*** Primary Characterization Data ***

Pedon ID: 81AZ027005 (La Paz, Arizona) Print Date: Mar 27 2019 6:00AM

Sampled as on Jan 30, 1981: Gadsden ; Fine, mixed (calcareous), hyperthermic Vertic Torrifluvents
Revised to SSL: (unnamed) ; Fine, mixed (calcareous), hyperthermic Vertic Torrifluvent

SSL - Project CP81AZ184 COLORADO RIVER INDIAN RESERVATION (AZ-CA)
- Site ID S1981AZ027005 Lat: 33° 41' 39.20" north Long: 114° 28' 14.86" west
- Pedon No. 81P0384
- General Methods 1B1A, 2A1, 2B

United States Department of Agriculture
Natural Resources Conservation Service
National Soil Survey Center
Soil Survey Laboratory
Lincoln, Nebraska 68508-3866

Layer	Horizon	Orig Hzn	Depth (cm)	Field Label 1	Field Label 2	Field Label 3	Field Texture	Lab Texture
81P02091	A1	A11	0-2				C	SIC
81P02092	A2	A12	2-10				C	SIC
81P02093	Asg1	A13gs	10-23				C	SIC
81P02094	A3	A14	23-70				C	C
81P02095	Asg2	A15gs	70-100				C	C
81P02096	A4	A16	100-130				C	SIC

Pedon Calculations

Calculation Name	Result	Units of Measure
Clay, total, Weighted Average	60	% wt
Weighted Particles, 0.1-75mm, 75 mm Base	1	% wt
CEC Activity, CEC7/Clay, Weighted Average	0.54	(NA)
Volume, >2mm, Weighted Average	0	% vol
Clay, carbonate free, Weighted Average	57	% wt

Weighted averages based on control section: 25-100 cm

PSDA & Rock Fragments

Layer	Depth (cm)	Horz	Prep	-1- Lab Texture	-2- (- - - - - Total - - - - - -) Clay < .002	-3- Silt .002 -.05	-4- Sand .05 -2	-5- (- - Clay - - -) Fine < .0002	-6- CO_3 < .002	-7- (- - - - Silt - - - - -) Fine .002 -.02	-8- Coarse .02 -.05	-9- (- - - - - - - - - - - - Sand - - - - - - - - - - - -) VF .05 -.10	F .10 -.25	M .25 -.50	C .5 -1	VC 1 -2	-14- (Rock Fragments (mm)) (- - - - - - - - Weight - - - - - - - -) 2 -5	5 -20	20 -75	.1- 75	-18- >2 mm wt % whole soil
					(- % of <2mm Mineral Soil -)												(- - - - - - - % of <75mm - - - - - -)				
					3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3A1a1a	3B1	3B1	3B1		
81P02091	0-2	A1	S	sic	43.8	47.8	8.4			31.5	16.3	4.8	2.0	0.3	0.1	1.2	--	--	--	4	--
81P02092	2-10	A2	S	sic	55.0	41.9	3.1		3.6	31.4	10.5	2.1	0.7	0.1	0.1	0.1	--	--	--	1	--
81P02093	10-23	Asg1	S	sic	56.5	40.8	2.7		3.3	34.3	6.5	1.9	0.6	0.1	0.1	tr	--	--	--	1	--
81P02094	23-70	A3	S	c	59.2	39.3	1.5		2.2	34.9	4.4	1.1	0.3	--	--	0.1	--	--	--	tr	--
81P02095	70-100	Asg2	S	c	60.8	38.0	1.2		3.9	36.5	1.5	0.7	0.4	0.1	tr	tr	--	--	--	1	--
81P02096	100-130	A4	S	sic	53.8	44.9	1.3		4.8	40.0	4.9	0.8	0.4	0.1	tr	tr	--	--	--	1	--

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Sampled As : Gadsden Fine, mixed (calcareous), hyperthermic Vertic Torrifluvents
USDA-NRCS-NSSC-Soil Survey Laboratory ; Pedon No. 81P0384

Bulk Density & Moisture

Layer	Depth (cm)	Horz	Prep	-1- (Bulk Density) 33 kPa (- - - g cm^{-3} - - -) 4A1d	-2- (Bulk Density) Oven Dry (- - - g cm^{-3} - - -) 4A1h	-3- Cole Whole Soil	-4- (- - - - - - - - - - - Water Content - - - - - - - - - - -) 6 kPa (- - - - - - - - - - - - pct of < 2mm - - - - - - - - - - - -)	-5- 10 kPa	-6- 33 kPa 4B1c	-7- 1500 kPa 3C2a1a	-8- 1500 kPa Moist	-9- (Air Dry-Oven Dry) (- - - - Ratio - - - -) 3D1	-10- Corrected 4E2a1a1a1	-11- WRD Whole Soil cm^3 cm^{-3} 4C1	-12- Aggst Stabl 2-0.5mm %	-13- (- - Ratio/Clay - -) CEC7 8D1	-14- 1500 kPa 8D1
81P02091	0-2	A1	S							17.5		1.041				0.55	0.40
81P02092	2-10	A2	S							22.7		1.049				0.51	0.41
81P02093	10-23	Asg1	S	1.27	1.67	0.096			33.2	20.5		1.054		0.16		0.51	0.36
81P02094	23-70	A3	S							22.9			1.061			0.52	0.39
81P02095	70-100	Asg2	S	1.34	1.81	0.105			34.0	21.5			1.056	0.17		0.51	0.35
81P02096	100-130	A4	S							20.8			1.050			0.53	0.39

