



*Aquilegia desertorum* in Buck Farm Canyon, Marble Canyon

***BIOLOGICAL AND HYDROLOGICAL SURVEYS OF SPRINGS  
ALONG THE COLORADO RIVER, UTAH AND ARIZONA***

138/ }  
164/ } 161455  
608/ }  
113/ }

**SURVEYS OF SPRINGS IN THE COLORADO RIVER DRAINAGE IN  
ARCHES NATIONAL PARK, CANYONLANDS NATIONAL PARK,  
GLEN CANYON NATIONAL RECREATION AREA, AND  
GRAND CANYON NATIONAL PARK**

**PART II-Appendices**

*Final Report*

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Report to the

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XI. APPENDIX

A1. Site physical data and location (Excel)	105
A2. Water chemistry (Excel)	114
A3. Aquatic invertebrates presence/absence (Excel)	135
A4. Floristic data (Excel)	162
A5. Vegetation (species abundance by spring by geomorphology; Excel)	171

## A1. Site physical data and location

WATER COLLECTION NO.	Map Number	SITE NAME	RIVER KM ABOVE DIAMOND CREEK	GEOTYPE	PARK	ZONE	EASTING	NORTHING
GLCA 01-97	1	San Juan Garden	492	BD	GLCA	12	511460	4116600
GLCA 02-97	2	Ribbon Canyon Garden	506	BDP	GLCA	12	514300	4123510
GLCA 03-97	3	Escalante River Spring A	508	R	GLCA	12	501700	4140840
GLCA 04-97	4	Escalante River Spring B	508	R	GLCA	12	502660	4140860
GLCA 05-97	5	Long Canyon Spring	520	DP	GLCA	12	551644	4178072
GLCA 06-97	6	Bowns Canyon Garden	518	BDP	GLCA	12	511160	4138810
GLCA 07-97	7	Escalante River Spring C	508	S	GLCA	12	502740	4139260
GLCA 08-97	8	Cow Canyon Garden A	508	BP	GLCA	12	506910	4141700
GLCA 09-97	9	Cow Canyon Garden B	508	D	GLCA	12	505920	4141000
GLCA 10-97	10	Cow Canyon Garden C	508	BDP	GLCA	12	510780	4145850
GLCA 11-97	11	Rana Canyon Garden	508	BDP	GLCA	12	504170	4141240
GLCA 12-97	12	Buoy 114a Spring A	584	R	GLCA	12	539380	4166470
GLCA 13-97	13	Wall Spring	597	DB	GLCA	12	541950	4173310
GLCA 14-97	14	Good Hope Bay Spring A	594	S	GLCA	12	546110	4166100
GLCA 15-97	15	Good Hope Bay Spring B	593	S	GLCA	12	547800	4167480
GLCA 16-97	16	Good Hope Bay Spring C	593	S	GLCA	12	545420	4165730
GLCA 17-97	17	Good Hope Bay Spring D	592	S	GLCA	12	545190	4165740
GLCA 18-97	18	Buoy 73 Garden	515	BD	GLCA	12	510960	4132610
GLCA 19-97	19	Last Chance Spring	434	S	GLCA	12	467100	4114320
GLCA 20-97	20	Forgotten Canyon Spring	570	S	GLCA	12	537757	4154846
GLCA 21-97	21	Moqui Canyon Spring	559	SR	GLCA	12	539979	4145796
GLCA 22-97	22	Cottonwood Canyon Garden	503	DP	GLCA	12	516254	4119867
GLCA 23-97	23	Stevens Arch Garden	508	BD	GLCA	12	502645	4141780
GLCA 01-98	24	Knowles Canyon Garden	575	BD	GLCA	12	538240	4159420
GLCA 02-98	25	Gypsum Canyon Spring	670	S	GLCA	12	583100	4206300
GLCA 03-98	26	Easter Pasture Canyon Garden	664	BDP	GLCA	12	578180	4208940
GLCA 04-98	27	Swett Canyon Spring	616	S	GLCA	12	543670	4186860
GLCA 05-98	28	Dark Canyon Stream		STREAM	GLCA	M	M	M
GLCA 06-98	29	Buoy 114a Spring B	585	S	GLCA	12	539150	4166830
ARCH 01-98	30	Sleepy Hollow Garden	770	BDP	ARCH	12	618434	4281208
ARCH 03-98	31	Seven Mile Spring	770	BD	ARCH	12	617427	4280526
CANY 01-98	32	Cabin Spring	730	BDP	CANY	12	601283	4255058
ARCH 05-98	33	Freshwater Seep	803	BD	ARCH	12	627920	4289122
CANY 02-98	34	Lower Big Springs	697	BDP	CANY	12	603489	4226023
CANY 03-98	35	Cave Spring	695	S	CANY	12	609252	4223729
ARCH 04-98	36	Matrimony Spring	800	S	ARCH	M	M	M
CANY 04-98	37	Stream at Newspaper Rock		STREAM	CANY	M	M	M
GRCA 01-98	38	Buck Farm Canyon	303	D	GRCA	12	420510	4029276
GRCA 02-98	39	Bert's Canyon	302	BD	GRCA	12	420561	4028259
GRCA 03-98	40	Saddle Canyon	293	B	GRCA	12	418855	4024029
GRCA 04-98	41	Keyhole Spring	292	BD	GRCA	12	358063	4027010

WATER COLLECTION NO.	Map Number	SITE NAME	RIVER KM ABOVE DIAMOND CREEK	GEOTYPE	PARK	ZONE	EASTING	NORTHING
GRCA 05-98	42	Nankoweap Twin Springs 1	285	S	GRCA	12	420166	4015360
GRCA 06-98	43	Hance Rapid Spring	244	BDP	GRCA	12	416872	3990117
GRCA 07-98	44	Elves Chasm	180	BD	GRCA	12	369234	4005685
GRCA 08-98	45	126 Mile Left Canyon	164	S	GRCA	12	363175	4014068
GRCA 09-98	46	Lower Deer Creek Spring	147	S	GRCA	12	364612	4027987
GRCA 10-98	47	River Mile 142R Seep	138	BD	GRCA	12	357500	4028707
GRCA 11-98	48	River Mile 147R Seep	129	BD	GRCA	12	349600	4023102
GRCA 12-98	49	Matkatamiba Canyon	128	BR	GRCA	12	350096	4022800
GRCA 13-98	50	Ledges	122	BD	GRCA	12	345492	4023693
GRCA 14-98	51	Slimy Tick Canyon	116	BP	GRCA	12	342552	4021289
GRCA 15-98	52	Fern Glen	95	B	GRCA	12	327710	4014470
GRCA 16-98	53	Mohawk Canyon	89	B	GRCA	12	323183	4010459
GRCA 17-98	54	Cove Canyon	84	B	GRCA	12	318924	4012881
GRCA 18-98	55	River Mile 213R Spring	20	S	GRCA	12	289236	3977233
GRCA 19-98	56	Pumpkin Spring	20	S	GRCA	12	291744e	3973467e
GRCA 20-98	57	Honga Spring	15	S	GRCA	12	289409	3976852
vegetation only		Vasey's Paradise	318	SR	GRCA	M	M	M
vegetation only		Buck Farm seep 2	303	D	GRCA	M	M	M
vegetation only		Kanab Creek seep	138	BD	GRCA	M	M	M

WATER COLLECTION NO.	ELEVATION	GEOLOGY	COMPASS	ASPECT	pH	CONDUCT	TEMP	DO	DISCHARGE	JAN	FEB	MAR	APR	MAY	JUN	JUL
GLCA 01-97	1130	NKI	107	E	7.36	177	20.5	6.5	214	70	64	61	56	50	50	50
GLCA 02-97	1155	NKI	147	S	7.7	322	19	M	74	78	72	66	55	51	41	51
GLCA 03-97	1130	NKI	37	N	7.76	171	18.9	6.8	349	0	25	45	61	66	71	71
GLCA 04-97	1160	NKI	237	W	7.78	182	23	M	340	70	71	71	83	87	87	87
GLCA 05-97	1250	NKI	107	E	7.7	142	19	7.4	344	61	58	61	56	53	53	53
GLCA 06-97	1280	NS	227	W	9.07	117	23.9	6.6	362	35	53	54	49	40	40	40
GLCA 07-97	1140	NKI	77	E	7.76	156	18.9	7.7	913	0	0	3	31	44	50	50
GLCA 08-97	1310	KS	117	E	7.01	157	20.3	7.1	50	42	61	59	59	56	56	56
GLCA 09-97	1270	NKI	157	S	7.62	163	20.9	7.3	850	59	60	48	50	46	46	46
GLCA 10-97	1370	NKI	207	S	8.7	207	26.3	7.6	118	43	48	52	50	37	37	37
GLCA 11-97	1160	NKI	192	S	8.21	203	23.5	7.2	140	18	31	34	38	35	41	41
GLCA 12-97	1155	NKI	237	W	7.83	357	27.9	2.1	1	83	86	84	81	83	79	83
GLCA 13-97	1130	NS	117	E	8.03	408	20.6	8.1	282	66	68	68	65	67	69	69
GLCA 14-97	1170	CS	345	N	7.9	503	19.4	7.8	57	83	81	91	92	91	91	91
GLCA 15-97	1220	CS	327	N	7.92	548	19.2	7.4	41	6	25	59	67	71	86	72
GLCA 16-97	1150	CS	330	N	7.91	286	18.4	8	52	0	0	14	54	79	85	79
GLCA 17-97	1135	CS	347	N	8.11	211	19.3	7.3	1886	0	32	75	97	97	98	98
GLCA 18-97	1135	NKI	102	E	7.79	192	23.3	6.9	44	70	59	54	55	56	60	56
GLCA 19-97	1150	SF	11	N	8.26	306	19.3	6.3	10.4	53	64	66	73	69	69	69
GLCA 20-97	1160	NKI	307	W	8.26	306	19.3	6.3	37	0	0	4	24	44	56	50
GLCA 21-97	1200	NKI	177	S	7.83	397	19.8	4.4	32	96	98	96	95	92	92	92
GLCA 22-97	1240	NS	155	S	8.07	216	21	3.1	246	79	73	69	58	58	63	58
GLCA 23-97	1250	KS	227	W	8.17	183	22.3	6.8	1	42	42	50	50	50	50	50
GLCA 01-98	1155	NKI	220	S	8.29	167	27.6	6.2	5	70	75	57	49	46	40	40
GLCA 02-98	1180	CS	M	M	6.99	9570	25.7	6.8	239	96	96	94	95	95	95	95
GLCA 03-98	1510	CM	110	E	8.94	407	28.3	6.4	21	51	66	69	64	60	60	60
GLCA 04-98	1220	CS	M	M	7.83	1240	31.9	6.2	5	44	41	52	69	78	82	78
GLCA 05-98	M	CM	M	M	8.5	974	28.8	6.3	M	M	M	M	M	M	M	M
GLCA 06-98	1135	KS	100	E	8.43	235	22.7	6.4	5	53	61	66	65	62	69	62
ARCH 01-98	1280	ES	217	S	8.08	226	18.5	7.2	495	13	32	40	55	59	59	59
ARCH 03-98	1280	ES	177	S	8.26	250	18.2	8.1	169	52	51	40	14	0	0	0
CANY 01-98	1650	NKI	267	W	7.99	243	15.6	7	18	0	0	0	0	0	0	0
ARCH 05-98	1340	ES	187	S	8.2	196	18.2	7.9	1	83	87	82	85	78	73	73
CANY 02-98	1420	NKI	337	N	7.78	508	16.8	7.6	16	0	0	0	19	46	51	51
CANY 03-98	1501	NKI	M	M	8.22	304	17.6	5.2	1	M	M	M	M	M	M	M
ARCH 04-98	M	M	M	M	7.86	296	19.3	10	540	M	M	M	M	M	M	M
CANY 04-98	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
GRCA 01-98	885	ML	7	N	7.5	476	14	8.9	10	0	0	3	21	35	37	41
GRCA 02-98	975	ML	347	N	7.91	453	13.5	9.6	54	0	0	0	73	72	72	72
GRCA 03-98	975	ML	167	E	7.7	503	15	8.4	5	7	20	27	32	30	30	30
GRCA 04-98	975	ML	7	N	8.5	457	14	9.3	57	0	0	26	36	64	64	64



WATER COLLECTION NO.	AUG	SEP	OCT	NOV	DEC	SUMMER	WINTER	YEAR	VEGETATION PLOT NO.	VEGETATION TYPES	INVERTEBRATE HABITATS
GLCA 01-97	54	61	62	66	68	53.5	65.2	59.3	1	DS	S,P2
GLCA 02-97	53	66	70	76	78	52.8	73.3	63.1	2	BW,DS,SW,WT	S,P2
GLCA 03-97	65	45	36	0	0	63.2	17.7	40.4	3	SW	S
GLCA 04-97	87	83	69	68	70	85.7	69.8	77.8	4	DS	S
GLCA 05-97	54	59	57	59	50	57.7	54.7	56.2	5	SW,WL	S,P2,ST
GLCA 06-97	41	54	58	42	27	44	44.8	44.4	6	BW,DS,WL	S,P2
GLCA 07-97	38	18	0	0	0	38.5	0.5	19.5	7	SW	S
GLCA 08-97	57	59	62	49	27	57.2	50	53.6	8	SW,WL	P2
GLCA 09-97	48	54	53	64	59	48.3	57.3	52.8	9	SW	P2
GLCA 10-97	48	52	47	40	41	43.5	45.2	44.3	10	SW,WL	S,P2
GLCA 11-97	36	41	30	17	18	38.6	24.7	31.7	11	BW,DS,SW,WL	S,P2,ST
GLCA 12-97	79	84	84	81	83	81.5	83.5	82.5	12	DS,SW	S
GLCA 13-97	63	68	66	64	53	66.8	64.2	65.5	13	BW	S,ST
GLCA 14-97	92	91	84	79	77	91.3	82.5	86.9	14	SW	ST
GLCA 15-97	65	66	36	6	0	71.2	22	46.6	15	SW	ST
GLCA 16-97	66	28	0	0	0	65.2	2.3	33.7	16	SW	ST
GLCA 17-97	98	89	37	0	0	96.2	24	60.1	17	SW	ST
GLCA 18-97	53	54	57	63	70	55.7	62.2	58.9	18	BW,DS	ST
GLCA 19-97	71	72	66	60	44	70.5	58.8	64.7	19	SW	ST
GLCA 20-97	30	9	0	0	0	35.5	0.7	17.8	20	SW	ST
GLCA 21-97	94	96	98	97	97	93.5	97	95.3	21	DS	P2,ST
GLCA 22-97	56	69	73	81	78	60.3	75.5	67.9	22	SW,WL	P2
GLCA 23-97	49	50	41	40	24	49.8	38.8	44.8	23	BW,DS	
GLCA 01-98	49	57	58	67	68	46.8	65.8	56.3	51	BW,DS,SW	S,P2
GLCA 02-98	97	94	96	97	97	95.2	96	95.6	52	SW	ST,P2
GLCA 03-98	62	69	70	49	51	62.5	59.3	60.9	53	BW,DS,SW	P2
GLCA 04-98	67	60	40	43	44	72.3	44	58.2	54	SW	P2
GLCA 05-98	M	M	M	M	M	M	M	M		NONE	
GLCA 06-98	63	66	62	52	45	64.5	56.5	60.5	55	SW	P2
ARCH 01-98	53	47	32	26	13	55.3	26	40.7	24	BW,DS,WL	P2,S
ARCH 03-98	4	33	50	50	50	8.5	48.8	27.2	25	BW,DS	
CANY 01-98	0	0	0	0	0	0	0	0	26	BW,DS,SW	SP,S,P2
ARCH 05-98	84	87	84	85	86	80	84.5	82.3	27	BW,DS	P2
CANY 02-98	18	0	0	0	0	30.8	0	15.4	28	BW,DS	S
CANY 03-98	M	M	M	M	M	M	M	M		NONE	S
ARCH 04-98	M	M	M	M	M	M	M	M		NONE	
CANY 04-98	M	M	M	M	M	M	M	M		NONE	
GRCA 01-98	18	9	0	0	0	26.8	0.5	13.7	29	DS	SP
GRCA 02-98	74	7	0	0	0	61.7	0	30.8	30	BW,DS,SW	P2,SP
GRCA 03-98	24	27	27	6	0	28.8	14.5	21.7	31	BW,SW	SP
GRCA 04-98	42	31	0	0	0	50.2	4.3	27.3	32	BW,DS	



WATER COLLECTION NO.	AUG	SEP	OCT	NOV	DEC	SUMMER	WINTER	YEAR	VEGETATION PLOT NO.	VEGETATION TYPES	INVERTEBRATE HABITATS
GRCA 05-98	85	91	89	90	91	86.5	88	87.3	33	WL	ST,P2
GRCA 06-98	60	68	79	82	88	59.2	84.3	71.8	34	BW,WL	SP,P
GRCA 07-98	18	0	0	0	0	17	0	1.4	35	BW,DS	P2,ST,S
GRCA 08-98	73	76	78	77	74	73.2	76	74.6	36	SW	S
GRCA 09-98	89	94	89	56	36	93.5	68.7	81.1	37	SW	ST,P2
GRCA 10-98	90	98	46	0	0	90.7	27.5	59.1	38	BW,DS	S
GRCA 11-98	58	56	43	47	17	64	40.3	52.2	39	BW,DS	S
GRCA 12-98	0	0	0	0	0	7	0	1.2	40	BW,DS	
GRCA 13-98	58	59	48	41	42	67.2	47.5	57.3	41	BW,DS,WL	S,P2
GRCA 14-98	58	63	48	29	24	61.3	38.3	49.8	42	BW,WL	S,P2
GRCA 15-98	0	0	0	0	0	6	0	3	43	BW,DS	S,P1
GRCA 16-98	40	40	35	32	33	38.6	33.8	36.3	44,45	BW	S
GRCA 17-98	41	34	35	16	18	41.7	24	32.8	46	BW	S
GRCA 18-98	71	66	69	58	58	75.8	62.5	69.2	47	SW	
GRCA 19-98	M	M	M	M	M	M	M	M		NONE	
GRCA 20-98	M	M		M	M	M	M	M		NONE	
vegetation only	M	M	M	M	M	M	M	M	48	SW,DS	
vegetation only	M	M	M	M	M	M	M	M	49	DS	
vegetation only	M	M	M	M	M	M	M	M	50	BW,DS	

