0.0	0.1	0.1	0.6	1.2	57.9	40.1	12.7	46.8	0	sic-sicl
30-42	IVC6	0.1	0.1	0.1	0.6	2.5	78.4	18.2	38.1	43.2	0	sil
42-60+	VC7	0.0	0.3	0.6	1.4	1.6	53.1	43.0	7.5	47.0	0	sic

8C1b pH SATURATED PASTE 1:1	6I1a 3/ CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a 3/ HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a Gypsum me./100 g. soil	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.4	0.0	8.6	0.69	0.064	10.8	1.4	22.5	4	26.0			
8.7	19.7	9.1	0.38	0.039	9.7	56.8	116.7	2	780.0			
8.8	0.0	9.0	0.60	0.063	9.5	337.3	122.5	3	104.0			
8.4	2.0	8.8	0.44	0.046	9.6	443.5	83.8	4	31.0			
8.4	2.2	8.8	0.27	0.030	9.0	360.4	66.7	6	29.0			
8.6	0.5	9.0	0.26	0.033	7.9	337.3	63.0	13	16.8			
8.6	0.0	9.1	0.18	0.019		175.6	37.7	11	5.2			
8.6	0.0	8.9	0.21	0.028		212.5	38.3	13	14.8			

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5/ 5B1a Na 6P2a	5/ 5B1a K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl 4/	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
38.6				20.6	3.0		255	2.2	25.0	3.6	1.4	79.4
16.7				149.8	3.0		1650	63.8	56.7	12.4	56.8	69.3
24.9				483.4	2.4		3175	62.5	56.7	9.3	337	61.6
23.2				9.2	2.9		1320	24.8	36.1	52.5	444	56.0
21.6				21.0	2.5		885	19.5	36.1	92.7	360	54.9
32.3				21.6	4.4		825	18.4	51.5	61.8	337	71.0
25.6				19.9	4.8		413	10.0	42.2	20.6	176	53.1
36.8				16.8	5.2		430	11.6	164.8	154.5	213	80.7

1/ Sample lost over 60 percent of weight on leaching.
2/ Sample lost over 40 percent of weight on leaching.
3/ Saturation Extract Soluble - milliequivalents per liter.
4/ Saturated paste upon standing became hard.
5/ High soluble salt content precludes calculation of exchangeable Na.

C_{2sa}	6- 8"	Light brownish gray (10YR 6/2) silty clay, brown (10YR 4/3) when moist; about 60 percent of the surface consists of white, very fine crystals of salt. These disappear when soil is moist. Moderate fine granular structure; soft to hard when dry, friable, very sticky, very plastic; few very fine and fine roots; many very fine interstitial and few very fine tubular pores; slightly calcareous; abrupt smooth boundary.
C_{3sa}	8-14"	Grayish brown (10YR 5/2) silty clay loam, brown (10YR 4/3) when moist; strong medium to very fine granular structure; hard, friable, very sticky, very plastic; few fine and very fine roots; many very fine interstitial pores; strongly calcareous; diffuse smooth boundary.
IIC_4	14-22"	Grayish brown (10YR 6/2) silty clay loam, brown (10YR 4/3) when moist; strong medium granular structure; very hard, friable, very sticky, very plastic; few very fine and fine roots; many very fine and few fine interstitial pores; strongly calcareous; abrupt smooth boundary.
$IIIC_5$	22-30"	Pale brown (10YR 6/3) silty clay or silty clay loam, brown (10YR 5/3) when moist; strong medium granular structure; hard, firm, few fine and very fine roots; many very fine and few fine interstitial pores; strongly calcareous; abrupt smooth boundary.
IVC_6	30-42"	Very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) when moist; and very weak coarse platy structure due to stratification; slightly hard, friable, sticky, plastic; roots as in horizon above; many very fine and few fine tubular pores; strongly calcareous; abrupt smooth boundary.
VC_7	42-60"+	Very pale brown (10YR 8/3) silty clay, pale brown (10YR 6/3) when moist; massive; hard, firm, very sticky, very plastic; no visible roots; many very fine tubular pores; strongly calcareous.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Mead clay **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Salorthid, fine, mixed, thermic

SURVEY NOS. S56Nev-2-8 **LAB. NOS.** 5678-83

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 3/	TEXTURAL CLASS
0-2	A1sa	4.5	5.2	7.1	23.8	17.3	20.0	22.1	41.8	11.8	20	scl
2-5	C1sa	0.6	2.1	3.4	12.4	14.0	26.2	41.3	32.3	16.5	1	c
5-9	C2sa	0.1	0.7	1.1	5.2	12.5	33.8	46.6	28.0	22.2	1	c
9-16	C3cs	0.1	0.2	0.3	3.3	14.2	37.4	44.5	30.4	24.0	0	c
16-36	C4cs	0.0	0.4	0.7	3.2	8.8	41.9	45.0	25.3	27.8	0	sic
36-60+	C5	0.1	0.0	0.2	2.7	8.1	40.7	48.2	25.1	26.1	0	sic

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	4A3a Bulk Density g/cc	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. % 1/
7.9		9.2	0.29	0.013	22.3		114.3	5	-			9.0
7.9		8.7	0.36	0.027	13.3		114.6	8	2.6			16.6
7.8		8.6	0.28	0.028	10.0		99.0	10	12.4			15.7
7.8		8.7	0.26				77.7	11	13.0			16.4
8.2		8.9	0.26				74.3	11	19.0			18.5
8.5		9.2	0.24			1.74	68.0	10	tr.			20.5

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a 2/	Exch. 5B1b K 6Q2a	5D1 2/ Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
20.1				11.8	1.7	59	1620	9.2	119.6			24.2
29.2				12.0	1.7	41	1620	5.4	125.3			37.4
31.5				19.0	1.4	60	1090	2.9	133.4			45.8
30.4				21.4	1.4	70	890	2.6	83.2			51.3
32.0				21.1	1.6	66	865	3.4	61.6			56.3
32.0				8.3	2.1	26	855	4.0	48.1			58.9

1/ The high salt content in these samples caused corrosion to screen and membrane in pressure membrane apparatus. Samples were leached with saturated gypsum solution and water to reduce salt concentration to less than 4 millimhos per cm. prior to analysis.

2/ Values of low accuracy due to the extremely high salt content.

3/ Percent of the whole soil.

MEAD CLAY
S56Nev-2-8

Collector: Reuben E. Nelson, L. Dunn, and L. N. Langan, February 1956.

Description: L. N. Langan

Location: Approximately 8-1/2 miles south southwest of Boulder City. 2380 feet east and 1050 feet south of 1/4 cor. of sec. 9 and sec. 10, T. 24 S., R. 63 E., in the NE1/4, SW1/4, sec. 10, T. 24 S., R. 63 E., Las Vegas SCD, Clark County, Nevada. It is at the playa edge and is approximately 400 feet west of U.S. 95 between Railroad Pass and Searchlight.

Elevation: Approximately 1500 feet.

Use: Desert range.

Relief: Smooth, nearly level toe of slope on alluvial fan adjacent to a playa. There is a regular microrelief of 4 to 8 inches due to wind erosion and deposition. High spots are under shrubs and low spots are barren. Occasional shallow gullies are present. Slope is less than 0.5, slightly convex, toward the northwest.

Vegetation: Very sparse (less than 1 percent density) cover of shrubs. The vegetative cover consists of 70 percent narrow leaf saltbush (Atriplex polycarpa) and 30 percent iodinebush.

Drainage: Runoff, slow. Internal soil drainage class is very slow. This soil was moist throughout at the time of sampling.

Parent Material: Old lacustrine or playa deposit from mixed sources. It is questionable whether this soil is zonal or basin alluvial.

Climate: Dry Lake Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is about 5 inches and the average annual temperature about 67° F. The relative humidity is low, evaporation high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by a very weak desert pavement. Loamy fine sands are found in small hummocks (approximately 2-6 inches) under shrubs.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl; pH's determined with thymol blue in about 1:5 soil indicator dilution.

Classification: Typic Salorthid, fine, mixed, thermic.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Mead clay LOCATION Clark Co., Nevada

SOIL FAMILY: Typic Salorthid, fine, mixed, thermic

SURVEY NOS. S56Nev-2-8 LAB. NOS. 5678-83

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 3/	TEXTURAL CLASS
0-2	A1sa	4.5	5.2	7.1	23.8	17.3	20.0	22.1	41.8	11.8	20	scl
2-5	C1sa	0.6	2.1	3.4	12.4	14.0	26.2	41.3	32.3	16.5	1	c
5-9	C2sa	0.1	0.7	1.1	5.2	12.5	33.8	46.6	28.0	22.2	1	c
9-16	C3cs	0.1	0.2	0.3	3.3	14.2	37.4	44.5	30.4	24.0	0	c
16-36	C4cs	0.0	0.4	0.7	3.2	8.8	41.9	45.0	25.3	27.8	0	sic
36-60+	C5	0.1	0.0	0.2	2.7	8.1	40.7	48.2	25.1	26.1	0	sic

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	4A3a Bulk Density g/cc	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. % 1/
7.9		9.2	0.29	0.013	22.3		114.3	5	-			9.0
7.9		8.7	0.36	0.027	13.3		114.6	8	2.6			16.6
7.8		8.6	0.28	0.028	10.0		99.0	10	12.4			15.7
7.8		8.7	0.26				77.7	11	13.0			16.4
8.2		8.9	0.26				74.3	11	19.0			18.5
8.5		9.2	0.24			1.74	68.0	10	tr.			20.5

5A2a CATION EXCHANGE CAPACITY (Na)	5B1a EXTRACTABLE CATIONS Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B1b Exch. Na 6P2a 2/	5B1b Exch. K 6Q2a	5D1 2/ Exch. Na %	6P1a SATURATION EXTRACT SOLUBLE 8A1 Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
20.1				11.8	1.7	59	1620	9.2	119.6			24.2
29.2				12.0	1.7	41	1620	5.4	125.3			37.4
31.5				19.0	1.4	60	1090	2.9	133.4			45.8
30.4				21.4	1.4	70	890	2.6	83.2			51.3
32.0				21.1	1.6	66	865	3.4	61.6			56.3
32.0				8.3	2.1	26	855	4.0	48.1			58.9

1/ The high salt content in these samples caused corrosion to screen and membrane in pressure membrane apparatus. Samples were leached with saturated gypsum solution and water to reduce salt concentration to less than 4 millimhos per cm. prior to analysis.

2/ Values of low accuracy due to the extremely high salt content.

3/ Percent of the whole soil.

S56-Nev-2-8-1
A1sa 0- 2" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) light clay loam. Strongly vesicular. Slightly hard, friable. Few roots. Very strongly calcareous. pH 9.3. Smooth abrupt boundary.

S56-Nev-2-8-2
C1sa 2- 5" Light reddish brown (5YR 6/4, dry) to reddish brown (5YR 4/4, moist) clay loam with common, fine, distinct salt mottlings. Weak, very fine to fine granular. Slightly hard, friable, slightly sticky, slightly plastic. Roots common. Very strongly calcareous. pH 8.8. Abrupt wavy boundary.

S56-Nev-2-8-3
C2sa 5- 9" Reddish brown (5YR 4/4, moist) silty clay with common, medium, prominent white salt mottlings. Strong, fine subangular blocky. Hard, friable, slightly sticky, plastic. Very strongly calcareous. pH 8.6. Clear wavy boundary.

S56-Nev-2-8-4
C3cs 9-16" Dark reddish brown (5YR 3/4, moist) silty clay with few medium, prominent white gypsum mottlings. Strong, fine subangular blocky. Hard, firm, slightly sticky, plastic. Very strongly calcareous. pH 8.9. Irregular, wavy boundary. Contains few, medium gypsum crystals. High bulk density.

S56-Nev-2-8-5
C4cs 16-36" Dark reddish brown (5YR 3/4, moist) silty clay with few, medium, prominent white gypsum crystals. Strong, medium subangular blocky. Very hard, firm, sticky, very plastic. Very strongly calcareous. pH 8.6. Irregular wavy boundary. Few fine to medium gypsum crystals. High bulk density.

S56-Nev-2-8-6
C5 36-60"+ Reddish brown (5YR 4/3, moist) silty clay. Massive. Very hard, very firm, very plastic. Very strongly calcareous. pH 8.8. High bulk density.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Fang fine sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-loamy, mixed, calcareous, mesic

SURVEY NOS. 59Nev-9-37 **LAB. NOS.** 59827 - 59833

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	C_1	2.4	10.4	12.3	33.4	12.6	18.4	10.5	39.7	12.1	4	fsl
3-13	C_2	2.5	7.2	9.2	34.0	14.3	19.6	13.2	44.0	11.9	5	fsl
13-20	C_3	1.4	7.3	8.2	30.4	13.2	25.2	14.3	41.7	16.9	4	fsl
20-39	C_4	1.8	7.4	7.8	23.0	12.9	35.5	11.6	41.4	22.2	6	fsl-l
39-45	IIC5	16.2	21.8	8.4	25.6	11.1	8.5	8.4	32.3	3.4	49	lcos
45-57	IIIC6	6.5	10.2	2.8	5.7	6.2	48.4	20.2	20.5	37.9	5	l
57-64+	IVC7	18.8	19.8	7.0	13.1	15.5	17.1	8.7	36.7	4.4	11	cosl

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.0	8.9	0.28	0.033	8.5	tr	4.6	-	3.6	0.3	0.84	0.7	7.4
8.0	8.9	0.22	0.027		1	0.4	-	3.3	0.4	0.91	0.7	8.9
8.1	8.8	0.21	0.026		2	0.4	-	3.8	0.3	0.32	0.7	10.2
8.0	9.0	0.21	0.027		2	0.9	-	3.3	0.5	4.35	0.8	9.8
7.6	8.4	0.06			1	12.4	-	1.8	15.6	71.0	0.7	5.4
7.3	8.0	0.14			1	18.6	-	2.1	22.1	116.0	0.7	12.9
7.3	8.0	0.04			tr	14.0	-	1.3	19.9	74.0	0.8	5.0

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca + 6N2b	5D1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
24.1	18.9	2.2		<0.1	4.3	<1	21.0	2.2	31.8	0.0	26.5	24.3
25.4	25.1	1.9		0.2	3.4	<1	0.9	0.9	2.5	0.2	1.0	27.3
30.0	31.9	1.6		0.9	1.0	3	1.4	0.1	2.6	0.5	2.7	32.7
28.8	33.8	0.9		2.0	0.4	7	4.3	<0.1	4.8	0.2	2.9	33.7
16.2	20.1	0.6		1.3	0.3	8	26.3	0.1	106.7	2.5	20.2	23.2
34.4	49.8	2.2		2.8	0.6	20	27.5	0.2	170.3	6.2	30.1	38.3
12.3	14.2	0.5		1.3	0.6	11	24.4	0.3	129.1	1.5	24.1	22.7

1/ Percent of the whole soil.

\+ Including cations from carbonates.

FANG FINE SANDY LOAM
59Nev-9-37

Soil Survey Area: Penoyer Valley
Location: 2.95 miles SW of Triangulation Station and Benchmark #4784 along secondary road and 250 ft. W of road, or 0.6 mile E and 0.22 mile N of SW cor., sec. 31, T. 3 S., R. 55 E.
Collectors: R. E. Nelson, C. D. Henry, E. A. Naphan, Donald Bagley and Lloyd Rooke Sampled: November 1959.
Description by: E. A. Naphan
Elevation: 4880 feet
Physiography: Alluvial fan or plain
Vegetation: Density 4 percent - this consists of Kochia vestita 50 percent, fourwing saltbush 38 percent, galleta 1 percent, Indian ricegrass 1 percent, annual buckwheat 7 percent, other annuals 3 percent.
Slope: 1 percent to the north
Drainage and Permeability: Well drained - slow to medium runoff; permeability moderate to moderately rapid.
Parent Material: Alluvium from olivine basalt, welded tuffs and volcanic ash
Classification: Typic Torrifluvent, coarse-loamy, mixed, calcareous, mesic.
Climate: Precipitation is about 8 inches; the January temperature is 35° F., July 71° F., the mean annual temperature about 52° F., and the frost-free season 130 to 150 days.

Riverside Lab. Nos.
59827 through 59833

C_1 0- 3" Light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) when moist; weak fine platy and some weak medium platy structure; soft, very friable, nonsticky, nonplastic; abundant very fine roots; many very fine, fine and few medium vesicles; slightly calcareous; pH_5 8.6; abrupt smooth boundary.

C_2 3-13" Light gray (10YR 7/2) fine sandy loam, dark brown (10YR 4/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few medium, abundant very fine and fine roots; many very fine, fine and medium tubular pores; slightly calcareous; pH clear smooth boundary.

C_3 13-20" Very pale brown (10YR 7/3) fine sandy loam, dark brown (10YR 4/3) when moist; massive, soft, very friable, nonsticky, slightly plastic; abundant very fine, fine and few medium roots; many very fine and fine tubular pores; moderately calcareous; pH_5 8.6; clear wavy boundary.

C_4 20-39" Very pale brown (10YR 7/3) fine sandy loam with a few thin lenses or pockets of silt loam, dark brown (10YR 4/3) when moist; massive with a few moderate fine platy lenses of silty material; soft, very friable, nonsticky, slightly plastic; abundant fine and very fine roots; many fine and very fine tubular pores; moderately calcareous; pH_5 8.6; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Fang fine sandy loam LOCATION Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-loamy, mixed, calcareous, mesic

SURVEY NOS. 59Nev-9-37 LAB. NOS. 59827 - 59833

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	C_1	2.4	10.4	12.3	33.4	12.6	18.4	10.5	39.7	12.1	4	fsl
3-13	C_2	2.5	7.2	9.2	34.0	14.3	19.6	13.2	44.0	11.9	5	fsl
13-20	C_3	1.4	7.3	8.2	30.4	13.2	25.2	14.3	41.7	16.9	4	fsl
20-39	C_4	1.8	7.4	7.8	23.0	12.9	35.5	11.6	41.4	22.2	6	fsl-1
39-45	IIC5	16.2	21.8	8.4	25.6	11.1	8.5	8.4	32.3	3.4	49	lcos
45-57	IIIC6	6.5	10.2	2.8	5.7	6.2	48.4	20.2	20.5	37.9	5	l
57-64+	IVC7	18.8	19.8	7.0	13.1	15.5	17.1	8.7	36.7	4.4	11	cosl

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.0	8.9	0.28	0.033	8.5	tr	4.6	-	3.6	0.3	0.84	0.7	7.4
8.0	8.9	0.22	0.027		1	0.4	-	3.3	0.4	0.91	0.7	8.9
8.1	8.8	0.21	0.026		2	0.4	-	3.8	0.3	0.32	0.7	10.2
8.0	9.0	0.21	0.027		2	0.9	-	3.3	0.5	4.35	0.8	9.8
7.6	8.4	0.06			1	12.4	-	1.8	15.6	71.0	0.7	5.4
7.3	8.0	0.14			1	18.6	-	2.1	22.1	116.0	0.7	12.9
7.3	8.0	0.04			tr	14.0	-	1.3	19.9	74.0	0.8	5.0

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
24.1	18.9	2.2		<0.1	4.3	<1	21.0	2.2	31.8	0.0	26.5	24.3
25.4	25.1	1.9		0.2	3.4	<1	0.9	0.9	2.5	0.2	1.0	27.3
30.0	31.9	1.6		0.9	1.0	3	1.4	0.1	2.6	0.5	2.7	32.7
28.8	33.8	0.9		2.0	0.4	7	4.3	<0.1	4.8	0.2	2.9	33.7
16.2	20.1	0.6		1.3	0.3	8	26.3	0.1	106.7	2.5	20.2	23.2
34.4	49.8	2.2		2.8	0.6	20	27.5	0.2	170.3	6.2	30.1	38.3
12.3	14.2	0.5		1.3	0.6	11	24.4	0.3	129.1	1.5	24.1	22.7

1/ Percent of the whole soil.

\+ Including cations from carbonates.

IIC5	39-45"	Pale brown (10YR 6/3) very gravelly sand (estimate 60% fine gravel), dark brown (10YR 4/3) when moist, single grain; loose when dry and moist; nonsticky, nonplastic, abundant very fine roots; many very fine, fine and medium interstitial pores; slightly calcareous; pH_5 8.6; abrupt smooth boundary.
IIIC6	45-57"	Light gray (10YR 7/2) loam with a few fine faint white (10YR 8/2) lime filaments, dark brown (10YR 4/3) when moist; weak coarse platy and weak medium platy structure; slightly hard, friable, slightly sticky, slightly plastic; abundant fine and very fine roots; many fine and very fine tubular pores; slightly calcareous; pH_5 8.4; clear smooth boundary.
IVC7	57-64"+	Brown (10YR 5/3) fine gravelly coarse sandy loam (15% fine gravel), dark brown (10YR 4/3) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful fine and very fine roots; common fine and many very fine tubular pores; noncalcareous; pH_5 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Fang fine sandy loam **LOCATION** Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-loamy, mixed, calcareous, mesic

SURVEY NOS. 59Nev-9-38 **LAB. NOS.** 59834 - 59842

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	C_1	5.3	14.3	12.9	25.8	10.3	21.1	10.3	31.7	14.5	4	sl
3- 8	C_2	3.6	15.6	15.5	28.6	9.8	13.3	13.6	30.1	8.9	2	sl
8-13	C_3	2.8	12.1	13.1	29.9	13.0	17.0	12.1	38.2	9.5	2	fsl
13-20	C_4	3.8	13.2	12.6	27.0	11.3	16.2	15.9	32.7	10.9	2	fsl
20-43	C_5	3.7	12.1	14.9	36.5	15.3	8.2	9.3	41.8	3.7	3	ls
43-52	C_6	3.3	19.1	18.6	32.3	12.8	7.3	6.6	35.8	2.2	2	ls
52-64	C_7	7.2	16.4	14.8	29.1	12.7	8.9	10.9	34.1	4.5	15	sl-ls
64-70	IIC8	15.2	32.3	12.8	15.1	4.2	6.6	13.8	13.2	5.0	49	cosl
70-78+	IIIC9	20.5	42.1	15.7	11.0	1.4	2.7	6.6	6.4	1.7	48	cos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.1	9.0	0.27	0.033	8.2	tr	0.8	-	6.1		1.94	0.7	7.2
8.1	9.1	0.16	0.028		1	0.5	-	5.4		0.87	0.8	7.9
8.1	9.1	0.17	0.022		1	0.6	-	4.0	0.9	0.05	0.7	7.9
8.1	9.1	0.16	0.021		2	0.4	-	3.6	1.5	0.72	0.6	9.2
7.8	8.9	0.09			1	1.2	-	2.8	8.5	3.23	0.6	6.3
7.7	8.8	0.03			1	2.6	-	1.5	4.0	7.40	0.8	4.0
7.5	8.5	0.04			tr	4.7	-	1.2	3.5	26.20	0.9	5.7
7.5	8.5	0.05			1	6.1	-	1.5	3.7	38.00	0.9	7.5
7.5	8.6	0.01			tr	3.8	-	1.6	2.7	24.20	0.8	5.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A1 8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
22.6	20.1	2.3		0.2	5.4	<1	1.5	2.4	2.3	0.0	0.4	19.8
21.0	21.1	1.9		0.3	6.0	1	1.1	2.0	2.0	0.0	0.0	19.0
20.9	21.9	1.6		0.2	5.8	<1	1.2	2.1	2.7	0.0	0.1	22.1
22.8	25.7	1.5		0.6	4.6	3	1.9	1.1	2.1	0.3	0.8	22.6
15.4	23.0	0.7		0.9	1.2	6	3.9	0.2	10.1	0.0	1.4	31.0
9.7	18.1	0.6		0.7	0.9	7	5.9	0.3	18.3	0.4	5.8	25.8
13.5	14.9	0.7		0.9	0.8	7	9.9	0.4	34.2	0.0	12.0	27.3
18.5	20.7	0.8		1.0	1.2	5	14.3	0.5	44.6	0.4	17.0	26.0
13.3	11.7	0.9		1.0	1.2	7	12.0	0.5	23.3	0.2	9.1	21.3

1/ Percent of the whole soil.

\+ Including cations from carbonates.

FANG FINE SANDY LOAM
59Nev-9-38

Soil Survey Area: Penoyer Valley, Lincoln County, Nevada.
Location: 0.25 mile E of the W 1/4 cor., sec. 6, T. 4 S., R. 55 E.
Collectors: R. E. Nelson, C. D. Henry, E. A. Naphan, Donald Bagley, and Lloyd Rooke Sampled: November 1959.
Description by: Edward A. Naphan
Elevation: 4930 feet
Vegetation: Density 4 percent - this consists of Kochia vestita 50 percent, fourwing saltbush 43 percent, Indian ricegrass 2 percent, annual buckwheat 2 percent, other annuals 3 percent, and a trace of galleta.
Physiography: Alluvial fan or plain
Slope: Between 1 and 2 percent to the north
Drainage and Permeability: Well drained - runoff is slow to medium; permeability moderate to moderately rapid.
Parent Material: Alluvium from olivine basalt, welded tuffs, and volcanic ash
Classification: Typic Torrifluvent, coarse-loamy, mixed, calcareous, mesic.
Climate: Precipitation is about 8 inches; the average January temperature is 35° F., July 71° F., the mean annual temperature 53° F., and the frost-free period is 130 to 150 days.

Riverside Lab. Nos.
59834 through 59842

C_1 0- 3" Light gray (10YR 7/2) fine sandy loam, dark grayish brown (10YR 4/2) when moist; moderate medium platy structure; soft, very friable, nonsticky, nonplastic; plentiful fine and very fine roots; many fine and very fine and few medium vesicles; slightly calcareous; pH_5 8.6; abrupt smooth boundary.

C_2 3- 8" Light gray (10YR 7/2) sandy loam, dark brown (10YR 4/3) when moist; weak medium to fine platy structure; slightly hard, very friable, nonsticky, slightly plastic; abundant fine, very fine and few medium roots; many very fine, common fine and few medium tubular pores; slightly calcareous; pH_5 8.6; clear smooth boundary.

C_3 8-13" Light gray (10YR 7/2) fine sandy loam, dark brown (10YR 4/3) when moist; massive; slightly hard, very friable, nonsticky, slightly plastic; abundant fine, very fine and few medium roots; many fine and very fine and few medium tubular pores; slightly calcareous; pH_5 8.6; clear wavy boundary.

C_4 13-20" Light gray (10YR 7/2) fine sandy loam, brown (10YR 5/3) when moist; massive; hard, friable, nonsticky, slightly plastic; abundant fine, very fine and few medium roots; many fine and very fine vesicles; many fine and very fine and few medium tubular pores; slightly calcareous; pH_5 8.6; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Fang fine sandy loam LOCATION Penoyer Valley, Lincoln Co., Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-loamy, mixed, calcareous, mesic

SURVEY NOS. 59Nev-9-38 LAB. NOS. 59834 - 59842

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 3	C_1	5.3	14.3	12.9	25.8	10.3	21.1	10.3	31.7	14.5	4	sl
3- 8	C_2	3.6	15.6	15.5	28.6	9.8	13.3	13.6	30.1	8.9	2	sl
8-13	C_3	2.8	12.1	13.1	29.9	13.0	17.0	12.1	38.2	9.5	2	fsl
13-20	C_4	3.8	13.2	12.6	27.0	11.3	16.2	15.9	32.7	10.9	2	fsl
20-43	C_5	3.7	12.1	14.9	36.5	15.3	8.2	9.3	41.8	3.7	3	ls
43-52	C_6	3.3	19.1	18.6	32.3	12.8	7.3	6.6	35.8	2.2	2	ls
52-64	C_7	7.2	16.4	14.8	29.1	12.7	8.9	10.9	34.1	4.5	15	sl-ls
64-70	IIC8	15.2	32.3	12.8	15.1	4.2	6.6	13.8	13.2	5.0	49	cosl
70-78+	IIIC9	20.5	42.1	15.7	11.0	1.4	2.7	6.6	6.4	1.7	48	cos

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
8.1	9.0	0.27	0.033	8.2	tr	0.8	-	6.1		1.94	0.7	7.2
8.1	9.1	0.16	0.028		1	0.5	-	5.4		0.87	0.8	7.9
8.1	9.1	0.17	0.022		1	0.6	-	4.0	0.9	0.05	0.7	7.9
8.1	9.1	0.16	0.021		2	0.4	-	3.6	1.5	0.72	0.6	9.2
7.8	8.9	0.09			1	1.2	-	2.8	8.5	3.23	0.6	6.3
7.7	8.8	0.03			1	2.6	-	1.5	4.0	7.40	0.8	4.0
7.5	8.5	0.04			tr	4.7	-	1.2	3.5	26.20	0.9	5.7
7.5	8.5	0.05			1	6.1	-	1.5	3.7	38.00	0.9	7.5
7.5	8.6	0.01			tr	3.8	-	1.6	2.7	24.20	0.8	5.2

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca + 6N2b	5B1a Mg + 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
22.6	20.1	2.3		0.2	5.4	<1	1.5	2.4	2.3	0.0	0.4	19.8
21.0	21.1	1.9		0.3	6.0	1	1.1	2.0	2.0	0.0	0.0	19.0
20.9	21.9	1.6		0.2	5.8	<1	1.2	2.1	2.7	0.0	0.1	22.1
22.8	25.7	1.5		0.6	4.6	3	1.9	1.1	2.1	0.3	0.8	22.6
15.4	23.0	0.7		0.9	1.2	6	3.9	0.2	10.1	0.0	1.4	31.0
9.7	18.1	0.6		0.7	0.9	7	5.9	0.3	18.3	0.4	5.8	25.8
13.5	14.9	0.7		0.9	0.8	7	9.9	0.4	34.2	0.0	12.0	27.3
18.5	20.7	0.8		1.0	1.2	5	14.3	0.5	44.6	0.4	17.0	26.0
13.3	11.7	0.9		1.0	1.2	7	12.0	0.5	23.3	0.2	9.1	21.3

1/ Percent of the whole soil.

\+ Including cations from carbonates.

C_5 20-43" Similar in color to the horizon above; light sandy loam with a few 1/4- to 1/2-inch lenses of silt loam; massive with the silty lenses occurring as strong fine plates; soft, very friable; nonsticky, nonplastic; abundant fine and very fine roots; many fine and very fine tubular pores; slightly calcareous; pH_5 8.6; gradual wavy boundary.

C_6 43-52" Light gray (10YR 7/2) light sandy loam, dark brown (10YR 4/3) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful fine and very fine roots; many fine and very fine tubular pores; slightly calcareous; pH_5 8.6; clear wavy boundary.

C_7 52-64" Yellowish brown (10YR 5/4) sandy loam with 5% gravel, dark brown (10YR 4/3) when moist; massive; hard, friable, nonsticky, nonplastic; few fine and very fine roots; common fine and very fine tubular pores; noncalcareous matrix but calcareous where common very fine white (10YR 8/2) lime filaments occur and where lime coats the undersides of pebbles; pH_5 8.6; clear wavy boundary.

IIC8 64-70" Brown (10YR 5/3) gravelly loamy sand with some fine sandy loam (estimate 20% fine gravel), dark brown (10YR 4/3) when moist; massive; hard, friable, nonsticky, nonplastic; very few fine and very fine roots; many very fine, fine and medium interstitial pores; slightly calcareous; pH_5 8.4; clear wavy boundary.

IIIC9 70-78"+ Brown (10YR 5/3) very gravelly coarse sand (estimate 60% fine gravel), dark brown (10YR 4/3) when moist; single grain; loose when dry and when moist; nonsticky, nonplastic; very few very fine roots; many very fine, fine and medium interstitial pores; slightly calcareous on the undersides of pebbles, noncalcareous elsewhere; pH_5 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Gila very fine sandy loam **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-loamy, mixed, calcareous, thermic

SURVEY NOS. S59Nev-2-14 **LAB. NOS.** 5983 - 5987

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-2	C_1	0.1	0.2	0.5	8.6	27.8	48.0	14.8	65.2	18.0	0	1
2-9	C_2	0.9	1.3	1.0	11.0	27.4	45.1	13.3	62.9	18.8	1	1
9-24	IIC_3	0.5	2.2	3.3	25.6	27.5	28.9	12.0	62.7	13.3	2	vfsl
24-41	IIC_4	0.3	0.8	1.5	27.0	32.0	25.9	12.5	68.5	12.0	0	vfsl
41-56+	IIIC5	1.7	5.1	4.7	32.4	26.6	19.0	10.5	60.8	9.5	3	fsl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.3	-	9.1	0.10	0.014		3.4	0.3	15				8.7
8.4	-	9.3	0.07	0.012		3.1	0.5	15	1.33			8.3
7.7	-	8.5	0.06			2.0	15.0	14				7.0
7.8	-	8.4	0.09			1.6	16.0	13				7.1
7.6	-	8.6	0.04			1.2	16.2	13				5.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A1 8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
18.8				0.5	1.5	3	1.3	0.3	1.5	0.5	0.4	30.3
19.3				1.2	1.6	6	3.1	0.2	1.0	0.3	0.4	29.7
17.1				0.8	1.2	5	74.4	0.9	43.0	21.4	195.8	28.3
16.7				4.0	0.9	24	35.0	1.1	97.3	21.0	131.6	27.5
15.6				3.8	1.0	24	78.1	0.7	93.0	28.5	165.0	27.2

*Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of the whole soil.

GILA VERY FINE SANDY LOAM
S59Nev-2-14

Description: L. N. Langan and V. D. Leavitt. Sampled: March, 1959.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: The site is located approximately 800 feet west and 660 feet north of the apparent SE corner Sec. 14, T14S, R65E, Clark County, Nevada.
Relief: Smooth, nearly level, dissected by several shallow and moderately deep gullies.
Physiography: Alluvial floodplain or alluvial fan.
Drainage: Well drained. Runoff is slow during periods of normal rainfall, internal drainage is moderate, and the soil permeability is moderate. The water table is reported to be at depths greater than 25 feet.
Parent Material: Silty alluvium derived from mixed sedimentary rock sources including limestone, quartzite, and silty and clayey Miocene lake sediments.
Use: Limited livestock grazing.
Vegetation: Vegetative cover consists primarily of creosote bush, honey mesquite, shadscale, Allenrolfea, and various Atriplex (salt bushes). The plant density is approximately 3%.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68°F., a mean July temperature of 87°F., and mean January temperature of 44°F. The relative humidity is low, evaporation is high, and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: This soil is strongly saline.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Typic Torrifluvent, coarse-loamy, mixed, calcareous, thermic.

Riverside Lab. Nos.
5983 through 5987

C_1 0- 2" Pink (7.5YR 7/4) very fine sandy loam, brown (7.5YR 5/4) when moist; moderate fine and medium platy structure; soft, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores; strongly calcareous; pH 8.6; abrupt smooth boundary.

C_2 2- 9" Pink (7.5YR 7/4) loam with a ½-inch fine gravelly coarse sand stratum at the bottom of the horizon, brown (7.5YR 5/4) when moist; weak medium and coarse platy structure; slightly hard, friable, slightly sticky, slightly plastic; common very fine and few fine fibrous roots; common very fine and few fine tubular pores; strongly calcareous; pH 8.8; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Gila very fine sandy loam **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-loamy, mixed, calcareous, thermic

SURVEY NOS. S59Nev-2-14 **LAB. NOS.** 5983 - 5987

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-2	C_1	0.1	0.2	0.5	8.6	27.8	48.0	14.8	65.2	18.0	0	l
2-9	C_2	0.9	1.3	1.0	11.0	27.4	45.1	13.3	62.9	18.8	1	l
9-24	IIC_3	0.5	2.2	3.3	25.6	27.5	28.9	12.0	62.7	13.3	2	vfsl
24-41	IIC_4	0.3	0.8	1.5	27.0	32.0	25.9	12.5	68.5	12.0	0	vfsl
41-56+	$IIIC_5$	1.7	5.1	4.7	32.4	26.6	19.0	10.5	60.8	9.5	3	fsl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.3	-	9.1	0.10	0.014		3.4	0.3	15				8.7
8.4	-	9.3	0.07	0.012		3.1	0.5	15	1.33			8.3
7.7	-	8.5	0.06			2.0	15.0	14				7.0
7.8	-	8.4	0.09			1.6	16.0	13				7.1
7.6	-	8.6	0.04			1.2	16.2	13				5.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
18.8				0.5	1.5	3	1.3	0.3	1.5	0.5	0.4	30.3
19.3				1.2	1.6	6	3.1	0.2	1.0	0.3	0.4	29.7
17.1				0.8	1.2	5	74.4	0.9	43.0	21.4	195.8	28.3
16.7				4.0	0.9	24	35.0	1.1	97.3	21.0	131.6	27.5
15.6				3.8	1.0	24	78.1	0.7	93.0	28.5	165.0	27.2

*Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of the whole soil.

IIC_3	9-24"	Pink (7.5YR 7/4) finely stratified sandy loam, fine sandy loam, and very fine sandy loam with very fine sandy loam predominating, brown (7.5YR 5/4) when moist; a 1-inch fine gravelly coarse sand stratum at base of the horizon; weak medium and fine platy structure; soft, very friable, nonsticky and very slightly sticky, nonplastic and very slightly plastic; common very fine and few fine fibrous roots; common very fine and few fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
IIC_4	24-41"	Pink (7.5YR 7/4) finely stratified fine sandy loam and very fine sandy loam with fine sandy loam predominating, brown (7.5YR 5/4) when moist; horizon contains several fine (½ to 1½ inch) strata of sand and a 1-inch fine gravelly coarse sand at the base of the horizon; weak medium and coarse platy structure; soft, very friable, nonsticky, nonplastic; few very fine and fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
$IIIC_5$	41-56"+	Pink (7.5YR 7/4) finely stratified silt loam, fine sandy loam, sandy loam, and sand, with fine sandy loam predominating, brown (7.5YR 5/4) when moist; weak fine platy structure; slightly hard, very friable, slightly sticky and nonsticky, slightly plastic and nonplastic; few very fine fibrous roots; few very fine and fine tubular pores, mostly horizontal; strongly calcareous; pH 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-silty, mixed, calcareous, thermic (Glendale taxadjunct)

SURVEY NOS. S56Nev. 2-5 **LAB. NOS.** 5659-65

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-2	A1	0.0	0.2	0.2	2.4	28.6	59.1	9.5	66.9	22.8	0	sil
2-5	C1	0.0	0.2	0.2	2.8	22.0	62.4	12.4	48.8	38.0	0	sil
5-9	C2	0.0	0.2	0.2	2.5	19.7	61.8	15.6	49.7	34.0	0	sil
9-18	C3	0.0	0.1	0.1	1.4	33.3	56.3	8.8	74.9	15.9	0	sil
18-32	C4	0.0	0.1	0.1	2.5	23.4	53.6	20.3	49.5	29.8	0	sil
32-43	C5	0.0	0.1	0.1	5.6	25.6	48.2	20.4	55.0	24.2	0	1
43-60+	C6	0.0	0.1	0.2	8.8	30.4	43.9	16.6	61.4	21.0	0	1

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.3		9.4	0.62	0.040	15.5		3.0	38	-			6.1
8.8		9.8	0.47	0.043	10.9		2.9	40	-			6.2
9.1		10.1	0.45	0.048	9.4		20.1	39	-			7.4
8.9		9.9	0.36				34.8	35	-			5.6
7.9		9.1	0.45				43.5	35	6.3			8.4
8.5		9.0	0.32				37.0	38	10.1			8.6
8.8		9.2	0.35				30.0	38	6.1			7.7

5A2a CATION EXCHANGE CAPACITY (← Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
10.9				1.2	1.9	11	20.2	3.0	8.6			29.6
12.4				1.8	3.5	15	20.6	3.6	4.1			28.7
14.0				6.9	5.1	49	212.0	21.4	3.9			29.6
9.5				6.2	3.7	65	390.0	24.9	24.2			30.9
13.5				6.7	3.3	50	520.0	24.2	89.2			32.3
12.3				6.2	2.2	50	430.0	15.3	72.8			32.0
11.6				5.6	1.8	48	350.0	7.7	63.2			32.0

Series not designated [1/]
S56Nev-2-5

Collectors: Reuben E. Nelson, L. Dunn, and L. N. Langan.
Sampled: February, 1956.
Description: L. N. Langan.

Location: Approximately 1500 feet southwest of shopping center on Nellis Road which is approximately 4 miles east of Las Vegas. It is 320 feet south and 1300 feet west of 1/4 cor., sec. 29 and sec. 28, T. 20 S., R. 62 E., located in the NE1/4, SE1/4, sec. 29, T. 20 S., R. 62 E., Las Vegas SCD, Clark County, Nevada. It is approximately 1300 feet west of Nellis Road.

Elevation: 1800 to 1900 feet.

Use: Desert range.

Relief: Smooth, nearly level flood plain or low terrace. Slight wind and water erosion. Small gullies are starting to form as a result of brush removal. Slope is less than .5 percent toward the south.

Vegetation: Very sparse (about 2 percent density) cover of shrubs. The vegetative cover consists of 60 percent iodinebush and 40 percent narrow leaf saltbush (Atriplex polycarpa).

Drainage: Runoff slow. Internal soil drainage class is well drained.

Parent Material: Mixed origin from many sources, but is primarily from reworked recent silty alluvial and lacustrine deposits.

Climate: Las Vegas Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is less than 5 inches. The relative humidity is low, evaporation is high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by many small barren areas with occasional small areas of salt crusting. Much of the soil surface also has a very fine polygonal pattern of cracks 1/4 inch wide and 1/4 inch deep.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl; pH's determined with thymol blue in about 1:5 soil indicator dilution.

Classification: Typic Torrifluvent, coarse-silty, mixed, calcareous, thermic (Glendale taxadjunct).

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torrifluvent, coarse-silty, mixed, calcareous, thermic (Glendale taxadjunct)

SURVEY NOS. S56Nev. 2-5 **LAB. NOS.** 5659-65

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-2	A1	0.0	0.2	0.2	2.4	28.6	59.1	9.5	66.9	22.8	0	sil
2-5	C1	0.0	0.2	0.2	2.8	22.0	62.4	12.4	48.8	38.0	0	sil
5-9	C2	0.0	0.2	0.2	2.5	19.7	61.8	15.6	49.7	34.0	0	sil
9-18	C3	0.0	0.1	0.1	1.4	33.3	56.3	8.8	74.9	15.9	0	sil
18-32	C4	0.0	0.1	0.1	2.5	23.4	53.6	20.3	49.5	29.8	0	sil
32-43	C5	0.0	0.1	0.1	5.6	25.6	48.2	20.4	55.0	24.2	0	1
43-60+	C6	0.0	0.1	0.2	8.8	30.4	43.9	16.6	61.4	21.0	0	1

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM c25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.3		9.4	0.62	0.040	15.5		3.0	38	-			6.1
8.8		9.8	0.47	0.043	10.9		2.9	40	-			6.2
9.1		10.1	0.45	0.048	9.4		20.1	39	-			7.4
8.9		9.9	0.36				34.8	35	-			5.6
7.9		9.1	0.45				43.5	35	6.3			8.4
8.5		9.0	0.32				37.0	38	10.1			8.6
8.8		9.2	0.35				30.0	38	6.1			7.7

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
10.9				1.2	1.9	11	20.2	3.0	8.6			29.6
12.4				1.8	3.5	15	20.6	3.6	4.1			28.7
14.0				6.9	5.1	49	212.0	21.4	3.9			29.6
9.5				6.2	3.7	65	390.0	24.9	24.2			30.9
13.5				6.7	3.3	50	520.0	24.2	89.2			32.3
12.3				6.2	2.2	50	430.0	15.3	72.8			32.0
11.6				5.6	1.8	48	350.0	7.7	63.2			32.0

S56-Nev-2-5-1
A1 0- 2" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) very fine sandy loam. Moderate, medium platy. Slightly hard, very friable. Roots abundant. Very strongly calcareous. pH 9.0. Abrupt smooth boundary.

S56-Nev-2-5-2
C1 2- 5" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) silt loam. Moderate, coarse platy. Slightly hard, friable. Roots abundant. Very strongly calcareous. pH 9.0. Abrupt smooth boundary.

S56-Nev-2-5-3
C2 5- 9" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) silt loam. Massive. Slightly hard, friable. Roots abundant. Very strongly calcareous. pH 8.8. Abrupt smooth boundary.

S56-Nev-2-5-4
C3 9-18" Very pale brown (10YR 7/4, dry) to yellowish brown (10YR, moist). Very fine sandy loam. Massive. Slightly hard, friable. Roots abundant. Very strongly calcareous. pH 8.4. Abrupt smooth boundary.

S56-Nev-2-5-5
C4 18-32" Very pale brown (10YR 7/4, dry) to yellowish brown (10YR 5/4, moist) silt loam. Massive. Slightly hard, friable. Roots abundant. Very strongly calcareous. pH 8.4. Abrupt smooth boundary.

S56-Nev-2-5-6
C5 32-43" Very pale brown (10YR 7/4, dry) to yellowish brown (10YR 7/4, dry) to yellowish brown (10YR 5/4, moist) silt loam. Massive. Slightly hard, friable. Few roots. Very strongly calcareous. pH 8.4. Abrupt smooth boundary. This horizon is slightly harder than above horizon.

S56-Nev-2-5-7
C6 43-60"+ Very pale brown (10YR 7/4, dry) to yellowish brown (10YR 5/4, moist) very fine sandy loam. Massive. Slightly hard, friable. Few roots; very strongly calcareous. pH 8.4.

1/ The Glendale series is in a fine-loamy, mixed, calcareous, thermic family of Typic Torrifluvents. This pedon is in a coarse-silty family of the same subgroup.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Torrifluvent, fine-loamy, mixed, calcareous, thermic (Gila taxadjunct)

SURVEY NOS. S59Nev-2-15 **LAB. NOS.** 5988 - 5995

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 6	C_1	0.0	0.3	0.8	20.6	32.3	28.8	17.2	65.4	13.1	0	vfsl
6- 9	IIC2	0.0	0.2	0.2	4.5	22.3	47.8	25.0	49.9	24.2	0	l
9-16	IIIC3	0.0	0.3	0.3	18.1	41.1	23.6	16.6	72.4	8.9	0	vfsl
16-20	IVC4	0.1	0.1	0.4	7.0	15.9	43.2	33.3	38.0	27.2	0	cl
20-27	VC5	0.1	0.3	1.5	22.4	29.0	28.9	17.8	64.1	12.5	0	vfsl
27-35	VIC6	0.0	0.1	0.2	9.4	27.3	41.7	21.3	58.3	19.4	0	l
35-53	VIC7	0.2	0.3	0.3	10.1	27.4	40.3	21.4	59.4	17.6	0	l
53-60	VIIC8	0.1	0.1	0.2	19.3	39.3	25.5	15.5	74.3	8.7	0	vfsl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	-	8.6	0.07	0.003		1.8	14.0	13				5.7
7.7	-	8.5	0.14	0.017		1.4	18.9	17				8.5
7.7	-	8.5	0.10	0.011		2.0	24.3	10				5.4
7.5	-	8.2	0.20	0.020		1.3	35.2	15				10.8
7.6	-	8.4	0.06			0.9	29.4	14				6.6
7.5	-	8.3	0.07			0.9	25.0	14				7.5
7.5	-	8.3	0.22			2.6	27.8	16				8.1
7.7	-	8.9	0.05			1.9	21.3	14				5.7

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
12.4				1.0	1.0	8	50.6	3.3	74.7	28.1	133.6	27.8
14.5				2.3	1.0	16	156.3	3.4	149.8	61.3	346.2	35.9
9.7				1.7	0.5	18	125.0	2.1	124.6	64.8	284.3	29.2
17.8				2.7	0.8	15	168.8	2.4	178.9	89.6	374.8	36.7
11.0				1.8	0.6	16	148.4	2.2	130.1	67.4	303.1	27.5
11.5				2.1	0.7	18	148.4	2.5	129.1	75.9	297.5	29.5
13.1				2.3	0.8	18	140.6	2.4	112.1	60.3	257.6	32.6
7.7				2.8	0.7	36	146.9	1.9	89.5	74.9	183.0	28.1

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of the whole soil.

Series not designated [1/]

S59Nev-2-15

Description: L. N. Langan and V. D. Leavitt.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant and R. Nelson.
Location: The site is located approximately 50 feet west and 400 feet north of the apparent east 1/4 corner of Section 15, T14S, R65E.
Relief: Smooth, nearly level, dissected by several shallow and a few moderately deep gullies.
Physiography: Alluvial floodplain or alluvial fans.
Drainage: Well drained. Runoff is slow during periods of normal rainfall, internal drainage is moderate, and the soil permeability is moderate. The water table is reported to be at depths greater than 25 feet.
Parent Material: Silty alluvium derived from mixed sedimentary rock sources including limestone, sandstone, quartzite, and silty and clayey Miocene lake sediments.
Use: Limited livestock grazing.
Vegetation: Vegetative cover consists primarily of creosote bush, honey mesquite, shadscale, Allenrolfea, and various Atriplex (salt bushes). The plant density is approximately 3 percent.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68 degrees F., a mean July temperature of 87°F., and mean January temperature of 44°F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: This soil is strongly saline.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Typic Torrifluvent, fine-loamy, mixed, calcareous, thermic (Gila taxadjunct)

Riverside Lab. Nos.
5988 through 5995

C_1	0- 6"	Pink (7.5YR 7/4) finely stratified silt loam and very fine sandy loam, brown (7.5YR 5/4) when moist; moderate to strong medium and fine platy structure; hard, friable, slightly sticky and nonsticky, slightly plastic and nonplastic; few very fine and fine fibrous roots; few very fine and fine tubular pores; strongly calcareous; pH 8.6; abrupt smooth boundary.
IIC_2	6- 9"	Pink (7.5YR 7/4) finely stratified silt loam and silty clay loam, brown (7.5YR 5/4) when moist; the silty clay loam strata have many fine prominent white (10YR 8/2) gypsum flecks; weak fine and medium platy structure; hard, friable, slightly sticky and sticky, slightly plastic and plastic; common very fine and fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark Co., Nevada

SOIL FAMILY: Typic Torrifluvent, fine-loamy, mixed, calcareous, thermic (Gila taxadjunct)

SURVEY NOS. S59Nev-2-15 **LAB. NOS.** 5988 - 5995

DEPTH INCHES	HORIZON	1E1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 6	C_1	0.0	0.3	0.8	20.6	32.3	28.8	17.2	65.4	13.1	0	vfsl
6- 9	IIC2	0.0	0.2	0.2	4.5	22.3	47.8	25.0	49.9	24.2	0	l
9-16	IIIC3	0.0	0.3	0.3	18.1	41.1	23.6	16.6	72.4	8.9	0	vfsl
16-20	IVC4	0.1	0.1	0.4	7.0	15.9	43.2	33.3	38.0	27.2	0	cl
20-27	VC5	0.1	0.3	1.5	22.4	29.0	28.9	17.8	64.1	12.5	0	vfsl
27-35	VIC6	0.0	0.1	0.2	9.4	27.3	41.7	21.3	58.3	19.4	0	l
35-53	VIC7	0.2	0.3	0.3	10.1	27.4	40.3	21.4	59.4	17.6	0	l
53-60	VIIC8	0.1	0.1	0.2	19.3	39.3	25.5	15.5	74.3	8.7	0	vfsl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	-	8.6	0.07	0.003		1.8	14.0	13				5.7
7.7	-	8.5	0.14	0.017		1.4	18.9	17				8.5
7.7	-	8.5	0.10	0.011		2.0	24.3	10				5.4
7.5	-	8.2	0.20	0.020		1.3	35.2	15				10.8
7.6	-	8.4	0.06			0.9	29.4	14				6.6
7.5	-	8.3	0.07			0.9	25.0	14				7.5
7.5	-	8.3	0.22			2.6	27.8	16				8.1
7.7	-	8.9	0.05			1.9	21.3	14				5.7

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
12.4				1.0	1.0	8	50.6	3.3	74.7	28.1	133.6	27.8
14.5				2.3	1.0	16	156.3	3.4	149.8	61.3	346.2	35.9
9.7				1.7	0.5	18	125.0	2.1	124.6	64.8	284.3	29.2
17.8				2.7	0.8	15	168.8	2.4	178.9	89.6	374.8	36.7
11.0				1.8	0.6	16	148.4	2.2	130.1	67.4	303.1	27.5
11.5				2.1	0.7	18	148.4	2.5	129.1	75.9	297.5	29.5
13.1				2.3	0.8	18	140.6	2.4	112.1	60.3	257.6	32.6
7.7				2.8	0.7	36	146.9	1.9	89.5	74.9	183.0	28.1

* Saturation Extract Soluble - milliequivalents per liter.

1/ Percent of the whole soil.

$IIIC_3$	9-16"	Pink (7.5YR 7/4) very fine sandy loam, brown (7.5YR 5/4) when moist; weak medium and coarse platy structure; hard, friable, nonsticky, very slightly plastic; few very fine and fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
IVC_4	16-20"	Pink (7.5YR 7/4) light sandy clay loam, brown (7.5YR 5/4) when moist; many fine prominent white (10YR 8/2) gypsum flecks; weak coarse platy breaking to moderate medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; few very fine fibrous roots; many very fine and fine and few medium tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
VC_5	20-27"	Pink (7.5YR 7/4) finely stratified fine sandy loam, very fine sandy loam, and loamy fine sand, with fine sandy loam predominating, brown (7.5YR 5/4) when moist; horizon contains occasional very thin (less than 1 inch) lenses of sand between strata; few to common fine prominent white (10YR 8/2) gypsum flecks on some plate surfaces; moderate fine and medium platy structure; slightly hard, very friable, nonsticky, nonplastic; few very fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
VIC_6	27-35"	Pink (7.5YR 7/4) finely stratified fine sandy loam and silt loam, with silt loam predominating, brown (7.5YR 5/4) when moist; few to common fine prominent white (10YR 8/2) gypsum flecks on some plate surfaces; moderate medium and fine platy structure; slightly hard, friable, slightly sticky, slightly plastic; few very fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
VIC_7	35-53"	Pink (7.5YR 7/4) finely stratified silt loam, fine sandy loam and silty clay loam with silt loam predominating, brown (7.5YR 5/4) when moist; few to common fine prominent white (10YR 8/2) gypsum flecks on some plate surfaces; weak coarse and medium platy structure; hard, friable, nonsticky and sticky, nonplastic and plastic; few very fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
$VIIC_8$	53-60"	Pink (7.5YR 7/4) very fine sandy loam, brown (7.5YR 5/4) when moist; few to common fine prominent white (10YR 8/2) gypsum flecks on some plate surfaces; moderate medium to coarse platy structure; soft to slightly hard, friable, very slightly plastic; no roots observed; few very fine tubular pores; strongly calcareous; pH 8.6.

1/ The Gila series is in a coarse-loamy, mixed, calcareous, thermic family of Typic Torrifluvents (see pedon S59Nev-2-14). This pedon is in a fine-loamy family of the same subgroup.

SOIL SURVEY LABORATORY Riverside, California

OIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torrifluvent, fine-silty, carbonatic, thermic (Glendale taxadjunct)

SURVEY NOS. S56Nev. 2-6 **LAB. NOS.** 5666-71

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1	2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-2	A1	0.1	0.1	0.2	4.5	25.8	53.3	16.0	56.7	26.5	0	sil
2-6	C1	0.0	0.1	0.1	4.0	28.6	48.8	18.4	56.5	24.5	0	l
6-11	C2	0.0	0.1	0.2	3.4	29.8	47.9	18.6	57.6	23.2	0	l
11-26	C3	0.0	0.1	0.1	1.3	5.6	60.0	32.9	18.8	47.9	0	sicl
26-36	C4	0.0	0.1	0.0	0.8	5.1	75.0	19.0	36.2	44.5	0	sil
36-60+	C5	0.0	0.1	0.0	1.2	7.5	68.8	22.4	31.9	45.4	0	sil

pH			ORGANIC MATTER				8A1a	6E1b	6F1a	MOISTURE TENSIONS		
8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	$CaCO_3$ equivalent %	GYPSUM me./100g. SOIL	4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1		8.6	0.55	0.052	10.6		3.5	38	<1			6.9
8.1		8.9	0.34	0.033	10.3		10.7	35	1.6			6.9
8.6		8.8	0.33	0.038	8.7		43.0	32	30.8			8.7
8.8		9.1	0.46				54.0	40	34.8			14.7
8.9		9.3	0.31				42.5	40	16.0			14.8
9.0		9.3	0.32				43.0	42	15.8			11.7

5A2a CATION EXCHANGE CAPACITY	EXTRACTABLE CATIONS 5B					5D1	SATURATION EXTRACT SOLUBLE 8A1					8A
	5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	Exch. Na %	6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	MOISTURE AT SATURATION %
←(Na)	milliequivalents per 100g. soil →						← milliequivalents per liter →					
12.2				0.6	1.4	5	7.0	2.9	36.6			30.6
13.2				3.1	1.7	23	91.5	4.2	31.7			28.1
13.3				8.1	1.9	61	580.0	14.2	47.3			31.0
17.4				9.6	3.3	55	712.0	26.2	97.5			44.5
15.6				7.7	3.1	49	544.0	22.0	95.9			38.5
14.8				5.4	2.9	36	520.0	22.8	131.8			40.0

Series not designated [1/]
S56Nev-2-6

Collectors: Reuben E. Nelson, L. Dunn, and L. N. Langan
Sampled: February 1956.
Description: L. N. Langan

Location: Approximately 650 feet west of the northwest fence corner of the Winterwood Ranch. It is 650 feet west and 50 feet south of 1/4 cor., sec. 4, T. 21 S., R. 62 E. and sec. 33, T. 20 S., R. 62 E., in the NE1/4, NW1/4, sec. 4, T. 21 S., R. 62 E., Las Vegas SCD, Clark County, Nevada. It is approximately 50 feet south of Charleston Blvd.

Elevation: 1,800 to 1,900 feet.

Use: Desert range

Relief: Smooth nearly level flood plain. Slight wind and water erosion. Slope is less than .5 percent toward the south.

Vegetation: Sparse (about 5 percent density) cover of shrubs. The vegetative cover consists of approximately 50 percent narrow leaf saltbush (A. polycarpa) and 50 percent iodinebush. Sample site is located in a small opening of mesquite. The density of the site including the mesquite would be about 15 percent, consisting of approximately 40 percent mesquite, 30 percent narrow leaf saltbush and 30 percent iodinebush.

Drainage: Runoff slow. Internal soil drainage class is well drained.

Parent Material: Mixed origin from many sources, but is primarily from reworked recent alluvial and lacustrine deposits.

Climate: Las Vegas Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is less than 5 inches. The relative humidity is low, evaporation is high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by many small barren areas with occasional small areas of salt crusting. No polygonal pattern of cracks is present.

Reaction: Measure of free carbonates obtained by observing reaction to dilute HCl; pH's determined with Thymol blue in about 1:5 soil indicator dilution.

Classification: Typic Torrifluvent, fine-silty, carbonatic, thermic (Glendale taxadjunct).

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torrifluvent, fine-silty, carbonatic, thermic (Glendale taxadjunct)

SURVEY NOS. S56Nev. 2-6 **LAB. NOS.** 5666-71

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-2	A1	0.1	0.1	0.2	4.5	25.8	53.3	16.0	56.7	26.5	0	sil
2-6	C1	0.0	0.1	0.1	4.0	28.6	48.8	18.4	56.5	24.5	0	l
6-11	C2	0.0	0.1	0.2	3.4	29.8	47.9	18.6	57.6	23.2	0	l
11-26	C3	0.0	0.1	0.1	1.3	5.6	60.0	32.9	18.8	47.9	0	sicl
26-36	C4	0.0	0.1	0.0	0.8	5.1	75.0	19.0	36.2	44.5	0	sil
36-60+	C5	0.0	0.1	0.0	1.2	7.5	68.8	22.4	31.9	45.4	0	sil

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1		8.6	0.55	0.052	10.6		3.5	38	<1			6.9
8.1		8.9	0.34	0.033	10.3		10.7	35	1.6			6.9
8.6		8.8	0.33	0.038	8.7		43.0	32	30.8			8.7
8.8		9.1	0.46				54.0	40	34.8			14.7
8.9		9.3	0.31				42.5	40	16.0			14.8
9.0		9.3	0.32				43.0	42	15.8			11.7

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
12.2				0.6	1.4	5	7.0	2.9	36.6			30.6
13.2				3.1	1.7	23	91.5	4.2	31.7			28.1
13.3				8.1	1.9	61	580.0	14.2	47.3			31.0
17.4				9.6	3.3	55	712.0	26.2	97.5			44.5
15.6				7.7	3.1	49	544.0	22.0	95.9			38.5
14.8				5.4	2.9	36	520.0	22.8	131.8			40.0

S56-Nev-2-6-1

A1 0- 2" Very pale brown (10YR 7/3, dry) to brown (10YR 5/3, moist) very fine sandy loam. Moderate, weak to medium platy. Slightly hard, friable. Roots abundant. Very strongly calcareous. pH 8.6. Abrupt smooth boundary.

S56-Nev-2-6-2

C1 2- 6" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) silt loam with few, fine, distinct white lime mottlings. Moderate, coarse platy. Roots abundant. Very strongly calcareous. pH 8.6. Abrupt smooth boundary.

S56-Nev-2-6-3

C2 6-11" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) silt loam. Moderate, medium subangular blocky. Hard, friable. Roots abundant. Very strongly calcareous. pH 8.6. Smooth abrupt boundary.

S56-Nev-2-6-4

C3 11-26" Pink (7.5YR 7/4, dry) to brown (7.5YR 5/4, moist) silt loam. Weak, fine to medium subangular blocky. Slightly hard, friable, slightly sticky. Very strongly calcareous. pH 8.4. Smooth abrupt boundary.

S56-Nev-2-6-5

C4 26-36" Pink (7.5YR, dry) to brown (7.5YR 5/4, moist) silt loam with few fine distinct white lime mottlings. Massive. Slightly hard, friable, slightly sticky. Very strongly calcareous. pH 8.6. Smooth abrupt boundary.

S56-Nev-2-6-6

C5 36-60"+ Brown (7.5YR, moist) silt loam. Moderate, fine platy. Friable, slightly sticky. Very strongly calcareous. pH 8.4.

1/ The Glendale series is in a fine-loamy, mixed, calcareous, thermic family of Typic Torrifluvents. This pedon is in a fine-silty family of the same subgroup.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torrifluvent, fine, mixed, calcareous, thermic (Mead taxadjunct)

SURVEY NOS. S56Nev. 2-7 **LAB. NOS.** 5672-77

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 2/	TEXTURAL CLASS
0-2	A1	25.2	9.0	8.0	30.9	16.5	7.0	3.4	43.1	1.3	26	cos
2-9	IIC1cs	7.1	3.4	3.0	11.4	10.5	29.7	34.9	32.0	16.0	23	cl
9-16	IIIC2cs	0.0	0.2	0.5	5.7	14.9	41.9	36.8	39.3	22.1	17	cl
16-23	IIIC3cs	0.0	0.3	0.7	3.9	6.9	33.7	54.5	19.1	24.4	10	c
23-33	IIIC4	0.1	1.6	5.2	22.9	12.9	23.5	33.8	36.1	15.7	6	cl
33-60	IIIC5	0.0	0.6	2.3	14.4	14.2	29.6	38.9	34.7	19.6	2	cl

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.2		9.3	0.10	0.009			7.1	2	-	8.5	6.2	3.0
8.3		8.6	0.11	0.012			35.2	8	30.0			10.6
8.0		9.0	0.12	0.012			42.4	7	9.7			13.0
8.2		8.6	0.19				45.8	10	14.6			20.7
8.2		8.9	0.13				44.2	6	8.4			13.9
8.1		9.2	0.17				42.0	6	tr.			19.2

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 1/ 6P2a	Exch. 5B1b K 6Q2a	5D1 1/ Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a 6O1a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
8.9				2.5	1.1	28	47.0	1.2	16.3			21.0
25.0				14.3	2.2	57	335.0	2.8	47.3			35.0
27.7				16.1	1.5	58	468.0	1.7	45.5			43.4
38.1				21.0	1.8	55	496.0	2.1	56.4			56.8
26.5				14.3	1.6	54	496.0	2.4	55.9			43.2
28.6				14.7	2.0	51	580.0	3.2	53.3			48.0

1/ Due to the high salt content, the accuracy of these values is low.

2/ Percent of the whole soil.

Series not designated [1/]
S56Nev-2-7

Collectors: Reuben E. Nelson, L. Dunn, and L. N. Langan, February, 1956.

Description: L. N. Langan

Location: Approximately 9 1/2 miles south, southwest of Boulder City, at that 1/4 cor. of sec. 16 and 15, T. 24 S., R. 63 E., Las Vegas SCD, Clark County, Nevada. It is approximately 1/2 mile west of U.S. Highway 95 between Railroad Pass and Searchlight.

Elevation: Approximately 1500 feet.

Use: Desert range

Relief: Smooth, nearly level toe of slope on alluvial fan adjacent to a playa. There is a regular microrelief of 4 to 8 inches due to wind erosion and deposition. High spots are under shrubs and low spots are barren. Occasional shallow gullies are present. Slope is less than 0.5 percent, slightly convex, toward the northwest.

Vegetation: Very sparse (less than 1 percent density) cover of shrubs. The vegetative cover consists of approximately 60 percent narrow leaf saltbush, (Atriplex polycarpa) and 40 percent iodinebush.

Drainage: Runoff slow. Internal soil drainage class is very slow. This soil was moist throughout at the time of sampling.

Parent Material: Old lacustrine or playa deposit from mixed sources. It is questionable whether this soil is zonal or basin alluvial.

Climate: Dry Lake Valley is characterized by an arid climate with mild winters and hot, dry summers. The average annual rainfall is about 5 inches and the average annual temperature about 67°. The relative humidity is low, evaporation high, and range in temperatures wide. Winds of high velocity are common throughout the year. The growing season is long with a frost-free period of approximately 240 days.

Other Features: The soil surface is characterized by a very weak desert pavement. Loamy fine sands are found in small hummocks (approximately 4 to 8 inches) under shrubs. Some areas appear to have a very thin (1/8 to 1/4 inch) A_v horizon composed of pink (7.5YR 7/4, dry) gravelly loamy fine sand.

Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl; pH's determined with thymol blue in about 1:5 soil indicator dilution.

