CORRELATION OF MAP UNITS

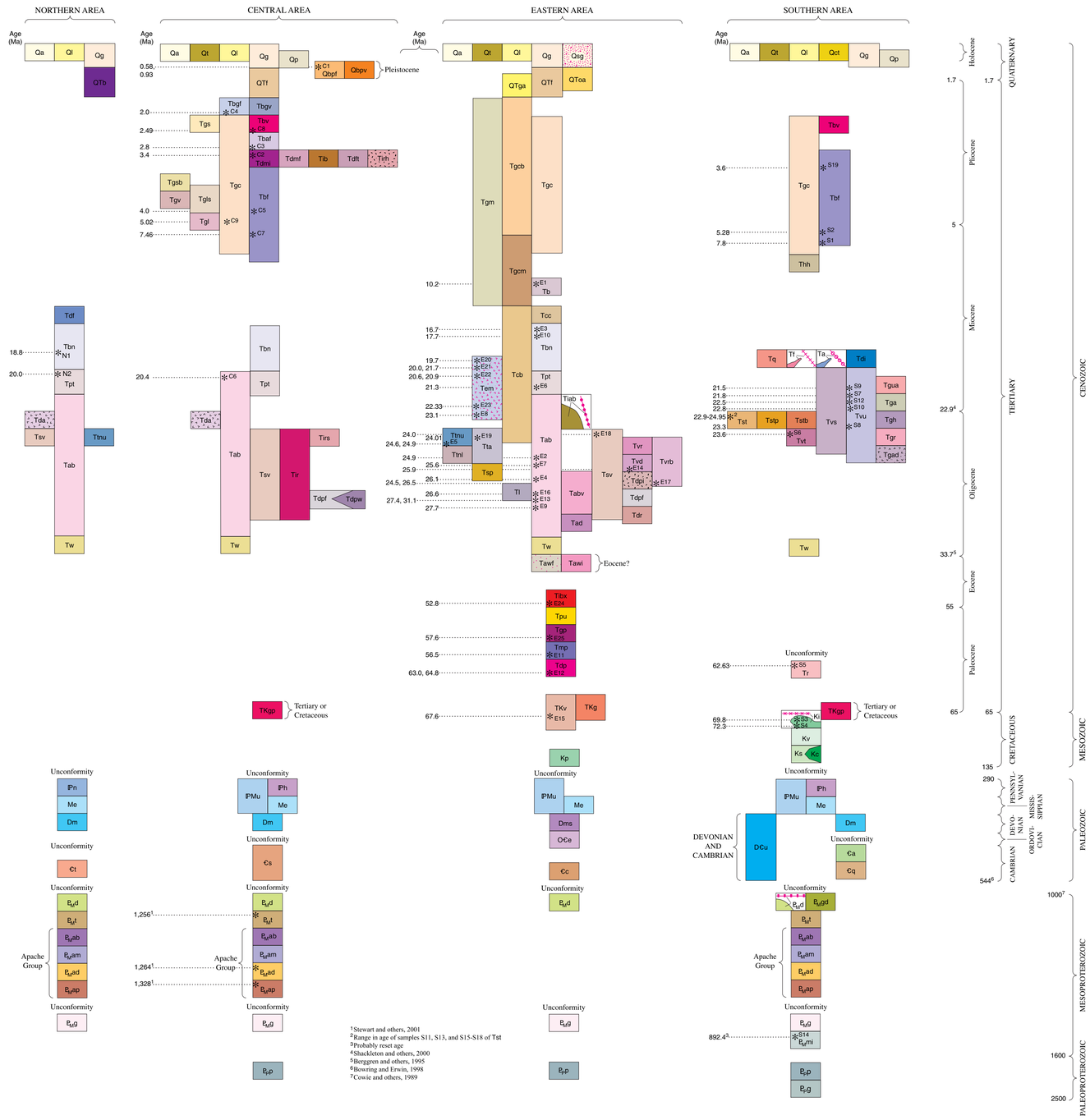

Table 1. Isotopic age determinations of rocks in and near the San Carlos Indian Reservation. Ages determined by K-Ar method except C8, C9, E19, E20, and E23, which were determined by the $^{40}Ar/^{39}Ar$ method.