WATER COLLECTION NO.	I. MICROHABITATS	Plant Species Richness
GLCA 01-97	LS,SS	30
GLCA 02-97	M,C,SS,SW	23
GLCA 03-97	M,LS	16
GLCA 04-97	M,LS	20
GLCA 05-97	M,LS,SS,SW	20
GLCA 06-97	M,LS,SS,SW	11
GLCA 07-97	M	20
GLCA 08-97	SS,SW	22
GLCA 09-97	SS,SW	34
GLCA 10-97	SS,SW,LS	35
GLCA 11-97	M,LS,SS,SW	30
GLCA 12-97	LS	15
GLCA 13-97	M	11
GLCA 14-97	LP	11
GLCA 15-97	LP	7
GLCA 16-97	LP	21
GLCA 17-97	LP	11
GLCA 18-97	LP	16
GLCA 19-97	LP	6
GLCA 20-97	LP	7
GLCA 21-97	SS,SW	21
GLCA 22-97	SS,SW	29
GLCA 23-97		21
GLCA 01-98	LS,SW	17
GLCA 02-98	SW	10
GLCA 03-98	SW	21
GLCA 04-98	SW	9
GLCA 05-98		x
GLCA 06-98	SW	17
ARCH 01-98	C,M,L,SW	40
ARCH 03-98		21
CANY 01-98	SW,SS,LS	19
ARCH 05-98	SW,SS	16
CANY 02-98	M	20
CANY 03-98	LS	x
ARCH 04-98		x
CANY 04-98		x
GRCA 01-98	M,ST	13
GRCA 02-98	SS	20
GRCA 03-98	M	12
GRCA 04-98		13

<b>WATER COLLECTION NO.</b>	<b>I. MICROHABITATS</b>	<b>Plant Species Richness</b>
GRCA 05-98	LP,SS	25
GRCA 06-98	LS,M,SS	14
GRCA 07-98	M,SW,LS	17
GRCA 08-98	M,LS	14
GRCA 09-98	SS	17
GRCA 10-98	M	14
GRCA 11-98	M	27
GRCA 12-98		18
GRCA 13-98	M,SW	17
GRCA 14-98	M,SW,C,LS	23
GRCA 15-98	LS,M,SW	14
GRCA 16-98	M	11
GRCA 17-98	M	12
GRCA 18-98		9
GRCA 19-98		x
GRCA 20-98		x
vegetation only		
vegetation only		
vegetation only		

## A2. Water chemistry

Draft 12/9/2003

Table 2. Summary of field data

[Abbreviations of geology types: BAS, Bright Angel Shale; CS, Chinle Shale; CM, Cedar Mesa; ES, Entrada Sandstone; KS, Kayenta Sandstone; ML, Muav Limestone; NKI, Navajo-Kayenta Interface; NS, Navajo Sandstone; PCAM, Precambrian quartzite/schist; RW, Redwall Sandstone; SF, Summerville Formation; TS, Tapeats Sandstone. —, No data; Aspect, Direction spring is facing; e, estimate; m, meters; °C, degrees, Celsius; µS/cm, microsiemens per centimeter; mL/s, milliliters per second; mg/L – milligrams per liter; UTM, universal transverse mercator, North American Datum, 1927]

Site	Date	UTM Coordinates		Elevation m	Geology	Aspect	Temperature °C	Discharge mL/s	Dissolved Oxygen mg/L	pH	Specific Conductance µS/cm
		Easting	Northing								
<b>ARCHES NATIONAL PARK</b>											
Above Freshwater Spring	7/15/1998	627920	4289122	1340	ES	S	18.2	1	7.9	8.2	196
Seven Mile Spring	7/13/1998	617427	4280526	1280	ES	S	18.2	169	8.1	8.26	250
Sleepy Hollow Spring	7/13/1998	618434	4281208	1280	ES	S	18.5	495	7.2	8.08	226
<b>CANYONLANDS NATIONAL PARK</b>											
Big Spring	7/15/1998	603489	4226023	1420	NKI	N	16.8	16	7.6	7.78	508
Cabin Spring	7/14/1998	601283	4255058	1650	NKI	W	15.6	18	7	7.99	243
Cave Spring	7/15/1998	609252	4223729	1501	NKI	—	17.6	1	5.2	8.22	304
<b>GLEN CANYON NAT. REC. AREA</b>											
Bouy 114A Spring	8/6/1997	539380	4166470	1155	NKI	W	27.9	1	2.1	7.83	357
Bouy 114B Spring	8/6/1998	539150	4166830	1135	KS	E	22.7	5	6.4	8.43	235
Buoy 84 RR Spring	8/15/1997	510960	4132610	1135	NKI	E	23.3	44	6.9	7.79	192
Bowns Canyon Garden	7/16/1997	511160	4138810	1280	NS	W	23.9	362	6.6	9.07	117
Cottonwood Canyon Garden	9/4/1997	516254	4119867	1240	NS	S	21	246	3.1	8.07	216
Cow Canyon Garden A	7/17/1997	506910	4141700	1310	KS	E	20.3	50	7.1	7.01	157
Cow Canyon Garden B	7/17/1997	505920	4141000	1270	NKI	S	20.9	850	7.3	7.62	163
Cow Canyon Garden C	7/17/1997	510780	4145850	1370	NKI	S	26.3	118	7.6	8.70	207
Easter Pasture Canyon Garden	8/5/1998	578180	4208940	1510	CM	E	28.3	21	6.4	8.94	407
Escalante River Spring A	7/15/1997	501700	4140840	1130	NKI	N	18.9	349	6.8	7.76	171
Escalante River Spring B	7/15/1997	502660	4140860	1160	NKI	W	23	340	—	7.78	182
Escalante River Spring C	7/16/1997	502740	4139260	1140	NKI	E	18.9	913	7.7	7.76	156
Forgotten Canyon Spring	9/4/1997	537757	4154846	1160	NKI	W	19.3	37	6.3	8.26	306
Good Hope Bay, Spring A	8/14/1997	546110	4166100	1170	CS	N	19.4	57	7.8	7.90	503
Good Hope Bay, Spring B	8/14/1997	547800	4167480	1220	CS	N	19.2	41	7.4	7.92	548
Good Hope Bay, Spring C	8/14/1997	545420	4165730	1150	CS	N	18.4	52	8	7.91	286
Good Hope Bay, Spring D	8/14/1997	545190	4165740	1135	CS	N	19.3	1,890	7.3	8.11	211
Gypsum Canyon Spring	8/5/1998	583100	4206300	1180	CS	M	25.7	239	6.8	6.99	9,570
Knowles Canyon Garden	8/4/1998	538240	4159420	1155	NKI	S	27.6	5	6.2	8.29	167
Last Chance Spring	8/21/1997	467100	4114320	1150	SF	N	19.3	10	6.3	8.26	306
Long Canyon Spring	7/16/1997	551644	4178072	1250	NKI	E	19	344	7.4	7.70	142
Moqui Canyon Spring	9/4/1997	539979	4145796	1200	NKI	S	19.8	32	4.4	7.83	397
Rana Canyon Garden	7/17/1997	504170	4141240	1160	NKI	S	23.5	140	7.2	8.21	203
Ribbon Canyon, Grand Daddy Spring	6/19/1997	514300	4123510	1155	NKI	S	19	74	—	7.70	322
San Juan Garden	6/18/1997	511460	4116600	1130	NKI	E	20.5	214	6.5	7.36	177
Stevens Arch Garden	9/5/1997	502645	4141780	1250	KS	W	22.3	1	6.8	8.17	183
Swett Canyon Spring	8/5/1998	543670	4186860	1220	CS	—	31.9	5	6.2	7.83	1240
Wall Spring	8/13/1997	541950	4173310	1130	NS	E	20.6	282	8.1	8.03	408

Draft 12/9/2003

Table 2 (Continued)

[Abbreviations of geology types: BAS, Bright Angel Shale; CS, Chinle Shale; CM, Cedar Mesa; ES, Entrada Sandstone; KS, Kayenta Sandstone; ML, Muav Limestone; NKI, Navajo-Kayenta Interface; NS, Navajo Sandstone; PCAM, Precambrian quartzite/schist; RW, Redwall Sandstone; SF, Summerville Formation; TS, Tapeats Sandstone. —, No data; Aspect, Direction spring is facing; e, estimate; m, meters; °C, degrees, Celsius; µS/cm, microsiemens per centimeter; mL/s, milliliters per second; mg/L – milligrams per liter; UTM, universal transverse mercator, North American Datum, 1927]

Site	Date	UTM Coordinates		Elevation m	Geology	Aspect	Temperature °C	Discharge mL/s	Dissolved Oxygen mg/L	pH	Specific Conductance µS/cm
		Easting	Northing								
<b>GRAND CANYON NATIONAL PARK</b>											
Berts Canyon	5/11/1998	420561	4028259	975	ML	N	13.5	54	9.6	7.91	453
Cove Canyon	5/19/1998	318924	4012881	540	ML	E	17	93		8.43	2,790
Deer Creek Spring	5/16/1998	364612	4027987	600	ML	S	17.8	—	—	—	—
Elves Chasm	5/15/1998	369234	4005685	750	ML	N	9	621	10.4	8.43	612
Fern Glen	5/19/1998	327710	4014470	550	ML	N	14.5	5		8.14	2,010
Hance Rapid Spring	5/13/1998	416872	3990117	920	PCAM	S	18.8	91	8.3	8.32	911
Keyhole Spring	5/11/1998	358063	4027010	975	ML	N	14	57	9.3	8.50	457
Ledges	5/17/1998	345492	4023693	575	ML	S	20	191	—	8.11	2,020
Matkatamiba Canyon	5/17/1998	350096	4022800	640	ML	E	16	5	—	8.04	1,275
Mohawk Canyon	5/19/1998	323183	4010459	560	ML	W	16	5	—	8.31	2,200
Nankoweap Twin Spring	5/12/1998	420166	4015360	1,060	PCAM	E	17	6,345	8.9	8.30	705
Pumpkin Spring	5/21/1998	291744e	3973467e	480	TS	—	23	200	—	7.00	12,880
River Mile 125 Spring	5/15/1998	363175	4014068	670	ML	E	19	10	—	8.39	1,647
River Mile 142 Seep	5/16/1998	357500	4028707	590	ML	S	—	—	—	—	—
River Mile 147 Seep	5/17/1998	349600	4023102	585	ML	S	20.5	428	—	7.82	1,353
River Mile 213 Spring	5/21/1998	289236	3977233	490	BAS	E	18.5	5	—	9.22	586
Saddle Canyon	5/11/1998	418855	4024029	975	ML	E	15	5	8.4	7.70	503
Slimy Tick Spring	5/18/1998	342552	4021289	610	ML	E	15	7,080	—	8.30	2,650
Three Springs	5/21/1998	291641e	3973840e	500	ML	N	20	5,000	—	8.09	627
<b>MISCELLANEOUS</b>											
Matrimony Spring	7/14/1998	624393	4273683	1443	—	N	19.3	540	10	7.86	296

Table 3 Summary of water quality concentration data (mean and standard deviation) of selected springs and seeps

[meq/L, milliequivalents per liter; µg/L, micrograms per liter; &lt;, less than; --, no data]

Site	Alkalinity meq/L	Silver µg/L	Aluminum µg/L	Arsenic µg/L	Boron µg/L	Barium µg/L	Beryllium µg/L	Bismuth µg/L	Bromine µg/L
<b>ARCHES NATIONAL PARK</b>									
Above Freshwater Spring	1.45	< 0.5 ± 0.2	0.23 ± 0.3	0.26 ± 0.018	9.8 ± 0.3	220 ± 0	< 0.03 ± 0.01	< 0.006 ± 0.001	19 ± 4
Seven Mile Spring	2.15	< 0.5 ± 0.2	0.20 ± 0.3	0.22 ± 0.045	13.1 ± 1.7	310 ± 0	< 0.03 ± 0.01	< 0.006 ± 0.001	20 ± 4
Sleepy Hollow Spring	1.96	< 0.5 ± 0.2	1.2 ± 0.3	0.42 ± 0.082	15.0 ± 1.1	290 ± 0	< 0.03 ± 0.02	< 0.006 ± 0.000	15 ± 2
<b>CANYONLANDS NATIONAL PARK</b>									
Big Spring	4.94	< 0.5 ± 0.1	< 0.08 ± 0.4	0.69 ± 0.052	47.6 ± 0.6	160 ± 0	< 0.03 ± 0.02	< 0.006 ± 0.002	60 ± 2
Cabin Spring	1.99	< 0.5 ± 0.3	0.23 ± 0.4	2.40 ± 0.003	18.0 ± 1.4	180 ± 0	< 0.03 ± 0.01	< 0.006 ± 0.003	30 ± 6
Cave Spring	2.92	< 0.7 ± 0.3	1.2 ± 0.03	0.31 ± 0.079	10.5 ± 8.4	280 ± 0	< 0.02 ± 0.02	< 0.003 ± 0.001	8 ± 0
<b>GLEN CANYON NATIONAL RECREATION AREA</b>									
Bouy 114A Spring	--	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --
Bouy 114B Spring	2.26	< 0.7 ± 0.5	0.61 ± 0.04	2.71 ± 0.057	15 ± 5.8	420 ± 20	< 0.02 ± 0.02	< 0.003 ± 0.000	6 ± 1
Buoy 84 RR Spring	1.66	< 0.8 ± 0.1	4.3 ± 0.9	0.86 ± 0.024	11.9 ± 0.7	42 ± 0.5	< 0.02 ± 0.01	< 0.003 ± 0.002	7 ± 1
Bowns Canyon Garden	1.05	< 0.8 ± 0	3.4 ± 0.1	0.05 ± 0.021	4.8 ± 0.7	25 ± 0.6	< 0.02 ± 0.02	< 0.003 ± 0.001	19 ± 1
Cottonwood Canyon Garden	2.18	< 0.8 ± 0	8.3 ± 0.3	1.44 ± 0.038	12 ± 1	51 ± 0.5	< 0.02 ± 0.02	< 0.003 ± 0.000	12 ± 1
Cow Canyon Garden A	1.39	< 0.8 ± 0	2.1 ± 0.4	0.08 ± 0.007	7.6 ± 0.9	62 ± 2	< 0.02 ± 0.01	< 0.003 ± 0.002	26 ± 3
Cow Canyon Garden B	1.49	< 0.8 ± 0.1	4.4 ± 0.01	0.04 ± 0.028	8.9 ± 1.2	41 ± 1	< 0.02 ± 0.02	0.004 ± 0.000	13 ± 2
Cow Canyon Garden C	1.85	< 0.8 ± 0	3.7 ± 0.2	0.83 ± 0.023	12 ± 0.5	160 ± 10	< 0.02 ± 0.01	< 0.003 ± 0.002	28 ± 2
Easter Pasture Canyon Garden	2.66	< 0.7 ± 0.4	0.95 ± 0.1	0.79 ± 0.073	59 ± 6.3	67 ± 0.3	< 0.02 ± 0.01	< 0.003 ± 0.001	29 ± 1
Escalante River Spring A	1.42	< 0.8 ± 0.1	6.2 ± 0.2	2.67 ± 0.05	13 ± 0.6	32 ± 1	< 0.02 ± 0.01	< 0.003 ± 0.000	21 ± 2
Escalante River Spring B	1.45	< 0.8 ± 0.1	3.0 ± 0.05	0.19 ± 0.021	11 ± 0.9	37 ± 0	< 0.02 ± 0.02	< 0.003 ± 0.000	21 ± 2
Escalante River Spring C	1.51	< 0.8 ± 0	1.1 ± 0.2	7.31 ± 0.217	11 ± 1.2	120 ± 0	< 0.02 ± 0.02	< 0.003 ± 0.001	13 ± 0
Forgotten Canyon Spring	4.35	< 0.8 ± 0.1	2.3 ± 0.5	0.79 ± 0.05	17 ± 1.1	300 ± 0.3	< 0.02 ± 0.02	< 0.003 ± 0.000	21 ± 1
Good Hope Bay, Spring A	3.57	< 0.8 ± 0.1	2.7 ± 1.3	4.60 ± 0.06	37 ± 1.1	160 ± 0	< 0.02 ± 0.02	< 0.003 ± 0.000	24 ± 0
Good Hope Bay, Spring B	5.05	< 0.8 ± 0.1	5.0 ± 4.4	4.05 ± 0.009	88 ± 0.1	160 ± 0	< 0.02 ± 0.02	< 0.003 ± 0.002	23 ± 1
Good Hope Bay, Spring C	2.54	< 0.8 ± 0	1.3 ± 0.3	3.67 ± 0.025	31 ± 0.4	140 ± 10	< 0.02 ± 0.02	< 0.003 ± 0.001	18 ± 2
Good Hope Bay, Spring D	2.51	< 0.8 ± 0	1.3 ± 0.1	3.23 ± 0.008	24 ± 3	140 ± 0.1	< 0.02 ± 0.01	< 0.003 ± 0.001	18 ± 2
Gypsum Canyon Spring	4.58	< 0.7 ± 0.2	0.88 ± 0.3	9.92 ± 0.05	750 ± 10	35 ± 0.4	< 0.02 ± 0.01	0.008 ± 0.003	290 ± 0
Knowles Canyon Garden	1.47	< 0.7 ± 0.1	1.2 ± 0.1	1.01 ± 0.026	13 ± 1.5	240 ± 9.9	< 0.02 ± 0.01	< 0.003 ± 0.000	5 ± 1
Last Chance Spring	7.88	< 0.8 ± 0.1	3.2 ± 0.3	0.30 ± 0.026	270 ± 10	32 ± 0.5	< 0.02 ± 0.01	< 0.003 ± 0.002	33 ± 2
Long Canyon Spring	1.27	< 0.8 ± 0.1	5.2 ± 0.02	0.10 ± 0.026	10 ± 0.5	32 ± 0.0	< 0.02 ± 0.02	< 0.003 ± 0.001	14 ± 2
Moqui Canyon Spring	3.75	< 0.8 ± 0	2.9 ± 1.8	0.47 ± 0.015	19 ± 1	110 ± 0.5	< 0.02 ± 0.02	< 0.003 ± 0.001	20 ± 2
Rana Canyon Garden	1.90	< 0.8 ± 0.1	3.8 ± 0.4	0.25 ± 0.034	15 ± 0.2	45 ± 0.1	< 0.02 ± 0.00	< 0.003 ± 0.002	16 ± 2
Ribbon Canyon, Grand Daddy Spring	1.99	< 0.8 ± 0	1.2 ± 0.1	1.27 ± 0.114	11 ± 0.9	25 ± 1.4	< 0.02 ± 0.01	< 0.003 ± 0.000	14 ± 1
San Juan Garden	1.51	< 0.8 ± 0.1	1.7 ± 0.1	1.47 ± 0.017	8.7 ± 1.6	58 ± 0.6	< 0.02 ± 0.00	< 0.003 ± 0.000	10 ± 1
Stevens Arch Garden	1.65	< 0.8 ± 0.1	0.96 ± 0.5	0.23 ± 0.014	13 ± 0.4	39 ± 1.6	< 0.02 ± 0.01	< 0.003 ± 0.001	11 ± 1
Swett Canyon Spring	9.20	< 0.7 ± 0.4	1.1 ± 0.1	3.79 ± 0.029	440 ± 0	82 ± 0.9	< 0.02 ± 0.02	< 0.003 ± 0.001	38 ± 1
Wall Spring	3.68	< 0.8 ± 0	1.1 ± 0.01	1.36 ± 0.043	30 ± 0.2	150 ± 0	< 0.02 ± 0.02	< 0.003 ± 0.001	12 ± 1