Classification: Typic Torrifluvent, fine, mixed, calcareous, thermic (Mead taxadjunct).

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torrifluvent, fine, mixed, calcareous, thermic (Mead taxadjunct)

SURVEY NOS. S56Nev. 2-7 **LAB. NOS.** 5672-77

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 2/	TEXTURAL CLASS
0-2	A1	25.2	9.0	8.0	30.9	16.5	7.0	3.4	43.1	1.3	26	cos
2-9	IIC1cs	7.1	3.4	3.0	11.4	10.5	29.7	34.9	32.0	16.0	23	cl
9-16	IIIC2cs	0.0	0.2	0.5	5.7	14.9	41.9	36.8	39.3	22.1	17	cl
16-23	IIIC3cs	0.0	0.3	0.7	3.9	6.9	33.7	54.5	19.1	24.4	10	c
23-33	IIIC4	0.1	1.6	5.2	22.9	12.9	23.5	33.8	36.1	15.7	6	cl
33-60	IIIC5	0.0	0.6	2.3	14.4	14.2	29.6	38.9	34.7	19.6	2	cl

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a ORGANIC MATTER NITROGEN %	C/N	EST% SALT (BUREAU CUP)	9A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.2		9.3	0.10	0.009			7.1	2	-	8.5	6.2	3.0
8.3		8.6	0.11	0.012			35.2	8	30.0			10.6
8.0		9.0	0.12	0.012			42.4	7	9.7			13.0
8.2		8.6	0.19				45.8	10	14.6			20.7
8.2		8.9	0.13				44.2	6	8.4			13.9
8.1		9.2	0.17				42.0	6	tr.			19.2

5A2a CATION EXCHANGE CAPACITY (-(Na)	5B1a EXTRACTABLE CATIONS 5B Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 1/ 6P2a	Exch. 5B1b K 6Q2a	5D1 1/ Exch. Na %	6P1a SATURATION EXTRACT SOLUBLE 8A1 Na	6Q1a K	6N1a 601a Ca+Mg		6K1a Cl	8A MOISTURE AT SATURATION %
	← milliequivalents per 100g. soil →						← milliequivalents per liter →					
8.9				2.5	1.1	28	47.0	1.2	16.3			21.0
25.0				14.3	2.2	57	335.0	2.8	47.3			35.0
27.7				16.1	1.5	58	468.0	1.7	45.5			43.4
38.1				21.0	1.8	55	496.0	2.1	56.4			56.8
26.5				14.3	1.6	54	496.0	2.4	55.9			43.2
28.6				14.7	2.0	51	580.0	3.2	53.3			48.0

1/ Due to the high salt content, the accuracy of these values is low.

2/ Percent of the whole soil.

S56-Nev-2-7-1

A1 0- 2" Very pale brown (10YR 7/3, dry) to dark brown (10YR 4/3, moist) light clay loam. Strongly vesicular. Hard, friable, slightly sticky, slightly plastic. Few roots. Very strongly calcareous. pH 9.6. Abrupt smooth boundary.

S56-Nev-2-7-2

IIC1cs 2- 9" Reddish-brown (5YR 5/4, dry; 4/4 moist) very gravelly clay loam. Weak, very coarse to coarse, prismatic. Hard, friable, sticky, slightly plastic. Numerous roots. Very strongly calcareous. pH 8.2. Abrupt wavy boundary.

S56-Nev-2-7-3

IIIC2cs 9-16" Brown (7.5YR 5/4, dry) to dark brown (7.5YR 4/4, moist) silty clay containing many, coarse, distinct pink gypsum (?) mottlings. Moderate, fine subangular blocky structure. Hard, firm, very sticky, plastic. Very strongly calcareous. pH 8.8. Clear, wavy boundary. Many soft gypsum (?) nodules are concentrated in the upper portion of this horizon.

S56-Nev-2-7-4

IIIC3cs 16-23" Brown (7.5YR 5/4, dry) to dark brown (7.5YR 4/4, moist) silty clay containing a few, medium gypsum crystals. Strong, fine to medium, subangular blocky. Very hard, firm, very sticky, plastic. Very strongly calcareous. pH 8.4. Clear wavy boundary. Thick continuous clay skins.

S56-Nev-2-7-5

IIIC4 23-33" Light brown (7.5YR 6/4, dry) to dark brown (7.5YR 4/4, moist) silty clay. Massive. Very hard, very firm, very sticky, plastic. Very strongly calcareous. pH 8.8. Clear wavy boundary.
Included is 1" horizon of brown (10YR 5/3, dry) fine sandy loam. Massive. Hard, friable, slightly sticky. Very strongly calcareous. pH 8.6. Abrupt irregular boundary.

S56-Nev-2-7-6

IIIC5 33-60" Dark brown (7.5YR 4/4, moist) silty clay. Massive. Very hard, very firm, sticky, plastic. Very strongly calcareous. pH 8.8.

1/ The Mead series is in a fine-mixed, thermic family of Typic Salorthids (see pedon S56Nev-2-8). This pedon contains too little salt to be a Salorthid.

SOIL FAMILY: Durorthidic Xeric Torrifluvent, sandy, mixed, mesic
SOIL SERIES: Ninch fine sand SOIL Nos. S66Nev-7-3 LOCATION Humboldt County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66696 - 66704

Depth (In)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Silt Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct	2 - 19 (Pct. of < 76 mm)	19-76 (Pct. of < 76 mm)
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm																
0-6	A1	84.7	7.3	8.0	0.1	1.5	11.1	49.3	22.7	6.2	1.1	56.9	62.0	0	8	1	1	0
6-20	C1	85.9	7.5	6.6	0.1	1.1	10.7	51.1	22.9	6.3	1.2	58.2	63.0	0	7	0	0	0
20-31	C2ca	84.6	10.5	4.9	0.4	0.9	4.9	42.8	35.6	8.7	1.8	73.6	49.0	0	5	1	1	0
31-37	C3sica	82.9	12.7	4.4	1.9	3.2	6.6	38.9	32.3	9.3	3.4	67.6	50.6	0	4	0	0	0
37-56	IIC4sica	61.3	29.3	9.4	0.5	1.5	2.8	18.9	37.6	17.8	11.5	69.6	23.7	1	8	0	0	0
56-64	IIIC5sica	22.7	67.2	10.1	1.0	3.5	2.2	4.7	11.3	33.7	33.5	47.8	11.4	2	8	0	0	0
64-69	IVC6si	26.4	65.8	7.8	0.1	0.5	0.5	7.2	18.1	41.4	24.4	64.4	8.3	0	8	0	0	0
69-72	IVC7	54.4	38.3	7.3	0.0	0.6	1.2	20.6	32.0	28.3	10.0	75.5	22.4	0	7	0	0	0
72-78+	VC8	97.9	1.0	1.1	17.7	33.1	30.5	15.7	0.9	0.9	0.1	5.2	97.0	0	1	29	29	0
31-37	Durinodes															0	0	0
37-56	Durinodes	54.4	35.9	9.7	0.5	1.0	1.3	12.3	39.3	21.3	14.6	70.8	15.1	3	7	1	1	0

Depth (In)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-6	0.21	0.025	8		-	3					1		4.7			7.4	7.4	7.5
6-20	0.21				-	3					1		4.9			7.9	8.1	8.9
20-31	0.14				2	3					1		4.7			8.4	8.6	9.3
31-37	0.12				4	2					1		5.3			9.1	9.7	10.1
37-56	0.14				9	4	1.35	1.38		1.00	2	17.7	10.1	0.008	0.008	9.4	9.8	10.2
56-64	0.12				11	5	1.25	1.30		1.00	3	29.5	12.3	0.011	0.011	9.3	9.9	10.1
64-69	0.09				-	4					3		10.6			9.1	9.6	9.9
69-72	0.07				-	2					2		7.6			9.3	9.7	9.9
72-78+	0.04				-	1					0		1.8			9.5	9.6	8.5
31-37					7													
37-56	0.14				13	6					2		12.0			9.2	9.8	10.2

Depth (In)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	8A1 6K1a Cl	6L1a SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-6	5.4	1.7	0.3	1.8				9.6	3.7	2.3	1.9	1.0		-	3.3	0.3		0.88
6-20	6.7	1.2	0.3	1.8				9.8	1.9	0.6	1.5	0.5		-	4.0	0.2		0.50
20-31	7.7	1.6	0.6	2.2				9.5	1.0	0.4	2.6	0.7		-	4.2	0.3		0.53
31-37	5.2	1.4	6.1	2.6				10.7	1.8	2.3	13.6	0.3		1.9	11.2	0.3		1.50
37-56	4.6	0.7	13.0	2.8				14.5	0.3	0.2	22.2	0.6		9.4	14.1	1.2		2.05
56-64	7.7	0.6	22.9	3.0				25.7	0.4	0.2	26.2	1.7		10.2	14.2	1.2		2.07
64-69	1.4	0.4	19.4	2.7				22.6	0.3	0.3	20.2	0.4		5.4	10.9	1.4		2.03
69-72	1.3	0.4	14.1	1.8				16.3	0.4	0.2	18.8	0.4		1.2	14.6	1.9	4.6	2.20
72-78+	0.8	0.3	2.3	0.4				4.1	0.1	0.2	8.8	tr.		-	8.2	0.8		1.00
31-37								11.6										
37-56	4.6	0.7	14.0	3.0				15.9	0.5	0.4	21.4	0.5		6.9	14.1	1.0		2.20

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca (meq./100 g.)	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 7A1 Mont. (X-ray)	Illite	Kaolinite 7A2	Others
0-6	30.4	5.3	1.6	0.2	2	1.1		xxx	xx	x	Qtz.,fld.,calcite
6-20	32.7	6.6	1.2	0.2	2	1.3					
20-31	34.9	7.7	1.6	0.5	5	3.1					
31-37	34.0	5.1	1.3	5.6	52	9					
37-56	41.3	4.6	0.7	12.1	83	44		xxxx	x	tr.	Calcite,qtz.
56-64	42.7	7.7	0.6	21.8	84	48					
64-69	40.2	1.4	0.4	18.6	82	37					
69-72	38.0	1.3	0.4	13.4	82	34					
72-78+	23.8	0.8	0.3	2.1	51	23					
37-56	44.4	4.6	0.7	13.0	82	32		xxxx	x	tr.	Calcite,qtz.

1/ From characterization sample (5 kg.)

Micromorphology

Sands and silts consist of volcanic rock fragments, quartz, feldspar, glass shards, and chlorite. There are a few frosted spherical quartz and feldspar grains in the A1 horizon. Lime and silica line the pores of the IIIC5sica horizon and cement a few areas of the matrix (the durinodes).

NINCH FINE SAND
S66Nev-7-3

Location: Humboldt County, Nevada. The site is on the Glen McNinch Ranch, about 2½ miles northwest of the Winnemucca Airport. It is about 700 feet south and 500 feet east of the N¼ corner of Section 20, T.36N., R.38E., Mount Diablo base line and meridian. Date of Sampling: May 12, 1966.
Description by: L. N. Langan and L. Larsen. Collectors: D. Nettleton, B. Brasher, L. Langan, E. Spencer, and L. Larsen.
Classification: **Durorthidic Xeric Torrifluvent, sandy, mixed, mesic.**
Vegetation: Big sagebrush, greasewood, and rabbitbrush with an understory of Indian ricegrass, needle-and-thread, saltgrass, western wheatgrass, and false alfalfa. Climate: Mean annual rainfall is estimated at 8 to 10 inches; mean annual soil temperature at 50° F.; and mean summer soil temperature at 66° F. Parent Material: A thin sandy aeolian mantle high in volcanic ash superimposed over stratified alluvium of highly mixed lithologic origin. Topography: Hummocky, partially stabilized low dunes superimposed over nearly level stream-cut terraces. Elevation: About 4,340 feet. Drainage: Somewhat excessively drained. Soil Moisture: Dry or almost dry to 60 inches and moist below that depth at time of sampling.
Remarks: pH values determined with bromthymol blue and thymol blue in 1:5 dilution.

HORIZON

A1 RSL 66696	0 to 6 inches, light brownish gray (10YR 6/2)* fine sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky, nonplastic; plentiful micro and very fine roots; many very fine and micro interstitial pores; upper 2 inches are single grained and have loose dry and moist consistence; neutral (pH 7.2); clear smooth boundary.
C1 RSL 66697	6 to 20 inches, light brownish gray (10YR 6/2) fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky, nonplastic; plentiful micro, very fine, and fine roots; many micro and very fine interstitial pores; neutral (pH 7.2); abrupt smooth boundary.
C2ca RSL 66698	20 to 31 inches, pale brown (10YR 6/3) fine sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky, nonplastic; few fine, and plentiful very fine and fine roots; many micro interstitial, and few micro tubular pores; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
C3sica RSL 66699 66699A	31 to 37 inches, pale brown (10YR 6/3) loamy fine sand, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful micro and very fine, and few fine roots; many micro, and common micro and very fine tubular pores; contains 10 percent hard, friable, brittle cylindrical durinodes (sampled as 66699A); violently effervescent; very strongly alkaline (pH 9.6); abrupt wavy boundary.
IIC4sica RSL 66700 66700A	37 to 56 inches, light gray (2.5Y 7/2) very fine sandy loam, with many medium distinct white (10YR 8/2) lime segregations, grayish brown (2.5Y 5/2) moist; massive; hard, friable, nonsticky, nonplastic; few micro and very fine roots; many micro and very fine, and few fine tubular pores; contains 40 percent very hard and hard, firm, brittle cylindrical durinodes (sampled as 66700A); contains few very thin (1 mm) discontinuous, randomly oriented silica laminae; violently effervescent; very strongly alkaline (pH 9.2); abrupt wavy boundary.
IIIC5sica RSL 66701	56 to 64 inches, light gray (2.5Y 7/2) clay loam, with many fine and medium distinct white (10YR 8/2) lime segregations, grayish brown (2.5Y 5/2) moist; weak medium platy structure; hard, friable, sticky, plastic; few micro and very fine roots; common micro and very fine tubular pores; contains many very fine and fine (less than ¼ inch) very hard, very firm, brittle durinodes; violently effervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.
IVC6si RSL 66702	64 to 69 inches, light brownish gray (2.5Y 6/2) very fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak medium platy structure; hard, friable, nonsticky, nonplastic; few very fine and micro roots; many micro, and common very fine tubular pores; contains many very fine and fine (less than ¼ inch), very hard, firm, brittle durinodes; noneffervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.
IVC7 RSL 66703	69 to 72 inches, light brownish gray (2.5Y 6/2) very fine sandy loam, grayish brown (2.5Y 4/2) moist; massive; slightly hard, very friable, nonsticky, nonplastic; few very fine roots; many micro interstitial, and common micro and very fine tubular pores; noneffervescent; very strongly alkaline (pH 9.4); abrupt smooth boundary.
VC8 RSL 66704	72 to 78+ inches, light brownish gray (10YR 6/2) gravelly coarse sand with many white (10YR 8/1) to black (10YR 2/1) individual pebble and sand grains, dark grayish brown (10YR 4/2) moist; single grain; loose dry and moist; few very fine roots; many very fine and fine interstitial pores; noneffervescent; strongly alkaline (pH 8.8).

* Colors for dry conditions unless otherwise noted.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Calico fine sandy loam **LOCATION** Clark County, Nevada

Aquic Xerofluvent, coarse-loamy over clayey, mixed, calcareous, thermic

SURVEY NOS S59Nev-2-11 **LAB. NOS.** 5958 thru 5966

DEPTH INCHES	HORIZON	1C1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	A_p	0.1	0.4	1.8	29.2	25.9	32.3	10.3	70.4	10.2	0	fsl
6-15	C_1	0.1	0.2	1.0	26.9	28.0	34.6	9.2	73.2	11.3	0	vfsl
15-22	C_2	0.0	0.1	0.3	9.6	31.3	49.8	8.9	76.6	13.0	0	l-sil
22-25	IIIC3	0.0	0.1	0.2	1.3	2.3	65.3	30.8	14.6	53.9	0	sicl
25-31	IVAb11	0.1	0.4	0.8	2.9	2.3	46.6	46.9	14.6	41.5	0	sic
31-34	IVAb12	0.1	0.4	1.0	3.2	2.4	46.4	46.5	9.1	41.7	0	sic
34-37	IVAb13	0.2	1.9	4.0	9.9	2.7	40.6	40.7	13.4	35.3	0	sic
37-43	VC1g	1.3	9.2	16.5	38.1	10.5	14.3	10.1	37.3	8.2	0	fsl
43-60+	VIC2	0.8	6.8	16.1	52.0	14.1	6.7	3.5	48.3	2.4	0	fs

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8	0.2	8.5	0.57	0.057	10.0	6.2	6.2	8				6.9
7.7	-	9.1	0.36	0.033	10.9	5.7	2.0	9				6.5
7.9	-	9.2	0.19	0.022		4.7	1.8	12				7.0
7.8	-	8.9	1.04	0.100	10.4	5.8	1.2	14				17.8
7.8	-	8.9	1.39	0.133	10.5	5.1	2.0	13				21.4
7.7	-	8.9	1.36	0.127	10.7	4.7	2.2	13				21.6
7.6	-	8.2	0.74	0.069	10.7	3.9	4.2	20				17.7
7.7	-	8.5	0.34	0.027	12.5	2.4	3.9	16				6.2
8.0	-	9.1	0.04	0.005		2.2	1.9	13				2.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
15.1				2.0	2.6	13	29.3	2.8	29.2	14.5	14.1	32.6
14.7				1.1	2.3	8	11.8	1.4	5.2	3.1	4.1	37.0
17.4				1.7	2.8	10	10.9	1.2	4.7	2.8	3.4	35.7
34.0				2.6	3.1	8	11.9	1.1	7.5	3.7	3.9	56.6
41.2				2.3	3.1	6	10.6	0.9	6.9	3.9	4.6	62.6
39.6				2.2	3.0	6	10.5	0.9	6.1	4.5	3.6	62.5
29.4				1.3	2.2	4	14.4	1.4	29.2	12.6	4.0	55.7
10.7				0.7	1.2	7	13.8	1.3	28.3	8.4	2.0	27.6
7.3				0.7	1.1	10	8.7	0.9	27.6	2.6	1.2	27.5

*Saturation Extract Soluble - milliequivalents per liter.

CALICO FINE SANDY LOAM
S59Nev-2-11

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: The site is approximately 1,500 feet west and 660 feet south of the NE corner of Sec. 2, T17S, R67E on the P. Ozaki ranch, Clark County, Nevada.
Relief: Nearly level (leveled to irrigate).
Physiography: Alluvial floodplain of the Muddy River.
Drainage: Moderately well drained. Runoff is very slow, internal drainage is moderate, and the permeability is moderately rapid to the Overton soil material which is slow. A water table is reported to be at 8½ feet.
Parent Material: Sandy alluvium from mixed lithologic sources including limestone, sandstone, rhyolite, basalt, and sandy Miocene sediments.
Use: The soil is being cultivated to a rotation of alfalfa and row crops. The present crop is spring onions.
Vegetation: Native vegetation consists of a dense stand of honey mesquite, arrowweed, and quailbrush.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68° F., a mean July temperature of 87° F., and mean January temperature of 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Reaction: Measure of free carbonate obtained by observing reaction of dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Aquic Xerofluvent, coarse-loamy over clayey, mixed, calcareous, thermic.

Riverside Lab. Nos.
5958 through 5966

A_p 0- 6" Very pale brown (10YR 7/3) fine sandy loam, dark brown (7.5YR 4/2) when moist; weak very coarse platy breaking to weak medium and fine granular structure; slightly hard, very friable, nonsticky, nonplastic; many very fine and fine fibrous roots; many very fine and fine interstitial pores; strongly calcareous, pH 8.2; clear smooth boundary.

C_1 6-15" Brown (7.5YR 5/4, moist) fine sandy loam; moderate medium and fine platy structure; slightly hard, very friable, nonsticky, nonplastic; many very fine and common fine fibrous roots; many very fine and fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.

C_2 15-22" Dark brown (7.5YR 4/2, moist) finely stratified silt loam and sandy loam; massive; slightly hard, friable and very friable, nonsticky, nonplastic; common very fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.2; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Calico fine sandy loam LOCATION Clark County, Nevada

Aquic Xerofluvent, coarse-loamy over clayey, mixed, calcareous, thermic

SURVEY NOS S59Nev-2-11 LAB. NOS. 5958 thru 5966

DEPTH INCHES	HORIZON	1E1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	A_p	0.1	0.4	1.8	29.2	25.9	32.3	10.3	70.4	10.2	0	fsl
6-15	C_1	0.1	0.2	1.0	26.9	28.0	34.6	9.2	73.2	11.3	0	vfsl
15-22	C_2	0.0	0.1	0.3	9.6	31.3	49.8	8.9	76.6	13.0	0	l-sil
22-25	IIIC3	0.0	0.1	0.2	1.3	2.3	65.3	30.8	14.6	53.9	0	sicl
25-31	IVAb11	0.1	0.4	0.8	2.9	2.3	46.6	46.9	14.6	41.5	0	sic
31-34	IVAb12	0.1	0.4	1.0	3.2	2.4	46.4	46.5	9.1	41.7	0	sic
34-37	IVAb13	0.2	1.9	4.0	9.9	2.7	40.6	40.7	13.4	35.3	0	sic
37-43	VC1g	1.3	9.2	16.5	38.1	10.5	14.3	10.1	37.3	8.2	0	fsl
43-60+	VIC2	0.8	6.8	16.1	52.0	14.1	6.7	3.5	48.3	2.4	0	fs

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8	0.2	8.5	0.57	0.057	10.0	6.2	6.2	8				6.9
7.7	-	9.1	0.36	0.033	10.9	5.7	2.0	9				6.5
7.9	-	9.2	0.19	0.022		4.7	1.8	12				7.0
7.8	-	8.9	1.04	0.100	10.4	5.8	1.2	14				17.8
7.8	-	8.9	1.39	0.133	10.5	5.1	2.0	13				21.4
7.7	-	8.9	1.36	0.127	10.7	4.7	2.2	13				21.6
7.6	-	8.2	0.74	0.069	10.7	3.9	4.2	20				17.7
7.7	-	8.5	0.34	0.027	12.5	2.4	3.9	16				6.2
8.0	-	9.1	0.04	0.005		2.2	1.9	13				2.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
15.1				2.0	2.6	13	29.3	2.8	29.2	14.5	14.1	32.6
14.7				1.1	2.3	8	11.8	1.4	5.2	3.1	4.1	37.0
17.4				1.7	2.8	10	10.9	1.2	4.7	2.8	3.4	35.7
34.0				2.6	3.1	8	11.9	1.1	7.5	3.7	3.9	56.6
41.2				2.3	3.1	6	10.6	0.9	6.9	3.9	4.6	62.6
39.6				2.2	3.0	6	10.5	0.9	6.1	4.5	3.6	62.5
29.4				1.3	2.2	4	14.4	1.4	29.2	12.6	4.0	55.7
10.7				0.7	1.2	7	13.8	1.3	28.3	8.4	2.0	27.6
7.3				0.7	1.1	10	8.7	0.9	27.6	2.6	1.2	27.5

*Saturation Extract Soluble - milliequivalents per liter.

IIIC3	22-25"	Very dark grayish brown (10YR 3.5/3, moist), clay loam with common fine reddish brown (5YR 5/4) clay lumps, and few fine prominent dark reddish brown (5YR 3/4) iron mottles; moderate medium granular structure; hard to slightly hard, friable, sticky, plastic; common very fine fibrous roots; many very fine and fine and few medium interstitial pores; many worm casts; strongly calcareous; pH 8.2; abrupt wavy boundary.
IVAb11	25-31"	Very dark grayish brown (10YR 3/3, moist) heavy clay loam with common fine, medium and coarse distinct very dark gray (10YR 3/1) organic stains; moderate medium subangular blocky structure; hard, firm to friable, very sticky, very plastic; common very fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.4; clear wavy boundary.
IVAb12	31-34"	Very dark brown (10YR 2/2, moist) light clay with few very fine dark brown (7.5YR 4/4) granules of C material; weak medium and fine granular structure; slightly hard, friable, very sticky, very plastic; very few very fine fibrous roots; common very fine, few fine and medium interstitial pores; strongly calcareous; pH 8.4; gradual wavy boundary.
IVAb13	34-37"	Very dark grayish brown (2.5Y 3/2, moist) clay with common very fine prominent yellowish red (5YR 5/6) iron and many fine faint very dark gray (2.5Y 3/0) organic, and olive gray (5Y 5/2) iron mottles; moderate medium subangular blocky structure; hard, friable, very sticky, very plastic; few very fine fibrous roots; common very fine and few medium tubular pores; strongly calcareous, pH 8.4; gradual wavy boundary.
VC1g	37-43"	Dark gray to gray (5Y 4.5/1, moist) finely stratified heavy clay loam, silt loam and fine sandy loam with many fine prominent white (10YR 8/1) gypsum flecks; weak medium and fine granular structure; very hard and slightly hard, firm and friable, very sticky and very slightly sticky, very plastic and nonplastic; few very fine fibrous roots; many very fine and very few fine interstitial pores; strongly calcareous; pH 8.4; abrupt wavy boundary.
VIC2	43-60"+	Pale brown (10YR 6/3, moist) fine sand; single grained; loose, nonsticky, nonplastic; few very fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-loamy, mixed, calcareous, thermic (Calico taxadjunct)

SURVEY NOS. S59 Nev-2-12 **LAB. NOS.** 5967 thru 5974

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-4	A_{p1}	0.2	0.9	5.7	44.6	17.2	20.4	11.0	56.1	9.5	0	fsl
4-12	C_1	0.1	0.9	5.6	43.7	18.1	20.4	11.2	57.1	9.2	0	fsl
12-17	C_2	0.1	0.6	3.3	33.4	24.4	26.1	12.1	63.7	9.7	0	fsl
17-30	C_3	0.4	0.3	0.3	2.0	10.0	70.0	17.0	50.3	31.2	1	sil
30-33	IIC4	0.4	2.0	1.4	4.0	4.5	54.5	33.2	14.8	46.8	0	sicl
33-43	IIIC5	0.1	0.2	0.3	1.2	1.9	63.9	32.4	21.9	44.7	0	sicl
43-46	IVA'1	0.2	1.0	1.0	3.3	4.5	49.0	41.0	16.3	39.5	0	sic
46-63+	IVC1g	0.3	0.7	1.1	5.2	3.3	49.3	40.1	12.8	43.1	0	sic-sicl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8D1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9	-	9.0	0.65	0.064	10.2	11.2	1.5	9				7.0
7.8	-	9.1	0.53	0.056	9.5	8.9	2.2	9	1.56			7.4
7.8	0.2	9.2	0.40	0.041	9.5	8.0	2.4	9	1.52			8.6
7.8	-	9.0	0.44	0.041	10.7	3.9	3.2	14	1.41			10.3
7.8	-	8.5	1.35	0.169	8.0	3.7	5.2	19				20.2
7.8	-	8.6	1.19	0.100	11.9	5.4	4.9	24				19.4
7.9	-	8.6	2.54	0.153	16.6	3.7	4.1	26				25.6
7.7	-	8.5	0.84	0.077	10.9	3.1	5.1	20				22.8

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	8A1 6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
14.2				1.4	2.3	10	9.3	1.2	4.4	3.4	1.9	30.5
14.6				1.5	2.3	11	12.8	1.3	6.4	4.3	3.9	31.0
15.1				1.7	2.5	11	13.9	1.7	6.1	4.9	4.0	31.9
23.5				2.7	3.1	12	17.9	1.5	10.4	5.7	6.8	47.5
39.5				4.4	3.3	11	27.5	1.0	24.1	16.0	3.4	93.7
34.6				4.3	2.3	12	29.4	0.8	20.9	13.0	5.6	65.9
37.1				3.7	2.2	10	25.5	0.8	13.6	10.0	6.7	86.0
33.0				3.4	1.9	10	27.8	1.1	22.6	11.4	7.9	71.2

* Saturation Extract Soluble - milliequivalents per liter.

Series not designated [1/]

S59Nev-2-12

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: The site is located approximately 100 feet south and 75 feet west of the apparent north 1/4 corner of Section 27, T16S, R67E on the University of Nevada Southern Nevada Experiment Station, Clark County, Nevada.
Relief: Nearly level (leveled to irrigate).
Physiography: Alluvial floodplain of the Muddy River.
Drainage: Moderately well drained. Runoff is very slow, internal drainage is moderate and permeability is moderately rapid to the Overton soil material which is slow. A water table is reported to be at 7 to 8 feet.
Parent Material: Sandy alluvium from mixed lithologic sources including limestone, sandstone, rhyolite, basalt, and sandy Miocene sediments.
Use: The soil is being cultivated to a rotation of row and forage crops for experimental purposes. The present crop is alfalfa (aphid resistant alfalfa trials).
Vegetation: Native vegetation consists of a dense stand of honey mesquite, arrowweed and quailbush.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68° F., a mean July temperature of 87° F., and mean January temperature of 44° F. The relative humidity is low, evaporation is high, and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Reaction: Measure of free carbonate obtained by observing reaction of dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Aquic Xerofluvent, fine-loamy, mixed, calcareous, thermic (Calico taxadjunct).

Riverside Lab. Nos.
5967 through 5974

A_{p1}	0- 4"	Pinkish gray (7.5YR 6/2) fine sandy loam, dark brown (7.5YR 4/2 when moist) weak coarse platy breaking to weak medium and fine granular structure; slightly hard, very friable, nonsticky, nonplastic; many very fine and fine fibrous roots; common very fine and fine tubular pores; strongly calcareous; pH 8.6; abrupt smooth boundary.
C_1	4-12"	Dark brown (7.5YR 4/2, moist) fine sandy loam; weak medium and coarse platy breaking to weak medium and fine granular structure; slightly hard, very friable, nonsticky, nonplastic; many very fine and common fine fibrous roots; common very fine and fine tubular pores; strongly calcareous pH 8.3; clear smooth boundary.
C_2	12-17"	Dark brown (7.5YR 4/2, moist) fine sandy loam, weak medium and coarse platy breaking to weak medium and fine granular structure; slightly hard, very friable, very slightly sticky, nonplastic; many very fine and few fine fibrous roots; many very fine and fine tubular pores; strongly calcareous; pH 8.3; clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-loamy, mixed, calcareous, thermic (Calico taxadjunct)

SURVEY NOS. S59 Nev-2-12 **LAB. NOS.** 5967 thru 5974

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-4	A_{p1}	0.2	0.9	5.7	44.6	17.2	20.4	11.0	56.1	9.5	0	fsl
4-12	C_1	0.1	0.9	5.6	43.7	18.1	20.4	11.2	57.1	9.2	0	fsl
12-17	C_2	0.1	0.6	3.3	33.4	24.4	26.1	12.1	63.7	9.7	0	fsl
17-30	C_3	0.4	0.3	0.3	2.0	10.0	70.0	17.0	50.3	31.2	1	sil
30-33	IIC4	0.4	2.0	1.4	4.0	4.5	54.5	33.2	14.8	46.8	0	sicl
33-43	IIIC5	0.1	0.2	0.3	1.2	1.9	63.9	32.4	21.9	44.7	0	sicl
43-46	IVA'1	0.2	1.0	1.0	3.3	4.5	49.0	41.0	16.3	39.5	0	sic
46-63+	IVC1g	0.3	0.7	1.1	5.2	3.3	49.3	40.1	12.8	43.1	0	sic-sicl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8G1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9	-	9.0	0.65	0.064	10.2	11.2	1.5	9				7.0
7.8	-	9.1	0.53	0.056	9.5	8.9	2.2	9	1.56			7.4
7.8	0.2	9.2	0.40	0.041	9.5	8.0	2.4	9	1.52			8.6
7.8	-	9.0	0.44	0.041	10.7	3.9	3.2	14	1.41			10.3
7.8	-	8.5	1.35	0.169	8.0	3.7	5.2	19				20.2
7.8	-	8.6	1.19	0.100	11.9	5.4	4.9	24				19.4
7.9	-	8.6	2.54	0.153	16.6	3.7	4.1	26				25.6
7.7	-	8.5	0.84	0.077	10.9	3.1	5.1	20				22.8

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6H2b	5D1a Mg 6G2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLES A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
14.2				1.4	2.3	10	9.3	1.2	4.4	3.4	1.9	30.5
14.6				1.5	2.3	11	12.8	1.3	6.4	4.3	3.9	31.0
15.1				1.7	2.5	11	13.9	1.7	6.1	4.9	4.0	31.9
23.5				2.7	3.1	12	17.9	1.5	10.4	5.7	6.8	47.5
39.5				4.4	3.3	11	27.5	1.0	24.1	16.0	3.4	93.7
34.6				4.3	2.3	12	29.4	0.8	20.9	13.0	5.6	65.9
37.1				3.7	2.2	10	25.5	0.8	13.6	10.0	6.7	86.0
33.0				3.4	1.9	10	27.8	1.1	22.6	11.4	7.9	71.2

* Saturation Extract Soluble - milliequivalents per liter.

C_3	17-30"	Dark grayish brown (10YR 4/2, moist) finely stratified fine sandy loam, loam and silt loam with fine sandy loam predominating; a very thin gravel line is included; gravels range in size up to ½ inch in diameter; few medium prominent dark reddish brown (5YR 3/2) and few medium distinct dark brown (7.5YR 4/4) iron mottles; massive; slightly hard, very friable, nonsticky to slightly sticky, nonplastic to slightly plastic; many very fine fibrous roots; many very fine tubular pores; common worm casts; strongly calcareous; pH 8.4; abrupt slightly wavy boundary.
IIC_4	30-33"	Dark brown (7.5YR 3/2, moist) heavy silt loam with a thin black (10YR 2/1) organic stratum and a thin dark brown (7.5YR 4/4) mottled stratum included; massive; slightly hard, friable, slightly sticky, slightly plastic; many very fine fibrous roots; many very fine tubular pores; strongly calcareous; pH 8.4; abrupt wavy boundary.
IIIC5	33-43"	Dark grayish brown (10YR 4/2, moist) stratified clay loam, clay and silty clay loam with many fine distinct strong brown (7.5YR 5/8) few fine faint dark grayish brown (2.5Y 4/2), many coarse prominent yellowish red to dark reddish brown (5YR 5/8-3/3) iron mottles and stains, common fine distinct black (10YR 2/1) organic flecks, and few fine distinct light gray (10YR 7/2) lime mottles; weak medium prismatic breaking to moderate medium subangular blocky structure; hard, friable to firm, very sticky to sticky, very plastic to plastic; many very fine fibrous roots; many very fine and few fine and medium tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
IVA'1	43-46"	Black to dark olive (5Y 2.5/1, moist) silty clay with many fine and medium prominent dark reddish brown (5YR 3/4) iron mottles, and many medium and coarse distinct olive gray (5Y 5/2) splotches and mottles; moderate fine and medium subangular blocky structure; very hard, firm, very sticky, very plastic; common very fine fibrous roots; many very fine and fine tubular pores; common worm casts; strongly calcareous; pH 8.4; abrupt wavy boundary.
IVC1g	46-63"+	Finely stratified dark grayish brown (2.5Y 4/2, moist), black (10YR 2/1, moist), olive (5Y 4/3, moist) grayish brown (2.5Y 5/2, moist) and brown (10YR 5/3, moist) clay, silty clay, and silty clay loam in 1/4 to 4 inch strata; these contain many coarse and medium prominent dark brown (7.5YR 4/2) common fine and medium prominent dark reddish brown (5YR 3/3), and common fine yellowish red (5YR 5/8) iron stains and mottles, a few fine and medium prominent reddish brown (5YR 4/4) hard iron nodules, and few medium and coarse pale yellow (5Y 7/3) lime stains; weak medium and coarse prismatic breaking to moderate subangular blocky structure; very hard, firm, very sticky, very plastic; few very fine and fine fibrous roots; many very fine and fine, and few medium tubular pores; strongly calcareous; pH 8.4.

1/ The Calico series is in a coarse-loamy over clayey, mixed, calcareous, thermic family of Aquic Xerofluvents (see pedon S59Nev-2-11). This pedon is in a fine-loamy family of the same subgroup.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Placeritos loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic

SURVEY NOS. S56-Nev-14-11 **LAB. NOS.** 56378 - 56384

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	0.2	0.6	2.1	12.6	19.7	48.3	16.5	57.0	20.1	0	l
6-13	C1	0.1	0.8	1.9	8.0	15.6	55.9	17.7	50.8	26.1	0	sil
13-20	C2	0.1	1.1	3.1	11.2	18.9	49.8	15.8	53.9	22.2	0	l
20-26	IIA'1	0.0	0.1	0.2	1.4	3.4	54.6	40.3	9.6	49.4	0	sic
26-35	IIC3	0.0	0.0	0.1	1.6	4.7	55.0	38.6	14.3	46.8	0	sicl
35-43	IIIC4	0.0	0.1	0.1	1.4	12.7	71.9	13.8	55.8	29.9	0	sil
43-60	IIIC5	0.0	0.1	0.1	1.5	7.2	78.3	12.8	49.5	37.3	0	sil

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0		8.7	1.23	0.120	10.2		1.8	4				11.0
8.2		8.9	0.68	0.070	9.7		2.4	6				11.8
7.9		8.9	0.43	0.048	9.0		4.2	4				10.4
7.5		7.9	0.91	0.086	10.6		8.0	1				22.3
7.6		8.3	0.61	0.064	9.5		4.1	1				23.1
7.9		8.3	0.26				2.8	3				11.5
7.9		8.7	0.20				2.9	5				11.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H1a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
22.2				2.3	3.9	10.4	12.9	2.3	3.9	2.4		43.6
22.8				3.8	3.0	16.7	20.1	1.2	3.5	0.8		39.4
20.3				3.5	2.0	17.2	33.3	1.1	6.0	3.5		42.9
41.0				3.6	3.2	8.8	45.5	1.7	27.1	14.0		57.2
40.4				5.3	3.5	13.1	30.8	1.0	7.2	4.0		63.2
23.7				3.5	2.4	14.8	20.8	0.9	3.9	2.4		50.2
23.3				2.9	2.4	12.4	19.5	1.1	5.5	3.0		45.0

PLACERITOS LOAM
S56Nev-14-11

Collectors: J. Kubota, R. D ever , V. Lazar, W. G. Harper, R. Nelson, L. Dunn, and L. N. Langan, July 1956.
Description: J. Kubota and L. N. Langan
Location: 0.7 mile north on Broadway from the SCS Office, Lovelock, Pershing County, Nevada, east on Airport Road ½ mile to site just inside field access gate located on the G. Suno Ranch. The owner is not a cooperator with the Big Meadow SCD. The site is located approximately 30 feet west and 30 feet north of the SE sec. corner of sec. 23 in the SE1/4 SE1/4, sec. 23, T27N, R31E. See aerial photography DED-3-150 for exact location.
Elevation: Approximately 4012 feet.
Use: The field is presently in alfalfa and is in rotation with small grains.

Topography: Nearly level floodplain of the Humboldt River.
Vegetation: The native vegetation of this site originally was probably greasewood, saltgrass, rabbitbrush, and alkali sacaton. As the river entrenched itself greasewood and rabbitbrush predominated.
Drainage: Well drained. Surface drainage is very slow and the internal soil drainage is medium. The soil has a moderate permeability.

Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rocks among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate.
Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.
Classification: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic.

HORIZON

(All colors are those of the moist soil)

Ap 0- 6" Very dark grayish brown (10YR 3/2) loam with massive structure in place, when removed breaks to weak medium to fine subangular blocky and some weak medium and fine granular structure; sticky, slightly plastic, friable, slightly hard to hard; many fine common medium and a few coarse fibrous roots; common worm casts; pH 8.0; highly calcareous; abrupt smooth boundary.

C 1 6-13" Dark grayish brown (2.5Y 4/2) heavy silt loam with many fine faint to distinct dark brown (10YR 3/3 - 7.5YR 3/3) iron stains along root channels and common fine faint dark brown (10YR 3/3) iron mottles; slightly sticky, slightly plastic to plastic, friable, slightly hard; common fine and medium and a few coarse fibrous roots; few worm casts that are slightly darker colored; pH 8.2; highly calcareous; included with this horizon but not in the sample is a pocket of black to very dark gray (10YR 2/1 - 3/1) silty clay loam; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Placeritos loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic

SURVEY NOS. S56-Nev-14-11 **LAB. NOS.** 56378 - 56384

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	0.2	0.6	2.1	12.6	19.7	48.3	16.5	57.0	20.1	0	l
6-13	C1	0.1	0.8	1.9	8.0	15.6	55.9	17.7	50.8	26.1	0	sil
13-20	C2	0.1	1.1	3.1	11.2	18.9	49.8	15.8	53.9	22.2	0	l
20-26	IIA'1	0.0	0.1	0.2	1.4	3.4	54.6	40.3	9.6	49.4	0	sic
26-35	IIC3	0.0	0.0	0.1	1.6	4.7	55.0	38.6	14.3	46.8	0	sicl
35-43	IIIC4	0.0	0.1	0.1	1.4	12.7	71.9	13.8	55.8	29.9	0	sil
43-60	IIIC5	0.0	0.1	0.1	1.5	7.2	78.3	12.8	49.5	37.3	0	sil

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0		8.7	1.23	0.120	10.2		1.8	4				11.0
8.2		8.9	0.68	0.070	9.7		2.4	6				11.8
7.9		8.9	0.43	0.048	9.0		4.2	4				10.4
7.5		7.9	0.91	0.086	10.6		8.0	1				22.3
7.6		8.3	0.61	0.064	9.5		4.1	1				23.1
7.9		8.3	0.26				2.8	3				11.5
7.9		8.7	0.20				2.9	5				11.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H1a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
22.2				2.3	3.9	10.4	12.9	2.3	3.9	2.4		43.6
22.8				3.8	3.0	16.7	20.1	1.2	3.5	0.8		39.4
20.3				3.5	2.0	17.2	33.3	1.1	6.0	3.5		42.9
41.0				3.6	3.2	8.8	45.5	1.7	27.1	14.0		57.2
40.4				5.3	3.5	13.1	30.8	1.0	7.2	4.0		63.2
23.7				3.5	2.4	14.8	20.8	0.9	3.9	2.4		50.2
23.3				2.9	2.4	12.4	19.5	1.1	5.5	3.0		45.0

C 2 13-20" Dark grayish brown (2.5Y 4/2) fine sandy loam with lenses of very fine sandy loam; massive structure in place breaking to very weak fine subangular blocky and very weak fine granular when removed; slightly sticky, nonplastic, very friable, soft to slightly hard; common fine and medium and a few coarse fibrous roots; many fine dark brown (7.5YR 3/3) and dark reddish brown (5Y 3/3) stains and mottles along fine old root channels; a few worm casts; common fine and medium mica plates; pH 8.0; highly calcareous; abrupt wavy boundary.

IIA'1 20-26" Very dark gray to very dark grayish brown (10YR 3/1 - 3/2) light silty clay loam with common fine distinct dark brown (7.5YR 3/3) and dark reddish brown (5Y 3/3) iron stains and mottles occurring principally along old root channels; massive structure in place breaking to weak medium subangular blocky breaking to weak to moderate fine subangular blocky and some fine granular structure when removed; sticky, plastic, firm to friable, hard; common fine and few medium and coarse fibrous roots; few medium pores; clay skins in some pores; pH 8.0; strongly calcareous; clear wavy boundary.

IIC3 26-35" Very dark grayish brown (10YR 3/2) silty clay loam with fingers of black to very dark brown (10YR 2/1 - 2/2) from above and light brownish gray (10YR 6/2) lime seams; weak medium subangular blocky breaking to weak to moderate medium granular structure; very sticky, plastic, friable, slightly hard; common fine and a few medium fibrous roots; few medium pores; clay skins patchy on ped faces; pH 8.0; strongly calcareous; clear wavy boundary.

IIIC4 35-43" Dark grayish brown (2.5Y 4/2) silt loam with a few fine and medium fingers of very dark gray to very dark grayish brown (10YR 3/1 - 3/2) silty clay loam extending into this horizon from above; these follow medium and coarse root channels; few very fine distinct dark brown (7.5YR 3/3) and dark reddish brown (5YR 3/3) iron mottles principally in old root channels and finely stratified bedding plains; massive structure; sticky, slightly plastic, friable, slightly hard; common fine and a few coarse fibrous roots; common fine pores; pH 8.0; highly calcareous; clear smooth boundary.

IIIC5 43-60" Dark grayish brown (2.5Y 4/2) very fine sandy loam with common very fine distinct dark reddish brown (5Y 3/3) iron stains or mottles principally along fine old root channels and bedding plains; massive structure; slightly sticky, nonplastic, friable, slightly hard; common fine and a few medium fibrous roots; many fine and very fine pores; there are a few thin (1") horizontal streaks of dark grayish brown (10YR 4/2 - 2.5Y 4/2) very fine sandy loam, the dark reddish brown stains are more prominent in these streaks; pH 8.0; highly calcareous; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Placeritos silt loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic

SURVEY NOS. S56-Nev-14-12 **LAB. NOS.** 56385-56395

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 5	Ap	0.4	0.8	1.6	5.5	10.3	59.8	21.6	31.4	32.7	0	sil
5-14	C1	0.1	0.5	1.3	4.2	9.0	63.2	21.7	40.6	34.7	0	sil
14-25	C2	0.1	0.3	0.9	3.1	8.9	66.2	20.5	41.9	35.6	0	sil
25-31	C3	0.1	0.2	0.6	1.5	6.4	72.6	18.6	42.5	37.6	0	sil
31-41	IIC4	0.0	0.1	0.5	4.8	28.3	53.5	12.8	65.3	20.8	0	sil
41-52	IIIC5	0.0	0.1	0.2	0.9	6.5	72.9	19.4	41.3	38.8	0	sil
52-56	IVC6	0.0	0.1	0.2	1.7	11.2	66.9	19.9	42.4	37.1	0	sil
56-67	VC7	0.0	0.1	0.2	1.4	10.0	69.7	18.6	51.8	29.0	0	sil
67-73	VIC8	0.0	0.0	0.0	0.2	0.2	59.2	40.4	5.8	53.7	0	sic
73-79	VIC9	0.1	0.2	0.1	0.5	1.7	46.9	50.5	8.5	40.5	0	sic
79-85	VIIA 1	0.3	0.2	0.1	1.0	5.1	58.7	34.6	21.6	43.0	0	sicl

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0		8.6	1.05	0.114	9.2		1.6	6				12.6
7.8		8.5	0.70	0.081	8.6		1.2	6				13.4
8.0		8.5	0.52	0.062	8.4		1.2	7				13.4
8.0		8.5	0.45	0.052	8.7		1.1	7				13.3
8.0		8.7	0.25	0.031	8.1		1.4	4				9.6
8.0		8.7	0.38	0.044	8.6		2.3	7				13.9
7.8		8.7	0.42	0.050	8.4		3.2	7				15.4
7.7		8.6	0.37	0.042	8.8		4.2	6				13.8
7.7		8.5	0.39	0.046	8.5		3.3	9				24.8
7.7		8.3	0.50	0.052	9.6		3.3	4				27.6
7.6		8.2	0.65	0.056	11.6		5.1	3				21.4

5A2a CATION EXCHANGE CAPACITY ←(Na)→	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6Q1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
24.5				0.6	1.4	2.4	10.7	1.3	4.2	2.3		48.7
25.8				2.6	2.4	10.1	9.3	0.7	2.8	1.7		45.6
24.7				2.9	2.2	11.7	10.5	0.6	1.8	0.9		47.8
24.7				3.0	2.0	12.1	10.1	0.4	1.6	0.7		50.2
19.5				2.5	1.4	12.8	11.5	0.4	2.2	0.8		35.6
26.0				4.2	1.6	16.2	19.4	0.4	3.0	1.7		52.2
26.8				4.4	1.7	16.4	25.3	0.5	5.0	2.3		45.9
24.3				4.4	1.7	18.1	30.8	0.7	7.6	3.4		38.1
36.9				6.2	2.7	16.8	25.0	0.6	5.1	2.2		71.1
41.3				6.1	3.3	14.8	25.3	0.6	4.9	2.2		80.7
37.1				6.5	3.4	17.5	35.8	1.0	9.0	4.2		56.8

PLACERITOS SILT LOAM
S56Nev-14-12

Collectors: J. Kubota, R. D ever , V. Lazar, W. G. Harper, R. Nelson, L. Dunn, and L. N. Langan, July 19, 1956.
Description: J. Kubota and L. N. Langan
Location: 0.5 mile south on Broadway from the SCS Office, Lovelock, Pershing County, Nevada; south one mile on Meridan Road, east 1.1 miles on gravel road with tree-row, cross bridge over canal; north on canal bank road 0.45 mile, east along irrigator road to the end of the field located on the C. F. Wendt Ranch. The owner and leasor, R. Meffley, are cooperators with the Big Meadow SCD. The site is located approximately 650 feet south and 1,200 feet east of the northwest section corner of sec. 31 in the NW1/4 NW1/4, sec. 31, T27N, R32E. See aerial photograph DED-3-147 for the exact location.
Elevation: Approximately 4,005 feet.
Use: The field is presently in alfalfa and is in rotation with small grains.

Topography: Nearly level floodplain of the Humboldt River.
Vegetation: The native vegetation of this site originally was probably greasewood, saltgrass, rabbitbrush, and alkali sacaton. As the river entrenched itself greasewood and rabbitbrush predominated.
Drainage: Well drained. Surface drainage is very slow and the internal soil drainage is medium. The soil has a moderate permeability.

Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rocks among which limestone, basalt, tuff, and reworked fine-textured alluvial and lacustrine deposits predominate.
Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.
Classification: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic.

HORIZON

(All colors are those of the moist soil)

A_p 0- 5" Dark grayish brown (2.5Y 4/2) silt loam which tends to break horizontally in very weak very coarse plates which break to weak medium subangular blocky to weak fine granular structure; slightly sticky, slightly plastic, friable, slightly hard; many fine and medium fibrous roots; pH 8.6; highly calcareous; clear smooth boundary.

C1 5-14" Dark grayish brown (2.5Y 4/2) silt loam with weak medium subangular blocky breaking to weak fine subangular blocky, and weak fine and medium granular; slightly sticky, slightly plastic, friable, slightly hard; many fine and medium fibrous roots; many worm casts; pH 8.6; highly calcareous; abrupt and wavy to irregular boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Placeritos silt loam LOCATION Pershing County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic

SURVEY NOS. S56-Nev-14-12 LAB. NOS. 56385-56395

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 5	Ap	0.4	0.8	1.6	5.5	10.3	59.8	21.6	31.4	32.7	0	sil
5-14	C1	0.1	0.5	1.3	4.2	9.0	63.2	21.7	40.6	34.7	0	sil
14-25	C2	0.1	0.3	0.9	3.1	8.9	66.2	20.5	41.9	35.6	0	sil
25-31	C3	0.1	0.2	0.6	1.5	6.4	72.6	18.6	42.5	37.6	0	sil
31-41	IIC4	0.0	0.1	0.5	4.8	28.3	53.5	12.8	65.3	20.8	0	sil
41-52	IIIC5	0.0	0.1	0.2	0.9	6.5	72.9	19.4	41.3	38.8	0	sil
52-56	IVC6	0.0	0.1	0.2	1.7	11.2	66.9	19.9	42.4	37.1	0	sil
56-67	VC7	0.0	0.1	0.2	1.4	10.0	69.7	18.6	51.8	29.0	0	sil
67-73	VIC8	0.0	0.0	0.0	0.2	0.2	59.2	40.4	5.8	53.7	0	sic
73-79	VIC9	0.1	0.2	0.1	0.5	1.7	46.9	50.5	8.5	40.5	0	sic
79-85	VIIA11	0.3	0.2	0.1	1.0	5.1	58.7	34.6	21.6	43.0	0	sicl

8C1b pH SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.0		8.6	1.05	0.114	9.2		1.6	6				12.6
7.8		8.5	0.70	0.081	8.6		1.2	6				13.4
8.0		8.5	0.52	0.062	8.4		1.2	7				13.4
8.0		8.5	0.45	0.052	8.7		1.1	7				13.3
8.0		8.7	0.25	0.031	8.1		1.4	4				9.6
8.0		8.7	0.38	0.044	8.6		2.3	7				13.9
7.8		8.7	0.42	0.050	8.4		3.2	7				15.4
7.7		8.6	0.37	0.042	8.8		4.2	6				13.8
7.7		8.5	0.39	0.046	8.5		3.3	9				24.8
7.7		8.3	0.50	0.052	9.6		3.3	4				27.6
7.6		8.2	0.65	0.056	11.6		5.1	3				21.4

5A2a CATION EXCHANGE CAPACITY (Na)	5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	5D1 EXCH. Na %	6P1a Na	6Q1a K	6N1a Ca	6Q1a Mg	6K1a	8A MOISTURE AT SATURATION %
	EXTRACTABLE CATIONS 5B milliequivalents per 100g. soil						SATURATION EXTRACT SOLUBLE 8A1 milliequivalents per liter					
24.5				0.6	1.4	2.4	10.7	1.3	4.2	2.3		48.7
25.8				2.6	2.4	10.1	9.3	0.7	2.8	1.7		45.6
24.7				2.9	2.2	11.7	10.5	0.6	1.8	0.9		47.8
24.7				3.0	2.0	12.1	10.1	0.4	1.6	0.7		50.2
19.5				2.5	1.4	12.8	11.5	0.4	2.2	0.8		35.6
26.0				4.2	1.6	16.2	19.4	0.4	3.0	1-7		52.2
26.8				4.4	1.7	16.4	25.3	0.5	5.0	2.3		45.9
24.3				4.4	1.7	18.1	30.8	0.7	7.6	3.4		38.1
36.9				6.2	2.7	16.8	25.0	0.6	5.1	2.2		71.1
41.3				6.1	3.3	14.8	25.3	0.6	4.9	2.2		80.7
37.1				6.5	3.4	17.5	35.8	1.0	9.0	4.2		56.8

C2	14-25"	Dark grayish brown (2.5Y 4/2) very fine sandy loam with pockets of fine sandy loam; massive structure with some medium subangular blocky peds; slightly sticky, nonplastic, friable, slightly hard; common fine and medium roots; common fine and medium pores; pH 8.4; highly calcareous; abrupt and wavy to irregular boundary.
C3	25-31"	Dark grayish brown (2.5Y 4/2) silt loam with weak coarse subangular to angular blocky structure; slightly sticky, slightly plastic, friable, hard; common fine and medium fibrous roots; dark brown (7.5YR 4/4) iron stains occur along root channels; pH 8.4; highly calcareous; abrupt wavy boundary.
IIC4	31-41"	Dark grayish brown (2.5Y 4/2) very fine sandy loam with massive structure; slightly sticky, nonplastic, friable, slightly hard; common fine and a few medium fibrous roots; common fine pores; clay skins in a few pores; slightly micaceous; dark brown (7.5YR 4/4) iron stains along most root channels; pH 8.6; highly calcareous; abrupt smooth boundary.
IIIC5	41-52"	Dark grayish brown (2.5Y 4/2) silt loam with massive structure in place breaking to weak medium prismatic when removed; slightly sticky, slightly to nonplastic, friable, hard; common fine and a few medium fibrous roots; few medium pores, dark brown (7.5YR 4/4) iron staining along most root channels; pH 8.6; highly calcareous; abrupt smooth boundary.
IVC6	52-56"	Dark grayish brown (2.5Y 4/2) clay with weak to moderate prismatic breaking to moderate medium angular blocky structure; very sticky, very plastic, firm, very hard; many fine and a few medium fibrous roots; few fine and medium pores; dark brown (7.5YR 4/4) iron staining along many root channels; black (N . 2/0) stains cap the tops of some prismatic peds; pH 8.6; highly calcareous; abrupt wavy boundary.
VC7	56-67"	Dark grayish brown (2.5Y 4/2) silt with massive structure; slightly sticky, slightly plastic, firm to friable, hard; common fine and a few medium fibrous roots; common medium pores and old root channels; clay skins in some pores; dark brown (7.5YR 4/4) iron staining along many root channels; pH 8.6; highly calcareous; abrupt smooth boundary.
VIC8	67-73"	Dark grayish brown (2.5Y 4/2) clay with few light brownish gray (10YR 6/2) lime streaks; moderate to strong medium angular to subangular blocky structure; very sticky, very plastic, firm, very hard; few to common fine fibrous roots; few fine and medium pores; dark brown (7.5YR 4/4) iron stains along root channels; light olive brown (2.5Y 4/4) clay skins on many ped faces; pH 8.6; highly calcareous; abrupt wavy boundary.
VIC9	73-79"	Very dark grayish brown (2.5Y 3/2) heavy silty clay loam with weak medium subangular blocky breaking to moderate fine and very fine subangular blocky structure; sticky, very plastic, friable, hard; few fine firm lime concretions; pH 8.6; strongly calcareous; clear wavy boundary.
VIIA'1	79-85"	Black to very dark gray (10YR 2/1 - 3/1) silty clay loam with common medium fingers of dark grayish brown (2.5Y 4/2) soil material like horizon below (C_b); weak medium subangular blocky breaking to weak fine subangular blocky and weak fine granular; very sticky, plastic, firm to friable, hard to slightly hard; few fine fibrous roots; few to common medium pores; pH 8.2; calcareous; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Pershing County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic (Sonoma taxadjunct)

SURVEY NOS. S56-Nev-14-1 **LAB. NOS.** 56300 - 56308

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-12	Ap	0.4	0.5	0.2	0.7	1.4	61.0	35.8	9.3	53.6	0	sicl
12-22	A12	0.1	0.5	0.4	1.6	3.0	55.0	39.4	8.5	50.7	0	sicl
22-32	IIC1	0.1	0.3	0.2	0.6	1.1	72.9	24.8	9.7	64.8	0	sil
32-43	IIC2	0.1	0.2	0.2	1.8	3.1	72.7	21.9	25.1	52.1	1	sil
43-53	IIC3	0.2	0.3	0.1	0.8	3.0	77.5	18.1	37.1	44.0	1	sil
53-64	IIC4	0.2	0.5	0.0	0.4	3.9	73.1	21.9	31.7	45.7	0	sil
64-71	IIIC5	1.1	1.9	1.0	2.9	2.5	52.1	38.5	8.6	47.9	0	sicl
71-79	IVA11b	3.3	4.5	2.8	7.4	7.2	29.3	45.5	19.3	22.0	0	c
79-91+	VA12b	0.7	2.4	1.3	3.4	2.8	31.8	57.6	8.5	28.2	0	c

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a ORGANIC MATTER NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b CaCO₃ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8		8.3	2.30	0.219	10.5		2.0	10				22.4
7.7		8.4	0.88	0.087	10.1		3.6	12				24.4
8.0		8.6	0.44	0.050	8.8		5.5	10				18.0
8.0		8.9	0.32	0.040	8.0		6.0	9				16.1
8.0		8.4	0.28	0.034	8.2		6.1	8				14.1
7.9		8.7	0.30	0.036	8.3		7.9	6				15.5
7.7		8.4	0.48	0.061	7.9		8.8	3				24.6
7.5		7.9	0.58	0.081	7.2		7.8	1				28.5
7.4		8.0	0.46	0.051	9.0		7.7	1				28.8

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
39.8				2.2	4.3	5.5	23.8	1.1	7.2	3.8		68.4
39.0				5.4	3.5	13.8	13.5	1.4	8.2	6.1		66.8
33.9				7.9	3.4	23.3	46.0	1.1	4.6	4.7		59.9
31.3				8.6	3.1	27.5	50.0	1.0	4.2	3.6		57.5
28.1				8.3	2.7	29.5	55.5	1.0	5.2	3.9		41.4
30.3				8.4	2.9	27.7	62.5	1.3	8.5	5.2		53.2
45.4				12.3	4.0	27.1	70.0	1.3	11.3	6.4		65.9
51.1				12.3	4.6	24.1	65.5	1.3	13.7	7.3		72.9
48.2				10.0	3.6	20.7	59.0	1.1	11.9	6.3		82.7

Series not designated [1/]
S56Nev-14-1

Collectors: J. Kubota, R. Dever, V. Lazar, W. G. Harper, R. Nelson, L. Dunn and L. N. Langan. Date of Sampling: July 16, 1956.

Description: J. Kubota and L. N. Langan.

Location: 0.5 mile south on Broadway from the Soil Conservation Service office, Lovelock, Pershing County, Nevada, south 1.4 miles on Meridan Road to east ranch road immediately south of Circle L Headquarters, east 0.5 mile, south 0.2 mile, turn west across bridge, south 0.3 mile--200 feet on ranch road, remainder along ditch bank (ranch road is on the east side of irrigation ditch), west .08 mile, then 20 paces north to site located on the Circle L ranch. The owner is a cooperator with the Big Meadow SCD. The site is located approximately 2600 feet south and 425 feet west of the center of sec. 2 in the SE1/4, SW1/4, sec. 2, T26N, R31E.

Elevation: Approximately 3995 feet.

Use: The field is presently in alfalfa and is in rotation with small grains.

Topography: Level floodplain of the Humboldt River.

Vegetation: The native vegetation of this site originally was probably saltgrass, alkali sacaton, and big greasewood.

Drainage: Moderately well. Surface drainage is very slow and the internal soil drainage is medium. The soil has a moderately slow permeability. No water table was found to the depth of sampling, but it is expected to be reached at a depth of approximately 10 feet. Fluctuations in the water table may be expected from normal irrigation. This site is located approximately 400 feet W of a deep (12 feet) open drain ditch.

Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rocks among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate.

Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.

Classification: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic (Sonoma taxadjunct).

HORIZON

(All colors are those of the moist soil)

Ap 0-12" Very dark gray (10YR 3/1) silty clay loam, light gray (10YR 6/1) dry, with a predominant structure of well rounded worm casts; very sticky, very plastic; friable, slightly hard; many fine and medium and common coarse fibrous roots; highly calcareous; pH 8.6; clear smooth boundary.

A12 12-22" Very dark gray to very dark grayish brown (10YR 3/1 - 3/2) silty clay loam with dominantly moderate medium and fine subangular blocky and moderate to strong fine granular structure; very sticky, very plastic, friable, slightly hard; many fine and common medium and coarse fibrous roots; many pores; few fresh water mollusk shells and shell fragments; lower organic matter content than A11 horizon; highly calcareous; pH 8.6; clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Pershing County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine-silty, mixed, calcareous, mesic (Sonoma taxadjunct

SURVEY NOS. S56-Nev-14-1 **LAB. NOS.** 56300 - 56308

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-12	Ap	0.4	0.5	0.2	0.7	1.4	61.0	35.8	9.3	53.6	0	sicl
12-22	A12	0.1	0.5	0.4	1.6	3.0	55.0	39.4	8.5	50.7	0	sicl
22-32	IIC1	0.1	0.3	0.2	0.6	1.1	72.9	24.8	9.7	64.8	0	sil
32-43	IIC2	0.1	0.2	0.2	1.8	3.1	72.7	21.9	25.1	52.1	1	sil
43-53	IIC3	0.2	0.3	0.1	0.8	3.0	77.5	18.1	37.1	44.0	1	sil
53-64	IIC4	0.2	0.5	0.0	0.4	3.9	73.1	21.9	31.7	45.7	0	sil
64-71	IIIC5	1.1	1.9	1.0	2.9	2.5	52.1	38.5	8.6	47.9	0	sicl
71-79	IVA11b	3.3	4.5	2.8	7.4	7.2	29.3	45.5	19.3	22.0	0	c
79-91+	VA12b	0.7	2.4	1.3	3.4	2.8	31.8	57.6	8.5	28.2	0	c

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Condu. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8		8.3	2.30	0.219	10.5		2.0	10				22.4
7.7		8.4	0.88	0.087	10.1		3.6	12				24.4
8.0		8.6	0.44	0.050	8.8		5.5	10				18.0
8.0		8.9	0.32	0.040	8.0		6.0	9				16.1
8.0		8.4	0.28	0.034	8.2		6.1	8				14.1
7.9		8.7	0.30	0.036	8.3		7.9	6				15.5
7.7		8.4	0.48	0.061	7.9		8.8	3				24.6
7.5		7.9	0.58	0.081	7.2		7.8	1				28.5
7.4		8.0	0.46	0.051	9.0		7.7	1				28.8

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
39.8				2.2	4.3	5.5	23.8	1.1	7.2	3.8		68.4
39.0				5.4	3.5	13.8	13.5	1.4	8.2	6.1		66.8
33.9				7.9	3.4	23.3	46.0	1.1	4.6	4.7		59.9
31.3				8.6	3.1	27.5	50.0	1.0	4.2	3.6		57.5
28.1				8.3	2.7	29.5	55.5	1.0	5.2	3.9		41.4
30.3				8.4	2.9	27.7	62.5	1.3	8.5	5.2		53.2
45.4				12.3	4.0	27.1	70.0	1.3	11.3	6.4		65.9
51.1				12.3	4.6	24.1	65.5	1.3	13.7	7.3		72.9
48.2				10.0	3.6	20.7	59.0	1.1	11.9	6.3		82.7

IIC1	22-32"	Very dark grayish brown (10YR 3/2) silt loam with tongues, horizontal layers and pockets of slightly darker colored silt loam; massive in place, when removed breaks to very weak medium subangular blocky structure; darker colored soil is soft in place and when removed breaks to moderate fine subangular blocky structure; slightly sticky, slightly plastic, firm, slightly hard; contains common fine faint pale brown (10YR 6/3) lime seams; common fine pores and old root channels; common fine and few medium fibrous roots; highly calcareous; pH of light-colored soil is 8.8 and darker colored soil is 8.6. Boundary arbitrary.
IIC2	32-43"	Same as 22-32" horizon except boundary is abrupt and wavy.
IIC3	43-53"	Dark grayish brown (10YR 4/2) very fine sandy loam with common pale brown (10YR 6/3) lime seams principally along fine root channels; massive in place but when removed tends to break to very weak medium plates along depositional lines; slightly sticky, nonplastic, friable, slightly hard; many fine pores; common fine and few medium fibrous roots; contains few small mica plates; few extremely firm irregularly shaped lime nodules; strongly calcareous; pH 8.6; clear smooth boundary.
IIC4	53-64"	Very dark grayish brown (2.5Y 3/2) very fine sandy loam with streaks of slightly darker color (10YR 3/2 - 2.5Y 3/2) silt loam; very fine sandy loam is weak medium subangular blocky with some angular faces; slightly sticky, nonplastic, friable, hard; the silt loam is moderate medium and fine granular; slightly sticky, slightly plastic, friable, hard; common fine fibrous roots; many fine pores, some with clay skins; strongly calcareous; pH 8.6; abrupt wavy boundary.
IIIC5	64-71"	Very dark gray brown (10YR 3/2 - 2.5Y 3/2) silty clay loam containing many firm fine (1/16") lime aggregates with many fine faint light brownish gray (10YR 6/2) lime streaks; moderate medium subangular blocky breaking to moderate fine and very fine granular structure; very plastic, very sticky, firm, hard; common fine fibrous roots; few fine pores; strongly calcareous; pH 8.4; abrupt wavy boundary.
IVA11b	71-79"	Very dark brown (10YR 2/2) light silty clay loam with many fine faint dark yellowish brown (10YR 3/4) mottles; soil massive in place, when removed breaks to weak to moderate fine and very fine granular; plastic, sticky, firm to friable, hard; few fine fibrous roots; many fine pores; thin clay skins in fine pores and root channels; calcareous; pH 8.4; abrupt smooth boundary.
VA12b	79-91"+	Black (2.5Y 2/2 - 5Y 2/2) silty clay loam with tongues of dark brown (7.5YR 3/2 - 10YR 2/2) light silty clay loam from above, about 1 to 2" thick with few fine yellowish red (7.5YR 6/6) aggregates about 1/16" diameter; moderate coarse to medium subangular blocky breaking to strong fine and very fine subangular blocky structure; few fine fibrous roots; many fine pores; clay skins on some ped faces, pores and root channels; few firm small lime nodules; soil mass noncalcareous; pH 8.2; boundary undetermined.