[a, anorthoclase; b, biotite; h, hornblende; o, obsidian; p, plagioclase; s, sanidine; se, sericite; wr, whole rock. All determinations for this report were by R.J. Miller. For rocks 20 Ma and older, basalt is used as a field term, whereas the actual composition may range from basalt to andesite]

Locality No.[1]	Sample No.	Location Latitude (N)	Location Longitude (W)	Age (Ma)	Rock unit	Rock type and material dated	Source	K_2O (wt % oxide)	K_2O S.D.	Radiogenic argon, moles/g	% Rad argon	K/Ca
C1a	UAKA7733	33°20'34	110°28'07"	0.93±0.08	Basalt of Peridot Mesa (Qbpf)	Basalt, wr	Shafiqullah and others, 1980					
C1b		33°20'34	110°28'07"[2]	0.58±0.12	do.	do.	Bernatowicz, 1981					
C2	WSC641	33°19'42"	110°20'41"	3.4±0.5	Dacite of Mount Triplet (Tdmi)	Intrusive dacite, h	This report	0.314	0.4	1.540E-12	8.3	
C3	WSC242	33°20'39"	110°16'33"	2.8±0.1	Basalt of Antelope Flat (Tbaf)	do.	do.	0.855	0.6	3.392E-12	44.3	
C4	WSC459	33°23'33"	110°10'01"	2.0±0.01	Basalt of Bronco Gulch (Tbgf)	do.	do.	1.437	0.0	4.064E-12	32.9	
C5	WSC466	33°17'52"	110°21'13"	4.0±0.1	Basalt flows (Tbf)	Basalt, wr	do.	2.516	0.7	1.440E-11	54.6	
C6	WSC589	33°16'49"	110°17'02"	20.4±0.5	Andesite and basalt (Tab)	Andesite	do.	1.957	0.4	5.779E-11	53.1	
C7	UAKA76130	33°19'01"	110°33'58"	7.46±0.59	Basalt flows (Tbf)	Basalt, wr	Shafiqullah and others, 1980					
C8	221BRL84	33°06'28"	110°05'00"	2.49±0.06	Bylas diatreme (Tbv)	do.	Damon and others, 1997					
C9	378BYL85	33°07'39"	110°02'52"	5.02±0.24	Gila Conglomerate (Tgc)	tuff, h	do.					0.04
E1	SCne12	33°37'57"	109°30'47"	10.2±0.2	Basalt (Tb)	do.	This report	0.532	0.9	8.456E-12	6.4	
E2	WSC637	33°31'56"	109°32'56"	24.9±0.5	Andesite and basalt (Tab)	Basalt, wr	do.	2.555	0.0	9.235E-11	65.2	
E3	PP207	33°20'35"	109°49'33"	16.7±0.4	Basalt of Natanes Plateau (Tbn)	do.	do.	0.959	0.9	2.313E-11	60.0	
E4	AMZ287	33°17'58"	109°46'36"	26.1±0.9[3]	Andesite and basalt (Tab)	Andesite, wr	Marvin and others, 1987					
E5	AMZ283	33°18'24"	109°42'48"	24.6±0.9[3]	Tuff of Nantac Rim (Ttnu)	Rhyolite tuff, b	do.					
Do.	do.	do.	do.	24.9±0.9	do.	do.	do.					
E6	AMZ284	33°18'14"	109°41'30"	21.3±0.7[3]	Porphyritic trachyandesite (Tpt)	Andesite, p	do.					
E7	PP72	33°19'45"	109°36'15"	25.6±0.4	Andesite and basalt (Tab)	Basalt, wr	This report	2.527	3.9	9.377E-11	80.3	
E8	PP80	33°13'20"	109°30'12"	23.1±0.3	Enebro Mountain Formation (Tem)	Rhyolite tuff, o	do.	4.435	7.5	1.484E-10	86.3	
E9	3SC77	33°05'27"	109°46'07"	27.7±0.4	Andesite and basalt (Tab)	do.	F. Gray, unpublished data	2.636	0.2	1.059E-10	79.7	
E10	410BRY86	33°06'32"	109°32'59"	17.7±0.8	Basalt of Natanes Plateau (Tbn)	do.	This report					
E11	L-976	33°05'30"	109°22'30"[2]	56.5±1.7[4]	Monzonite porphyry (Tmp)	Monzonite porphyry, b	McDowell, 1971					
E12	L-847	33°02'48"	109°24'13"	63.0±2.3[4]	Dacite porphyry (Tdp)	Dacite porphyry, h	do.					
Do.	do.	do.	do.	64.8±6.3	do.	do.	do.					
E13a	AV2A	33°00'45"	109°40'57"[2]	27.6±1.4[4]	Andesite and basalt (Tab)	Basaltic andesite	Strangway and others, 1976					
E13b	AV18B	33°00'18"	109°41'24"[2]	31.1±0.5[4]	do.	do.	do.					
E14		32°59'40"	109°38'34"	25.9±0.6	Dacite breccias and flows (Tvd)	Dacite, h	Houser and others, 1985					