Table 3 (Continued)

[meq/L, milliequivalents per liter; µg/L, micrograms per liter; &lt;, less than; --, no data]

Site	Alkalinity meq/L	Silver µg/L	Aluminum µg/L	Arsenic µg/L	Boron µg/L	Barium µg/L	Beryllium µg/L	Bismuth µg/L	Bromine µg/L
<b>GRAND CANYON NATIONAL PARK</b>									
Berts Canyon	4.00	< 0.7 ± 0.2	0.3 ± 0.04	0.28 ± 0.002	35 ± 8	140 ± 1.7	< 0.02 ± 0.02	< 0.003 ± 0.001	16 ± 0
Cove Canyon	1.80	< 0.7 ± 0.1	0.8 ± 0.18	0.88 ± 0.04	180 ± 10	22 ± 1.1	< 0.02 ± 0.02	< 0.003 ± 0.001	28 ± 1
Elves Chasm	3.17	< 0.7 ± 0.1	0.2 ± 0.06	2.3 ± 0.07	75 ± 8	31 ± 1.0	< 0.02 ± 0.02	< 0.003 ± 0.000	31 ± 0
Fern Glen	3.11	< 0.7 ± 0.3	9.6 ± 6.6	0.59 ± 0.05	240 ± 0	16 ± 0.2	< 0.02 ± 0.02	< 0.003 ± 0.002	26 ± 1
Hance Spring	4.94	< 0.7 ± 0.1	1.0 ± 0.3	54 ± 0.9	610 ± 10	32 ± 1.0	0.035 ± 0.02	< 0.003 ± 0.001	36 ± 2
Keyhole Spring	3.94	< 0.7 ± 0.3	0.7 ± 0.3	3.4 ± 0.09	43 ± 3	160 ± 0.4	< 0.02 ± 0.01	< 0.003 ± 0.001	21 ± 0
Mohawk Canyon	2.16	< 0.7 ± 0.1	0.5 ± 0.2	0.21 ± 0.10	230 ± 30	11 ± 0.4	< 0.02 ± 0.01	< 0.003 ± 0.001	32 ± 1
Nankoweap Twin Spring	4.49	< 0.7 ± 0.4	0.8 ± 0.5	0.13 ± 0.02	130 ± 10	32 ± 0.6	< 0.02 ± 0.01	< 0.003 ± 0.000	14 ± 1
Pumpkin Spring	29.6	< 0.7 ± 0.2	5.4 ± 0.2	— ± —	13,600 ± 2,900	120 ± 0.0	0.67 ± 0.02	0.004 ± 0.002	3,300 ± 0
River Mile 125 Spring	2.78	< 0.7 ± 0.3	0.6 ± 0.1	1.16 ± 0.04	210 ± 10	11 ± 0.1	< 0.02 ± 0.02	< 0.003 ± 0.001	46 ± 2
River Mile 147 Seep	3.03	< 0.7 ± 0.2	19 ± 16	0.93 ± 0.01	150 ± 10	13 ± 0.3	< 0.02 ± 0.00	< 0.003 ± 0.000	19 ± 1
River Mile 213 Spring	3.37	< 0.7 ± 0.1	1.4 ± 0.3	24 ± 1.01	200 ± 10	39 ± 0.5	< 0.02 ± 0.02	< 0.003 ± 0.003	63 ± 1
Saddle Canyon	3.94	< 0.7 ± 0.2	0.3 ± 0.2	0.95 ± 0.02	44 ± 6	87 ± 1.3	< 0.02 ± 0.01	< 0.003 ± 0.001	21 ± 0
Slimy Tick Spring	2.34	< 0.7 ± 0.3	0.8 ± 0.5	1.2 ± 0.09	220 ± 10	15 ± 0.7	< 0.02 ± 0.02	< 0.003 ± 0.000	24 ± 1
The Ledges	1.95	< 0.7 ± 0.2	1.9 ± 1.5	0.73 ± 0.05	190 ± 0	12 ± 0.1	< 0.02 ± 0.02	< 0.003 ± 0.003	23 ± 1
Three Springs	4.97	< 0.7 ± 0.2	0.5 ± 0.1	7.4 ± 0.40	110 ± 0	73 ± 1.6	< 0.02 ± 0.01	< 0.003 ± 0.001	51 ± 0
<b>MISCELLANEOUS</b>									
Matrimony Spring	2.11	< 0.5 ± 0.2	0.52 ± 0.5	0.83 ± 0.05	20.4 ± 0.908	71 ± 1	0.038 ± 0.01	< 0.006 ± 0.001	17 ± 4



Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; &lt;, less than; --, no data]

Site	Calcium mg/L	Cadmium µg/L	Cerium µg/L	Chlorine mg/L	Cobalt µg/L	Chromium µg/L	Cesium µg/L	Copper µg/L
<b>ARCHES NATIONAL PARK</b>								
Above Freshwater Spring	32 ± 0.5	< 0.009 ± 0.003	< 0.0005 ± 0.0007	2 ± 0.1	< 0.009 ± 0.007	< 0.1 ± 0.05	< 0.005 ± 0.002	0.12 ± 0.03
Seven Mile Spring	38 ± 0.6	< 0.009 ± 0.002	< 0.0005 ± 0.0005	4 ± 0.1	< 0.009 ± 0.010	< 0.1 ± 0.04	0.023 ± 0.003	0.14 ± 0.06
Sleepy Hollow Spring	38 ± 0.0	< 0.009 ± 0.005	0.002 ± 0.0008	2 ± —	< 0.009 ± 0.002	< 0.1 ± 0.13	0.019 ± 0.000	0.13 ± 0.03
<b>CANYONLANDS NATIONAL PARK</b>								
Big Spring	61 ± 0.4	< 0.009 ± 0.004	< 0.0005 ± 0.0002	12 ± —	< 0.009 ± 0.014	< 0.1 ± 0.04	0.013 ± 0.001	0.68 ± 0.05
Cabin Spring	34 ± 0.6	< 0.009 ± 0.007	< 0.0005 ± 0.0001	5.1 ± —	< 0.009 ± 0.007	< 0.1 ± 0.11	0.029 ± 0.001	0.10 ± 0.03
Cave Spring	29 ± 0.9	< 0.008 ± 0.003	0.004 ± 0.0007	4.7 ± —	< 0.005 ± 0.005	< 0.1 ± 0.08	< 0.005 ± 0.007	2.4 ± 0.24
<b>GLEN CANYON NATIONAL RECREATION AREA</b>								
Bouy 114A Spring	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —
Bouy 114B Spring	25 ± 0.1	< 0.008 ± 0.006	0.003 ± 0.0008	3.5 ± —	< 0.005 ± 0.011	< 0.1 ± 0.01	< 0.005 ± 0.006	0.16 ± 0.07
Buoy 84 RR Spring	19 ± 0.1	0.016 ± 0.006	0.004 ± 0.0002	2.3 ± —	< 0.005 ± 0.004	0.68 ± 0.04	0.008 ± 0.003	0.07 ± 0.01
Bowns Canyon Garden	10 ± 0.1	< 0.008 ± 0.003	0.009 ± 0.0000	1.4 ± —	< 0.005 ± 0.001	0.54 ± 0.01	0.029 ± 0.002	0.80 ± 0.03
Cottonwood Canyon Garden	27 ± 0.9	0.019 ± 0.009	0.005 ± 0.0003	2.7 ± 0.1	< 0.005 ± 0.005	0.38 ± 0.07	0.024 ± 0.006	0.34 ± 0.04
Cow Canyon Garden A	13 ± 0.4	0.014 ± 0.003	0.003 ± 0.0006	1.8 ± —	< 0.005 ± 0.004	0.99 ± 0.00	0.062 ± 0.011	0.09 ± 0.04
Cow Canyon Garden B	14 ± 0.3	0.025 ± 0.005	< 0.001 ± 0.0004	2.1 ± —	< 0.005 ± 0.002	1.0 ± 0.06	0.080 ± 0.005	0.05 ± 0.06
Cow Canyon Garden C	21 ± 0.3	0.008 ± 0.004	0.003 ± 0.0010	4.4 ± —	< 0.005 ± 0.000	1.1 ± 0.08	0.095 ± 0.007	0.11 ± 0.18
Easter Pasture Canyon Garden	23 ± 0.4	< 0.008 ± 0.003	< 0.001 ± 0.0004	17 ± —	< 0.005 ± 0.003	0.82 ± 0.30	0.284 ± 0.001	0.30 ± 0.12
Escalante River Spring A	15 ± 0.1	0.010 ± 0.002	0.003 ± 0.0004	1.7 ± —	< 0.005 ± 0.001	0.73 ± 0.07	0.078 ± 0.006	0.07 ± 0.04
Escalante River Spring B	15 ± 0.3	0.017 ± 0.009	0.001 ± 0.0007	2.5 ± —	< 0.005 ± 0.002	1.1 ± 0.07	0.11 ± 0.006	< 0.04 ± 0.03
Escalante River Spring C	15 ± 0.2	< 0.008 ± 0.005	< 0.001 ± 0.0002	1.7 ± —	< 0.005 ± 0.005	0.8 ± 0.00	0.14 ± 0.007	< 0.04 ± 0.01
Forgotten Canyon Spring	46 ± 1.8	< 0.008 ± 0.003	0.015 ± 0.0016	9.3 ± —	< 0.005 ± 0.003	0.39 ± 0.02	< 0.006 ± 0.003	0.16 ± 0.03
Good Hope Bay, Spring A	37 ± 1.1	0.008 ± 0.006	0.007 ± 0.0008	12 ± —	< 0.005 ± 0.003	0.60 ± 0.13	0.006 ± 0.005	< 0.04 ± 0.03
Good Hope Bay, Spring B	40 ± 0.4	0.010 ± 0.003	0.002 ± 0.0006	9.2 ± 0.1	< 0.005 ± 0.002	0.33 ± 0.26	0.011 ± 0.001	0.19 ± 0.11
Good Hope Bay, Spring C	21 ± 0.1	< 0.008 ± 0.002	< 0.001 ± 0.0005	8.1 ± —	< 0.005 ± 0.009	1.2 ± 0.09	0.007 ± 0.004	< 0.04 ± 0.04
Good Hope Bay, Spring D	23 ± 0.9	< 0.008 ± 0.002	0.003 ± 0.0004	7.8 ± —	< 0.005 ± 0.002	0.58 ± 0.03	0.009 ± 0.002	< 0.04 ± 0.05
Gypsum Canyon Spring	680 ± 20	0.049 ± 0.011	0.033 ± 0.0028	2,600 ± —	< 0.005 ± 0.12	< 0.3 ± 0.19	0.025 ± 0.006	< 0.07 ± 0.08
Knowles Canyon Garden	18 ± 0.3	< 0.008 ± 0.002	0.003 ± 0.0008	1.7 ± 0.1	< 0.005 ± 0.008	< 0.1 ± 0.11	< 0.005 ± 0.003	0.68 ± 0.12
Last Chance Spring	240 ± 10	0.030 ± 0.003	0.004 ± 0.0005	20 ± —	0.014 ± 0.002	< 0.09 ± 0.05	0.026 ± 0.002	0.67 ± 0.07
Long Canyon Spring	13 ± 0.2	0.035 ± 0.010	< 0.001 ± 0.0003	2.1 ± —	< 0.005 ± 0.004	0.74 ± 0.07	0.055 ± 0.002	< 0.04 ± 0.04
Moqui Canyon Spring	46 ± 0.7	< 0.008 ± 0.002	0.016 ± 0.0004	7.2 ± 0.7	< 0.005 ± 0.003	< 0.09 ± 0.02	0.007 ± 0.004	0.19 ± 0.07
Rana Canyon Garden	17 ± 0.2	0.018 ± 0.001	< 0.001 ± 0.0004	3.0 ± 0.1	< 0.005 ± 0.006	1.04 ± 0.01	0.13 ± 0.005	0.18 ± 0.04
Ribbon Canyon, Grand Daddy Spring	23 ± 0.5	0.016 ± 0.000	< 0.001 ± 0.0003	2.1 ± 0	< 0.005 ± 0.003	0.84 ± 0.07	0.03 ± 0.004	< 0.04 ± 0.03
San Juan Garden	18 ± 0.2	0.016 ± 0.007	0.006 ± 0.0020	2.4 ± —	< 0.005 ± 0.003	0.62 ± 0.07	0.019 ± 0.007	< 0.04 ± 0.03
Stevens Arch Garden	17 ± 0.3	< 0.008 ± 0.005	< 0.001 ± 0.0003	2.3 ± 0.2	< 0.005 ± 0.002	0.15 ± 0.04	0.091 ± 0.006	< 0.04 ± 0.00
Swett Canyon Spring	41 ± 0.8	0.043 ± 0.002	0.007 ± 0.0005	46 ± —	< 0.005 ± 0.009	< 0.1 ± 0.20	0.136 ± 0.011	0.55 ± 0.12
Wall Spring	36 ± 0.5	< 0.008 ± 0.002	< 0.001 ± 0.0005	7.2 ± —	< 0.005 ± 0.003	0.40 ± 0.04	0.021 ± 0.002	< 0.04 ± 0.03

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; --, no data]

Site	Calcium mg/L	Cadmium µg/L	Cerium µg/L	Chlorine mg/L	Cobalt µg/L	Chromium µg/L	Cesium µg/L	Copper µg/L
<b>GRAND CANYON NATIONAL PARK</b>								
Berts Canyon	41 ± 1.9	< 0.008 ± 0.001	0.015 ± 0.002	8.8 ± -- < 0.005 ± 0.007	0.44 ± 0.00	0.24 ± 0.005	0.65 ± 0.11	
Cove Canyon	530 ± 0.2	0.015 ± 0.002	0.001 ± 0.0008	32 ± -- < 0.005 ± 0.02	< 0.3 ± 0.25	0.035 ± 0.005	1.4 ± 0.06	
Elves Chasm	69 ± 0.4	< 0.008 ± 0.004	0.001 ± 0.0003	20 ± -- < 0.005 ± 0.02	< 0.3 ± 0.09	0.097 ± 0.005	0.13 ± 0.07	
Fern Glen	330 ± 0.0	< 0.008 ± 0.005	< 0.001 ± 0.0007	22 ± -- < 0.005 ± 0.008	< 0.3 ± 0.17	0.18 ± 0.005	1.5 ± 0.44	
Hance Spring	57 ± 1.0	0.028 ± 0.003	0.001 ± 0.0006	47 ± -- < 0.005 ± 0.002	< 0.3 ± 0.05	1.2 ± 0.008	0.19 ± 0.18	
Keyhole Spring	41 ± 0.7	< 0.008 ± 0.008	0.003 ± 0.002	9.4 ± -- < 0.005 ± 0.01	< 0.3 ± 0.13	0.22 ± 0.001	3.4 ± 0.06	
Mohawk Canyon	290 ± 10	< 0.008 ± 0.004	0.002 ± 0.0005	27 ± -- < 0.005 ± 0.005	< 0.3 ± 0.20	0.31 ± 0.005	0.64 ± 0.09	
Nankowep Twin Spring	58 ± 1.6	< 0.008 ± 0.003	0.003 ± 0.001	8.2 ± -- < 0.005 ± 0.001	< 0.3 ± 0.03	0.06 ± 0.003	0.59 ± 0.15	
Pumpkin Spring	190 ± 20	0.054 ± 0.005	0.016 ± 0.0000	5,100 ± -- < 0.005 ± 0.01	3.0 ± 0.09	40 ± 0.7	0.97 ± 0.11	
River Mile 125 Spring	200 ± 0.0	< 0.008 ± 0.004	0.002 ± 0.0005	32 ± -- < 0.005 ± 0.01	< 0.3 ± 0.24	0.13 ± 0.008	0.13 ± 0.11	
River Mile 147 Seep	190 ± 0.0	0.029 ± 0.023	0.005 ± 0.0006	14 ± -- < 0.005 ± 0.03	< 0.3 ± 0.20	0.49 ± 0.01	1.5 ± 0.25	
River Mile 213 Spring	42 ± 1.1	0.012 ± 0.008	0.006 ± 0.0001	31 ± -- < 0.005 ± 0.006	< 0.3 ± 0.10	0.61 ± 0.01	5.1 ± 0.18	
Saddle Canyon	45 ± 0.7	< 0.008 ± 0.008	0.001 ± 0.0006	12 ± -- < 0.005 ± 0.01	< 0.3 ± 0.19	0.59 ± 0.008	< 0.07 ± 0.01	
Slimy Tick Spring	350 ± 9.9	< 0.008 ± 0.008	< 0.001 ± 0.0008	11 ± -- < 0.005 ± 0.11	< 0.3 ± 0.11	0.38 ± 0.006	1.2 ± 0.17	
The Ledges	560 ± 0.0	< 0.008 ± 0.005	0.001 ± 0.001	14 ± -- < 0.005 ± 0.01	< 0.3 ± 0.08	0.68 ± 0.006	2.6 ± 0.15	
Three Springs	66 ± 1.3	< 0.008 ± 0.004	0.001 ± 0.001	23 ± -- < 0.005 ± 0.005	< 0.3 ± 0.04	0.065 ± 0.004	1.7 ± 0.04	
<b>MISCELLANEOUS</b>								
Matrimony Spring	29 ± 0.2	< 0.009 ± 0.004	< 0.0005 ± 0.0007	9 ± -- < 0.009 ± 0.004	0.30 ± 0.08	0.014 ± 0.001	0.11 ± 0.11	