1/ The Sonoma series is in a fine-silty, mixed, calcareous, mesic family of Aeric Fluventic Haplaquepts (see pedon S56Nev-14-2). This pedon is a taxadjunct because it does not have mottling within 20 inches.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Lahontan clay loam **LOCATION** Fallon-Fernley Area, Churchill County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S59Nev-1-5 **LAB. NOS.** 59191 - 59195

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-10	A_p	0.3	0.8	1.4	6.7	13.8	39.8	37.2	36.4	22.2	0	cl
10-21	C_1	0.1	0.3	0.5	3.2	4.9	41.3	49.7	15.0	33.6	0	sic-c
21-33	C_2	0.0	0.1	0.4	3.9	5.6	39.9	50.1	18.9	29.7	0	c-sic
33-51	C_3	0.0	0.1	0.2	2.0	7.3	43.4	47.0	22.2	30.1	0	sic
51-63+	C_4	0.0	0.0	0.2	1.6	4.3	46.3	47.6	15.4	36.5	0	sic

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 * meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1	0.0	9.5	0.62	0.045	13.8	9.1	2.5	7	1.63			17.4
8.2	0.0	9.2	0.14	0.012		3.2	11.8	6	1.57			22.6
8.1	0.0	9.1	0.13			2.2	17.0	9	1.61			22.1
8.0	0.0	8.9	0.14			1.4	20.7	8				22.9
8.0	0.0	9.2	0.13			1.9	15.1	7				22.9

5A2a CATION EXCHANGE CAPACITY (← Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5E1a Mg 6O2c	6H2a H	Exch. 5E1b Na 6P2a	Exch. 5E1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
26.7				6.2	2.4	23	22.9	0.7	2.6	1.0	7.6	54.2
32.1				10.0	2.3	31	123	1.3	16.7	3.4	32.0	99.8
32.3				10.2	2.4	32	171	2.0	24.2	10.3	72.4	96.3
31.1				9.7	2.7	31	191	3.0	27.2	24.2	132	91.5
33.3				8.7	3.0	26	144	2.5	11.1	10.6	104	102.0

* Saturation extract soluble - milliequivalents per liter.

LAHONTAN CLAY LOAM
S59Nev-1-5

Description: L. H. Langan and M. A. Townsend. Sampled: March 1959.
Collectors: R. Nelson, L. H. Langan, M. A. Townsend.
Location: The site is located in the Carson Lake Pasture. It is under the jurisdiction of the Truckee-Carson Irrigation District. It is located approximately 150' W. and 30' N. of SE corner of sec. 19, T17N, R30E. Fallon-Fernley Area, Churchill County, Nevada.
Elevation: Approximately 3910 feet.
Relief: Very slightly concave (leveled to irrigate).
Use: The field is used solely for pasture.
Vegetation: Tall wheatgrass. The field contains trial pasture grass plots established by the Soil Conservation Service.
Drainage: Developed under moderately well drained conditions. Runoff is very slow; internal drainage is very slow; permeability is slow to very slow.
Parent Material: Mixed clayey alluvium predominantly from granites, rhyolites, basalts, and reworked lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F., and the average July temperature is 72.9° F. with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Other Features: There is usually a strongly saline-alkali condition present in these soils. With artificial drainage and irrigation this condition can be improved. Most of the area covered by these soils is in native pasture and range.
Reaction: Measure of free carbonates obtained by observing reaction to dilute HCl. pH determined using thymol blue.
Classification: Aquic Xerofluvent, fine, montmorillonitic, calcareous, mesic.

Riverside Lab. Nos.
59191 through 59195

A_p 0-10" Dark grayish brown (2.5Y 4/2, when moist) clay loam; weak coarse subangular blocky breaking to moderate fine and medium subangular blocky structure; hard, firm, very sticky and very plastic; abundant fine roots; common fine pores; few worm casts; strongly calcareous; strongly alkaline (pH 9.0); clear wavy boundary.

C_1 10-21" Dark grayish brown (2.5Y 4/2, when moist) clay with few fine medium and coarse distinct light gray (2.5Y 7/2) lime (?) mottles and few coarse distinct black (10YR 2/1) organic mottles; weak medium and fine platy breaking to moderate medium and fine subangular blocky structure; hard, firm to friable, very sticky and very plastic; numberous fine roots; few fine pores; calcareous; strongly alkaline (pH 8.7); clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Lahontan clay loam **LOCATION** Fallon-Fernley Area, Churchill County, Nevada

SOIL FAMILY: Aquic Xerofluvent, fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S59Nev-1-5 **LAB. NOS.** 59191 - 59195

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-10	A_p	0.3	0.8	1.4	6.7	13.8	39.8	37.2	36.4	22.2	0	cl
10-21	C_1	0.1	0.3	0.5	3.2	4.9	41.3	49.7	15.0	33.6	0	sic-c
21-33	C_2	0.0	0.1	0.4	3.9	5.6	39.9	50.1	18.9	29.7	0	c-sic
33-51	C_3	0.0	0.1	0.2	2.0	7.3	43.4	47.0	22.2	30.1	0	sic
51-63+	C_4	0.0	0.0	0.2	1.6	4.3	46.3	47.6	15.4	36.5	0	sic

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1	0.0	9.5	0.62	0.045	13.8	9.1	2.5	7	1.63			17.4
8.2	0.0	9.2	0.14	0.012		3.2	11.8	6	1.57			22.6
8.1	0.0	9.1	0.13			2.2	17.0	9	1.61			22.1
8.0	0.0	8.9	0.14			1.4	20.7	8				22.9
8.0	0.0	9.2	0.13			1.9	15.1	7				22.9

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6H2b	5B1a Mg 6G2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6H1a Ca	6G1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
26.7				6.2	2.4	23	22.9	0.7	2.6	1.0	7.6	54.2
32.1				10.0	2.3	31	123.	1.3	16.7	3.4	32.0	99.8
32.3				10.2	2.4	32	171	2.0	24.2	10.3	72.4	96.3
31.1				9.7	2.7	31	191	3.0	27.2	24.2	132	91.5
33.3				8.7	3.0	26	144	2.5	11.1	10.6	104	102.0

* Saturation extract soluble - milliequivalents per liter.

C_2	21-33"	Dark grayish brown (2.5Y 4/2, when moist) clay with few coarse prominent dark brown (7.5YR 3/2) iron mottles on ped surfaces; strong coarse subangular and angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; very few fine pores; strongly calcareous; strongly alkaline (pH 8.6); clear smooth boundary.
C_3	33-51"	Dark grayish brown (2.5Y 4/2, when moist) clay with few medium prominent strong brown (7.5YR 5/6) iron mottles on ped surfaces; moderate very coarse subangular and angular blocky structure; hard, firm, very sticky and very plastic; few fine roots; very few fine pores; strongly calcareous; moderately alkaline (pH 8.4); clear smooth boundary.
C_4	51-63"+	Dark grayish brown (2.5Y 4/2, when moist) clay with common very fine distinct dark brown (7.5YR 4/4) iron mottles; massive; very hard, very firm, very sticky and very plastic; few fine roots; no pores; moderately calcareous in spots, slightly calcareous in matrix; moderately alkaline (pH 8.4).

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Xeric Torriorthent, sandy, mixed, mesic
SOIL SERIES Davey loamy sand SOIL Nos. S61Nev-7-5 LOCATION Humboldt County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 61556 - 61560

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Total: Silt (0.05-0.002)	Total: Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)			Coarse fragments: > 2 Pct	2 - 19 (Pct of < 76 mm)	19-76 (Pct of < 76 mm)
		Pct. of < 2 mm																
0-5	A1	89.6	6.0	4.4	2.2	17.1	23.3	37.4	9.6	3.5	2.5	31.7	80.0			0		
5-14	IIC1	74.6	17.7	7.7	1.7	12.6	20.5	38.5	1.3	14.4	3.3	36.1	73.3			0		
14-24	IIIC2	87.4	7.8	4.8	1.3	12.5	20.2	42.8	10.6	4.8	3.0	37.9	76.8			0		
24-44	IIIC3ca	88.4	7.4	4.2	2.3	12.9	20.5	44.5	8.2	3.8	3.6	34.5	80.2			1		
44-67+	IIIC4ca	91.4	6.1	2.5	1.0	12.5	20.6	49.7	7.6	3.3	2.8	35.0	83.8			0		

Depth (In.)	6A1b Organic carbon Pct.	6B1a Nitrogen Pct	C/N	6C1a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	4B2 15 bar Pct			pH 8C1b Saturated Paste	8C1a 1:10
0-5	0.20	0.017		0.1	-								2.5			7.3	6.9
5-14	0.14	0.016		0.1	tr.								3.8			7.5	7.4
14-24	0.08			0.1	1								3.0			8.2	8.5
24-44	0.08			0.1	7								2.6			8.2	8.7
44-67+	0.04			0.1	7								2.0			8.3	8.8

Depth (In.)	Extractable bases: 5B1a + Ca 6N2b	5B1a + Mg 6O2c	5B1a Exch. Na 6P2a	5B1a Exch. K 6Q2a	Sum of bases	6H2a Ext. Acidity	5A2a CEC NaOAc		Water extract from saturated paste: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-5	3.7	0.9	0.1	0.4	5.1	0.9	6.5		0.6	0.3	0.7	0.2		-	0.8	0.4		0.20
5-14	6.9	1.2	0.2	0.6	8.9	0.7	8.9		1.5	0.9	0.7	0.3		-	3.0	0.4		0.31
14-24	13.2	0.8	0.2	0.4	14.6	-	7.4		1.6	0.6	0.4	0.2		-	2.3	0.4		0.24
24-44	18.1	0.6	0.2	0.2	19.1	-	5.6		1.7	0.6	0.4	0.2		-	2.1	0.2		0.23
44-67+	15.3	0.8	0.2	0.2	16.5	-	5.4		1.4	0.6	0.5	0.2		-	1.8	0.2		0.29

Depth (In.)	8A Water at Saturation Pct.	Exchangeable Na Pct		Gypsum Pct	5C3 Base Sat. Pct.		
0-5	22.8				85		
5-14	26.2				93		
14-24	25.7				-		
24-44	28.0				-		
44-67+	29.8				-		

+ Including cations from carbonates in some horizons.

DAVEY LOAMY SAND
S61Nev-7-5

Location: 200 feet east and 200 feet south of the north 1/4 corner of section 9, T. 43 N., R. 37 E., Mount Diablo Base and Meridian, 4 miles north and 2 miles west of Orovada, Humboldt County, Nevada. Date of Sampling: August 9, 1961.
Samples Collected By: R. E. Nelson, L. N. Langan, D. G. Bagley, Leland I. Larsen and Harry Summerfield. Description By: Leland I. Larsen.
Classification: **Xeric Torriorthent, sandy, mixed, mesic.**
Vegetation: Big sage, little rabbitbrush and annuals. Use: Livestock range. Climate: Cool continental climate having hot, dry summers and cold, moist winters; an average annual temperature of 47 to 50° F.; an average January temperature of about 27° F.; an average July temperature of about 71° F.; an average frost-free season of 110 to 120 days; and an average annual precipitation of 8 to 12 inches. Relative humidity is low and evaporation is high. Parent Material: Sandy alluvium that has been somewhat reworked by wind action. It is derived from mixed rock sources including granodiorite, basalt, tuff, rhyolite, quartzite, volcanic ash and schists. Relief: Nearly level with very gentle undulations, slope about 1 percent. Physiography: Low stabilized dunes superimposed on older lake terraces. Elevation: Approximately 4300 feet. Drainage: Excessively drained; runoff is very slow; rapid permeability. The water table is estimated at 25 feet.
Remarks: The soils are believed to contain appreciable volcanic ash. Effervescence obtained by observing reaction to dilute HCl; pH determined by using thymol blue and bromthymol blue in prepared 1:5 dilutions. Paired profile is S61Nev-7-6.

HORIZON	
A1 RSL No. 61556	0 to 5 inches, light gray (10YR 6/1) sand, very dark grayish brown (10YR 3/2) when moist; very weak medium platy structure in place but breaks to single grains when disturbed; soft to loose, nonsticky, nonplastic; plentiful very fine roots; many fine interstitial pores; neutral (pH 6.8); abrupt smooth boundary.
IIC1 RSL No. 61557	5 to 14 inches, light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; many very fine and few fine interstitial pores; neutral (pH 7.2); clear smooth boundary.
IIIC2 RSL No. 61558	14 to 24 inches, light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) when moist; single grained; loose dry and moist, nonsticky, nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; mildly alkaline (pH 7.6); clear smooth boundary.
IIIC3ca RSL No. 61559	24 to 44 inches, light brownish gray (2.5Y 6/2) fine sand, dark grayish brown (2.5Y 4/2) when moist; single grained; loose dry and moist; nonsticky, nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; strongly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.
IIIC4ca RSL No. 61560	44 to 67 inches +, same as horizon above. Separated for sampling. pH 9.0.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Davey loamy sand **LOCATION** Humboldt County, Nevada

SOIL FAMILY: Xeric Torriorthent, sandy, mixed, mesic

SURVEY NOS. S61Nev-7-6 **LAB. NOS.** 61561 - 61565

DEPTH INCHES	HORIZON	1B1b VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
		PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1		
0-8	A1	1.6	21.1	13.5	31.9	14.5	11.3	6.1	40.6	5.2	2	ls
8-20	C1	2.8	24.2	13.2	26.9	11.5	11.4	10.0	36.2	3.8	0	cosl-lcos
20-41	C2ca	2.0	15.4	9.6	35.1	18.3	14.2	5.4	53.7	4.6	0	ls
41-53	IIC3ca	0.5	3.0	2.3	19.7	40.9	28.7	4.9	79.0	7.0	0	vfsl
53-65+	IIC4ca	0.3	1.3	1.0	7.9	50.9	34.8	3.8	86.5	5.9	0	vfsl

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^=$	6J1a HCO_3^-
			ORGANIC MATTER			SATURATION EXTRACT SOLUBLE 8A						
						← milliequivalents per liter →						
7.3		7.2	0.17	0.018		0.6	0.2	0.7	0.6	0.4	-	1.0
7.2		7.3	0.20	0.017		0.7	0.1	2.6	0.7	0.2	-	3.6
8.3		8.7	0.12			1.1	0.1	1.6	0.8	0.2	-	3.1
8.5		8.8	0.13			2.2	0.1	0.8	0.8	0.4	-	3.0
8.7		9.1	0.06			4.9	0.1	0.5	0.4	0.6	-	4.5

5A2a CATION EXCHANGE CAPACITY ←(Na)	5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	Ext. Iron % Fe 6C1a	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos %	8A MOISTURE AT SATURATION %
	EXTRACTABLE CATIONS											
	milliequivalents per 100g. soil →											
8.2	4.4	1.2	1.3	0.2	0.5	2	0.1	0.18	-		3.1	21.6
8.6	7.3	1.5	0.9	0.2	0.3	2	0.4	0.34	-		4.6	23.7
7.6	15.7	1.3	-	0.2	0.2	3	0.2	0.31	7		3.3	27.5
10.4	17.9	2.8	-	0.5	0.3	5	0.1	0.34	11		4.3	35.2
11.6	14.9	3.4	-	1.4	0.5	12	0.3	0.51	6		4.4	38.4

\+ Including cations from carbonates in some horizons.

DAVEY LOAMY SAND
S61Nev-7-6

Location: 500 feet east of the northwest corner of section 3, T. 43 N., R. 37 E., Mount Diablo Base and Meridian, 5 miles north and 1 1/2 miles west of Orovada, Humboldt County, Nevada. Date of Sampling: August 9, 1961.
Samples Collected By: R. E. Nelson, L. N. Langan, D. G. Bagley, Leland I. Larsen and Harry Summerfield. Description By: Leland I. Larsen.
Classification: **Xeric Torriorthent, sandy, mixed, mesic.**
Vegetation: Big sage, little rabbitbrush and annuals. Use: Livestock range. Climate: Cool continental climate having hot, dry summers and cold, moist winters; an average annual temperature of 47 to 50° F.; an average January temperature of about 27° F.; an average July temperature of about 70° F.; an average frost-free season of 110 to 120 days; and an average annual precipitation of 8 to 12 inches. Relative humidity is low and evaporation is high. Parent Material: Sandy alluvium that has been somewhat reworked by wind action. It is derived from mixed rock sources including granodiorite, basalt, tuff, rhyolite, quartzite, volcanic ash and schists. Relief: Nearly level with very gentle undulation, slope about 1 percent. Physiography: Low stabilized dunes superimposed on older lake terraces. Elevation: Approximately 4300 feet. Drainage: Excessively drained; runoff is very slow; rapid permeability. The water table is estimated at 25 feet.
Remarks: The soils are believed to contain appreciable volcanic ash. Effervescence obtained by observing reaction to dilute HCl; pH determined by using thymol blue and bromthymol blue in prepared 1:5 dilutions. Paired profile is S61Nev-7-5.

HORIZON	
A1 RSL No. 61561	0 to 8 inches, grayish brown (2.5Y 5/2) loamy sand, very dark grayish brown (2.5Y 3/2) when moist; very weak coarse platy structure; soft, very friable, nonsticky, nonplastic; abundant very fine and fine roots; many very fine and fine interstitial pores; neutral (pH 6.8); abrupt smooth boundary.
C1 RSL No. 61562	8 to 20 inches, light olive brown (2.5Y 5/4) loamy sand, very dark grayish brown (2.5Y 3/2) when moist; massive; soft, very friable, nonsticky, nonplastic; few fine and medium roots; many very fine and fine interstitial pores; neutral (pH 7.4); abrupt smooth boundary.
C2ca RSL No. 61563	20 to 41 inches, light brownish gray (2.5Y 6/2) loamy fine sand, dark grayish brown (2.5Y 4/2) when moist; massive; soft, very friable, nonsticky, nonplastic; few fine and medium roots; many very fine and fine interstitial pores; violently effervescent; strongly alkaline (pH 8.8); abrupt smooth boundary.
IIC3ca RSL No. 61564	41 to 53 inches , light brownish gray (2.5Y 6/2) loamy very fine sand, dark grayish brown (2.5Y 4/2) when moist; massive; soft, very friable, nonsticky, nonplastic; violently effervescent; strongly alkaline (pH 8.8).
IIC4ca RSL No. 61565	53 to 65 inches +, same as horizon above. Separated for sampling purposes.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Virgin River clay **LOCATION** Clark County, Nevada

SOIL FAMILY: Aquic Xerorthent, fine-loamy, mixed, calcareous, thermic

SURVEY NOS. S59Nev-2-2 **LAB. NOS.** 5996 thru 59101

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	Ap	0.1	0.6	1.3	7.3	3.8	38.0	48.9	12.7	33.9	0	c
6-19	C_1	0.1	0.4	0.8	9.5	5.2	36.6	47.4	16.3	32.5	0	c
19-26	C_2	0.0	0.1	1.1	26.7	14.2	33.4	24.5	44.1	24.3	0	l
26-35	C_3	0.0	0.1	0.3	3.5	3.4	56.4	36.3	15.6	46.8	0	sicl
35-48	IIC4	0.1	0.2	2.4	37.6	25.5	26.3	7.9	72.0	9.4	0	fsl
48-62+	IIIC5	0.1	0.2	0.3	8.0	28.9	54.4	8.1	73.2	17.4	0	sil

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 meq./l.	8A1a Elec. *Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	-	8.7	1.10	0.112	9.8	3.9	3.9	16				16.5
7.7	-	8.8	0.85	0.094	9.0	4.5	2.3	16	1.52			17.5
7.7	-	8.8	0.32	0.039	8.2	3.6	2.0	13	1.76			10.5
7.7	-	8.8	0.24	0.034		2.0	2.1	21	1.67			16.0
7.7	-	8.8	0.12			2.2	2.5	9				3.4
7.8	-	8.8	0.10			1.6	3.8	16				4.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
27.5				1.1	1.6	4	15.6	1.1	19.0	9.9	10.5	56.9
26.2				1.0	1.6	4	9.7	0.9	9.5	5.2	6.3	59.9
15.5				0.6	1.0	4	8.1	0.8	8.2	3.7	4.6	40.5
22.7				0.9	1.2	4	8.8	0.8	9.6	3.9	5.5	55.1
8.3				0.3	0.5	4	10.0	0.9	11.5	5.4	7.3	20.8
9.0				0.4	0.5	4	12.3	1.1	23.0	9.5	9.1	34.4

* Saturation Extract Soluble - milliequivalents per liter.

VIRGIN RIVER CLAY

S59Nev-2-2

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Collectors: V. D. Leavitt, L. N. Langan, R. Nelson and L. Grant.
Location: Located on the LDS Stake Farm approximately 1 mile west of the Bunkerville schoolhouse. It is approximately 500 feet north of the apparent south 1/4 corner of Sec. 26, T13S, R70E, Clark County, Nevada.
Relief: Nearly level (leveled to irrigate).
Physiography: High alluvial terrace on the floodplain of the Virgin River.
Drainage: Imperfectly drained. Runoff is very slow, internal soil drainage is very slow and permeability is slow. Water table is at a depth of 6 to 7 feet.
Parent Material: Mixed general alluvium derived principally from clayey Miocene lake sediments, shale and limestone.
Use: This soil is being cultivated to a rotation of alfalfa, small grains, corn and sorghum. The present crop is sorghum which has been harvested for ensilage. The field was in stubble at the time of sampling.
Vegetation: Native vegetation is a dense cover of honey mesquite, arrowweed, quail brush and rabbitbrush.
Climate: The Virgin River area is characterized by a hot arid climate with mild winters and hot, dry summers. Average annual rainfall is approximately 5 inches. The mean annual temperature is 68° F., the mean July temperature is 87° F., and mean January temperature is 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: This soil is slightly saline, having conductivity value between 4 to 8 millimhos per square centimeter at 25° C.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Aquic Xerorthent, fine-loamy, mixed, calcareous, thermic.

Riverside Lab. Nos.
5996 through 59101

Ap 0- 6" Reddish brown (5YR 4/3, moist) clay; moderate medium and fine granular structure; hard, friable, very sticky, very plastic; common very fine fibrous roots; many very fine interstitial and common very fine tubular pores; few worm casts; strongly calcareous; pH 8.4; abrupt smooth boundary.

C_1 6-19" Reddish brown (5YR 4/3, moist) clay; weak coarse subangular blocky breaking to moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; common very fine fibrous roots; common very fine and fine and few medium tubular pores; common worm casts; strongly calcareous; pH 8.4; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Virgin River clay **LOCATION** Clark County, Nevada

SOIL FAMILY: Aquic Xerorthent, fine-loamy, mixed, calcareous, thermic

SURVEY NOS. S59Nev-2-2 **LAB. NOS.** 5996 thru 59101

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	0.1	0.6	1.3	7.3	3.8	38.0	48.9	12.7	33.9	0	c
6-19	C_1	0.1	0.4	0.8	9.5	5.2	36.6	47.4	16.3	32.5	0	c
19-26	C_2	0.0	0.1	1.1	26.7	14.2	33.4	24.5	44.1	24.3	0	l
26-35	C_3	0.0	0.1	0.3	3.5	3.4	56.4	36.3	15.6	46.8	0	sicl
35-48	IIC4	0.1	0.2	2.4	37.6	25.5	26.3	7.9	72.0	9.4	0	fsl
48-62+	IIIC5	0.1	0.2	0.3	8.0	28.9	54.4	8.1	73.2	17.4	0	sil

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 meq./l.	8A1a Elec. *Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	-	8.7	1.10	0.112	9.8	3.9	3.9	16				16.5
7.7	-	8.8	0.85	0.094	9.0	4.5	2.3	16	1.52			17.5
7.7	-	8.8	0.32	0.039	8.2	3.6	2.0	13	1.76			10.5
7.7	-	8.8	0.24	0.034		2.0	2.1	21	1.67			16.0
7.7	-	8.8	0.12			2.2	2.5	9				3.4
7.8	-	8.8	0.10			1.6	3.8	16				4.6

5A2a CATION EXCHANGE CAPACITY (- Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
27.5				1.1	1.6	4	15.6	1.1	19.0	9.9	10.5	56.9
26.2				1.0	1.6	4	9.7	0.9	9.5	5.2	6.3	59.9
15.5				0.6	1.0	4	8.1	0.8	8.2	3.7	4.6	40.5
22.7				0.9	1.2	4	8.8	0.8	9.6	3.9	5.5	55.1
8.3				0.3	0.5	4	10.0	0.9	11.5	5.4	7.3	28.8
9.0				0.4	0.5	4	12.3	1.1	23.0	9.5	9.1	34.4

* Saturation Extract Soluble - milliequivalents per liter.

C_2 19-26" Reddish brown (5YR 4/3, moist) heavy clay loam with a few medium prominent pale olive (5YR 6/3) streaks and splotches; moderate coarse subangular blocky structure; hard, firm, sticky, very plastic, common very fine fibrous roots; common very fine and few fine tubular pores; included in this horizon is a 3-inch pocket of fine sand, few worm casts; strongly calcareous; pH 8.4; abrupt smooth boundary.

C_3 26-35" Reddish brown (5YR 4/4, moist) clay with few medium prominent black (10YR 2/1) organic stains in pores and root channels, few medium distinct brown (10YR 5/3) and few medium faint yellowish red (5YR 5/8) iron mottlings, and few medium and coarse distinct reddish brown (2.5YR 4/4) particles and a very thin band (1/8 to 1/4 inch thick) of parent material; weak coarse to fine platy breaking to moderate medium and fine subangular blocky structure; hard, firm, very sticky, very plastic; common very fine fibrous roots, mostly horizontal and a few dead coarse mesquite roots 1" in diameter; very few fine and medium and a few very fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.

IIC_4 35-48" Reddish brown (5YR 4/3, moist) stratified loamy fine sand and fine sand with a few fine faint yellowish red (5YR 5/8) iron mottlings at top of the horizon which increases to common medium near base; weak fine and medium granular structure; soft, very friable, nonsticky, nonplastic; few very fine fibrous roots; very few and few fine tubular pores; contains two 1" bands of black (10YR 2/1) in the upper 6 inches of the horizon having abrupt lower boundaries and contains many medium prominent black (10YR 2/1) stains along old root channels; very few fine and few very fine tubular pores; strongly calcareous; pH 8.4; clear wavy boundary.

$IIIC_5$ 48-62"+ Reddish brown (5YR 4/4, moist) fine sandy loam with common fine faint yellowish red (5YR 5/8) iron mottles and few medium prominent olive (5Y 5/3) iron stains; weak fine subangular blocky structure; hard, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores; strongly calcareous; pH 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Aquic Xerorthent, fine-silty, mixed, calcareous, thermic (Virgin River taxadjunct)

SURVEY NOS. S59Nev-2-17 **LAB. NOS.** 59102 thru 59106

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	Ap	0.5	0.7	1.0	5.1	5.8	51.3	35.6	26.0	34.6	1	sicl
6-20	C_1	0.2	0.3	0.4	3.4	5.2	53.5	37.0	26.0	35.2	0	sicl
20-31	C_2	0.1	0.1	0.1	0.3	0.4	69.0	30.0	10.7	58.9	0	sicl
31-40	C3	0.0	0.1	0.1	0.9	0.8	73.1	25.0	17.2	57.3	0	sil
40-53	IIC4	0.0	0.1	0.3	6.3	37.8	48.8	6.7	84.4	8.1	0	1-sil-vfsl

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	0.2	8.6	1.29	0.124	10.4	5.9	2.8	18				15.6
7.7	0	8.6	0.99	0.104	9.5	3.9	2.8	17	1.65			16.2
7.7	0	8.6	0.38	0.043	8.8	1.9	3.4	24	1.52			13.5
7.6	0	8.5	0.34	0.037	9.2	1.8	4.1	21	1.50			12.6
7.7	0	8.7	0.07	--		1.6	5.3	12				3.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
23.0				1.0	0.9	4	11.6	1.5	11.0	7.4	8.2	54.3
21.5				1.0	1.5	5	10.8	1.1	12.6	6.3	6.3	54.2
21.3				0.9	1.3	4	12.8	1.1	16.7	8.8	10.3	57.1
21.6				1.2	1.4	6	14.4	1.3	20.7	11.1	13.2	53.2
8.1				0.6	0.6	7	18.9	1.6	30.8	16.5	20.7	33.9

* Saturation Extract Soluble - milliequivalents per liter.

Series not designated 1/
S59Nev-2-17

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Collectors: V. D. Leavitt, L. N. Langan, R. Nelson and L. Grant.
Location: Approximately 1,100 feet north and 100 feet west of SE corner of Section 26, T13S, R70E on the Biasi farm which is approximately 2 miles west of Bunkerville, Clark County, Nevada.
Relief: Nearly level (leveled to irrigate).
Physiography: High alluvial terrace on the floodplain of the Virgin River.
Drainage: Imperfectly drained. Runoff is very slow, internal soil drainage is very slow, and the permeability is slow. Water table is at 5½ to 6 feet.
Parent Material: Mixed general alluvium derived principally from clayey Miocene lake sediments, shale and limestone.
Use: This soil is being cultivated to a rotation of alfalfa, small grains, corn, and sorghum. The present crop is alfalfa which is being harvested as green chop for dairy cows.
Vegetation: Native vegetation is a dense cover of honey mesquite, arrowweed, quailbrush, and rabbitbrush.
Climate: The Virgin River area is characterized by a hot arid climate with mild winters and hot, dry summers. Average annual rainfall is approximately 5 inches. The mean annual temperature is 68° F., the mean July temperature is 87° F., and the mean January temperature is 44° F. The relative humidity is low, evaporation is high, and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: This soil is slightly saline having a conductivity value between 4 to 8 millimhos per square centimeter at 25° C.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Aquic Xerorthent, fine-silty, mixed, calcareous, thermic (Virgin River taxadjunct).

Riverside Lab. Nos.
59102 through 59106

Ap	0- 6"	Reddish brown (5YR 4/3, moist) clay, moderate medium subangular blocky structure; hard to very hard, firm, very sticky, very plastic; many very fine, common fine and few medium fibrous roots; few fine and medium tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
C_1	6-20"	Reddish brown (5YR 4/3, moist) clay; moderate medium to fine subangular blocky structure; hard, firm, very sticky, very plastic; few fine and medium and common very fine fibrous roots; few fine and medium and common very fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Clark County, Nevada

SOIL FAMILY: Aquic Xerorthent, fine-silty, mixed, calcareous, thermic (Virgin River taxadjunct)

SURVEY NOS. S59Nev-2-17 **LAB. NOS.** 59102 thru 59106

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	Ap	0.5	0.7	1.0	5.1	5.8	51.3	35.6	26.0	34.6	1	sicl
6-20	C_1	0.2	0.3	0.4	3.4	5.2	53.5	37.0	26.0	35.2	0	sicl
20-31	C_2	0.1	0.1	0.1	0.3	0.4	69.0	30.0	10.7	58.9	0	sicl
31-40	C3	0.0	0.1	0.1	0.9	0.8	73.1	25.0	17.2	57.3	0	sil
40-53	IIC4	0.0	0.1	0.3	6.3	37.8	48.8	6.7	84.4	8.1	0	l-sil-vfsl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	0.2	8.6	1.29	0.124	10.4	5.9	2.8	18				15.6
7.7	0	8.6	0.99	0.104	9.5	3.9	2.8	17	1.65			16.2
7.7	0	8.6	0.38	0.043	8.8	1.9	3.4	24	1.52			13.5
7.6	0	8.5	0.34	0.037	9.2	1.8	4.1	21	1.50			12.6
7.7	0	8.7	0.07	--		1.6	5.3	12				3.4

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
23.0				1.0	0.9	4	11.6	1.5	11.0	7.4	8.2	54.3
21.5				1.0	1.5	5	10.8	1.1	12.6	6.3	6.3	54.2
21.3				0.9	1.3	4	12.8	1.1	16.7	8.8	10.3	57.1
21.6				1.2	1.4	6	14.4	1.3	20.7	11.1	13.2	53.2
8.1				0.6	0.6	7	18.9	1.6	30.8	16.5	20.7	33.9

* Saturation Extract Soluble - milliequivalents per liter.

C_2	20-31"	Reddish brown (5YR 4/3, moist) with thin dark reddish gray (5YR 4/2) brown (7.5YR 5/4) weak red (2.5YR 5/2) and reddish brown (2.5YR 5/4) horizontal bands, stratified silty clay and clay with few fine faint yellowish red (5YR 5/8) and very few coarse distinct dark grayish brown (10YR 4/2) iron mottles and few fine distinct pinkish white (7.5YR 8/2) gypsum flecks; massive; hard, friable, very sticky, very plastic; common very fine fibrous roots; common very fine and few fine tubular pores; common worm casts; very strongly calcareous; pH 8.4; abrupt smooth boundary.
C_3	31-40"	Reddish brown (5YR 4/3, moist) finely stratified silty clay loam and silty clay with few medium prominent very dark gray (10YR 3/1) organic stains, and common fine and medium distinct brown (10YR 5/3) and yellowish red (5YR 5/8) iron mottles; massive; hard, friable, sticky to very sticky, plastic to very very plastic; common very fine fibrous roots, common very fine tubular pores; very few worm casts; strongly calcareous; pH 8.4; abrupt smooth boundary.
IIC4	40-53"	Reddish brown (5YR 4/3, moist) finely stratified fine sand, loamy fine sand, and very fine sandy loam with common medium distinct yellowish red (5YR 5/8) and a few fine distinct reddish yellow (7.5YR 7/8) gypsum mottles; massive; slightly hard, very friable, nonsticky, nonplastic; few very fine fibrous roots; few very fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.
IIIC5	53-60"	Reddish brown (5YR 4/3, moist) stratified clay and clay loam with many fine distinct pinkish gray (7.5YR 7/2) gypsum mottles and few fine faint yellowish red (5YR 5/8) dark reddish brown (2.5YR 3/4) iron mottles, and a few fine prominent black (10YR 2/1) organic flecks at top of the horizon; massive; hard, firm to friable, very sticky to sticky, very plastic to plastic; few very fine fibrous roots; common very fine and few fine tubular pores; slightly micaceous; strongly calcareous; pH 8.4; abrupt smooth boundary.
IVC6	60"+	Brown (7.5YR 5/4, moist) sand, single grained, loose, loose, nonsticky, nonplastic; few very fine fibrous roots; porous; strongly calcareous; pH 8.2.

1/ The Virgin River series is in a fine-loamy, mixed, calcareous, thermic family of Aquic Xerorthents (see pedon S59Nev-2-2). This pedon is a taxadjunct because it contains less than 15 percent sand coarser than very fine sand in the control section.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Hawes sand **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Typic Torripsamment, mixed, mesic

SURVEY NOS. S59Nev-1-7 **LAB. NOS.** 59196 - 59199

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 5	C_1	4.2	13.7	10.5	49.6	16.2	2.7	3.1	52.4	0.6	2	s-fs
5-17	C_2	3.6	12.3	10.8	50.5	16.6	2.9	3.3	53.0	0.7	2	fs-s
17-30	C_3	8.3	21.7	15.1	39.8	10.0	2.4	2.7	34.8	0.9	3	cos
30-60+	IIC4	3.9	23.5	31.5	38.3	1.4	0.6	0.8	14.0	0.1	1	cos

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1	-	8.0	0.07	0.007		2.8	0.5	tr				1.9
8.3	-	9.0	0.05	0.006		2.2	0.3	tr	1.65			2.2
8.4	-	9.2	0.05			2.6	0.3	1	1.67			1.9
8.6	-	8.9	0.02			2.1	0.3	2				1.6

5A2a CATION EXCHANGE CAPACITY (+ Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
4.8				0.2	0.8	4	0.9	1.1	2.5	0.4	0.4	24.5
5.5				0.1	0.8	2	0.6	0.8	1.7	0.4	0.1	24.1
5.8				0.6	0.7	10	0.9	0.7	2.0	0.4	0.1	21.6
4.0				0.3	0.4	8	4.2	0.3	1.1	0.3	0.4	28.4

* Saturation extract soluble - milliequivalents per liter.

1/ Percent of the whole soil

HAWES SAND
S59Nev-1-7

Description: L. H. Langan and M. A. Townsend Sampled: March 1959.
Collectors: R. E. Nelson, L. H. Langan, M. A. Townsend.
Location: Swingle Bench, approximately 100 feet north of Highway 50 and 100 feet east of Swingle Bench road. The site is located approximately 110' E. and 30' S. of NW corner of Sec. 20, T19N, R27E, Fallon-Fernley Area, Churchill County, Nevada.
Elevation: Approximately 4102 feet.
Relief: Smooth with a slight hummocky microrelief around the base of shrubs.
Use: Vegetation in this area is utilized for limited livestock grazing.
Vegetation: Dahlia, horsebrush, gray molly, Russian thistle, Indian ricegrass, and occasional annuals. Plant density is approximately 10 percent.
Drainage: Excessively drained. Runoff is slow; internal drainage is very rapid; and permeability is very rapid.
Parent Material: Mixed sandy alluvium derived predominantly from granite, rhyolite, basalt, and reworked lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F., and the average July temperature is 72.9° F. with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Reaction: Measure of free carbonates obtained by observing reaction to dilute HCl. pH determined using bromthymol blue.
Classification: Typic Torripsamment, mixed, mesic.

Riverside Lab. Nos.
59196 through 59199

C_1 0- 5" Light brownish gray (10YR 6/2) medium sand, dark grayish brown (10YR 4/2) when moist; very weak medium and coarse subangular blocky structure breaking to single grained; soft to loose, very friable, nonsticky and nonplastic; abundant fine and medium fibrous roots; porous; highly micaceous; noncalcareous; neutral (pH 7.2); clear smooth boundary.

C_2 5-17" Light brownish gray (10YR 6/2) medium sand, dark grayish brown (10YR 4/2) when moist; single grained; loose dry and moist, nonsticky and nonplastic; plentiful fine and medium fibrous roots; porous; soil mass contains 3 percent very fine gravels that are rounded and subrounded; highly micaceous; noncalcareous; neutral (pH 7.0); clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Hawes sand **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Typic Torripsamment, mixed, mesic

SURVEY NOS. S59Nev-1-7 **LAB. NOS.** 59196 - 59199

DEPTH INCHES	HORIZON	1B1b VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
		PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)										
0- 5	C_1	4.2	13.7	10.5	49.6	16.2	2.7	3.1	52.4	0.6	2	s-fs
5-17	C_2	3.6	12.3	10.8	50.5	16.6	2.9	3.3	53.0	0.7	2	fs-s
17-30	C_3	8.3	21.7	15.1	39.8	10.0	2.4	2.7	34.8	0.9	3	cos
30-60+	IIC4	3.9	23.5	31.5	38.3	1.4	0.6	0.8	14.0	0.1	1	cos

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1	-	8.0	0.07	0.007		2.8	0.5	tr				1.9
8.3	-	9.0	0.05	0.006		2.2	0.3	tr	1.65			2.2
8.4	-	9.2	0.05			2.6	0.3	1	1.67			1.9
8.6	-	8.9	0.02			2.1	0.3	2				1.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
4.8				0.2	0.8	4	0.9	1.1	2.5	0.4	0.4	24.5
5.5				0.1	0.8	2	0.6	0.8	1.7	0.4	0.1	24.1
5.8				0.6	0.7	10	0.9	0.7	2.0	0.4	0.1	21.6
4.0				0.3	0.4	8	4.2	0.3	1.1	0.3	0.4	28.4

* Saturation extract soluble - milliequivalents per liter.

1/ Percent of the whole soil.

C_3	17-30"	Light gray (10YR 7/2) medium sand, dark grayish brown (10YR 4/2) when moist; single grained; loose, dry, and moist, nonsticky and nonplastic; plentiful fine and medium fibrous roots; porous; soil mass contains 5 percent very fine gravels that are rounded and subrounded, some of which are lime coated but not oriented; highly micaceous; slightly calcareous; mildly alkaline (pH 7.8); clear wavy boundary.
IIC_4	30-60"+	Light gray (10YR 7/2) coarse sand, dark grayish brown (10YR 4/2) when moist; single grained; loose dry and moist, nonsticky and nonplastic; plentiful fine and medium fibrous roots; porous; highly micaceous; slightly calcareous; mildly alkaline (pH 7.4).

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Hawes sand **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Typic Torripsamm nt, mixed, mesic

SURVEY NOS. S59Nev-1-8 **LAB. NOS.** 59200 - 59203

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 4	C_1	5.3	15.9	11.3	42.3	18.7	3.4	3.1	49.5	0.6	5	s
4-25	C_2	3.9	17.0	14.8	43.5	14.4	1.0	5.4	41.8	0.9	3	s
25-41	C_3	3.5	14.6	11.9	47.3	17.6	4.1	1.0	54.3	0.6	5	s
41-60+	IIC4	3.9	26.5	29.2	33.5	5.3	0.8	0.8	22.3	0.2	6	cos

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1	0.0	7.8	0.10	0.010		2.5	0.4	tr				2.0
8.2	0.0	7.9	0.06	0.006		2.7	0.3	tr	1.68			2.3
8.3	0.0	8.9	0.03			2.8	0.3	1				2.0
8.5	0.0	8.9	0.00			1.6	0.3	1				1.3

5A2a CATION EXCHANGE CAPACITY (-Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
5.1				0.2	0.9	4	0.5	1.3	1.6	0.4	0.1	24.6
5.6				0.2	0.7	4	0.8	0.7	1.7	0.7	0.2	24.2
5.6				0.3	0.3	5	1.5	0.2	1.8	0.8	0.6	25.1
4.6				0.3	0.3	7	1.3	0.2	1.8	0.3	0.2	24.8

* Saturation extract soluble - milliequivalents per liter.

1/ Percent of the whole soil.

HAWES SAND
S59Nev-1-8

Description: L. N. Langan and M. A. Townsend. Sampled: March 1959.
Collectors: R. Nelson, L. N. Langan, M. A. Townsend.
Location: Swingle Bench, approximately 500' S. and 25' E. of NW1/4 corner of sec. 18, T19N, R27E, Fallon-Fernley Area, Churchill County, Nevada.
Elevation: Approximately 4080 feet.
Relief: Smooth, with a slight hummocky microrelief around the base of shrubs.
Use: This area is utilized for limited livestock grazing but formerly was cultivated and irrigated prior to 1932.
Vegetation: Dahlia, Russian thistle, spiny hopsage, and traces of Indian ricegrass. Plant density is approximately 5 percent.
Drainage: Excessively drained. Runoff is slow; internal drainage is very rapid; and permeability is very rapid.
Parent Material: Mixed sandy alluvium derived predominantly from granite, rhyolite, basalt and reworked lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F. and the average July temperature is 72.9° F. with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Reaction: Measure of free carbonates obtained by observing reaction to dilute HCl. pH determined using bromthymol blue.
Classification: Typic Torripsamment, mixed, mesic.

Riverside Lab. Nos.
59200 through 59203

C_1 0- 4" Light brownish gray (10YR 6/2) medium sand, dark grayish brown (10YR 4/2) when moist; very weak medium and coarse subangular blocky structure breaking to single grain; soft to loose, very friable, nonsticky, nonplastic; few medium and plentiful fine roots; porous; highly micaceous; noncalcareous; neutral (pH 7.0); clear smooth boundary.

C_2 4-25" Light brownish gray (10YR 6/2) medium sand, dark grayish brown (10YR 4/2) when moist; single grained; loose dry and moist, nonsticky, nonplastic; few fine roots; porous, highly micaceous; noncalcareous; neutral (pH 7.0); clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Hawes sand **LOCATION** Fallon-Fernley Area, Churchill Co.
SOIL FAMILY: Typic Torripsamment, mixed, mesic

SURVEY NOS. S59Nev-1-8 **LAB. NOS.** 59200 - 59203

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 4	C_1	5.3	15.9	11.3	42.3	18.7	3.4	3.1	49.5	0.6	5	s
4-25	C_2	3.9	17.0	14.8	43.5	14.4	1.0	5.4	41.8	0.9	3	s
25-41	C_3	3.5	14.6	11.9	47.3	17.6	4.1	1.0	54.3	0.6	5	s
41-60+	IIC4	3.9	26.5	29.2	33.5	5.3	0.8	0.8	22.3	0.2	6	cos

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1	0.0	7.8	0.10	0.010		2.5	0.4	tr				2.0
8.2	0.0	7.9	0.06	0.006		2.7	0.3	tr	1.68			2.3
8.3	0.0	8.9	0.03			2.8	0.3	1				2.0
8.5	0.0	8.9	0.00			1.6	0.3	1				1.3

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
5.1				0.2	0.9	4	0.5	1.3	1.6	0.4	0.1	24.6
5.6				0.2	0.7	4	0.8	0.7	1.7	0.7	0.2	24.2
5.6				0.3	0.3	5	1.5	0.2	1.8	0.8	0.6	25.1
4.6				0.3	0.3	7	1.3	0.2	1.8	0.3	0.2	24.8

* Saturation extract soluble - milliequivalents per liter.

1/ Percent of the whole soil.

C_3	25-41"	Light gray (10YR 7/2) medium sand, dark grayish brown (10YR 4/2) when moist; single grained; loose, dry and moist, nonsticky, nonplastic; few fine roots; porous; soil mass contains 5 percent fine gravels high in tufa fragments; highly micaceous; slightly calcareous; mildly alkaline (pH 7.8); clear smooth boundary.
IIC_4	41-60"+	White (10YR 8/2) coarse sand, dark grayish brown (10YR 4/2) when moist; single grain; loose, dry and moist; nonsticky, nonplastic; thin lenses of fine gravelly coarse sand present throughout soil mass; no apparent roots; porous; few coarse prominent yellowish red (5YR 5/8) horizontally banded iron mottles; slightly calcareous; mildly alkaline (pH 7.4).

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toquop fine sand **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic T rripsamment, mixed, thermic

SURVEY NOS. S59Nev-2-4 **LAB. NOS.** 59117 thru 59121

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	C_1	3.6	8.4	23.6	52.1	6.8	2.5	3.0	33.0	1.0	1	fs
6-25	C_2	0.2	3.1	19.1	56.4	11.1	5.6	4.5	43.9	2.0	0	fs
25-32	C_3	0.1	1.8	14.2	62.2	11.7	5.2	4.8	49.7	1.7	0	fs
32-45	C_4	0.1	1.0	9.9	65.0	14.1	5.6	4.3	57.1	2.2	0	fs
45-62+	C_5	0.4	7.7	32.4	49.7	3.9	2.4	3.5	24.5	1.1	0	s-fs

8C1b pH SATURATED PASTE 1:1	CO_3 * meq/l 6I1a	8C1a 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq/l	8A1a Elec. Condc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 MOISTURE TENSIONS 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.2	-	9.2	0.02	0.004		3.1	0.3	4	1.63			1.3
8.2	-	9.3	0.02	0.002		2.1	0.3	6	1.58			2.0
8.1	-	9.3	0.01			1.9	0.5	7				1.9
8.1	-	9.2	0.00			1.5	0.7	7				1.8
7.8	-	8.9	0.00			1.5	2.0	5				1.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
2.5				<0.1	0.2	<4	0.2	0.7	2.0	0.3	0.2	22.5
3.6				<0.1	0.2	<3	0.4	0.4	1.5	0.4	0.3	21.1
5.5				<0.1	0.2	<2	1.0	0.5	2.3	0.9	0.8	23.9
4.6				<0.1	0.1	<2	1.5	0.2	3.1	1.7	1.8	24.6
2.8				0.3	<0.1	11	2.5	0.3	16.3	6.0	0.6	25.0

* Saturation Extract Soluble - milliequivalents per liter.

TOQUOP FINE SAND
S59Nev-2-4

Description: L. N. Langan, V. D. Leavitt. Collectors: L. N. Langan, V. D. Leavitt, R. Nelson, and L. Grant. Date of sampling: March 1959. Location: Clark County, Nevada; approximately 500 feet southwest of Mesquite Cemetery and 300 feet northwest of U.S. Highway 91 where the irrigation ditch crosses under the highway at the north edge of Mesquite, Nevada. It is approximately 400 feet east and 1,300 feet south of the apparent N1/4 corner of Sec. 15, T13S, R71E.
Relief: Nearly level with low, wind-deposited hummocks around the base of plants.
Physiography: Alluvial fan.
Drainage: Excessively drained. Runoff is very slow, internal soil drainage is very rapid, and permeability is very rapid. Water table was not encountered to a depth of 5 feet.
Parent Material: Primarily sandy Miocene lake sediments with admixtures from limestone and sandstone.
Use: Limited livestock grazing.
Vegetation: The vegetative cover consists primarily of honey mesquite, creosote, four-wing salt bush, arrowweed and annual weeds. The plant density is approximately 10 percent.
Climate: The Virgin River area is characterized by a hot arid climate with mild winters and hot dry summers. Average annual rainfall is approximately 5 inches. The mean annual temperature is 68° F., the mean July temperature is 87° F., and the mean January temperature is 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Reaction: Measure of free carbonate obtained observing reaction to diluted HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Typic Torripsamment, mixed, thermic.

Riverside Lab.Nos.
59117 through 59121

C_1 0- 6" Pink (5YR 8/4) finely stratified fine sand and fine gravelly sand, yellowish red (5YR 5/6) when moist; very weak fine and medium platy breaking to single-grained; soft to loose, very friable to loose, nonsticky, nonplastic; many very fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.5; abrupt slightly wavy boundary.

C_2 6-25" Pink (5YR 8/4) fine sand, yellowish red (5YR 5/6) when moist; with a thin 2 inch lens of reddish brown (5YR 4/4, moist) loamy fine sand, single-grained, loose, loose, nonsticky, nonplastic; common very fine fibrous roots, many very fine and fine interstitial pores; strongly calcareous; pH 8.6; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toquop fine sand **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torripsamment, mixed, thermic

SURVEY NOS. S59Nev-2-4 **LAB. NOS.** 59117 thru 59121

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	C_1	3.6	8.4	23.6	52.1	6.8	2.5	3.0	33.0	1.0	1	fs
6-25	C_2	0.2	3.1	19.1	56.4	11.1	5.6	4.5	43.9	2.0	0	fs
25-32	C_3	0.1	1.8	14.2	62.2	11.7	5.2	4.8	49.7	1.7	0	fs
32-45	C_4	0.1	1.0	9.9	65.0	14.1	5.6	4.3	57.1	2.2	0	fs
45-62+	C_5	0.4	7.7	32.4	49.7	3.9	2.4	3.5	24.5	1.1	0	s-fs

pH 8C1b SATURATED PASTE 1:1	CO_3 * meq/1 6I1a	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 * meq/1	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.2	-	9.2	0.02	0.004		3.1	0.3	4	1.63			1.3
8.2	-	9.3	0.02	0.002		2.1	0.3	6	1.58			2.0
8.1	-	9.3	0.01			1.9	0.5	7				1.9
8.1	-	9.2	0.00			1.5	0.7	7				1.8
7.8	-	8.9	0.00			1.5	2.0	5				1.4

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
2.5				<0.1	0.2	<4	0.2	0.7	2.0	0.3	0.2	22.5
3.6				<0.1	0.2	<3	0.4	0.4	1.5	0.4	0.3	21.1
5.5				<0.1	0.2	<2	1.0	0.5	2.3	0.9	0.8	23.9
4.6				<0.1	0.1	<2	1.5	0.2	3.1	1.7	1.8	24.6
2.8				0.3	<0.1	11	2.5	0.3	16.3	6.0	0.6	25.0

* Saturation Extract Soluble - milliequivalents per liter.

C_3 25-32" Pink (5YR 8/4) fine sand, yellowish red (5YR 5/6) when moist; single-grained, loose, loose, nonsticky, nonplastic; common very fine and few medium fibrous roots; many very fine and fine interstitial pores; strongly calcareous; pH 8.8; abrupt smooth boundary.

C_4 32-45" Similar color, structure and consistence as horizon above except is coarsely stratified with approximately 70 percent fine sand and 30 percent sand; few very fine fibrous roots; many very fine and fine interstitial pores; strongly calcareous; pH 8.8; abrupt smooth boundary.

C5 45-62"+ This horizon is similar in all respects to horizon above except it is coarsely stratified with approximately 70 percent sand and 30 percent fine sand.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toquop fine sand **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torripsamment, mixed, thermic

SURVEY NOS. S59Nev-2-19 **LAB. NOS.** 59122 thru 59125

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
1/4-9	IIC_1	0.3	5.3	17.1	54.2	13.0	7.1	3.0	44.7	3.8	0	fs
9-26	IIC_2	0.1	3.7	16.2	60.4	11.3	3.8	4.5	42.6	1.3	0	fs
26-43	IIC_3	0.0	1.6	13.9	64.3	13.1	3.4	3.7	52.5	0.9	0	fs
43-51	IIC_4	0.0	0.4	5.9	69.5	16.0	4.0	4.2	63.7	1.0	0	fs

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.5	-	9.4	0.04	0.006		3.7	0.4	7	1.65			1.9
8.3	-	9.3	0.00	0.003		2.4	0.6	7	1.67			1.8
8.3	-	9.3	0.00			1.7	0.8	7				1.5
8.2	-	9.4	0.00			1.4	1.9	7				1.6

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
4.8				0.1	0.5	2	1.1	1.5	1.6	0.4	0.1	21.9
3.4				0.1	0.3	3	2.2	0.8	2.0	0.6	2.2	24.8
3.0				0.1	0.3	3	2.3	1.5	2.8	1.4	0.5	25.9
4.4				<0.1	0.4	<2	2.6	3.1	14.3	6.0	0.4	26.8

*Saturation Extract Soluble - milliequivalents per liter.

TOQUOP FINE SAND
S59Nev-2-19

Description: L. N. Langan, V. D. Leavitt. Sampled: March 1959.
Collectors: V. D. Leavitt, L. N. Langan, R. Nelson, and L. Grant.
Location: 3.1 miles west of Mesquite Post Office on U.S. Highway 91 and approximately 200 feet SE of Highway 91 on Lewis Pulsipher farm, Clark County, Nevada.
Relief: Nearly level.
Physiography: Alluvial fan.
Drainage: Excessively drained. Runoff is very slow, internal soil drainage is very rapid, and permeability is very rapid. Water table was not encountered to a depth of 5 feet.
Parent Material: Primarily sandy Miocene lake sediments with admixtures from limestone and sandstone.
Use: Idle.
Vegetation: The native vegetation consists of honey mesquite, creosote, Indian ricegrass, assorted annuals having a plant density of 10 to 20 percent.
Climate: The Virgin River area is characterized by a hot arid climate with mild winters and hot, dry summers. Average annual rainfall is approximately 5 inches. The mean annual temperature is 63° F., the mean July temperature is 87° F., and the mean January temperature 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Other Features: The site has been brushed, rough leveled to irrigate and abandoned. Irrigation water has been spread on this site when draining the ditch. This has resulted in a thin crust of finer textured material being deposited on this soil.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Typic Torripsamment, mixed, thermic.

Riverside Lab. Nos.
59122 through 59125

C1	0-1/4"	Brown (7.5YR 5/4, moist) silty clay loam; massive; hard, friable, sticky, and plastic; very weakly vesicular pores; strongly calcareous; pH 8.6; abrupt smooth boundary.
IIC_1	1/4- 9"	Pink (5YR 8/4) fine sand, yellowish red (5YR 5/6) when moist; single-grained; loose, nonsticky, nonplastic; few very fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.6; clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toquop fine sand **LOCATION** Clark County, Nevada

SOIL FAMILY: Typic Torripsamment, mixed, thermic

SURVEY NOS. S59Nev-2-19 **LAB. NOS.** 59122 thru 59125

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
1/4-9	IIC_1	0.3	5.3	17.1	54.2	13.0	7.1	3.0	44.7	3.8	0	fs
9-26	IIC_2	0.1	3.7	16.2	60.4	11.3	3.8	4.5	42.6	1.3	0	fs
26-43	IIC_3	0.0	1.6	13.9	64.3	13.1	3.4	3.7	52.5	0.9	0	fs
43-51	IIC_4	0.0	0.4	5.9	69.5	16.0	4.0	4.2	63.7	1.0	0	fs

8C1b pH SATURATED PASTE 1:1	6I1a CO_3* meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3* meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS.	4B2 15 ATMOS. %
8.5	-	9.4	0.04	0.006		3.7	0.4	7	1.65			1.9
8.3	-	9.3	0.00	0.003		2.4	0.6	7	1.67			1.8
8.3	-	9.3	0.00			1.7	0.8	7				1.5
8.2	-	9.4	0.00			1.4	1.9	7				1.6

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
4.8				0.1	0.5	2	1.1	1.5	1.6	0.4	0.1	21.9
3.4				0.1	0.3	3	2.2	0.3	2.0	0.6	2.2	24.8
3.0				0.1	0.3	3	2.3	1.5	2.8	1.4	0.5	25.9
4.4				<0.1	0.4	<2	2.6	3.1	14.3	6.0	0.4	26.8

*Saturation Extract Soluble - milliequivalents per liter.

IIC_2	9-26"	Pink (5YR 8/4) fine sand, yellowish red (5YR 5/6) when moist; single-grained; loose, nonsticky, nonplastic; few fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.8; clear smooth boundary.
IIC_3	26-43"	Pink (5YR 8/4) fine sand, yellowish red (5YR 5/6) when moist with very few fine distinct pinkish white (7.5YR 8/2) seams with veins of gypsum; single-grained; loose, nonsticky, nonplastic; few very fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.6; clear smooth boundary.
IIC_4	43-57"+	Pink (5YR 8/4) fine sand, yellowish red (5YR 5/6) when moist with a few fine to medium distinct pinkish white (7.5YR 8/2) seams and veins of gypsum; single-grained; loose, nonsticky, nonplastic; few very fine fibrous roots; many very fine interstitial pores; strongly calcareous; pH 8.4.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Ormsby gravelly loamy sand **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Aquic Durorthidic Xeropsamment, mixed, mesic

SURVEY NOS. S59Nev-3-7 **LAB. NOS.** 59619 - 59625

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 7	A_{1p}	16.0	33.2	15.4	13.4	6.0	11.7	4.3	19.3	4.9	29	lcos
7-16	A_{12}	12.9	32.5	18.7	15.6	5.9	9.8	4.6	18.3	4.3	31	lcos
16-24	C_1	24.6	37.0	14.3	10.3	3.0	6.5	4.3	10.6	3.1	23	cos
24-35	C_{2si}	17.5	35.5	16.1	13.3	5.6	7.1	4.9	16.1	2.8	26	cos-lcos
35-44	C_{3si}	15.3	37.5	17.5	12.9	5.3	6.9	4.6	15.6	2.2	30	cos
44-52	C_{4si}	15.7	38.2	19.9	14.0	3.8	4.6	3.8	12.6	1.7	35	cos
52-60+	C_5	11.9	34.4	21.8	19.9	4.6	3.9	3.5	16.3	1.3	41	cos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.7	8.0	0.90	0.083	10.8		0.5	-	3.9				3.4
8.2	8.8	0.36	0.034			0.7	-	5.8				3.0
7.9	8.0	0.21	0.022			0.4	-	3.7				2.9
7.8	7.9	0.11				0.4	-	2.4				2.9
7.7	7.8	0.09				0.2	-	2.1				2.7
7.7	7.3	0.08				0.1	-	0.9				2.2
7.5	7.1	0.06				0.3	-	0.8				1.9

5A2a CATION EXCHANGE CAPACITY	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
← Na →	milliequivalents per 100g. soil →						← milliequivalents per liter →					
9.2	6.0	1.4	1.9	0.1	0.5	81	1.4	0.7	3.4	0.4	0.7	24.8
7.6	6.3	1.7	1.2	0.5	0.7	87	3.7	0.8	2.0	1.2	0.2	23.1
7.6	3.7	1.3	1.4	0.1	0.6	83	2.0	0.7	1.6	0.7	0.7	21.0
6.7	3.2	1.6	1.7	0.5	0.4	77	2.1	0.5	1.2	0.4	1.6	20.2
6.3	3.2	1.6	1.4	0.3	0.3	79	1.7	0.2	0.4	-	0.7	19.4
5.4	2.8	2.1	1.7	0.1	0.3	76	1.1	0.1	0.4	-	0.2	20.5
5.5	2.8	1.2	1.3	0.1	0.2	77	1.5	0.2	0.9	-	0.7	22.1

1/ Percent of the <1 inch fraction.

ORMSBY GRAVELLY LOAMY SAND
S59Nev-3-7

Location: The site is located approximately 1,000 feet north and 75 feet west of the south 1/4 corner of sec. 6, T. 13 N., R. 20 E., Mount Diablo Base and Meridian. It is located on the A. L. Settlemeyer pasture unit, Douglas Co., Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 3, 1959
Description by: L. N. Langan
Relief: Smooth, nearly level alluvial terrace
Physiography: Alluvial terrace
Drainage: Imperfectly drained; runoff is very slow during periods of normal rainfall; internal drainage is slow and the soil permeability is rapid through the A and upper part of the C, but is very rapid in the lower portion of the C. The water table was at 5 feet during the time of sampling. Normally it is between 3 and 4 feet during the runoff period of normal water years.
Parent Material: Sandy alluvium derived from mixed rock sources. It is derived primarily from granite with admixtures of basalt, rhyolite, and assorted sedimentary and metamorphic rocks.
Use: This site is being cultivated to a rotation of alfalfa and small grains. The present crop is alfalfa that is cut twice annually for hay and fed to livestock during the winter months.
Vegetation: Prior to brush removal and cultivation, the vegetation consisted of sagebrush, desert peach, bitterbrush, rabbitbrush, Indian ricegrass, squirreltail, stipa, cheatgrass, and assorted annual weeds. Plant density normally ranges from approximately 10 to 20 percent.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches; the average annual temperature is 49 to 51° F. and the average frost-free season is 95 to 110 days.
Remarks: These samples are paired with S59Nev-3-8-1 through 7; saline-alkali free.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue in a prepared 1:5 dilution
Classification: Aquic Durorthidic Xeropsamment, mixed, mesic.

A1p RSL No. 59619	0- 7"	Dark gray (10YR 4/1) gravelly loamy sand, very dark brown (10YR 2/2) when moist; massive; slightly hard, friable, nonsticky, nonplastic; few medium, plentiful fine and abundant very fine roots; common fine and very fine tubular and interstitial pores; pH 6.8; abrupt smooth boundary.
A12 RSL No. 59620	7-16"	Dark grayish brown (10YR 4/2) gravelly loamy sand, very dark brown (10YR 2/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful fine and abundant very fine roots; few fine and very fine tubular, common fine and many very fine interstitial pores; pH 7.2; clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Ormsby gravelly loamy sand **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Aquic Durorthidic Xeropsamment, mixed, mesic

SURVEY NOS. S59Nev-3-7 **LAB. NOS.** 59619 - 59625

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 7	A_{1p}	16.0	33.2	15.4	13.4	6.0	11.7	4.3	19.3	4.9	29	lcos
7-16	A_{12}	12.9	32.5	18.7	15.6	5.9	9.8	4.6	18.3	4.3	31	lcos
16-24	C_1	24.6	37.0	14.3	10.3	3.0	6.5	4.3	10.6	3.1	23	cos
24-35	C_{2si}	17.5	35.5	16.1	13.3	5.6	7.1	4.9	16.1	2.8	26	cos-lcos
35-44	C_{3si}	15.3	37.5	17.5	12.9	5.3	6.9	4.6	15.6	2.2	30	cos
44-52	C_{4si}	15.7	38.2	19.9	14.0	3.8	4.6	3.8	12.6	1.7	35	cos
52-60+	C_5	11.9	34.4	21.8	19.9	4.6	3.9	3.5	16.3	1.3	41	cos

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.7	8.0	0.90	0.083	10.8		0.5	-	3.9				3.4
8.2	8.8	0.36	0.034			0.7	-	5.8				3.0
7.9	8.0	0.21	0.022			0.4	-	3.7				2.9
7.8	7.9	0.11				0.4	-	2.4				2.9
7.7	7.8	0.09				0.2	-	2.1				2.7
7.7	7.3	0.08				0.1	-	0.9				2.2
7.5	7.1	0.06				0.3	-	0.8				1.9

5A2a CATION EXCHANGE CAPACITY ↵(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil ⟶						⟵ milliequivalents per liter ⟶					
9.2	6.0	1.4	1.9	0.1	0.5	81	1.4	0.7	3.4	0.4	0.7	24.8
7.6	6.3	1.7	1.2	0.5	0.7	87	3.7	0.8	2.0	1.2	0.2	23.1
7.6	3.7	1.3	1.4	0.1	0.6	83	2.0	0.7	1.6	0.7	0.7	21.0
6.7	3.2	1.6	1.7	0.5	0.4	77	2.1	0.5	1.2	0.4	1.6	20.2
6.3	3.2	1.6	1.4	0.3	0.3	79	1.7	0.2	0.4	-	0.7	19.4
5.4	2.8	2.1	1.7	0.1	0.3	76	1.1	0.1	0.4	-	0.2	20.5
5.5	2.8	1.2	1.3	0.1	0.2	77	1.5	0.2	0.9	-	0.7	22.1

1/ Percent of the <1 inch fraction.