Water Content

Layer	Depth (cm)	Horz	Prep	-1- (- - Atterberg - -) (- - - Limits - - -) LL pct <0.4mm 4F1	-2- PI 4F	-3- (- - - - - Bulk Density - - - - -) Field (- - - - - - - g cm^{-3} - - - - - - -)	-4- Recon 33 kPa	-5- Recon Oven Dry	-6- (- Water Content -) Field (- % of < 2mm -)	-7- Recon 33 kPa	-8- (- - - - - - - - - - - - - - Sieved Samples - - - - - - - - - - - - - -) 6 kPa	-9- 10 kPa	-10- 33 kPa	-11- 100 kPa	-12- 200 kPa	-13- 500 kPa
81P02093	10-23	Asg1	S	58	32											

Carbon & Extractions

Layer	Depth (cm)	Horz	Prep	-1- (- - - - - Total - - - - -) C (- - - - - - - - - - % of <2 mm - - - - - - - - - -) 6B3a	-2- N	-3- S	-4- Est OC	-5- OC (WB) 6A1c	-6- C/N Ratio	-7- (- - - Dith-Cit Ext - - -) Fe (- - - - - - - - - - - - - - - - - - % of < 2mm - - - - - - - - - - - - - - - - - -)	-8- Al	-9- Mn	-10- (- - - - - - Ammonium Oxalate Extraction - - - - - -) Al+½Fe	-11- ODOE	-12- Fe	-13- Al	-14- Si	-15- Mn mg kg^{-1}	-16- (- - - Na Pyro-Phosphate - - -) C (- - - - - - % of < 2mm - - - - -)	-17- Fe	-18- Al	-19- Mn
81P02091	0-2	A1	S	0.148			1.75	12														
81P02092	2-10	A2	S	0.075			0.67	9														
81P02093	10-23	Asg1	S	0.061			0.53	9														
81P02094	23-70	A3	S				0.38															
81P02095	70-100	Asg2	S				0.40															
81P02096	100-130	A4	S				0.37															

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Sampled As : Gadsden Fine, mixed (calcareous), hyperthermic Vertic Torrifluvents
USDA-NRCS-NSSC-Soil Survey Laboratory ; Pedon No. 81P0384

CEC & Bases

Layer	Depth (cm)	Horz	Prep	-1- Ca	-2- Mg	-3- Na	-4- K	-5- Sum Bases	-6- Acid-ity	-7- Extr Al	-8- KCl Mn	-9- CEC8 Sum Cats	-10- CEC7 NH_4 OAC	-11- ECEC Bases +Al	-12- Al Sat	-13- Base Saturation Sum	-14- Base Saturation NH_4OAC
				(- - - - - - NH_4OAC Extractable Bases - - - - -)													
				cmol(+) kg^{-1}							mg kg^{-1}	cmol(+) kg^{-1}			%		
				6N2e	6O2d	6P2b	6Q2b						5A8b			5C3	5C1
81P02091	0-2	A1	S	55.6*	10.8	28.3	2.4						24.3			100	100
81P02092	2-10	A2	S	38.4*	8.5	34.6	1.7						28.3			100	100
81P02093	10-23	Asg1	S	64.2*	9.3	35.7	1.4						29.0			100	100
81P02094	23-70	A3	S	60.9*	10.4	45.0	1.3						30.5			100	100
81P02095	70-100	Asg2	S	58.0*	9.6	35.8	1.1						31.3			100	100
81P02096	100-130	A4	S	59.2*	9.4	30.2	1.1						28.3			100	100

*Extractable Ca may contain Ca from calcium carbonate or gypsum., CEC7 base saturation set to 100.