E15		32°58'00"	109°38'30"	67.6±1.4	Volcanic rocks (TKv)	Hornblende porphyry, h	do.					
E16		32°58'18"	109°37'38"	26.6±0.6	Andesite and basalt (Tab)	Andesite, wr	do.					
E17		32°58'19"	109°37'10"	24.5±0.6	Rhyolite breccias and flows (Tvrb)	Rhyolite breccia, b	do.					
Do.		do.	do.	26.5±0.6	do.	do.	do.					
E18	360BRY85	33°05'30"	109°35'18"	24.0±0.9	Siliceous volcanic rocks (Tsv)	Rhyolite tuff, a	B.B.Houser, unpublished					
E19	559MAR91	33°05'45"	109°47'29"	24.01±0.06	Tuff of Studhorse Seep (Tts)	tuff, s	do.					23.3
E20	UAKA75-73	33°11'06"	109°23'20"	19.70±0.42	Enebro Mtn Fm. (Tem)	rhyolite, s	Damon and others, 1997					
E21		33°11'19"	109°23'56"	20.0	do.	do.	Schroeder, 1996					
Do.		do.	do.	21.7	do.	do.	do.					
E22	C-7-82	33°10'44"	109°22'48"	20.6±0.7	do.	rhyolite, wr	Marvin and others, 1987					
Do.	do.	do.	do.	20.9±0.8	do.	do.	do.					
E23		33°10'18"	109°22'45"	22.33±0.14	do.	do.	Ferguson and Enders, 2000					
E24		33°07'06"	109°22'30"	52.8±2.0	Intrusive breccia (Tibx)	breccia, se	Bennett, 1975					
E25		33°07'11"	109°22'31"	57.6±2.2	Granite porphyry (Tgp)	Granite porphyry, b	do.					
N1	SC1071	33°36'33"	110°16'26"	18.8±0.4	Basalt of Natanes Plateau (Tbn)	do.	This report	1.950	0.0	5.295E-11	61.0	
N2	SC760	33°34'32"	110°03'41"	20.0±0.4	Porphyritic trachyandesite (Tpt)	Trachandesite, p	do.	0.767	0.0	2.221E-11	67.6	
S1	WSC812	33°16'10"	110°41'41"	7.8±0.3	Basalt flows (Tbf)	Basalt, wr	do.	0.688	0.0	7.726E-12	36.2	
S2	UAKA7530	33°14'54"	110°32'24"	5.28±0.13	do.	do.	Shafiqullah and others, 1980					
S3	83AB75	33°05'01"	110°43'38"	69.8±2.1	Intrusive rocks (Ki)	Dacite porphyry, h	McKee and Koski, 1981					
S4	GB-1	33°07'08"	110°40'56"	72.3±2.2	do.	do.	do.					
S5		32°58'29"	110°38'11"	62.63	rhyolite (Tr)	Rhyolite, b	Kreiger, 1968b					
S6	SCr254	33°08'09"	110°29'55"	23.6±0.6	Tuffaceous volcanic rocks (Tvt)	Rhyolite, s	This report	5.580	0.0	1.912E-10	58.0	
S7	SCr289	33°07'41"	110°29'59"	21.8±0.4	volcanic rocks, undivided (Tvu)	Rhyolite, b	do.	9.070	0.0	2.862E-10	69.2	
S8	SCr245	33°07'06"	110°29'15"	23.3±0.4	do.	Rhyolite, s	do.	6.160	0.0	2.080E-10	74.0	
S9	SCr144	33°07'02"	110°19'22"	21.5±0.3	do.	Rhyolite, wr	do.	7.550	4.0	2.354E-10	77.4	
S10	SCr242	33°07'10"	110°18'53"	22.8±0.9	do.	Basalt, wr	do.	2.344	0.0	7.749E-11	38.3	
S11	SCr038	33°07'00"	110°13'30"	23.5±0.4	do.	do.	do.	9.160	0.0	3.114E-10	68.2	
S12	SCr149	33°04'26"	110°15'42"	22.5±0.3	do.	Rhyolite, wr	do.	4.830		1.575E-10	89.7	
S13	SCr139	33°02'25"	110°14'00"	23.0±0.8	Santa Teresa Granite (Tst)	Granite, b	do.	9.700	0.0	3.234E-10	43.8	
S14	SCr093	33°02'31"	110°13'37"	892.4±9.2	Mixed intrusive rocks (B_yzmi)	Quartz diorite, h	do.	1.079	0.1	1.794E-09	96.9	
S15	SCr096	33°01'59"	110°14'00"	22.9±0.4	Santa Teresa Granite (Tst)	Granite, b	do.	9.640	0.0	3.201E-10	67.8	
S16	SCr161	33°01'09"	110°17'32"	23.3±0.5	do.	do.	do.	9.800	0.0	3.305E-10	58.7	
S17	SCr088	33°00'20"	110°13'05"	22.9±0.4	do.	do.	do.	9.810		3.253E-10	67.8	
S18	UAKA73-16	32°57'	110°15'	24.95±0.69	do.	do.	Shafiqullah and others, 1980					
S19	R7886	33°15'07"	110°29'00"	3.6±0.4	Basalt flows (Tbf)	Basalt, wr(?)	Anderson, 1988					