C1 RSL No. 59621	16-24"	Grayish brown (10YR 5/2) light loamy coarse sand, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few fine and abundant very fine roots; common very fine interstitial, and few very fine and fine tubular pores; pH 7.0; abrupt wavy boundary.
C2 RSL No. 59622	24-35"	Light brownish gray (10YR 6/2) gravelly light loamy sand, dark grayish brown (10YR 4/2) when moist, with common fine and medium faint dark brown (7.5YR 3/3) iron mottles; massive; hard to very hard, brittle, nonsticky, nonplastic; weakly cemented; plentiful very fine roots; few very fine and fine interstitial pores; pH 6.9; clear wavy boundary.
C3si RSL No. 59623	35-44"	Light brownish gray (10YR 6/2) gravelly coarse sand, dark grayish brown (10YR 4/2) when moist, with common coarse faint dark brown (10YR 3/3) iron mottlings; massive; hard to very hard, brittle, nonsticky, nonplastic; weakly cemented; few very fine roots; few very fine and fine interstitial pores; pH 6.8; clear wavy boundary.
C4si RSL No. 59624	44-52"	Light brownish gray (10YR 6/2) gravelly coarse sand, dark grayish brown (10YR 4/2) when moist, with common coarse faint dark brown (10YR 3/3) iron mottles; massive; hard, brittle, nonsticky and nonplastic; weakly cemented; no roots apparent; common very fine and fine interstitial pores; pH 6.8; clear wavy boundary.
C5 RSL No. 59625	52-60"+	Pale brown (10YR 6/3) gravelly coarse sand, dark grayish brown (10YR 4/2) when moist, with few very coarse faint dark brown (10YR 3/3) iron mottles; single grained; loose dry or moist, nonsticky, nonplastic; no roots apparent; many very fine and fine interstitial pores; pH 6.8.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Durorthidic Xeropsamment, mixed, mesic (Ormsby taxadjunct)

SURVEY NOS. S59Nev-3-8 **LAB. NOS.** 59626 - 59632

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 5	A_{1p}	12.3	30.7	18.5	21.4	6.5	7.2	3.4	21.0	3.0	16	cos
5-15	A_{12}	12.4	23.6	16.4	21.8	11.0	10.9	3.9	28.1	5.3	16	lcos
15-26	C_1	11.3	30.8	16.3	20.3	7.6	9.2	4.5	22.6	4.3	13	lcos-cos
26-37	C_{2si}	8.4	29.1	16.3	22.9	8.5	10.2	4.6	26.2	3.8	18	lcos
37-54	C_{3si}	8.6	24.3	15.0	23.8	10.1	12.0	6.2	30.9	3.8	11	lcos
54-62	IIC_4	16.6	36.5	16.5	17.2	4.4	5.1	3.7	15.2	2.0	23	cos
62-72+	$IIIC_5$	18.7	38.8	17.1	17.5	1.4	4.1	2.4	11.6	1.4	23	c s

pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
							milliequivalents per liter					
6.8	6.9	1.20	0.092	13.0		0.9	-	6.1				4.1
6.7	6.8	0.43	0.036	11.9		0.2	-	0.9				2.7
6.8	6.8	0.29	0.025			0.2	-	1.1				3.0
7.1	7.0	0.11				0.3	-	1.1				2.8
7.2	7.2	0.06				0.3	-	1.2				3.6
7.8	7.4	0.04				0.4	-	2.9				3.0
7.9	7.3	0.03				0.2	-	1.3				2.9

5A2a CATION EXCHANGE CAPACITY (Na)	5B1a Ca 6N2b	EXTRACTABLE CATIONS 5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
		milliequivalents per 100g. soil					milliequivalents per liter					
8.6	5.0	1.2	2.9	<0.1	0.8	80	1.3	2.1	6.2	-	2.0	28.0
7.3	4.1	1.0	2.7	0.1	0.4	67	0.5	0.3	1.0	-	0.2	21.6
7.0	4.1	0.9	2.1	0.4	0.4	73	0.8	0.4	1.0	0.5	0.2	20.2
7.0	3.6	1.3	1.8	0.4	0.3	76	0.9	0.3	1.2	0.1	0.2	19.1
8.6	4.8	1.9	1.9	0.3	0.4	80	1.0	0.3	1.3	0.3	0.2	19.8
7.6	3.5	2.1	1.7	0.1	0.4	78	1.3	0.6	2.2	0.4	0.2	20.8
5.9	2.7	1.9	3.2	0.3	0.4	62	0.5	0.2	0.8	-	-	23.1

1/ Percent of the <1 inch fraction.

Series not designated [1/]

S59Nev-3-8

Location: The site is located approximately 100 feet west and 1,200 feet north of the center of sec. 31, T. 14 N., R. 20 E., Mount Diablo Base and Meridian. It is located on the A. L. Settlemeyer pasture unit, Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 3, 1959
Description by: L. N. Langan
Relief: Smooth, nearly level alluvial terrace
Physiography: Alluvial terrace
Drainage: Imperfectly drained; runoff is very slow during periods of normal rainfall; internal drainage is slow; soil permeability is rapid through the A and upper part of the C but is very rapid in the lower part of the C. The water table was at 7 feet during the time of sampling, however it is normally between 3 and 4 feet during runoff period of normal water years.
Parent Material: Sandy alluvium derived from mixed rock sources, primarily from granite with admixtures of basalt, rhyolite, and assorted sedimentary and metamorphic rocks.
Use: This site is being cultivated to a rotation of alfalfa and small grains. The present crop is alfalfa that is cut twice annually for hay and fed to livestock during the winter months. This field has been in cultivation for only three years.
Vegetation: Prior to brush removal and cultivation, vegetation consisted of sagebrush, desert peach, bitterbrush, rabbitbrush, Indian ricegrass, squirreltail, stipa, cheatgrass, and assorted annual weeds. Plant density ranges from approximately 5 to 20 percent.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches; average annual temperature is 49 to 51° F. and the average frost-free season is 95 to 110 days.
Remarks: This soil is saline-alkali free. These samples are paired with S59Nev-3-7-1 through 7
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue in a prepared 1:5 dilution.
Classification: Durorthidic Xeropsamment, mixed, mesic (Ormsby taxadjunct).

Alp RSL No. 59626	0- 5"	Between dark grayish brown and dark gray (10YR 4/1.5) gravelly loamy sand, very dark brown (10YR 2/2) when moist; weak fine and medium granular structure; soft, very friable, nonsticky, nonplastic; few fine and abundant very fine roots; many very fine and fine interstitial pores; pH 6.8; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Durorthidic Xeropsamment, mixed, mesic (Ormsby taxadjunct)

SURVEY NOS. S59Nev-3-8 **LAB. NOS.** 59626 - 59632

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0- 5	A_{1p}	12.3	30.7	18.5	21.4	6.5	7.2	3.4	21.0	3.0	16	cos
5-15	A_{12}	12.4	23.6	16.4	21.8	11.0	10.9	3.9	28.1	5.3	16	lcos
15-26	C_1	11.3	30.8	16.3	20.3	7.6	9.2	4.5	22.6	4.3	13	lcos-cos
26-37	C_{2si}	8.4	29.1	16.3	22.9	8.5	10.2	4.6	26.2	3.8	18	lcos
37-54	C_{3si}	8.6	24.3	15.0	23.8	10.1	12.0	6.2	30.9	3.8	11	lcos
54-62	IIC_4	16.6	36.5	16.5	17.2	4.4	5.1	3.7	15.2	2.0	23	cos
62-72+	IIC_5	18.7	38.8	17.1	17.5	1.4	4.1	2.4	11.6	1.4	23	cos

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
							milliequivalents per liter					
6.8	6.9	1.20	0.092	13.0		0.9	-	6.1				4.1
6.7	6.8	0.43	0.036	11.9		0.2	-	0.9				2.7
6.8	6.8	0.29	0.025			0.2	-	1.1				3.0
7.1	7.0	0.11				0.3	-	1.1				2.8
7.2	7.2	0.06				0.3	-	1.2				3.6
7.8	7.4	0.04				0.4	-	2.9				3.0
7.9	7.3	0.03				0.2	-	1.3				2.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
8.6	5.0	1.2	2.9	<0.1	0.8	80	1.3	2.1	6.2	-	2.0	28.0
7.3	4.1	1.0	2.7	0.1	0.4	67	0.5	0.3	1.0	-	0.2	21.6
7.0	4.1	0.9	2.1	0.4	0.4	73	0.8	0.4	1.0	0.5	0.2	20.2
7.0	3.6	1.3	1.8	0.4	0.3	76	0.9	0.3	1.2	0.1	0.2	19.1
8.6	4.8	1.9	1.9	0.3	0.4	80	1.0	0.3	1.3	0.3	0.2	19.8
7.6	3.5	2.1	1.7	0.1	0.4	78	1.3	0.6	2.2	0.4	0.2	20.8
5.9	2.7	1.9	3.2	0.3	0.4	62	0.5	0.2	0.8	-	-	23.1

1/ Percent of the <1 inch fraction.

A12 RSL No. 59627	5-15" (BPR)	Dark grayish brown (10YR 4/2) gravelly loamy sand, very dark brown (10YR 2/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine interstitial pores; pH 6.8; gradual smooth boundary.
C1 RSL No. 59628	15-26"	Grayish brown (10YR 5/2) light loamy coarse sand, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few fine and plentiful very fine roots; few very fine tubular and many very fine interstitial pores; pH 6.8; clear smooth boundary.
C2si RSL No. 59629	26-37"	Brown (10YR 5/3) gravelly loamy coarse sand, dark brown (10YR 4/3) when moist; massive; very hard, brittle, nonsticky, nonplastic; weakly cemented; few fine and plentiful very fine roots; few very fine tubular and common very fine interstitial pores; pH 6.8; clear smooth boundary.
C3si RSL No. 59630	37-54"	Light gray (10YR 7/2) loamy coarse sand, dark grayish brown (10YR 4/2) when moist; massive; very hard, brittle, nonsticky, nonplastic; weakly cemented; few fine and plentiful very fine roots; common very fine interstitial pores; pH 6.8; clear smooth boundary.
IIC4 RSL No. 59631	54-62"	Pale brown (10YR 6/3) gravelly coarse sand, dark grayish brown (10YR 4/2) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few very fine roots; common very fine and fine interstitial pores; pH 7.6; clear smooth boundary.
IIC5 RSL No. 59632	62-72"+	Pale brown (10YR 6/3) gravelly coarse sand, dark grayish brown (10YR 4/2) when moist; with common very coarse prominent dark reddish brown (5YR 3/2) iron streaks and bands, single grained; loose dry and moist, nonsticky, nonplastic; very few very fine roots; many fine and very fine interstitial pores; pH 7.0

1/ The Ormsby series is in a mixed, mesic family of Aquic Durorthidic Xeropsamments (see pedon S59Nev-3-7). Mottles with chromas of 2 or less are lacking in the upper 40 inches of this pedon, hence it is placed in the Durorthidic subgroup.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Moapa Valley, Clark Co., Nevada

SOIL FAMILY: Aeric Haplaquept, fine-loamy, mixed, calcareous, thermic (Overton taxadjunct)

SURVEY NOS. S59Nev-2-13 **LAB. NOS.** 5979 thru 5982

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	* 0.3	* 0.4	0.5	3.3	3.5	46.9	45.1	18.1	34.5	0	sic
6-12	A_{12}	0.1	0.4	0.5	2.4	2.8	45.1	48.7	14.1	35.4	0	sic
12-19	C_{1g}	0.0	0.1	0.1	1.3	4.4	44.3	49.8	15.8	34.0	0	sic
19-24	C_{2g}	0.0	0.0	0.1	0.7	1.6	51.5	46.1	9.4	44.3	0	sic
24-27	C_{3g}	Not sampled										
27-33	C_{4g}											
33-37	IIC5		"									
37-48	IIIC6		"									
48-54	IVC7		"									

8C1b pH SATURATED PASTE 1:1	6I1e ** CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a ** HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8	0.7	8.8	1.69	0.159	10.6	6.4	1.6	15				20.9
7.7	0.6	9.0	1.38	0.134	10.3	5.9	1.3	13	1.33			23.2
7.9	0.4	9.0	0.64	0.063	10.2	4.0	1.2	17	1.46			22.2
8.1	0.4	9.0	0.40	0.044	9.1	4.3	1.3	24	1.48			21.7

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
35.6				2.1	2.5	6	7.0	0.6	5.5	3.6	3.4	66.3
37.2				2.1	2.6	6	6.8	0.6	3.8	2.5	1.7	68.4
37.9				1.7	2.1	5	6.4	0.5	3.2	2.5	1.5	69.4
30.4				1.7	1.9	6	7.1	0.5	6.1	3.0	1.7	68.5

* Material weighed as sand is mainly organic matter.

**Saturation Extract Soluble - milliequivalents per liter.

Series not designated [1/]
S59Nev-2-13

Description: L. N. Langan and V. D. Leavitt. Sampled: March 1959.
Sampled by: V. D. Leavitt, L. N. Langan, L. Grant, and R. Nelson.
Location: The site is located approximately 2,000 feet south and 1,700 feet west of the northeast corner of Sec. 2, T17S, R67E, on the John Featherston Ranch.
Relief: Nearly level (leveled to irrigate). Moapa Valley, Clark County, Nevada.
Physiography: Flood plain of the Muddy River.
Drainage: Imperfectly drained. Runoff is very slow, internal soil drainage is very slow, and permeability is slow. Water table was encountered at 5 feet.
Parent Material: Clayey alluvium deposited by Muddy River derived from mixed rock sources, but dominantly of sedimentary origin.
Use: This soil is being cultivated to a rotation of small grains, alfalfa, and corn. The present crop is barley which will be harvested for green chop.
Vegetation: Native vegetation consists of a dense stand of water-loving grasses and sedges, honey mesquite, four-winged salt bush and salt cedar.
Climate: Moapa Valley is charactered by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 58° F., a mean July temperature of 87° F., and mean January temperature of 44° F. The relative humidity is low, evaporation is high, and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Reaction: Measure of free carbonate obtained by observing reaction of dilute HCl. pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Aeric Haplaquept, fine-loamy, mixed, calcareous, thermic (Overton taxadjunct)

Riverside Lab. Nos.
5979 through 5982

Ap	0- 6"	Very dark grayish brown (10YR 3/2, moist) silty clay; moderate medium granular structure; slightly hard to hard, friable, very sticky, very plastic; many very fine fibrous roots; many very fine and fine interstitial pores; common worm casts; strongly calcareous; pH 8.3; abrupt smooth boundary.
A_{12}	6-12"	Very dark grayish brown (10YR 3/2, moist) clay; weak medium prismatic breaking to moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; many very fine and few fine and medium fibrous roots; common very fine and fine tubular pores; common worm casts; strongly calcareous; pH 8.3; abrupt irregular boundary.
C_{1g}	12-19"	Olive gray to olive (5Y 4.5/2, moist) clay with common very fine prominent yellowish red (5YR 5/6) and common fine distinct very dark grayish brown (10YR 3/2) iron mottles and common medium prominent light gray (10YR 7/2) gypsum and lime segregations; weak medium prismatic breaking to moderate medium and fine subangular blocky structure; hard, firm, very sticky, very plastic; many very fine fibrous roots but less than horizon above; many very fine and common medium and fine tubular pores; strongly calcareous; pH 8.4; clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Moapa Valley, Clark Co., Nevada

SOIL FAMILY: Aeric Haplaquept, fine-loamy, mixed, calcareous, thermic (Overton taxadjunct)

SURVEY NOS. S59Nev-2-13 **LAB. NOS.** 5979 thru 5982

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	* 0.3	* 0.4	0.5	3.3	3.5	46.9	45.1	18.1	34.5	0	sic
6-12	A_{12}	0.1	0.4	0.5	2.4	2.8	45.1	48.7	14.1	35.4	0	sic
12-19	C_{1g}	0.0	0.1	0.1	1.3	4.4	44.3	49.8	15.8	34.0	0	sic
19-24	C_{2g}	0.0	0.0	0.1	0.7	1.6	51.5	46.1	9.4	44.3	0	sic
24-27	C_{3g}	Not sampled										
27-33	C_{4g}											
33-37	IIC5		"									
37-48	IIIC6		"									
48-54	IVC7		"									

8C1b pH SATURATED PASTE 1:1	6I1a ** CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a ** HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8	0.7	8.8	1.69	0.159	10.6	6.4	1.6	15				20.9
7.7	0.6	9.0	1.38	0.134	10.3	5.9	1.3	13	1.33			23.2
7.9	0.4	9.0	0.64	0.063	10.2	4.0	1.2	17	1.46			22.2
8.1	0.4	9.0	0.40	0.044	9.1	4.3	1.3	24	1.48			21.7

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6H2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
35.6				2.1	2.5	6	7.0	0.6	5.5	3.6	3.4	66.3
37.2				2.1	2.6	6	6.8	0.6	3.8	2.5	1.7	68.4
37.9				1.7	2.1	5	6.4	0.5	3.2	2.5	1.5	69.4
30.4				1.7	1.9	6	7.1	0.5	6.1	3.0	1.7	68.5

* Material weighed as sand is mainly organic matter.

**Saturation Extract Soluble - milliequivalents per liter.

C_{2g} 19-24" Light olive gray (5Y 6/2, moist) clay with common fine prominent yellowish red (5YR 5/6) and yellow (10YR 7/6) iron mottles; weak medium prismatic breaking to moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; common very fine fibrous roots; common very fine and few fine tubular pores; strongly calcareous; pH 8.8; abrupt broken boundary.

C_{3g} 24-27" (No sample Light olive gray (5Y 6/2, moist) very fine sandy loam with few fine prominent brownish yellow (10YR 6/6) iron mottles; massive; slightly hard, very friable, very slightly sticky, very slightly plastic; common very fine fibrous roots; common very fine tubular pores; strongly calcareous; pH 8.8; abrupt smooth boundary.

C_{4g} 27-33" (No sample Light olive gray (5Y 6/2, moist) light sandy clay loam with common fine to medium and few coarse brownish yellow (10YR 6/8), and common fine prominent brown (7.5YR 5/8) iron mottles; very weak medium prismatic breaking to weak medium subangular blocky structure; hard, friable, slightly sticky, slightly plastic; common very fine fibrous roots; many very fine and few fine tubular pores; strongly calcareous; pH 8.8; abrupt smooth boundary.

IIC5 33-37" (No sample Light brownish gray (2.5Y 6/2, moist) loamy fine sand with many coarse distinct brownish yellow (10YR 6/6), and few fine prominent strong brown (7.5YR 5/8) iron mottles; weak fine granular structure; slightly hard, very friable, nonsticky, nonplastic; common very fine and few fine fibrous roots; common very fine and few fine tubular pores; strongly calcareous; pH 8.6; abrupt smooth boundary.

IIIC6 37-48" (No sample Light brownish gray (2.5Y 6/2, moist) silty clay loam with many coarse distinct brownish yellow (10YR 6/8) iron stains, few fine prominent strong brown (7.5YR 5/8) iron mottles, and common fine and medium reddish brown (5YR 5/4) parent soil material; weak fine and medium subangular blocky structure; hard, friable, sticky, plastic; few very fine fibrous roots; common very fine and very few fine tubular pores; strongly calcareous; pH 8.6; abrupt smooth boundary.

IVC7 48-54" (No sample Brown (10YR 5/3, moist) loamy fine sand with many coarse yellowish brown (10YR 5/8), common fine distinct brownish yellow (10YR 6/8), and common coarse distinct brown (7.5YR 5/4) iron mottles, and few coarse distinct grayish brown (2.5YR 5/2) lime stains, and few fine distinct black (10YR 2/1) manganese stains; massive; slightly hard, very friable, nonsticky, nonplastic; few very fine fibrous roots; very fine tubular pores; strongly calcareous; pH 8.6.

1/ The Overton series is of a fine montmorillonitic, calcareous, thermic family of Mollic Haplaquepts (see pedon S59Nev-2-6). The texture of the C3g and underlying horizons is too coarse for a fine family and the chroma of the epipedon is too high for a mollic subgroup.

OIL URVEY LABORATORY Riverside, California

SOIL TYPE Sonoma silty clay 1 am **LOCATION** Perahing County, Nevada

SOIL FAMILY: Aeric Fluventic Haplaquept, fine-silty, mixed, calcareous, mesic

SURVEY NOS. S56 Nev-14-2 **LAB. NOS.** 56309 - 56316

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	3A1 0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-8	A1	0.3	0.6	0.3	3.1	10.3	54.2	31.2	34.6	32.3	0	sicl
8-13	C1	0.0	0.1	0.1	2.2	11.5	55.3	30.8	37.3	31.3	0	sicl
13-21	C2	0.1	0.1	0.2	1.3	5.6	66.9	25.8	39.2	34.3	0	sil
21-33	C3	0.0	0.0	0.1	3.0	13.3	56.2	27.4	39.4	32.8	0	sicl
33-46	IIA11b	0.4	0.3	0.1	0.6	2.1	49.3	47.2	11.8	40.1	0	sic
46-51	IIIA12b	0.5	0.2	0.1	0.4	3.5	69.1	26.2	27.4	45.5	0	sil
51-55	IIIC1	0.3	0.2	0.1	0.4	1.1	70.3	27.6	19.6	52.1	0	sicl
55-65+	IIIC2	0.2	0.2	0.1	0.3	0.4	65.8	33.0	9.9	56.5	0	sicl

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	4A3a Bulk Density g/cc	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9		8.4	1.76	0.173	10.2	1.22	1.7	8				17.7
8.0		8.5	1.00	0.111	9.0		1.5	8				21.9
8.0		8.6	0.55	0.066	8.3	1.15	1.5	7				16.3
7.8		8.5	0.50	0.062	8.1		2.1	7				16.4
7.7		8.5	0.61	0.059	10.3		2.2	3				24.8
7.8		8.6	0.25				3.6	4				17.3
7.8		8.5	0.26				3.2	5				19.2
7.8		8.2	0.28				3.2	4				21.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
32.1				2.5	3.2	7.8	11.1	0.9	4.8	3.0		60.5
30.7				2.7	2.9	8.8	10.8	0.8	3.5	1.9		53.8
28.6				2.9	2.5	10.1	14.9	0.8	2.4	1.6		51.2
28.2				3.5	2.3	12.4	19.8	0.8	3.2	0.8		56.6
42.0				7.2	4.8	17.1	25.0	1.1	3.7	2.2		65.9
32.3				5.7	3.6	17.6	26.8	1.2	4.0	2.5		54.9
32.7				5.9	3.6	18.0	25.8	1.1	4.4	2.8		60.2
36.6				6.2	4.1	16.9	24.3	1.1	4.3	2.6		67.8

SONOMA SILTY CLAY LOAM
S56Nev-14-2

Location: 0.5 mile south on Broadway from the SCS office, Lovelock, Pershing County, Nevada, S 1.4 miles on Meridan Road to east ranch road immediately S of the Circle L Headquarters, east 0.5 mile, south 0.2 mile, E and NE 0.65 mile, N 0.35 mile along corrals, E 0.35 mile along canal, S 50 paces from the diversion box in the field ditch which flows east and west to site located on the Circle L Ranch. The owner is a co-operator with the Big Meadow SCD. The site is located approximately 535 feet east and 165 feet south of the apparent NW sec. corner of sec. 1, T 26 N, R 31 E, in the NW1/4, NW 1/4 section 1, T 26 N, R 31 E.
Description by: J. Kubota and L. N. Langan. Collectors: J. Kubota, R. Dever, V. Lazar, W. G. Harper, R. Nelson, L. Dunn and L. N. Langan. Date of Sampling: July 1956.
Classification: Aeric Fluventic Haplaquept, fine-silty, mixed, calcareous, mesic.
Vegetation: The native vegetation of this site originally was probably saltgrass, alkali sacaton and big greasewood. Use: The field is presently in alfalfa and is in rotation with small grains.
Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with a mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days. Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rocks among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate. Topography: Level flood plain of the Humboldt River. Elevation: Approximately 3998 feet. Drainage: Imperfectly drained; surface drainage is very slow and the internal soil drainage is medium. The soil has a moderately slow permeability. A water table was found at 67 inches at the time of sampling. This is due to the close proximity of the site to a major canal and may be attributed to normal canal losses. Fluctuations in the water table may be expected from normal irrigation. The water table will drop to approximately 7 feet when water is out of the canal during the winter months.

HORIZON	(All colors are those of the moist soil)
Ap1 RSL No. 56309	0 to 8 inches, very dark gray to very dark grayish brown (10YR 3/1 - 3/2) silty clay loam with weak to moderate, medium subangular blocky breaking to moderate fine subangular blocky structure; very plastic, plastic, firm to friable, hard to very hard; many fine, medium and coarse fibrous roots; many fine medium and coarse pores; highly calcareous; pH 8.8; clear smooth boundary.
C1 RSL No. 56310	8 to 13 inches, dark grayish brown to very dark grayish brown (2.5Y 4/2 - 3/2) silty clay loam with weak medium subangular blocky breaking to moderate to strong fine subangular blocky structure; very sticky, plastic, firm to friable, hard to very hard; many fine and medium fibrous roots; many fine and medium pores; many worm casts which are darker in color than the soil; highly calcareous; pH 8.8; clear smooth boundary.
C2 RSL No. 56311	13 to 21 inches, dark grayish brown (2.5Y 4/2) light silty clay loam with few very fine faint yellowish brown (10YR 5/4) iron mottlings; soil is massive in place and tends to break to weak coarse prismatic, some of which breaks to weak medium granular; very sticky, plastic, firm to friable, hard to very hard; many fine and few medium and coarse fibrous roots; few fine pores; few worm casts in old root channels; highly calcareous; pH 8.8; clear smooth boundary.
C3 RSL No. 56312	21 to 33 inches, a horizon of mixed colors and textures. Dark grayish brown (2.5Y 4/2) silty clay loam with pockets of very dark grayish brown (2.5Y 3/2) light silty clay loam and contains common very fine faint dark brown (10YR 3/3) iron mottlings; soil is massive in place breaking to very weak coarse and medium subangular blocky structure; darker colored material has moderate to strong fine and very fine granular structure; very sticky, plastic, firm to friable, hard to very hard; common very fine and a few medium and coarse fibrous roots; many fine and few medium pores; darker colored material has many fine pores and many worm casts; highly calcareous; pH 8.6; a thin pocket of fine sandy loam included in this horizon is reported to be discontinuous; abrupt smooth boundary.
IIA11b RSL No. 56313	33 to 46 inches, black to very dark gray (10YR 2/1 - 3/1) silty clay loam with very weak medium subangular blocky breaking to moderate fine and very fine granular structure; very sticky, very plastic, friable, hard; common fine fibrous roots; many fine and few medium pores; clay skins in pores and root channels; strongly calcareous; pH 8.6; abrupt irregular boundary.
IIIA12b RSL No. 56314	46 to 51 inches, very dark grayish brown (2.5Y 3/2) intermixed with black to very dark gray (10YR 2/1 - 3/1) and dark grayish brown (10YR 4/2 - 2.5Y 4/2) silty clay loam with weak medium subangular blocky breaking to very weak fine granular structure; sticky, plastic, firm to friable, hard to very hard; common fine fibrous roots; many fine and few medium pores; calcareous; pH 8.4; clear wavy boundary.
IIIC1 RSL No. 56315	51 to 55 inches, intricate mixture of very dark grayish brown to olive brown (2.5Y 3/2 - 4/4) and dark brown to dark yellowish brown (7.5YR 4/4 - 10YR 4/4) silt loam to very fine sandy loam with tongues of very dark gray to very dark grayish brown (10YR 3/1 - 3/2) silty clay loam from above; soil is massive in place; tongues have very weak, fine subangular blocky structure; slightly sticky, slightly plastic, friable, hard; few fine fibrous roots; common fine and medium pores; few very fine lime nodules; strongly calcareous; pH 8.4; lower boundary abrupt and fine wavy.
IIIC2 RSL No. 56316	55 to 65 inches +, very dark grayish brown (10YR 3/2 - 2.5Y 3/2) silty clay loam containing few, fine, faint gray brown (10YR 5/2) lime seams and few very fine, faint dark brown (10YR 4/4) and yellowish brown (10YR 5/4) iron stains on interiors on peds; structure is moderate, very fine subangular blocky structure; very sticky, very plastic, friable, very hard; very few fine fibrous roots; no pores; few very fine firm lime nodules; thin patchy clay skins on faces of aggregates; strongly calcareous; pH 8.4; lower boundary undetermined.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Overton silty clay **LOCATION** Moapa Valley, Clark Co., Nevada

SOIL FAMILY: Mollic Haplaquept, fine, montmorillonitic, calcareous, thermic

SURVEY NOS S59Nev-2-6 **LAB. NOS.** 5975 thru 5978

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 7	Ap	0.4*	0.7*	1.0	6.1	4.5	42.8	44.5	17.1	34.3	0	sic
7-16	A_{12}	0.1	0.5	1.1	5.1	3.7	44.3	45.2	15.4	35.8	0	sic
16-19	C_{1g}	0.1	0.2	0.9	6.7	4.3	42.0	45.8	16.7	33.9	0	sic
19-25	C_{2g}	0.0	0.3	2.6	15.7	17.1	41.6	22.7	47.6	21.4	0	sic
25-30	IIC3	Not sampled										
30-48+	IIIC4	Not sampled										

8C1b pH SATURATED PASTE 1:1	6I1a ** CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a ** HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8	0.1	9.0	1.47	0.141	10.4	6.0	1.3	15				20.6
7.9	0.7	9.0	1.18	0.119	9.9	6.0	1.1	14	1.30			21.6
7.7	0.5	9.0	0.63	0.068	9.3	4.4	1.2	16	1.37			22.0
8.0	0.0	9.0	0.21	0.023		3.0	1.3	13				11.6

5A2a CATION EXCHANGE CAPACITY (← Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
33.2				1.7	2.6	5	5.9	0.8	4.0	2.7	3.6	63.6
33.6				1.8	2.7	5	5.9	0.7	3.2	2.1	0.9	68.6
31.5				1.7	2.4	5	6.8	0.6	3.4	2.1	1.4	70.1
17.8				1.3	1.7	7	7.0	0.7	3.4	2.0	1.7	39.0

* Material weighed as sand is mainly organic matter.

**Saturation Extract Soluble - milliequivalents per liter.

OVERTON SILTY CLAY
S59Nev-2-6

Description: Ed. Naphan, G. Harper, L. N. Langan, and V. D. Leavitt.
Sampled by: V. D. Leavitt, L. N. Langan, R. Nelson, and L. Grant, March 1959.
Location: The site is located approximately 400 feet north and 100 feet east of the center of Sec. 22, T15S, R67E on the Kieth Adams Ranch, Clark Co., Nevada.
Relief: Nearly level (leveled for irrigation).
Physiography: Alluvial flood plain of the Muddy River..
Drainage: Imperfectly drained. Runoff is very slow, internal drainage is very slow, and the soil permeability is slow. Water table is at approximately 6 feet.
Parent Material: Clayey alluvium deposited by Muddy River derived from mixed rock sources, but dominantly of sedimentary origin.
Use: The soil is being cultivated to a rotation of small grain, alfalfa and corn. The present crop is barley, which will be harvested as green pasture or green chop.
Vegetation: Native vegetation consists of a dense stand of water-loving grasses and sedges, honey mesquite, four-winged saltbush, and saltcedar.
Climate: Moapa Valley is characterized by a hot, arid climate with mild winters and hot dry summers. The average rainfall is approximately 5 inches. The mean annual temperature is 68° F., a mean July temperature of 87° F., and mean January temperature of 44° F. The relative humidity is low, evaporation is high and the range of temperature wide. Winds of high velocity are not uncommon throughout the year. The frost-free period is approximately 237 days.
Reaction: Measure of free carbonate obtained by observing reaction of dilute HCl. pH's determined with thymol blue in prepared 1:5 dilution.
Classification: Mollic Haplaquept, fine, montmorillonitic, calcareous, thermic.

Riverside Lab. Nos.
5975 through 5978

Ap	0- 7"	Very dark grayish brown (2.5Y-10YR 3/2, moist; 10YR 6/2, dry) silty clay; moderate coarse and medium subangular blocky structure; very hard, friable, very sticky, very plastic; many very fine and fine fibrous roots; many very fine and fine tubular pores; strongly calcareous; pH 8.6; clear smooth boundary.
A12	7-16"	Very dark grayish brown (2.5Y-10YR 3/2, moist; 10YR 6/2, dry) clay, very weak coarse prismatic breaking to strong medium subangular blocky and angular blocky structure; very hard, firm, very sticky, very plastic; many very fine and fine fibrous roots; many very fine and fine tubular pores; strongly calcareous; pH 8.6; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Overton silty clay **LOCATION** Moapa Valley, Clark Co., Nevada

SOIL FAMILY: Mollic Haplaquept, fine, montmorillonitic, calcareous, thermic

SURVEY NOS S59Nev-2-6 **LAB. NOS.** 5975 thru 5978

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 7	Ap	0.4*	0.7*	1.0	6.1	4.5	42.8	44.5	17.1	34.3	0	sic
7-16	A_{12}	0.1	0.5	1.1	5.1	3.7	44.3	45.2	15.4	35.8	0	sic
16-19	C_{1g}	0.1	0.2	0.9	6.7	4.3	42.0	45.8	16.7	33.9	0	sic
19-25	C_{2g}	0.0	0.3	2.6	15.7	17.1	41.6	22.7	47.6	21.4	0	sic
25-30	IIC3	Not sampled										
30-48+	IIIC4	Not sampled										

8C1b pH SATURATED PASTE 1:1	6I1a ** CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a ** HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8	0.1	9.0	1.47	0.141	10.4	6.0	1.3	15				20.6
7.9	0.7	9.0	1.18	0.119	9.9	6.0	1.1	14	1.30			21.6
7.7	0.5	9.0	0.63	0.068	9.3	4.4	1.2	16	1.37			22.0
8.0	0.0	9.0	0.21	0.023		3.0	1.3	13				11.6

5A2a CATION EXCHANGE CAPACITY (← Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
33.2				1.7	2.6	5	5.9	0.8	4.0	2.7	3.6	63.6
33.6				1.8	2.7	5	5.9	0.7	3.2	2.1	0.9	68.6
31.5				1.7	2.4	5	6.8	0.6	3.4	2.1	1.4	70.1
17.8				1.3	1.7	7	7.0	0.7	3.4	2.0	1.7	39.0

* Material weighed as sand is mainly organic matter.

**Saturation Extract Soluble - milliequivalents per liter.

C_{1g}	16-19"	Gray (5Y 5/1, moist) silty clay with many fine and medium faint gray (5Y 6/1), many fine prominent reddish brown (5YR 4/4), and many fine distinct very dark grayish brown (2.5Y 3/2) iron mottles, and very few fine prominent white (10YR 8/2) gypsum flecks; very weak medium and coarse prismatic breaking to weak coarse subangular blocky structure; hard, firm, very sticky, very plastic; many very fine fibrous roots; many very fine tubular pores; strongly calcareous; pH 8.6; clear wavy boundary.
C_{2g}	19-25"	Pale olive (5Y 6/3, moist) silty clay with many medium prominent brown (7.5YR 5/4) and many fine prominent strong brown (7.5YR 5/8) iron mottles; weak medium prismatic breaking to moderate medium and fine granular structure; hard, friable, very sticky, very plastic; common very fine fibrous roots; many very fine and fine tubular pores; strongly calcareous, pH 8.8; abrupt wavy boundary.
IIC3 (Not sampled	25-30"	Light yellowish brown (2.5Y 6/4, moist) and pale brown (10YR 6/3, moist) finely stratified fine sandy loam and clay loam with many coarse distinct strong brown (7.5YR 5/8) iron mottles; weak medium and fine granular structure; slightly hard and hard, friable, nonsticky and sticky; nonplastic and plastic; common very fine fibrous roots; many very fine and fine interstitial pores; strongly calcareous; pH 8.6; abrupt wavy boundary.
IIIC4 (Not sampled	30-48"+	Reddish brown (5YR 5/4, moist) silty clay with few fine and medium faint yellowish red (5YR 5/6) iron mottles, and occasional thin 1/8" strata of reddish brown (2.5YR 4/4) clay; weak coarse platy structure; very hard, firm, very sticky, very plastic; few very fine and fine fibrous roots; many very fine and fine tubular pores; few thin patchy clay films in pores; strongly calcareous; pH 8.6.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Entic Xerumbrept, sandy, mixed, mesic (Mottsville taxadjunct)
SOIL SERIES Series not designated SOIL Nos. S61Nev-3-4 LOCATION Carson Valley, Douglas County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 61515 - 61518

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 1/ >2 Pct.	2 - 19	19-76
		Pct. of < 2 mm															Pct of < 76 mm	
0-6	A11	88.6	8.2	3.2	12.7	34.1	14.7	20.5	6.6	5.9	2.3	23.4	82.0			27		
6-18	A12	89.2	7.9	2.9	14.7	33.3	14.7	20.4	6.1	5.2	2.7	22.1	83.1			25		
18-24	AC	86.3	10.4	3.3	7.9	26.2	16.3	26.9	9.0	7.0	3.4	30.8	77.3			36		
24-42+	C1	86.6	9.9	3.5	8.8	27.4	15.8	25.9	8.7	6.5	3.4	29.1	77.9			37		

Depth (In.)	6A1b Organic carbon Pct.	6B1a Nitrogen Pct	C/N	6C1a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Bulk density g/cc	g/cc	g/cc	Water content Pct	Pct.	4B2 15 bar Pct	pH 8C1b Saturated Paste	8C1a 1:10
0-6	0.93	0.047	20	0.3	-						1.8	5.8	6.1
6-18	0.64	0.039	16	0.3	-						2.1	6.1	6.3
18-24	0.49	0.032	15	0.3	-						3.8	6.2	6.3
24-42+	0.36	0.020		0.3	-						2.1	6.3	6.3

Depth (In.)	Extractable bases: 5B1a Ca 6N2b	5B1a Mg 6O2c	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	Sum of bases	6H2a Ext. Acidity	5A2a CEC NaOAc	Water extract from saturated paste 8A1: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K	6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g							meq/liter								mmho/cm
0-6	1.2	0.3	0.1	0.1	1.7	3.6	5.9	0.2	0.2	0.6	0.1	-	0.4	0.2		0.11
6-18	1.8	0.4	0.1	0.2	2.5	3.6	7.0	0.2	0.2	0.5	0.1	-	0.3	0.2		0.09
18-24	1.5	0.3	0.1	0.1	2.0	2.8	4.7	0.3	0.1	0.5	0.1	-	0.4	0.2		0.10
24-42+	1.2	0.2	0.1	0.2	1.6	2.6	4.7	0.2	0.1	0.6	0.2	-	0.3	0.2		0.10

Depth (In.)	8A Water at Saturation Pct	Exchangeable Na Pct.		Gypsum Pct.	5C3 Base Sat. Pct.		
0-6	26.0				32		
6-18	26.3				41		
18-24	25.8				42		
24-42+	23.0				38		

1/ Percent of the <1 inch fraction.

Series not designated 1/
S61Nev-3-4

Location: 300 feet south and 200 feet east of the north quarter corner of section 15, T. 12 N., R. 19 E., Mount Diablo Base and Meridian, southwestern Carson Valley, Douglas County, Nevada. Date of Sampling: July 31, 1961.
Samples Collected By: L. N. Langan, R. L. Malchow, and R. E. Nelson. Description By: L. N. Langan and R. L. Malchow.
Classification: **Entic Xerumbrept, sandy, mixed, mesic (Mottsville taxadjunct).**
Vegetation: Big sagebrush, bitterbrush, rabbitbrush, and Indian ricegrass. Use: Livestock grazing. Climate: Cool, continental climate with cold, moist winters and hot, dry summers; an average annual precipitation of 12 to 14 inches; an average annual temperature of 49 to 51° F.; and a frost-free season of 95 to 110 days. Parent Material: Granitic alluvium. Relief: Slightly convex easterly facing slope of 5 percent. Physiography: Alluvial fan. Drainage: Excessively drained; very slow runoff; very rapid internal drainage and permeability.
Remarks: This soil is highly micaceous. pH determined with bromthymol blue in prepared 1:5 dilution. Paired profile is S61Nev-3-5.

HORIZON

A11 RSL No. 61515	0 to 6 inches, grayish brown (10YR 5/2) gravelly loamy coarse sand, very dark brown (10YR 2/2) when moist; single grained; loose when dry or moist, nonsticky, nonplastic; abundant very fine, plentiful fine, and few medium roots; many very fine interstitial pores; pH 6.1; clear smooth boundary.
A12 RSL No. 61516	6 to 18 inches, grayish brown (10YR 5/2) gravelly coarse sand, very dark grayish brown (10YR 3/2) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine, and few fine and medium roots; many very fine interstitial pores; pH 6.2; gradual smooth boundary.
AC RSL No. 61517	18 to 24 inches, pale brown (10YR 6/3) gravelly sand, very dark grayish brown (10YR 3/2) when moist; single grained; loose when dry and moist, nonsticky, nonplastic; abundant very fine, and few fine and medium roots; many very fine interstitial pores; pH 6.4; clear wavy boundary. (1% of horizon consists of 1 inch plus gravel and cobbles discarded from sample.)
C1 RSL No. 61518	24 to 42 inches +, pale brown (10YR 6/3) gravelly sand, brown (10YR 4/3) when moist; single grained; loose when dry or moist, nonsticky, nonplastic; plentiful very fine, and few fine and medium roots; many very fine interstitial pores; pH 6.6. (5% of horizon consists of 1 inch plus gravel, cobbles, and stones discarded from sample.)

1/ The Mottsville series is in a sandy, mixed, mesic family of Torriorthentic Haploxerolls (see pedon S61Nev-3-5). This pedon is a taxadjunct because base saturation in the epipedon is less than 50 percent.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Ophir fine gravelly loamy sand **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Typic Haplaquoll, sandy, mixed, mesic

SURVEY NOS. S61Nev-3-2 **LAB. NOS.** 61503 - 61508

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-5	A11	14.5	29.6	13.6	21.9	6.5	8.7	5.2	21.7	4.3	20	lcos-cos
5-12	A12	17.1	28.9	12.1	19.9	7.0	9.7	5.3	22.4	4.5	22	lcos
12-17	A13	15.5	33.2	15.4	21.9	4.7	6.2	3.1	18.7	2.8	25	cos
17-21	A14g	11.0	32.9	17.5	22.9	5.9	6.6	3.2	21.2	2.7	24	cos
21-37	C1g	17.2	34.6	16.8	18.7	4.8	5.0	2.9	17.0	1.9	28	cos
37-49+	C2g	16.7	28.3	18.0	24.5	5.5	4.6	2.4	20.9	1.1	24	cos

8C1b pH SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	SATURATION EXTRACT SOLUBLE 8A 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6L1a $CO_3^=$	6J1a HCO_3^-
						← milliequivalents per liter →						
6.4		6.7	2.11	0.144	15	1.3	0.1	1.6	0.7	0.2	-	2.7
6.3		6.5	1.89	0.155	12	1.2	0.1	1.5	0.4	0.2	-	1.8
6.5		6.5	0.57	0.039	15	0.9	0.1	0.9	0.3	0.2	-	0.9
6.5		6.5	0.48	0.032	15	0.9	0.1	0.7	0.4	0.2	-	0.7
6.5		6.4	0.28	0.018		0.8	0.1	0.6	0.3	0.4	-	0.5
6.3		6.8	0.25			0.7	-	0.4	0.3	0.5	-	0.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	Ext. Iron % Fe 6C1a	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →											
16.0	10.2	0.9	4.0	0.2	tr.	75	0.3	0.28	-		6.0	37.8
12.4	7.6	0.8	3.8	0.2	tr.	69	0.3	0.24	-		6.1	38.7
7.0	3.9	0.4	1.8	0.3	tr.	72	0.3	0.18	-		2.3	29.4
6.9	3.9	0.5	1.6	0.2	tr.	74	0.3	0.18	-		2.8	28.7
6.4	3.1	0.4	1.6	0.2	tr.	70	0.3	0.15	-		2.0	28.2
6.0	2.5	0.4	1.6	0.1	-	65	0.2	0.13	-		1.9	27.6

1/ Percent of the <1 inch fraction.

OPHIR FINE GRAVELLY LOAMY SAND
S61Nev-3-2

Location: 250 feet east and 1800 feet south of the northwest corner of section 14, T. 12 N., R. 19 E., Mount Diablo Base and Meridian, southwestern Carson Valley, Douglas County, Nevada. Date of Sampling: July 31, 1961.
Samples Collected By: L. N. Langan, R. L. Malchow, and R. E. Nelson. Description By: L. N. Langan and R. L. Malchow.
Classification: **Typic Haplaquoll, sandy, mixed, mesic.**
Vegetation: Meadow grasses and clover. Use: Forage used for livestock grazing during late spring, summer and fall months. Climate: Cool, continental climate having cold, moist winters and hot, dry summers; an average annual rainfall of approximately 12 to 14 inches; an average annual temperature of 49 to 51° F.; and a frost-free season of 95 to 110 days. Parent Material: Granitic alluvium. Relief: Slightly convex easterly facing slope of 3 percent. Physiography: Alluvial fan. Drainage: Poorly drained; slow runoff; rapid to very rapid permeability; very slow internal drainage. The water table was at 42 inches at the time of sampling.
Remarks: High micaceous throughout. These samples taken from an area high in soil molybdenum. pH determined with bromthymol blue in prepared 1:5 dilution. Paired profile is S61Nev-3-3.

HORIZON	
O1	1 to 0 inch, dark gray (10YR 4/1) fibrous peat, very dark brown (10YR 2/2) when moist; pH 6.4; abrupt smooth boundary.
A11 RSL No. 61503	0 to 5 inches, very dark gray (10YR 3/1) fine gravelly loamy sand, black (10YR 2/1) when moist; weak fine and medium granular structure; soft, very friable, nonsticky, nonplastic; abundant very fine and fine roots; many fine interstitial pores; pH 6.6; clear wavy boundary.
A12 RSL No. 61504	5 to 12 inches, very dark gray (10YR 3/1) fine gravelly loamy sand, black (10YR 2/1) when moist; massive; soft, very friable, nonsticky, nonplastic; abundant very fine and few fine roots; many fine interstitial pores; pH 6.6; abrupt wavy boundary.
A13 RSL No. 61505	12 to 17 inches, dark gray (10YR 4/1) fine gravelly coarse sand, very dark gray (10YR 3/1) when moist, with common medium faint black (10YR 2/1) organic stains and few very fine faint dark brown (10YR 3/3) mottles; single grained; loose when dry or moist, nonsticky, nonplastic; abundant very fine and few fine roots; many fine interstitial pores; pH 6.6; abrupt broken boundary.
A14g RSL No. 61506	17 to 21 inches, dark gray (10YR 4/1) fine gravelly sand, black (10YR 2/1) when moist, with few fine distinct very dark grayish brown (10YR 3/2) mottles; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; many fine interstitial pores; pH 6.6; gradual wavy boundary.
C1g RSL No. 61507	21 to 37 inches, dark gray (10YR 4/1) fine gravelly sand, very dark gray (10YR 3/1) when moist, with very few very coarse distinct black (10YR 2/1) (organic?) stains and common coarse distinct brown (10YR 3/3) mottles; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; many fine interstitial pores; pH 6.6; clear wavy boundary.
C2g RSL No. 61508	37 to 49 inches +, dark grayish brown (2.5Y 4/2) fine gravelly coarse sand, very dark grayish brown (2.5Y 3/2) when moist, with few very coarse distinct black (10YR 2/1) (organic?) stains and brown (7.5YR 4/4) mottles; single grained; loose when dry and moist, nonsticky, nonplastic; plentiful very fine and few fine roots; many fine interstitial pores; pH 6.4.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Typic Haplaquoll, sandy, mixed, mesic
SOIL SERIES Ophir fine gravelly loamy sand **SOIL Nos.** S61Nev-3-3 **LOCATION** Carson Valley, Douglas County, Nevada
SOIL SURVEY LABORATORY Riverside, California **LAB. Nos.** 61509 - 61514

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)			Coarse fragments 1/ ≥ 2 Pct	2 - 19	19 - 76
		Pct. of < 2 mm															Pct. of < 76 mm	
0-6	A11	81.5	12.6	5.9	19.7	25.4	11.0	16.9	8.5	7.5	5.1	25.4	73.0			21		
6-12	A12	82.9	12.5	4.6	15.9	24.4	13.2	19.8	9.6	8.1	4.4	28.7	73.3			21		
12-18	C1g	83.9	12.4	3.7	11.7	22.9	14.5	23.6	11.2	8.5	3.9	32.7	72.7			21		
18-25	C2	82.7	13.3	4.0	11.4	21.4	12.8	24.6	12.5	9.2	4.1	36.5	70.2			15		
25-41	C3g	82.8	12.8	4.4	11.3	21.7	13.1	24.1	12.6	8.8	4.0	35.3	70.2			18		
41-52+	C4g	84.3	11.7	4.0	10.2	27.7	12.7	23.2	10.5	8.3	3.4	32.1	73.8			19		

Depth (In.)	6A1b Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C1a Ext. Iron as Fe Pct.	6B1b Carbonate as $CaCO_3$ Pct.		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	4B2 15 bar Pct			pH 8C1b Saturated Paste	8C1a 1:10
0-6	1.62	0.114	14	0.4	-								4.8			6.2	6.5
6-12	0.46	0.036	13	0.4	-								2.4			6.4	6.5
12-18	0.24	0.023		0.6	-								2.5			6.5	6.5
18-25	0.24	0.019		0.9	-								3.1			6.5	6.4
25-41	0.21			1.0	-								3.1			6.5	6.4
41-52+	0.12			0.9	-								3.2			6.5	6.5

Depth (In.)	Extractable bases: 5B1a Ca 6N2b	5B1a Mg 6O2c	5B1b Exch. Na 6P2a	5B1b Exch. K 6Q2a	Sum of bases	6H2a Ext. Acidity	5A2a CEC NaOAc		Water extract from saturated paste: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-6	5.5	1.1	0.2	0.1	6.9	3.1	11.5		1.5	1.0	1.7	0.2		-	2.8	0.5		0.36
6-12	3.6	0.7	0.2	0.1	4.6	1.8	7.6		0.7	0.2	0.9	0.1		-	1.0	0.2		0.17
12-18	3.3	0.7	0.1	0.1	4.2	1.7	6.3		0.4	0.2	0.8	0.1		-	0.6	0.2		0.14
18-25	3.4	0.8	0.2	0.1	4.5	2.1	7.0		0.4	0.3	0.7	0.1		-	0.6	0.3		0.13
25-41	3.0	0.7	0.1	0.1	3.9	2.1	7.0		0.3	0.3	0.7	0.1		-	0.5	0.3		0.13
41-52+	3.3	0.8	0.1	0.1	8.2	1.8	7.0		0.4	0.3	0.8	0.1		-	0.5	0.5		0.15

Depth (In.)	8A Water at Saturation Pct.	Exchangeable Na Pct.		Gypsum Pct.	5C3 Base Sat. Pct.		
0-6	40.4				69		
6-12	29.1				72		
12-18	26.6				71		
18-25	29.9				68		
25-31	28.9				65		
41-52+	27.3				70		

1/ Percent of the <1 inch fraction.

OPHIR FINE GRAVELLY LOAMY SAND
S61Nev-3-3

Location: 100 feet north and 1400 feet west of the southwest corner of section 25, T. 12 N., R. 19 E., Mount Diablo Base and Meridian, southwestern Carson Valley, Douglas County, Nevada. Date of Sampling: August 11, 1961.
Samples Collected By: L. N. Langan and R. E. Nelson. Description By: L. N. Langan and R. L. Malchow.
Classification: **Typic Haplaquoll, sandy, mixed, mesic.**
Vegetation: Meadow grasses and clover. Use: Forage used for livestock grazing during late spring, summer and fall months. Climate: Cool, continental climate having cold, moist winters and hot, dry summers; an average annual rainfall of 12 to 14 inches; an average annual temperature of 49 to 51 ° F.; and a frost-free season of 95 to 110 days. Parent Material: Granitic alluvium. Relief: Slightly convex northeasterly facing slope of 4 percent. Physiography: Alluvial fan. Drainage: Poorly drained; slow runoff; rapid to very rapid permeability; very slow internal drainage. The water table was at 60 inches at the time of sampling.
Remarks: High micaceous throughout. These samples taken in low molybdenum area. pH determined with bromthymol blue in prepared 1:5 dilution. Paired profile is S61Nev-3-2.

HORIZON

01 3 to 0 inch, dark gray (10YR 4/1) root mat, very dark brown (10YR 2/2) when moist; pH 6.4; abrupt smooth boundary.

A11 RSL No. 61509 0 to 6 inches, gray (10YR 5/1) fine gravelly loamy sand with common fine distinct dark brown (10YR 4/3 & 3/3) mottles, black (10YR 2/1) when moist; weak fine granular structure; soft, very friable, nonsticky, nonplastic; few fine and abundant very fine roots; many very fine and fine interstitial pores; pH 6.6; clear smooth boundary.

A12 RSL No. 61510 6 to 12 inches, gray (10YR 5/1) fine gravelly loamy sand with many fine and medium distinct brown and strong brown (7.5YR 4/4 & 5/6) mottles, very dark gray (10YR 3/1) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; many very fine and fine interstitial pores; pH 6.6; clear smooth boundary.

C1g RSL No. 61511 12 to 18 inches, gray (10YR 5/1) fine gravelly sand with many coarse prominent dark reddish brown (5YR 3/3) and common fine distinct reddish brown (10YR 4/4) mottles, very dark gray (10YR 3/1) when moist; massive; soft, very friable, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine and few fine interstitial pores; pH 6.6; clear smooth boundary.

C2 RSL No. 61512 18 to 25 inches, dark grayish brown (10YR 4/2) fine gravelly loamy sand, 50 percent of matrix is very dark grayish brown (2.5Y 3/2) and 50 percent is dark reddish brown (5YR 3/3) when moist, with few fine distinct reddish brown (5YR 4/4) mottles; massive; soft, very friable, nonsticky, nonplastic; few fine and common very fine roots; many very fine and fine interstitial pores; pH 6.6; clear wavy boundary.

C3g RSL No. 61513 25 to 41 inches, dark grayish brown (2.5Y 4/2) sand, dark gray (5Y 4/1) when moist, with many coarse prominent dark reddish brown (5YR 3/3) mottles; massive; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; many very fine and fine interstitial pores; pH 6.6; gradual smooth boundary.

C4g RSL No. 61514 41 to 52 inches +, dark grayish brown (2.5Y 4/2) fine gravelly sand, dark gray (5Y 4/1) when moist; with many coarse prominent dark reddish brown (5YR 3/3) and common fine distinct dark brown (7.5YR 4/4) mottles; massive; loose when dry or moist, nonsticky, nonplastic; few fine and very fine roots; many very fine and fine interstitial pores; pH 6.6.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Carson Valley, Douglas County

SOIL FAMILY: Typic Haplaquoll, coarse-loamy, mixed, noncalcareous, mesic (Bishop taxadjunct)

SURVEY NOS. S59Nev-3-12 **LAB. NOS.** 59654 - 59660

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.07	0.02-0.002	2A2 > 2 2/	TEXTURAL CLASS
0- 4	A11	9.6	20.7	7.3	10.2	5.3	28.8	18.1	20.0	19.4	4	cosl-1
4- 9	A12	9.1	20.7	7.7	10.6	5.6	27.9	18.4	21.3	18.2	4	cosl-1
9-14	A13	13.9	22.6	8.2	10.7	5.0	20.4	19.2	18.9	12.0	8	cosl-scl
14-20	IIC1	22.0	29.7	8.0	10.0	4.0	14.6	11.7	16.5	7.2	17	cosl
20-27	IIC2g	11.7	22.1	10.2	14.3	7.6	24.2	9.9	27.5	12.2	27	cosl
27-44	IIC3	20.6	26.8	10.9	13.6	6.2	17.3	4.6	22.4	8.5	26	lcos
44-49+	IIC4g	15.0	22.5	9.2	12.9	7.3	23.9	9.2	26.4	12.2	19	cosl

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3 1/	6J1a HCO_3 1/	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
						milliequivalents per liter						
7.6	8.3	3.28	0.270	12.1	2	0.9	-	10.1			0.3	15.2
6.9	7.4	2.39	0.215	11.1		0.4	-	3.6			0.4	14.4
6.6	7.3	0.98	0.108	9.1		0.4	-	2.5			0.5	12.1
6.6	7.2	0.43	0.050	8.6		0.3	-	1.4			0.6	6.5
6.2	7.0	0.25	0.017			0.3	-	1.0			0.7	6.6
5.3	6.2	0.14				0.1	-	0.2			1.1	4.6
4.8	5.8	0.22				0.1	-	0.1			1.5	7.0

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
32.6	25.6	5.5	-	0.6	0.4		1.4	0.1	8.7	0.1	1.1	55.1
31.0	19.2	5.9	4.3	0.5	0.3	86	0.9	<0.1	3.0	0.6	0.7	49.4
24.7	10.0	3.7	3.3	0.5	0.2	81	0.9	<0.1	2.2	0.8	7.4	42.1
17.5	5.9	2.2	2.4	0.2	0.1	78	0.8	<0.1	1.9	0.5	0.6	32.1
13.1	5.2	1.9	3.7	0.1	0.0	66	1.0	<0.1	1.6	0.8	1.1	27.2
13.6	5.3	2.4	6.4	0.1	0.1	55	0.4	<0.1	0.4	0.1	0.2	32.4
14.0	5.1	2.3	6.2	0.3	0.3	56	0.5	0.1	0.3	-	0.2	35.7

1/ Saturation extract soluble - milliequivalents per liter.

2/ Percent of <1 inch fraction.

\+ Including cations from carbonates in some horizons.

Series not designated 1/
S59Nev-3-12

Location: Site is located approximately 1,000 feet east and 100 feet north of the south 1/4 corner sec. 24, T. 12 N., R. 19 E., Mount Diablo Base and Meridian. It is located on the F. Dressler Ranch, Carson Valley, Douglas Co., Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 6, 1959
Description by: L. N. Langan
Relief: Smooth to very gently concave, nearly level floodplain
Physiography: Alluvial floodplain
Drainage: Very poorly drained; runoff is very slow during periods of normal rainfall. Internal drainage is very slow; soil permeability is moderately slow. The water table was at 50 inches during the time of sampling but it is normally between 0 and 18 inches during the runoff period of normal water years.
Parent Material: Loamy alluvium derived from mixed rock sources, consisting primarily of granite with admixtures of basalt, rhyolite, gneiss, and slate
Use: Available forage grown on this site is being used for livestock grazing during the spring, summer, and fall months. Occasionally the meadow is cut for hay and fed to livestock during the winter months.
Vegetation: Grass-sedge meadow having a plant density of approximately 50 percent. It consists primarily of redtop, timothy, bluegrass, Sierra clover, alsike clover, white dutch clover, and assorted sedges and weeds.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. Average rainfall is approximately 12 to 16 inches; average annual temperature is 49 to 51° F. and the average frost-free season is 95 to 110 days.
Remarks: Sampled as "Berrum" loam, this soil is saline-alkali free. These samples are paired with S59Nev-3-11-1 through 5.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Typic Haplaquoll, coarse-loamy, mixed, noncalcareous, mesic (Bishop taxadjunct)

02 3- 0" Gray (10YR 5/1) root sod, black (10YR 2/1) when moist; massive; Not sampled pH 7.0; clear smooth boundary.

A11 0- 4" Dark gray (10YR 4/1) loam, black (10YR 2/1) when moist; moderate fine and medium granular structure; hard, friable, slightly sticky, slightly plastic; plentiful fine and abundant very fine roots; few fine and very fine tubular and many very fine interstitial pores; mildly calcareous; pH 7.6; clear smooth boundary.
RSL No. 59654

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Carson Valley, Douglas County

SOIL FAMILY: Typic Haplaquoll, coarse-loamy, mixed, noncalcareous, mesic (Bishop taxadjunc

SURVEY NOS. S59Nev-3-12 **LAB. NOS.** 59654 - 59660

DEPTH INCHES	HORIZON	1E1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 2/	TEXTURAL CLASS
0- 4	A11	9.6	20.7	7.3	10.2	5.3	28.8	18.1	20.0	19.4	4	cosl-1
4- 9	A12	9.1	20.7	7.7	10.6	5.6	27.9	18.4	21.3	18.2	4	cosl-1
9-14	A13	13.9	22.6	8.2	10.7	5.0	20.4	19.2	18.9	12.0	8	cosl-scl
14-20	IIC1	22.0	29.7	8.0	10.0	4.0	14.6	11.7	16.5	7.2	17	cosl
20-27	IIC2g	11.7	22.1	10.2	14.3	7.6	24.2	9.9	27.5	12.2	27	cosl
27-44	IIC3	20.6	26.8	10.9	13.6	6.2	17.3	4.6	22.4	8.5	26	lcos
44-49+	IIC4g	15.0	22.5	9.2	12.9	7.3	23.9	9.2	26.4	12.2	19	cosl

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25°C.	Saturation Ext. Soluble 6I1a CO_3 1/	6J1a HCO_3 1/	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil water 15 atmos. Pct.
							milliequivalents per liter					
7.6	8.3	3.28	0.270	12.1	2	0.9	-	10.1			0.3	15.2
6.9	7.4	2.39	0.215	11.1		0.4	-	3.6			0.4	14.4
6.6	7.3	0.98	0.108	9.1		0.4	-	2.5			0.5	12.1
6.6	7.2	0.43	0.050	8.6		0.3	-	1.4			0.6	6.5
6.2	7.0	0.25	0.017			0.3	-	1.0			0.7	6.6
5.3	6.2	0.14				0.1	-	0.2			1.1	4.6
4.8	5.8	0.22				0.1	-	0.1			1.5	7.0

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
32.6	25.6	5.5	-	0.6	0.4		1.4	0.1	8.7	0.1	1.1	55.1
31.0	19.2	5.9	4.3	0.5	0.3	86	0.9	<0.1	3.0	0.6	0.7	49.4
24.7	10.0	3.7	3.3	0.5	0.2	81	0.9	<0.1	2.2	0.8	7.4	42.1
17.5	5.9	2.2	2.4	0.2	0.1	78	0.8	<0.1	1.9	0.5	0.6	32.1
13.1	5.2	1.9	3.7	0.1	0.0	66	1.0	<0.1	1.6	0.8	1.1	27.2
13.6	5.3	2.4	6.4	0.1	0.1	55	0.4	<0.1	0.4	0.1	0.2	32.4
14.0	5.1	2.3	6.2	0.3	0.3	56	0.5	0.1	0.3	-	0.2	35.7

1/ Saturation extract soluble - milliequivalents per liter.

2/ Percent of <1 inch fraction.

\+ Including cations from carbonates in some horizons.

A12	4- 9"	Dark gray (10YR 4/1) loam, black (10YR 2/1) when moist; weak medium prismatic breaking to moderate medium and coarse subangular blocky structure; very hard, friable, slightly sticky, slightly plastic; plentiful fine and abundant very fine roots; common very fine and few fine tubular, and common very fine interstitial pores; few thin clay films in some pores; pH 6.6; clear smooth boundary.
RSL No. 59655		
A13	9-14"	Dark gray (10YR 4/1) light sandy clay loam, black (10YR 2/1) when moist; massive; very hard, friable, slightly sticky, slightly plastic; plentiful fine and abundant very fine roots; common very fine and few fine tubular, and few very fine interstitial pores; few thin clay films in pores and few thin clay bridges between sand grains; pH 6.6; gradual wavy boundary.
RSL No. 59656		
C1	14-20"	Light olive gray (5Y 6/2) fine gravelly sandy loam, olive gray (5Y 4/2) when moist, with many medium distinct light olive brown (2.5Y 5/4) and many fine distinct very dark grayish brown (10YR 3/2) iron mottlings and stains; massive; hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; common very fine interstitial and few very fine tubular pores; occasional thin clay films in pores; pH 6.6; clear wavy boundary.
RSL No. 59657		
C2g	20-27"	Light gray (N 7) gravelly sandy loam containing pockets and thin (1/2 inch) discontinuous lenses of coarse sand and sand, dark gray (N 4) when moist, with many fine and medium distinct yellowish brown (10YR 5/8) iron mottles and few fine prominent dark reddish brown (5YR 3/2) manganese or iron stains; massive; hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; few fine and very fine interstitial and common very fine tubular pores; pH 6.4; clear wavy boundary.
RSL No. 59658		
C3	27-44"	Seventy-five percent of the color consists of light brown (7.5YR 4/4) and 25 percent light gray (5Y 7/1) very gravelly and cobbly loamy sand, dark brown (7.5YR 4/4) and greenish gray (5GY 5/1) when moist; massive; slightly hard, friable, nonsticky, nonplastic; few fine and plentiful very fine roots; many very fine and fine interstitial pores; pH 6.2; abrupt irregular to wavy boundary; cobblestones larger than one inch (30% by volume) were not sampled.
RSL No. 59659		
C4g	44-49"+	Gray (5Y 6/1) coarse sandy loam stratified with several thin strata of silt loam, dark greenish gray (5BG 4/1) when moist, and containing many very coarse prominent dark greenish olive (5GY 3/3) iron mottles; massive; hard, friable, nonsticky, slightly plastic; few fine and very fine roots; few fine and very fine interstitial pores; pH 6.0.
RSL No. 59660		

1/ The Bishop series is in a coarse-loamy, mixed, calcareous, mesic family of Typic Haplaquolls. This pedon is in a noncalcareous family of the same subgroup.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Series not designat d **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY Cumulic Haplaquoll, fine-loamy, mixed, noncalcareous, mesic (Bishop tax-adjunct)

SURVEY NOS. S59Nev-3-11 **LAB. NOS.** 59649 - 59653

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
4- 0	O1	Not sampled										
0-13	A11	4.3	7.4	5.6	14.2	10.1	35.5	22.9	33.0	21.4	1	l
13-26	A12	3.0	6.7	5.5	15.4	12.8	34.0	22.6	37.8	19.3	5	l
26-31	C1	3.0	7.9	5.7	17.8	11.6	33.8	20.2	38.8	18.6	11	l
31-38	IIC2	5.4	9.1	5.6	20.9	18.1	27.8	13.1	49.9	10.5	13	fsl
38-45+	IIIC3g	15.0	22.0	8.1	14.3	7.4	22.5	10.7	27.8	10.5	17	cosl

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 S il water 15 atmos. Pct.
		milliequivalents per liter										
not sampled												
7.8	8.6	2.10	0.194	10.8	10	0.6	-	7.1			0.4	16.1
7.3	8.1	0.72	0.078	9.2	-	0.4	-	4.6			0.6	13.1
7.3	8.1	0.20	0.019		-	0.3	-	2.8			0.6	11.4
6.2	7.3	0.13			-	0.2	-	0.9			1.0	8.7
7.3	7.9	0.08			-	0.3	-	1.5			1.5	7.5

5A2a CATION EXCHANGE CAPACITY (-Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
not sampled												
27.4	23.2	4.4	-	0.4	1.0		1.2	0.2	4.7	0.5	3.0	55.7
28.5	19.3	5.5	2.3	0.2	0.5	92	0.9	0.1	2.7	0.6	0.6	47.7
24.1	16.9	5.7	2.0	0.2	0.2	92	0.8	<0.1	1.0	0.1	0.6	42.7
19.7	13.1	5.3	3.1	0.4	0.2	86	0.5	<0.1	1.0	0.2	0.2	34.5
19.9	11.9	4.3	2.5	0.2	0.3	87	0.7	<0.1	1.3	0.6	0.2	32.5

1/ Percent of <1 inch fraction.