Table 3 (Continued)

[mg/L, milligrams per liter; mg C/L, milligrams carbon per liter µg/L, micrograms per liter; ng/L, nanograms per liter; &lt;, less than; --, no data]

Site	Dissolved inorganic carbon mg C/L	Dissolved organic carbon mg C/L	Dysprosium µg/L	Erbium µg/L	Europium µg/L	Fluorine mg/L	Iron µg/L	Gadolinium µg/L	Mercury ng/L
<b>ARCHES NATIONAL PARK</b>									
Above Freshwater Spring	21 ± 0.3	1.4	< 0.002 ± 0.000	< 0.002 ± 0.002	< 0.001 ± 0.0007	0.08 ± --	< 12 ± 7	0.003 ± 0	0.8 ± 0
Seven Mile Spring	27 ± 0.2	0.8	< 0.002 ± 0.001	0.002 ± 0.001	< 0.001 ± 0.0062	0.10 ± 0.008	< 12 ± 2	< 0.002 ± 0	0.6 ± 0.2
Sleepy Hollow Spring	25 ± 0.2	0.6	< 0.002 ± 0.002	0.002 ± 0.001	< 0.001 ± 0.0071	0.11 ± --	< 12 ± 5	< 0.002 ± 0.001	0.6 ± 0.2
<b>CANYONLANDS NATIONAL PARK</b>									
Big Spring	62 ± 0.2	0.9	< 0.002 ± 0.000	< 0.002 ± 0.001	0.001 ± 0.0000	0.09 ± --	< 12 ± 1	< 0.002 ± 0.002	< 0.3 ± 0.04
Cabin Spring	25 ± 0.2	0.8	< 0.002 ± 0.000	< 0.002 ± 0.001	< 0.001 ± 0.0001	0.10 ± --	< 12 ± 13	< 0.002 ± 0.001	< 0.3 ± 0.2
Cave Spring	35 ± 0.2	0.9	< 0.003 ± 0.001	< 0.004 ± 0.002	< 0.001 ± 0.0027	0.13 ± --	< 9 ± 2	< 0.003 ± 0.001	0.4 ± 0.2
<b>GLEN CANYON NATIONAL RECREATION AREA</b>									
Bouy 114A Spring	-- ± --	--	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --
Bouy 114B Spring	29 ± 0.2	1.6	< 0.003 ± 0.001	< 0.004 ± 0.001	0.007 ± 0.0020	0.11 ± --	< 9 ± 8	0.003 ± 0.002	0.6 ± 0.1
Buoy 84 RR Spring	22 ± 0.2	1.7	< 0.004 ± 0.001	0.005 ± 0.001	< 0.002 ± 0.0008	0.09 ± --	< 5 ± 6	0.005 ± 0.001	1.7 ± 0.07
Bowns Canyon Garden	13 ± 0	4.4	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0013	0.10 ± --	< 5 ± 1	< 0.002 ± 0	1.3 ± 0.2
Cottonwood Canyon Garden	28 ± 0.5	1.0	< 0.004 ± 0.000	< 0.003 ± 0.001	< 0.002 ± 0.0032	0.11 ± --	< 5 ± 9	0.002 ± 0.002	< 0.3 ± 0.03
Cow Canyon Garden A	19 ± 0.1	1.2	< 0.004 ± 0.001	< 0.003 ± 0.003	< 0.002 ± 0.0001	0.08 ± --	< 5 ± 1	< 0.002 ± 0	0.9 ± 0.1
Cow Canyon Garden B	19 ± 0	1.2	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0019	0.08 ± --	< 5 ± 5	0.002 ± 0	1.0 ± 0.2
Cow Canyon Garden C	24 ± 0.2	0.9	< 0.004 ± 0.000	< 0.003 ± 0.002	0.003 ± 0.0021	0.09 ± --	< 5 ± 7	< 0.002 ± 0.002	1.0 ± 0.2
Easter Pasture Canyon Garden	30 ± 0.4	1.9	< 0.003 ± 0.002	< 0.004 ± 0.001	< 0.001 ± 0.0010	0.21 ± --	12 ± 10	< 0.003 ± 0.002	0.8 ± 0.2
Escalante River Spring A	19 ± 0.1	0.9	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0014	0.10 ± --	< 5 ± 2	< 0.002 ± 0.001	1.1 ± 0.1
Escalante River Spring B	15 ± 0	1.9	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0016	0.08 ± --	< 5 ± 2	< 0.002 ± 0.001	1.0 ± 0.06
Escalante River Spring C	20 ± 0.1	0.9	< 0.004 ± 0.001	< 0.003 ± 0.0004	< 0.002 ± 0.0009	0.08 ± --	< 5 ± 6	< 0.002 ± 0.001	0.8 ± 0.07
Forgotten Canyon Spring	54 ± 0.6	3.4	0.017 ± 0.003	0.007 ± 0.0003	0.004 ± 0.0020	0.27 ± --	< 5 ± 14	0.020 ± 0	1.6 ± 0.1
Good Hope Bay, Spring A	44 ± 1.1	1.2	< 0.004 ± 0.002	0.003 ± 0.0004	< 0.002 ± 0.0024	0.16 ± --	< 5 ± 4	0.004 ± 0.001	4.0 ± 0.1
Good Hope Bay, Spring B	64 ± 0.8	0.9	0.013 ± 0.000	0.012 ± 0.004	0.011 ± 0.0029	0.26 ± --	< 5 ± 9	0.012 ± 0.001	0.3 ± 0.10
Good Hope Bay, Spring C	32 ± 0.5	0.4	< 0.004 ± 0.000	< 0.003 ± 0.0003	< 0.002 ± 0.0030	0.19 ± --	< 5 ± 5	< 0.002 ± 0.001	3.1 ± 0.2
Good Hope Bay, Spring D	31 ± 0.6	0.3	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0003	0.18 ± --	< 5 ± 4	< 0.002 ± 0	2.3 ± 0.1
Gypsum Canyon Spring	66 ± 1	1.8	0.005 ± 0.001	0.008 ± 0.001	< 0.001 ± 0.0011	2.2 ± --	1,500 ± 100	0.010 ± 0.002	1.2 ± 0.2
Knowles Canyon Garden	20 ± 0.4	0.8	< 0.003 ± 0.002	< 0.004 ± 0.001	< 0.001 ± 0.0008	< 0.05 ± --	< 9 ± 2	< 0.003 ± 0.001	0.6 ± 0.3
Last Chance Spring	61 ± 1	2.2	< 0.004 ± 0.002	< 0.003 ± 0.001	< 0.002 ± 0.0008	0.66 ± --	< 5 ± 4	< 0.002 ± 0.001	2.9 ± 0.1
Long Canyon Spring	16 ± 0.1	0.9	< 0.004 ± 0.000	< 0.003 ± 0.0005	< 0.002 ± 0.0015	0.09 ± --	< 5 ± 3	< 0.002 ± 0	1.0 ± 0.2
Moqui Canyon Spring	44 ± 0.7	3.2	0.004 ± 0.002	0.004 ± 0.002	0.002 ± 0.0017	0.22 ± --	110 ± 10	0.006 ± 0.001	< 0.3 ± 0.2
Rana Canyon Garden	25 ± 0.2	2.0	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0019	0.12 ± 0.002	< 5 ± 4	< 0.002 ± 0.001	1.1 ± 0.08
Ribbon Canyon, Grand Daddy Spring	26 ± 0.1	1.2	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0019	0.09 ± 0.002	< 5 ± 7	0.003 ± 0.001	2.1 ± 0.07
San Juan Garden	19 ± 0.3	1.7	< 0.004 ± 0.000	< 0.003 ± 0.001	< 0.002 ± 0.0035	0.10 ± --	< 5 ± 2	< 0.002 ± 0	1.5 ± 0.1
Stevens Arch Garden	21 ± 0.5	1.0	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0023	0.09 ± --	< 5 ± 6	< 0.002 ± 0.002	< 0.3 ± 0.2
Swett Canyon Spring	119 ± 0.2	3.1	< 0.003 ± 0.002	< 0.004 ± 0.001	0.003 ± 0.0015	0.50 ± --	< 9 ± 14	< 0.003 ± 0.001	< 0.3 ± 0.03
Wall Spring	44 ± 0.8	0.4	< 0.004 ± 0.001	< 0.003 ± 0.001	< 0.002 ± 0.0014	0.23 ± --	< 5 ± 9	< 0.002 ± 0.001	0.7 ± 0.03

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; mg C/L, milligrams carbon per liter µg/L, micrograms per liter; ng/L, nanograms per liter; <, less than; --, no data]

Site	Dissolved inorganic carbon mg C/L	Dissolved organic carbon mg C/L	Dysprosium µg/L	Erbium µg/L	Europium µg/L	Fluorine mg/L	Iron µg/L	Gadolinium µg/L	Mercury ng/L
<b>GRAND CANYON NATIONAL PARK</b>									
Berts Canyon	50 ± 0.6	0.8	< 0.003 ± 0.001	< 0.004 ± 0	0.003 ± 0.000	0.17	< 9 ± 10	< 0.003 ± 0.001	2.9 ± 0
Cove Canyon	23 ± 0.1	1.5	< 0.003 ± 0.001	< 0.004 ± 0.001	0.002 ± 0.002	0.81	< 30 ± 24	< 0.003 ± 0.000	0.5 ± 0.0
Elves Chasm	35 ± 0.2	0.8	< 0.003 ± 0.000	< 0.004 ± 0	< 0.001 ± 0.001	0.35	< 30 ± 10	< 0.003 ± 0.001	< 0.3 ± 0.0
Fern Glen	-- ± --		< 0.003 ± 0.000	< 0.004 ± 0.001	< 0.001 ± 0.001	0.60	< 30 ± 13	< 0.003 ± 0.000	< 0.3 ± 0
Hance Spring	62 ± 0.7	0.7	< 0.003 ± 0.001	< 0.004 ± 0.002	< 0.001 ± 0.001	0.49	28 ± 3	< 0.003 ± 0.002	< 0.3 ± 0
Keyhole Spring	49 ± 0.3	0.9	< 0.003 ± 0.001	< 0.004 ± 0	< 0.001 ± 0.001	0.18	15 ± 18	< 0.003 ± 0.000	< 0.3 ± 0
Mohawk Canyon	-- ± --		< 0.003 ± 0.001	< 0.004 ± 0.001	< 0.001 ± 0.001	0.61	< 30 ± 8	< 0.003 ± 0.001	< 0.3 ± 0
Nankoweap Twin Spring	63 ± 0.8	1.0	< 0.003 ± 0.001	< 0.004 ± 0.001	< 0.001 ± 0.001	0.06	25 ± 16	< 0.003 ± 0.001	< 0.3 ± 0.0
Pumpkin Spring	490 ± --	2.0	0.029 ± 0.001	0.036 ± 0.001	0.003 ± 0.003	3.2	240 ± 20	0.014 ± 0.003	< 0.3 ± 0
River Mile 125 Spring	41 ± 0.1	0.8	< 0.003 ± 0.001	< 0.004 ± 0.001	< 0.001 ± 0.001	0.69	< 30 ± 25	< 0.003 ± 0.002	0.4 ± 0
River Mile 147 Seep	29 ± 0.2	0.8	< 0.003 ± 0.001	< 0.004 ± 0	< 0.001 ± 0.000	0.57	< 30 ± 20	< 0.003 ± 0.001	< 0.3 ± 0
River Mile 213 Spring	40 ± 0.4	1.7	< 0.003 ± 0.001	< 0.004 ± 0.001	< 0.001 ± 0.001	0.40	16 ± 14	< 0.003 ± 0.002	< 0.3 ± 0
Saddle Canyon	49 ± 0.2	0.6	< 0.003 ± 0.000	< 0.004 ± 0.001	0.002 ± 0.000	0.11	< 9 ± 7	< 0.003 ± 0.000	< 0.3 ± 0
Slimy Tick Spring	28 ± 0.3	0.6	< 0.003 ± 0.001	< 0.004 ± 0.001	< 0.001 ± 0.000	0.75	< 30 ± 20	< 0.003 ± 0.000	1.1 ± 0
The Ledges	34 ± 0.2	1.3	< 0.003 ± 0.001	< 0.004 ± 0.001	< 0.001 ± 0.002	0.52	< 30 ± 25	< 0.003 ± 0.001	< 0.3 ± 0.0
Three Springs	57 ± 0.1	1.9	< 0.003 ± 0.003	< 0.004 ± 0	< 0.001 ± 0.003	0.25	20 ± 19	< 0.003 ± 0.001	-- ± --
<b>MISCELLANEOUS</b>									
Matrimony Spring	26 ± 0.3	0.5	< 0.002 ± 0.001	< 0.002 ± 0.002	< 0.001 ± 0.001	0.11	< 12 ± 13	< 0.002 ± 0.002	0.5 ± 0.0

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; &lt;, less than; --, no data]

Site	Holium µg/L		Iodine µg/L		Potassium mg/L	Lanthanum µg/L		Lithium µg/L	Lutecium µg/L		
<b>ARCHES NATIONAL PARK</b>											
Above Freshwater Spring	< 0.0004	± 0.0001	9 ± 0.4		1.4 ± 0.01	0.0043 ± 0.0013	0.6 ± 0.1	< 0.0005	± 0.0001		
Seven Mile Spring	< 0.0004	± 0.0003	40 ± 0		1.4 ± 0.01	0.0045 ± 0.0007	0.93 ± 0.1	< 0.0005	± 0.0001		
Sleepy Hollow Spring	< 0.0004	± 0.0001	15 ± 0.2		1.8 ± 0.04	0.0052 ± 0.0006	1.0 ± 0	< 0.0005	± 0.0003		
<b>CANYONLANDS NATIONAL PARK</b>											
Big Spring	< 0.0004	± 0.0004	35 ± 3		3.6 ± 0.09	0.0026 ± 0.0005	23 ± 0.2	< 0.0005	± 0.0004		
Cabin Spring	< 0.0004	± 0.0000	23 ± 3		2.0 ± 0.01	0.0036 ± 0.0007	1.9 ± 0.0	< 0.0005	± 0.0001		
Cave Spring	< 0.0007	± 0.0005	24 ± 16		1.2 ± 0.02	0.0046 ± 0.0006	2.0 ± 0.2	< 0.0006	± 0.0004		
<b>GLEN CANYON NATIONAL RECREATION AREA</b>											
Bouy 114A Spring	--	±	--	±	--	±	--	±	--	±	--
Bouy 114B Spring	< 0.0007	± 0.0003	35 ± 15		2.0 ± 0.04	0.0098 ± 0.0004	7.0 ± 0.4	< 0.0006	± 0.0003		
Buoy 84 RR Spring	< 0.0007	± 0.0002	41 ± 0.5		1.3 ± 0.02	0.0058 ± 0.0002	5.1 ± 0.1	< 0.0006	± 0.0003		
Bowns Canyon Garden	< 0.0007	± 0.0003	13 ± 1.9		0.8 ± 0.00	0.0057 ± 0.0009	2.4 ± 0	0.0009	± 0.0002		
Cottonwood Canyon Garden	< 0.0007	± 0.0003	32 ± 2		1.4 ± 0.02	0.0043 ± 0.0008	3.8 ± 0.1	< 0.0006	± 0.0003		
Cow Canyon Garden A	< 0.0007	± 0.0001	19 ± 0.4		0.8 ± 0.01	0.0035 ± 0.0003	2.8 ± 0.1	< 0.0006	± 0.0002		
Cow Canyon Garden B	< 0.0007	± 0.0004	26 ± 2		1.0 ± 0.01	0.0015 ± 0.0004	3.3 ± 0.2	< 0.0006	± 0.0004		
Cow Canyon Garden C	< 0.0007	± 0.0002	39 ± 0.6		1.2 ± 0.01	0.0034 ± 0.0003	2.9 ± 0	< 0.0006	± 0.0002		
Easter Pasture Canyon Garden	< 0.0007	± 0.0002	88 ± 23		2.6 ± 0.01	0.0014 ± 0.0003	11 ± 0	< 0.0006	± 0.0003		
Escalante River Spring A	< 0.0007	± 0.0003	22 ± 2		0.9 ± 0.01	0.0027 ± 0.0006	4.7 ± 0.1	< 0.0006	± 0.0004		
Escalante River Spring B	< 0.0007	± 0.0005	30 ± 2		1.0 ± 0.01	0.0017 ± 0.0007	5.9 ± 0	< 0.0006	± 0.0002		
Escalante River Spring C	< 0.0007	± 0.0000	31 ± 3		1.1 ± 0.02	0.0012 ± 0.0012	4.0 ± 0.1	< 0.0006	± 0.0001		
Forgotten Canyon Spring	0.0031	± 0.0001	52 ± 2		1.2 ± 0.02	0.0209 ± 0.0005	8.8 ± 0.2	0.0010	± 0.0008		
Good Hope Bay, Spring A	0.0011	± 0.0005	79 ± 2		1.2 ± 0.01	0.0137 ± 0.0010	24 ± 0.4	0.0007	± 0.0004		
Good Hope Bay, Spring B	0.0026	± 0.0012	74 ± 3		3.5 ± 0.04	0.0454 ± 0.0012	35 ± 0.8	0.0023	± 0.0007		
Good Hope Bay, Spring C	< 0.0007	± 0.0005	62 ± 2		1.3 ± 0.02	0.0034 ± 0.0006	16 ± 0.2	< 0.0006	± 0.0001		
Good Hope Bay, Spring D	< 0.0007	± 0.0003	52 ± 4		1.2 ± 0.01	0.0050 ± 0.0010	13 ± 0.5	< 0.0006	± 0.0006		
Gypsum Canyon Spring	0.0045	± 0.0006	490 ± 10		12 ± 0.3	0.0236 ± 0.0002	98 ± 0.9	0.0011	± 0.0002		
Knowles Canyon Garden	< 0.0007	± 0.0003	35 ± 21		1.7 ± 0.02	0.0035 ± 0.0001	1.9 ± 0	< 0.0006	± 0.0004		
Last Chance Spring	0.0013	± 0.0005	51 ± 3		11 ± 0.5	0.0026 ± 0.0004	190 ± 0.1	< 0.0006	± 0.0006		
Long Canyon Spring	< 0.0007	± 0.0002	27 ± 2		1.0 ± 0.01	< 0.0007 ± 0.0006	4.0 ± 0.1	0.0008	± 0.0000		
Moqui Canyon Spring	0.0013	± 0.0007	51 ± 2		0.2 ± 0.01	0.0132 ± 0.0015	6.7 ± 0	0.0009	± 0.0000		
Rana Canyon Garden	< 0.0007	± 0.0004	28 ± 3		1.3 ± 0.02	0.0026 ± 0.0004	5.7 ± 0.1	< 0.0006	± 0.0001		
Ribbon Canyon, Grand Daddy Spring	< 0.0007	± 0.0000	22 ± 2		1.1 ± 0.01	0.0025 ± 0.0004	4.0 ± 0	< 0.0006	± 0.0004		
San Juan Garden	< 0.0007	± 0.0001	34 ± 3		1.0 ± 0.01	0.0047 ± 0.0001	3.6 ± 0.1	< 0.0006	± 0.0004		
Stevens Arch Garden	< 0.0007	± 0.0003	43 ± 3		1.1 ± 0.01	0.0014 ± 0.0009	7.1 ± 0.1	< 0.0006	± 0.0005		
Swett Canyon Spring	< 0.0007	± 0.0001	22 ± 12		16 ± 0.33	0.0025 ± 0.0004	140 ± 0	< 0.0006	± 0.0003		
Wall Spring	< 0.0007	± 0.0002	29 ± 5		2.6 ± 0.01	0.0021 ± 0.0007	14 ± 0.1	< 0.0006	± 0.0002		