[1] Letter refers to subdivisions of map area in report (C, central; E, eastern; N, northern; S, southern).
[2] Approximate location. Coordinates not given by author.
[3] Age determined by reanalysis of sample reported in Bromfield and others (1972).
[4] Age corrected using method described by Dalrymple (1979). Original ɑ value used.

Table 2. Chemical analyses of volcanic rocks from north of the Gila River on the San Carlos Indian Reservation and from the Guthrie quadrangle, southeast of the Reservation.

[Analyses by U.S. Geological Survey. Major oxides, except FeO, for samples with PP Field Nos. determined by rapid rock analysis; WSC samples determined by X-ray spectroscopy. Analysts for PP12 and PP26, P. Elmore, G. Chloe, H. Smith, J. Kelsey, and J. Glen; PP34 and PP35, A. Bartel, K Stewart, and J Taggart; PP Nos. 207, 211, and 218, J. Harris; and PP209 and PP215, A. Bartel, K. Stewart, and J. Taggart; WSC Nos. 32, 43, 240, 241, and 242, A.J. Bartel, K. Stewart, and J. Taggart; WSC Nos. 274, 305, 329, 332, 340, and 343, R.V. Mendes, A.J. Bartel, K. Stewart, and J. Taggart; WSC Nos. 466, 467, 469, 611, 740A, and 897, D. Vivit. FeO by rock analysis, analyst L. Espos, except P. Klock for WSC Nos. 240, 241, and 242, and N. Elsheimer for WSC740A and WSC897. Methods for determination of trace elements listed below. Analysts for trace elements Ba through Lu for WSC Nos. 32, 43, and 45, L.J. Schwartz; WSC Nos. 240, 241, and 242, J. Budahn, R. Knight, and R.B. Vaughn; WSC Nos. 274, 305, 315, 329, 332, 340, 343 and 371, D. McKown, J Budahn, R. Knight, and R.B. Vaughn; WSC Nos. 466, 467, 469, and 611, R.D. Vaughn, D. McKown, J. Budahn, and R. Knight; WSC740A and WSC897, R.B. Vaughn; PP207 and PP218, J. Harris. Analysts for Field Nos. WSC240, 241, and 242, for Rb, T. Frost and B. King; Zn, R. Lerner; and Zr, T. Frost]