Salt

Layer	Depth (cm)	Horz	Prep	-1- Ca	-2- Mg	-3- Na	-4- K	-5- CO_3	-6- HCO_3	-7- F	-8- Cl	-9- PO_4	-10- Br	-11- OAC	-12- SO_4	-13- NO_2	-14- NO_3	-15- H_2O	-16- Total Salts	-17- Elec Cond	-18- 1:2 Elec Cond	-19- Exch Na	-20- SAR
				(- - - Water Extracted From Saturated Paste - - -)																			
				mmol(+) L^{-1}				mmol(-) L^{-1}										%		dS m^{-1}		%	
				6N1b	6O1b	6P1b	6Q1b	6I1b	6J1b	6U1a	6K1c				6L1c	6W1a	6M1c	8A	8D5	8A3a	4F1a1a1		5E
81P02091	0-2	A1	S	58.3	42.1	311.2	3.7	--	9.9	4.2	292.1				133.2	--	--	64.0	1.5	27.20	11.89	34	44
81P02092	2-10	A2	S	42.4	18.1	263.7	1.5	--	1.7	4.1	214.3				139.7	--	25.2	77.5	1.5	23.10	10.68	50	48
81P02093	10-23	Asg1	S	30.7	12.8	235.3	0.9	--	1.5	4.2	136.0				182.1	--	23.5	79.7	1.2	18.45	11.01	58	50
81P02094	23-70	A3	S	32.6	20.0	296.0	0.8	--	1.6	4.4	182.2				193.7	--	23.5	85.7	1.7	23.50	13.17	64	58
81P02095	70-100	Asg2	S	25.8	14.1	193.4	0.5	--	1.3	2.3	81.9				164.0	--	--	92.5	1.2	15.65	9.70	57	43
81P02096	100-130	A4	S	23.4	12.4	168.3	0.5	--	1.3	2.4	61.5				159.2	--	--	90.9	1.0	13.89	8.34	53	40

pH & Carbonates

Layer	Depth (cm)	Horz	Prep	-1- KCl	-2- $CaCl_2$ 0.01M 1:2	-3- H_2O 1:1	-4- Sat Paste	-5- Oxid	-6- NaF	-7- Carbonate As $CaCO_3$ <2mm	-8- Carbonate As $CaCO_3$ <20mm	-9- Gypsum As $CaSO_4*2H_2O$ <2mm	-10- Gypsum As $CaSO_4*2H_2O$ <20mm	-11- Resist ohms cm^{-1}
				(- - - pH - - -)						(- - - % - - -)				
					4C1a2a	4C1a2a	8C1b			6E1g		4E2a1a1a1		8E1
81P02091	0-2	A1	S		7.9	7.8	7.5			10		--		
81P02092	2-10	A2	S		8.2	8.2	8.0			11		--		
81P02093	10-23	Asg1	S		8.4	8.4	8.2			11		--		
81P02094	23-70	A3	S		8.5	8.5	8.3			10		2		
81P02095	70-100	Asg2	S		8.5	8.5	8.2			12		1		150
81P02096	100-130	A4	S		8.5	8.5	8.3			13		1		

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Clay Mineralogy (<.002 mm)

				-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	-9-	-10-	-11-	-12-	-13-	-14-	-15-	-16-	-17-	-18-
				X-Ray					Thermal				Elemental							EGME	Inter
													SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	K_2O	Na_2O	Retn	preta
	Depth		Fract			7A2i										7C3					tion
Layer	(cm)	Horz	ion	(- - - - - - - - - peak size - - - - - - - - -)					(- - - - - - - - - % - - - - - - - - -)				(- % -)							mg g^{-1}	
81P02093	10.0-23.0	Asg1	tcly	MT 3	MI 3	KK 2	QZ 1								6.0			2.7			
81P02095	70.0-100.0	Asg2	tcly	MT 3	MI 3	KK 2	CA 1	QZ 1							6.0			2.7			

FRACTION INTERPRETATION:
tcly - Total Clay <0.002 mm

MINERAL INTERPRETATION:
CA Calcite KK Kaolinite MI Mica MT Montmorillonite QZ Quartz

RELATIVE PEAK SIZE: 5 Very Large 4 Large 3 Medium 2 Small 1 Very Small 6 No Peaks

*** Glossary of Codes ***

Print Date: Mar 27 2019 6:00AM

Reports: Primary Characterization Report;
Pedons: 81P0384;