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; <, less than; --, no data]

Site	Holium µg/L	Iodine µg/L	Potassium mg/L	Lanthanum µg/L	Lithium µg/L	Lutecium µg/L
<b>GRAND CANYON NATIONAL PARK</b>						
Berts Canyon	< 0.0007 ± 0.0003	26 ± 0.7	1.8 ± 0.03	0.0088 ± 0.001	6.0 ± 0.5	< 0.0006 ± 0.0002
Cove Canyon	< 0.0007 ± 0.0005	13 ± 8	13 ± 0.39	< 0.0009 ± 0.0004	47 ± 2	< 0.0006 ± 0.0001
Elves Chasm	< 0.0007 ± 0.0002	32 ± 13	3.5 ± 0.03	< 0.0009 ± 0.0006	14 ± 0.9	< 0.0006 ± 0.0005
Fern Glen	< 0.0007 ± 0.0004	33 ± 15	12 ± 0.41	< 0.0009 ± 0.0003	60 ± 1.9	0.0007 ± 0.0005
Hance Spring	< 0.0007 ± 0.0004	45 ± 9	13 ± 0.03	< 0.0009 ± 0.0009	170 ± 0.5	< 0.0006 ± 0.0002
Keyhole Spring	< 0.0007 ± 0.0002	25 ± 4	1.9 ± 0.01	0.0027 ± 0.0001	7.4 ± 0.1	< 0.0006 ± 0.0005
Mohawk Canyon	< 0.0007 ± 0.0003	40 ± 3	9.3 ± 0.00	0.0010 ± 0.0007	56 ± 1.5	< 0.0006 ± 0.0005
Nankoweap Twin Spring	< 0.0007 ± 0.0001	15 ± 7	4.1 ± 0.01	0.0013 ± 0.0007	22 ± 0.7	< 0.0006 ± 0.0002
Pumpkin Spring	0.011 ± 0.001	2,700 ± 0	110 ± 0.00	0.0117 ± 0.0002	2,700 ± 0.0	0.0037 ± 0.0002
River Mile 125 Spring	< 0.0007 ± 0.0004	60 ± 14	7.6 ± 0.05	0.0020 ± 0.0002	56 ± 1	< 0.0006 ± 0.0000
River Mile 147 Seep	< 0.0007 ± 0.0006	85 ± 15	6.4 ± 0.02	0.0018 ± 0.0002	40 ± 0.4	< 0.0006 ± 0.0004
River Mile 213 Spring	< 0.0007 ± 0.0007	170 ± 20	5.2 ± 0.02	0.0041 ± 0.0001	30 ± 0.9	< 0.0006 ± 0.0002
Saddle Canyon	< 0.0007 ± 0.0003	42 ± 16	3.2 ± 0.01	0.0017 ± 0.0003	7.9 ± 0.1	< 0.0006 ± 0.0003
Slimy Tick Spring	< 0.0007 ± 0.0004	56 ± 12	11 ± 0.06	< 0.0009 ± 0.0004	62 ± 1	< 0.0006 ± 0.0001
The Ledges	< 0.0007 ± 0.0002	100 ± 20	7.7 ± 0.10	0.0013 ± 0.0005	49 ± 0.2	< 0.0006 ± 0.0003
Three Springs	< 0.0007 ± 0.0007	83 ± 1	2.5 ± 0.02	0.0016 ± 0.0004	16 ± 0.4	< 0.0006 ± 0.0003
<b>MISCELLANEOUS</b>						
Matrimony Spring	< 0.0004 ± 0.0004	12 ± 1	1.7 ± 0.03	0.0014 ± 0.0008	3.3 ± 0.1	< 0.0005 ± 0.0004

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; mg N/L, milligrams nitrogen per liter  $\mu\text{g/L}$ , micrograms per liter; <, less than; --, no data]

Site	Magnesium mg/L	Manganese $\mu\text{g/L}$	Molybdenum $\mu\text{g/L}$	Ammonium mg N/L	Nitrite mg N/L	Nitrate mg N/L	Sodium mg/L
<b>ARCHES NATIONAL PARK</b>							
Above Freshwater Spring	2.8 ± 0.03	0.11 ± 0.01	< 0.2 ± 0.01	0.008 ± 0.01	0.003 ± 0	0.61 ± 0.00	1.9 ± 0.6
Seven Mile Spring	3.6 ± 0.05	< 0.02 ± 0.01	< 0.2 ± 0.02	0.005 ± 0.004	< 0.003 ± 0.001	0.92 ± 0.003	2.8 ± 1.0
Sleepy Hollow Spring	2.8 ± 0.08	0.42 ± 0.03	< 0.2 ± 0.02	0.011 ± 0.001	< 0.003 ± 0	1.1 ± 0.02	2.2 ± 0.2
<b>CANYONLANDS NATIONAL PARK</b>							
Big Spring	16 ± 0.1	< 0.02 ± 0.004	0.5 ± 0.01	0.007 ± 0.003	< 0.003 ± 0	0.83 ± 0.002	32 ± 0.6
Cabin Spring	5.5 ± 0.1	0.27 ± 0.02	< 0.2 ± 0.03	0.009 ± 0.005	0.004 ± 0	0.57 ± 0.01	2.7 ± 0.4
Cave Spring	18 ± 0.2	2.3 ± 0.01	< 0.2 ± 0.04	< 0.005 ± 0.004	0.003 ± 0	0.62 ± 0.002	4.5 ± 0.5
<b>GLEN CANYON NATIONAL RECREATION AREA</b>							
Bouy 114A Spring	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --
Bouy 114B Spring	12 ± 0.4	0.15 ± 0.01	< 0.2 ± 0.07	0.007 ± 0.002	0.001 ± 0	0.09 ± 0	3.0 ± 0.2
Buoy 84 RR Spring	10 ± 0.2	0.42 ± 0.02	< 0.2 ± 0.03	-- ± --	-- ± --	0.85 ± --	2.2 ± 0.5
Bowms Canyon Garden	6.9 ± 0.2	0.25 ± 0.01	< 0.2 ± 0.02	< 0.007 ± 0	0.014 ± 0.001	0.20 ± 0.01	1.2 ± 0.1
Cottonwood Canyon Garden	10 ± 0.5	3.5 ± 0.08	< 0.2 ± 0.01	-- ± --	-- ± --	0.39 ± 0.02	1.9 ± 0.3
Cow Canyon Garden A	9.4 ± 0.01	0.89 ± 0.04	< 0.2 ± 0.03	< 0.007 ± 0	0.009 ± 0.002	0.46 ± 0.02	0.9 ± 0.1
Cow Canyon Garden B	10 ± 0.2	0.09 ± 0.02	< 0.2 ± 0.02	0.007 ± 0.005	< 0.005 ± 0.005	0.56 ± 0.01	1.5 ± 0.2
Cow Canyon Garden C	11 ± 0.1	0.06 ± 0.01	< 0.2 ± 0.02	< 0.007 ± 0	< 0.005 ± 0	0.67 ± 0.02	3.0 ± 0.7
Easter Pasture Canyon Garden	26 ± 1	0.12 ± 0.03	1.1 ± 0.03	0.007 ± 0.001	0.003 ± 0	0.35 ± 0	13 ± 0.2
Escalante River Spring A	8.6 ± 0.1	0.19 ± 0.02	< 0.2 ± 0.06	0.017 ± 0.001	< 0.005 ± 0	0.73 ± 0.01	1.4 ± 0.1
Escalante River Spring B	9.5 ± 0.001	0.03 ± 0.01	< 0.2 ± 0.01	< 0.007 ± 0	< 0.005 ± 0	0.62 ± 0.01	1.6 ± 0.2
Escalante River Spring C	10 ± 0.04	0.02 ± 0.003	< 0.2 ± 0.01	< 0.007 ± 0	< 0.005 ± 0	0.69 ± 0.004	1.3 ± 0.2
Forgotten Canyon Spring	27 ± 2.1	0.40 ± 0.003	< 0.2 ± 0.01	-- ± --	-- ± --	0.01 ± --	5.7 ± 1.7
Good Hope Bay, Spring A	20 ± 0.4	15 ± 0.33	1.1 ± 0.03	-- ± --	-- ± --	0.30 ± --	34 ± 7.4
Good Hope Bay, Spring B	18 ± 0.1	0.064 ± 0.02	0.5 ± 0.03	-- ± --	-- ± --	0.31 ± --	49 ± 2.5
Good Hope Bay, Spring C	12 ± 0.1	0.057 ± 0.01	0.4 ± 0.03	-- ± --	-- ± --	0.80 ± --	22 ± 1.8
Good Hope Bay, Spring D	12 ± 0.3	0.13 ± 0.01	0.3 ± 0.04	-- ± --	-- ± --	0.78 ± --	17 ± 7.6
Gypsum Canyon Spring	190 ± 20	67 ± 0.81	11 ± 0.32	0.373 ± 0.01	0.004 ± 0	0.05 ± 0.003	1300 ± 100
Knowles Canyon Garden	7.0 ± 0.1	0.13 ± 0.02	< 0.2 ± 0.09	< 0.004 ± 0.004	0.002 ± 0	0.59 ± 0.01	1.5 ± 0.6
Last Chance Spring	57 ± 9	110 ± 0	3.4 ± 0	-- ± --	-- ± --	< 0.07 ± --	200 ± 50
Long Canyon Spring	7.9 ± 0.1	0.03 ± 0.005	< 0.2 ± 0.01	< 0.007 ± 0	< 0.005 ± 0	0.66 ± 0.002	1.6 ± 0.2
Moqui Canyon Spring	17 ± 0.1	14 ± 0.13	< 0.2 ± 0.01	-- ± --	-- ± --	0.13 ± 0.01	8.1 ± 1.2
Rana Canyon Garden	13 ± 0.1	0.17 ± 0.003	< 0.2 ± 0.03	< 0.007 ± 0.005	< 0.005 ± 0	0.44 ± 0.02	2.4 ± 0.7
Ribbon Canyon, Grand Daddy Spring	11 ± 0.5	0.036 ± 0.004	< 0.2 ± 0.003	< 0.007 ± 0	< 0.001 ± 0	0.82 ± 0.01	1.8 ± 0.1
San Juan Garden	8.3 ± 0.1	0.21 ± 0.01	< 0.2 ± 0.01	< 0.007 ± 0	< 0.001 ± 0	0.70 ± 0.01	1.9 ± 0.1
Stevens Arch Garden	9.4 ± 0.2	0.069 ± 0.002	< 0.2 ± 0.03	-- ± --	-- ± --	0.18 ± 0.01	1.8 ± 0.3
Swett Canyon Spring	38 ± 0.02	20 ± 0.06	1.9 ± 0.02	0.017 ± 0.001	< 0.001 ± 0	0.01 ± 0	160 ± 0
Wall Spring	20 ± 0.1	0.050 ± 0.005	1.3 ± 0.06	-- ± --	-- ± --	0.65 ± --	13 ± 2.3

Table 3 (Continued)

[mg/L, milligrams per liter; mg N/L, milligrams nitrogen per liter  $\mu$ g/L, micrograms per liter; <, less than; --, no data]

Site	Magnesium mg/L		Mangangese $\mu$ g/L		Molybdenum $\mu$ g/L		Ammonium mg N/L		Nitrite mg N/L		Nitrate mg N/L		Sodium mg/L	
<b>GRAND CANYON NATIONAL PARK</b>														
Berts Canyon	25	± 8	0.026	± 0.02	0.4	± 0.04	< 0.004	± 0.004	< 0.003	± 0	0.29	± 0.005	5.6	± 2.7
Cove Canyon	130	± 60	1.8	± 0.01	8.4	± 0.06	0.299	± 0.01	< 0.003	± 0	0.06	± 0	35	± 22
Elves Chasm	47	± 6	0.023	± 0.01	2.9	± 0.03	0.016	± 0.001	< 0.003	± 0	0.92	± 0.02	18	± 6
Fern Glen	190	± 0	0.083	± 0.04	8.3	± 0.06	0.128	± 0.01	0.005	± 0	0.02	± 0.002	51	± 3
Hance Spring	39	± 4	0.021	± 0.01	3.8	± 0.09	0.005	± 0.001	< 0.003	± 0	0.35	± 0.002	100	± 20
Keyhole Spring	28	± 4	0.064	± 0.01	0.7	± 0.07	< 0.004	± 0.000	< 0.003	± 0.001	0.23	± 0.003	9.1	± 2
Mohawk Canyon	180	± 30	0.083	± 0.03	5.6	± 0.02	0.14	± 0.004	< 0.003	± 0	0.11	± 0.003	38	± 11
Nankoweap Twin Spring	53	± 10	0.46	± 0.01	0.4	± 0.1	0.008	± 0.002	0.004	± 0	0.04	± 0.002	26	± 9
Pumpkin Spring	60	± 12	180	± 0	1.7	± 0.09	0.152	± 0.1	< 0.003	± 0	0.01	± 0.01	2,100	± 200
River Mile 125 Spring	120	± 0	1.17	± 0.01	4.3	± 0.07	0.042	± 0.01	< 0.003	± 0	0.29	± 0.003	51	± 3
River Mile 147 Seep	110	± 0	0.23	± 0.11	8.0	± 0.1	0.046	± 0.002	< 0.003	± 0.001	0.12	± 0.001	31	± 9
River Mile 213 Spring	39	± 10	0.10	± 0.02	5.4	± 0.06	< 0.004	± 0.003	< 0.003	± 0	1.4	± 0.02	23	± 3
Saddle Canyon	26	± 5	< 0.01	± 0.01	2.5	± 0.05	0.005	± 0.003	< 0.003	± 0	0.55	± 0.002	9.1	± 4
Slimy Tick Spring	170	± 10	0.27	± 0.01	5.3	± 0.05	0.30	± 0.01	< 0.003	± 0	0.25	± 0.001	33	± 5
The Ledges	240	± 10	0.12	± 0.03	6.2	± 0.06	0.17	± 0.01	0.005	± 0	0.04	± 0.01	43	± 4
Three Springs	29	± 1	0.54	± 0.02	1.4	± 0.04	< 0.004	± 0.00	0.007	± 0	1.14	± 0	11	± 6
<b>MISCELLANEOUS</b>														
Matrimony Spring	12	± 0.06	0.05	± 0.02	2.2	± 0.01	< 0.005	± 0.003	< 0.003	± 0	0.46	± 0.003	10	± 3.1



Table 3 (Continued)

[ $\mu\text{g P/L}$ , micrograms phosphorus per liter  $\mu\text{g/L}$ , micrograms per liter; <, less than; --, no data]