Map unit	Tbgf	Tbgf	Tbf	Tbf	Tbi	Tbaf	Tbn	Tbn	Tbn	Tbn	Tpt	Tpt	Tab	Tab	Tab	Tab	Tab	Tab	Tab[1]	Tab	Tab	Tab	Tab	Tab	Tdmf	Tdmi	Tdmi	Tdmi	Tir	Tir	Tir
Map No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Field No.	WSC32	WSC611	WSC45	WSC466	WSC897	WSC242	PP35	PP207	PP211	PP218	PP12	PP26	PP54	PP209	PP215	WSC240	WSC241	WSC305	WSC315	78DR90	WSC332	WSC329	WSC340	WSC343	WSC467	WSC843	WSC469	WSC740A	WSC274	WSC371	
Major Oxides (percent)																															
SiO_2	46.5	50.4	48.5	46.6	45.6	49.1	51.4	46.7	51.4	43.9	57.4	55.7	48.7	50	55.7	56.6	56.6	50.5	52.6	60	55.80	62	65.2	65.7	69	69.4	69.8	76.3	73.4	76.3	
Al_2O_3	15.3	17.8	15.4	16.1	14.4	16.6	16.8	16.4	16.8	16.4	16.7	16.6	16.9	17.2	16.7	16.3	16.4	15.5	17.6	16.5	15.90	16.3	16.1	15.7	15.6	16.1	15.6	12.5	13.3	11.6	
Fe_2O_3	4.17	1.85	7.05	4.44	4.88	4.18	2.83	4.5	2.7	3	2.9	2.24	3.02	3	2.8	6.25	2.96	7.36	8.01	4.9	4.20	2.04	3.07	3.87	2.87	1.9	1.62	1.19	1.59	0.8	
FeO	7.03	7.1	3.91	4.95	7.29	6.74	5.52	7	6.25	9.37	3.7	5.69	6.82	7.15	4.84	1.39	3.89	1.43	1.16	0.64	4.33	2.86	0.13	0.08	0.19	0.47	0.63	0.07	<0.02	<0.02	
MgO	7.96	5.71	6.29	5.53	8.9	6.66	5.29	4.6	5.6	7.3	2.3	3.3	6.19	6	4.3	2.76	4.84	5.16	2.43	2.3	4.51	1.74	0.85	1.07	1.31	0.8	0.72	0.01	0.25	0.14	
CaO	8.55	9.59	9.04	7.45	8.76	9.35	8.33	8.7	8	9	4.6	5.6	11.2	9.6	6.6	5.54	5.97	8.48	7.33	4.8	7.52	4.31	1.88	3.28	3.69	3.38	3.46	0.46	1.27	0.67	
Na_2O	4.56	3.24	3.31	3.15	3.1	3.15	3.27	3.8	3.5	3	4	3.7	2.8	3.2	3.6	3.77	3.77	2.88	3.92	4	3.23	3.72	4.68	3.73	4.1	4.27	4.16	3.7	3.51	3.08	
K_2O	1.11	0.83	1.47	2.4	1.46	0.74	1.75	1.3	1.8	0.72	3.1	3.1	0.76	0.85	2.8	3.26	2.57	2.62	2.29	3.5	1.70	3.39	4.19	3.54	1.95	1.87	1.93	4.54	4.41	4.59	
TiO_2	2.34	1.54	2.01	1.73	2.58	1.67	1.33	3	1.2	2	1.4	0.74	1.52	1.5	1.3	1.64	1.23	1.19	1.93	0.84	1.41	0.93	0.57	0.57	0.4	0.27	0.28	0.08	0.26	0.09	
P_2O_5	0.64	0.23	0.42	0.41	0.48	0.35	0.35	0.52	0.35	0.4	0.67	0.78	0.3	0.26	0.62	0.77	0.59	0.66	0.53	0.34	0.22	0.34	0.2	0.17	0.16	0.09	0.12	0.02	0.08	<0.05	
MnO	0.2	0.14	0.13	0.16	0.17	0.16	0.13	0.15	0.09	0.23	0.16	0.18	0.16	0.12	0.08	0.11	0.12	0.13	0.08	0.06	0.12	0.08	0.1	0.05	0.06	0.03	0.06	0.04	0.03	0.04	
LOI[2]	0.91	0.5	1.88	2.88	1.04	0.67	2.19	1.85	2.42	2.22	2.3	1.4	0.58	0.52	1.23	0.97	0.63	2.38	1.8	2.32	0.35	1.46	1.72	1.36	0.38	0.96	0.88	0.61	0.72	0.9	
Total	99.27	98.93	99.41	95.8	98.66	99.37	99.19	98.52	100.11	97.54	99.23	99.03	98.95	99.4	100.57	99.36	99.57	98.29	99.68	100.2	99.29	99.17	98.69	99.12	99.71	99.54	99.26	99.52	98.82	98.21	
Trace Elements (parts per million) determined by neutron activation, except as noted																															
Ba	373	207	254	334	255	230[3]		268		608				597		1100[3]	1100[3]	1850	658		305	917	1260	880	119	1220	1520	30.6	466	337	
Co	43.9	51	40.6	3.14	50.7	45[4]		32.3		38.3				41		26[3]	25[3]	30.8	26.6		33.7	13.1	1.43	10.5	9.35	5	6.57	0.229	2.87	0.354	
Cr	247	282	212	147	254	280[3]		6.26		6.26				162		37[3]	160[3]	124	42.1		38.8	7.8	<0.92	23.4	16.3	10.1	9.56	<0.71	3.26	0.24	