*** Method Codes ***

Code	Description
3A1a1a	PSDA, Routine, Pipet
3B1	Particles >2 mm, Weight Estimates
3C2a1a	Water Retention, 15 Bar, Pressure-Plate, <2mm
3D1	Water Retention, ADOD
4A1d	Bulk Density, 1/3-Bar Desorption I
4A1h	Bulk Density, Oven-Dry
4B1c	Water Retention, clod, 0.06, 0.1, 0.33, or 1 bar, pressure-plate extraction
4C1	derived WRD, 4C1
4C1a2a	pH, Routine, 1:1 Water and 1:2 0.01M CaCl2
4E2a1a1a1	Gypsum, H2O Extraction, Acetone Precipitation, <2mm
4F	derived Plasticity Index
4F1	Plasticity Index, Liquid Limit
4F1a1a1	Salt Prediction, 1:2 (w/v)
5A8b	CEC, NH4OAc, pH 7.0, automatic extractor, steam distillation I
5C1	derived BSESAT, 5C1
5C3	derived BSECAT, 5C3
5D2	derived NA_EXCH, 5D2
5E	derived SAR, 5E
6A1c	Organic Carbon, acid dichromate digestion, FeSO4 titration, automatic titrator
6B3a	Total Nitrogen, Kjeldahl digestion II, ammonia steam distillation, automatic titrator
6E1g	Calcium Carbonate Equivalent, HCl, <2mm, manometer, electronic (6E1g)
6I1b	Carbonate, Saturated Paste and Soluble Salts, titration
6J1b	Bicarbonate, Saturation Extraction, Acid Titration, Automatic Extractor
6K1c	Chloride, Saturation Extraction, Anion Chromatograph
6L1c	Sulfate, Saturation Extraction, Anion Chromatograph
6M1c	Nitrate, Saturation Extraction, Anion Chromatograph
6N1b	Calcium, Saturation Extraction, Atomic Absorption I
6N2e	Calcium, NH4OAc Extraction, Atomic Absorption I
6O1b	Magnesium, Saturation Extraction, Atomic Absorption I
6O2d	Magnesium, NH4OAc Extraction, Atomic Absorption I
6P1b	Sodium, Saturation Extraction, Atomic Absorption I
6P2b	Sodium, NH4OAc Extraction, Atomic Absorption I
6Q1b	Potassium, Saturation Extraction, Atomic Absorption I
6Q2b	Potassium, NHOAc Extraction, Atomic Absorption I
6U1a	Fluoride, Saturation Extraction, Anion Chromatograph
6W1a	Nitrite, Saturation Extraction, Anion Chromatograph
7A2i	X-ray Diffraction, Thin Film on Glass, Resin Pretreatment II
7C3	Total Analysis, HF Dissolution
8A	Water Content, Saturated Paste
8A3a	Saturated Paste, Mixed, Saturation Extract, Automatic Extractor Conductivity, Digital Bridge
8C1b	Reaction (pH), Saturated Paste
8D1	Ratio, to Total Clay - 8D1
8D5	derived est total salts, 8D5
8E1	Soil Resistivity, Saturated Paste

*** Preparation Codes ***

Code	Description / List of Methods
Caj	The moist soil clod used for bulk density determinations 4A1d, 4A1h, 4B1c
Sjj	The air-dried soil passing a No. 10-mesh sieve 3A1a1a, 3C2a1a, 3D1, 4E2a1a1a1, 4F, 4F1, 6A1c, 6B3a, 5A8b, 6N2e, 6O2d, 6P2b, 6Q2b, 4F1a1a1, 6I1b, 6J1b, 6K1c, 6L1c, 6M1c, 6N1b, 6O1b, 6P1b, 6Q1b, 6U1a, 6W1a, 8A, 8A3a, 4C1a2a, 6E1g, 8C1b, 8E1, 7A2i, 7C3

*** Instrument Sets ***

Instrument Set Name	List of Methods

atomic adsorption spectrophotometer	6N2e, 6O2d, 6P2b, 6Q2b, 6N1b, 6O1b, 6P1b, 6Q1b
chromatograph	6K1c, 6L1c, 6M1c, 6U1a, 6W1a
distillation titirator	6B3a, 5A8b

*** Glossary of Codes ***

Print Date: Mar 27 2019 6:00AM

Reports: Primary Characterization Report;
Pedons: 81P0384;

*** Instrument Sets ***

Instrument Set Name	List of Methods
EC meter	4F1a1a1, 8A3a, 4E2a1a1a1
Instrument Not Specified	3A1a1a, 3B1, 3C2a1a, 3D1, 4A1d, 4A1h, 4B1c, 4E2a1a1a1, 4F, 4F1, 8A, 7A2i, 7C3
manometer	6E1g
pH meter	4C1a2a, 8C1b
resistance bridge	8E1
titrator	6A1c, 6I1b, 6J1b

*** Analyzed Size Fractions ***

Size Fraction	List of Methods
<0.002 mm	7A2i, 7C3
<2 mm	3A1a1a, 3C2a1a, 3D1, 4A1d, 4A1h, 4B1c, 4E2a1a1a1, 8D1, 4F, 4F1, 6A1c, 6B3a, 5A8b, 5C1, 5C3, 6N2e, 6O2d, 6P2b, 6Q2b, 4F1a1a1, 5D2, 5E, 6I1b, 6J1b, 6K1c, 6L1c, 6M1c, 6N1b, 6O1b, 6P1b, 6Q1b, 6U1a, 6W1a, 8A, 8A3a, 8D5, 4C1a2a, 6E1g, 8C1b, 8E1
<75 mm	3B1
whole soil	4C1