Site	Neodymium $\mu\text{g/L}$	Nickel $\mu\text{g/L}$	Phosphorus $\mu\text{g/L}$	Phosphate $\mu\text{g P/L}$	Lead $\mu\text{g/L}$	Praseodymium $\mu\text{g/L}$	Rubidium $\mu\text{g/L}$
<b>ARCHES NATIONAL PARK</b>							
Above Freshwater Spring	< 0.004 ± 0.002	< 0.03 ± 0.06	-- ± --	< 20 ± --	< 0.01 ± 0.01	< 0.0005 ± 0.0001	0.37 ± 0.00
Seven Mile Spring	< 0.004 ± 0.001	< 0.03 ± 0.1	-- ± --	< 20 ± --	< 0.01 ± 0.01	< 0.0005 ± 0.0002	0.98 ± 0.01
Sleepy Hollow Spring	< 0.004 ± 0.003	< 0.03 ± 0.09	-- ± --	< 20 ± --	< 0.01 ± 0.004	< 0.0005 ± 0.0004	0.85 ± 0.01
<b>CANYONLANDS NATIONAL PARK</b>							
Big Spring	< 0.004 ± 0.002	< 0.03 ± 0.2	-- ± --	< 20 ± --	< 0.01 ± 0.000	< 0.0005 ± 0.0004	1.2 ± 0.04
Cabin Spring	< 0.004 ± 0.001	< 0.03 ± 0.09	-- ± --	< 20 ± --	< 0.01 ± 0.004	< 0.0005 ± 0.0003	2.0 ± 0.01
Cave Spring	< 0.005 ± 0.002	< 0.02 ± 0.1	< 4 ± 1	< 20 ± --	< 0.02 ± 0.01	< 0.0007 ± 0.0006	0.84 ± 0.01
<b>GLEN CANYON NATIONAL RECREATION AREA</b>							
Bouy 114A Spring	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --
Bouy 114B Spring	0.012 ± 0	< 0.02 ± 0.11	< 4 ± 0.8	< 30 ± 1	< 0.02 ± 0.003	0.0019 ± 0.0010	1.2 ± 0.01
Bouy 84 RR Spring	0.014 ± 0.001	< 0.03 ± 0.07	< 3 ± 0.5	-- ± --	< 0.01 ± 0.01	0.0027 ± 0.0004	1.1 ± 0.02
Bowns Canyon Garden	0.013 ± 0.002	< 0.03 ± 0.04	8.1 ± 0.8	< 5 ± --	0.02 ± 0.01	0.0026 ± 0.0002	0.90 ± 0.01
Cottonwood Canyon Garden	0.006 ± 0.003	< 0.03 ± 0.07	< 3 ± 0.7	-- ± --	0.05 ± 0.02	0.0014 ± 0.0002	1.0 ± 0.01
Cow Canyon Garden A	0.005 ± 0.001	< 0.03 ± 0.01	< 3 ± 2.5	< 5 ± --	0.05 ± 0.01	< 0.0007 ± 0.0006	0.92 ± 0.02
Cow Canyon Garden B	< 0.004 ± 0.002	< 0.03 ± 0.03	< 3 ± 0.3	< 5 ± --	0.02 ± 0.01	< 0.0007 ± 0.0001	1.2 ± 0.02
Cow Canyon Garden C	< 0.004 ± 0.002	< 0.03 ± 0.01	< 3 ± 0.6	< 5 ± --	0.02 ± 0.001	0.0008 ± 0.0001	1.2 ± 0.01
Easter Pasture Canyon Garden	< 0.005 ± 0.001	< 0.02 ± 0.1	< 4 ± 0.9	< 30 ± 2	< 0.02 ± 0.01	< 0.0007 ± 0.0004	4.9 ± 0.12
Escalante River Spring A	< 0.004 ± 0.001	< 0.03 ± 0.04	< 3 ± 0.7	< 5 ± 4	0.03 ± 0.01	< 0.0007 ± 0.0003	1.7 ± 0.01
Escalante River Spring B	0.005 ± 0.001	< 0.03 ± 0.04	< 3 ± 0.1	< 5 ± --	< 0.01 ± 0.01	< 0.0007 ± 0.0003	1.4 ± 0.01
Escalante River Spring C	< 0.004 ± 0.001	< 0.03 ± 0.10	< 3 ± 0.9	< 5 ± --	< 0.01 ± 0.003	< 0.0007 ± 0.0004	2.3 ± 0.02
Forgotten Canyon Spring	0.046 ± 0.001	< 0.03 ± 0.07	< 3 ± 0.9	-- ± --	< 0.01 ± 0.01	0.0076 ± 0.0001	0.53 ± 0.01
Good Hope Bay, Spring A	0.014 ± 0.001	< 0.03 ± 0.01	< 3 ± 1	-- ± --	0.02 ± 0.01	0.0037 ± 0.0007	0.48 ± 0.00
Good Hope Bay, Spring B	0.041 ± 0.001	< 0.03 ± 0.02	< 3 ± 1	-- ± --	< 0.01 ± 0.01	0.0083 ± 0.0000	1.0 ± 0.01
Good Hope Bay, Spring C	< 0.004 ± 0.002	< 0.03 ± 0.03	< 3 ± 2	-- ± --	< 0.01 ± 0.003	< 0.0007 ± 0.0006	0.61 ± 0.00
Good Hope Bay, Spring D	0.005 ± 0.001	< 0.03 ± 0.03	< 3 ± 0.8	-- ± --	< 0.01 ± 0.01	0.0007 ± 0.0007	0.63 ± 0.01
Gypsum Canyon Spring	0.017 ± 0.001	0.28 ± 3	8.1 ± 3	< 30 ± 3	< 0.02 ± 0.002	0.0045 ± 0.0002	3.4 ± 0.04
Knowles Canyon Garden	0.006 ± 0.001	< 0.02 ± 0.08	< 4 ± 2	< 30 ± 5	0.03 ± 0.01	0.0009 ± 0.0007	1.3 ± 0.02
Last Chance Spring	< 0.004 ± 0.003	1.2 ± 0.05	< 3 ± 0.3	-- ± --	0.01 ± 0.002	0.0009 ± 0.0003	5.5 ± 0.00
Long Canyon Spring	< 0.004 ± 0	< 0.03 ± 0.06	< 3 ± 1	< 5 ± --	< 0.01 ± 0.01	< 0.0007 ± 0.0003	1.2 ± 0.01
Moqui Canyon Spring	0.028 ± 0.002	< 0.03 ± 0.06	< 3 ± 2	-- ± --	0.03 ± 0.01	0.0043 ± 0.0004	0.06 ± 0.01
Rana Canyon Garden	< 0.004 ± 0	< 0.03 ± 0.04	4.8 ± 2	< 5 ± --	0.03 ± 0.01	< 0.0007 ± 0.0002	1.8 ± 0.01
Ribbon Canyon, Grand Daddy Spring	< 0.004 ± 0.003	< 0.03 ± 0.04	< 3 ± 0.6	< 5 ± --	< 0.01 ± 0.004	< 0.0007 ± 0.0002	1.0 ± 0.01
San Juan Garden	< 0.004 ± 0.001	< 0.03 ± 0.04	< 3 ± 1	< 5 ± --	0.02 ± 0.008	0.0009 ± 0.0005	0.95 ± 0.00
Stevens Arch Garden	< 0.004 ± 0.002	< 0.03 ± 0.01	< 3 ± 1	-- ± --	< 0.01 ± 0.003	< 0.0007 ± 0.0004	1.4 ± 0.01
Swett Canyon Spring	< 0.005 ± 0.003	< 0.02 ± 0.20	< 4 ± 1	< 30 ± 1	< 0.02 ± 0.003	0.0009 ± 0.0003	7.1 ± 0.27
Wall Spring	< 0.004 ± 0.002	< 0.03 ± 0.03	< 3 ± 0.9	-- ± --	0.01 ± 0.005	< 0.0007 ± 0.0004	1.5 ± 0.01

Table 3 (Continued)

[ $\mu\text{g P/L}$ , micrograms phosphorus per liter  $\mu\text{g/L}$ , micrograms per liter; <, less than; --, no data]

Site	Neodymium $\mu\text{g/L}$	Nickel $\mu\text{g/L}$	Phosphorus $\mu\text{g/L}$	Phosphate $\mu\text{g P/L}$	Lead $\mu\text{g/L}$	Praseodymium $\mu\text{g/L}$	Rubidium $\mu\text{g/L}$
<b>GRAND CANYON NATIONAL PARK</b>							
Berts Canyon	< 0.005 $\pm$ 0.003	< 0.02 $\pm$ 0.17	< 4 $\pm$ 0.9	< 20 $\pm$ 12	< 0.02 $\pm$ 0.01	0.0014 $\pm$ 0.0006	3.2 $\pm$ 0.11
Cove Canyon	< 0.005 $\pm$ 0.003	< 0.02 $\pm$ 0.54	< 4 $\pm$ 0.4	93 $\pm$ 77	0.08 $\pm$ 0.004	0.00082 $\pm$ 0.0001	5.5 $\pm$ 0.06
Elves Chasm	< 0.005 $\pm$ 0.001	< 0.02 $\pm$ 0.04	< 4 $\pm$ 2	< 20 $\pm$ 3	< 0.02 $\pm$ 0.01	< 0.0007 $\pm$ 0.0007	3.2 $\pm$ 0.06
Fern Glen	< 0.005 $\pm$ 0.002	< 0.02 $\pm$ 0.20	< 4 $\pm$ 2	< 20 $\pm$ 2	< 0.02 $\pm$ 0.01	< 0.0007 $\pm$ 0.0004	11 $\pm$ 0.02
Hance Spring	< 0.005 $\pm$ 0.002	< 0.02 $\pm$ 0.04	< 4 $\pm$ 1	< 20 $\pm$ 7	< 0.02 $\pm$ 0.004	< 0.0007 $\pm$ 0.0005	33 $\pm$ 0.5
Keyhole Spring	< 0.005 $\pm$ 0.001	< 0.02 $\pm$ 0.19	< 4 $\pm$ 2	< 20 $\pm$ 12	< 0.02 $\pm$ 0.01	0.00096 $\pm$ 0.0002	3.2 $\pm$ 0.1
Mohawk Canyon	< 0.005 $\pm$ 0.000	< 0.02 $\pm$ 0.20	8.7 $\pm$ 0.9	42 $\pm$ 87	< 0.02 $\pm$ 0.004	< 0.0007 $\pm$ 0.0006	11 $\pm$ 0.06
Nankoweap Twin Spring	< 0.005 $\pm$ 0.002	< 0.02 $\pm$ 0.07	< 4 $\pm$ 1	< 20 $\pm$ 9	< 0.02 $\pm$ 0.004	< 0.0007 $\pm$ 0.0005	3 $\pm$ 0.04
Pumpkin Spring	0.020 $\pm$ 0.001	< 0.02 $\pm$ 0.03	4.9 $\pm$ 0.1	36 $\pm$ 33	< 0.02 $\pm$ 0.01	0.0024 $\pm$ 0.0003	470 $\pm$ 0
River Mile 125 Spring	< 0.005 $\pm$ 0.003	< 0.02 $\pm$ 0.18	< 4 $\pm$ 0.1	< 20 $\pm$ 15	< 0.02 $\pm$ 0.004	< 0.0007 $\pm$ 0.0003	9.4 $\pm$ 0.1
River Mile 147 Seep	< 0.005 $\pm$ 0.003	< 0.02 $\pm$ 0.42	< 4 $\pm$ 0.3	< 20 $\pm$ 8	0.05 $\pm$ 0.02	< 0.0007 $\pm$ 0.0002	8.8 $\pm$ 0.2
River Mile 213 Spring	0.006 $\pm$ 0.003	< 0.02 $\pm$ 0.10	< 4 $\pm$ 2	25 $\pm$ 45	< 0.02 $\pm$ 0.004	< 0.0007 $\pm$ 0.0004	11 $\pm$ 0.3
Saddle Canyon	< 0.005 $\pm$ 0.003	< 0.02 $\pm$ 0.04	< 4 $\pm$ 0.1	< 20 $\pm$ 15	< 0.02 $\pm$ 0.004	< 0.0007 $\pm$ 0.0002	3.8 $\pm$ 0.0
Slimy Tick Spring	< 0.005 $\pm$ 0.002	0.30 $\pm$ 1	< 4 $\pm$ 0.2	< 20 $\pm$ 12	< 0.02 $\pm$ 0.002	< 0.0007 $\pm$ 0.0006	13 $\pm$ 0.2
The Ledges	< 0.005 $\pm$ 0.001	< 0.02 $\pm$ 1	< 4 $\pm$ 1	< 20 $\pm$ 12	< 0.02 $\pm$ 0.002	< 0.0007 $\pm$ 0.0001	11 $\pm$ 0.1
Three Springs	< 0.005 $\pm$ 0.001	< 0.02 $\pm$ 0.10	< 4 $\pm$ 2	< 20 $\pm$ 37	< 0.02 $\pm$ 0.002	< 0.0007 $\pm$ 0.0002	3.1 $\pm$ 0.06
<b>MISCELLANEOUS</b>							
Matrimony Spring	< 0.004 $\pm$ 0.001	< 0.03 $\pm$ 0.06	-- $\pm$ --	< 20 $\pm$ --	< 0.01 $\pm$ 0.01	< 0.0005 $\pm$ 0.0002	1.0 $\pm$ 0.02

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data]

Site	Rhenium µg/L	Sulfate mg/L	Antimony µg/L	Selenium µg/L	Silica mg/L	Samarium µg/L	Tin µg/L
<b>ARCHES NATIONAL PARK</b>							
Above Freshwater Spring	0.024 ± 0.001	12 ± 0.6	0.006 ± 0.004	< 0.3 ± 0.1	11 ± 0.07	< 0.003 ± 0.002	< 0.5 ± 0.02
Seven Mile Spring	0.012 ± 0.002	8.3 ± 0.3	0.027 ± 0.006	0.37 ± 0.1	8.3 ± 0.2	< 0.003 ± 0.002	< 0.5 ± 0.04
Sleepy Hollow Spring	0.013 ± 0.001	9.2 ± —	0.020 ± 0.001	0.33 ± 0.1	10 ± 0.2	< 0.003 ± 0.003	< 0.5 ± 0.01
<b>CANYONLANDS NATIONAL PARK</b>							
Big Spring	0.021 ± 0.000	33 ± —	0.026 ± 0.003	5.2 ± 0.05	10 ± 0.02	< 0.003 ± 0.002	< 0.5 ± 0.06
Cabin Spring	0.004 ± 0.001	6.7 ± —	0.021 ± 0.002	< 0.3 ± 0.2	9.7 ± 0.1	< 0.003 ± 0.002	< 0.5 ± 0.09
Cave Spring	0.016 ± 0.002	12 ± —	< 0.01 ± 0.002	< 0.3 ± 0.1	12 ± 0.4	< 0.003 ± 0.001	< 0.8 ± 0.1
<b>GLEN CANYON NATIONAL RECREATION AREA</b>							
Bouy 114A Spring	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —
Bouy 114B Spring	< 0.001 ± 0.001	5.2 ± —	< 0.01 ± 0.002	< 0.3 ± 0.2	14 ± 0.1	0.007 ± 0.002	< 0.8 ± 0.03
Buoy 84 RR Spring	0.001 ± 0.001	4.9 ± —	< 0.007 ± 0.003	< 0.2 ± 0.1	10 ± 0.1	< 0.003 ± 0.001	< 0.5 ± 0.08
Bowns Canyon Garden	0.003 ± 0.001	2.8 ± —	< 0.007 ± 0.001	< 0.2 ± 0.1	10 ± 0.1	0.003 ± 0.001	< 0.5 ± 0.03
Cottonwood Canyon Garden	< 0.001 ± 0.000	3.8 ± 0.3	0.008 ± 0.004	< 0.2 ± 0.1	11 ± 0.3	0.003 ± 0.002	< 0.5 ± 0.03
Cow Canyon Garden A	< 0.001 ± 0.000	2.9 ± —	< 0.007 ± 0.004	< 0.2 ± 0.2	9.4 ± 0.3	0.003 ± 0.003	< 0.5 ± 0.05
Cow Canyon Garden B	< 0.001 ± 0.001	3.6 ± —	< 0.007 ± 0.003	0.22 ± 0.2	9.1 ± 0.3	< 0.003 ± 0.002	< 0.5 ± 0.04
Cow Canyon Garden C	0.001 ± 0.0003	6.6 ± —	< 0.007 ± 0.004	< 0.2 ± 0.1	9.1 ± 0.2	0.003 ± 0.002	< 0.5 ± 0.03
Easter Pasture Canyon Garden	0.013 ± 0.001	40 ± —	< 0.01 ± 0.000	5.2 ± 0.06	11 ± 0.08	< 0.003 ± 0.002	< 0.8 ± 0.06
Escalante River Spring A	< 0.001 ± 0.0003	2.8 ± —	< 0.007 ± 0.004	< 0.2 ± 0.01	9.3 ± 0.1	< 0.003 ± 0.001	< 0.5 ± 0.02
Escalante River Spring B	0.002 ± 0.001	4.0 ± —	< 0.007 ± 0.005	< 0.2 ± 0.1	9.8 ± 0.2	< 0.003 ± 0.003	< 0.5 ± 0.04
Escalante River Spring C	< 0.001 ± 0.001	3.2 ± —	< 0.007 ± 0.001	< 0.2 ± 0.08	9.5 ± 0.2	< 0.003 ± 0.001	< 0.5 ± 0.01
Forgotten Canyon Spring	0.004 ± 0.002	14 ± —	0.039 ± 0.004	< 0.2 ± 0.1	20 ± 0.7	0.018 ± 0.005	< 0.5 ± 0.04
Good Hope Bay, Spring A	0.026 ± 0.001	61 ± —	0.019 ± 0.003	1.6 ± 0.1	18 ± 0.5	0.005 ± 0.001	< 0.5 ± 0.06
Good Hope Bay, Spring B	0.007 ± 0.0004	23 ± —	0.010 ± 0.005	0.60 ± 0.2	19 ± 0.3	0.009 ± 0.004	< 0.5 ± 0.02
Good Hope Bay, Spring C	0.003 ± 0.0003	13 ± —	< 0.007 ± 0.001	0.61 ± 0.1	15 ± 0.07	< 0.003 ± 0.001	< 0.5 ± 0.01
Good Hope Bay, Spring D	0.002 ± 0.0001	12 ± —	< 0.007 ± 0.001	0.51 ± 0.2	15 ± 0.1	< 0.003 ± 0.002	< 0.5 ± 0.05
Gypsum Canyon Spring	0.369 ± 0.016	2,100 ± —	0.047 ± 0.003	1.2 ± 0.5	17 ± 0.05	0.006 ± 0.003	5.3 ± 0.8
Knowles Canyon Garden	0.002 ± 0.0001	3.9 ± 0.2	< 0.01 ± 0.004	< 0.3 ± 0.3	9.9 ± 0.05	< 0.003 ± 0.002	< 0.8 ± 0.07
Last Chance Spring	0.050 ± 0.003	1,100 ± —	0.107 ± 0.007	0.58 ± 0.2	17 ± 0.4	< 0.003 ± 0.001	< 0.5 ± 0.01
Long Canyon Spring	< 0.001 ± 0.0004	3.7 ± —	< 0.007 ± 0.003	< 0.2 ± 0.04	9.2 ± 0.1	< 0.003 ± 0.002	< 0.5 ± 0.04
Moqui Canyon Spring	0.003 ± 0.001	23 ± 1	0.035 ± 0.002	< 0.2 ± 0.2	19 ± 0.07	0.005 ± 0.002	< 0.5 ± 0.03
Rana Canyon Garden	0.001 ± 0.001	4.4 ± 0.1	< 0.007 ± 0.004	< 0.2 ± 0.2	11 ± 0.2	0.004 ± 0.001	< 0.5 ± 0.05
Ribbon Canyon, Grand Daddy Spring	< 0.001 ± 0.0001	4.0 ± 0	< 0.007 ± 0.004	0.23 ± 0.05	10 ± 0.2	< 0.003 ± 0.002	< 0.5 ± 0.01
San Juan Garden	0.001 ± 0.001	4.4 ± —	< 0.007 ± 0.000	< 0.2 ± 0.1	9.2 ± 0.1	< 0.003 ± 0.001	< 0.5 ± 0.02
Stevens Arch Garden	0.001 ± 0.001	3.4 ± —	< 0.007 ± 0.003	< 0.2 ± 0.04	10 ± 0.2	< 0.003 ± 0.002	< 0.5 ± 0.08
Swett Canyon Spring	0.108 ± 0.003	160 ± —	0.061 ± 0.003	0.60 ± 0.04	20 ± 0.3	< 0.003 ± 0.001	< 0.8 ± 0.08
Wall Spring	0.013 ± 0.001	21.0 ± —	< 0.007 ± 0.002	1.4 ± 0.02	15 ± 0.1	< 0.003 ± 0.003	< 0.5 ± 0.08