Cs	0.39	0.354	5.36	3.33	0.572									5.36				0.513	1.08		0.523	1.87	1.24	1.37	1.24	2.73	1.53	4.06	4.56	3.56	
Hf	5.7	3.05	3.87	5.65	3.99													5.52	5.64		3.86	6.17	9.67	6.07	2.6	2.19	2.45	5.74	4.18	3.83	
Rb	16	<1.0	22	33	18.8	10[4]										106[4]	55[4]	32.7	61.5		34.9	90.2	103	113	26.4	28	27.8	179	171	140	
Sb	<0.6	0.16	<0.6	0.14	0.3													0.15	0.11		0.051	0.228	0.194	0.18	0.229	0.34	0.281	0.516	0.262	0.189	
Ta	4.59	1.01	2.21	3.46	2.83													0.56	1.27		1.24	1.33	2.02	1.01	0.969	0.7	0.707	3.53	2.07	2.5	
Th	4.6	1.65	2.16	4.43	2.51	1.7										14.6	6.32	7.6	5.56		4.86	8.41	9.15	11.7	2.25	1.74	1.86	19	20.2	16.7	
U	1.4	0.611	0.54	1.56	0.923	0.367										3.44	1.27	1.23	0.972		0.845	1.57	1.65	2.03	0.634	0.5	0.579	3.63	3.19	2.89	
Zn	89	114	93	95.1	94.4	86[3]		111		109				80		120[3]	80[3]	118	122		105	90.2	103	71.5	53	34	40	55	34.1	37.3	
Zr	281	128	184	222	190	140[3]		114		111				99		470[3]	355[3]	212	241		137	239	367	216	92.8	94	75.7	169	113	91.7	
Sc	23	27.6	20.8	22	21.7	25		16.8		22.5				32		14	16	23.5	15.4		18	7.95	4.73	7.82	6.04	3.46	4.31	1.94	2.89	2.19	
La	40.4	12.5	21.5	29.7	25.4	16.9		21.1		44.3				27		64.2	56.1	61.4	37.6		23.9	39.8	58.9	37.9	15.5	12.1	12.3	23.8	36.6	39.6	
Ce	69.5	30.3	39	61	52	32.6				103				44		135	111	126	80.4		46.4	79.5	128	77.8	28.8	18.4	21.9	54.2	67.4	79.3	
Nd	32	16.8	21	27.1	23.5	18										62.4	46.2	56.8	36.1		20.1	35.9	52	30.6	11.3	7	8.86	32	21	27.7	
Sm	6.46	4.42	4.91	5.62	5.46	4.4								5.62		11	7.94	10.1	7.48		4.58	6.46	9.49	5.79	2.14	1.28	1.65	8.71	3.56	5.3	
Eu	1.96	1.51	1.54	1.87	1.83	1.51		2.29		2.55						2.32	2.04	2.86	2.19		1.36	1.6	2.4	1.23	0.72	0.437	0.519	0.0516	0.548	0.424	
Gd	5.4	4.87	4.1	5.43		4.57		4.53		4.63				5.43		7.57	5.76	7.53	6.71		4.84	5.95	8.99	4.95	2.2	1.3	1.56	3.39	3.04	4.8	
Tb	0.83	0.726	0.74	0.904	0.781	0.701		1.76		2.12						1.18	0.913	1.02	1		0.76	0.803	1.3	0.677	6	0.147	0.221	1.39	0.453	0.747	
Tm	<0.2	0.365	0.27													0.498	0.457	0.424	0.437		0.384	0.339	0.712	0.324	-	0.12	-	-	0.355	0.46	
Yb	2.42	2.06	1.91		1.97	1.92		2.95		2.42						2.83	2.57	2.55	2.54		2.3	2.12	4.18	1.91	0.944	0.48	0.74	4.9	2.33	2.82	
Lu	0.347	0.281	0.294	0.371	0.275	0.276										0.405	0.396	0.364	0.361		0.327	0.301	0.612	0.281	0.151	0.077	0.101	0.706	0.36	0.422	
Lat. N.	33°15'58"	33°20.39'	33°18'95'	33°17.86'	33°15.43'	33°20.65'	33°15.44'	33°20.85'	33°15.84'	33°22.10'	33°23.03'	33°18.21'	33°13.11'	33°13.26'	33°19.80'	33°23.16'	33°21.88'	33°19.00'	33°20.13'	32°50.55'	33°21.51'	33°21.40'	33°16.38'	33°17.23'	33°20.89'	33°19.87'	33°20.62'	33°23.42'	33°16.81'	33°18.20'	
Long. W.	110°07.03'	110°01.23'	110°21.05'	110°21.27'	110°19.47'	110°16.56'	109°40.85'	109°50.85'	109°41.24'	109°40.22'	109°53.51'	109°41.73'	109°43.24'	109°44.72'	109°36.05'	110°03.11'	110°10.63'	110°14.92'	110°14.38'	109°17.87'	110°14.18'	110°13.30'	110°07.74'	110°07.53'	110°22.07'	110°20.97'	110°21.56'	110°08.99'	110°13.70'	110°09.11'	