\+ Including cations from carbonates in some horizons.

Series not designated [1/]
S59Nev-3-11

Location: The site is located approximately 50 feet south and 1245 feet west of the north 1/4 corner sec. 31, T. 12 N., R. 20 E., Mount Diablo Base and Meridian. It is located on the M. Berrum Ranch, Carson Valley, Douglas Co., Nevada.
Sampled by: L. N. Langan, R. E. Nelson, and C. D. Henry, October 6, 1959
Description by: L. N. Langan
Relief: Smooth, nearly level floodplain with broad shallow swales
Physiography: Alluvial floodplain
Drainage: Very poorly drained; runoff is very slow during periods of normal rainfall. Internal drainage is very slow. Soil permeability is moderately slow. The water table was at 28 inches during the time of sampling but it is normally between 0 and 18 inches of the soil surface during the runoff period of normal water years.
Parent Material: Loamy alluvium derived from mixed rock sources, consisting primarily of granite with admixtures of basalt, rhyolite, gneiss, and slate.
Use: This site is being utilized for livestock grazing during the late spring, summer, and fall months. On occasion, the meadow is harvested for hay and fed to livestock during the winter months.
Vegetation: Vegetation consists of a grass-sedge meadow having a density of approximately 70 percent. The composition of this meadow consists predominantly of redtop, bluegrass, timothy, Sierra clover, alsike clover, and assorted sedges and weeds.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. Average rainfall is approximately 12 to 14 inches, average annual temperature is 49 to 51° F. and the average frost-free season is 95 to 110 days.
Remarks: Sampled as "Berrum" loam, this soil is saline-alkali free. These samples are paired with S59Nev-3-12-1 through 7.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Cumulic Haplaquoll, fine-loamy, mixed, noncalcareous, mesic (Bishop taxadjunct)

O2 Not sampled	4- 0"	Dark brown (10YR 3/3) root sod, very dark brown (10YR 2/2) when moist; massive; pH 6.6; clear smooth boundary.
A11 RSL No. 59649	0-13"	Gray (10YR 5/1) loam, very dark gray (10YR 3/1) when moist; massive; slightly hard, very friable, very slightly sticky, very slightly plastic; plentiful fine and abundant very fine roots; common fine and many very fine tubular pores; strongly calcareous; pH 8.4; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Series not designated **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY Cumulic Haplaquoll, fine-loamy, mixed, noncalcareous, mesic (Bishop tax-adjunct)

SURVEY NOS. S59Nev-3-11 **LAB. NOS.** 59649 - 59653

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
4- 0	O1	Not sampled										
0-13	A11	4.3	7.4	5.6	14.2	10.1	35.5	22.9	33.0	21.4	1	l
13-26	A12	3.0	6.7	5.5	15.4	12.8	34.0	22.6	37.8	19.3	5	l
26-31	C1	3.0	7.9	5.7	17.8	11.6	33.8	20.2	38.8	18.6	11	l
31-38	IIC2	5.4	9.1	5.6	20.9	18.1	27.8	13.1	49.9	10.5	13	fsl
38-45+	IIIC3g	15.0	22.0	8.1	14.3	7.4	22.5	10.7	27.8	10.5	17	cosl

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3	6J1a HCO_3	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
		not sampled					milliequivalents per liter					
7.8	8.6	2.10	0.194	10.8	10	0.6	-	7.1			0.4	16.1
7.3	8.1	0.72	0.078	9.2	-	0.4	-	4.6			0.6	13.1
7.3	8.1	0.20	0.019		-	0.3	-	2.8			0.6	11.4
6.2	7.3	0.13			-	0.2	-	0.9			1.0	8.7
7.3	7.9	0.08			-	0.3	-	1.5			1.5	7.5

5A2a CATION EXCHANGE CAPACITY (+ Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
		not sampled										
27.4	23.2	4.4	-	0.4	1.0		1.2	0.2	4.7	0.5	3.0	55.7
28.5	19.3	5.5	2.3	0.2	0.5	92	0.9	0.1	2.7	0.6	0.6	47.7
24.1	16.9	5.7	2.0	0.2	0.2	92	0.8	<0.1	1.0	0.1	0.6	42.7
19.7	13.1	5.3	3.1	0.4	0.2	86	0.5	<0.1	1.0	0.2	0.2	34.5
19.9	11.9	4.3	2.5	0.2	0.3	87	0.7	<0.1	1.3	0.6	0.2	32.5

1/ Percent of <1 inch fraction.

\+ Including cations from carbonates in some horizons.

A12 RSL No. 59650	13-26"	Dark gray (10YR 4/1) loam, black (10YR 2/1) when moist; weak coarse prismatic breaking to weak very coarse and coarse subangular blocky structure; very hard, firm, slightly sticky, slightly plastic; plentiful fine and abundant very fine roots and many very fine tubular pores; pH 7.0; clear wavy boundary.
RSL No. 59651	26-31"	Light olive gray (5Y 6/2) loam, olive (5Y 4/3) when moist; with common medium faint dark grayish brown (2.5Y 4/2) iron stains; massive; hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; few very fine tubular and common very fine interstitial pores; few thin clay films in some pores; pH 7.0; abrupt wavy boundary.
IIC2 RSL No. 59652	31-38"	Variegated colors consisting of light gray (5Y 7/1), pale yellow (5Y 7/3), and light brownish gray (2.5Y 6/2) fine sandy loam containing thin strata of fine gravelly light sandy clay loam, greenish gray (5GY 5/1), olive (5Y 5/4), and dark grayish brown (2.5Y 4/2) when moist; common medium prominent dark reddish brown (5YR 3/2) and reddish brown (5YR 4/3) iron mottlings, common coarse prominent black (5YR 2/1) manganese stains, and many medium and coarse distinct dark yellowish brown (10YR 4/8) iron mottles; massive; hard, friable, very slightly sticky, very slightly plastic; few fine and very fine roots; few very fine tubular and common very fine interstitial pores; pH 6.5; abrupt wavy boundary.
IIIC3g RSL No. 59653	38-45"+	Light gray (5Y 7/1) cobbly sandy loam, dark greenish gray (5G 4/1) when moist; massive; hard, friable, very slightly sticky, nonplastic; few very fine and fine roots; few very fine and fine interstitial and few very fine and fine tubular pores; pH 6.8; cobblestones larger than one inch (12% by volume) were not sampled.

1/ The Bishop series is in a coarse-loamy, mixed, calcareous, mesic family of Typic Haplaquolls. This pedon is in a noncalcareous family of the same great group. It is in a different subgroup because it has a mollic epipedon greater than 24 inches thick.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Weishaupt clay loam **LOCATION** Fall n-Fernley Ar a
Churchill County, Nevada

SOIL FAMILY: Cumulic Haplaquoll, fine-loamy over clayey, mixed, calcareous, mesic

SURVEY NOS. S59Nev-1-1 **LAB. NOS.** 59168 - 59174

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-5	Ap	0.2	0.4	0.6	18.1	19.6	25.1	36.0	44.5	15.7	0	cl
5-11	A12	0.2	0.3	0.6	19.6	19.3	24.6	35.4	46.1	14.6	0	cl
11-15	C1	0.2	0.3	0.5	22.7	24.5	22.3	29.5	53.5	14.0	0	scl
15-23	C2	0.4	0.7	1.1	24.5	19.2	25.0	29.1	49.8	15.0	0	scl
23-31	IIC3g	0.1	0.2	0.3	3.6	6.8	29.3	59.7	15.2	23.8	0	c
31-39	IIC4g	0.1	0.2	0.2	1.8	3.4	39.6	54.7	15.9	28.5	0	c-sic
39-56+	IIC5g	0.1	0.1	0.1	0.8	1.7	41.5	55.7	13.4	30.4	0	sic

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.6	-	8.5	1.35	0.112	12.1	6.4	0.7	tr.	1.61			16.7
7.7	-	8.9	1.09	0.101	10.8	6.0	0.9	1	1.48			16.6
7.9	-	9.3	0.77	0.067	11.4	7.8	1.7	2	1.53			15.1
7.7	-	8.3	1.36	0.114	11.9	5.4	11.6	1	1.46			14.8
7.4	-	7.7	1.01	0.080	12.6	3.3	18.5	tr	1.46			28.1
7.4	-	7.7	0.66	0.050	13.2	2.8	16.4	tr	1.49			27.7
7.0	-	7.6	0.52	0.036	14.4	1.9	11.6	tr	1.45			27.8

5A2a CATION EXCHANGE CAPACITY (+ Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
32.8				1.0	1.5	3	3.7	0.3	3.6	1.5	1.3	57.7
32.9				2.1	1.2	6	6.6	0.2	2.5	1.1	1.8	56.5
30.1				4.1	1.4	14	14.3	0.3	2.4	1.1	4.4	53.3
28.9				5.3	1.8	18	73.8	1.7	42.7	4.1	62.7	55.9
44.3				5.6	1.9	13	89.1	1.5	76.7	36.0	158	82.6
43.2				5.1	1.2	12	95.3	0.9	59.7	36.0	135	82.5
44.0				6.1	1.2	14	73.1	0.8	39.1	25.7	76.4	91.4

*Saturation Extract Soluble - milliequivalents per liter.

WEISHAUPT CLAY LOAM
S59Nev-1-1

Description: L. H. Langan and M. A. Townsend. Sampled: March 1959.
Collectors: R. E. Nelson, L. H. Langan, M. A. Townsend.
Location: Marvin Weishaupt ranch, approximately 1 mile north of Stillwater, Nevada, and 0.5 mile south of West Side Road. The site is located approximately 1400' W. and 1300' S. of E. 1/4 corner of Section 6, T19N, R31E. Fallon-Fernley Area, Churchill County, Nevada.
Elevation: Approximately 3890 feet.
Relief: Smooth (leveled to irrigate).
Use: The field is used in an alfalfa-grain rotation.
Vegetation: Alfalfa.
Drainage: Imperfectly drained. Runoff is very slow; internal drainage is very slow; permeability is very slow. Soil originally formed under poorly drained conditions. With diversion of irrigation water and artificial drainage, this soil is now imperfectly drained.
Parent Material: Mixed clayey alluvium derived predominantly from granite, basalt, rhyolite, and fine-textured lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F., and the average July temperature is 72.9° F. with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Other Features: There is usually a strong saline-alkali condition present in these soils. With artificial drainage and irrigation, this condition can be improved. However, irrigation, drainage, and reclamation are difficult due to very slow permeabilities. Perched water tables are often caused by over-irrigation.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl; pH determined using thymol blue.
Classification: Cumulic Haplaquoll, fine-loamy over clayey, mixed, calcareous, mesic.

Riverside Lab. Nos.
59160 through 59174

Ap	0- 5"	Gray (10YR 5/1) clay loam, very dark gray (10YR 3/1) when moist; weak medium and fine granular structure; hard, friable, very sticky and very plastic; abundant very fine, fine and medium roots; many fine and medium tubular pores; slightly calcareous; moderately alkaline (pH 8.4); abrupt wavy boundary.
A_{12}	5-11"	Very dark gray (10YR 3/1, when moist) clay loam; moderate medium and fine granular structure; hard, friable, very sticky and very plastic; abundant very fine, fine and medium roots; many fine and medium tubular pores; few worm casts; slightly calcareous; strongly alkaline (pH 8.6); clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Weishaupt clay loam **LOCATION** Fallon-Fernley Area
Churchill County, Nevada

SOIL FAMILY: Cumulic Haplaquoll, fine-loamy over clayey, mixed, calcareous, mesic

SURVEY NOS. S59Nev-1-1 **LAB. NOS.** 59168 - 59174

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1	2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-5	Ap	0.2	0.4	0.6	18.1	19.6	25.1	36.0	44.5	15.7	0	cl
5-11	A12	0.2	0.3	0.6	19.6	19.3	24.6	35.4	46.1	14.6	0	cl
11-15	C1	0.2	0.3	0.5	22.7	24.5	22.3	29.5	53.5	14.0	0	scl
15-23	C2	0.4	0.7	1.1	24.5	19.2	25.0	29.1	49.8	15.0	0	scl
23-31	IIC3g	0.1	0.2	0.3	3.6	6.8	29.3	59.7	15.2	23.8	0	c
31-39	IIC4g	0.1	0.2	0.2	1.8	3.4	39.6	54.7	15.9	28.5	0	c-sic
39-56+	IIC5g	0.1	0.1	0.1	0.8	1.7	41.5	55.7	13.4	30.4	0	sic

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.6	-	8.5	1.35	0.112	12.1	6.4	0.7	tr.	1.61			16.7
7.7	-	8.9	1.09	0.101	10.8	6.0	0.9	1	1.48			16.6
7.9	-	9.3	0.77	0.067	11.4	7.8	1.7	2	1.53			15.1
7.7	-	8.3	1.36	0.114	11.9	5.4	11.6	1	1.46			14.8
7.4	-	7.7	1.01	0.080	12.6	3.3	18.5	tr	1.46			28.1
7.4	-	7.7	0.66	0.050	13.2	2.8	16.4	tr	1.49			27.7
7.0	-	7.6	0.52	0.036	14.4	1.9	11.6	tr	1.45			27.8

5A2a CATION EXCHANGE CAPACITY ← Na →	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	5B Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
32.8				1.0	1.5	3	3.7	0.3	3.6	1.5	1.3	57.7
32.9				2.1	1.2	6	6.6	0.2	2.5	1.1	1.8	56.5
30.1				4.1	1.4	14	14.3	0.3	2.4	1.1	4.4	53.3
28.9				5.3	1.8	18	73.8	1.7	42.7	4.1	62.7	55.9
44.3				5.6	1.9	13	89.1	1.5	76.7	36.0	150	82.6
43.2				5.1	1.2	12	95.3	0.9	59.7	36.0	135	82.5
44.0				6.1	1.2	14	73.1	0.8	39.1	25.7	76.4	91.4

*Saturation Extract Soluble - milliequivalents per liter.

C_1	11-15'	Very dark gray brown (10YR 3/2, when moist) clay with pockets of dark gray (2.5Y 4/2) fine sandy loam; weak medium and fine granular structure; slightly hard, friable, very sticky and very plastic; abundant very fine and fine roots; many fine and medium tubular pores; common worm casts; few medium distinct light gray (2.5Y 7/2) lime mottles and few coarse distinct black (10YR 2/1) organic carbon stains; strongly calcareous; strongly alkaline (pH 8.8); abrupt wavy boundary.
C_2	15-23"	Very dark gray brown (2.5Y 3/2, when moist) sandy clay loam with few fine distinct white (10YR 8/2) lime mottles; weak medium and fine granular structure; slightly hard, friable, sticky and very plastic; numerous very fine and fine roots; many fine tubular pores; strongly calcareous; moderately alkaline (pH 8.4); clear wavy boundary.
IIC_{3g}	23-31"	Very dark gray (5Y 3/1, when moist) clay with many medium prominent white (10YR 8/1) salt mottles along root channels and along ped surfaces; many fine prominent dark brown (7.5YR 3/2) iron mottles; moderate coarse angular and subangular blocky structure; hard, firm, very sticky and very plastic; numerous very fine roots and numerous dead roots along cleavage; very few fine tubular pores; noncalcareous; moderately alkaline (pH 8.2); clear wavy boundary.
IIC_{4g}	31-39'	Very dark gray (5Y 3/1, when moist) clay with few moderate prominent white (10YR 8/2) gypsum (?) mottles and many fine prominent dark reddish brown (5YR 3/3) iron mottles; weak medium subangular blocky breaking to moderate fine subangular and angular blocky structure; hard, firm very sticky and very plastic; few fine dead roots; very few fine tubular pores; noncalcareous; moderately alkaline (pH 8.1); clear wavy boundary.
IIC_{5g}	39-56"+	Very dark gray (5Y 3/1, when moist) clay with many medium prominent dark reddish brown (5YR 3/3) iron mottles along cleavage, few medium prominent white (10YR 8/2) gypsum (?) mottles, and many coarse distinct very dark gray brown (10YR 3/2) iron stains on ped surfaces; moderate medium and fine subangular and angular blocky structure; hard, firm, very sticky and very plastic; few fine dead roots; very few fine tubular pores; noncalcareous; moderately alkaline (pH 8.1).

SOIL SURVEY LABORATORY Riverside, California

SOIL SERIES: Series not designated **LOCATION** Pershing County, Nevada

SOIL FAMILY: Cumulic Haplaquoll, fine, mixed, calcareous, mesic (Lovelock taxadjunct)

SURVEY NOS. S56-Nev-14-10 **LAB. NOS.** 56370 - 56377

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap.	0.9	2.1	1.2	4.2	6.0	43.1	42.5	32.6	19.3	0	sic
7-13	A12	0.7	2.1	1.5	4.4	5.5	40.1	45.7	19.5	28.8	0	sic
13-18	IIA13	0.2	0.7	0.6	2.3	4.2	31.2	60.8	12.3	24.7	0	c
18-21	IIIA14	1.5	4.3	3.1	8.0	8.3	43.1	31.7	23.3	33.4	0	cl
21-23	IVC1g	0.5	1.4	1.1	4.6	8.2	29.7	54.5	19.9	21.3	0	c
23-29	VA'11	1.1	4.3	3.3	10.7	13.5	42.4	24.7	36.6	26.6	0	l
29-35	VIA'12g	0.1	0.2	0.3	1.3	1.9	21.6	74.6	6.3	18.1	0	c
35-40	VIIA'13	0.6	1.2	0.8	3.0	5.7	40.4	48.3	10.2	38.1	0	sic

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	4A3a Bulk Density g/cc	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS.
8.0		8.7	3.62	0.299	12.1	0.72	3.0	12				25.9
7.8		8.5	4.06	0.337	12.0	0.69	3.0	10				29.3
7.8		8.5	3.50	0.247	14.2		3.2	5				35.2
7.9		8.6	1.06	0.115	9.2			21				24.5
7.9		8.6	1.46	0.106	13.8		3.5	28				28.0
8.2		8.9	1.23	0.082	15.0	0.97	3.5	12				15.3
7.9		8.5	1.62	0.090	18.0		2.9	11				39.6
8.0		8.5	2.83	0.103	27.5		2.9	18				30.8

5A2a CATION EXCHANGE CAPACITY (-(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
43.8				6.3	4.3	14.4	22.5	1.2	4.8	2.6		91.8
46.7				5.7	3.9	12.2	21.5	1.1	7.0	2.6		110.4
48.2				6.6	2.9	13.7	23.0	0.8	6.3	1.8		113.7
34.5												
33.9				6.0	1.9	17.7	28.0	0.6	4.4	1.6		90.5
16.8				3.2	0.8	18.9	29.3	0.5	4.0	1.3		72.3
47.1				8.7	2.6	18.5	24.5	0.6	2.9	1.2		103.9
37.5				7.0	1.7	18.7	24.3	0.5	3.0	1.0		126.8

Series not designated [1/]
S56Nev-14-10

Location: Pershing County, Nevada. 0.5 mile south on Broadway from the SCS office, Lovelock, Nevada, S 6.75 miles on Meridan Road, W 2.0 miles on paved road, S 2.0 miles on lower Valley Road (1 mile unpaved), cross bridge to the south over main canal and bridge to the east over irrigation ditch (equipment sheds located approximately 200 feet west of this point), S 1 mile along ditch bank road, west 1/4 mile on road along boundary fence, N on ditch bank road to first concrete check box in field irrigation ditch, W approximately 130 feet to site located on the Don Mateo Corporation Ranch. The site is located approximately 260 feet N and 1,190 feet E of south 1/4 corner of sec. 17 in SW1/4, SE1/4, sec. 17, T. 25 N., R. 31 E.
Date of sampling: July 18, 1956.
Description by: J. Kubota and L. N. Langan. Collectors: J. Kubota, R. Devers, V. Lazar, W. G. Harper, R. Nelson, L. Dunn, and L. N. Langan.
Classification: Cumulic Haplaquoll, fine, mixed, calcareous, mesic (Lovelock taxadjunct).
Vegetation: The native vegetation on this site prior to the diversion of water for irrigation was composed primarily of tules and other varieties of carex and sedges. Use: The field is used for the growing of wheat.
Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.
Parent Material: Alluvial and lacustrine deposits from a wide variety of parent rock among which limestone, basalts, and tuff predominate. Topography: Lake-bed at the terminus of the Humboldt River. Elevation: Approximately 3960 feet. Drainage: Poorly drained. Surface drainage is very slow and the internal drainage is medium to the water table. The soil had moderate permeability. A water table was found at 42 inches at the time of sampling.

HORIZON	(All colors are those of moist soil)
Ap RSL 56370	0 to 7 inches, black to very dark gray (10YR 2/1 - 3/1) loam with very weak medium subangular blocky breaking to weak fine and medium granular structure; slightly sticky, slightly plastic, very friable, soft; many fine fibrous roots; it is noted that the surface is coated with a thin coating of colloidal material with some salt; when dry the surface cracks forming rectangular blocks; pH 8.6; highly calcareous; abrupt smooth boundary.
A12 RSL 56371	7 to 13 inches, very dark brown (10YR 2/2) silt loam dominantly with coarse to medium horizontal streaks and pockets of black (10YR 2/1 - 2.5Y 2/) silty clay; the silt loam has a weak fine and medium granular structure; slightly sticky, nonplastic, very friable, slightly hard; the silty clay has weak to moderate medium subangular blocky structure; very sticky, very plastic, firm, hard; common fine and a few medium fibrous roots; subangular blocky peds have many fine and medium pores, contains numerous fresh water mollusk shells and shell fragments and numerous very fine yellowish brown (10YR 5/6) lime aggregates believed to be noncalcareous; pH 8.6; highly calcareous; clear wavy boundary.
IIA13 RSL 56372	13 to 18 inches; this horizon is like that above except the black material is dominant and the very dark brown material occurs as pockets.
IIIA14 RSL 56373	18 to 21 inches, very dark brown (10YR 2/2) silt loam with common very fine firm dark yellowish brown (10YR 4/4) noncalcareous aggregates; massive in place breaking to very weak medium and fine granular structure; sticky, plastic, friable, slightly hard; common fine fibrous roots; pH 8.4; highly calcareous; abrupt wavy boundary.
IVC1g RSL 56374	21 to 23 inches; a horizon grading in color from black to very dark gray (10YR 2/1 - 3/1) at top to very dark grayish brown (2.5Y 3/2) to dark olive brown (5Y 3/2) at bottom; clay with thin streaks of light gray (10YR 7/2) salt and lime aggregates; weak medium prismatic (includes colors described above) breaking to weak medium subangular blocky structure; very sticky, very plastic, firm, hard; common fine fibrous roots; common fine pores and old root channels; thick clay skins on some ped faces and in pores and old root channels; a few very fine fresh water mollusk shells and shell fragments; pH 8.6; highly calcareous; abrupt smooth boundary.
VA'11 RSL 56375	23 to 29 inches, very dark gray to black (10YR 3/1 - 2/1) silt loam with common extremely fine yellowish brown (10YR 5/6) noncalcareous firm aggregates; massive having some tendency for very weak prismatic to columnar breaking to weak medium to fine granular structure; slightly sticky, slightly plastic, friable, slightly hard; many fine fibrous roots; common fine and medium pores; contains many fine fresh water mollusk shells and shell fragments; pH 8.6; highly calcareous; abrupt smooth boundary.
VIA'12g RSL 56376	29 to 35 inches, black (10YR 2/1) silty clay with diffused horizontal streaks of light gray (10YR 7/2) lime aggregates intermixed with splotches of very dark grayish brown to dark olive gray (2.5Y 3/2 - 5Y 3/2), dark olive gray color is associated with the lime aggregates; top portion of horizon is black; very weak fine and some medium prismatic structure with some breaking to weak medium subangular blocky; very sticky, very plastic, firm to friable, hard; few fine fibrous roots; peds have many fine and common medium pores; clay skins are thick and continuous in pores and old root channels and thick but patchy on some ped faces; fresh water mollusk shell fragments essentially absent; pH 8.6; highly calcareous; abrupt smooth boundary.
VIIA'13	35 to 40 inches, black (10YR 2/1 - N 2/) silty clay loam with very weak medium subangular blocky structure; very sticky, very plastic, firm, hard; few fine fibrous roots; many fine and medium pores; clay skins faint in some pores and along shell-soil mass interfaces; many fine to very fine and some medium fresh water mollusk shells and shell fragments; pH 8.4; highly calcareous; clear smooth boundary.

1/ The Lovelock series is in a fine, mixed, calcareous, mesic family of Fluventic Haplaquolls (see pedon S56Nev-14-9). This pedon has a mollic epipedon greater than 24 inches thick.

SOIL URVEY LABORATORY Riverside, California

SOIL TYPE Lovelock silt loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Fluventic Haplaquoll, fine, mixed, calcareous, mesic

SURVEY NOS. S56-Nev-14-9 **LAB. NOS.** 56362 - 56369

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-10	Ap1	0.6	1.2	1.0	3.4	3.8	38.3	51.7	15.7	28.6	0	c
10-12	Ap2	0.4	0.8	0.6	2.7	4.8	32.3	58.4	16.7	22.3	0	c
12-19	A13	0.1	0.4	0.5	2.6	4.6	40.5	51.3	18.4	28.5	0	sic
19-21	IIA14	1.3	4.4	4.2	11.1	11.3	46.3	21.4	29.9	34.8	0	l
21-22	IIC1	1.1	4.1	3.8	9.6	9.8	47.9	23.7	27.7	36.1	0	l
22-28	IIIA'11g	0.3	0.7	0.6	2.2	3.2	25.2	67.8	9.8	20.1	0	c
28-37	IVA'12	2.8	3.3	1.8	6.7	10.8	42.7	31.9	30.7	27.5	0	cl
37-41	VA'13	0.1	0.3	0.6	2.0	2.7	20.0	74.3	6.8	17.3	0	c

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9		8.5	4.20	0.341	12.3		2.0	12				27.0
7.7		8.3	6.75	0.398	16.6		3.3	4				33.3
7.5		8.0	9.85	0.485	20.3		4.3	Tr				37.4
7.7		8.1	1.59	0.180	8.8			4				23.0
*7.6		8.1	1.00	0.104	9.6			12				24.9
7.6		8.0	2.79	0.191	14.6		7.2	8				37.0
7.7		8.4	2.60	0.175	14.9		8.5	31				21.4
7.6		8.1	1.60	0.097	16.5		8.3	12				41.0

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
45.6				6.0	5.8	13.2	17.0	2.9	4.0	1.8		84.5
53.7				6.9	3.5	12.8	25.0	1.0	7.6	2.1		102.2
63.0				6.6	2.4	10.5	29.5	0.9	9.8	3.1		127.5
37.7												
38.4												
47.7				8.1	2.4	17.0	53.5	1.1	16.0	7.1		116.5
31.4				5.3	0.2	16.9	62.5	1.2	21.7	9.4		105.7
47.5				8.4	2.8	17.7	60.5	1.4	17.5	8.1		122.2

*Sample No. 56366 (S56-Nev-14-9-5) (21-22" depth) - Diatoms plentiful.

LOVELOCK SILT LOAM
S56Nev-14-9

Collectors: J. Kubota, R. D evers, V. Lazar, W. G. Harper, R. Nelson, L. Dunn, and L. N. Langan, July 18, 1956.

Description: J. Kubota and L. N. Langan

Location: 0.5 mile south on Broadway from the SCS Office, Lovelock, Pershing County, Nevada, S 6.76 miles on Meridan Road, W 2.0 miles on paved road, S 2.0 miles on Lower Valley Road (1 mile unpaved) W 1 mile on Lake road (unpaved), S ½ mile on unpaved road, W approximately 450 feet and N approximately 60 feet to site located on the Brayton Wilbur Ranch. This ranch is leased and operated by W. Brinkerhoff. The owner and leasor are cooperators with the Big Meadow SCD. The site is located approximately 450 feet W and 60 feet N of the apparent E1/4 cor. of sec. 18 in the SE1/4 NE1/4, sec. 18, T25N, R31E. See aerial photograph DED-2-102 for the exact location.

Elevation: Approximately 3960 feet.

Use: The field is presently in alfalfa and is in rotation with small grains.

Topography: Lake-bed at the terminus of the Humboldt River.

Vegetation: The native vegetation on this site prior to the diversion of water for irrigation was composed primarily of tules and other varieties of carex and sedges.

Drainage: Poorly drained. Surface drainage is very slow and the internal drainage is medium to the water table. The soil has a moderate permeability. A water table was found at 42 inches at the time of sampling.

Parent Material: Alluvial and lacustrine deposits from a wide variety of parent rock among which limestone, basalts, and tuff predominate.

Climate: The Lovelock area is characterized by a semi-arid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.

Classification: Fluventic Haplaquoll, fine, mixed, calcareous, mesic.

HORIZON

(All colors are those of the moist soil)

Ap1 0-10" Very dark gray to black (10YR 3/1 - 2/1) loam; massive, when removed soil breaks to very weak fine and medium granular; slightly sticky, slightly plastic, friable, slightly hard; pH 8.8; highly calcareous; abrupt smooth boundary.

Ap2 10-12" Not Sampled Thin mixed horizon which is a mixture made up of approximately 40 percent $A11p1$ and 60 percent $A12$. This is believed to be the depth of plowing with a Graham-Holm plow.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Lovelock silt loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Fluventic Haplaquoll, fine, mixed, calcareous, mesic

SURVEY NOS. S56-Nev-14-9 **LAB. NOS.** 56362 - 56369

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)								3A1	2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-10	Ap1	0.6	1.2	1.0	3.4	3.8	38.3	51.7	15.7	28.6	0	c
10-12	Ap2	0.4	0.8	0.6	2.7	4.8	32.3	58.4	16.7	22.3	0	c
12-19	A13	0.1	0.4	0.5	2.6	4.6	40.5	51.3	18.4	28.5	0	sic
19-21	IIA14	1.3	4.4	4.2	11.1	11.3	46.3	21.4	29.9	34.8	0	l
21-22	IIC1	1.1	4.1	3.8	9.6	9.8	47.9	23.7	27.7	36.1	0	l
22-28	IIIA'11	0.3	0.7	0.6	2.2	3.2	25.2	67.8	9.8	20.1	0	c
28-37	IVA'12	2.8	3.3	1.8	6.7	10.8	42.7	31.9	30.7	27.5	0	cl
37-41	VA'13	0.1	0.3	0.6	2.0	2.7	20.0	74.3	6.8	17.3	0	c

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.9		8.5	4.20	0.341	12.3		2.0	12				27.0
7.7		8.3	6.75	0.398	16.6		3.3	4				33.3
7.5		8.0	9.85	0.485	20.3		4.3	Tr				37.4
7.7		8.1	1.59	0.180	8.8			4				23.0
*7.6		8.1	1.00	0.104	9.6			12				24.9
7.6		8.0	2.79	0.191	14.6		7.2	8				37.0
7.7		8.4	2.60	0.175	14.9		8.5	31				21.4
7.6		8.1	1.60	0.097	16.5		8.3	12				41.0

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLES A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
45.6				6.0	5.8	13.2	17.0	2.9	4.0	1.8		84.5
53.7				6.9	3.5	12.8	25.0	1.0	7.6	2.1		102.2
63.0				6.6	2.4	10.5	29.5	0.9	9.8	3.1		127.5
37.7												
38.4												
47.7				8.1	2.4	17.0	53.5	1.1	16.0	7.1		116.5
31.4				5.3	0.2	16.9	62.5	1.2	21.7	9.4		105.7
47.5				8.4	2.8	17.7	60.5	1.4	17.5	8.1		122.2

*Sample No. 56366 (S56-Nev-14-9-5) (21-22" depth) - Diatoms plentiful.

A13	12-19"	Black (10YR 2/1 - N 2/) muck and mucky silt loam with a few streaks and patches of black to very dark brown (10YR 2/1 - 2/2); very weak medium prismatic breaking to weak to moderate medium subangular blocky structure; sticky, plastic (very slippery), friable to firm, slightly hard to hard; many fine to medium and few coarse fibrous roots; few fine faint white (10YR 8/1) salt coats on some ped faces; pH 8.2; calcareous; abrupt smooth boundary.
IIA14	19-21"	Very dark brown (10YR 2/2) silt loam speckled with common white (10YR 8/2) fresh water mollusk shell fragments and many very fine firm dark yellowish brown (10YR 5/6) noncalcareous particles; massive in place when removed breaks to weak medium subangular blocky structure; nonsticky, nonplastic, friable, slightly hard; many fine and common coarse fibrous roots; essentially nonporous; few medium root channels; pH 8.4; highly calcareous; abrupt wavy boundary.
IIC1	21-22"	Dark yellowish brown (10YR 4/4) gritty silt loam; the gritty particles are very fine firm noncalcareous, and are subangular in shape; massive in place and when removed tends to break to very weak fine subangular blocky structure; nonsticky, nonplastic, friable, soft; pH 8.0; highly calcareous; the horizon varies in thickness from 1 to 2 inches and waves along faces of the pit; abrupt wavy boundary.
IIIA'11g	22-28"	Black (10YR 2/1 - N 2/) with thin (1/4-1") faint horizontal streaks of very dark gray (10YR 3/1 - N 3/), olive brown (2.5YR 4/4) and black (10YR 2/1) clay with some pockets of silty clay loam; weak medium prismatic breaking to weak to moderate medium subangular blocky structure; slightly sticky, very plastic (slippery); firm, hard; many fine and a few medium to coarse fibrous roots; few fine pores; common fine fresh water mollusk shells and shell fragments; clay skins thick and discontinuous on some ped faces and old root channels; one small (1/4") slickenside or slickenside-like striated face noted; pH 8.4; strongly calcareous; abrupt smooth boundary.
IVA'12	28-37	Black to very dark brown (10YR 2/1 - 2/2) gritty silt loam with thin (1/4-3/4") faint streaks of gray brown (10YR 5/2) black (10YR 2/1) and very dark gray brown (10YR 3/2); contains many fine firm yellowish brown (10YR 5/6) noncalcareous aggregates; massive in places which tends to break to very weak medium prismatic when removed; nonsticky, nonplastic, very friable, slightly hard; common fine and a few medium fibrous roots; a few root channels and a very few pores; many fine fresh water mollusk shells and shell fragments; clay skins on shell-soil mass interfaces; pH 8.4; highly calcareous; abrupt smooth boundary.
VA'13	37-41"	Very dark gray (10YR 3/1 - N 3/) silty clay with many fine medium and coarse white (10YR 8/2) lime splotches and seams, dominantly massive with some weak fine subangular blocky and angular blocky structure in cracks; very sticky, plastic, firm, hard to very hard; few fine fibrous roots; few fine pores and root channels; a few fine to very fine faint black stains (mottles) noticeable under hand lens; shells dominantly absent; pH 8.4; highly calcareous; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Lovelock silt loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Fluventic Haplaquoll, fine, mixed, calcareous, mesic

SURVEY NOS. S61Nev-14-1 **LAB. NOS.** 61566 - 61573

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-5	Ap	0.4	1.1	0.7	2.5	4.5	47.7	43.1	15.7	38.1	0	sic
5-11	A12	0.4	0.8	0.6	1.7	2.9	46.3	47.3	9.4	40.9	0	sic
11-16	A13	0.3	0.4	0.3	1.1	3.1	33.2	61.6	12.7	24.4	0	c
16-19	IIC1	3.5	9.5	5.3	11.2	9.7	41.7	19.1	26.5	31.9	0	l
19-29		0.1	0.2	0.2	0.9	2.7	22.9	73.0	9.6	16.6	0	c
29-37	IVC2	1.2	2.6	1.9	7.2	11.9	46.7	28.5	31.7	31.9	0	cl
37-42	VC3g	0.0	0.1	0.2	0.9	1.9	19.2	77.7	7.2	14.5	0	c
42-49+	VIA	0.7	1.6	1.1	4.2	8.3	37.8	46.3	22.1	26.8	0	c

pH 8C1b SATURATED PASTE 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	SATURATION 6P1a Na	6Q1a K	EXTRACT SOLUBLE 8A 6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^{=}$	6J1a HCO_3^{-}	6L1a $SO_4^{=}$
					← milliequivalents per liter							→
7.7	8.6	4.24	0.348	12	24.5	2.1	6.4	4.9	21.4	tr.	13.4	
7.9	8.8	2.95	0.250	12	19.4	1.2	5.7	2.2	15.8	tr.	7.1	
7.1	8.1	7.06	0.413	17	46.2	0.7	14.0	7.9	38.7	tr.	5.9	
7.8	8.5	1.27	0.102	13	47.6	0.7	12.9	3.8	36.1	tr.	2.9	
7.6	8.5	4.23	0.227	19	55.0	1.0	16.0	6.6	41.9	-	3.6	
7.9	8.5	2.51	0.151	17	61.5	1.1	20.1	8.7	47.0	-	2.5	42.7
7.7	8.5	1.56	0.098	16	76.5	1.6	24.2	12.1	54.6	-	2.5	56.9
7.7	8.3	2.69	0.173	16	97.2	1.9	28.0	15.0	70.4	-	2.3	74.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	6C1a Ext. Iron % Fe	6F1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →											
49.7	38.9	12.2	0.5	5.5	5.5	11	0.1	1.58	14		26.4	54.4
50.1	37.8	10.0	1.0	5.1	5.2	10	0.2	2.34	13		26.4	87.2
67.5	45.5	11.6	4.7	8.2	2.3	12	0.1	5.71	3		38.3	120.7
50.6	36.8	7.0	0.8	11.7	4.4	23	0.1	4.25	10		29.3	145.8
60.1	42.4	11.8	1.5	10.2	2.8	17	0.1	5.20	5		43.0	109.0
37.0	29.8	6.9	-	5.4	1.8	15	0.1	5.43	31	-	23.5	113.8
53.1	33.4	14.7	-	3.7	4.5	7	0.1	8.1	11	-	41.7	111.3
46.0	40.7	10.5	-	6.5	4.4	14	0.1	8.5	20	0.1	32.1	110.4

Horizon 1: very coarse and coarse sand predominantly organic material.
Horizon 1,2: a few snail shells in sand fraction.
Horizon 3,5,6,7,8: abundant to many snail shells in sand fraction.
Horizon 4: sand dominantly silt and clay aggregates.

+ Including cations from carbonates.

LOVELOCK SILT LOAM
S61Nev-14-1

Location: Approximately 100 feet north and 300 feet west of the east quarter corner of section 18, T. 25 N., R. 31 E., Mount Diablo Base and Meridian; 11 miles southwest of Lovelock, Pershing County, Nevada on the Brinkerhoff Ranch. Date of Sampling: August 5, 1961.
Samples Collected By: R. E. Nelson and L. N. Langan. Description By: Leland I. Larsen.
Classification: **Fluventic Haplaquoll, fine, mixed, calcareous, mesic.**
Vegetation: Alfalfa. Use: Irrigated cropland. Climate: Semiarid continental climate with hot, dry summers and moderately cold, moist winters; an average January temperature of about 28° F.; an average July temperature of about 77° F.; a mean annual temperature of about 52° F.; a frost-free season of about 120 days; and an average annual precipitation of about 4 inches. Humidity is low and evaporation is high. Parent Material: Alluvium from mixed sources including limestone, basalt, tuff, lacustrine deposits from prehistoric Lake Lahontan and diatomaceous earth. Relief: Smooth, nearly flat with a slope gradient of 0.2 percent. Physiography: Valley floor. Elevation: Approximately 3950 feet. Drainage: Imperfectly drained; very slow runoff; slow internal drainage; moderate soil permeability. The water table was at 6 feet at the time of sampling.
Remarks: The soils contain many mollusk shells and shell fragments and appreciable volcanic ash. Effervescence obtained by observing reaction with dilute HCl; pH determined by using thymol blue in a prepared 1:5 dilution. This profile was not paired.

HORIZON

Ap11 RSL No. 61566	0 to 5 inches, gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak coarse platy structure; slightly hard, friable, slightly sticky, slightly plastic; few very fine, and plentiful fine and medium roots; few fine and common very fine tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear smooth boundary.
A12 RSL No. 61567	5 to 11 inches, gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine, fine, and medium roots; few fine and many very fine tubular pores; strongly effervescent with lime segregated in common fine to medium distinct white (10YR 7/2) mottles; strongly alkaline (pH 8.6); abrupt wavy boundary.
A13 RSL No. 61568	11 to 16 inches, dark gray (10YR 4/1) silt loam, black (10YR 2/1) when moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky, slightly plastic; abundant very fine, plentiful fine, and few medium roots; common very fine and few fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.
IIC1 RSL No. 61569	16 to 19 inches, very pale brown (10YR 8/3) loam, pale brown (10YR 6/3) when moist; massive; soft, very friable, nonsticky, nonplastic; abundant very fine, plentiful fine, and few medium roots; common very fine tubular pores; mildly effervescent; strongly alkaline (pH 8.8); abrupt irregular boundary.
IIIA1b1 RSL No. 61570	19 to 29 inches, dark gray (10YR 4/1) clay, black (10YR 2/1) when moist; has a thin 2" pocket of brown (10YR 4/3) ash, few mollusk shells, and a dark olive gray (5Y 3/2) 1" strata at base with many medium distinct light gray (5Y 7/2) lime mottles; moderate fine prismatic structure; hard, friable, very sticky, very plastic; plentiful very fine and fine roots; common fine interstitial and few very fine tubular pores; strongly effervescent with lime segregated in few coarse distinct white (10YR 8/2) mottles; strongly alkaline (pH 8.6); abrupt smooth boundary.
IVC2 RSL No. 61571	29 to 37 inches, stratified very dark grayish brown (2.5Y 3/2, moist), very dark gray (2.5Y 3/1, moist) and brown (10YR 5/3, moist) silt loam and loam with many fine white mollusk shells; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine interstitial and tubular pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
VC 3g RSL No. 61572	37 to 42 inches, banded black (5Y 2/1, moist) with many medium distinct light gray (5Y 7/2) lime mottles, dark gray (5Y 4/1, moist) with many medium light gray (5Y 7/2) lime and few fine olive (5Y 4/4) mottles, and black (5Y 2/1, moist) with common medium brown (10YR 4/3) and light gray (10YR 7/2) lime mottles, clay; moderate coarse subangular blocky structure; hard, firm, very sticky, very plastic; plentiful very fine and few fine roots; few very fine and fine tubular and interstitial pores; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
VIA1b2 RSL No. 61573	42 to 49 inches +, clay thinly stratified with loam that has banded brown (10YR 4/3, moist), black (10YR 2/1, moist), dark gray (10YR 4/1, moist), and very dark gray (10YR 3/1, moist) colors; massive; slightly hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; common very fine and few fine tubular pores; common very fine white mollusk shells; strongly effervescent; strongly alkaline (pH 9.0).

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Humboldt silty clay loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Fluventic Haplaquoll, fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56 Nev-14-3 **LAB. NOS.** 56317 - 56324

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-8	Ap	0.1	0.3	0.3	1.9	3.9	50.2	43.3	15.7	39.8	0	sic
8-14	A12	0.0	0.1	0.1	1.9	3.7	52.0	42.2	14.3	42.9	0	sic
14-18	IIC1	0.0	0.0	0.1	0.7	1.5	59.2	38.5	9.5	51.8	0	sicl
18-24	IIIA'11	0.0	0.1	0.1	0.6	1.0	49.3	48.9	6.7	44.0	0	sic
24-33	IVA'12	0.1	0.2	0.1	0.5	0.6	35.7	62.8	5.2	31.4	0	c
33-38	VC2	0.1	0.1	0.2	1.9	5.5	49.8	42.4	21.4	35.5	0	sic
38-46	VIC3	0.0	0.1	0.3	7.2	22.0	54.0	16.4	57.9	24.6	0	sil
46-51	VIC4	0.0	0.1	0.2	3.5	18.9	62.8	14.5	67.3	17.4	0	sil

8C1b pH SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM 25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8		8.4	2.16	0.199	10.9		1.3	2				24.9
7.8		8.4	1.42	0.137	10.4		1.3	1				26.2
7.6		8.4	0.84	0.079	10.6		1.6	1				24.1
7.4		7.9	0.67	0.068	9.9		2.4	Tr				26.1
7.5		7.9	0.73	0.060	12.2		3.9	1				29.5
7.6		8.3	0.48	0.050	9.6		4.1	1				23.2
7.7		8.4	0.29				4.8	1				12.8
7.7		8.3	0.16				3.1	Tr				12.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
47.7				3.9	4.8	8.2	11.3	1.0	4.0	1.5		69.9
46.1				3.6	4.2	7.8	10.3	0.8	4.4	5.2		67.1
41.5				3.0	3.3	7.2	10.3	0.7	4.7	1.7		64.9
43.6				3.9	3.4	8.9	13.1	0.8	6.7	1.4		71.1
48.1				5.7	3.4	11.9	21.0	0.7	9.9	1.9		81.2
41.3				7.0	2.5	16.9	37.0	0.6	10.6	4.6		62.4
25.9				5.3	1.5	20.5	42.3	0.6	10.2	4.6		46.4
25.4				4.7	1.6	18.5	30.8	0.6	6.5	2.6		45.5

HUMBOLDT SILTY CLAY LOAM
S56Nev-14-3

Location: 0.5 mile south on Broadway from the SCS office, Lovelock, Pershing County, Nevada, E 100 paces and S 60 paces to site located on the Circle L Ranch. The owner is a cooperator with the Big Meadow SCD. The site is located approximately 300 feet E and 180 feet S of the apparent NW section corner of section 25, located in the NW1/4 NW1/4, section 35, T. 27 N., R. 31 E.
Description by: J. Kubota and L. N. Langan. Collectors: J. Kubota, R. Dever, V. Lazar, W. G. Harper, R. Nelson, L. Dunn and L. N. Langan. Date of Sampling: July 16, 1956.
Classification: Fluventic Haplaquoll, fine, montmorillonitic, calcareous, mesic
Vegetation: The native vegetation of this site prior to the diversion of water for irrigation was a lush growth of native grasses and sedges. During this period the Humboldt River normally overflowed its banks during the runoff period and irrigated the meadows on these sites. Use: The field is presently in alfalfa and is in rotation with small grains. Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days. Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rocks among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate. Topography: Level flood plain of the Humboldt River. Elevation: Approximately 4005 feet. Drainage: Imperfectly. Surface drainage is very slow and the internal drainage is medium to the water table. The soil normally has a moderately slow permeability. A water table was found at 57 inches. Reaction: Measure of free carbonate observed by watching reaction to dilute HCl; pH's determined with thymol blue in a prepared 1:5 dilution.

HORIZON	(All colors are those of the moist soil)
Ap RSL No. 56317	0 to 8 inches, black to very dark gray (10YR 2/1 - 3/1) silty clay loam with weak medium subangular blocky breaking to moderate fine subangular blocky structure; very plastic, very sticky, firm, hard; many fine medium and coarse fibrous roots; numerous worm casts; strongly calcareous; pH 8.4; clear smooth boundary.
A12 RSL No. 56318	8 to 14 inches, same as above except for more worm casts; numerous fingers from horizon below and somewhat less firm.
IIC1 RSL No. 56319	14 to 18 inches, very dark grayish brown to dark grayish brown (2.5Y 3/2 - 4/2) silty clay loam with few medium distinct mottles; strong coarse medium and fine angular blocky to subangular blocky structure; very sticky, very plastic, firm, very hard; common fine firm lime nodules; lime seams along ped faces; horizon irregular to wavy; calcareous to highly calcareous; pH 8.4; irregular wavy boundary. (This sample includes some soil from horizon above and below.)
IIIA'11 RSL No. 56320	18 to 24 inches, very dark gray (10YR 3/1) heavy silty clay loam with strong fine subangular blocky structure; very plastic, very sticky, firm, very hard; common fine and medium fibrous roots; few fine pores; many extremely fine firm lime nodules; lime coats on ped surfaces; strongly to highly calcareous; pH 8.4; clear smooth boundary.
IVA'12 RSL No. 56321	24 to 33 inches, black to very dark gray (10YR 2/1 - 3/1) silty clay loam with common fine faint dark brown (10YR 3/3) mottles on ped surfaces; weak medium and coarse subangular blocky breaking to weak to moderate fine subangular blocky structure with some angular faces; very sticky, very plastic, friable, hard; common fine and few medium fibrous roots; few fine pores; clay skins on some ped faces, pores and root channels; calcareous; pH 8.2; clear smooth boundary.
VC2 RSL No. 56322	33 to 38 inches, very dark gray brown to dark gray brown (2.5Y 3/2 - 4/2) silty clay loam with few fine faint very dark grayish brown (10YR 3/2) stains on ped faces; weak medium and coarse subangular blocky breaking to moderate fine subangular blocky structure; plastic, sticky, friable, hard; common fine fibrous roots; common fine and medium pores; clay skins on some ped faces and in pores and along root channels; calcareous; pH 8.4; there is a thin very dark gray (10YR 3/1) streak at the bottom of this horizon; clear smooth boundary.
VIC3 RSL No. 56323	38 to 46 inches, dark grayish brown (2.5Y 4/2) fine sandy loam with coarse seams, streaks and masses of black to very dark gray (10YR 2/1 - 3/1); weak medium and coarse subangular blocky breaking to some weak fine subangular blocky structure; slightly sticky, slightly plastic, very friable, slightly hard; common fine fibrous roots; common fine and medium pores; few finely divided lime particles; calcareous in spots; pH 8.4; clear smooth boundary.
VIC4 RSL No. 56324	46 to 51 inches, very dark grayish brown to grayish brown (2.5Y 3/2 - 4/2) very fine sandy loam with common fine and medium faint dark brown mottles; massive breaking to very weak coarse medium and fine subangular blocky structure; slightly sticky, slightly plastic, friable; common fine fibrous roots; common fine and medium pores; clay skins in fine pores and some fractures; very few fine lime nodules in pores; calcareous; pH 8.6; clear smooth boundary.
VIC5	51 to 61 inches +, dark grayish brown (2.5Y 4/2) silt loam with a few dark grayish brown (10YR 4/2) streaks and common medium and fine faint dark grayish brown (10YR 4/2) mottlings in ped interiors and along old root channels; massive in place breaking to weak medium to coarse subangular blocky breaking to moderate fine subangular blocky structure; common fine fibrous roots; many fine and medium pores; clay skins in fine pores and on some ped faces; calcareous; pH 8.4; boundary not determined. Soil was sampled only from 51 to 56 inches.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Humboldt silty clay **LOCATION** Pershing County, Nevada

1 am

SOIL FAMILY: Fluventic Haplaquoll, fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56-Nev-14-4 **LAB. NOS.** 56325-56331

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	Ap	0.2	0.4	0.4	1.6	3.1	48.8	45.5	12.6	40.4	0	sic
6- 8	IIA12	0.1	0.2	0.6	6.7	10.5	52.2	29.7	29.5	38.4	0	sicl
8-13	IIIA13	0.0	0.1	0.3	2.3	2.8	46.1	48.4	11.4	39.0	0	sic
13-24	IVC1	0.1	0.2	0.1	0.4	0.6	66.1	32.5	11.6	55.4	0	sicl
24-31	VC2	0.2	0.3	0.1	0.3	0.8	75.0	23.3	19.3	56.7	0	sil
31-48	VC3	0.2	0.3	0.2	0.7	4.0	76.9	17.7	42.3	39.1	0	sil
48-53	VIC4	0.1	0.2	0.1	0.3	0.6	62.3	36.4	5.7	57.4	0	sicl

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1		8.6	1.98	0.180	11.3		1.8	5				24.3
8.1		8.7	0.70	0.061	11.5		3.0	4				21.0
7.9		8.7	0.50	0.060	8.3		6.3	3				27.0
7.7		8.4	0.36	0.046	7.8		9.2	8				22.6
7.7		8.6	0.29				8.9	9				17.5
7.7		8.5	0.23				9.6	7				13.9
7.5		8.0	0.44				8.7	4				23.2

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
43.8				6.3	5.6	14.4	16.1	1.1	3.6	1.5		66.5
44.1				10.9	6.5	27.4	24.5	1.0	3.0	1.0		48.8
41.3				11.7	4.8	28.3	34.5	1.0	4.6	2.3		70.8
37.5				8.1	3.0	21.6	77.5	1.7	26.3	11.2		68.2
30.2				7.3	2.5	24.2	76.0	1.9	26.9	13.8		61.5
26.1				5.6	2.4	21.5	81.5	2.0	30.2	16.9		55.7
41.1				6.4	3.3	15.6	78.0	2.2	33.8	17.9		67.9

HUMBOLDT SILTY CLAY LOAM
S56Nev-14-4

Collectors: J. Kubota, R. De vers, V. Lazar, W. G. Harper, R. Nelson, L. Dunn, and L. N. Langan, July 26, 1956.

Description: J. Kubota and L. N. Langan

Location: 0.5 mile south on Broadway from the SCS Office, Lovelock, Pershing County, Nevada, south on Meridan Road 2.4 miles, west on Meadow Road 0.9 mile, S 50 paces to site located on the Gaillard Ranch. The owner is a cooperator with the Big Meadow SCD. The site is located approximately 525 feet east and 150 feet south of the apparent northwest sec. corner of sec. 10 in the NW1/4 NW1/4, sec. 10, T26N, R31E. See aerial photography number DED-3-49 for precise location.

Elevation: Approximately 3985 feet.

Use: The field is presently in alfalfa and is in rotation with small grains.

Topography: Level flood plain of the Humboldt River.

Vegetation: The native vegetation of this site prior to the diversion of water for irrigation was a lush growth of native grasses and sedges. During this period the Humboldt River normally overflowed its banks during the runoff period and irrigated the meadows on these sites.

Drainage: Imperfectly; surface drainage is very slow and the internal drainage is medium to the water table. The soil normally has a moderately slow permeability. A water table was found at 61 inches.

Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rocks among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate.

Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° E The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.

Reaction: Measure of free carbonate observed by watching reaction to dilute HCl; pH's determined with thymol blue in a prepared 1:5 dilution.

Classification: Fluventic Haplaquoll, fine, montmorillonitic, calcareous, mesic.

HORIZON

(All colors are those of the moist soil)

Ap 0-6" Very dark gray to black (10YR 3/1 - 2/1) silty clay loam with weak medium subangular blocky breaking to weak fine granular; there is a tendency in the soil of the upper 3 inches to be very weakly platy; very sticky, very plastic, friable, slightly hard; many fine and common medium and coarse fibrous alfalfa roots; highly calcareous; pH 8.4; abrupt wavy boundary.

IIA12 6-8" Very dark gray to very dark grayish brown (10YR 3/1 - 2.5Y 3/2) silty clay loam with few to common fine faint light gray (10YR 6/2) lime stains on some ped faces and along pores; weak to moderate medium subangular blocky breaking to moderate and weak fine subangular blocky structure; sticky, very plastic, firm to friable, very hard to hard; common fine and medium and a few coarse fibrous roots; few medium pores; highly calcareous; pH 8.4; abrupt wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Humboldt silty clay loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Fluventic Haplaquoll, fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56-Nev-14-4 **LAB. NOS.** 56325-56331

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 6	Ap	0.2	0.4	0.4	1.6	3.1	48.8	45.5	12.6	40.4	0	sic
6- 8	IIA12	0.1	0.2	0.6	6.7	10.5	52.2	29.7	29.5	38.4	0	sicl
8-13	IIIA13	0.0	0.1	0.3	2.3	2.8	46.1	48.4	11.4	39.0	0	sic
13-24	IVC1	0.1	0.2	0.1	0.4	0.6	66.1	32.5	11.6	55.4	0	sicl
24-31	VC2	0.2	0.3	0.1	0.3	0.8	75.0	23.3	19.3	56.7	0	sil
31-48	VC3	0.2	0.3	0.2	0.7	4.0	76.9	17.7	42.3	39.1	0	sil
48-53	VIC4	0.1	0.2	0.1	0.3	0.6	62.3	36.4	5.7	57.4	0	sicl

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM ms./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.1		8.6	1.98	0.180	11.3		1.8	5				24.3
8.1		8.7	0.70	0.061	11.5		3.0	4				21.0
7.9		8.7	0.50	0.060	8.3		6.3	3				27.0
7.7		8.4	0.36	0.046	7.8		9.2	8				22.6
7.7		8.6	0.29				8.9	9				17.5
7.7		8.5	0.23				9.6	7				13.9
7.5		8.0	0.44				8.7	4				23.2

5A2a CATION EXCHANGE CAPACITY (-Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6H1a Ca	6O1a Mg	6K1a	8A1 8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
43.8				6.3	5.6	14.4	16.1	1.1	3.6	1.5		66.5
44.1				10.9	6.5	27.4	24.5	1.0	3.0	1.0		48.8
41.3				11.7	4.8	28.3	34.5	1.0	4.6	2.3		70.8
37.5				8.1	3.0	21.6	77.5	1.7	26.3	11.2		68.2
30.2				7.3	2.5	24.2	76.0	1.9	26.9	13.8		61.5
26.1				5.6	2.4	21.5	81.5	2.0	30.2	16.9		55.7
41.1				6.4	3.3	15.6	78.0	2.2	33.8	17.9		67.9

IIIA13 8-13" Black to very dark gray (10YR 2/1 - 3/1) heavy silty clay loam with weak medium subangular blocky breaking to a mixture of weak medium to fine subangular blocky and weak medium to fine granular structure; very sticky, very plastic, firm, hard to very hard; many fine common medium and few coarse fibrous roots; few fine pores; strongly calcareous; pH 8.2; clear smooth boundary.

IVC1 13-24" Dark grayish brown (10YR 4/2 - 2.5Y 4/2) light silty clay loam with black and very dark brown (10YR 2/1 and 2/2) organic stains coat the vertical and some horizontal ped faces; few fine distinct dark reddish brown (5YR 3/3) mottles in ped interiors; few fine distinct light brownish gray (10YR 6/2) lime streaks; structure is very weak medium prismatic, some of which break to weak fine subangular blocky; sticky, plastic, friable to firm, hard; common fine and medium and few coarse fibrous roots; few fine and medium pores in ped interiors; clay skins, very dark gray (10YR 3/1) in color, in fine pores and root channels; highly calcareous; pH 8.4; clear smooth boundary.

VC2 24-31" Dark grayish brown (2.5Y 4/2) silty clay loam with few to common fine (1/16 to 1/8 inch) and few fine (1/4 inch) firm lime nodules; common light brownish gray (10YR 6/2) lime seams; soil massive in place, when removed tends to break to weak medium subangular blocky, some of which break to weak fine subangular blocky structure; very sticky, very plastic, friable, hard; common fine and a few medium and coarse fibrous roots; peds have few medium pores and root channels which are stained black to very dark gray (10YR 2/1 - 3/1); the black is probably organic matter and the very dark gray is probably clay skins; clay skins on some ped faces; few fine distinct dark brown (10YR 3/3) mottles in ped interiors; strongly calcareous; pH 8.4; clear smooth boundary.

VC3 31-48" Dark grayish brown to gray brown (2.5Y 4/2 - 5/2) light silty clay loam or loam with common light brownish gray (10YR 6/2) lime seams and few fine faint dark brown (10YR 3/3) mottles along cracks; soil is massive; very plastic, very sticky, friable, hard; common fine and a few medium fibrous roots; many fine and medium pores and root channels which are stained very dark brown (10YR 2/2); clay skins continuous in many root channels and are colored very dark gray (10YR 3/1); no lime nodules; strongly calcareous; pH 8.4; abrupt smooth boundary; there are a few small pockets of very dark gray brown (10YR 3/2 - 2.5Y 3/2) like soil in horizon below.

VIC4 48-53" Stratified horizon of material from above and below.

VIC5 53-61" Very dark gray brown (10YR 3/2 - 2.5Y 3/2) silty clay loam with a few black to dark brown (10YR 2/1 - 2/2) stains on some ped faces
(not sampled) and a few fine faint dark brown (10YR 2/2) stains on ped faces and root channels; massive in place when removed tends to break to weak medium subangular blocky breaking to weak fine medium subangular blocky structure; very sticky, very plastic, friable, hard; common fine and medium fibrous roots; common fine and medium pores; clay skins thick on some ped faces and continuous in fine pores and root channels; noncalcareous; pH 8.2; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Pershing County, Nevada

SOIL FAMILY: Vertic Haplaquoll, fine, montmorillonitic, calcareous, mesic (Ryepatch taxadjunct)

SURVEY NOS. S56-Nev-14-8 **LAB. NOS.** 56354 - 56361

DEPTH INCHES	HORIZON	3A1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0-10	Ap	0.3	0.8	0.9	3.4	3.9	35.7	55.0	14.0	27.9	0	c
10-24	A12	0.2	0.7	0.7	2.5	3.1	37.0	55.8	12.6	29.2	0	c
24-29	IIC1	0.1	0.0	0.1	0.2	0.5	57.6	41.5	7.7	50.5	0	sic
29-38	IIIC2	0.0	0.0	0.0	0.4	3.2	31.5	64.9	6.6	28.4	0	c
38-40	IIIC3g	0.0	0.1	0.0	0.2	0.5	37.4	61.8	3.8	34.2	0	c
40-55	IIIA1b	0.0	0.1	0.1	1.8	6.9	27.6	63.5	18.8	17.3	0	c
55-62	IVG4	0.0	0.1	0.2	2.9	8.0	36.6	52.2	28.2	18.7	0	c
62-72+	IVC5g	0.1	0.1	0.4	3.7	5.4	43.2	47.1	19.0	32.5	0	sic

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.8		8.2	3.19	0.253	12.6		1.8	3				28.9
7.7		8.3	2.28	0.161	14.2		2.2	1				29.9
7.7		8.4	0.67	0.064	10.5		3.6	Tr				27.2
7.6		8.2	1.16	0.070	16.6		5.8	Tr				34.5
7.5		7.9	1.14	0.067	17.0		-	Tr				33.1
7.4		7.8	0.97	0.072	13.5		6.4	Tr				30.8
7.3		7.8	0.30				7.7	Tr				26.4
7.2		7.5	0.22				9.8	Tr	1.8			25.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
49.8				3.5	4.6	7.0	11.6	0.7	4.6	2.1		77.7
48.5				8.2	3.7	16.9	17.9	0.4	2.7	1.2		77.6
37.3				10.3	2.7	27.6	30.0	0.5	3.5	0.6		77.5
45.5				13.3	3.3	29.2	48.5	0.6	6.0	2.3		92.7
42.9												
40.2				8.1	3.2	20.1	47.5	0.2	12.3	4.2		84.0
37.2				5.7	2.8	15.3	47.0	1.4	22.7	7.1		77.8
37.9				6.1	2.8	16.0	60.0	1.6	35.4	11.5		73.6

Series not designated 1/
S56Nev-14-8

Location: 0.5 mile south on Broadway from the SCS Office, Lovelock, Pershing County, Nevada, S 4.3 miles on Meridan Road to east-west paved road, W 1 mile to Carpenter Road, S 1.5 miles to ranch access road, west approximately 450 feet, then south approximately 750 feet to site located on the J. Carpenter Ranch. The owner is a cooperator with the Big Meadow SCD. The site is located approximately 450 feet west and 750 feet south of the east 1/4 cor. of section 28 in the NE1/4 SE1/4, section 28, T. 26 N, R 31 E.
Description by: J. Kubota and L. N. Langan. Collectors: J. Kubota, R. Dever, V. Lazar, W. G. Harper, R. Nelson, L. Dunn and L. N. Langan. Date of Sampling: July 18, 1956.
Vegetation: The native vegetation of this site prior to the diversion of water for irrigation was a lush growth of native grasses and sedges. Use: The field is presently in alfalfa and is in rotation with small grains. Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days. Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rock among which limestone, basalt and tuff predominate. Topography: Level floodplain of the Humboldt River. Elevation: Approximately 3975 feet. Drainage: Imperfect. Surface drainage is very slow and the internal drainage is medium to the water table. The soil normally has a slow permeability. A water table was found at 7 feet.
Classification: Vertic Haplaquoll, fine, montmorillonitic, calcareous, mesic (Ryepatch taxadjunct).

HORIZON

A11 RSL No. 56354 — 0 to 10 inches, black (10YR 2/1 - N 2/0) silty clay, with weak medium and coarse subangular blocky which breaks to weak to moderate fine and medium granular structure; very sticky, very plastic, friable, slightly hard to hard except for the surface inch which is soft; many fine medium and coarse fibrous roots; pH 8.2; strongly calcareous; clear smooth boundary.