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data]

Site	Rhenium µg/L	Sulfate mg/L	Antimony µg/L	Selenium µg/L	Silica mg/L	Samarium µg/L	Tin µg/L
<b>GRAND CANYON NATIONAL PARK</b>							
Berts Canyon	0.012 ± 0.001	20 ± --	0.069 ± 0.005	2.2 ± 0.1	9.5 ± 0.1	< 0.003 ± 0.002	< 0.8 ± 0.1
Cove Canyon	0.31 ± 0.01	2,000 ± --	0.059 ± 0.005	7.1 ± 0.1	16 ± 0.3	< 0.003 ± 0.001	< 0.8 ± 0.1
Elves Chasm	0.059 ± 0.002	210 ± --	0.016 ± 0.005	6.1 ± 0.1	10 ± 0.2	< 0.003 ± 0.002	< 0.8 ± 0.1
Fern Glen	0.30 ± 0.003	1300 ± --	< 0.01 ± 0.005	12 ± 0.1	14 ± 0.2	< 0.003 ± 0.001	< 0.8 ± 0.2
Hance Spring	0.015 ± 0.002	160 ± --	< 0.01 ± 0.004	0.91 ± 0.2	12 ± 0.2	< 0.003 ± 0.001	< 0.8 ± 0.09
Keyhole Spring	0.02 ± 0.002	20 ± --	0.050 ± 0.003	2.9 ± 0.2	9.7 ± 0.1	< 0.003 ± 0.002	< 0.8 ± 0
Mohawk Canyon	0.21 ± 0.002	1,400 ± --	< 0.01 ± 0.007	12 ± 0.2	14 ± 0.08	< 0.003 ± 0.002	< 0.8 ± 0.03
Nankoweap Twin Spring	0.016 ± 0.001	120 ± --	< 0.01 ± 0.005	1.4 ± 0.1	9.6 ± 0.06	< 0.003 ± 0.004	< 0.8 ± 0.06
Pumpkin Spring	0.002 ± 0.001	330 ± 10	0.062 ± 0.001	6.7 ± 0.1	130 ± 0	0.010 ± 0.001	7.16 ± 2
River Mile 125 Spring	0.18 ± 0.002	720 ± --	< 0.01 ± 0.001	14 ± 0.5	13 ± 0.3	< 0.003 ± 0.002	< 0.8 ± 0.09
River Mile 147 Seep	0.16 ± 0.007	640 ± --	< 0.01 ± 0.004	11 ± 0.4	12 ± 0.06	< 0.003 ± 0.003	< 0.8 ± 0.1
River Mile 213 Spring	0.039 ± 0.003	130 ± --	< 0.01 ± 0.003	3.6 ± 0.0	15 ± 0.03	< 0.003 ± 0.002	< 0.8 ± 0.2
Saddle Canyon	0.014 ± 0.001	36 ± --	0.061 ± 0.003	3.0 ± 0.3	9.3 ± 0.1	< 0.003 ± 0.000	< 0.8 ± 0.04
Slimy Tick Spring	0.21 ± 0.003	2,000 ± --	0.024 ± 0.01	6.6 ± 0.0	14 ± 0.2	< 0.003 ± 0.001	< 0.8 ± 0.08
The Ledges	0.19 ± 0.0001	1,300 ± --	< 0.01 ± 0.003	6.3 ± 0.3	12 ± 0.2	< 0.003 ± 0.002	< 0.8 ± 0.02
Three Springs	0.033 ± 0.003	70 ± --	0.014 ± 0.008	2.8 ± 0.4	15 ± 0.5	< 0.003 ± 0.001	< 0.8 ± 0.09
<b>MISCELLANEOUS</b>							
Matrimony Spring	0.005 ± 0.001	33 ± --	0.005 ± 0.003	0.59 ± 0.1	9.0 ± 0.09	< 0.003 ± 0.005	< 0.5 ± 0.04

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data]

Site	Strontium µg/L	Terbium µg/L	Tellurium µg/L	Thorium µg/L	Titanium µg/L	Thallium µg/L	Thulium µg/L
<b>ARCHES NATIONAL PARK</b>							
Above Freshwater Spring	100 ±	< 0.0005 ± 0.0002	< 0.05 ± 0.01	< 0.0008 ± 0.0001	0.87 ± 0.3	< 0.01 ± 0.0003	< 0.0005 ± 0.0002
Seven Mile Spring	120 ±	< 0.0005 ± 0.0003	< 0.05 ± 0.03	< 0.0008 ± 0.0004	0.93 ± 0.1	< 0.01 ± 0.003	< 0.0005 ± 0.0001
Sleepy Hollow Spring	140 ±	< 0.0005 ± 0.0003	< 0.05 ± 0.01	< 0.0008 ± 0.0005	1.1 ± 0.2	< 0.01 ± 0.001	< 0.0005 ± 0.0001
<b>CANYONLANDS NATIONAL PARK</b>							
Big Spring	770 ±	< 0.0005 ± 0.0002	< 0.05 ± 0.01	< 0.0008 ± 0.0004	0.82 ± 0.1	< 0.01 ± 0.002	< 0.0005 ± 0.0001
Cabin Spring	86 ± 2	< 0.0005 ± 0.0001	< 0.05 ± 0.01	< 0.0008 ± 0.0007	1.2 ± 0.01	< 0.01 ± 0.001	< 0.0005 ± 0.0002
Cave Spring	170 ±	< 0.0007 ± 0.0001	< 0.03 ± 0.02	< 0.001 ± 0.0002	< 0.1 ± 0.1	< 0.02 ± 0.001	< 0.0005 ± 0.0003
<b>GLEN CANYON NATIONAL RECREATION AREA</b>							
Bouy 114A Spring	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —	— ± —
Bouy 114B Spring	310 ±	< 0.0007 ± 0.0003	< 0.03 ± 0.02	< 0.001 ± 0.0007	0.22 ± 0.04	< 0.02 ± 0.001	< 0.0005 ± 0.0002
Bouy 84 RR Spring	100 ±	0.0007 ± 0.0001	< 0.03 ± 0.01	< 0.001 ± 0.0008	0.23 ± 0.04	< 0.02 ± 0.001	< 0.0007 ± 0.0005
Bowns Canyon Garden	46 ± 1	0.0008 ± 0.0003	< 0.03 ± 0.004	0.002 ± 0.0009	< 0.1 ± 0.04	< 0.02 ± 0.001	< 0.0007 ± 0.0004
Cottonwood Canyon Garden	110 ±	< 0.0003 ± 0.0001	< 0.03 ± 0.01	< 0.001 ± 0.0008	0.17 ± 0.1	< 0.02 ± 0.001	< 0.0007 ± 0.0005
Cow Canyon Garden A	73 ± 2	< 0.0003 ± 0.0003	< 0.03 ± 0.01	< 0.001 ± 0.0003	< 0.1 ± 0.1	< 0.02 ± 0.002	< 0.0007 ± 0.0006
Cow Canyon Garden B	72 ± 1	< 0.0003 ± 0.0002	< 0.03 ± 0.01	< 0.001 ± 0.0000	0.31 ± 0.03	< 0.02 ± 0.0004	< 0.0007 ± 0.0004
Cow Canyon Garden C	120 ±	< 0.0003 ± 0.0002	< 0.03 ± 0.01	< 0.001 ± 0.0001	0.18 ± 0.1	< 0.02 ± 0.002	< 0.0007 ± 0.0002
Easter Pasture Canyon Garden	180 ±	< 0.0007 ± 0.0003	< 0.03 ± 0.01	< 0.001 ± 0.0007	0.36 ± 0.1	< 0.02 ± 0.004	< 0.0005 ± 0.0003
Escalante River Spring A	64 ± 1	< 0.0003 ± 0.0004	< 0.03 ± 0.01	< 0.001 ± 0.0005	0.12 ± 0.03	< 0.02 ± 0.0004	< 0.0007 ± 0.0002
Escalante River Spring B	80 ±	< 0.0003 ± 0.0002	< 0.03 ± 0.01	< 0.001 ± 0.0001	0.23 ± 0.04	< 0.02 ± 0.001	< 0.0007 ± 0.0003
Escalante River Spring C	120 ±	< 0.0003 ± 0.0001	< 0.03 ± 0.01	< 0.001 ± 0.0003	0.24 ± 0.04	< 0.02 ± 0.001	< 0.0007 ± 0.0001
Forgotten Canyon Spring	290 ±	0.0018 ± 0.0006	< 0.03 ± 0.02	0.004 ± 0.0001	0.33 ± 0.2	< 0.02 ± 0.004	< 0.0007 ± 0.0002
Good Hope Bay, Spring A	360 ±	0.0004 ± 0.0002	< 0.03 ± 0.01	< 0.001 ± 0.0005	0.24 ± 0.1	< 0.02 ± 0.001	< 0.0007 ± 0.0002
Good Hope Bay, Spring B	610 ±	0.0020 ± 0.0004	< 0.03 ± 0.01	< 0.001 ± 0.0008	< 0.1 ± 0.04	< 0.02 ± 0.001	0.001317 ± 0.0006
Good Hope Bay, Spring C	230 ±	< 0.0003 ± 0.0003	< 0.03 ± 0.01	< 0.001 ± 0.0003	< 0.1 ± 0.1	< 0.02 ± 0.0001	< 0.0007 ± 0.0003
Good Hope Bay, Spring D	220 ±	< 0.0003 ± 0.0001	< 0.03 ± 0.01	< 0.001 ± 0.0008	< 0.1 ± 0.03	< 0.02 ± 0.001	< 0.0007 ± 0.0004
Gypsum Canyon Spring	14,000 ± 1,000	0.0053 ± 0.0005	0.14 ± 0.02	0.004 ± 0.001	1.3 ± 0.2	< 0.02 ± 0.002	0.001011 ± 0.0008
Knowles Canyon Garden	71 ± 1	< 0.0007 ± 0.0006	< 0.03 ± 0.02	< 0.001 ± 0.0009	0.29 ± 0.1	< 0.02 ± 0.001	< 0.0005 ± 0.0002
Last Chance Spring	4,600 ±	0.0014 ± 0.0003	0.04 ± 0.01	< 0.001 ± 0.0009	0.86 ± 0.2	0.02 ± 0.001	< 0.0007 ± 0.0000
Long Canyon Spring	79 ± 1	< 0.0003 ± 0.0003	< 0.03 ± 0	< 0.001 ± 0.0006	0.12 ± 0.04	< 0.02 ± 0.0004	< 0.0007 ± 0.0001
Moqui Canyon Spring	220 ±	0.0011 ± 0.0001	< 0.03 ± 0.01	0.002 ± 0.0008	0.58 ± 0.03	< 0.02 ± 0.002	< 0.0007 ± 0.0004
Rana Canyon Garden	94 ± 1	< 0.0003 ± 0.0003	< 0.03 ± 0.001	< 0.001 ± 0.0000	< 0.1 ± 0.03	< 0.02 ± 0.001	< 0.0007 ± 0.0001
Ribbon Canyon, Grand Daddy Spring	98 ±	< 0.0003 ± 0.0004	< 0.03 ± 0.01	< 0.001 ± 0.002	< 0.1 ± 0.04	< 0.02 ± 0.001	< 0.0007 ± 0.0003
San Juan Garden	97 ± 1	< 0.0003 ± 0.0002	< 0.03 ± 0.01	< 0.001 ± 0.0005	< 0.1 ± 0.1	< 0.02 ± 0.002	< 0.0007 ± 0.0003
Stevens Arch Garden	81 ± 1	< 0.0003 ± 0.0001	< 0.03 ± 0.003	< 0.001 ± 0.0007	0.48 ± 0.1	< 0.02 ± 0.002	< 0.0007 ± 0.0002
Swett Canyon Spring	1200 ±	< 0.0007 ± 0.0006	< 0.03 ± 0.04	< 0.001 ± 0.001	< 0.2 ± 0.1	0.03 ± 0.002	< 0.0005 ± 0.0001
Wall Spring	380 ±	< 0.0003 ± 0.0002	< 0.03 ± 0.01	< 0.001 ± 0.0001	< 0.1 ± 0.04	< 0.02 ± 0.001	< 0.0007 ± 0.0003

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data]

Site	Strontium µg/L	Terbium µg/L	Tellurium µg/L	Thorium µg/L	Titanium µg/L	Thallium µg/L	Thulium µg/L
<b>GRAND CANYON NATIONAL PARK</b>							
Berts Canyon	110 ± 0	< 0.0007 ± 0.0003	< 0.03 ± 0.02	< 0.001 ± 0.0004	< 0.1 ± 0.1	< 0.02 ± 0.005	< 0.0005 ± 0.0003
Cove Canyon	4,300 ± 0	0.0010 ± 0.0002	< 0.03 ± 0.001	< 0.001 ± 0.0006	1.4 ± 0.2	0.02 ± 0.003	< 0.0005 ± 0.0005
Elves Chasm	640 ± 10	< 0.0007 ± 0.0001	< 0.03 ± 0.01	< 0.001 ± 0.0009	1.3 ± 0.3	< 0.02 ± 0.001	< 0.0005 ± 0.0005
Fern Glen	3,800 ± 100	0.0008 ± 0.0005	< 0.03 ± 0.02	< 0.001 ± 0.0004	0.33 ± 0	0.05 ± 0.005	< 0.0005 ± 0.0003
Hance Spring	870 ± 10	< 0.0007 ± 0.0001	< 0.03 ± 0.01	< 0.001 ± 0.0009	0.15 ± 0.01	0.04 ± 0.0005	< 0.0005 ± 0.0001
Keyhole Spring	120 ± 0	< 0.0007 ± 0.0005	< 0.03 ± 0.02	< 0.001 ± 0.0005	< 0.1 ± 0.1	0.03 ± 0.001	< 0.0005 ± 0.0004
Mohawk Canyon	3,700 ± 0	< 0.0007 ± 0.0000	< 0.03 ± 0.02	0.002 ± 0.001	1.6 ± 0.05	0.05 ± 0.001	< 0.0005 ± 0.0005
Nankoweap Twin Spring	220 ± 0	< 0.0007 ± 0.0004	< 0.03 ± 0.01	< 0.001 ± 0.0005	0.18 ± 0.1	< 0.02 ± 0.002	< 0.0005 ± 0.0003
Pumpkin Spring	5,700 ± 500	0.0049 ± 0.0011	0.16 ± 0.001	0.005 ± 0.0003	0.81 ± 0.7	0.02 ± 0.004	0.003905 ± 0.0006
River Mile 125 Spring	2,900 ± 100	< 0.0007 ± 0.0000	< 0.03 ± 0.02	< 0.001 ± 0.0009	1.6 ± 0.1	0.04 ± 0.001	< 0.0005 ± 0.0002
River Mile 147 Seep	2,500 ± 100	< 0.0007 ± 0.0003	< 0.03 ± 0.04	< 0.001 ± 0.0006	0.33 ± 0.1	0.10 ± 0.004	< 0.0005 ± 0.0003
River Mile 213 Spring	350 ± 10	< 0.0007 ± 0.0003	< 0.03 ± 0.01	< 0.001 ± 0.0008	0.18 ± 0.1	< 0.02 ± 0.002	< 0.0005 ± 0.0001
Saddle Canyon	130 ± 0	< 0.0007 ± 0.0003	< 0.03 ± 0.02	< 0.001 ± 0.0005	1.4 ± 0.3	0.14 ± 0.003	< 0.0005 ± 0.0003
Slimy Tick Spring	4,200 ± 200	0.0008 ± 0.0003	< 0.03 ± 0.03	0.002 ± 0.002	2.2 ± 0.04	0.16 ± 0.020	< 0.0005 ± 0.0003
The Ledges	6,200 ± 300	< 0.0007 ± 0.0004	< 0.03 ± 0.01	< 0.001 ± 0.0004	0.37 ± 0.1	0.13 ± 0.003	< 0.0005 ± 0.0003
Three Springs	210 ± 0	< 0.0007 ± 0.0004	< 0.03 ± 0.02	< 0.001 ± 0.0005	1.1 ± 0.04	< 0.02 ± 0.002	< 0.0005 ± 0.0002
<b>MISCELLANEOUS</b>							
Matrimony Spring	410 ±	< 0.0005 ± 0.0003	< 0.05 ± 0.01	< 0.0008 ± 0.0004	1.1 ± 0.2	< 0.01 ± 0.0002	< 0.0005 ± 0.0002

Draft 12/9/2003

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data]