[1] Guthrie quadrangle. Tal is correlative with Tab on the San Carlos Indian Reservation (Richter and others, 1983)
[2] Loss on ignition
[3] Trace elements (parts per million) determined by emmission spectroscopy
[4] Trace elements (parts per million) determined by energy dispersive x-ray fluorescence spectroscopy

DESCRIPTION OF MAP UNITS

[Some unit exposures on the printed or plotted map are too small to distinguish the color for unit identification. These units are labeled where possible, and unlabeled units are attributed in the database]

NORTHERN AREA

- Qa — **Alluvium (Holocene)**
- Ql — **Landslide deposits (Holocene)**
- Qg — **Gravel (Quaternary)**
- QTb — **Basalt (Quaternary and Tertiary)**
- Tdf — **Dacite flows and plugs (Miocene)**
- Tbn — **Basalt of Natanes Plateau (Miocene)**
- Tpt — **Porphyritic trachyandesite (Miocene)**
- Tab — **Andesite and basalt (Miocene and Oligocene)**
- Tda — **Dacite (Oligocene)**
- Tsv — **Siliceous volcanic rocks (Oligocene)**
- **Tuff of Nantac Rim (Oligocene)**
  - Ttnu — **Upper member**
- Tw — **Whitetail Conglomerate(?) (Oligocene)**
- ℙn — **Naco Formation (Pennsylvanian)**
- Me — **Escabrosa Limestone (Mississippian)**
- Dm — **Martin Formation (Devonian)**
- Ꞓt — **Tapeats Sandstone (Cambrian)**
- B_yd — **Diabase (Mesoproterozoic)**
- B_yt — **Troy Quartzite (Mesoproterozoic)**
- **Apache Group (Mesoproterozoic)**
  - B_yab — **Basalt**
  - B_yam — **Mescal Limestone**
  - B_yad — **Dripping Spring Quartzite**
  - B_yap — **Pioneer Shale**
- B_yg — **Granite (Mesoproterozoic)**