A12 RSL No. 56355 — 10 to 24 inches, black (10YR 2/1) clay with weak coarse and medium prismatic which breaks to weak to moderate coarse subangular blocky to weak to moderate fine subangular blocky structure; very sticky, very plastic, firm to very firm, hard to very hard; common to many fine and medium fibrous roots; essentially nonporous in ped interiors; common worm casts in pores; clay skins thick and prominent on some ped faces; dark brown (7.5YR 4/4) coats which resemble clay skins in deposition also present on parts of some ped faces; light brownish gray (10YR 6/2) lime coats cover parts of ped faces; pH 8.6; strongly calcareous; clear smooth boundary.

IIC1 RSL No. 56356 — 24 to 29 inches, very dark grayish brown (2.5Y 3/2) clay with moderate coarse subangular blocky which breaks to moderate fine and medium angular blocky structure; very sticky, very plastic, firm to very firm, hard to very hard; common fine and medium fibrous roots; common fine pores in ped interiors; worm casts and a few black streaks which follow old root channels; ped exterior coated with common fine to medium light brownish gray (10YR 6/2) lime streaks and with common fine and medium dark brown (7.5YR 4/4) coats; these dark brown coats resemble clay skins in their occurrence; pH 8.4; strongly calcareous; clear and wavy to irregular boundary.

IIIC2 RSL No. 56357 — 29 to 38 inches, very dark grayish brown to dark olive gray (2.5Y 3/2 - 5Y 3/2) clay with weak medium prismatic which breaks to weak to moderate medium subangular blocky structure; very sticky, very plastic, firm, very hard to hard; common fine and medium fibrous roots; common fine pores in ped interiors; clay skins prominent on some ped faces and are continuous in fine pores and old root channels; light brownish gray (10YR 6/2) lime seams coat part of ped faces; black (2.5Y 2/) carbonaceous material fill some old root channels and coat some ped faces; there are a few fine and medium prominent dark brown (7.5YR 4/4) coatings in some cracks and old root channels; pH 8.6; strongly calcareous; abrupt smooth boundary.

IIIC3g RSL No. 56358 — 38 to 40 inches, dark olive gray to olive gray (5Y 4/2 - 3/2) clay with numerous fine distinct dark brown (7.5YR 4/4) mottles in ped interiors; structure is prismatic some of which breaks to weak fine angular to subangular blocky; very sticky, very plastic, very firm to firm, very hard; common fine and a few medium fibrous roots; peds have wavy fine pores; white streaks of salt (NaCl) follow root channels; a thin black streak at top of horizon is included; pH 8.0; calcareous; smooth and gently wavy boundary.

IIIA1b RSL No. 56359 — 40 to 55 inches, black (5Y 2/1 - 2/2) clay with common fine distinct dark brown (7.5YR 4/4) mottles in ped interiors; structure is weak to moderate medium prismatic which breaks to moderate medium and some fine subangular blocky; very sticky, very plastic, firm, hard to very hard; common fine and medium fibrous roots; peds have many fine and a few medium pores and old root channels; clay skins thick and continuous in pores and old root channels, thick but discontinuous on ped faces; common fine and medium light gray (10YR 7/2) lime seams coat the surfaces of prismatic peds; lime coats also follow fine root channels to ped interiors; abrupt wavy boundary.

IVC4 RSL No. 56360 — 55 to 62 inches, dark grayish brown to olive gray (2.5Y 4/2 - 5Y 4/2) clay with common very fine distinct dark brown (7.5YR 4/4) mottles principally in soil mass; massive structure with few weak medium subangular peds; very sticky, very plastic, firm to friable, hard; common fine and medium fibrous roots; many fine and common medium pores; thick continuous clay skins in pores and are the same color as the soil mass; pH 8.2; noncalcareous; clear smooth boundary.

IVC5g RSL No. 56361 — 62 to 72 inches +, olive gray to olive (5Y 4/2 - 4/3) silty clay loam with few fine distinct dark brown (7.5YR 4/4) mottles on ped faces and few fine faint dark brown (7.5YR 4/4) stains along root channels; massive structure in place, when removed it breaks to very weak medium and fine subangular blocky; slightly sticky, slightly plastic, friable, hard; few fine and medium fibrous roots; clay skins thick and continuous along root channels and faint on some ped faces; clay skins are the same color as the soil mass; pH 8.0; noncalcareous.

1/ The Ryepatch series is in a very fine, montmorillonitic, calcareous, mesic family of Vertic Haplaquolls (see pedon S56Nev-14-7). This pedon contains less than 60 percent clay in the control section.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Ryepatch silty clay **LOCATION** Pershing County, Nevada

SOIL FAMILY: Vertic Haplaquoll, very fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56-Nev-14-7 **LAB. NOS.** 56345 - 56353

DEPTH INCHES	HORIZON	1B1b VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
		PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)										
0-10	Ap11	0.5	0.9	0.9	3.3	4.3	31.4	58.7	13.4	24.3	0	c
10-21	IIA12	0.0	0.1	0.2	0.8	1.3	20.8	76.8	5.3	17.4	0	c
21-25	IIC1	0.0	0.0	0.0	0.2	0.5	19.5	79.8	1.0	19.1	0	c
25-39	IIA1b1	0.0	0.1	0.1	0.9	1.6	21.2	76.1	5.8	17.6	0	c
39-42	IIIC2	Not sampled										
42-49	IVA1b2	0.1	0.6	1.1	4.1	9.0	45.1	40.0	26.0	31.0	0	sic
49-54	VA1b3	0.0	0.1	0.1	0.6	1.6	16.4	81.2	6.7	11.7	0	c
54-56	VIC3	Not sampled										
56-65+	VIIC4g	0.1	0.1	0.2	1.0	2.2	23.3	73.1	7.8	18.4	0	c

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.6		8.3	3.26	0.309	10.6		2.4	1				30.6
7.5		8.0	2.04	0.148	13.8		2.2	Tr				37.6
7.5		8.0	1.11	0.071	15.6		2.0	Tr				36.2
7.4		7.9	1.51	0.100	15.1		3.7	Tr				37.3
		Not sampled										
7.3		7.8	0.94	0.118	8.0		6.9	Tr				28.9
7.1		7.5	0.95	0.053	17.9		9.3	Tr				36.1
		Not sampled										
7.1		7.4	0.61	0.045	13.6		15.0	Tr	2.9			33.6

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
54.0				8.1	4.9	15.0	15.8	1.2	8.4*			82.9
51.8				8.0	3.1	15.4	15.8	4.3	4.3*			94.4
51.3				8.3	2.7	16.2	15.5	0.3	1.2	0.3		97.5
49.1				7.7	3.0	11.2	27.5	0.6	6.3	2.5		103.4
Not sampled												
39.8				5.5	2.5	13.8	45.0	0.7	19.6	8.1		98.7
47.2				6.4	2.9	13.6	51.5	1.2	31.1	12.3		107.8
Not sampled												
41.4				4.0	2.8	9.7	110.0	1.9	58.6	23.6		99.6

* Ca + Mg

RYEPATCH SILTY CLAY LOAM
S56Nev-14-7

Location: 0.5 mile south on Broadway from the SCS Office, Lovelock, Pershing County, Nevada, S 6.75 miles on Meridan Road to end of pavement; west on paved east-west road 0.45 mile; south along drain ditch bank 0.1 mile; W 25 paces to site located on the Sanford-Biltz Ranch. The owner and leasor are cooperators with the Big Meadow SCD. The site is located approximately 530 feet south, 250 feet east of the N 1/4 corner of section 3 in the NW1/4 NE1/4, section 3, T 25 N, R 31 E.

Description by: J. Kubota and L. N. Langan. Collectors: J. Kubota, R. Dever, V. Lazar, W. G. Harper, R. Nelson, L. Dunn and L. N. Langan Date of Sampling: July 17, 1956.

Classification: Vertic Haplaquoll, very fine, montmorillonitic, calcareous, mesic.

Vegetation: The native vegetation of this site prior to the diversion of water for irrigation was a lush growth of native grasses and sedges. Use: The field is presently in alfalfa and is in rotation with small grains. Normally three cuttings are made annually. The hay is usually sold and the stubble is pastured during the fall months. Very little feeding is done on the ranch.

Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105° F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days. Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rock among which limestone, basalt, and tuff predominate. Topography: Level flood plain of the Humboldt River. Elevation: Approximately 3970 feet. Drainage: Imperfect. Surface drainage is very slow and the internal drainage is medium to the water table. The soil normally has a slow permeability. No water table was found during the time of sampling.

HORIZON

Ap11 RSL No. 56345 — 0 to 10 inches, black to very dark brown (10YR 2/1 - 2/2) silty clay loam with weak medium subangular blocky breaking to moderate fine and medium granular structure; the surface 3-4" has a tendency to break to clods which break horizontally to coarse plates; slightly sticky, slightly plastic, friable, slightly hard; many fine and common medium fibrous roots; few fine old root channels; strongly calcareous; pH 8.6; abrupt smooth boundary.

IIA12 RSL No. 56346 — 10 to 21 inches, black (10YR 2/1) clay with moderate medium subangular blocky breaking to moderate to strong fine subangular and angular blocky structure; very sticky, very plastic, firm, hard; many fine and few medium and coarse fibrous roots; clay skins around ped faces; ped interiors have a few fine dark brown mottles; calcareous; pH 8.4; a faint discontinuous layer of black loam is included which contains common very fine dark yellowish brown (10YR 4/4) firm, noncalcareous aggregates; abrupt smooth boundary.

IIC1 RSL No. 56347 — 21 to 25 inches, very dark grayish brown to olive gray (2.5Y 3/2 - 5Y 3/2) clay with some fine thin black (10YR 2/1) streaks; weak medium to fine subangular blocky to prismatic breaking to moderate fine and medium angular and subangular blocky structure; very sticky, very plastic, firm, hard; many fine and common medium fibrous roots; few fine and medium pores; thick continuous clay skins; pH 8.4; calcareous; abrupt smooth boundary.

IVA1b2 RSL No. 56348 — 25 to 39 inches, black (10YR 2/1 - N 2/) clay with common fine faint olive brown (2.5Y 4/4) mottles and common very fine faint dark brown (2.5YR 4/4) mottles in ped interiors; when dry there are many very fine white seams which are probably salts and lime; structure is weak to mderate medium prismatic which breaks to moderate medium and few fine subangular blocky; very sticky, very plastic, firm, hard; many fine and a few medium fibrous roots; thick continuous clay skins; pH 8.4; calcareous; smooth and irregular boundary.

IIIC2 RSL No. 56349 (not sampled) — 39 to 42 inches, horizon of mixed colors and textures; light olive brown (2.5Y 5/4) to black to very dark grayish brown (10YR 2/1 - 3/2) silty clay loam to silt loam with massive structure; very plastic to plastic, sticky to very sticky, friable, hard; many fine fibrous roots; common fine pores and old root channels; clay skins on pore and root channel surfaces; common extremely fine firm very pale brown (10YR 7/3) noncalcareous aggregates; pH 8.0; calcareous; abrupt and irregular to wavy boundary.

IVA1b2 RSL No. 56350 — 42 to 49 inches, black to very dark brown (10YR 2/1 - 2/2) mucky very fine sandy loam with massive breaking to weak medium prismatic structure; slightly sticky, slightly plastic, friable, slightly hard; common fine and a few medium fibrous roots; many fine and common medium pores and old root channels; pH 8.4; calcareous; abrupt smooth boundary.

VA1b3 RSL No. 56351 — 49 to 54 inches, black (5Y 2/1) (sample slightly browner) clay with numerous very fine faint dark brown (7.5YR 4/4) mottles; moderate to strong medium subangular blocky structure, some of which break to moderate to strong subangular and angular blocky structure; very sticky, very plastic, firm, hard; common fine fibrous roots; common fine and few medium pores and few old root channels; clay skins are thick and continuous on ped faces; pH 8.0; noncalcareous; abrupt and irregular boundary.

VIC3 RSL No. 56352 — 54 to 56 inches, dark yellowish brown to yellowish brown (10YR 3/4 - 4/4) gritty silt loam which is structureless; slightly sticky, nonplastic, friable, soft; pH 8.2; noncalcareous; horizon is highly irregular and almost discontinuous.

VIIC4g RSL No. 56353 — 56 to 65 inches, clay that ranges in color from olive gray (5Y 4/2) at top of horizon to very dark grayish brown to dark olive gray (2.5Y 3/2 - 5Y 3/2) with few fine faint dark brown (7.5YR 4/4) stains along old root channels and in ped interiors; weak medium subangular blocky that breaks to weak to moderate fine subangular to angular blocky structure; very sticky, very plastic, firm, hard; many very fine and medium fibrous roots; few fine and medium pores and root channels; clay skins thick and continuous on ped surfaces; pH 8.0; calcareous; abrupt smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Ryepatch silty clay **LOCATION** Pershing County, Nevada

SOIL FAMILY: Vertic Haplaquoll, very fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S61Nev-14-3 **LAB. NOS.** 61582 - 61588

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-10	Ap	0.4	0.7	1.1	3.1	4.3	30.4	60.0	12.2	24.5	0	c
10-21	IIA12	0.0	0.1	0.1	0.5	1.2	19.2	78.9	4.3	15.5	0	c
21-25	IIC1g	0.0	0.1	0.0	0.2	0.3	18.9	80.5	0.8	18.5	0	c
25-40	IIA1b1	0.0	0.1	0.0	0.3	1.2	17.0	81.4	4.2	14.2	0	c
40-43	IIIC2 *	0.3	2.2	2.9	6.5	8.0	41.4	38.7	22.8	30.6	0	
43-52	IVA1b2	0.0	0.1	0.1	0.7	2.5	19.0	77.6	8.4	13.6	0	
52-54	VC3 *	0.5	4.4	5.9	12.1	8.3	28.4	40.4	24.7	19.2	0	

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC MATTER ORGANIC CARBON %	6B1a NITROGEN %	C/N	6P1a SATURATION EXTRACT SOLUBLE 8A Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^=$	6J1a HCO_3^-
						← milliequivalents per liter →						
7.5		8.5	2.96	0.244	12	15.9	0.9	5.5	2.6	9.8	0.2	11.7
7.3		8.3	2.41	0.145	17	11.7	0.4	2.5	1.5	8.6	-	4.5
7.5		8.5	1.06	0.071	15	13.4	0.2	1.8	1.4	9.8	-	4.2
7.5		8.5	1.73	0.111	16	16.8	0.3	2.4	1.2	12.6	-	3.9
7.5		8.5	0.77	0.127	6	27.0	0.4	6.5	2.2	22.4	-	3.9
7.4		8.4	0.93	0.072	13	21.6	0.5	3.4	2.1	17.0	-	2.7
7.4		8.3	0.41	0.065	6	30.4	0.6	6.8	3.6	26.5	tr.	3.2

5A2a CATION EXCHANGE CAPACITY ← Na)	EXTRACTABLE CATIONS 5B 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a →	5C3 Exch. Na %	Ext. Iron % Fe 6C1a	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil											
57.4	43.8	10.6	1.5	5.3	4.9	9	0.1	2.27	1		32.6	88.2
57.9	39.2	33.5	2.2	7.2	3.1	12	0.1	1.59	tr.		41.7	100.6
55.5	37.0	43.8	1.8	9.5	2.7	17	0.2	1.75	tr.		38.2	98.5
55.4	33.9	13.8	1.8	10.7	2.8	19	0.1	2.13	tr.		40.6	98.3
45.7	30.3	8.3	1.5	11.0	2.7	24	0.1	3.37	1		31.4	99.6
52.2	28.7	9.5	1.5	10.2	2.8	20	0.1	2.68	tr.		37.9	100.7
53.8	30.9	9.8	2.5	12.0	3.3	22	0.1	4.25	tr.		29.6	84.1

* Incompletely dispersed, sand in these horizons includes some aggregated silt and clay.

\+ Includes cations from carbonates.

RYEPATCH SILTY CLAY LOAM
S61Nev-14-3

Location: Approximately 530 feet south and 75 feet east of the north quarter corner of section 3, T. 25 N., R. 31 E., Mount Diablo Base and Meridian, Pershing County, Nevada, on the Sanford-Biltz Ranch. Date of Sampling: August 6, 1961.
Samples Collected By: L. N. Langan and R. E. Nelson. Description By: L. N. Langan.
Classification: **Vertic Haplaquoll, very fine, montmorillonitic, calcareous, mesic.**
Vegetation: Alfalfa. Use: Cultivated cropland that is presently in alfalfa in a rotation with small grains. During most years three cuttings of alfalfa are made annually. Climate: Semi-arid continental climate with cold, moist winters and warm, dry summers; an average precipitation of approximately 4 inches which comes primarily during the winter months; a mean annual temperature of 52°F. with a mean during July of 77°F. and a mean during January of 28°F. Relative humidity is low, evaporation is high, and the range of temperature wide. The growing season is approximately 120 days. Parent Material: Mixed calcareous clayey alluvium derived from limestone, basalt, tuffs, and reworked fine textured alluvial and lacustrine deposits. Relief: Smooth, nearly level with a slope gradient of less than 0.5 percent. Physiography: Alluvial floodplain of the Humboldt River. Drainage: Imperfectly drained; very slow runoff; medium internal drainage above the water table; slow permeability. No water table was found during the time of sampling. It is estimated that the water table will be at a depth of approximately 8 feet. A deep (10 foot) drainage ditch is within 75 feet of the site.
Remarks: Effervescence obtained by observing reaction to dilute HCl. pH determined with thymol blue in a prepared 1:5 dilution. This profile was not paired.

HORIZON

Ap RSL No. 61582	0 to 10 inches, dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) when moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; abundant very fine and plentiful fine roots; few fine old root channels; strongly effervescent; pH 8.6; abrupt smooth boundary.
IIA12 RSL No. 61583	10 to 21 inches, dark gray (10YR 4/1) clay, black (10YR 2/1) when moist; moderate medium subangular blocky structure; hard, firm, very sticky, very plastic; plentiful very fine and fine, and few medium roots; many very fine and fine tubular pores; a thin broken 1 inch strata of black (10YR 2/1) and dark brown (10YR 4/3) loam is included in the sample; mildly effervescent; pH 8.4; abrupt smooth boundary.
IIC1g RSL No. 61584	21 to 25 inches, olive gray (5Y 3/2, when moist) clay with common fine black (10YR 2/1) organic streaks; moderate fine and medium subangular and angular blocky structure; hard, firm, very sticky, very plastic; plentiful very fine and fine, few medium roots; common very fine and fine tubular pores; mildly effervescent; pH 8.4; abrupt smooth boundary.
IIA1b1 RSL No. 61585	25 to 40 inches, black (10YR 2/1, when moist) clay with common fine faint olive brown (2.5Y 4/4) mottles and few very fine faint white (10YR 8/2) lime mottles; weak medium prismatic breaking to moderate medium and fine subangular blocky structure; hard, firm, very sticky, very plastic; abundant very fine, plentiful fine, and few medium roots; a thin 1 inch very dark gray (5Y 4/1) clay strata is included in this horizon; mildly effervescent; pH 8.4; clear irregular boundary.
IIIC2 RSL No. 61586	40 to 43 inches, horizon of mixed colors and textures; light olive brown (2.5Y 5/4, moist) silty clay loam and black (10YR 2/1, moist) silt loam with common very fine firm very pale brown (10YR 7/3) aggregates; massive; hard, friable, very sticky and sticky, very plastic and plastic; abundant very fine roots; common fine tubular pores; mildly effervescent; pH 8.0; abrupt wavy boundary.
IVA1b2 RSL No. 61587	43 to 52 inches, black (5Y 2/1, moist) clay with many coarse faint dark brown (10YR 4/3) mottles; moderate medium subangular and angular blocky structure; hard, firm, very sticky, very plastic; plentiful very fine roots; common very fine and few fine tubular pores; noneffervescent; pH 8.0; abrupt irregular boundary.
VC3 RSL No. 61588	52 to 42 inches, dark yellowish brown (10YR 3/4, moist) gritty silt loam; massive; soft, very friable, slightly sticky, nonplastic; few very fine roots; common very fine and fine interstitial pores; noneffervescent; pH 8.2.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Carson clay **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Vertic Haplaquoll, very fine, montmorillonitic, noncalcareous, mesic

SURVEY NOS S59Nev-1-2 **LAB. NOS.** 59175 - 59180

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.4	0.3	0.3	2.6	5.3	26.4	64.7	12.4	21.3	0	c
7-17	A12	0.3	0.4	0.3	2.7	5.4	26.4	64.5	12.0	21.9	0	c
17-27	C1g	0.1	0.1	0.2	2.1	6.4	25.8	65.3	13.3	20.7	0	c
27-34	C2g	0.0	0.1	0.1	1.9	7.2	23.5	67.2	13.3	19.0	0	c
34-50	C3g	0.0	0.1	0.1	1.6	6.7	20.8	70.7	13.0	15.8	0	c
50-64+	IIC4	0.0	0.1	0.1	1.1	4.5	16.0	78.2	9.3	12.1	0	c

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.5	-	8.5	0.93	0.072	12.9	4.2	4.4	Tr				27.1
7.4	-	8.1	0.87	0.067	13.0	3.6	6.0	Tr	1.27			27.9
7.1	-	7.6	0.56	0.037	15.1	2.4	8.6	Tr	1.45			27.5
6.9	-	7.5	0.47	0.031	15.2	1.6	11.1	Tr	1.41			28.3
7.2	-	8.0	0.48	0.032	15.0	2.3	11.5	Tr	1.46			29.5
7.3	-	8.3	0.42	0.027	15.6	2.4	9.7	Tr				30.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
44.6				1.3	2.1	3	30.0	0.5	13.6	2.6	3.1	87.6
45.5				6.2	2.0	14	41.9	0.6	27.8	7.7	11.4	85.2
45.1				6.1	1.7	14	59.7	0.7	31.9	15.9	40.5	88.1
46.7				6.0	1.8	13	66.9	0.8	38.1	24.2	84.2	85.8
46.8				7.4	2.0	16	66.9	0.9	37.5	21.6	84.7	85.3
51.7				9.9	2.1	19	64.4	0.8	16.5	9.5	55.6	92.6

* Saturation extract soluble - milliequivalents per liter.

CARSON CLAY
S59Nev-1-2

Description: L. N. Langan and M. A. Townsend.
Collectors: R. E. Nelson, L. N. Langan, M. A. Townsend. Sampled: March 1959.
Location: Charles F. McCuskey ranch (old Show place), approximately 1 mile south and 0.5 mile west of Stillwater, Nevada. The site is located approximately 500' W. and 100' N. of SE corner of sec. 13, T19N, R30E. Fallon-Fernley area, Churchill County, Nevada. The site is located approximately 250' from the Stillwater Slough.
Elevation: Approximately 3900 feet.
Relief: Smooth (leveled to irrigate).
Use: The field is used in an alfalfa-grain rotation.
Vegetation: Alfalfa.
Drainage: Imperfectly drained. Runoff is very slow, internal drainage is very slow, permeability is very slow. Soil originally formed under poorly drained conditions. With diversion of irrigation water and artificial drainage this soil is now imperfectly drained.
Parent Material: Mixed clayey alluvium derived predominantly from granite, basalt, rhyolite, and fine-textured lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F., and the average July temperature is 72.9° F. with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Other Features: There is usually a strong saline-alkali condition present in these soils. With artificial drainage and irrigation this condition can be improved. However, irrigation, drainage, and reclamation are difficult due to very slow permeability. Perched water tables are often caused by over-irrigation.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pH determined using thymol blue.
Classification: Vertic Haplaquoll, very fine, montmorillonitic, noncalcareous, mesic.

Riverside Lab. Nos.
59175 through 59180

Ap	0-7	Gray (10YR 5/1) clay, very dark gray (10YR 3/1) when moist; moderate coarse columnar breaking to strong coarse subangular blocky structure; hard to very hard, firm, very sticky and very plastic; abundant fine roots; many fine pores; slightly calcareous; strongly alkaline (pH 8.9); clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Carson clay **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Vertic Haplaquoll, very fine, montmorillonitic, noncalcareous, mesic

SURVEY NOS S59Nev-1-2 **LAB. NOS.** 59175 - 59180

DEPTH INCHES	HORIZON	1E1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-7	Ap	0.4	0.3	0.3	2.6	5.3	26.4	64.7	12.4	21.3	0	c
7-17	A12	0.3	0.4	0.3	2.7	5.4	26.4	64.5	12.0	21.9	0	c
17-27	C1g	0.1	0.1	0.2	2.1	6.4	25.8	65.3	13.3	20.7	0	c
27-34	C2g	0.0	0.1	0.1	1.9	7.2	23.5	67.2	13.3	19.0	0	c
34-50	C3g	0.0	0.1	0.1	1.6	6.7	20.8	70.7	13.0	15.8	0	c
50-64+	IIC4	0.0	0.1	0.1	1.1	4.5	16.0	78.2	9.3	12.1	0	c

8C1b pH SATURATED PASTE 1:1	6I1a CO3 * meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO3 * meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b CaCO3 equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.5		8.5	0.93	0.072	12.9	4.2	4.4	Tr				27.1
7.4	-	8.1	0.87	0.067	13.0	3.6	6.0	Tr	1.27			27.9
7.1	-	7.6	0.56	0.037	15.1	2.4	8.6	Tr	1.45			27.5
6.9	-	7.5	0.47	0.031	15.2	1.6	11.1	Tr	1.41			28.3
7.2	-	8.0	0.48	0.032	15.0	2.3	11.5	Tr	1.46			29.5
7.3	-	8.3	0.42	0.027	15.6	2.4	9.7	Tr				30.3

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
44.6				1.3	2.1	3	30.0	0.5	13.6	2.6	3.1	87.6
45.5				6.2	2.0	14	41.9	0.6	27.8	7.7	11.4	85.2
45.1				6.1	1.7	14	59.7	0.7	31.9	15.9	40.5	88.1
46.7				6.0	1.8	13	66.9	0.8	38.1	24.2	84.2	85.8
46.8				7.4	2.0	16	66.9	0.9	37.5	21.6	84.7	85.3
51.7				9.9	2.1	19	64.4	0.8	16.5	9.5	55.6	92.6

* Saturation extract soluble - milliequivalents per liter.

A12	7-17"	Very dark gray (2.5Y 3/1, when moist) clay with common fine distinct black (10YR 2/1) organic mottles, common coarse prominent and common medium distinct white (10YR 8/1) gypsum(?) mottles; weak coarse subangular blocky structure, hard, firm to friable, very sticky and very plastic; plentiful fine roots; common fine pores; slightly calcareous in spots; strongly alkaline (pH 8.6); clear wavy boundary.
C1g	17-27"	Very dark gray (5Y 3/1, when moist) clay with common medium prominent dark reddish brown (5YR 3/3) iron mottles, common coarse prominent white (10YR 8/1) gypsum (?); weak medium and fine subangular blocky structure; hard, firm, very sticky and very plastic; few medium roots; plentiful fine and medium dead roots; few very fine pores; noncalcareous; moderately alkaline (pH 8.4); clear wavy boundary.
C2g	27-34"	Very dark gray (5Y 3/1, when moist) clay with many medium prominent dark reddish brown (5YR 3/3) iron mottles, few medium and coarse distinct black (10YR 2/1) organic mottles, common fine and medium prominent white (10YR 8/1) gypsum (?) mottles; massive breaking to weak medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; plentiful fine and medium dead roots along cleavage; very few fine pores; noncalcareous; moderately alkaline (pH 8.2); clear wavy boundary.
C3g	34-50"	Very dark gray (5Y 3/1, when moist) clay with many fine prominent dark brown (7.5 YR 3/2) iron mottles and common fine distinct, black (10YR 2/1) organic mottles; massive, breaking to weak medium subangular blocky structure; hard, firm, very sticky and very plastic; few fine mostly dead roots along cleavage; few very fine pores; many unoriented slickensides; noncalcareous; moderately alkaline (pH 8.0); clear wavy boundary.
IIC4	50-64"+	Olive gray (5Y 4/2, when moist) clay with many medium and coarse prominent yellowish brown (10YR 5/6) iron mottles, many coarse prominent black (10YR 2/1) organic mottles, and few coarse prominent very pale brown (10YR 8/3) gypsum (?) mottles; massive breaking to weak medium and coarse subangular blocky structure; hard, firm, very sticky and very plastic; few fine dead roots along cleavage; very few fine pores; many unoriented slickensides; noncalcareous; moderately alkaline (pH 8.2).

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toy silty clay loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Vertic Natraquoll, very fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56-Nev-14-5 **LAB. NOS.** 56332 - 56337

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-9	Ap1	0.7	0.9	0.8	3.3	5.3	50.4	38.6	22.4	35.5	0	sicl
9-22	B21t	0.7	1.3	0.7	1.7	3.0	29.6	63.0	12.6	21.0	0	c
22-32	B22t	3.4	2.0	0.8	1.4	0.9	31.6	59.9	4.5	28.8	3	c
32-42	C1	1.6	0.6	0.2	0.2	0.1	48.8	48.5	2.1	46.9	4	sic
42-54	C2	0.9	0.6	0.1	0.2	0.4	40.2	57.6	2.4	38.3	3	sic
54-62	IIC3	0.7	0.3	0.1	0.6	1.7	24.4	72.2	7.6	18.9	2	c

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.5		9.3	2.86	0.220	13.0		5.7	15				24.0
8.4		9.3	0.96	0.063	15.2		7.0	8				34.3
8.3		9.1	0.65	0.045	14.8		6.5	8				32.2
8.2		8.8	0.42	0.044	9.5		7.6	4				32.6
8.1		8.7	0.44	0.044	10.0		7.7	2				35.5
8.0		8.3	0.76	0.056	13.6		7.2	1				38.0

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
41.6				19.1	7.5	45.9	58.5	2.2	1.9	1.0		66.3
45.3				27.7	5.0	61.1	72.5	1.0	1.2	0.6		125.0
42.2				26.8	4.4	63.5	60.5	0.8	0.8	0.7		114.6
41.8				24.2	3.9	57.8	70.5	0.8	1.2	1.0		93.1
42.4				26.9	3.8	63.4	66.0	0.6	1.4	1.4		100.5
47.4				23.4	3.7	49.4	70.0	0.6	1.4	1.4		108.0

1/ Percent of the whole soil.

TOY SILTY CLAY LOAM
S56Nev-14-5

Location: Pershing County, Nevada. 0.5 mile south on Broadway from the SCS office, Lovelock; S 5.8 miles on Meridan Road, E 0.55 mile on ranch access road between the Nevada Nile and Janse Investment Co. ranches, N 0.07 mile in the field and E 0.05 mile to the site located on the Nevada Nile ranch. The owner is a cooperator with the Big Meadow SCD. The site is located approximately 780 feet E and 370 feet N of the apparent S1/4 corner of sec. 26 in the SW1/4 SE1/4, sec. 26, T. 26 N., R. 31 E. Date of sampling: July 17, 1956.
Description by: J. Kubota and L. N. Langan. Collectors: J. Kubota, R. Devers, V. Lazar, W. G. Harper, R. Nelson, L. Dunn, and L. N. Langan.
Classification: Vertic Natraquoll, very fine, montmorillonitic, calcareous, mesic.
Vegetation: The native vegetation of this site was probably a sparse stand of greasewood, saltgrass , bassia and iodine bush. Use: The field is presently in tall wheatgrass. The field is pastured in a regular rotation with other tall wheatgrass pastures located on the Nevada Nile. The stand is extremely poor and contains many barren areas and small areas of saltgrass. At least one-half of the stand has died out from a lack of water as a result of a 2-year drought period. Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° E withmean high during July of 77°E and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperature wide (105°F. high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days. Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rock among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate. This soil was laid down by slow moving waters or in shallow lake bottoms. They have recently developed weak Solonetzic B horizons. Topography: Level floodplain of the Humboldt River. Elevation: Approxi- 3975 feet. Drainage: Imperfectly. Surface drainage is very slow and the internal drainage is very slow. The soil normally without a severe alkali condition would have a slow permeability. A water table was found at 85 inches during the time of sampling. Artificial drainage has been provided for these soils to assist in reclamation. Reaction: Measure of free carbonate observed by watching reaction to dilute HCl; pH's determined with thymol blue in a prepared 1:5 dilution. Other Features: This soil has a severe saline and alkali condition. The degree of development of the B horizons is variable within the mapping unit.

HORIZON	(All colors are those of the moist soil)
Ap RSL 56332	0 to 9 inches, black to very dark brown (10YR 2/1 - 2/2) silty clay loam with some strong subangular peds underlain by moderate to strong medium subangular blocky breaking to moderate to strong fine subangular blocky structure; very sticky, very plastic, firm, very hard; many fine fibrous roots; highly calcareous; pH 9.6; abrupt smooth boundary.
B21t RSL 56333	9 to 22 inches, black (10YR 2/1) clay with many fine medium and coarse faint dark brown (10YR 3/3) mottles which occur principally along ped faces; moderate to strong medium prismatic breaking to strong fine angular to subangular blocky structure; very sticky, very plastic, firm, very hard; common fine fibrous roots, no pores observed; highly calcareous; pH 9.4; boundary arbitrary.
B22t RSL 56334	22 to 32 inches, same as horizon above except lower boundary clear and smooth.
C1 RSL 56335	32 to 42 inches, very dark grayish brown (2.5Y 3/2 - 10YR 3/2) clay with moderate coarse prismatic to subangular blocky breaking to moderate to strong fine subangular to angular blocky structure; very sticky, very plastic, firm, very hard; many fine fibrous roots; no pores observed; thick continuous clay skins on ped surfaces; common medium (1/4 - 1/2 inch) firm olive brown (2.5Y 4/4) lime nodules; ped interiors have many fine faint dark yellowish brown (10YR 4/4) iron mottlings; strongly calcareous; pH 8.8; clear smooth boundary.
C2 RSL 56336	42 to 54 inches, very dark grayish brown (10YR 3/2 - 2.5Y 3/2) clay (crushed color about the same) with moderate coarse prismatic to subangular blocky breaking to moderate to strong fine subangular to angular blocky structure (slightly weaker than Cca horizon); very plastic, very sticky, firm, very hard; common fine fibrous roots; no pores observed; clay skins continuous along ped faces; ped interiors have many fine faint dark yellowish brown (10YR 4/4) iron mottlings; no lime nodules; strongly calcareous; pH 8.8: clear smooth boundary.
IIC3 RSL 56337	54 to 62 inches, very dark grayish brown to olive gray (2.5Y 3/2 - 5Y 3/2) clay with common very fine dark yellowish brown (10YR 4/3) firm noncalcareous aggregates; weak medium and coarse subangular blocky breaking to weak to moderate fine angular and subangular blocky structure; very sticky, very plastic, firm, very hard; few fine fibrous roots; few medium old root channels; clay skins patchy and present on some ped faces; calcareous; pH 8.6; abrupt wavy boundary.
IIIA'1	62 to 67 inches, horizon of black (10YR 2/1 - N 2/) very dark grayish brown (10YR 3/2) with black (10YR 2/1) occupying pockets in the lower part of the horizon, and black to very dark brown (10YR 2/1 - 2/2) silty clay loam; massive in place breaking to weak medium and fine granular; sticky, plastic, friable, hard; few fine fibrous roots; many medium old root channels with clay skin linings; few thin clay skins on some ped faces; calcareous; pH 8.4; abrupt irregular wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toy silty clay loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Vertic Natraquoll, very fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56-Nev-14-6 **LAB. NOS.** 56338 - 56344

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-9	Ap	0.3	0.5	0.5	2.3	2.6	36.5	57.3	11.5	28.9	0	c
9-17	B21t	0.3	0.5	0.4	1.1	1.3	31.1	65.3	5.2	27.9	0	c
17-27	B22t	0.1	0.0	0.0	0.4	0.2	37.3	62.0	1.2	36.7	2	c
27-43	IIC1	0.2	0.3	0.3	5.2	12.5	41.7	39.8	28.9	29.7	0	sicl
43-59	IIC2	0.3	0.3	0.1	0.9	2.6	65.4	30.4	23.1	45.6	2	sicl
59-65	IIIC3	0.3	0.1	0.1	0.4	1.1	48.5	49.5	10.8	39.1	0	sic
65-71+	IVC4	0.1	0.1	0.1	0.5	2.5	66.2	30.5	32.6	36.5	0	sicl

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.5		9.2	1.95	0.160	12.2		2.2	7				29.2
7.9		8.5	1.39	0.107	13.0		17.0	5				34.6
7.5		8.0	0.54	0.050	10.8		6.9	1				31.4
7.7		8.5	0.47	0.052	9.0		6.2	2				23.2
7.9		8.8	0.26	0.033	7.9		3.1	6				21.2
7.7		8.6	0.44	0.038	11.6		4.3	3				28.7
7.9		8.8	0.28				4.2	3				20.6

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
46.6				18.5	7.1	39.7	22.5	0.7	1.0	1.0		65.4
47.1				21.1	5.3	44.8	170.0	3.0	15.2	8.1		100.1
46.4				14.1	4.7	30.4	88.5	1.7	11.3	9.5		90.5
37.5				8.9	4.0	23.1	49.0	1.3	5.4	4.8		63.1
34.8				8.4	3.1	24.1	32.0	0.7	2.3	2.5		65.9
39.0				10.7	3.9	27.4	40.3	1.0	3.7	3.1		78.2
33.3				8.6	3.2	25.8	38.8	1.0	3.5	2.9		69.8

1/ Percent of the whole soil.

TOY SILTY CLAY LOAM
S56Nev-14-6

Collectors: J. Kubota, R. Devers, V. Lazar, W. G. Harper, R. Nelson, L. Dunn and L. N. Langan, July 1956.
Description: J. Kubota and L. N. Langan.
Location: 0.5 mile south on Broadway from the SCS Office, Lovelock, Pershing County, Nevada, S 3.8 miles on Meridan Road, E 0.5 mile on the Tule Camp road, N 0.1 mile, E 40 paces to site located on the Nevada Nile Ranch. The owner is a cooperator with the Big Meadow SCD. The site is located approximately 530 feet north and 120 feet east of the S1/4 corner of sec. 14 in the SW1/4 SE1/4, sec. 14, T26N, R31E.

Elevation: Approximately 3985 feet.
Use: The field is presently in tall wheatgrass. The field is pastured in a regular rotation with other tall wheatgrass pastures located on the Nevada Nile. The stand is extremely poor and contains many barren areas and small areas of saltgrass.

Topography: Level flood plain of the Humboldt River.
Vegetation: The native vegetation of this site was probably a sparse stand of greasewood, saltgrass, bassia and iodine bush.
Drainage: Imperfectly. Surface drainage is very slow and the internal drainage is very slow. The soil normally without a severe alkali condition would have a slow permeability. No water table was found during the time of sampling. Artificial drainage has been provided for these soils to assist in reclamation.
Parent Material: Mixed calcareous alluvium derived from a wide variety of parent rock among which limestone, basalt, tuff and reworked fine-textured alluvial and lacustrine deposits predominate.

Climate: The Lovelock area is characterized by a semiarid climate with cold winters and warm summers. The average rainfall is approximately 4 inches which comes primarily during the winter months. The mean annual temperature is 52° F. with mean high during July of 77° F. and a mean low during January of 28° F. The relative humidity is low, evaporation is high and the range of temperatures wide (105° F high and 1° F. low during 1954). Winds of high velocity are not uncommon throughout the year. The growing season is short with a frost-free period of 102 days.
Other Features: This soil has a severe saline and alkali condition. The degree of development of the B horizons is variable within the mapping unit.
Reaction: Measure of free carbonate observed by watching reaction to dilute HCl; pH's determined with thymol blue in a prepared 1:5 dilution.
Classification: Vertic Natraquoll, very fine, montmorillonitic, calcareous, mesic.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Toy silty clay loam **LOCATION** Pershing County, Nevada

SOIL FAMILY: Vertic Natraquoll, very fine, montmorillonitic, calcareous, mesic

SURVEY NOS. S56-Nev-14-6 **LAB. NOS.** 56338 - 56344

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	3A1 2A2 > 2 1/	TEXTURAL CLASS
0-9	Ap	0.3	0.5	0.5	2.3	2.6	36.5	57.3	11.5	28.9	0	c
9-17	B21t	0.3	0.5	0.4	1.1	1.3	31.1	65.3	5.2	27.9	0	c
17-27	B22t	0.1	0.0	0.0	0.4	0.2	37.3	62.0	1.2	36.7	2	c
27-43	IIC1	0.2	0.3	0.3	5.2	12.5	41.7	39.8	28.9	29.7	0	sicl
43-59	IIC2	0.3	0.3	0.1	0.9	2.6	65.4	30.4	23.1	45.6	2	sicl
59-65	IIIC3	0.3	0.1	0.1	0.4	1.1	48.5	49.5	10.8	39.1	0	sic
65-71+	IVC4	0.1	0.1	0.1	0.5	2.5	66.2	30.5	32.6	36.5	0	sicl

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	EST% SALT (BUREAU CUP)	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C	6E1b $CaCO_3$ equivalent %	6F1a GYPSUM me./100g. SOIL	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
8.5		9.2	1.95	0.160	12.2		2.2	7				29.2
7.9		8.5	1.39	0.107	13.0		17.0	5				34.6
7.5		8.0	0.54	0.050	10.8		6.9	1				31.4
7.7		8.5	0.47	0.052	9.0		6.2	2				23.2
7.9		8.8	0.26	0.033	7.9		3.1	6				21.2
7.7		8.6	0.44	0.038	11.6		4.3	3				28.7
7.9		8.8	0.28				4.2	3				20.6

5A2a CATION EXCHANGE CAPACITY ←(Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 Exch. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
46.6				18.5	7.1	39.7	22.5	0.7	1.0	1.0		65.4
47.1				21.1	5.3	44.8	170.0	3.0	15.2	8.1		100.1
46.4				14.1	4.7	30.4	88.5	1.7	11.3	9.5		90.5
37.5				8.9	4.0	23.1	49.0	1.3	5.4	4.8		63.1
34.8				8.4	3.1	24.1	32.0	0.7	2.3	2.5		65.9
39.0				10.7	3.9	27.4	40.3	1.0	3.7	3.1		78.2
33.3				8.6	3.2	25.8	38.8	1.0	3.5	2.9		69.8

1/ Percent of the whole soil.

(All colors are those of the moist soil)

Ap	0- 9"	Black to very dark brown (10YR 2/1 - 2/2) clay with strong medium prismatic structure arranged in three tiers, top tier is most developed and is firm, ped interiors appear to be a mass of very weak granular material; the coarse peds have moderate to strong fine and very fine subangular peds on the lower boundary; very sticky, very plastic, firm, very hard; many fine fibrous roots; no pores observed; few fine faint light brownish gray (10YR 6/2) lime aggregates; highly calcareous; pH 9.4; abrupt smooth boundary.
B21t	9-17"	Black (10YR 2/1) clay with many fine distinct white (10YR 8/1) lime and salt streaks; moderate medium subangular blocky breaking to moderate fine and very fine subangular blocky structure; very sticky, very plastic, firm to friable, hard; many fine fibrous roots; no pores observed; few fine faint dark brown (10YR 3/3) mottles in ped interiors; highly calcareous; pH 8.6; clear smooth boundary.
B22t	17-27"	Very dark grayish brown to black (2.5Y 2/2) clay with common fine faint dark grayish brown (10YR 4/2) lime coats and a few fine faint dark brown (7.5YR 3/3) iron mottles; weak to moderate; medium prismatic breaking to moderate medium and fine prismatic structure; very sticky, very plastic, firm, hard; common fine fibrous roots; few fine pores and common old root channels some of which are filled with lime aggregates; calcareous to strongly calcareous in spots; pH 8.4; clear smooth boundary.
IIC1	27-43"	Very dark grayish brown to black (2.5Y 2/2) silty clay loam with common fine faint dark grayish brown (10YR 4/2) lime coats and a few fine faint dark brown (7.5YR 3/3) iron mottles; weak medium prismatic breaking to weak medium and some fine subangular blocky structure; sticky, plastic, firm, hard; common fine fibrous roots; few fine pores and common old root channels some filled with lime aggregates; strongly calcareous; pH 8.8; abrupt smooth boundary.
IIC2	43-59"	Dark grayish brown to very dark grayish brown (2.5Y 3/2 - 4/2) silty clay loam with common fine distinct white (10YR 7/2) lime aggregates and a few very fine very faint dark brown (10YR 4/4) mottles; soil is massive and firm in place; sticky, plastic, firm, hard; few fine fibrous roots; common medium pores and common old root channels; few fine (1/4-1/2") very firm lime nodules; highly calcareous; pH 9.0; abrupt smooth boundary.
IIIC3	59-65"	Very dark grayish brown (2.5Y 3/2) clay with many fine to medium white (10YR 7/2) lime streaks and a few black (10YR 2/1) vertical streaks along cracking; weak medium subangular blocky breaking to weak fine subangular blocky structure; very sticky, very plastic, firm, very hard; few fine fibrous roots; very few fine pores; clay skins patchy on ped faces; few very fine dark brown mottles in ped interiors; highly calcareous; pH 8.4; abrupt smooth boundary.
IVC4	65-71"+	Very dark grayish brown to dark gray (2.5Y 3/2 - 5Y 3/1) silt loam with very dark brown (10YR 2/2) stains along some root channels; numerous fine and some medium white (10YR 7/2) lime streaks and few fine faint dark brown (7.5YR 3/3) iron mottles, massive in place when removed it breaks to weak medium subangular blocky structure;slightly sticky, slightly plastic, friable, hard; few very fine fibrous roots; few fine pores; highly calcareous; pH 8.4; boundary undertermined.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Hapgood gravelly loam **LOCATION** Washoe County, Nevada

SOIL FAMILY: Pachic Cryoboroll, loamy-skeletal, mixed.

SURVEY NOS. S61Nev-16-2 **LAB. NOS.** 61597 - 61601

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	3A1 0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-3	A11	9.7	8.7	3.3	7.2	3.6	46.1	21.4	18.8	35.0	40	1
3-8	A12	8.6	6.8	3.7	7.9	4.6	46.4	22.0	20.5	35.0	36	1
8-26	A13	7.1	6.1	3.6	8.1	4.5	47.3	23.3	19.9	36.5	33	1
26-36	AC	7.4	6.3	3.6	8.2	4.7	47.1	22.7	20.4	36.1	37	1
36-44+	C1	5.4	5.3	2.8	5.5	4.9	63.2	12.9	21.7	49.7	18	sil

DEPTH INCHES	8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^=$	6J1a HCO_3^-
							← milliequivalents per liter →						
0-3	6.1		6.5	4.47	0.306	15	0.7	1.2	3.0	2.3	0.6	-	5.6
3-8	6.4		6.7	2.18	0.198	11	0.5	0.9	1.9	1.2	0.5	-	3.1
8-26	6.5		7.1	1.54	0.123	12	0.8	0.9	1.2	0.9	0.3	-	2.4
26-36	6.8		7.1	1.16	0.113	10	0.4	0.9	1.3	1.2	0.4	-	2.7
36-44+	6.8		7.1	0.39	0.039	10	0.5	0.5	1.3	0.9	0.4	-	2.1

DEPTH INCHES	5A2a CATION EXCHANGE CAPACITY (Na)	5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5C3 BASE SAT. %	Ext. Iron % Fe 6C1a	8C1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
		EXTRACTABLE CATIONS 5B milliequivalents per 100g. soil →											
0-3	27.3	14.2	3.1	9.1	0.3	2.3	69	1.3	0.64	-		13.6	60.5
3-8	24.5	13.6	2.5	6.7	0.3	2.2	74	1.4	0.38	-		12.6	53.4
8-26	21.0	11.1	2.8	5.1	0.3	2.0	76	1.5	0.31	-		11.6	44.5
26-36	19.7	10.2	3.1	4.2	0.2	1.8	78	1.5	0.36	-		11.3	39.4
36-44+	9.8	4.4	1.7	2.5	0.2	0.6	73	1.4	0.30	-		6.6	30.1

1/ Percent of the <1 inch fraction.

\+ Including cations from carbonates in some horizons.

HAPGOOD GRAVELLY LOAM
S61Nev-16-2

Location: Approximately 400 feet north and 600 feet east of the southwest corner of section 10, T. 46 N., R. 19 E., Mount Diablo Base and Meridian on the south flank of Bally Mountain summit, Washoe County, Nevada. Date of Sampling: August 3, 1961.
Samples Collected By: L. N. Langan, R. L. Malchow and R. E. Nelson. Description By: L. N. Langan and R. L. Malchow.
Classification: **Pachic Cryoboroll, loamy-skeletal, mixed.**
Vegetation: Big sagebrush with an understory of Idaho fescue, bluebunch wheatgrass and squirreltail; total plant density is 30 percent. Use: Livestock grazing. Climate: Cool, continental climate with cold, moist winters and warm, dry summers; an annual precipitation of 12 to 14 inches; most of it coming as winter snow; a mean annual temperature of 44° F.; and a mean July temperature of 64° F. The relative humidity is low, evaporation is high, and diurnal temperature changes are wide. The frost-free period is less than 90 days. Parent Material: Basaltic and tuffaceous alluvium. Relief: Moderately steep, slightly concave slopes with a slope gradient of 10 percent. Physiography: Mountain slopes at an elevation of 6800 feet. Drainage: Well drained; slow runoff; rapid internal drainage; moderate permeability.
Remarks: **Hapgood** soils occur on slopes of 8 to 51 percent, and on all exposures. Effervescence obtained by observing reaction to dilute HCl. pH determined using bromthymol blue in a prepared 1:5 dilution. This profile was not paired.

HORIZON

A11 RSL No. 61597 — 0 to 3 inches, dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) when moist; moderate fine and medium platy structure; soft, very friable, nonsticky, slightly plastic; few fine and abundant very fine roots; many fine interstitial and few very fine tubular pores; pH 6.4; clear, smooth boundary.

A12 RSL No. 61598 — 3 to 8 inches, dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine and medium, and abundant very fine roots; many very fine interstitial and common very fine tubular pores; pH 6.6; clear smooth boundary.

A13 RSL No. 61599 — 8 to 26 inches, grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine and abundant very fine roots; many very fine interstitial, and common very fine tubular pores; pH 6.6; clear smooth boundary.

AC RSL No. 61600 — 26 to 36 inches, grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) when moist; massive; soft, very friable, slightly sticky, slightly plastic; few fine and abundant very fine roots; many very fine interstitial, and common very fine tubular pores; pH 6.8; abrupt wavy boundary. (3% of horizon consists of 1 inch plus gravels and cobbles that were discarded from the sample.)

C1 RSL No. 61601 — 36 to 44 inches +, very pale brown (10YR 7/3) cobbly loam with many fine and medium brown mottles (10YR 5/3) along vertical cleavage planes, brown (10YR 5/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine and plentiful very fine roots; common very fine tubular pores; pH 6.8. (50% of the horizon consists of 1 inch plus gravels, cobbles, and stones that were discarded from the sample.)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Abruptic Aridic Durixeroll, fine, montmorillonitic, frigid (Donna taxadjunct)
SOIL SERIES: Series not designated SOIL Nos. S66Nev-4-2 LOCATION Elko County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66675 - 66683

Depth (in.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Size class and particle diameter (mm) 3A1 Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a: ≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct.	Pct. of < 76 mm	
0-2	A11	22.5	57.8	19.7	4.7	4.2	2.1	4.4	7.1	29.0	28.8	38.4	15.4	0	20	21	15	6
2-6	A12	17.4	55.2	27.4	2.2	2.6	1.5	2.9	8.2	24.4	30.8	34.3	9.2	0	27	21	15	6
6-9½	A/B	15.8	47.8	36.4	2.1	2.4	1.3	2.8	7.2	22.9	24.9	31.8	8.6	0	36	13	8	5
9½-19	B2t	11.5	31.8	56.7	1.7	2.1	1.1	2.0	4.6	14.7	17.1	20.5	6.9	0	57	4	4	-
19-22	B3t	15.0	34.4	50.6	2.9	2.8	1.5	2.7	5.1	14.6	19.8	21.3	9.9	0	51	28	5	23
22-26*	IIClsicam	78.2	13.5	8.3	27.9	22.3	9.2	12.2	6.6	7.9	5.6	21.1	71.6	3	5	26	17	9
22-26‡	IIClsicam			6.7														
26-29	IIC2sicam	68.8	19.0	12.2	20.2	21.2	9.0	12.1	6.3	7.8	11.2	20.4	62.5	0	12	47	24	23
29-38	IIC3sim	46.4	40.3	13.3	9.9	9.9	6.0	10.8	9.8	16.6	23.7	32.5	36.6	0	13	23	4	19
Composite A																		

Depth (in.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N		6E1b Carbonate as $CaCO_3$ Pct	Field Water Content May 1966 Pct.	Bulk density: 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH: 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-2	2.81	0.200	14		-	-	1.31	1.39		0.88	3	26.3	11.7	0.021	0.018		6.8	7.2
2-6	0.93	0.095	10		-	7	1.24	1.36		0.89	4	23.0	12.6	0.031	0.027		6.8	7.4
6-9½	0.62	0.078	8		-	12	1.31	1.48		0.93	5	25.7	16.3	0.042	0.038		6.7	7.3
9½-19	0.43				-	19	1.28	1.68		0.98	8	34.5	24.9	0.096	0.093		6.5	7.6
19-22	0.34				-	18	1.26	1.54		0.84	8	34.0	25.0	0.069	0.057		7.0	7.8
22-26*	0.54				26	13	1.21	1.23		0.86	7	31.6	21.6	0.007	0.006		8.0	8.8
22-26‡					26								16.4				8.2	8.9
26-29	0.10				5	11	1.87	1.89		0.61	7	10.8	18.1	0.002	0.001		7.9	8.9
29-38	0.05				tr.	12	1.81	1.83		0.83	5	12.5	13.5	0.003	0.002		7.8	8.8
Comp. A	1.15	0.107	11		-						4		13.2				6.7	8.3

Depth (in.)	Extractable bases: 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-2	11.0	3.3	0.2	2.5				21.6										
2-6	9.6	3.4	0.2	2.0				22.4										
6-9½	15.5	4.5	0.4	1.5				28.5										
9½-19	34.6	7.8	0.9	1.3				42.7										
19-22	28.1	7.5	1.1	1.1				43.9										
22-26*	23.5	5.0	1.1	0.4				33.8										
22-26‡								22.4										
26-29	25.7	5.5	1.1	0.6				40.6										
29-38	20.3	4.5	0.8	0.5				27.8										
Comp. A	11.5	3.7	0.3	1.6				24.4										

Depth (in.)	8A Water at Saturation Pct	Exch. bases: 5B3b Ca meq./100 g.	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 7A1: Mont.	Ill-ite	Kaolinite 7A2	Others
								X-ray			
0-2								tr.	xx	tr.	Qtz.
2-6											
6-9½											
9½-19								xxxx	x	tr.	Qtz.
19-22											
22-26*								xx	tr.		Calcite
22-26‡											
26-29											
29-38											
Comp. A											
Special sample (19-76 mm. gravel of RSL 66682)								Rhyolite, containing quartz and orthoclase			

1/ All 2-19 mm. percentages and the 19-76 mm. percentage of the IIC2 and nonindurated part of the IIC1 are from characterization samples (5 kg.), other 19-76 mm. percentages are from field weights. The indurated <19 mm. fraction of the IIC1 was ground to <2 mm., hence all data for that fraction are on a <19 mm. basis.

* Subsample of friable material.

‡ Subsample of the indurated silica laminae, <19 mm. soil was ground whole.

Series not designated 1/
S66Nev-4-2

Location: Elko County, Nevada. The site is about 1,580 feet west and 1,040 feet south of the NE corner of Section 16, T.37N., R.52E., Mount Diablo base line and meridian. Date of Sampling: May 4, 1966.
Description by: L. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, E. Spencer and L. Langan.
Classification: Abruptic Aridic Durixeroll, fine, montmorillonitic, frigid (Donna taxadjunct).
Vegetation: Alkali sagebrush (Artemesia longiloba) with an understory of sandberg and Nevada bluegrasses, squirreltail, and phlox. Climate: Mean annual rainfall is estimated at 10 to 16 inches; mean annual soil temperature at 45 to 47° F.; and mean summer soil temperature at 61 to 63° F. Parent Material: Alluvium derived from mixed lithologic sources but mainly from tuffs with some admixture from loess high in volcanic ash. Topography: Smooth to slightly undulating gently to strongly sloping alluvial fans and terraces with slope gradients of 2 to 16 percent. Elevation: About 5,900 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at the time of sampling.
Remarks: Four satellite sampling stations were established 44 feet from the sampling pit and each equidistant from the other. A composite sample of A horizons (Reported as RSL 66683A) was obtained by auger at intervals of 7.3 feet from the sampling pit to each satellite. pH values determined with bromthymol blue and thymol blue in 1:5 dilution.

HORIZON

A11 RSL 66675	0 to 2 inches, pale brown (10YR 6/3)* gravelly loam, very dark grayish brown (10YR 3/2) moist; massive in the surface inch and weak fine platy structure below; slightly hard, very friable, slightly sticky, slightly plastic; abundant micro and very fine, and plentiful fine roots; many very fine and common fine vesicular, and few fine tubular pores in the upper 1 inch, and many very fine interstitial and few fine tubular pores below; neutral (pH 6.8); abrupt smooth boundary.
A12 RSL 66676	2 to 6 inches, brown (10YR 5/3) heavy loam, dark brown (10YR 3/3) moist; moderate very fine and fine subangular blocky structure; soft, very friable, slightly sticky, plastic; abundant micro, and plentiful very fine and fine roots; many very fine interstitial, common very fine and few fine tubular pores; neutral (pH 6.6); clear wavy boundary.
A&B RSL 66677	6 to 9½ inches, brown (10YR 5/3) heavy clay loam, with many bleached sand grains, brown (10YR 5/3) moist; strong fine subangular blocky structure; hard, firm, sticky, very plastic; plentiful very fine and micro and few fine and medium roots; many very fine interstitial and few very fine tubular pores; common thin clay films in tubular pores and very few thin on ped faces; neutral (pH 6.8); very abrupt smooth boundary.
B2t RSL 66678	9½ to 19 inches, brown (7.5YR 4/4) heavy clay, brown (10YR 4/3) moist and brown (10YR 5/3) crushed moist; strong medium prismatic structure; very hard, very firm, very sticky, very plastic; few fine and medium, horizontally oriented inped roots in the upper 2 inches and very few very fine and micro exped roots below; very few very fine inped and few very fine exped tubular pores; common slickensides and many pressure cutans on ped faces; neutral (pH 7.0); clear wavy boundary.
B3t RSL 66679	19 to 22 inches, brown (10YR 5/3) light clay with brown (10YR 4/3) clay coatings, yellowish brown (10YR 5/4) and brown (10YR 4/3) moist; massive; hard, friable, very sticky, very plastic; very few very fine roots; few very fine tubular and common very fine interstitial pores; continuous thin clay films in pores; few moderately thick clay bridges between sand grains and many pressure cutans; mildly alkaline (pH 7.4); abrupt wavy boundary.
IIC1sicam RSL 66680	22 to 26 inches, very pale brown (10YR 8/3) gravelly sandy loam that is weakly lime and silica cemented and has at its upper surface a continuous, 1 to 5 mm thick, white, very pale brown and pale brown (10YR 8/1, 7/3 and 6/3) indurated silica laminae that is coated by brown (10YR 4/3) clay, light yellowish brown (10YR 6/4) and white, pale brown and dark yellowish brown (10YR 8/1, 6/3 and 3/4) moist; massive; hard and extremely hard, friable and extremely firm, nonsticky, nonplastic; roots matted on the laminae surface; many very fine interstitial pores but few very fine interstitial pores in laminae; few silica coats on gravel and sand grains and silica bridges between sand grains; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.
IIC2sicam RSL 66681	26 to 29½ inches, very pale brown (10YR 8/3) very gravelly coarse sandy loam that is weakly silica and lime cemented containing pockets and seams that are strongly silica and lime cemented and have many very thin (1 to 3 mm), discontinuous, white, pale brown and yellowish brown (10YR 8/1, 6/3 and 6/8) silica laminae, grayish brown (2.5Y 5/2) and white, very pale brown, pale brown and yellowish brown (10YR 8/1, 7/3, 6/3 and 6/8) moist; massive; very hard and extremely hard, firm to extremely firm, nonsticky, nonplastic; no roots; many very fine interstitial pores; common silica bridges between sand grains and coatings on pebbles; noneffervescent matrix but strongly effervescent in spots; moderately alkaline (pH 8.2); clear wavy boundary.
IIC3sim RSL 66682 66682A	29½ to 38 inches, variegated white (10YR 8/2) and pale brown (10YR 6/3) strongly cemented duripan with common brownish yellow (10YR 6/6) silica laminae bridges between sand grains, films in pores and coatings (19-76 mm gravel sampled separately and reported as RSL 66682A), and pockets of very gravelly light sandy clay loam that is weakly silica cemented, grayish brown (2.5Y 5/2), brown and brownish yellow (10YR 5/3 and 6/6) moist; massive; extremely hard and very hard, very firm and firm, slightly sticky, slightly plastic; no roots; many very fine interstitial and common very fine tubular pores; common to many very thin silica bridges and coatings; noneffervescent matrix but strongly effervescent in spots; strongly alkaline (pH 8.8).

1/ The Donna series is in a very-fine, montmorillonitic, frigid family of Abruptic Aridic Durixerolls (see pedon S66Nev-4-1). This pedon is a taxadjunct because it has less than 60 percent clay in the control section.

*Colors for dry conditions unless otherwise noted.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Abruptic Aridic Durixeroll, fine, montmorillonitic, frigid (Stampede taxadjunct)
SOIL SERIES: Series not designated SOIL Nos. S66Nev-4-3 LOCATION Elko County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66722 - 66731

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Noncarbonate clay	1/ Coarse fragments 1A2a > 2 Pct.	2 - 19 (Pct of < 76 mm)	19 - 76 (Pct of < 76 mm)
		Pct. of < 2 mm																
0-2	A11	25.7	57.1	17.2	7.6	6.7	3.0	3.8	4.6	27.4	29.7	33.9	21.1	0	17	28	24	4
2-4	A12	22.6	54.6	22.8	5.9	5.4	2.7	3.6	5.0	24.9	29.7	31.8	17.6	0	23	21	18	3
4-9½	A13	23.1	49.0	27.9	5.7	5.0	2.7	3.6	6.1	22.4	26.6	30.4	17.0	0	28	17	15	2
9½-12	A3	24.9	44.8	30.3	6.5	5.6	3.0	3.6	6.2	21.0	23.8	29.0	18.7	0	30	22	16	6
12-19	B21t	18.2	26.5	55.3	4.3	4.2	2.3	3.1	4.3	12.5	14.0	18.4	13.9	0	55	13	13	0
19-23	B22t	17.2	31.4	51.4	4.5	3.0	1.6	2.9	5.2	14.8	16.6	21.7	12.0	0	51	11	10	1
23-28	B3t	24.5	43.5	32.0	4.0	5.1	2.6	5.2	7.6	17.8	25.7	28.4	16.9	0	32	7	7	0
28-33	C1sicam	70.4	22.3	7.3	20.4	21.7	8.6	11.7	8.0	10.9	11.4	24.8	62.4	0	7	16	16	0
33-39	C2sicam	72.9	20.8	6.3	22.9	21.4	8.0	11.7	8.9	11.5	9.3	26.6	64.0	0	6	13	13	0
Composite A																22	22	0

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C2a Ext. Iron as Fe Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-2	1.90	0.152	13		-	-	1.34	1.37		0.84	3	23.8	10.3	0.008	0.007		6.6	7.0
2-4	1.18	0.119	10		-	5	1.16	1.25		0.90	4	24.7	11.7	0.027	0.024		6.7	7.2
4-9½	0.95	0.107	9		-	9	1.20	1.31		0.91	4	24.7	12.9	0.029	0.027		6.9	7.3
9½-12	0.68				-	11	1.22	1.39		0.88	5	26.8	14.5	0.044	0.039		6.9	7.4
12-19	0.48				-	15	1.29	1.61		0.93	8	35.4	26.9	0.079	0.073	6.7	7.1	8.0
19-23	0.43				-	13	1.18	1.54		0.95	8	38.8	27.0	0.093	0.087	6.9	7.3	8.2
23-28	0.39				-	16	1.22	1.47		0.97	8	36.3	22.9	0.063	0.061	7.5	7.9	8.6
28-33	0.20				4	16	1.32	1.35		0.91	6	30.4	18.4	0.006	0.005	8.0	8.3	9.0
33-39	0.28				5	15	1.40	1.45		0.93	6	25.6	17.1	0.012	0.011	7.9	8.3	9.0
Comp. A	1.29	0.123	10		-	6					4		12.5			6.4	6.7	7.3

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity mmho/cm
	meq/100 g								meq/liter									
0-2	9.6	2.9	0.2	1.8				18.0										
2-4	11.1	3.5	0.2	1.9				20.4										
4-9½	11.5	3.5	0.3	1.8				23.0										
9½-12	14.2	4.5	0.5	1.7				23.7										
12-19	25.6	9.5	1.6	1.4				36.5	1.0	0.5	2.3	0.2		-	1.8	1.4		0.42
19-23	25.6	9.4	2.1	1.6				36.2	1.5	0.7	3.6	0.1		-	2.1	2.5		0.55
23-28	24.5	8.7	2.6	1.0				38.6	2.6	1.2	5.6	0.1		-	4.7	2.8		0.99
28-33	20.4	6.8	2.3	0.5				35.8	1.7	0.9	4.3	0.1		-	3.7	0.2		0.62
33-39	21.7	6.6	2.6	0.4				32.6	1.7	0.7	4.6	0.1		-	3.9	1.0		0.71
Comp. A	13.8	3.6	0.3	2.1				22.1	2.3	1.0	1.2	0.8		-	2.9	0.4		0.61

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1 Mont.	Ill-ite	Kaolinite 7A2	Others
		meq./100 g.						X-ray			
0-2		9.6	2.9	0.2	1			x	xx	tr.	Qtz., flds.
2-4		11.1	3.5	0.2	1						
4-9½		11.5	3.5	0.3	1						
9½-12		14.2	4.5	0.5	2						
12-19	73.2	25.5	9.5	1.4	4	2.7		xxxx	x	tr.	Qtz., flds.
19-23	74.9	25.5	9.4	1.8	5	3.4					
23-28	63.9	24.3	8.6	2.2	6	4.1					
28-33	55.5	20.3	6.8	2.1	6	3.8		xx	tr.		Calcite, qtz.
33-39	58.7	21.6	6.6	2.3	7	4.2					
Comp. A	44.6	13.7	3.6	0.2	1	0.9					

1/ A11 2-19 mm. percentages and the 19-76 mm. percentage of the B22 are from characterization samples (5 kg.), other 19-76 mm. percentages are from field weights.