CENTRAL AREA

- Qa — **Alluvium (Holocene)**
- Qt — **Talus (Holocene)**
- Ql — **Landslide deposits (Holocene)**
- Qg — **Gravel (Quaternary)**
- Qp — **Piedmont deposits (Quaternary)**
- **Basalt of Peridot Mesa (Pleistocene)**
  - Qbpf — **Flows**
  - Qbpv — **Vent deposits**
- QTf — **Fanglomerate (Quaternary or Tertiary)**
- **Basalt of Bronco Gulch (Pliocene)**
  - Tbgf — **Flows**
  - Tbgv — **Vent deposits**
- **Gila Conglomerate (Pliocene and Miocene)**
  - Tgs — **Siltstone, sandstone, and minor conglomerate member (Pliocene)**
- Tgc — **Conglomerate and associated sedimentary rocks member (Pliocene and Miocene)**
- Tgsb — **Sedimentary deposits and tuff member (Pliocene)**
- Tgls — **Limestone, siltstone, sandstone, and tuff member (Pliocene)**
- Tgv — **Volcanic conglomerate member (Pliocene)**
- Tgl — **Limestone member (Pliocene)**
- Tbv — **Vent deposits (Pliocene)**
- Tbaf — **Basalt of Antelope Flat (Pliocene)**
- **Dacite of Mount Triplet (Pliocene)**
  - Tdmi — **Intrusive dacite**
  - Tdmf — **Flows**
- Tib — **Intrusive basalt (Pliocene)**
- Tdft — **Dacite flows and tuff (Pliocene)**
- Tirh — **Intrusive rhyolite (Pliocene)**
- Tbf — **Basalt flows (Pliocene and Miocene)**
- Tbn — **Basalt of Natanes Plateau (Miocene)**
- Tab — **Andesite and basalt (Miocene and Oligocene)**
- Tpt — **Porphyritic trachyandesite (Miocene)**
- Tda — **Dacite (Oligocene)**
- Tsv — **Siliceous volcanic rocks (Oligocene)**
- Tir — **Intrusive rhyolite (Oligocene)**
- Tirs — **Intrusive rhyolite suite (Oligocene)**
- **Dacite of Paymaster Wash (Oligocene)**
  - Tdpf — **Flows**
  - Tdpw — **Welded tuff**
- Tw — **Whitetail Conglomerate(?) (Oligocene)**
- TKgp — **Granitic porphyry (Tertiary or Cretaceous)**
- ℙMu — **Horquilla Limestone (Pennsylvanian) and Escabrosa Limestone (Mississippian), undivided**
- ℙh — **Horquilla Limestone (Pennsylvanian)**
- Me — **Escabrosa Limestone (Mississippian)**
- Dm — **Martin Formation (Devonian)**
- Ꞓs — **Sandstone (Cambrian)**
- B_yd — **Diabase (Mesoproterozoic)**
- B_yt — **Troy Quartzite (Mesoproterozoic)**
- **Apache Group (Mesoproterozoic)**
  - B_yab — **Basalt**
  - B_yam — **Mescal Limestone**
  - B_yad — **Dripping Spring Quartzite**
  - B_yap — **Pioneer Shale**
- B_yg — **Granite (Mesoproterozoic)**
- B_ypi — **Pinal Schist (Paleoproterozoic)**

EASTERN AREA

- Qa — **Alluvium (Holocene)**
- Qt — **Talus (Holocene)**
- Ql — **Landslide deposits (Holocene)**
- Qg — **Gravel (Quaternary)**
- Qsg — **Sand, silt, and gravel (Quaternary)**
- QTf — **Fanglomerate (Quaternary or Tertiary)**
- QToa — **Older alluvial deposits (Pleistocene and Pliocene?)**
- **Gila Conglomerate (Pleistocene?, Pliocene, and Miocene)**
  - QTga — **Alluvium of Smuggler Canyon (Pleistocene? and Pliocene)**
  - Tgcb — **Conglomerate of Buzzard Roost Canyon (Pliocene)**
  - Tgm — **Muddy sandstone and conglomerate member**
  - Tgc — **Conglomerate and associated sedimentary rocks member**
  - Tgcm — **Conglomerate of Midnight Canyon (Pliocene and Miocene)**
- Tb — **Basalt (Miocene)**
- Tcb — **Conglomerate of Bonita Creek (Miocene and Oligocene)**
- Tcc — **Conglomerate of Cienega Creek (Miocene)**
- Tbn — **Basalt of Natanes Plateau (Miocene)**
- Tem — **Enebro Mountain Formation (Miocene and Oligocene)**
- Tpt — **Porphyritic trachyandesite (Miocene)**
- Tab — **Andesite and basalt (Miocene and Oligocene)**
- Tiab — **Intrusive basalt (Miocene or Oligocene)**
- **Tuff of Nantac Rim**
  - Ttnu — **Upper member (Oligocene)**
  - Ttnl — **Lower member (Oligocene)**
- Tta — **Tuff of Angel Trail Spring (Oligocene)**
- Tsv — **Siliceous volcanic rocks (Oligocene)**
- **Volcanic rocks (Oligocene)**
  - Tvr — **Rhyolite of central dome**
  - Tvrb — **Rhyolite breccia and flows**
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