Series not designated [1/]
S66Nev-4-3

Location: Elko County, Nevada. The site is about 1,580 feet north and 250 feet west of the southeast corner of Section 21, T.37N., R.52E., Mount Diablo base line and meridian. Date of Sampling: May 5, 1966. Description by: L. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, L. Langan, and E. Spencer. Classification: Abruptic Aridic Durixeroll, fine, montmorillonitic, frigid (Stampede taxadjunct). Vegetation: Big sagebrush with occasional Douglas rabbitbrush, and an understory of bluebunch wheatgrass, Thurber's needlegrass, squirreltail, Great Basin wildrye, and cheatgrass. Climate: Mean annual rainfall is estimated at 10 to 16 inches; mean annual soil temperature at 45 to 47° F.; mean summer soil temperature at 61 to 63° F. Parent Material: Alluvium derived from mixed lithologic sources but primarily tuffs with some admixture from loess high in volcanic ash. Topography: Smooth to gently convex, gently to strongly sloping old alluvial fans with slope gradients of 4 to 16 percent. Elevation: Approximately 5,800 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at the time of sampling.

Remarks: Four satellites sampling stations were established 44 feet from the sampling pit and each equidistant from the other. A composite sample of A horizons (reported as RSL 66731A) was obtained by auger at intervals of 7.3 feet from the sampling pit to each satellite. pH values determined with bromthymol blue and thymol blue in 1:5 dilution.

HORIZON	
A11 RSL 66722 66722A	0 to 2 inches, light brownish gray (10YR 6/2)* surface and brownish gray (10YR 5/2) bottom gravelly loam, light brownish gray crushed, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky, slightly plastic; abundant micro and plentiful very fine roots; many vesicular pores; gravel pavement sampled as 66722A; neutral (pH 6.6); abrupt smooth boundary.
A12 RSL 66723	2 to 4 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky breaking to moderate very fine subangular blocky structure; slightly hard, friable, slightly sticky, nonplastic; abundant fine roots; many very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.
A13 RSL 66724	4 to 9½ inches, dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, sticky, plastic; plentiful very fine and fine roots; common very fine tubular, and many very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.
A3 RSL 66725	9½ to 12 inches, light grayish brown (10YR 6/2) heavy clay loam, very dark grayish brown (10YR 3/2) moist, with many medium faint very dark brown (10YR 2/2) stains; strong medium and fine subangular blocky structure; hard, friable, very sticky, very plastic; abundant very fine and fine roots; many very fine interstitial, common very fine and few fine tubular pores; few thin clay films on ped faces and in pores; neutral (pH 6.8); abrupt wavy boundary.
B21t RSL 66726	12 to 19 inches, brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; strong medium prismatic structure; very hard, very firm, very sticky, very plastic; very few fine and medium, and plentiful very fine inped roots; common very fine and fine inped tubular pores; many pressure cutans and slickensides on ped faces; neutral (pH 6.8); clear wavy boundary.
B22t RSL 66727	19 to 23 inches, brown (10YR 5/3) clay, dark brown (10YR 4/3) moist and yellowish brown (10YR 5/4) crushed moist; moderate medium prismatic structure; very hard, firm, very sticky, very plastic; few very fine inped roots and plentiful very fine exped roots; few very fine and fine interstitial and few very fine and fine inped tubular pores; many slickensides and pressure cutans on ped faces; neutral (pH 7.0); clear wavy boundary.
B3t RSL 66728	23 to 28 inches, dark brown (10YR 5/3) clay, dark yellowish brown (10YR 4/4) moist and yellowish brown (10YR 5/4) crushed moist; moderate medium and fine subangular blocky structure; very hard, firm, very sticky, very plastic; few very fine roots; very few fine tubular pores; many moderately thick clay films in pores; and common pressure cutans on ped faces, mildly alkaline (pH 7.4); clear smooth boundary.
C1sicam RSL 66729	28 to 33 inches, light gray (10YR 7/2) indurated duripan, yellowish brown (10YR 5/4) moist; massive; extremely hard, extremely firm; no roots; few very fine tubular pores; few moderately dark brown (10YR 5/3) thick clay films on laminar surfaces; thin (1 to 4 mm) continuous, very pale brown (10YR 7/3) silica laminae along fractures, and in pores; noneffervescent, but violently effervescent in soft white (10YR 8/1) lime coatings and filaments; mildly alkaline (pH 7.6); clear wavy boundary.
C2sicam RSL 66730	33 to 39 inches, very pale brown (10YR 8/3) strongly cemented duripan, brown (10YR 5/3) moist; massive; extremely hard, extremely firm; no roots; few very fine interstitial and very few very fine tubular pores; thin, discontinuous light brownish gray (10YR 6/2) silica laminae with occasional dark reddish brown (5YR 3/3) organic coatings; violently effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
IIB2b Not Sampled	39 to 45+ inches, pale brown (10YR 6/3) very gravelly coarse sandy loam, brown (10YR 4/3) moist and brown (10YR 5/3) crushed moist; massive; hard, friable, nonsticky, nonplastic; no roots; many very fine interstitial and few very fine and fine tubular pores; few moderately thick clay coatings on pebbles, few thin clay bridges between sand grains, and common thin clay films in pores; noneffervescent in matrix but strongly effervescent in soft white (10YR 8/1) lime segregations; moderately alkaline (pH 8.4).

1/ The Stampede series is in a fine, montmorillonitic, frigid family of Aridic Durixerolls (see pedon S66Nev-4-4). This pedon is a taxadjunct because the upper boundary of the argillic horizon is abrupt.

*Colors for dry conditions unless otherwise noted.

SCS-420
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Abruptic Aridic Durixeroll, very-fine, montmorillonitic, frigid
SOIL SERIES: Donna gravelly loam SOIL Nos. S66Nev-4-1 LOCATION Elko County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66645 - 66655

Depth (in.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a ≥ 2	2 - 19	19 - 76
		Size class and particle diameter (mm) 3A1																
		Pct. of < 2 mm														Pct.	Pct. of < 76 mm	
0-2	A11	29.2	54.3	16.5	9.2	6.3	2.8	4.5	6.4	26.3	28.0	35.0	22.8	0	17	38	30	8
2-4	A12	20.5	55.1	24.4	3.8	4.1	2.0	3.6	7.0	20.2	34.9	29.3	13.5	0	24	22	20	2
4-8	A13	20.9	49.8	29.3	4.2	3.8	2.1	3.5	7.3	22.4	27.4	31.8	13.6	0	29	22	18	4
8-13	A/B	18.5	44.2	37.3	6.0	4.1	1.8	2.5	4.1	21.2	23.0	26.7	14.4	0	37	27	14	13
13-18	B2t	14.3	18.8	66.9	5.4	3.4	1.9	1.8	1.8	9.5	9.3	12.3	12.5	0	67	13	13	-
18-22	B3t	28.5	14.8	56.7	13.5	7.1	2.3	3.1	2.5	3.5	11.3	7.7	26.0	0	57	41	17	24
22-27*	Clsim	79.9	13.0	7.1	25.5	22.7	10.3	14.0	7.4	6.0	7.0	20.7	72.5	0	7			23
27-38	C2sicam	71.0	18.1	10.9	22.7	19.0	8.6	12.5	8.2	7.0	11.1	22.0	62.8	0	11	75	52	23
38-51	IIBltbca	52.9	29.9	17.2	19.1	12.6	5.3	7.9	8.0	11.7	18.2	24.2	44.9	0	17	77	36	34
51-58	IIB2tb	60.3	15.0	24.7	20.2	23.5	8.0	5.1	3.5	5.7	9.3	11.3	56.8	0	25	54	45	9
58-68+	IIC1cab	63.2	15.7	21.1	18.4	16.8	9.0	12.4	6.6	7.4	8.3	20.2	56.6	0	21	62	32	26
Composite	A																	

Depth (in.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b Carbonate as $CaCO_3$ 2-19mm Pct.	6E1b Carbonate as $CaCO_3$ Pct	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	Bulk density g/cc	3B2 Cm	Water content Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-2	2.70	0.195	14		-	-	1.32	1.35		0.77	3	23.0	11.6	0.006	0.004		7.2	7.6
2-4	1.26	0.119	11		-	5	1.30	1.38		0.88	3	24.3	11.4	0.020	0.018		6.9	7.5
4-8	0.77	0.088	9		-	12	1.19	1.31		0.89	4	23.4	13.2	0.033	0.029		6.7	7.3
8-13	0.59				-	14	1.21	1.40		0.86	5	21.7	16.7	0.050	0.042		6.7	7.3
13-18	0.50				-	23	1.13	1.58		0.94	11	45.4	34.9	0.119	0.110		6.5	7.6
18-22	0.47				-	24	0.93	1.26		0.80	11	57.4	37.3	0.107	0.083		6.9	7.9
22-27*	0.25				5	8	1.33	1.35			3	24.1	11.2	0.005			8.3	8.9
27-38	0.08			tr.	5	22	1.42	1.46		0.38	5	18.3	16.1	0.008	0.003		8.1	8.8
38-51	0.04				2	18	1.50	1.56		0.35	4	23.1	14.9	0.014	0.005		8.0	8.8
51-58	0.04				tr.	15	1.48	1.54		0.60	3	18.2	12.7	0.014	0.009		8.0	8.7
58-68+	0.06			tr.	tr.	13	1.54	1.67		0.51	3	22.9	11.2	0.026	0.013		8.1	8.8
Comp. A	1.17	0.111	11								3		11.6				6.9	7.4

Depth (in.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	8A1 SO_4	8A1a Electrical conductivity
	meq/100 g								Water extract from saturated paste meq/liter									mmho/cm
0-2	11.6	2.7	0.2	2.3				19.7										
2-4	12.7	3.4	0.3	2.2				21.0										
4-8	10.9	3.0	0.5	1.7				22.1										
8-13	16.4	4.6	0.8	1.6				27.2										
13-18	37.0	11.3	1.7	1.9				50.8										
18-22	40.2	12.0	1.1	1.2				54.6										
22-27*	15.8	4.0	1.0	0.8				20.2										
27-38	20.5	4.8	1.0	0.9				27.7										
38-51	16.3	3.3	0.9	0.7				26.4										
51-58	12.2	2.8	0.7	0.6				20.6										
58-68+	10.8	2.4	0.5	0.5				16.6										
Comp. A																		

Depth (in.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca meq./100 g.	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1 Mont.	Ill-ite	Kaolinite 7A2 X-ray	Others
0-2								tr.	xx	tr.	Qtz., flds
2-4											
4-8											
8-13								xxxx		tr.	Qtz., flds.
13-18											
18-22											
22-27*								xxx			Qtz., calcite
27-38											
38-51											
51-58								xxxx	x	tr.	Qtz., flds.
58-68+								xxxx	x	tr.	Qtz., flds.
Comp. A											

1/ All 2-19 mm. percentages and the 19-76 mm. percentage of the C1 are from characterization samples (5kg.), other 19-76 mm. percentages are from field weights. The <19 mm. fraction of the C1 was ground to <2 mm. hence all data for this horizon are on a <19 mm. basis except bulk density, 1/3 bar water, and COLEf. >2 mm. percentages of the IIB1 and IIC1 include the >76 mm. percentages calculated from field weights.

* The <19 mm. soil was ground whole.

DONNA GRAVELLY LOAM
S66Nev-4-1

Location: Elko County, Nevada. The site is about 2,500 feet west and 525 feet north of the southeast corner of Section 8, T.37N., R.52E., Mount Diablo base line and meridian. Date of Sampling: May 3, 1966.
Description by: L. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, L. Langan and E. Spencer.
Classification: Abruptic Aridic Durixeroll, very-fine, montmorillonitic, frigid.
Vegetation: Alkali sagebrush (Artemesia longiloba) with an understory of Sandberg bluegrass, Thurber's needlegrass, Indian and Webers ricegrasses and annuals. Climate: Mean annual rainfall is estimated at 10 to 16 inches; mean annual soil temperature at 45 to 47° F.; and mean summer soil temperature at 61 to 63° F. Parent Material: Alluvium derived from mixed lithologic sources but mainly from tuffs with some admixture from loess high in volcanic ash. Topography: Smooth to slightly undulating gently to strongly sloping alluvial fans and terraces with slope gradients of 2 to 16 percent. Elevation: About 5,750 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at the time of sampling.
Remarks: Four satellite sampling stations were established 44 feet from the sampling pit and each equidistant from the other. A composite sample of A horizons (Reported as RSL 66655A) was obtained by auger at intervals of 7.3 feet from the sampling pit to each satellite. pH values determined with bromthymol blue and thymol blue in 1:5 dilution.

HORIZON

A11 RSL 66645	0 to 2 inches, light brownish gray (10YR 6/2)* gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thick platy structure; slightly hard, very friable, slightly sticky, slightly plastic; plentiful micro and very fine roots; many micro and very fine vesicular, and common micro and very fine tubular pores; about 30 percent of the surface covered by a gravel pavement; neutral (pH 7.0); abrupt smooth boundary.
A12 RSL 66646	2 to 4 inches, grayish brown (10YR 5/2) loam, dark brown (10YR 3/3) moist; weak thick platy structure in place but moderate very fine granular when displaced; slightly hard, very friable, slightly sticky, slightly plastic; plentiful micro and very fine roots; few micro and very fine tubular, and few very fine vesicular pores; neutral (pH 7.0); abrupt smooth boundary.
A13 RSL 66647	4 to 8 inches, grayish brown (10YR 5/2) heavy loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, sticky, plastic; plentiful micro and very fine, and few fine roots; many very fine, and few fine tubular, and common very fine interstitial pores; neutral (pH 7.0); abrupt smooth boundary.
A&B RSL 66648	8 to 13 inches, light brownish gray (10YR 6/2) clay loam with many bleached sand grains, dark brown (10YR 3/3) moist; strong very fine granular structure; hard, friable, very sticky, very plastic; abundant very fine, plentiful micro and fine, and few medium roots; many micro and very fine interstitial, and common micro and very fine tubular pores; few thin clay films on ped faces; neutral (pH 7.0); very abrupt wavy boundary.
B2t RSL 66649	13 to 18 inches, brown (10YR 5/3) clay, yellowish brown (10YR 5/4) moist; strong medium and fine prismatic structure; very hard, very firm, very sticky, very plastic; plentiful micro and very fine, and very few fine exped roots mostly in the upper 2 inches, very few exped roots below; few micro, very fine, and fine exped tubular pores in upper inch and very few micro tubular inped pores below; continuous thin clay films in pores; many slickensides and pressure cutans; neutral (pH 7.0); clear wavy boundary.
B3t RSL 66650	18 to 22 inches, light yellowish brown (10YR 6/4) sandy clay, yellowish brown (10YR 5/4) moist; massive; hard, firm, sticky, very plastic; few fine and very fine roots; common micro, and few fine tubular pores; many moderately thick clay bridges between sand grains; common slickensides; neutral (pH 7.2); abrupt wavy boundary.
C1sim RSL 66651	22 to 27 inches, light yellowish brown (10YR 6/4) indurated duripan with continuous 2 to 5 mm thick, white (10YR 8/1) silica laminae, brown (10YR 4/3) moist; massive; extremely hard, extremely firm; plentiful micro and very fine roots matting the laminar surface and along some fracture planes only; common micro and very fine tubular pores; mildly alkaline (pH 7.4); abrupt wavy boundary.
C2sicam RSL 66652	27 to 38 inches, very pale brown (10YR 7/3) indurated duripan, with very thin (1 to 2 mm) continuous and discontinuous, randomly oriented, white (10YR 8/1) silica-lime laminae, grayish brown (10YR 5/2) moist; massive; extremely hard, extremely firm; no roots; few micro tubular pores; strongly effervescent; strongly alkaline (pH 8.6); clear wavy boundary.
IIC3ca RSL 66653	38 to 51 inches, light gray and very pale brown (10YR 7/2 and 7/3) very cobbly and gravelly loam, with many medium and coarse faint white (10YR 8/2) lime masses and seams, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky, slightly plastic; no roots; few very fine tubular pores; common moderately thick clay or silica films in pores; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.
IIC4 RSL 66654	51 to 58 inches, light yellowish brown (10YR 6/4) very gravelly and cobbly sandy clay, with few medium distinct white (10YR 8/1) soft lime segregations, yellowish brown (10YR 5/4) moist; massive; hard, firm, very sticky, plastic; no roots; few very fine tubular and many very fine interstitial pores; continuous moderately thick clay films in tubular pores and common moderately thick clay bridges between sand grains; noneffervescent matrix but violently effervescent in spots; moderately alkaline (pH 8.2); clear wavy boundary.
IIC5ca RSL 66655	58 to 68+ inches, pale brown (10YR 6/3) very gravelly and cobbly sandy clay loam, with 5 to 10 mm thick, white (10YR 8/1) horizontal lime seams, brown (10YR 5/3) moist; massive; slightly hard, friable, sticky, plastic; no roots; many very fine, common fine and few medium interstitial pores; very few thin clay bridges between sand grains; noneffervescent matrix but violently effervescent in seams; mildly alkaline (pH 7.8).

*Colors for dry conditions unless otherwise noted.

SCS-420
10-64

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Aridic Durixeroll, fine-loamy, mixed, frigid
SOIL SERIES: Vil gravelly loam SOIL Nos. S66Nev-9-22 LOCATION Lincoln County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66110 - 66118

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	3A1 Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct	2 - 19 (Pct of < 76 mm)	19-76 (Pct of < 76 mm)	
		Pct. of < 2 mm																	
0-3	A1	61.4	26.7	11.9	16.7	15.5	9.4	12.2	7.6	16.0	10.7	29.9	53.8	0	12	57	34	10	2/
3-7	A&B	45.6	34.5	19.9	6.6	9.9	7.5	12.4	9.2	20.3	14.2	36.2	36.4	0	20	34	15	13	3/
7-12	B2t	50.3	22.0	27.7	8.8	13.1	9.3	12.4	6.7	11.7	10.3	24.8	43.6	0	28	47	12	24	2/
12-17	C1sica	57.0	19.8	23.2	14.0	14.9	9.6	12.7	5.8	7.3	12.5	19.5	51.2	11	12	62	34	22	2/
a 17-22	C2sicam															62		22	4/
a 22-32	C3sicam	78.5	15.8	5.3	22.8	21.3	11.3	15.4	8.1	7.2	8.6	23.3	70.8	2	3	62		22	4/
a 32-48	IIC4sicam	81.8	13.1	5.1	25.3	24.6	11.7	13.4	6.8	6.1	7.0	19.8	75.0	0	5	62		22	4/
48-60	IIC5	91.1	5.5	3.4	22.8	34.0	16.8	14.0	3.5	2.9	2.6	11.9	87.6	0	3	52	40	3	5/
60-65	IIIC6sica	48.7	45.3	6.0	9.2	12.3	7.4	9.4	10.4	27.3	18.0	42.3	38.3	0	6	27	10	1	2/

Depth (In.)	6A1a Organic carbon Pct.	6B1a Nitrogen Pct	C/N	Carbonate as $CaCO_3$ 2-19mm gravel Pct.	6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content April, 1966 <2 mm. basis Pct.	Bulk density 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-3	1.51	0.105	14		tr	1	1.27	1.37		0.61	2	19.6	8.2	0.026	0.016	7.2	7.5	7.9
3-7	1.27	0.107	12		tr	10					2		10.8			7.0	7.3	7.7
7-12	1.14				tr	-	1.13	1.28		0.73	3	24.9	16.1	0.042	0.030	7.0	7.4	7.7
12-17	1.31			16	24	15	1.28	1.35		0.56	2	27.5	14.2	0.017	0.009	7.4	8.1	8.8
a 17-22	0.56				24	9	1.44	1.45		1.00 6/	2	20.8	10.5	0.003	0.003	8.1	8.4	9.0
a 22-32	0.25				12	3	1.70	1.70		1.00 6/	2	11.8	7.6	0.000	0.000	8.3	8.6	9.2
a 32-48	0.23				8						1		6.8			8.4	8.6	9.2
48-60	0.08			1	1	4					1		4.6			8.4	8.6	9.1
60-65	0.10			3	2	5	1.30	1.31		0.85	2	21.1	7.9	0.003	0.003	8.0	8.4	9.1

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	* Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-3	14.1	2.2	0.3	1.5	17.9			20.1	5.2	1.1	0.6	0.4		-	6.2	0.2		0.64
3-7	16.9	3.6	0.5	1.0	21.6			24.3	3.9	1.3	0.9	0.2		-	5.0	0.2		0.54
7-12	23.1	5.8	0.6	0.6	29.8			33.4	4.8	1.2	1.2	0.1		-	5.3	0.3		0.63
12-17	18.3	3.4	0.7	0.3	22.2			20.2	6.2	1.7	1.6	0.1		-	5.9	0.6		0.77
a 17-22	12.7	2.8	1.1	0.3	16.7			14.5	3.4	1.1	2.2	0.1		-	4.1	0.8		0.55
a 22-32	11.5	5.2	1.7	0.4	18.5			17.0	2.8	2.2	3.0	0.1		-	6.1	1.0		0.71
a 32-48	9.5	4.9	2.1	0.3	16.5			16.4	1.5	1.5	2.5	0.1		-	3.5	0.4		0.47
48-60	5.4	4.6	1.7	0.1	11.3			13.0	0.8	0.8	4.2	tr		-	3.7	1.5		0.53
60-65	10.6	8.9	2.2	0.2	21.6			20.0	1.4	1.3	5.6	tr		-	4.1	3.6		0.87

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 8A1 Mont.	Ill-ite 7A2	Kaol.	Kaolin in ground whole soil 7A3 DTA
		meq./100 g.						X-ray			
0-3	31.9	13.9	2.2	0.3				xxxx	tr	tr	
3-7	40.6	16.7	3.5	0.4							
7-12	49.1	22.9	5.7	0.6				xxxx	tr	tr	
12-17	48.2	18.0	3.3	0.6							
a 17-22	36.9	12.6	2.8	1.0	7						0
a 22-32	34.0	11.4	5.1	1.6	9						
a 32-48	35.2	9.4	4.8	2.0	12			xxx	-	-	
48-60	31.3	5.0	4.6	1.6	12						
60-65	38.0	10.5	8.9	2.0	10			xxx	tr	tr	

1/ From characterization sample (5 kg.) except as noted.
2/ 19-76 mm. from field weights; >2 mm. includes >76 mm.
3/ 19-76 mm. from field weights; >2 mm. calculated from volume estimate of >76 mm. and estimated bulk density of <2 mm. of 1.30.
4/ Estimated same as C1sica.
5/ 19-76 mm. from field weights; >2 mm. calculated from volume estimate of >76 and estimated bulk density of <2 mm. of 1.31.
6/ >2 mm. considered soil; hence C' = 1.00.

a - <19 mm. soil was ground whole.

* Extractable Ca, Mg, and Na (corrected for soluble salts and gypsum) plus extractable K (uncorrected).

VIL GRAVELLY LOAM
S66Nev-9-22

Location: Lincoln County, Nevada. The site is located approximately 660 feet north and 660 feet east of the SE corner of Section 2, T.2S., R.69E., Mount Diablo base line and meridian. Date of Sampling: April 6, 1966.
Description by: E. A. Naphan and H. Borup. Collectors: H. J. Borup, E. A. Naphan and D. Nettleton.
Classification: Aridic Durixeroll, fine-loamy, mixed, frigid.
Vegetation: Principal plants include black sagebrush (70%), Utah juniper (20%), low Douglas rabbitbrush (10%), and traces of Indian ricegrass, Nevada ephedra, pinyon, squirreltail, and fourwing saltbush. Use: Limited livestock and wildlife forage. Climate: Precipitation 10 to 12 inches. Mean annual air temperature about 44° F., January 27° F., July 67° F. Parent Material: Alluvium from tuffs and rhyolite. Topography: Slightly convex, moderately sloping old dissected alluvial fan. Slope, 5 percent, north facing. Elevation: 6200 feet. Drainage: Well drained. Runoff is slow. Permeability is very slow. Soil Moisture: Moist to 12 inches at time of sampling.
Remarks: Field pH determinations by Brome thymol blue, cresol red, and thymol blue in 1:5 dilution. These samples were not paired.

HORIZON

A1 RSL 66110	0 to 3 inches, grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky, slightly plastic; few fine and very fine roots; many fine and common medium vesicular, and many fine and very fine tubular pores; mildly alkaline (pH 7.6); clear smooth boundary.
A&B RSL 66111	3 to 7 inches, brown (10YR 5/2) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, sticky, plastic; abundant fine, and very fine, and plentiful medium roots; many fine and very fine interstitial and tubular pores; mildly alkaline (pH 7.6); clear smooth boundary.
B2t RSL 66112	7 to 12 inches, brown (10YR 4/3) gravelly heavy sandy clay loam, dark brown (10YR 3/4) moist; massive; hard, friable, very sticky, very plastic; abundant fine and very fine, and plentiful medium and coarse roots; many micro, very fine and fine, and few medium tubular pores; few thin clay bridges between sand grains and few thin clay coatings on sand grains; noneffervescent in upper part but strongly effervescent in lower part and pebbles have thin lime coatings on undersides; mildly alkaline (pH 7.6); clear wavy boundary.
C1sica RSL 66113	12 to 17 inches, white (10YR 8/2) gravelly loam that is weakly silica and lime cemented, very pale brown (10YR 7/3) moist; massive; hard, firm, slightly sticky, slightly plastic; abundant very fine and few fine roots; many very fine and few fine tubular pores; very thin (1/16 inch or less) discontinuous silica laminae that fracture easily; few tongues of B2t material in fractures and seams; violently effervescent; strongly alkaline (pH 8.8); abrupt wavy boundary.
C2sicam RSL 66114	17 to 22 inches, white (10YR 8/1) strongly cemented duripan with many very pale brown (10YR 7/3) continuous, horizontal 1/16 inch to 1/8 inch indurated silica laminae, light gray (10YR 7/2) moist; strong thick platy structure; extremely hard, extremely firm; abundant very fine and few fine roots matted on plate surfaces; few very fine and fine tubular and many micro interstitial pores; many very thin silica laminae lining tubular pores, and common very thin silica bridges between sand grains; violently effervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
C3sicam RSL 66115	22 to 32 inches, white (10YR 8/2) gravelly loamy sand that is mostly weakly silica and lime cemented but contains pockets that are strongly cemented, and with many very thin (1/16 inch or less), very pale brown (10YR 7/3) continuous horizontal and discontinuous diagonal indurated silica laminae, light gray (10YR 7/2) and pale brown (10YR 6/3) moist; massive; hard to extremely hard, firm to extremely firm, nonsticky, nonplastic; few fine and very fine roots, mostly matted on indurated laminae surfaces; many very fine and micro, and few fine interstitial pores; gravel and cobbles thickly silica and lime coated; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
IIC4sicam RSL 66116	32 to 48 inches, white (10YR 8/2) strongly cemented duripan with few very thin (1/16 inch or less) continuous indurated silica laminae, light gray (10YR 7/2) moist; massive; very hard and extremely hard, very firm and extremely firm; few fine and very fine roots; many very fine and micro, and few fine interstitial pores; upper and lower part of horizon are more strongly cemented than midsection; violently effervescent; strongly alkaline (pH 9.0); abrupt wavy boundary.
IIC5 RSL 66117	48 to 60 inches, light gray (10YR 7/2) very gravelly very coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose when dry and moist; abundant fine and very fine roots; many fine and very fine interstitial pores; effervescent with some pebbles having thin lime and silica coatings; strongly alkaline (pH 8.8); abrupt smooth boundary.
IIIC6sica RSL 66118	60 to 65 inches +, pale brown (10YR 6/3) fine sandy loam with common fine faint white (10YR 8/2) silica and lime coatings in pores, yellowish brown (10YR 5/4) moist; massive; hard, firm, nonsticky, nonplastic; brittle; no roots; many fine and very fine tubular pores; noneffervescent in matrix but strongly effervescent in spots; strongly alkaline (pH 8.6).

NOTE: Moderately developed gravel pavement sampled with A1 horizon.

Micromorphology

0-3"	A1	The fabric is skeletal but there are a few thin clay skins on sand grains.
3-12"	B2t	The fabric is skeletal but there are common thin clay skins on sand grains.
12-17"	C1sica	There are common medium carbonate and silica concretions and grain coatings.
17-22"	C2sicam	This is a laminated carbonate and silica duricrust.
22-32"	C3sicam	There are common coatings of carbonate and silica on grains and some discontinuous laminae.
32-48"	IIC4sicam	Lime and silica coat grains and bridge between them.
48-60"	IIC5	Silica partially coats grains; fine grained carbonate is dispersed throughout.
60-65"	IIIC6	There are common very thin clay skins on sand grains.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Prey stony loam, Heavy subsoil variant **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Aridic Durixeroll, fine-loamy, mixed, mesic

SURVEY NOS. S60Nev-3-4 **LAB. NOS.** 6064 - 6072

DEPTH INCHES	HORIZON	2B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent)							3A1		2A2	TEXTURAL CLASS
		VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	> 2	
0- 1	A_{11}	6.6	17.7	11.6	24.7	14.0	20.5	4.9	39.0	10.3	23	sl-s
1- 3	A_{12}	6.4	13.1	9.8	21.1	14.0	28.1	7.5	40.8	14.2	23	fsl
3-10	A_{13}	6.4	12.2	8.4	18.9	13.5	31.0	9.6	39.9	16.3	18	fsl
10-13	B_{1t}	4.9	10.9	7.9	17.6	14.2	32.4	12.1	40.4	17.2	31	fsl
13-15	$B_{21}/B_{22}t$	4.1	9.9	6.8	13.0	11.1	34.0	21.1	35.6	17.5	61	l
15-18	C_{1sim}	8.3	20.5	11.8	18.0	10.1	24.6	6.7*	33.4	11.6	13	*
18-22	C_{2sim}	8.0	20.8	11.5	14.5	10.1	29.0	6.1*	32.8	14.3	63	*
22-36	C_{3sim}	4.6	10.5	6.3	13.2	16.0	45.2	4.2*	52.4	17.2	12	*
36-60+	C_{4sim}	8.0	18.3	9.8	13.1	9.7	33.9	7.2*	33.5	17.5	70	*

pH 8C1b Saturated Paste 1:1	pH 8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	Organic Matter 6B1a Nitrogen Pct.	Organic Matter C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3 1/	Saturation Ext. Soluble 6J1a HCO_3 1/	Saturation Ext. Soluble 6L1a SO_4	Saturation Ext. Soluble 6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 S il water 15 atm e. Pct.
							milliequivalents per liter					
5.9	6.4	1.84	0.134	13.7		0.5	-	1.9			1.4	4.4
6.8	7.2	1.26	0.092	13.7		0.2	-	1.9			1.7	4.3
7.0	7.3	0.72	0.056	12.9		0.2	-	2.0			2.0	4.8
6.5	7.2	0.47	0.039	12.1		0.2	-	1.5			2.0	6.1
6.4	7.1	0.37	0.037	10.0		0.2	-	1.3			2.2	10.7
6.6	7.0	0.13				0.2	-	0.8			2.0	10.5
7.4	7.9	0.04				0.3	-	3.1			1.8	7.4
7.8	7.9	0.03				0.3	-	2.7			2.0	6.1
7.6	7.7	0.01				0.2	-	1.2			2.2	6.8

5A2a CATION EXCHANGE CAPACITY ← Na →	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
13.1	6.9	1.2	4.7	0.1	0.4	65	0.5	0.6	3.2	0.7	0.2	31.5
13.7	8.6	1.7	3.3	<0.1	0.4	77	0.4	0.3	1.8	0.2	0.2	26.3
15.1	9.6	2.3	3.2	0.2	0.4	80	0.5	0.1	1.7	0.4	0.3	21.9
23.8	11.2	3.1	3.7	0.2	0.2	80	0.6	<0.1	1.4	0.4	0.2	22.2
30.8	17.8	5.9	4.5	0.2	0.3	84	0.6	<0.1	1.4	0.4	0.3	30.8
30.9	18.4	5.8	4.0	0.3	0.2	86	0.5	<0.1	1.0	0.5	0.3	33.0
22.1	14.6	3.7	2.6	0.4	0.1	88	0.5	<0.1	2.2	0.9	0.2	31.7
18.9	12.1	3.2	2.3	0.3	0.2	87	0.7	<0.1	1.8	0.6	0.2	29.4
18.1	10.3	3.9	2.2	1.0	0.2	88	0.8	<0.1	1.2	0.2	0.2	29.7

* Incompletely dispersed.

1/ Saturation extract soluble - milliequivalents per liter.

2/ Percent of <1 inch fraction. + Includes cations from carbonates.

PREY STONY LOAM
(heavy subsoil variant)
S60Nev-3-4

Location: This site is located approximately 400 feet west and 810 feet south of the east 1/4 corner sec. 14, T. 14 N., R. 19 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan and R. E. Nelson, April 23, 1960
Description by: L. N. Langan
Relief: Very gently rolling, gently to moderately sloping high terrace
Physiography: High valley fill terrace
Drainage: Well drained; runoff is slow during periods of normal rainfall; internal drainage is medium. Soil permeability is moderately slow through the B and very slow through the C horizons. The water table is very deep, being estimated at depths greater than 300 feet.
Parent Material: Gravelly, cobbly, and stony loamy alluvium derived from mixed rock sources, including granite, gneiss, and slate.
Use: Available forage is utilized for livestock grazing during spring, summer, and fall months. Heavy utilization of the available forage is made during the late fall, winter, and early spring months by the Sierra Nevada migratory deer herd.
Vegetation: Vegetation has a plant density of 20 percent, consisting of 50 percent big sage, 40 percent bitterbrush, 5 percent cheatgrass, 1 percent stipa, 2 percent squirreltail, 2 percent weeds, and trace of bluegrass.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. Average rainfall is approximately 12 to 16 inches, average annual temperature is 49 to 51° F., and the average frost-free season is 95 to 110 days.
Remarks: Many of the gravels, cobbles, and stones found in the B and C horizons are strongly weathered. They break easily to small-sized aggregates with blows from a hammer, or in some cases with hand pressure. These samples are not paired.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue in a prepared 1:5 dilution.
Classification: **Aridic Durixeroll, fine-loamy, mixed, mesic.**

A11 0- 1" Brown (10YR 5/3) gravelly sandy loam, very dark brown (10YR 2/2) when moist; single grained; loose dry or moist, nonsticky, nonplastic; few fine and abundant very fine roots; many very fine and fine interstitial pores; pH 6.2; abrupt smooth boundary.
RSL No. 6064

A12 1- 3" Grayish brown (10YR 5/2) gravelly and cobbly loam with occasional stones, very dark brown (10YR 2/2) when moist; weak fine granular structure; soft, very friable, nonsticky, nonplastic; few medium, plentiful fine, and abundant very fine roots; many very fine and fine interstitial pores; pH 6.4; abrupt smooth boundary.
RSL No. 6065

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Prey stony loam, heavy subsoil variant **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Aridic Durixeroll, fine-loamy, mixed, mesic

SURVEY NOS. S60Nev-3-4 **LAB. NOS.** 6064 - 6072

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0- 1	A_{11}	6.6	17.7	11.6	24.7	14.0	20.5	4.9	39.0	10.3	23	sl-s
1- 3	A_{12}	6.4	13.1	9.8	21.1	14.0	28.1	7.5	40.8	14.2	23	fsl
3-10	A_{13}	6.4	12.2	8.4	18.9	13.5	31.0	9.6	39.9	16.3	18	fsl
10-13	B_{1t}	4.9	10.9	7.9	17.6	14.2	32.4	12.1	40.4	17.2	31	fsl
13-15	B_{21}/B_{22t}	4.1	9.9	6.8	13.0	11.1	34.0	21.1	35.6	17.5	61	l
15-18	C_{1sim}	8.3	20.5	11.8	18.0	10.1	24.6	6.7*	33.4	11.6	13	*
18-22	C_{2sim}	8.0	20.8	11.5	14.5	10.1	29.0	6.1*	32.8	14.3	63	*
22-36	C_{3sim}	4.6	10.5	6.3	13.2	16.0	45.2	4.2*	52.4	17.2	12	*
36-60+	C_{4sim}	8.0	18.3	9.8	13.1	9.7	33.9	7.2*	33.5	17.5	70	*

DEPTH INCHES	pH 8C1b Saturated Paste 1:1	8C1a 1:10	Organic Matter 6A1a Organic Carbon Pct.	6B1a Nitrogen Pct.	C/N	6E1b $CaCO_3$ Equivalent Pct.	8A1a Elec. Conduc. mmhos/cm. at 25° C.	Saturation Ext. Soluble 6I1a CO_3 1/	6J1a HCO_3 1/	6L1a SO_4	6M1a NO_3	6C1b Free Fe_2O_3 Pct.	4B2 Soil Water 15 atmos. Pct.
								milliequivalents per liter					
0- 1	5.9	6.4	1.84	0.134	13.7		0.5	-	1.9			1.4	4.4
1- 3	6.8	7.2	1.26	0.092	13.7		0.2	-	1.9			1.7	4.3
3-10	7.0	7.3	0.72	0.056	12.9		0.2	-	2.0			2.0	4.8
10-13	6.5	7.2	0.47	0.039	12.1		0.2	-	1.5			2.0	6.1
13-15	6.4	7.1	0.37	0.037	10.0		0.2	-	1.3			2.2	10.7
15-18	6.6	7.0	0.13				0.2	-	0.8			2.0	10.5
18-22	7.4	7.9	0.04				0.3	-	3.1			1.8	7.4
22-36	7.8	7.9	0.03				0.3	-	2.7			2.0	6.1
36-60+	7.6	7.7	0.01				0.2	-	1.2			2.2	6.8

DEPTH INCHES	5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a + Ca 6N2b	5B1a + Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
		milliequivalents per 100g. soil						milliequivalents per liter					
0- 1	13.1	6.9	1.2	4.7	0.1	0.4	65	0.5	0.6	3.2	0.7	0.2	31.5
1- 3	13.7	8.6	1.7	3.3	<0.1	0.4	77	0.4	0.3	1.8	0.2	0.2	26.3
3-10	15.1	9.6	2.3	3.2	0.2	0.4	80	0.5	0.1	1.7	0.4	0.3	21.9
10-13	23.8	11.2	3.1	3.7	0.2	0.2	80	0.6	<0.1	1.4	0.4	0.2	22.2
13-15	30.8	17.8	5.9	4.5	0.2	0.3	84	0.6	<0.1	1.4	0.4	0.3	30.8
15-18	30.9	18.4	5.8	4.0	0.3	0.2	86	0.5	<0.1	1.0	0.5	0.3	33.0
18-22	22.1	14.6	3.7	2.6	0.4	0.1	88	0.5	<0.1	2.2	0.9	0.2	31.7
22-36	18.9	12.1	3.2	2.3	0.3	0.2	87	0.7	<0.1	1.8	0.6	0.2	29.4
36-60+	18.1	10.3	3.9	2.2	1.0	0.2	88	0.8	<0.1	1.2	0.2	0.2	29.7

* Incompletely dispersed.

1/ Saturation extract soluble - milliequivalents per liter.

2/ Percent of <1 inch fraction.

+ Includes cations from carbonates.

A13	3-10"	Grayish brown (10YR 5/2) gravelly and cobbly loam with occasional stones, very dary brown (10YR 2/2) when moist; massive, soft, very friable, nonsticky, nonplastic; few medium, plentiful fine, and many very fine roots; few very fine and fine tubular and many very fine interstitial pores; pH 6.6; abrupt wavy boundary; cobblestones larger than one inch (10 percent by volume) were not sampled.
RSL No. 6066		
B1t	10-13"	Brown (10YR 5/3) gravelly and cobbly loam, very dark grayish brown (10YR 3/2) when moist; massive; soft, very friable, slightly sticky, very slightly plastic; few medium, plentiful fine, and abundant very fine roots; many very fine and fine tubular pores; few thin clay bridges between sand grains and many thin continuous clay films in pores; pH 6.5; abrupt wavy boundary; cobblestones larger than one inch (3 percent by volume) were not sampled.
RSL No. 6067		
B21t (Composited with B22)	13-13½"	Brown (10YR 5/3) gravelly clay loam, yellowish brown (10YR 5/4) when moist; massive; slightly hard, friable, sticky, plastic; few fine and plentiful very fine roots; common very fine and fine interstitial and few very fine tubular pores; many thin dark brown (10YR 4/3) clay bridges between sand grains and many thin clay films in pores and as coatings on individual sand grains; pH 6.4 abrupt wavy, almost irregular, boundary; ranges from 1/4 to 4 inches thick; pebbles larger than one inch (3% by volume) were not sampled.
RSL No. 6068		
B22t (Composited with B21)	13½-15"	Brown (10YR 5/3) gravelly clay loam, dark brown (10YR 4/3) when moist, with few coarse prominent dark reddish brown (5YR 2/2) iron or manganese stains from weathering rock; massive; very hard, friable, sticky, plastic; few fine and abundant very fine roots; common very fine and fine tubular pores; many moderately thick clay bridges between sand grains and moderately thick continuous clay films in pores; pH 6.4; abrupt wavy boundary; ranges from 1 to 4 inches thick; pebbles larger than one inch (3% by volume) were not sampled.
RSL No. 6068		
C1sim	15-18"	Light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark brown (10YR 4/3) when moist; massive; extremely hard, extremely firm, sticky, plastic; abundant very fine roots only along cleavage planes; no pores observed; moderately thick continuous dark yellowish brown (10YR 3/4) clay films coating both sides of cleavage faces; abrupt wavy boundary; pebbles greater than one inch (3% by volume) were not sampled.
RSL No. 6069		
C2sim	18-22"	Light yellowish brown (10YR 6/4) gravelly and cobbly sandy loam, dark brown (10YR 4/3) when moist, with few coarse prominent dark reddish brown (5YR 3/4) iron stains from weathering rock; massive; extremely hard, very firm, nonsticky, nonplastic; very few very fine roots along cleavages; no pores observed; very highly weathered gravels and cobbles 2 to 9 inches in diameter constitute approximately 40 percent of the soil mass, none remain intact upon sampling; pH 6.6; gradual smooth boundary.
RSL No. 6070		
C3sim	22-36"	Pale brown (10YR 6/3) gravelly fine sandy loam, dark brown (10YR 4/3) when moist; massive; very hard, very firm, nonsticky, nonplastic; no roots observed; no pores observed, pH 6.8; gradual smooth boundary.
RSL No. 6071		
C4sim	36-60"+	Light yellowish brown (10YR 6/4) very gravelly and cobbly sandy loam, dark brown (10YR 4/3) when moist; massive; very hard, firm, nonsticky, nonplastic; no roots observed; very fine interstitial pores; pH 7.0. Gravels and cobbles are very highly weathered.
RSL No. 6072		

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Aridic Durixeroll, fine-loamy, mixed, mesic
SOIL SERIES: Roval gravelly loam SOIL Nos. S66Nev-9-25 LOCATION Lincoln County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66104 - 66109

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand Very coarse (2-1)	Sand Coarse (1-0.5)	Sand Medium (0.5-0.25)	Sand Fine (0.25-0.1)	Sand Very fine (0.1-0.05)	Silt 0.05-0.02	Silt Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct.	2 - 19 (Pct. of < 76 mm)	19-76 (Pct. of < 76 mm)	
		Size class and particle diameter (mm) 3A1 — Pct. of < 2 mm																	
0-2	A1	41.8	44.4	13.8	4.9	4.5	3.4	11.0	18.0	25.3	19.1	50.3	23.8	0	14	43	23	10	2/
2-5	B21t	35.6	41.3	23.1	1.4	2.9	2.9	10.0	18.4	21.4	19.9	46.1	17.2	0	23	27	10	10	2/
5-14	B22t/B3tca	35.2	41.5	23.3	2.6	3.7	3.3	10.2	15.4	20.7	20.8	42.3	19.8	5	18	52	12	36	2/
a 5-14	Pan fragments from B22t																		
b 14-24	IIC1sicam															50		20	3/
24-32	IIC2sicam	83.1	12.6	4.3	8.9	20.1	18.6	24.1	11.4	7.3	5.3	30.5	71.7	1	3	51	27	20	5/
32-52+	IIC3sicam	86.9	10.3	2.8	16.5	25.7	17.3	19.3	8.1	5.9	4.4	23.1	78.8	0	3	50	26	20	2/

Depth (In.)	6A1a Organic carbon Pct	6B1a Nitrogen Pct.	C/N		6E1b Carbonate as $CaCO_3$ Pct.	Field Water Content April 1966 < 2 mm Basis Pct.	Bulk density 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content Air dry Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	pH 8C1b Saturated Paste	8C1a H_2O 1:1	8C1a H_2O 1:10
0-2	0.61	0.058	11		tr	2	1.39	1.47		0.72	2	19.6	7.9	0.019	0.014	7.0	7.5	7.8
2-5	1.08	0.108	10		tr	13					3		11.3			7.2	7.5	7.9
5-14	1.25	0.134	9		14	14	1.14	1.26		0.68	3	26.6	14.7	0.035	0.023	7.5	8.0	8.7
a 5-14	Pan fragments from B22t				58													
b 14-24	0.43				37		1.73	1.73		1.00 4/	2	12.6	8.3	0.000	0.000	7.8	8.2	9.0
24-32	0.38				13	12					2		8.4			8.1	8.4	9.0
32-52+	0.09				4	11	1.28	1.28		0.67	2	21.8	6.4	0.000	0.000	8.2	8.6	9.1

Depth (In.)	Extractable bases 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	* Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-2	13.1	3.1	0.3	1.3	17.7			18.3	3.0	0.6	0.6	0.3		-	3.7	0.3		0.42
2-5	19.5	3.6	0.3	1.8	25.1			25.2	2.9	0.8	0.5	0.3		-	3.6	0.1		0.38
5-14	22.5	2.5	0.4	0.6	25.5			21.8	6.2	1.4	0.7	0.1		-	5.6	0.2		0.66
b 14-24	8.6	1.6	0.5	0.4	10.6			8.2	7.0	2.1	1.7	0.2		-	3.3	4.5		1.01
24-32	12.8	4.5	1.1	0.7	18.8			17.0	3.1	1.8	3.0	0.1		-	4.6	0.6		0.63
32-52+	10.2	4.6	1.4	0.4	16.4			15.0	1.8	0.9	2.8	tr		-	4.1	0.4		0.46

Depth (In.)	8A Water at Saturation Pct.	Exch. bases 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1 Mont.	Ill-ite	Kaol.	Kaolin in ground whole soil	
		meq./100 g.						7A2 X-ray			7A3 DTA	
0-2	29.2	13.0	3.1	0.3				xx	x	tr		
2-5	44.0	19.4	3.6	0.3								
5-14	53.0	22.2	2.4	0.3				xxx	x	tr		
b 14-24	36.2	8.3	1.5	0.4	5							
24-32	40.6	12.7	4.4	1.0	6							
32-52+	35.8	10.1	4.6	1.3	9			x	tr	-		

1/ From characterization sample (5 kg.) except as noted.
2/ 19-76 mm. from field weights; >2 mm. includes >76 mm.
3/ Estimated same as IIC2sicam.
4/ >2 mm. considered soil; hence C' = 1.00.
5/ 19-76 mm. estimated same as IIC3sicam, >2 mm. includes >76 mm.

a - Limey pan fragments removed from B22t. None of the fragments remain in the sample of B22t analyzed.

b - <19 mm. soil was ground whole.

* Extractable Ca, Mg, and Na (corrected for soluble salts and gypsum) plus extractable K (uncorrected).

ROVAL GRAVELLY LOAM
S66Nev-9-25

Location: Lincoln County, Nevada. The site is located about 1,300 feet north of the S¼ corner of Section 27, T.2N., R.68E., Mount Diablo base line and meridian. Date of Sampling: April 8, 1966.
Description by: H. Borup. Collectors: D. Nettleton and H. Borup.
Classification: **Aridic Durixeroll, fine-loamy, mixed, mesic.**
Vegetation: Big sagebrush with occasional scattered juniper and an understory of squirreltail and Sandberg bluegrass. Climate: Mean annual rainfall is estimated at 8 to 10 inches; mean annual soil temperature at 48° F; and mean summer soil temperature at 69° F. Parent Material: Alluvium derived mainly from ignimbrite. Topography: Alluvial fan. Slope, 2 percent southwest facing. **Elevation: Approximately 6,000 feet. Drainage: Well drained. Soil Moisture: Dry or almost dry throughout at the time of sampling.**
Remarks: pH values determined with bromthymol blue and thymol blue in 1:5 dilution.

HORIZON

A1 RSL 66104	0 to 2 inches, pale brown (10YR 6/3)* gravelly loam, dark brown (10YR 3/3) moist; moderate thick platy structure; soft, very friable, slightly sticky, slightly plastic; few fine and very fine roots; common fine and very fine vesicular pores; mildly alkaline (pH 7.3); abrupt smooth boundary.
B21t RSL 66105	2 to 5 inches, brown (10YR 5/3) gravelly heavy loam, dark brown (10YR 3/3) moist; weak coarse prismatic and moderate medium platy structure; slightly hard, very friable, sticky, slightly plastic; plentiful fine and very fine roots; many very fine interstitial and common fine tubular pores; few thin clay films in pores; mildly alkaline (pH 7.8); clear wavy boundary.
B22t or B3tca RSL 66106A 66106B	5 to 14 inches, brown (10YR 5/3) gravelly heavy loam grading gradually to pale brown (10YR 6/3) very gravelly loam (sampled as 66106A), dark brown and brown (10YR 3/3 and 4/3) moist; weak coarse prismatic and moderate medium platy structure grading to massive; slightly sticky, slightly plastic; plentiful fine and very fine, and few medium roots; common very fine and fine interstitial and tubular pores; common thin clay films in pores and few thin on ped faces in the upper part only; gravel consists mostly of pan fragments **(sampled as 66106B); strongly effervescent in the upper part but violently effervescent in the lower part; strongly alkaline (pH 8.6); abrupt wavy boundary.**
IIC1sicam RSL 66107	14 to 24 inches, very pale brown (10YR 8/3) indurated duripan with continuous pale brown (10YR 6/3) silica laminae with white (10YR 8/1) lime coatings, pale brown (10YR 6/3) and light gray (10YR 7/2) moist; massive; extremely hard, extremely firm; no roots observed except occasional root mats along fractures and on the upper laminae; many very fine and fine and few medium interstitial pores; many thin and moderately thick silica and lime stalagtitic coatings in pores; violently effervescent; strongly alkaline (pH 8.8); gradual wavy boundary.
IIC2sicam RSL 66108	24 to 32 inches, very pale brown (10YR 7/3) strongly cemented duripan with pockets and discontinuous strata of weakly cemented and indurated materials and with many very thin (less than 5 mm) discontinuous, pale brown (10YR 6/3) silica laminae and many coarse and very coarse white (10YR 8/1 and 8/2) lime coatings, pale brown (10YR 6/3) moist; massive; extremely hard to hard; extremely firm to firm; no roots; many very fine and fine interstitial pores; many thin silica and lime coatings in pores and bridges between sand grains; violently effervescent; strongly alkaline (pH 8.8); clear smooth boundary.
IIC3sica RSL 66109	32 to 52+ inches, pale brown (10YR 6/3) very gravelly loamy sand, with several very thin (less than 5 mm), discontinuous very pale brown (10YR 7/3) and white (10YR 8/2) silica and lime laminae and coatings on some gravel, brown (10YR 5/3) moist; massive; hard and very hard, very friable and very firm, nonsticky, nonplastic; strongly effervescent but violently effervescent on laminae; strongly alkaline (pH 9.0).

*** Colors for dry conditions unless otherwise noted.**

Micromorphology

0-2"	A1	**There are common very thin clay skins on sand grains.**
2-5"	B21t	**There are common moderately thick clay skins on sand grains and some clay bridges between grains.**
14-24"	IIC1sicam	**Laminae of silica and carbonate separate botryoidal areas of silica and carbonate.**
24-32"	IIC2sicam	**Mostly botryoidal areas of silica and carbonate but there are a few thin laminae of silica and carbonate.**
32-52"+	IIC3sica	**There are a few thin clay skins on grains. Some silica and carbonate coat grains and form bridges and seams.**

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Aridic Durixeroll, fine, montmorillonitic, frigid
SOIL SERIES: Stampede loam SOIL Nos. S66Nev-4-4 LOCATION Elko County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 66750 - 66759

Depth (In.)	Horizon	1B1b Total Sand (2-0.05)	Total Silt (0.05-0.002)	Total Clay (< 0.002)	Sand: Very coarse (2-1)	Sand: Coarse (1-0.5)	Sand: Medium (0.5-0.25)	Sand: Fine (0.25-0.1)	Sand: Very fine (0.1-0.05)	Silt: 0.05-0.02	Silt: Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	1/ Coarse fragments 1A2a > 2 Pct.	2 - 19 (Pct. of < 76 mm)	19 -76 (Pct. of < 76 mm)
		Pct. of < 2 mm																
0-2	A11	19.3	65.0	15.7	3.7	3.3	1.8	3.5	7.0	33.2	31.8	42.3	12.3	0	16	15	12	3
2-4	A12	16.6	61.3	22.1	2.7	2.5	1.5	2.7	7.2	29.4	31.9	38.3	9.4	0	22	14	11	3
4-8	A13	17.8	57.4	24.8	2.9	2.1	1.4	2.7	8.7	28.1	29.3	38.5	9.1	0	25	11	8	3
8-12	B1t	18.5	53.5	28.0	2.9	2.6	1.6	2.7	8.7	26.6	26.9	37.0	9.8	0	28	30	5	25
12-21	B2t	13.6	26.1	60.3	2.6	2.5	1.7	2.5	4.3	12.7	13.4	18.4	9.3	0	60	7	7	-
21-25	IIB3t	34.5	24.3	41.2	9.3	9.1	4.8	6.3	5.0	9.3	15.0	17.6	29.5	0	41	47	22	25
25-27*	IIC1sicam	81.8	14.3	3.9	30.8	21.8	9.4	12.7	7.1	6.8	7.5	20.1	74.7	0	4			
27-42	IIC2sicam	84.9	10.7	4.4	34.0	25.2	10.3	10.3	5.1	4.7	6.0	14.7	79.8	0	4	81	38	43
42-49	IIC3sica	71.8	18.9	9.3	24.8	22.1	12.1	9.4	3.4	5.5	13.4	12.4	68.4	0	9	69	52	17
Composite A																12	12	3

Depth (In.)	6A1a Organic carbon Pct	6B1a Nitrogen Pct	C/N	6E1b Carbonate as $CaCO_3$ 2-19mm. Pct.	6E1b Carbonate as $CaCO_3$ Pct	Field Water Content May 1966 Pct.	Bulk density 4A1f 1/3 bar g/cc	Bulk density 4A1h Oven dry g/cc	g/cc	3B2 Cm	Water content: Air dry Pct.	Water content 4B1c 1/3 bar Pct.	Water content 4B2 15 bar Pct.	4D1 Extensibility COLEf in./in.	4D1 Extensibility COLE in./in.	8C1b Saturated Paste	pH 8C1a H_2O 1:1	pH 8C1a H_2O 1:10
0-2	2.24	0.186	12		-	-	1.30	1.34		0.92	3	24.8	9.9	0.010	0.009		6.6	6.9
2-4	1.05	0.110	10		-	4	1.24	1.33		0.93	3	24.4	10.7	0.023	0.021		6.6	7.0
4-8	0.75				-	8	1.29	1.37		0.94	4	22.6	12.2	0.020	0.019		6.4	7.0
8-12	0.58				-	10	1.19	1.32		0.84	4	24.7	12.7	0.034	0.029		6.5	7.0
12-21	0.53				-	22	1.23	1.70		0.97	10	39.4	30.2	0.116	0.111		6.6	7.3
21-25	0.47				-	17	1.10	1.43		0.73	9	42.2	25.4	0.091	0.064		6.9	7.3
25-27*	0.29				4	7	1.54	1.55			4	17.9	10.7	0.001			8.1	8.7
27-42	0.15				2	10	1.44	1.44		0.30	4	22.0	10.2	0.000	0.000		7.9	8.7
42-49	0.12				1	11	1.43	1.45		0.45	4	20.0	10.4	0.003	0.001		8.0	8.7
Comp. A	1.09	0.109	10		-	6					4		10.7				6.7	7.1

Depth (In.)	Extractable bases: 6N4c Ca 5B3a	6O4c Mg 5B3a	6P2a Na 5B1a	6Q2a K 5B1a	Sum of bases	6H2a Ext. Acidity	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1b Ca	6O1b Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-2	8.9	2.5	0.1	2.0				18.6										
2-4	10.2	3.2	0.1	1.8				19.7										
4-8	11.1	3.3	0.2	1.8				20.3										
8-12	12.6	3.9	0.2	1.3				22.3										
12-21	29.4	9.0	0.5	1.0				49.3										
21-25	27.5	8.6	0.5	1.0				47.3										
25-27*	15.3	3.6	0.3	0.4				20.0										
27-42	14.0	3.2	0.3	0.4				22.1										
42-49	13.8	3.1	0.2	0.4				19.1										
Comp. A	10.5	3.1	0.2	3.7				20.8										

Depth (In.)	8A Water at Saturation Pct.	Exch. bases: 5B3b Ca	5B3b Mg	5B1b Na	5D2 Exchangeable Na Pct.	SAR	Gypsum Pct.	Clay mineralogy (<0.002 mm.) 3A1: Mont.	Ill-ite	Kaolin-ite	Others
		meq./100 g.						X-ray 7A2			
0-2								tr.	xx	tr.	Qtz., flds.
2-4											
4-8											
8-12								xxxx	tr.	tr.	
12-21											
21-25											
25-27*								xx	x		Calcite
27-42											
42-49								xxx	tr.	tr.	Qtz.
Comp. A											

1/ 2-19 mm. percentages from characterization samples (5 kg.), 19-76mm. percentages from field weights. The indurated <19 mm. fraction of the IIC1 was ground to <2 mm. hence all data for this horizon are on a <19 mm. basis except bulk density, 1/3 bar H_2O, and COLEf.

* The <19 mm. soil was ground whole.

STAMPEDE LOAM
S66Nev-4-4

Location: Elko County, Nevada. The site is located about 1,580 feet west and 1,040 feet south of the northeast corner of Section 16, T.37N., R.52E., Mount Diablo base line and meridian. Date of Sampling: May 6, 1966. Description by: L. Langan and E. Spencer. Collectors: D. Nettleton, B. Brasher, L. Langan and E. Spencer. Classification: Aridic Durixeroll, fine, montmorillonitic, frigid
Vegetation: Big sagebrush with some Douglas rabbitbrush and an understory of Great Basin wildrye, Sandberg bluegrass, Nevada bluegrass, squirreltail, phlox and lupine. Climate: Mean annual rainfall is estimated at 10 to 16 inches; mean annual soil temperature at 45 to 47° F.; mean summer soil temperature at 61 to 63° F. Parent Material: Alluvium derived from mixed lithologic sources but primarily tuffs with some admixture from loess high in volcanic ash. Topography: Smooth to gently convex, gently to strongly sloping old alluvial fans with slope gradients of 2 to 16 percent. Elevation: Approximately 5,900 feet. Drainage: Well drained. Soil Moisture: Dry or nearly dry throughout at the time of sampling.
Remarks: Four satellite sampling stations were established 44 feet from the sampling pit and equidistant from the other. A composite sample of A horizons (reported as RSL 66759A) was obtained by auger at intervals of 7.3 feet from the sample pit to each satellite. pH values determined with bromthymol blue and thymol blue in 1:5 dilution.

HORIZON

A11 RSL 66750	0 to 2 inches, light brownish gray (10YR 6/2)* gravelly silt loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky, slightly plastic; abundant micro and few very fine and fine roots; few very fine vesicular and many very fine tubular pores; slightly acid (pH 6.4); abrupt smooth boundary.
A12 RSL 66751	2 to 4 inches, brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak very thin platy and moderate very fine granular structure; soft, very friable, slightly sticky, slightly plastic; abundant micro and few very fine and fine roots; many very fine interstitial pores; slightly acid (pH 6.5); clear smooth boundary.
A13 RSL 66752	4 to 8 inches, brown (10YR 5/3) light clay loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, very friable, sticky, plastic; plentiful very fine and fine roots; many very fine interstitial and few very fine tubular pores; neutral (pH 6.6); clear smooth boundary.
B1t RSL 66753	8 to 12 inches, pale brown (10YR 6/3) heavy clay loam with many coarse faint brown (10YR 5/3) stains, brown and dark brown (10YR 4/3 and 3/3) moist; moderate medium subangular blocky structure; hard, friable, very sticky, very plastic; plentiful very fine and fine roots; common very fine and few fine and medium tubular pores; few thin clay films on ped faces and many thin in pores; neutral (pH 6.6); abrupt wavy boundary.
B2t RSL 66754	12 to 21 inches, yellowish brown (10YR 5/4) heavy clay, dark yellowish brown (10YR 4/4) moist and yellowish brown (10YR 5/4) crushed moist; moderate medium prismatic and strong coarse subangular blocky structure; very hard, very firm, very sticky, very plastic; plentiful micro and few very fine and fine roots; common very fine and few fine tubular pores; many slickensides and pressure cutans on ped faces; neutral (pH 6.8); abrupt wavy boundary.
IIB3t RSL 66755	21 to 25 inches, variegated very pale brown (10YR 7/4) and light yellowish brown (10YR 6/4) gravelly light clay with yellowish brown (10YR 5/4) clay films and many very thin, unoriented white (10YR 8/1) silica laminae with pale brown (10YR 6/3) interiors, strong brown (7.5YR 5/6) and dark brown (10YR 3/3) moist and brown (7.5YR 5/4) crushed moist; massive; very hard, very firm, very sticky, very plastic; many very fine and micro roots matted on the horizon surface; common very fine and few fine tubular pores; horizon appears to be developing into a duripan; common moderately thick clay bridges between sand grains and common thick and moderately thick clay films in pores; neutral (pH 6.8); abrupt wavy boundary.
IIC1sicam RSL 66756	25 to 27 inches, very pale brown (10YR 7/3) indurated very gravelly duripan with very thin (2 mm or less) continuous and discontinuous white (10YR 8/1) silica laminae and lime coatings, and a continuous pale brown and brown (10YR 6/3 and 5/3) moderately thick clay films coating upper laminae, stratified brown and pale brown (10YR 5/3 and 6/3) moist with dark yellowish brown (10YR 4/4) and dark brown (10YR 3/3) coatings moist; massive; extremely hard, extremely firm; no roots; few very fine and fine tubular and interstitial pores; noneffervescent matrix but violently effervescent in spots; strongly alkaline (pH 8.5); clear wavy boundary.
IIC2sicam RSL 66757	27 to 42 inches, variegated pale brown (10YR 6/3) and very pale brown (10YR 7/4) strongly cemented very gravelly duripan, with many randomly oriented, thin and very thin (less than 5 mm) discontinuous silica and lime laminae and coatings on gravel that are white (10YR 8/1 and 8/2), brown and yellowish brown (10YR 4/3 and 5/4) moist; massive; extremely hard, extremely firm; no roots; few very fine interstitial and tubular pores; noneffervescent matrix but violently effervescent in spots; strongly alkaline (pH 8.5); clear wavy boundary.
IIC3sica RSL 66758	42 to 49+ inches, very pale brown (10YR 7/4) very gravelly coarse sandy loam that is weakly silica cemented with occasional 1 mm thick, diagonally oriented, white (10YR 8/1) silica and lime laminae, dark yellowish brown (10YR 4/4) moist; massive; very hard, firm, nonsticky, nonplastic; no roots; few very fine and fine interstitial and tubular pores; few moderately thick silica bridges between sand grains and continuous films in pores; matrix noneffervescent but violently effervescent in spots; mildly alkaline (pH 7.8).

*Colors for dry conditions unless otherwise noted.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Fallon-Fernley Area, Churchill Co., Nevada

SOIL FAMILY: Aquic Haploxeroll, fine, montmorillonitic, mesic (Ragtown taxadjunct)

SURVEY NOS. S59Nev-1-4 **LAB. NOS.** 59186 - 59190

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-10	Ap	4.1	12.0	10.7	22.0	12.1	22.1	17.0	37.0	10.4	2	fsl
10-23	IIC1	1.1	4.0	5.0	19.1	16.8	25.0	29.0	29.3	25.7	0	scl-cl
23-42	IIIC2	0.3	0.9	0.9	3.3	9.7	44.4	40.5	26.8	29.7	0	sic-sicl
42-55	IIIC3	0.1	0.4	0.7	2.5	7.2	43.8	45.3	20.6	32.2	0	sic
55+	IVC4	—	No Sample	—	—							

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	-	8.7	0.89	0.064	13.9	4.7	0.7	8				9.1
7.6	-	8.7	0.45	0.045	10.0	4.6	0.6	4				12.1
7.6	-	9.0	0.15	-		3.9	0.6	10				17.5
7.8	-	9.2	0.10	-		3.2	0.8	5				21.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H1a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →						← milliequivalents per liter →					
18.1				0.7	1.3	4	2.3	0.4	5.1	0.9	1.0	36.1
25.2				0.8	1.0	3	2.1	0.2	3.9	0.7	1.0	43.1
31.5				1.7	1.1	5	3.9	0.2	1.9	0.9	0.5	57.0
32.1				2.9	1.7	9	5.7	0.2	1.6	0.3	1.2	63.5

* Saturation extract soluble - milliequivalents per liter.

Series not designated [1/]
S59Nev-1-4

Description: L. H. Langan and M. A. Townsend.
Collectors: R. E. Nelson, L. H. Langan, M. A. Townsend, March 1959.
Location: Ken Kent Ranch, approximately 0.25 mile due east of Fallon, Nevada on the Stillwater road. The site is located approximately 500' E. and 350' S. of NW corner of sec. 32, T19N, R29E. See aerial photograph DOP 2T-132 for exact location. Fallon-Fernley Area, Churchill County, Nevada.
Relief: Smooth (leveled to irrigate).
Use: Alfalfa (alfalfa-corn-grain-sugar beets rotation).
Drainage: Moderately well to imperfectly drained. Runoff is slow; internal drainage is moderately slow; permeability is moderately slow.
Parent Material: Moderately fine textured lacustrine materials from mixed rock sources including granite, basalt, rhyolite, and older lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F., and the average July temperature is 72.9° F., with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Other Features: Native vegetation consists of a relatively dense stand of greasewood and saltgrass.
Reaction: Measure of free carbonates obtained by observing reaction to dilute HCl. pH determined using bromthymol blue.
Classification: Aquic Haploxeroll, fine, montmorillonitic, mesic (Ragtown taxadjunct).

Riverside Lab. Nos.
59186 through 59190

Ap	0-10"	Grayish brown (10YR 5/2) light sandy clay loam, very dark grayish brown (10YR 3/2) when moist; weak fine subangular blocky structure; hard, friable, sticky, plastic; plentiful medium and abundant very fine and fine roots; many very fine and fine tubular pores; slightly calcareous; mildly alkaline (pH 7.6); clear smooth boundary.
IIC1	10-23"	Dark grayish brown (10YR 4/2) clay loam, dark grayish brown (2.5Y 4/2) when moist; weak medium and fine granular structure; hard, friable, sticky, plastic; plentiful medium and abundant very fine and fine roots; many very fine and fine tubular pores; slightly calcareous; neutral (pH 7.2); clear smooth boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL Series not designated **LOCATION** Fallon-Fernley Area, Churchill Co., Nevada

SOIL FAMILY: Aquic Haploxeroll, fine, montmorillonitic, mesic (Ragtown taxadjunct)

SURVEY NOS. S59Nev-1-4 **LAB. NOS.** 59186 - 59190

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) 3A1 VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-10	Ap	4.1	12.0	10.7	22.0	12.1	22.1	17.0	37.0	10.4	2	fsl
10-23	IIC1	1.1	4.0	5.0	19.1	16.8	25.0	29.0	29.3	25.7	0	scl-cl
23-42	IIIC2	0.3	0.9	0.9	3.3	9.7	44.4	40.5	26.8	29.7	0	sic-sicl
42-55	IIIC3	0.1	0.4	0.7	2.5	7.2	43.8	45.3	20.6	32.2	0	sic
55+	IVC4	—	No Sample	—	—	—						

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4E2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.7	-	8.7	0.89	0.064	13.9	4.7	0.7	8				9.1
7.6	-	8.7	0.45	0.045	10.0	4.6	0.6	4				12.1
7.6	-	9.0	0.15	-		3.9	0.6	10				17.5
7.8	-	9.2	0.10	-		3.2	0.8	5				21.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H1a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLES A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
18.1				0.7	1.3	4	2.3	0.4	5.1	0.9	1.0	36.1
25.2				0.8	1.0	3	2.1	0.2	3.9	0.7	1.0	43.1
31.5				1.7	1.1	5	3.9	0.2	1.9	0.9	0.5	57.0
32.1				2.9	1.7	9	5.7	0.2	1.6	0.3	1.2	63.5

* Saturation extract soluble - milliequivalents per liter

IIIC2	23-42"	Dark grayish brown (10YR 4/2) silty clay loam, grayish brown (2.5Y 5/2) when moist; weak fine and medium platy breaking to moderate and strong medium and fine subangular blocky structure; hard, friable, sticky, plastic; plentiful very fine and fine roots; common fine tubular pores; common medium distinct dark brown (7.5YR 3/2) iron mottles on ped surfaces; common fine faint light brownish gray (2.5Y 6/2) lime mottles; strongly calcareous; mildly alkaline (pH 7.6); clear smooth boundary.
IIIC3	42-55"	Grayish brown (10YR 5/2) heavy silty clay loam, grayish brown (2.5Y 5/2) when moist; weak fine and medium platy breaking to strong medium angular blocky structure; hard, friable, sticky, plastic; few fine roots; few fine tubular pores; common medium distinct dark brown (7.5YR 3/2) iron mottles on ped surfaces; slightly calcareous; neutral (pH 7.2); abrupt smooth boundary.
IVC4	55"+	Grayish brown (10YR 5/2) finely stratified medium sand and clay, grayish brown (2.5Y 5/2) when moist; massive; hard, firm, very sticky, very plastic; few fine roots; few fine tubular pores; many coarse prominent dark reddish brown (5YR 3/3) iron mottles; slightly calcareous; neutral (pH 7.0).

1/ The Ragtown series is in a fine, montmorillonitic, calcareous, mesic family of Typic Torriorthents. This pedon is in a different order because of a slightly thicker epipedon.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE East Fork clay loam **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Aquic Fluventic Haploxeroll, fine-loamy, mixed, mesic

SURVEY NOS. S59Nev-1-3 **LAB. NOS.** 59181 - 59185

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	0.1	1.7	2.8	14.7	15.9	33.7	31.1	34.6	25.5	0	cl
6-14	C1	0.3	2.4	3.9	19.3	17.9	30.3	25.9	39.7	22.0	0	l
14-27	C2	0.1	3.9	6.2	21.3	11.9	29.4	27.2	29.6	25.2	0	cl-l
27-36	C3	0.1	2.1	6.8	23.2	9.9	29.1	28.8	27.0	26.2	0	cl
36-48+	C4	0.1	0.4	2.9	24.0	13.5	27.9	31.2	30.4	27.8	0	cl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./L.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.1	-	8.1	0.99	0.092	10.8	5.6	0.7	Tr	1.39			15.3
7.4	-	8.3	0.71	0.066	10.8	6.6	0.7	Tr	1.48			13.4
7.7	-	9.0	0.39	0.037	10.5	6.3	0.9	Tr	1.52			14.1
7.4	-	8.6	0.30	0.028	10.7	4.9	1.0	--				14.7
7.1	-	8.4	0.34	0.031	11.0	2.0	0.8	--				15.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6Q2c	6H1a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A1 8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
31.8				0.8	1.1	3	2.8	0.2	4.2	0.7	1.0	51.5
27.8				0.8	1.0	3	3.6	0.3	4.0	1.5	1.9	44.5
32.3				1.6	0.5	5	6.1	0.1	3.2	1.0	0.6	48.2
32.6				2.7	0.4	8	8.4	0.1	2.0	0.9	0.5	47.9
30.3				2.8	0.5	9	6.3	0.1	1.2	0.4	1.3	43.3

*Saturation extract soluble - milliequivalents per liter.

EAST FORK CLAY LOAM
S59Nev-1-3

Description: L. N. Langan and M. A. Townsend.
Collectors: R. E. Nelson, L. N. Langan, M. A. Townsend.
Location: John Serpa ranch, approximately 0.25 mile north and 0.25 mile east of Fallon, Nevada. This site is located approximately 1,640' S. and 370' E. of NW1/4 corner of sec. 30, T19N, R29E. See aerial photograph DOP 2T-132 for the exact location. Fallon-Fernley Area, Churchill County, Nevada.
Relief: Smooth (leveled to irrigate).
Use: This field is used in an alfalfa-corn-grain rotation.
Vegetation: Newly seeded barley.
Drainage: Moderately well to imperfectly drained. Runoff is slow; internal drainage is moderately slow; permeability is moderately slow.
Parent Material: Moderately fine textured lacustrine materials derived from mixed rock sources including granite, basalt, rhyolite, and older lacustrine materials.
Climate: The Fallon-Fernley Area is characterized by a cold desert climate with cold, dry winters and hot, dry summers. The mean annual precipitation is 4.95 inches. The average January temperature is 29.4° F., and the average July temperature is 72.9° F., with a mean annual temperature of 51.2° F. The average frost-free growing season is 127 days. The relative humidity is low and evaporation is high (36 to 42 inches annually).
Other Features: Native vegetation consists of a relatively dense stand of greasewood and saltgrass.
Reaction: Measure of free carbonates obtained by observing reaction to dilute HCl. pH determined using bromthymol blue.
Classification: Aquic Fluventic Haploxeroll, fine-loamy, mixed, mesic.

Riverside Lab. Nos.
59181 through 59185

Ap	0- 6"	Very dark grayish brown (10YR 3/2, when moist) clay loam; weak coarse subangular blocky breaking to moderate medium and fine granular structure; slightly hard, friable, sticky, very plastic; abundant very fine and fine roots; common fine tubular and many fine interstitial pores; noncalcareous; neutral (pH 7.0); clear smooth boundary.
C_1	6-14"	Dark grayish brown (10YR 4/2, when moist) light clay loam with few fine distinct light gray (10YR 7/2) lime mottles; moderate medium and fine granular structure; slightly hard, friable, sticky, plastic; plentiful very fine and fine roots; common fine and medium tubular pores; few large tubular pores; common worm casts; slightly calcareous in spots only; neutral (pH 7.2); clear wavy boundary.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE East Fork clay loam **LOCATION** Fallon-Fernley Area, Churchill Co.

SOIL FAMILY: Aquic Fluventic Haploxeroll, fine-loamy, mixed, mesic

SURVEY NOS. S59Nev-1-3 **LAB. NOS.** 59181 - 59185

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2	TEXTURAL CLASS
0-6	Ap	0.1	1.7	2.8	14.7	15.9	33.7	31.1	34.6	25.5	0	cl
6-14	C1	0.3	2.4	3.9	19.3	17.9	30.3	25.9	39.7	22.0	0	l
14-27	C2	0.1	3.9	6.2	21.3	11.9	29.4	27.2	29.6	25.2	0	cl-l
27-36	C3	0.1	2.1	6.8	23.2	9.9	29.1	28.8	27.0	26.2	0	cl
36-48+	C4	0.1	0.4	2.9	24.0	13.5	27.9	31.2	30.4	27.8	0	cl

8C1b pH SATURATED PASTE 1:1	6I1a * CO_3 meq./l.	8C1b pH 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	6J1a * HCO_3 meq./l.	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %	4A3a Bulk Density g./cc.	MOISTURE TENSIONS 4B2 1/10 ATMOS. %	4B2 1/3 ATMOS. %	4B2 15 ATMOS. %
7.1	-	8.1	0.99	0.092	10.8	5.6	0.7	Tr	1.39			15.3
7.4	-	8.3	0.71	0.066	10.8	6.6	0.7	Tr	1.48			13.4
7.7	-	9.0	0.39	0.037	10.5	6.3	0.9	Tr	1.52			14.1
7.4	-	8.6	0.30	0.028	10.7	4.9	1.0	--				14.7
7.1	-	8.4	0.34	0.031	11.0	2.0	0.8	--				15.9

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H1a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	5D1 EXCH. Na %	SATURATION EXTRACT SOLUBLE 8A1 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil						milliequivalents per liter					
31.8				0.8	1.1	3	2.8	0.2	4.2	0.7	1.0	51.5
27.8				0.8	1.0	3	3.6	0.3	4.0	1.5	1.9	44.5
32.3				1.6	0.5	5	6.1	0.1	3.2	1.0	0.6	48.2
32.6				2.7	0.4	8	8.4	0.1	2.0	0.9	0.5	47.9
30.3				2.8	0.5	9	6.3	0.1	1.2	0.4	1.3	43.3

*Saturation extract soluble - milliequivalents per liter.

C_2	14-27"	Dark grayish brown (10YR 4/2) clay loam with few fine faint dark brown (7.5YR 3/2) iron mottles and common fine distinct light gray (10YR 7/2) lime mottles; weak medium and fine granular and subangular blocky structure; slightly hard, friable, sticky, plastic; plentiful very fine and fine roots; common fine and medium pores; slightly calcareous; moderately alkaline (pH 7.9); clear wavy boundary.
C3	27-36"	Dark grayish brown (10YR 4/2) clay loam with many medium distinct dark brown (7.5YR 3/2) iron mottles and few fine distinct black (10YR 2/1) organic mottles; weak fine subangular blocky structure; slightly hard, friable, sticky, plastic; few fine and medium roots; few fine and medium pores; noncalcareous; mildly alkaline (pH 7.6); arbitrary lower boundary.
C4	36-48"+	Same as above but split for sampling purposes.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Aquic Fluventic Haploxeroll, fine, montmorillonitic, mesic (Humboldt taxadjunct)
SOIL SERIES Series not designated SOIL Nos. S61Nev-14-2 LOCATION Pershing County, Nevada

SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 61574 - 61581

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Size class and particle diameter (mm) Sand: Very coarse (1-0.5)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int. III (0.02-0.002)	Int. II (0.2-0.02)	3A1 (2-0.1)			Coarse fragments > 2 Pct.	2 - 19 (Pct. of < 76 mm)	19 -76 (Pct. of < 76 mm)
		Pct. of < 2 mm																
0-5	Ap	3.0	45.8	51.2	0.2 a/	0.3 a/	0.2 a/	0.8	1.5	6.8	39.0	8.8	1.5			0		
5-11	A12	2.5	48.0	49.5	0.0	0.2	0.2	0.8	1.3	4.4	43.6	7.2	1.2			0		
11-13	IIC1	0.3	66.7	33.0	0.0	0.1	0.0	0.1	0.1	6.3	60.4	6.5	0.2			0		
13-19	IIIC2	1.6	51.6	46.8	0.0	0.1	0.1	0.5	0.9	3.5	48.1	4.8	0.7			0		
19-31	IVA1b1	1.3	36.8	61.9	0.0	0.1	0.1	0.3	0.8	2.1	34.7	3.1	0.5			0		
31-40	VC3	0.4	61.1	38.5	0.0	0.1	0.0	0.1	0.2	4.7	56.4	5.0	0.2			0		
40-45	VIA1b2	2.7	37.3	60.0	0.0	0.1	0.1	0.8 b/	1.7 b/	2.7	34.6	5.0	1.0			0		
45-62+	VIIC4	36.1	46.4	17.5	0.4	0.6	0.4	12.9	21.8	25.1	21.3	58.1	14.3			0		

Depth (In.)	6A1b Organic carbon Pct.	6B1a Nitrogen Pct.	C/N	6C1a Ext. Iron as Fe Pct.	6B1b Carbonate as $CaCO_3$ Pct		Bulk density g/cc	g/cc	g/cc		Water content Pct.	Pct.	4B2 15 bar Pct.				pH 8C1b Saturated Paste	8C1a 1:10
0-5	2.19	0.203	11	0.1	1								28.2				7.7	8.7
5-11	1.33	0.115	12	0.1	1								27.5				7.6	8.6
11-13	0.58	0.074	8	0.1									22.6				7.4	8.4
13-19	0.69	0.071	10	0.1	1								28.1				7.4	8.5
19-31	0.78	0.068	12	0.1									32.1				7.3	8.5
31-40	0.38	0.044	9	0.1									25.9				7.4	8.5
40-45	0.49	0.057	9	0.3	1								33.9				7.4	8.4
45-62+	0.24	0.031	8	0.1	1								12.2				7.7	8.6

Depth (In.)	Extractable bases: 5B1a + Ca 6N2b	5B1a + Mg 602c	5B1b Exch. Na 6P2a	5B1b Exch. K 602a	Sum of bases	6H2a Ext. Acidity	5A2a CEC NaOAc		Water extract from saturated paste: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0-5	38.3	12.9	3.6	4.4	59.2	1.1	54.0		4.5	2.8	11.4	0.9		0.4	7.6	7.6		1.71
5-11	36.1	11.0	3.6	3.6	54.3	1.3	52.0		2.8	1.5	8.0	0.6		0.5	4.4	5.3		1.30
11-13	26.4	8.2	2.8	2.8	40.2	1.0	38.2		2.7	1.2	8.0	0.5		0.4	4.2	5.2		1.20
13-19	31.6	9.4	3.4	3.3	47.7	1.5	48.6		2.4	0.9	8.0	0.5		0.3	3.5	5.5		1.23
19-31	36.0	10.3	4.6	2.7	53.6	1.6	51.6		1.7	1.0	7.9	0.3		0.1	3.3	5.2		1.10
31-40	27.6	7.8	5.2	2.4	43.0	1.6	43.4		2.1	1.2	13.4	0.3		-	2.9	9.7		1.70
40-45	32.0	9.1	7.6	2.7	51.4	1.4	50.4		2.4	3.0	27.0	0.5		-	3.0	24.9		3.44
45-62+	38.1	15.0	4.4	1.2	58.7	0.4	23.7		12.0	4.8	43.1	0.7		-	2.9	44.3		5.37

Depth (In.)	8A Water at Saturation Pct.	5D1 Exchangeable Na Pct.		Gypsum Pct.		
0-5	73.0	7				
5-11	72.2	7				
11-13	69.4	7				
13-19	64.0	7				
19-31	77.3	9				
31-40	60.8	12				
40-45	79.6	15				
45-62+	39.4	19				

a/ Mainly organic matter.

b/ Includes a few aggregated silt and clay particles.

\+ Including cations from carbonates in some horizons.

Series not designated 1/
S61Nev-14-2

Location: Approximately 180 feet south and 360 feet east of the northwest corner of section 35, T. 27 N., R. 31 E., Mount Diablo Base and Meridian; 1/2 mile south of Lovelock, Pershing County, Nevada on the Circle L Ranch. Date of Sampling: August 5, 1961.
Samples Collected By: R. E. Nelson and L. N. Langan. Description By: Leland I. Larsen.
Classification: **Aquic Fluventic Haploxeroll, fine, montmorillonitic, mesic (Humboldt taxadjunct).**
Vegetation: Alfalfa. Use: Cultivated cropland. Climate: Hot, dry summers and moderately cold, dry winters; an average January temperature of about 28° F.; an average July temperature of about 77° F.; a mean annual temperature of about 52° F.; a frost-free season of about 120 days; and mean annual precipitation of about 4 inches with a relatively low humidity and high rate of evaporation. Parent Material: Alluvium from mixed sources including limestone, basalt, tuff and lacustrine deposits from prehistoric Lake Lahontan. Relief: Smooth, nearly level with a slope gradient of less than 0.5 percent. Physiography: Flood plain of the Humboldt River. Elevation: Approximately 4000 feet. Drainage: Imperfectly drained; very slow runoff; medium internal drainage above the water table; moderately slow permeability. The soil was originally formed under poorly drained conditions, but with artificial drainage and diversion of irrigation water these conditions are improved.
Remarks: Very deep, medium to moderately fine textured soils with moderately fine textured subsoils and substrata. Virgin soils are usually saline and alkali, but with artificial drainage and irrigation, they can be reclaimed. Effervescence obtained by observing reaction to dilute HCl; pH determined with thymol blue in a prepared 1:5 dilution. This profile was not paired.

HORIZON

Ap RSL No. 61574	0 to 5 inches, gray (10YR 5/1) silty clay, very dark gray (10YR 3/1) when moist; weak coarse subangular blocky structure; slightly hard, friable, very sticky, very plastic; few coarse and medium, and abundant very fine roots; common fine interstitial pores and few very fine tubular pores; few worm casts; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
A12 RSL No. 61575	5 to 11 inches, gray (10YR 5/1) clay, very dark gray (10YR 3/1) when moist; strong medium subangular blocky structure; hard, firm, very sticky, very plastic; few coarse and medium, and abundant very fine roots; few very fine tubular and common fine interstitial pores; many worm casts; strongly effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
IIC1 RSL No. 61576	11 to 13 inches, light gray (10YR 7/1) silty clay loam, grayish brown (10YR 5/2) when moist; moderate medium subangular blocky structure; hard, friable, sticky, plastic; few medium and fine, and abundant very fine roots; few fine and common very fine tubular pores; mildly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
IIIC2 RSL No. 61577	13 to 19 inches, light brownish gray (2.5Y 6/2) silty clay loam, very dark grayish brown (2.5Y 3/2) when moist; strong medium subangular blocky structure; hard, firm, sticky, plastic; few medium and fine, and abundant very fine roots; common very fine and few fine tubular pores; strongly effervescent with lime segregated in few fine faint white (2.5Y 8/2) mottles; moderately alkaline (pH 8.4); clear wavy boundary.
IVA1b1 RSL No. 61578	19 to 31 inches, gray (10YR 5/1) silty clay, very dark gray (10YR 3/1) when moist; strong medium subangular blocky structure; hard, firm, very sticky, very plastic; few fine and abundant very fine roots; few fine and common very fine tubular pores; strongly effervescent with lime segregated in few fine faint white (2.5Y 8/2) mottles; moderately alkaline (pH 8.2); clear wavy boundary.
VC3 RSL No. 61579	31 to 40 inches, light brownish gray (2.5Y 6/2) silty clay loam, grayish brown (2.5Y 5/2) when moist; horizon contains a pocket of gray (10YR 5/1), very dark gray (10YR 3/1) moist, material and bands of grayish brown (2.5Y 5/2), dark grayish brown (2.5Y 4/2) moist; moderate coarse subangular blocky structure; hard, friable, sticky, plastic; few fine and plentiful very fine roots; few very fine and few tubular pores; strongly effervescent with lime segregated in common fine faint white (2.5Y 8/2) mottles; moderately alkaline (pH 8.2); abrupt wavy boundary.
VIA1b2 RSL No. 61580	40 to 45 inches, very dark grayish brown (2.5Y 3/2, when moist) silty clay with few fine to medium, distinct dark brown (7.5YR 4/4) mottles; moderate coarse subangular blocky structure; hard, firm, sticky, plastic; few fine and plentiful very fine roots; few very fine and fine tubular pores; strongly effervescent with lime segregated in few fine distinct white (2.5Y 8/2) mottles; strongly alkaline (pH 8.6); abrupt wavy boundary.
VIIC4 RSL No. 61581	45 to 62 inches +, light gray (10YR 7/2) silt loam with few fine faint dark yellowish brown (10YR 4/4) and few medium distinct tongues along root channels from horizon above, light grayish brown (10YR 4/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few very fine roots; few very fine and common fine tubular pores; strongly effervescent with few fine faint white (10YR 8/2) lime segregations; moderately alkaline (pH 8.4).

1/ The Humboldt series is in a fine, montmorillonitic, calcareous, mesic family of Fluventic Haplaquolls (see pedon S56Nev-14-3). This pedon is a taxadjunct because the chroma of the mollic epipedon is too high and there are no mottles.

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Rio King sandy loam **LOCATION** Humboldt County, Nevada

SOIL FAMILY: Aridic Haploxeroll, coarse-loamy, mixed, mesic

SURVEY NOS. S61Nev-7-3- **LAB. NOS.** 61540 - 61547

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-4	A11	14.8	16.0	6.8	10.7	7.8	31.2	12.7	27.1	18.1	10	lcos
4-11	A12	11.1	12.3	6.6	11.8	10.0	33.9	14.3	31.2	19.9	13	l-sl-fs
11-19	B1	11.2	14.5	8.0	14.7	10.3	29.3	12.0	32.8	15.7	12	cosl-sl
19-33	B2	12.2	15.7	8.4	14.3	10.8	26.4	12.2	33.3	12.3	8	cosl
33-45	C1	11.5	16.6	9.9	15.3	10.3	25.9	*10.5	32.3	12.8	8	
45-54	C2	7.1	12.8	6.9	19.7	13.9	29.3	*10.3	42.8	13.0	9	
54-60	C3	6.2	11.5	6.1	16.7	13.2	38.3	* 8.0	43.4	18.5	8	
60-63+	IIC4	2.8	5.8	3.6	11.3	11.6	56.6	* 8.3	46.2	29.4	1	

8C1b pH SATURATED PASTE 1:1	8C1a pH 1:5	8C1a pH 1:10	6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	SATURATION EXTRACT SOLUBLE 8A 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6L1a $CO_3^=$	6J1a HCO_3
						← milliequivalents per liter →						
6.4		7.2	1.06	0.089	12	1.0	0.9	2.5	0.8	0.4	-	1.7
7.0		7.6	0.65	0.062	10	1.0	1.1	1.2	1.6	0.2	-	2.5
7.1		7.7	0.51	0.040	13	0.9	0.7	1.1	0.7	0.2	-	2.5
7.3		7.9	0.44	0.036	12	1.2	0.2	1.1	0.9	0.2	-	2.6
7.8		8.2	0.28	0.028		2.1	0.1	1.1	0.9	0.5	-	2.7
7.9		8.6	0.21			3.3	0.1	1.0	1.2	0.9	-	3.7
8.0		8.8	0.18			4.3	0.1	1.0	0.7	0.9	-	4.3
7.9		9.0	0.17			5.0	0.1	0.9	0.7	1.0	-	4.5

5A2a CATION EXCHANGE CAPACITY ← Na →	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	5B Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	Ext. Iron % Fe 6C1a	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →											
17.9	12.2	4.2	2.8	0.4	2.2	87	0.8	0.65	-		8.2	28.7
21.8	13.7	4.9	1.9	0.3	2.4	92	0.7	0.33	-		9.1	32.2
18.8	11.3	4.5	1.7	0.3	2.1	91	0.8	0.31	-		7.2	27.0
21.5	12.7	5.8	1.4	0.4	0.9	93	0.8	0.32	-		7.9	31.1
21.3	13.1	6.5	1.2	0.9	0.7	96	0.2	0.38	-		7.3	28.6
20.7	12.5	6.1	0.6	0.6	0.6	97	0.2	0.48	-		7.1	30.8
19.5	14.5	6.7	0.5	1.3	0.7	98	0.3	0.53	tr.		7.7	32.3
25.7	20.6	9.1	0.6	2.0	0.9	98	0.4	0.55	tr.		9.9	40.4

1/ Percent of the <1 inch fraction.

* Incompletely dispersed.

RIO KING LOAM
S61Nev-7-3

Location: 1450 feet west and 100 feet north of the southeast corner of section 15, T. 46 N., R. 34 E., Mount Diablo Base and Meridian, 6 1/2 miles north and 2 miles west of the Rio King Ranch headquarters, Humboldt County, Nevada. Date of Sampling: August 8, 1961.
Samples Collected By: R. E. Nelson, L. N. Langan, D. G. Bagley, Leland I. Larsen and Harry Summerfield. Description By: Leland I. Larsen.
Classification: **Aridic Haploxeroll, coarse-loamy, mixed, mesic.**
Vegetation: **Plant density of approximately 10 percent consisting of 92 percent big sage, 5 percent spiny hopsage, 1 percent little rabbitbrush, trace of squirreltail, 1 percent cheatgrass, 1 percent balsamroot, and trace of annual weeds. Use: Livestock range. Climate: Cool continental climate having hot, dry summers and cold, moist winters; an average annual temperature of 48 to 50° F.; an average January temperature of about 30° F.; an average July temperature of about 70° F.; a frost-free season of 110 to 120 days; and an average annual precipitation of 8 to 10 inches. Relative humidity is low and evaporation is high. Parent Material: Mixed loamy alluvium from granodiorite, basalt, tuff, rhyolite, quartzite, and volcanic ash. Relief: Smooth, slope of less than 1 percent. Physiography: Low lying alluvial terrace. Elevation: Approximately 4,350 feet. Drainage: Moderately well drained; very slow runoff during periods of normal rainfall; moderate permeability. The water table is at approximately 10 feet.**
Remarks: The soils are highly micaceous. The soils are usually nonsaline and nonalkali. pH determined using bromthymol blue in a prepared 1:5 dilution. Paired profile is S61Nev-7-4.

HORIZON

A11 RSL No. 61540 — 0 to 4 inches, grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) when moist; moderate coarse platy structure in the surface inch and weak fine granular structure below; soft, very friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine, fine, and medium tubular, and many very fine interstitial pores; neutral (pH 6.6); clear wavy boundary.

A12 RSL No. 61541 — 4 to 11 inches, grayish brown (10YR 5/2) light sandy clay loam, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard, friable, slightly sticky and plastic; plentiful very fine and few fine roots; few very fine tubular, and common very fine and fine interstitial pores; neutral (pH 6.8); clear smooth boundary.

B1 RSL No. 61542 — 11 to 19 inches, light brownish gray (10YR 6/2) sandy loam, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard to soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine and fine interstitial pores; neutral (pH 6.9); abrupt wavy boundary.

B2 RSL No. 61543 — 19 to 33 inches, pale brown (10YR 6/3) heavy sandy loam, dark brown (10YR 3/3) when moist; massive but with a few cicada krotovinas; hard but soft in channels, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine and fine tubular, and common very fine and fine interstitial pores; very few very thin clay bridges between sand grains and few very thin clay films in pores; neutral (pH 6.8); clear smooth boundary.

C1 RSL No. 61544 — 33 to 45 inches, pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) when moist; massive; hard, friable, slightly sticky, slightly plastic; plentiful very fine and few fine roots; few very fine and fine interstitial pores; horizon contains few cicada channels; neutral (pH 6.8); clear smooth boundary.

C2 RSL No. 61545 — 45 to 54 inches, pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 3/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few very fine and fine roots; few very fine and fine interstitial pores; neutral (pH 6.8); clear smooth boundary.

C3 RSL No. 61546 — 54 to 60 inches, pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) when moist; massive; slightly hard, very friable, nonsticky, nonplastic; few very fine and fine roots; common very fine and fine interstitial pores; neutral (pH 7.0); abrupt smooth boundary.

IIC4 RSL No. 61547 — 60 to 63 inches, pale brown (10YR 6/3) silt loam, brown (10YR 4/3) when moist; massive; slightly hard, very friable, very slightly sticky, very slightly plastic; few very fine and fine roots; common very fine and fine interstitial pores; mildly alkaline (pH 7.4).

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Rio King sandy loam **LOCATION** Humboldt County, Nevada

SOIL FAMILY: Aridic Haploxeroll, coarse-loamy, mixed, mesic

SURVEY NOS. S61Nev-7-4 **LAB. NOS.** 61548 - 61555

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-5	A11	10.8	20.0	7.8	9.0	4.3	31.4	16.7	19.7	20.6	5	1-cosl
5-12	A12	8.4	15.9	5.7	9.8	6.1	35.7	18.4	25.0	22.6	6	1
12-20	A13	8.5	13.3	5.7	12.0	8.4	34.9	17.2	29.5	21.1	10	1
20-28	B2	10.3	12.5	6.0	11.4	7.8	37.0	15.0	29.8	21.8	11	1
28-38	C1	10.0	11.3	5.7	10.3	8.7	40.6	13.4*	29.6	26.0	10	
38-49	C2	8.5	10.6	4.8	9.6	8.4	46.8	11.3*	16.0	32.2	6	
49-66	IIC3	12.2	15.4	6.0	9.0	8.4	41.8	7.2*	32.3	23.5	6	
66-69	IIIC4	4.8	9.0	5.6	14.5	8.2	52.6	5.3*	38.4	31.8	14	

8C1b SATURATED PASTE 1:1	pH 8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	SATURATION EXTRACT SOLUBLE 8A 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^=$	6J1a HCO_3^-
						← milliequivalents per liter						→
6.8		7.3	1.72	0.137	13	1.4	0.6	3.5	2.1	0.7	-	4.1
7.0		7.6	0.99	0.088	11	1.4	0.4	1.6	0.8	0.2	-	2.9
7.0		7.7	0.70	0.066	11	1.4	0.4	1.6	1.0	0.3	-	2.9
7.0		7.4	0.60	0.061	10	1.3	0.4	1.4	0.8	0.5	-	2.5
6.9		7.4	0.48	0.054	9	1.0	0.3	0.8	0.6	0.6	-	1.8
7.2		7.5	0.41	0.048	8	1.3	0.1	0.9	1.0	0.5	-	1.6
7.5		7.4	0.23			1.1	0.1	0.8	0.5	0.5	-	1.4
7.4		7.4	0.19			0.9	0.1	0.6	0.3	0.5	-	1.0

5A2a CATION EXCHANGE CAPACITY (Na)	EXTRACTABLE CATIONS 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	Ext. Iron % Fe 6C1a	8A1a Elec. Conduc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →											
26.4	15.5	6.0	3.1	0.3	1.7	88	0.8	0.68	-		10.5	35.4
27.1	17.7	6.0	2.4	0.4	2.4	92	0.3	0.36	-		11.6	35.6
25.2	16.2	5.9	2.3	0.4	2.2	92	0.3	0.42	-		10.3	36.4
26.0	16.0	6.5	2.1	0.4	2.1	92	0.2	0.35	-		10.4	40.0
27.7	16.8	7.6	1.9	0.5	1.3	93	0.1	0.26	-		10.0	39.0
27.8	17.3	8.3	1.5	0.5	1.0	95	0.3	0.23	-		10.3	37.8
22.4	13.5	6.6	1.5	0.5	0.7	93	0.3	0.23	-		7.8	30.2
15.2	9.6	4.5	3.4	0.4	0.6	82	0.1	0.16	-		6.4	35.9

1/ Percent of the <1 inch fraction.

* Incompletely dispersed.

RIO KING LOAM
S61Nev-7-4

Location: 1,500 feet west and 100 feet south of the northeast corner of section 27, T. 46 N., R. 34 E., Mount Diablo Base and Meridian, 5 1/2 miles north and 2 miles west of Rio King Ranch headquarters, Humboldt County, Nevada. Date of Sampling: August 8, 1961.
Samples Collected By: R. E. Nelson, L. N. Langan, D. G. Bagley, Leland I. Larsen and Harry Summerfield. Description By: Leland I. Larsen.
Classification: **Aridic Haploxeroll, coarse-loamy, mixed, mesic.**
Vegetation: **Plant density of approximately 10 percent consisting of 92 percent big sage, 5 percent spiny hopsage, 1 percent little rabbitbrush, trace of squirreltail, 1 percent cheatgrass, 1 percent balsamroot, and trace of annual weeds. Use: Livestock range. Climate: Cool continental climate having hot, dry summers and cold, moist winters; an average annual temperature of 48 to 50° F.; an average January temperature of about 30° F.; an average July temperature of about 70° F.; a frost-free season of 110 to 120 days; and an average annual precipitation of 8 to 10 inches. Relative humidity is low and evaporation is high. Parent Material: Mixed loamy alluvium from granodiorite, basalt, tuff, rhyolite, quartzite and volcanic ash. Relief: Smooth, slope of less than 1 percent.** Physiography: Low lying alluvial terrace. Elevation: Approximately 4350 feet. Drainage: Moderately well drained; very slow runoff during periods of normal rainfall; moderate permeability. The water table is at approximately 10 feet.
Remarks: The soils are highly micaceous. The soils are usually nonsaline or nonalkali. pH determined using bromthymol blue in a prepared 1:5 dilution. Paired profile is S61Nev-7-3.

HORIZON

A11 RSL No. 61548 — 0 to 5 inches, grayish brown (10YR 5/2) heavy loam, very dark brown (10YR 2/2) when moist; moderate coarse platy structure; slightly hard, very friable, slightly sticky, slightly plastic; plentiful very fine and fine, and few medium roots; many very fine and fine interstitial pores; numerous worm casts; neutral (pH 6.6); abrupt smooth boundary.

A12 RSL No. 61549 — 5 to 12 inches, grayish brown (10YR 5/2) light sandy clay loam, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard, very friable, sticky, plastic; plentiful very fine and fine, and few medium roots; many very fine tubular pores; numerous worm casts; neutral (pH 6.6); abrupt wavy boundary.

A13 RSL No. 61550 — 12 to 20 inches, grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) when moist; massive; soft, very friable, slightly sticky, slightly plastic; plentiful very fine, few fine and medium roots; few very fine and fine tubular and interstitial pores; common worm casts; neutral (pH 6.6); abrupt wavy boundary.

B2 RSL No. 61551 — 20 to 28 inches, light brownish gray (10YR 6/2) heavy loam, very dark grayish brown (10YR 3/2) when moist; massive; hard, friable, slightly sticky, slightly plastic; plentiful very fine, and few medium roots; few very fine and fine tubular, and common very fine interstitial pores; neutral (pH 6.6); clear smooth boundary.

C1 RSL No. 61552 — 28 to 38 inches, light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine roots; few very fine and fine tubular, and few very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.

C2 RSL No. 61553 — 38 to 49 inches, pale brown (10YR 6/3) loam, dark brown (10YR 3/3) when moist; massive; slightly hard, friable, slightly sticky, slightly plastic; few fine roots; few very fine and fine tubular, and common very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.

IIC3 RSL No. 61554 — 49 to 66 inches, pale brown (10YR 6/3) stratified fine sandy loam, very fine sandy loam, and sandy loam, dark brown (10YR 3/3) when moist; massive; soft, very friable, nonsticky, nonplastic; few very fine and fine roots; common very fine interstitial pores; neutral (pH 6.8); abrupt smooth boundary.

IIIC4 RSL No. 61555 — 66 to 69 inches, very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) when moist; massive; soft, very friable, nonsticky, nonplastic; few very fine roots; few fine and very fine interstitial pores; neutral (pH 6.8); clear smooth boundary.

IIIC5 — 69 to 71 inches +, pale brown (10YR 6/3) fine sandy loam with few very fine distinct dark brown (7.5YR 4/4) mottles, dark brown (10YR 3/3) when moist; massive; soft, very friable, nonsticky, nonplastic; few very fine roots; few very fine and fine interstitial pores; neutral (pH 6.8).

SOIL SURVEY LABORATORY Riverside, California

SOIL TYPE Mottsville gravelly loamy coarse sand **LOCATION** Carson Valley, Douglas County, Nevada

SOIL FAMILY: Torriorthentic Haploxeroll, sandy, mixed, mesic

SURVEY NOS. S61Nev-3-5 **LAB. NOS.** 61519 - 61523

DEPTH INCHES	HORIZON	1B1b PARTICLE SIZE DISTRIBUTION (in mm.) (per cent) VERY COARSE SAND 2-1	COARSE SAND 1-0.5	MEDIUM SAND 0.5-0.25	FINE SAND 0.25-0.10	VERY FINE SAND 0.10-0.05	SILT 0.05-0.002	CLAY < 0.002	3A1 0.2-0.02	0.02-0.002	2A2 > 2 1/	TEXTURAL CLASS
0-5	A11	21.3	35.8	10.9	15.2	5.6	8.4	2.8	19.5	2.3	18	cos
5-10	A12	16.3	31.1	11.4	19.0	8.0	11.0	3.2	26.1	3.1	28	lcos-cos
10-18	A13	14.6	28.4	11.7	21.4	9.2	11.6	3.1	29.3	3.2	25	lcos-cos
18-30	AC	12.0	22.8	14.1	24.3	11.6	11.9	3.3	33.6	3.3	29	lcos-cos
30-49+	C1	19.7	25.7	13.4	20.6	7.9	9.9	2.8	26.0	2.8	28	cos-lcos

pH 8C1b SATURATED PASTE 1:1	8C1a 1:5	8C1a 1:10	ORGANIC MATTER 6A1a ORGANIC CARBON %	6B1a NITROGEN %	C/N	SATURATION EXTRACT SOLUBLE 8A 6P1a Na	6Q1a K	6N1a Ca	6O1a Mg	6K1a Cl	6I1a $CO_3^=$	6J1a HCO_3^-
						← milliequivalents per liter →						
5.3		5.8	1.72	0.096	18	0.5	0.3	2.2	0.5	0.2	-	0.6
6.3		6.4	0.76	0.054	14	0.5	0.2	1.1	0.3	0.5	-	0.6
6.6		6.5	0.54	0.041	13	0.5	0.3	0.6	0.6	0.4	-	0.7
6.8		6.6	0.36	0.029		0.6	0.2	0.6	0.4	0.5	-	0.7
6.8		6.6	0.27			0.5	0.3	0.6	0.4	0.5	-	0.6

5A2a CATION EXCHANGE CAPACITY ← Na)	EXTRACTABLE CATIONS 5B 5B1a Ca 6N2b	5B1a Mg 6O2c	6H2a H	Exch. 5B1b Na 6P2a	Exch. 5B1b K 6Q2a	BASE SAT. % 5C3	Ext. Iron % Fe 6C1a	8F1a Elec. Condc. EC×10³ MILLIMHOS PER CM @25°C.	6E1b $CaCO_3$ equivalent %		4B2 Moist. at 15 atmos. %	8A MOISTURE AT SATURATION %
	milliequivalents per 100g. soil →											
9.3	3.2	0.4	4.2	0.1	0.2	48	0.3	0.38	-		3.2	27.3
8.0	3.6	0.6	2.6	0.1	0.2	63	0.5	0.20	-		2.3	24.4
7.0	3.6	0.7	2.1	0.1	0.3	69	0.5	0.18	-		2.3	23.2
6.7	2.9	0.5	2.0	0.1	0.4	66	0.5	0.15	-		2.1	24.5
6.0	2.5	0.3	1.6	0.1	0.3	67	0.3	0.16	-		1.8	24.3

1/ Percent of the <1 inch fraction.

MOTTSVILLE GRAVELLY LOAMY COARSE SAND
S61Nev-3-5

Location: 100 feet west and 50 feet south of the north quarter corner of section 36, T. 12 N., R. 19 E., Mount Diablo Base and Meridian, southwestern Carson Valley, Douglas County, Nevada. Date of Sampling: August 1, 1961.
Samples Collected By: L. N. Langan, R. L. Malchow, and R. E. Nelson. Description By: L. N. Langan and R. L. Malchow.
Classification: **Torriorthentic Haploxeroll, sandy, mixed, mesic.**
Vegetation: Big sagebrush, bitterbrush, rabbitbrush, and Indian ricegrass. Use: Livestock grazing. Climate: Cool, continental climate having cold, moist winters and hot, dry summers; an average annual precipitation of 12 to 14 inches; an average annual temperature of 49 to 51° F.; and a frost-free season of 95 to 110 days. Parent Material: Granitic alluvium. Relief: Slightly convex easterly facing slope of 5 percent. Physiography: Alluvial fan. Drainage: Excessively drained; very slow runoff; very rapid internal drainage and permeability.
Remarks: This soil is highly micaceous. pH determined using bromthymol blue in prepared 1:5 dilution. Paired profile is S61Nev-3-4.

HORIZON

A11 RSL No. 61519	0 to 5 inches, dark grayish brown (10YR 4/2) gravelly loamy coarse sand, very dark brown (10YR 2/2) when moist; single grained; loose when dry and moist, nonsticky, nonplastic; plentiful very fine roots; many fine interstitial pores; pH 6.2; clear smooth boundary.
A12 RSL No. 61520	5 to 10 inches, grayish brown (10YR 5/2) gravelly loamy coarse sand, very dark brown (10YR 2/2) when moist; single grained; loose when dry and moist, nonsticky, nonplastic; plentiful very fine roots; many fine interstitial pores; pH 6.4; clear wavy boundary.
A13 RSL No. 61521	10 to 18 inches, grayish brown (10YR 5/2) gravelly loamy coarse sand, very dark brown (10YR 2/2) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine roots; many fine interstitial pores; pH 6.4; clear wavy boundary.
AC RSL No. 61522	18 to 30 inches, light brownish gray (10YR 6/2) gravelly coarse sand, very dark grayish brown (10YR 3/2) when moist; massive; soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; many fine interstitial pores; pH 6.4; clear wavy boundary. (2% of horizon consists of 1 inch plus gravels discarded from sample.)
C1 RSL No. 61523	30 to 49 inches +, light brownish gray (10YR 6/2) gravelly coarse sand, massive, soft, very friable, nonsticky, nonplastic; plentiful very fine and few fine roots; many fine interstitial pores; pH 6.6. (5% of horizon consists of 1 inch plus gravels discarded from sample.)

SOIL FAMILY: Aquic Natrixeroll, fine-silty, mixed, mesic
SOIL SERIES Fattic very fine sandy loam SOIL Nos. S60Nev-3-5 LOCATION Carson Valley, Douglas County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 6073 - 6083

Depth (In.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: (0.05-0.02)	Int. III (0.02-0.002)	Int. II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	Coarse fragments 2A2 > 2 Pct	2 - 19	19-76
		Size class and particle diameter (mm) 3A1															Pct of < 76 mm	
		Pct. of < 2 mm																
0- 3	A1	58.3	38.4	3.3	0.3	3.7	3.1	24.0	27.2	24.4	14.0	70.1	31.1			0		
3- 8	IIB2t	29.1	30.8	40.1	0.1	2.2	2.4	13.5	10.9	12.3	18.5	32.9	18.2			0		
8-17	IIB3t	24.6	49.9	25.5	0.8	2.1	1.4	8.5	11.8	18.3	31.6	36.9	12.8			0		
17-23	IIIC1	54.1	31.0	14.9	0.3	3.0	1.9	21.5	27.4	19.3	11.7	65.0	26.7			5		
23-31	IIIC2	66.0	22.3	11.7	0.2	2.4	2.2	35.4	25.8	14.6	7.7	69.8	40.2			0		
31-42	IVC3	90.8	4.7	4.5	0.4	8.5	11.4	59.7	10.8	3.7	1.0	51.0	80.0			0		
42-46	VC4	76.4	16.2	7.4	0.2	3.0	2.7	42.5	28.0	11.0	5.2	74.3	48.4			0		
46-52	VIC5	88.9	6.7	4.4	0.6	7.1	10.0	59.2	12.0	4.5	2.2	54.7	76.9			0		
52-55	VIIC6	73.2	18.3	8.5	0.3	5.9	4.2	38.1	24.7	11.6	6.7	66.8	48.5			0		
55-65	VIIIC7	92.3	3.4	4.3	1.3	28.5	22.8	33.6	6.1	2.9	0.5	25.2	86.2			0		
65-74+	IXC8	91.1	4.1	4.8	0.4	6.1	19.8	59.2	5.6	3.1	1.0	35.7	85.5			0		

Depth (In.)	6A1a Organic carbon Pct	6B1a Nitrogen Pct	C/N	6C1a Free iron as % Fe_2O_3	6E1b Carbonate as $CaCO_3$ Pct	Bulk density: 4A1f 1/3 bar g/cc	4A1h Oven dry g/cc	g/cc	Water content: Pct.	4B1c 1/3 bar Pct.	4B2 15 bar Pct.	4D1 Extensibility COLEF in./in.	4D1 Extensibility COLE in./in.	pH: 8C1b Saturated Paste	8C1a H_2O 1:10
0- 3	0.77	0.053	14.5	1.1	-						3.8			7.3	7.9
3- 8	0.98	0.074	13.2	2.9	1						22.9			8.6	9.8
8-17	0.29	0.022		1.4	5						20.5			8.9	9.9
17-23	0.16			1.4	<0.5						11.3			8.6	9.8
23-31	0.11			1.5	<0.5						9.4			8.3	9.3
31-42	0.01			1.5							4.1			8.4	8.5
42-46	0.06										6.9			8.1	8.9
46-52	0.02										5.0			8.0	8.1
52-55	0.07										6.7			7.8	8.4
55-65	0.03										4.3			7.8	7.7
65-74+	0.03										4.1			7.6	7.2

Depth (In.)	Extractable bases: 5B1a 6N2b Ca 1/	5B1a 6O2a Mg 1/	5B1b 6P2a Exch. Na	5B1b 6Q2a Exch. K	Sum of bases	6H2a Ext. H	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K	6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter								mmho/cm
0- 3	2.9	1.3	2.7	1.6	8.5	1.7	9.6		1.5	0.6	29.5	1.4	-	5.7	20.0		3.1
3- 8	10.1	3.0	24.3	3.1	40.5	-	40.0		1.2	-	69.0	0.6	-	9.8	30.0		7.1
8-17	14.7	2.9	26.8	1.6	46.0	-	36.6		1.4	0.8	132.0	0.7	-	4.6	37.5		13.1
17-23	7.8	1.8	19.3	1.1	30.0	-	25.1		2.5	0.6	148.0	0.6	-	4.1	53.6		11.6
23-31	4.4	1.7	14.1	0.6	20.8	-	22.5		3.4	0.7	128.5	0.3	-	3.0	54.3		14.0
31-42	5.3	1.5	4.3	0.2	11.3	1.5	12.8		0.4	0.2	31.5	0.1	-	1.2	7.7		1.9
42-46	10.4	3.7	3.5	0.1	17.7	2.4	19.5		1.4	0.4	29.5	<0.1	-	4.2	12.8		1.9
46-52	7.8	2.6	2.4	0.1	12.9	2.5	8.2		0.5	0.3	6.8	<0.1	-	1.0	2.3		0.8
52-55	10.6	3.7	2.9	0.2	17.4	2.3	20.3		0.8	0.3	8.7	<0.1	-	1.0	3.6		1.0
55-65	6.8	2.1	1.5	0.2	10.6	2.9	12.8		0.5	0.4	10.5	<0.1	-	0.8	1.7		0.6
65-74+	7.2	2.5	1.4	0.2	11.3	2.3	12.5		0.7	0.4	6.1	<0.1	-	0.6	2.6		0.8

Depth (In.)	8A Water at Saturation Pct.	5D1 Exchangeable Na Pct.	5B1b Exch. Na meq./100g.	Gypsum Pct	Base Sat. Pct.	Clay mineralogy (<0.002 mm.) 7A: Mont.	Verm.	Mica	Kaolin.
						X-ray			
0- 3	30.9	28							
3- 8	74.6	61							
8-17	79.9	58							
17-23	51.4	77							
23-31	40.6	63							
31-42	33.2	34							
42-46	37.2	18							
46-52	37.6	29							
52-55	35.0	14							
55-65	35.6	12							
65-74+	39.6	11							

1/ Including cations from carbonates.

FETTIC VERY FINE SANDY LOAM
S60Nev-3-5

Location: The site is located approximately 150 feet south and 1,400 feet east of the west 1/4 corner of sec. 19, T. 14 N., R. 20 E., Mount Diablo Base and Meridian, Carson Valley, Douglas County, Nevada.
Sampled by: L. N. Langan, R. E. Nelson, R. Malchow, and L. H. Grant, April 23, 1960
Description by: L. N. Langan
Relief: Smooth, nearly level alluvial terrace dissected by many moderately deep broad drainage channels
Physiography: Alluvial terrace on the floodplain of the Carson River
Drainage: Imperfectly drained; runoff is very slow during periods of normal rainfall; internal drainage is slow. Soil permeability is slow through the B and moderately rapid through the C. Water table was at 6½ feet during the time of sampling. Water table is normally between 3½ and 4½ feet during runoff periods of normal water years.
Parent Material: Loamy alluvium derived from mixed rock sources, consisting primarily of granite with admixtures of basalt, rhyolite, and assorted sedimentary and metamorphic rocks.
Use: Available forage is being utilized for livestock grazing during most periods of the year but primarily during the late winter and spring months.
Vegetation: Vegetation has a plant density of approximately 7 percent, consisting of big sagebrush 35 percent, greasewood 55 percent, saltgrass 9 percent, and blue-jointed ryegrass 1 percent.
Climate: The site is characterized by a cool, semiarid climate with cold, moist winters and hot, dry summers. The average rainfall is approximately 8 to 10 inches, average annual temperature is 49 to 51 degrees F., and the average frost-free season is 95 to 110 days.
Remarks: This soil is slightly saline and strongly alkali; included are some areas that are both strongly saline and alkali. These samples are not paired.
Reaction: Measure of free carbonate obtained by observing reaction to dilute HCl. pHs determined with bromthymol blue and thymol blue in prepared 1:5 dilutions.
Classification: Aquic Natrixeroll, fine-silty, mixed, mesic

A1 RSL No. 6073	0- 3"	Gray (10YR 5/1) very fine sandy loam, between very dark gray and dark gray (10YR 3/1) when moist; moderate coarse platy structure; slightly hard, very friable, nonsticky, nonplastic; plentiful fine and abundant very fine roots; many fine and few very fine and medium vesicular pores; pH 7.8; abrupt slightly wavy boundary.
IIB2t RSL No. 6074	3- 8"	Grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) when moist; strong fine columnar structure; very hard, firm, very sticky, very plastic; plentiful fine and abundant very fine roots; common very fine tubular pores; thin continuous clay films on ped faces and in pores; few bleached sand grains on columnar caps; mildly calcareous and strongly calcareous in spots; pH 9.6; abrupt smooth boundary.
IIB3t RSL No. 6075	8-17"	Light brownish gray (10YR 6/2) light clay loam, dark grayish brown (10YR 4/2) when moist, with common coarse faint dark brown (10YR 4/3) iron stains; weak fine prismatic breaking to strong medium subangular blocky structure; hard, friable, slightly sticky, plastic; few fine and abundant very fine roots; few fine and many very fine tubular pores; common worm casts; common thin clay films in pores, and few thin clay films on ped faces; strongly calcareous; pH 9.4; clear wavy boundary.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL FAMILY: Aquic Natrixeroll, fine-silty, mixed, mesic
SOIL SERIES Feltic very fine sandy loam SOIL Nos S60Nev-3-5 LOCATION Carson Valley, Douglas County, Nevada
SOIL SURVEY LABORATORY Riverside, California LAB. Nos. 6073 - 6083

Depth (in.)	Horizon	1B1b Total: Sand (2-0.05)	Silt (0.05-0.002)	Clay (< 0.002)	Sand: Very coarse (2-1)	Coarse (1-0.5)	Medium (0.5-0.25)	Fine (0.25-0.1)	Very fine (0.1-0.05)	Silt: 0.05-0.02	Int III (0.02-0.002)	Int II (0.2-0.02)	(2-0.1)	3A1a Carbonate clay	3A1a Non-carbonate clay	2A2 Coarse fragments ≥ 2	2 - 19	19 - 76
		Pct. of < 2 mm														Pct	Pct of < 76 mm	
0- 3	A1	58.3	38.4	3.3	0.3	3.7	3.1	24.0	27.2	24.4	14.0	70.1	31.1			0		
3- 8	IIB2t	29.1	30.8	40.1	0.1	2.2	2.4	13.5	10.9	12.3	18.5	32.9	18.2			0		
8-17	IIb3t	24.6	49.9	25.5	0.8	2.1	1.4	8.5	11.8	18.3	31.6	36.9	12.8			0		
17-23	IIIC1	54.1	31.0	14.9	0.3	3.0	1.9	21.5	27.4	19.3	11.7	65.0	26.7			5		
23-31	IIIC2	66.0	22.3	11.7	0.2	2.4	2.2	35.4	25.8	14.6	7.7	69.8	40.2			0		
31-42	IVC3	90.8	4.7	4.5	0.4	8.5	11.4	59.7	10.8	3.7	1.0	51.0	80.0			0		
42-46	VC4	76.4	16.2	7.4	0.2	3.0	2.7	42.5	28.0	11.0	5.2	74.3	48.4			0		
46-52	VIC5	88.9	6.7	4.4	0.6	7.1	10.0	59.2	12.0	4.5	2.2	54.7	76.9			0		
52-55	VIIC6	73.2	18.3	8.5	0.3	5.9	4.2	38.1	24.7	11.6	6.7	66.8	48.5			0		
55-65	VIIIC7	92.3	3.4	4.3	1.3	28.5	22.8	33.6	6.1	2.9	0.5	25.2	86.2			0		
65-74+	IXC8	91.1	4.1	4.8	0.4	6.1	19.8	59.2	5.6	3.1	1.0	35.7	85.5			0		

Depth (in.)	6A1a Organic carbon	6B1a Nitrogen	C/N	6C1a Free iron as % Fe_2O_3	6E1b Carbonate as $CaCO_3$		Bulk density: 4A1f 1/3 bar	4A1h Oven dry			Water content: 4B1c 1/3 bar	4B2 15 bar	4D1 Extensibility COLEP	4D1 Extensibility COLE	pH: 8C1b Saturated Paste	8C1a H_2O 1:10
	Pct	Pct			Pct		g/cc	g/cc	g/cc	Pct	Pct	Pct	in./in.	in./in.		
0- 3	0.77	0.053	14.5	1.1	-							3.8			7.3	7.9
3- 8	0.98	0.074	13.2	2.9	1							22.9			8.6	9.8
8-17	0.29	0.022		1.4	5							20.5			8.9	9.9
17-23	0.16			1.4	<0.5							11.3			8.6	9.8
23-31	0.11			1.5	<0.5							9.4			8.3	9.3
31-42	0.01			1.5								4.1			8.4	8.5
42-46	0.06											6.9			8.1	8.9
46-52	0.02											5.0			8.0	8.1
52-55	0.07											6.7			7.8	8.4
55-65	0.03											4.3			7.8	7.7
65-74+	0.03											4.1			7.6	7.2

Depth (in.)	Extractable bases: 5B1a 6N2b Ca 1/	5B1a 6O2a Mg 1/	5B1b 6P2a Exch. Na	5B1b 6Q2a Exch. K	Sum of bases	6H2a Ext. H	Cation Exch. Capacity: 5A2a NaOAc	5A1a NH_4OAc	Water extract from saturated paste 8A1: 6N1a Ca	6O1a Mg	6P1a Na	6Q1a K		6I1a CO_3	6J1a HCO_3	6K1a Cl	SO_4	8A1a Electrical conductivity
	meq/100 g								meq/liter									mmho/cm
0- 3	2.9	1.3	2.7	1.6	8.5	1.7	9.6		1.5	0.6	29.5	1.4		-	5.7	20.0		3.1
3- 8	10.1	3.0	24.3	3.1	40.5	-	40.0		1.2	-	69.0	0.6		-	9.8	30.0		7.1
8-17	14.7	2.9	26.8	1.6	46.0	-	36.6		1.4	0.8	132.0	0.7		-	4.6	37.5		13.1
17-23	7.8	1.8	19.3	1.1	30.0	-	25.1		2.5	0.6	148.0	0.6		-	4.1	53.6		11.6
23-31	4.4	1.7	14.1	0.6	20.8	-	22.5		3.4	0.7	128.5	0.3		-	3.0	54.3		14.0
31-42	5.3	1.5	4.3	0.2	11.3	1.5	12.8		0.4	0.2	31.5	0.1		-	1.2	7.7		1.9
42-46	10.4	3.7	3.5	0.1	17.7	2.4	19.5		1.4	0.4	29.5	<0.1		-	4.2	12.8		1.9
46-52	7.8	2.6	2.4	0.1	12.9	2.5	8.2		0.5	0.3	6.8	<0.1		-	1.0	2.3		0.8
52-55	10.6	3.7	2.9	0.2	17.4	2.3	20.3		0.8	0.3	8.7	<0.1		-	1.0	3.6		1.0
55-65	6.8	2.1	1.5	0.2	10.6	2.9	12.8		0.5	0.4	10.5	<0.1		-	0.8	1.7		0.6
65-74+	7.2	2.5	1.4	0.2	11.3	2.3	12.5		0.7	0.4	6.1	<0.1		-	0.6	2.6		0.8

Depth (in.)	8A Water at Saturation	5D1 Exchangeable Na	5B1b Exch. Na meq./100g.	Gypsum	Base Sat.	Clay mineralogy (<0.002 mm.) 7A: Mont.	Verm.	Mica	Kaolin	
	Pct	Pct		Pct	Pct.	< X-ray >				
0- 3	30.9	28								
3- 8	74.6	61								
8-17	79.9	58								
17-23	51.4	77								
23-31	40.6	63								
31-42	33.2	34								
42-46	37.2	18								
46-52	37.6	29								
52-55	35.0	14								
55-65	35.6	12								
65-74+	39.6	11								

1/ Including cations from carbonates.

IIIC1 RSL No. 6076	17-23"	Pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) when moist, with common coarse faint dark grayish brown (10YR 4/2) and few fine distinct dark brown (7.5YR 3/2) iron mottles; massive; slightly hard, friable, very slightly sticky, very slightly plastic; abundant very fine roots; many very fine and few fine tubular pores; mildly calcareous, but strongly calcareous in spots; pH 8.8; clear smooth boundary.
IIIC2 RSL No. 6077	23-31"	Pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) when moist, with common medium distinct light gray (10YR 7/2) lime stains and common medium and fine faint dark yellowish brown (10YR 4/4) iron mottles; massive; slightly hard, friable, nonsticky, nonplastic; abundant very fine roots; common very fine and few fine tubular pores; noncalcareous in soil matrix but strongly calcareous in spots; pH 8.8; abrupt smooth boundary.
IVC3 RSL No. 6078	31-42"	Light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) when moist, with common medium and fine faint dark yellowish brown (10YR 4/4) mottlings; single grained; loose dry and moist, nonsticky, nonplastic; plentiful very fine roots; many very fine and fine interstitial pores; pH 8.8; abrupt smooth boundary.
VC4 RSL No. 6079	42-46"	Light brownish gray (10YR 6/2) light fine sandy loam, dark grayish brown (10YR 4/2) when moist, with many medium and fine faint dark yellowish brown (10YR 4/4) iron mottlings; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful very fine roots; many very fine tubular pores; pH 8.6; abrupt smooth boundary.
VIC5 RSL No. 6080	46-52"	Light brownish gray (10YR 6/2) fine sand, dark grayish brown (10YR 4/2) when moist, with many coarse faint dark brown (10YR 3/3) iron mottlings; single grained, loose dry and moist, nonsticky, nonplastic; plentiful very fine roots; many very fine and fine interstitial pores; pH 8.4; abrupt smooth boundary.
VIIC6 RSL No. 6081	52-55"	Light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) when moist, with common medium faint dark brown (10YR 4/3) and many fine faint dark yellowish brown (10YR 4/4) iron mottlings; massive; slightly hard, very friable, nonsticky, nonplastic; plentiful very fine roots; many very fine interstitial pores; pH 8.4; abrupt wavy boundary.
VIIIC7 RSL No. 6082	55-65"	Light reddish brown (5YR 6/3) coarse sand, dark reddish brown (5YR 3/3) when moist, with many very coarse prominent black (10YR 2/1) manganese stains along the upper horizon boundary, and many medium prominent light brownish gray (2.5Y 6/2) and many fine distinct strong brown (7.5Y 5/6) iron mottlings throughout; single grained; loose dry and moist, nonsticky, nonplastic; few very fine roots; many very fine and fine interstitial pores; pH 8.2; abrupt smooth boundary.
IXC8 RSL No. 6083	65-74"+	Pale brown (10YR 6/3) fine sand, dark grayish brown (10YR 4/2) when moist, with many medium and coarse distinct strong brown (7.5YR 5/8) iron mottlings and stains; single grained; loose dry and moist, nonsticky, nonplastic; few very fine roots; many very fine and fine interstitial pores; pH 8.0.

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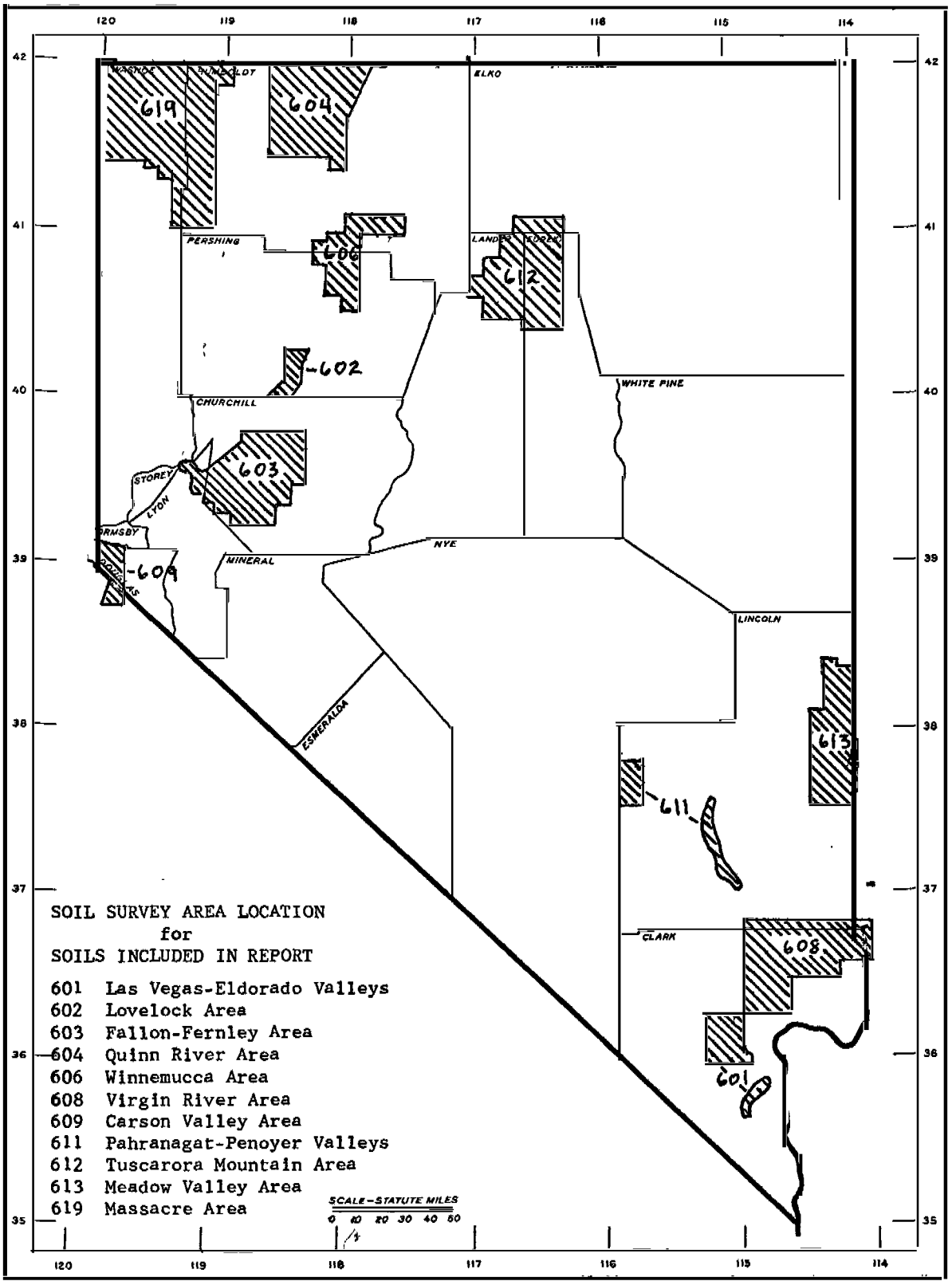
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WHITE PINE
CHURCHILL
STOREY
LYON
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MINERAL
LINCOLN
ESMERALDA
CLARK
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SOIL SURVEY AREA LOCATION
for
SOILS INCLUDED IN REPORT
601 Las Vegas-Eldorado Valleys
602 Lovelock Area
603 Fallon-Fernley Area
604 Quinn River Area
606 Winnemucca Area
608 Virgin River Area
609 Carson Valley Area
611 Pahranagat-Penoyer Valleys
612 Tuscarora Mountain Area
613 Meadow Valley Area
619 Massacre Area
SCALE-STATUTE MILES
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