Site	Uranium µg/L	Vanadium µg/L	Tungsten µg/L	Yttrium µg/L	Ytterbium µg/L	Zin c µg/L	Zirconium µg/L
<b>ARCHES NATIONAL PARK</b>							
Above Freshwater Spring	0.08 ± 0.003	1.2 ± 0.03	< 0.05 ± 0.001	0.0093 ± 0.0007	< 0.002 ± 0.001	2.7 ± 0.1	< 0.006 ± 0.002
Seven Mile Spring	0.35 ± 0.010	1.9 ± 0.02	< 0.05 ± 0.008	0.0068 ± 0.001	< 0.002 ± 0.0004	12 ± 0.5	0.0070 ± 0.003
Sleepy Hollow Spring	0.28 ± 0.007	1.8 ± 0.03	< 0.05 ± 0.02	0.010 ± 0.0006	0.0017 ± 0.001	15 ± 0.3	< 0.006 ± 0.001
<b>CANYONLANDS NATIONAL PARK</b>							
Big Spring	14 ± 0.036	2.8 ± 0.04	< 0.05 ± 0.02	0.012 ± 0.001	< 0.002 ± 0.001	3.6 ± 0.1	0.028 ± 0.01
Cabin Spring	0.47 ± 0.017	1.0 ± 0.06	< 0.05 ± 0.03	0.0069 ± 0.0008	< 0.002 ± 0.0008	31 ± 0.2	< 0.006 ± 0.001
Cave Spring	0.41 ± 0.012	0.2 ± 0.04	< 0.008 ± 0.01	0.0079 ± 0.0005	< 0.002 ± 0.0003	5.9 ± 0.3	0.0019 ± 0.001
<b>GLEN CANYON NATIONAL RECREATION AREA</b>							
Bouy 114A Spring	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --	-- ± --
Bouy 114B Spring	0.50 ± 0.02	9.8 ± 0.02	0.024 ± 0.005	0.023 ± 0.0030	< 0.002 ± 0.0004	1.8 ± 0.5	0.0029 ± 0
Buoy 84 RR spring	0.22 ± 0.006	5.4 ± 0.02	< 0.007 ± 0.005	0.016 ± 0.004	< 0.002 ± 0.0007	16 ± 0.3	0.0030 ± 0.001
Bowns Canyon Garden	0.23 ± 0.005	9.1 ± 0.04	0.011 ± 0.004	0.011 ± 0.0005	< 0.002 ± 0.001	8.6 ± 0.2	0.0052 ± 0.001
Cottonwood Canyon Garden	0.25 ± 0.003	2.9 ± 0.06	0.009 ± 0.004	0.0099 ± 0.0004	< 0.002 ± 0.0006	14 ± 1	0.0042 ± 0.004
Cow Canyon Garden A	0.17 ± 0.007	5.5 ± 0.12	0.010 ± 0.009	0.0055 ± 0.0003	< 0.002 ± 0.001	18 ± 0.4	0.0034 ± 0.001
Cow Canyon Garden B	0.30 ± 0.009	3.3 ± 0.08	< 0.007 ± 0.007	0.0024 ± 0.0007	< 0.002 ± 0.0005	27 ± 0.3	0.0032 ± 0.002
Cow Canyon Garden C	0.39 ± 0.003	2.6 ± 0.07	< 0.007 ± 0.004	0.0034 ± 0.0003	< 0.002 ± 0.001	15 ± 0.3	< 0.002 ± 0.001
Easter Pasture Canyon Garden	1.5 ± 0.05	0.8 ± 0.11	0.13 ± 0.008	0.0035 ± 0.0004	< 0.002 ± 0.0006	4.3 ± 0.6	0.0029 ± 0.003
Escalante River Spring A	0.06 ± 0.006	4.3 ± 0.01	0.009 ± 0.007	0.0032 ± 0.001	< 0.002 ± 0.0005	13 ± 0.1	0.0025 ± 0.001
Escalante River Spring B	0.26 ± 0.002	3.5 ± 0.04	< 0.007 ± 0.004	0.0033 ± 0.001	< 0.002 ± 0.0002	27 ± 0.9	< 0.002 ± 0.001
Escalante River Spring C	0.22 ± 0.002	7.5 ± 0.20	0.014 ± 0.005	0.0033 ± 0.001	0.0017 ± 0.0001	16 ± 0.1	< 0.002 ± 0.001
Forgotten Canyon Spring	0.55 ± 0.009	5.9 ± 0.04	0.022 ± 0.003	0.099 ± 0.0003	0.0068 ± 0.0009	14 ± 1.7	0.021 ± 0.002
Good Hope Bay, Spring A	5.3 ± 0.1	14 ± 0.25	0.013 ± 0.004	0.037 ± 0.0004	0.0045 ± 0.0002	19 ± 0.0	0.0040 ± 0.001
Good Hope Bay, Spring B	3.5 ± 0.10	18 ± 0.19	< 0.007 ± 0.005	0.140 ± 0.007	0.010 ± 0.0006	14 ± 0.2	< 0.002 ± 0.001
Good Hope Bay, Spring C	1.3 ± 0.03	11 ± 0.03	0.021 ± 0.000	0.0054 ± 0.001	< 0.002 ± 0.002	13 ± 0.5	< 0.002 ± 0.002
Good Hope Bay, Spring D	1.2 ± 0.04	10 ± 0.30	0.018 ± 0.004	0.0036 ± 0.002	< 0.002 ± 0.0006	4.9 ± 0.2	0.0038 ± 0.002
Gypsum Canyon Spring	23 ± 0.5	< 0.07 ± 0.02	0.35 ± 0.008	0.121 ± 0.007	0.0029 ± 0.0007	3.1 ± 0.3	0.039 ± 0.007
Knowles Canyon Garden	0.14 ± 0.009	12 ± 0.26	0.056 ± 0.01	0.005 ± 0.0009	< 0.002 ± 0.0002	2.8 ± 0.7	0.0043 ± 0.002
Last Chance Spring	2.8 ± 0.03	< 0.05 ± 0.01	< 0.007 ± 0.005	0.032 ± 0.002	0.0023 ± 0.001	23 ± 0.3	0.0066 ± 0.001
Long Canyon Spring	0.27 ± 0.001	4.8 ± 0.05	< 0.007 ± 0.008	0.002 ± 0.001	< 0.002 ± 0.0005	19 ± 0.2	< 0.002 ± 0.001
Moqui Canyon Spring	0.03 ± 0.003	1.3 ± 0.05	< 0.007 ± 0.001	0.029 ± 0.002	0.0024 ± 0.002	2.8 ± 0.1	0.017 ± 0.002
Rana Canyon Garden	0.31 ± 0.01	3.3 ± 0.08	< 0.007 ± 0.01	0.011 ± 0.001	< 0.002 ± 0.0002	20 ± 0.2	< 0.002 ± 0.000
Ribbon Canyon, Grand Daddy Spring	0.30 ± 0.005	3.3 ± 0.06	< 0.007 ± 0.001	0.008 ± 0.0009	< 0.002 ± 0.0004	13 ± 0.4	< 0.002 ± 0.001
San Juan Garden	0.23 ± 0.009	3.5 ± 0.05	< 0.007 ± 0.004	0.0036 ± 0.002	< 0.002 ± 0.0005	18 ± 0.4	0.0028 ± 0.002
Stevens Arch Garden	0.13 ± 0.005	3.6 ± 0.07	< 0.007 ± 0.002	0.0031 ± 0.0005	< 0.002 ± 0.002	3.1 ± 0.3	< 0.002 ± 0.001
Swett Canyon Spring	16 ± 0.03	11 ± 0.02	0.036 ± 0.005	0.019 ± 0.002	< 0.002 ± 0.001	9.1 ± 0.2	0.013 ± 0.002
Wall Spring	2.9 ± 0.01	4.4 ± 0.05	< 0.007 ± 0.004	0.0083 ± 0.002	0.0028 ± 0.0009	11 ± 0.2	0.0029 ± 0.001

Table 3 (Continued)

[mg/L, milligrams per liter; µg/L, micrograms per liter; --, no data]

Site	Uranium µg/L	Vanadium µg/L	Tungsten µg/L	Yttrium µg/L	Ytterbium µg/L	Zinc µg/L	Zirconium µg/L
<b>GRAND CANYON NATIONAL PARK</b>							
Berts Canyon	1.4 ± 0.02	0.1 ± 0.00	0.014 ± 0.007	0.0037 ± 0.001	< 0.002 ± 0.0007	8.5 ± 0.0	0.0015 ± 0.002
Cove Canyon	11 ± 0.3	0.3 ± 0.06	0.016 ± 0.007	0.033 ± 0.003	< 0.002 ± 0.0002	38 ± 1.3	0.0045 ± 0.003
Elves Chasm	3.1 ± 0.06	1.4 ± 0.01	0.011 ± 0.003	0.0055 ± 0.001	< 0.002 ± 0.0007	14 ± 0.2	0.0016 ± 0.002
Fern Glen	18 ± 0.1	0.5 ± 0.06	< 0.008 ± 0.003	0.020 ± 0.0009	< 0.002 ± 0.0002	15 ± 0.3	0.0042 ± 0.002
Hance Spring	4.8 ± 0.2	< 0.07 ± 0.04	< 0.008 ± 0.001	0.0089 ± 0.002	< 0.002 ± 0.0004	10 ± 0.3	0.0018 ± 0.001
Keyhole Spring	1.7 ± 0.05	0.8 ± 0.03	0.011 ± 0.008	0.0029 ± 0.0008	< 0.002 ± 0.0007	3.7 ± 0.3	< 0.001 ± 0.001
Mohawk Canyon	18 ± 0.9	0.4 ± 0.08	< 0.008 ± 0.01	0.022 ± 0.002	< 0.002 ± 0.001	4.4 ± 0.3	0.0038 ± 0.001
Nankoweap Twin Spring	1.5 ± 0.03	0.2 ± 0.03	< 0.008 ± 0.01	0.0066 ± 0.0002	< 0.002 ± 0.0003	7.7 ± 0.3	0.0022 ± 0.001
Pumpkin Spring	13 ± 0.0	< 5 ± 0.00	0.49 ± 0.005	0.516 ± 0.006	0.023 ± 0.0001	4.8 ± 0.0	0.55 ± 0.001
River Mile 125 Seep	6.3 ± 0.1	< 0.07 ± 0.03	< 0.008 ± 0.007	0.019 ± 0.001	< 0.002 ± 0.002	13 ± 0.3	0.0023 ± 0.001
River Mile 147 Spring	9.0 ± 0.1	0.7 ± 0.04	< 0.008 ± 0.008	0.016 ± 0.0001	< 0.002 ± 0.001	5.4 ± 0.2	0.0055 ± 0.003
River Mile 213 Spring	3.4 ± 0.1	3.0 ± 0.2	0.027 ± 0.02	0.022 ± 0.0008	< 0.002 ± 0.0005	15 ± 0.7	0.0037 ± 0.002
Saddle Canyon	2.6 ± 0.04	0.2 ± 0.05	0.020 ± 0.007	0.0061 ± 0.0004	< 0.002 ± 0.0001	58 ± 0.2	0.0084 ± 0.000
Slimy Tick Spring	18 ± 0.4	0.9 ± 0.06	0.020 ± 0.01	0.034 ± 0.001	< 0.002 ± 0.0008	7.5 ± 0.5	0.0082 ± 0.002
The Ledges	13 ± 0.1	0.2 ± 0.04	< 0.008 ± 0.009	0.025 ± 0.003	< 0.002 ± 0.002	22 ± 1	0.0040 ± 0.001
Three Springs	2.2 ± 0.1	2.3 ± 0.02	0.036 ± 0.006	0.0099 ± 0.0008	< 0.002 ± 0.001	10 ± 0.1	0.0096 ± 0.001
<b>MISCELLANEOUS</b>							
Matrimony Spring	1.2 ± 0.009	1.6 ± 0.04	< 0.05 ± 0.009	0.0090 ± 0.0004	0.0017 ± 0.001	39 ± 0.4	0.0081 ± 0.005



### A3. Aquatic invertebrates presence/absence



Site Name		Ablabesmyia	Acilius	Aeshna	Agabus	Ambrysus	Anax	Anopheles	Antichaeta/Tetanocera	Apsectrotanypus	Aquarius	Archanara
Gypsum Canyon Spring	P5298	0	0	0	0	0	0	0	0	1	1	0
Easter pasture Canyon Garden	P5398	0	0	1	0	0	0	0	0	0	1	0
Swett Canyon Spring	P5498	0	0	0	1	0	0	0	0	0	0	0
Buoy 114a Spring B	P5598	1	0	0	0	0	0	1	0	0	1	0

Site Name	Archilestes	Argia	Asymphlyoptera	Atrichopogon	Baetis	Berosus	Boyeria	Bezzia	Buena	Callibaetis	Caloparyphus	Cardiocladius	Carrhydrus
San Juan Garden	0	1	0	0	0	0	0	1	0	0	1	0	0
Ribbon Canyon Garden	0	1	0	0	0	0	0	0	0	1	0	0	0
Escalante River Spring A	0	1	0	0	1	0	0	0	0	0	0	0	0
Escalante River Spring B	0	1	0	0	0	0	0	1	0	0	1	0	0
Long Canyon Spring	0	1	0	0	0	0	0	0	0	1	0	0	0
Bowns Canyon Garden	1	1	0	0	0	0	0	1	0	1	1	0	0
Escalante River Spring C	0	1	0	0	0	0	0	0	0	0	1	1	0
Cow Canyon Garden A	1	0	0	0	0	0	0	0	0	0	0	0	0
Cow Canyon Garden B	1	0	0	0	1	0	0	0	0	1	1	0	0
Cow Canyon Garden C	0	0	0	0	0	0	0	0	0	1	0	0	0
Rana Canyon Garden	0	0	0	0	0	0	0	1	0	0	0	0	0
Buoy 114a Spring A	0	0	0	0	0	0	0	0	0	0	0	0	0
Wall Spring	0	1	0	0	0	0	0	0	0	0	1	0	0
Good Hope Bay Spring A	0	0	0	0	0	0	0	0	0	0	0	0	0
Good Hope Bay Spring B	0	0	0	0	1	0	0	0	0	0	0	0	0
Good Hope Bay Spring C	0	1	0	0	0	0	0	0	0	0	0	0	0
Good Hope Bay Spring D	0	1	0	0	0	0	0	0	0	0	1	0	0
Forgotten Canyon Spring	0	0	0	1	0	0	0	0	0	0	1	0	0
Moqui Canyon Spring	0	0	0	0	0	0	0	0	0	0	1	0	0
Cottonwood C. H. Garden	1	0	0	0	0	0	0	0	0	1	0	0	0
Sleepy Hollow HG	0	1	0	0	0	0	0	0	0	1	1	0	0
Cave Spring	1	0	0	0	0	0	0	0	0	0	0	0	0
Cabin Spring	0	0	0	0	1	0	0	0	0	0	0	0	0
Freshwater Spring	0	0	0	0	0	1	0	0	0	0	0	0	0
Big Spring	0	1	0	1	0	0	0	0	0	0	1	0	0
Buck Farm Canyon	0	0	0	0	0	0	0	0	0	0	1	0	0
Bert's Canyon	1	1	0	0	0	0	0	1	0	1	0	0	0
Saddle Canyon	0	0	1	0	0	0	0	1	0	0	1	1	0
Nankoweap Twin Springs 1	0	1	0	0	1	0	1	1	0	0	0	1	0
Hance Rapid Spring	0	1	0	0	0	0	0	0	0	0	1	0	0
Elves Chasm	1	1	1	1	1	0	0	0	1	1	1	1	0
126 Mile Left Canyon	0	1	0	0	0	0	0	0	0	0	1	0	0
Lower Deer Creek Spring	0	1	0	0	0	0	0	0	0	0	0	0	0
River Mile 142R Seep	0	0	0	0	0	0	0	1	0	0	0	0	0
River Mile 147R Seep	0	1	0	0	0	0	0	0	0	0	1	0	0
Ledges	1	1	0	0	0	1	0	1	0	1	0	0	0
Slimy Tick Canyon	1	1	0	0	1	0	0	1	0	0	1	0	0
Fern Glen	0	0	1	0	1	0	0	0	0	0	0	0	1
Mohawk Canyon	0	0	0	0	0	0	0	0	0	0	0	0	0
Cove Canyon	0	1	0	0	0	0	0	0	0	0	0	0	0
Knowles Canyon Garden	0	0	0	0	0	0	0	1	0	0	1	0	0





























Site Name	Macropelopia	Maruina	Microcyloepus	Microspetra/Lauterbornia	Microtendipes	Microvelia	Monopelopia	Natarsia?	Neocorxia/Graptocorxia
Gypsum Canyon Spring	0	0	0	0	0	0	0	0	0
Easter pasture Canyon Garden	0	0	0	0	0	0	0	1	0
Swett Canyon Spring	0	0	0	0	0	1	0	0	0
Buoy 114a Spring B	0	0	0	0	0	1	0	0	0





Site Name	Pedicia/Dicranota	Pentaneura	Pericoma/Telmatoscopus	Petrophila	Phaenospectra	Polycentropus	Polypedium	Prionocera	Procladius?
San Juan Garden	1	0	0	0	0	0	0	0	1
Ribbon Canyon Garden	0	0	0	1	0	0	0	0	0
Escalante River Spring A	0	0	0	0	0	0	0	1	0
Escalante River Spring B	0	0	1	1	0	0	0	0	0
Long Canyon Spring	0	0	0	0	0	0	0	0	0
Bowns Canyon Garden	0	0	0	0	1	0	0	0	0
Escalante River Spring C	0	0	0	1	0	0	0	0	0
Cow Canyon Garden A	0	0	0	0	0	0	0	0	0
Cow Canyon Garden B	0	0	0	0	0	0	0	0	0
Cow Canyon Garden C	0	0	0	0	0	0	0	0	0
Rana Canyon Garden	0	0	0	0	0	1	0	0	0
Buoy 114a Spring A	0	0	0	0	0	0	0	0	0
Wall Spring	0	0	0	1	0	0	0	0	1
Good Hope Bay Spring A	0	0	0	0	0	0	0	0	0
Good Hope Bay Spring B	0	0	0	0	0	0	0	0	1
Good Hope Bay Spring C	0	0	0	0	0	0	0	0	0
Good Hope Bay Spring D	0	0	0	1	0	0	0	0	1
Forgotten Canyon Spring	0	0	0	0	0	0	0	0	0
Moqui Canyon Spring	0	0	0	0	0	0	0	0	0
Cottonwood C. H. Garden	0	0	0	0	1	0	0	0	0
Sleepy Hollow HG	1	0	0	0	1	0	1	0	0
Cave Spring	0	0	0	0	0	0	1	0	0
Cabin Spring	0	0	0	0	0	0	0	0	0
Freshwater Spring	1	0	0	0	0	0	1	0	0
Big Spring	0	0	0	0	0	0	0	0	0
Buck Farm Canyon	0	0	1	0	0	0	0	0	1
Bert's Canyon	0	0	0	0	1	0	1	0	1
Saddle Canyon	0	0	1	0	0	0	0	0	0
Nankoweap Twin Springs 1	0	0	0	0	0	0	0	0	1
Hance Rapid Spring	1	0	0	1	0	0	0	0	0
Elves Chasm	1	1	1	0	0	0	1	0	0
126 Mile Left Canyon	0	0	1	0	0	0	0	0	0
Lower Deer Creek Spring	0	0	0	0	0	0	0	0	0
River Mile 142R Seep	0	0	0	0	0	0	0	0	0
River Mile 147R Seep	0	0	0	1	0	0	0	0	0
Ledges	0	0	0	0	0	0	0	0	1
Slimy Tick Canyon	0	0	0	0	0	0	0	0	0
Fern Glen	0	0	1	0	1	0	0	0	0
Mohawk Canyon	0	0	1	0	0	0	0	0	1
Cove Canyon	0	0	1	0	0	0	1	0	0
Knowles Canyon Garden	1	0	1	0	0	0	0	0	0

Site Name	Pedicia/Dicranota	Pentaneura	Pericoma/Telmatoscopus	Petrophila	Phaenospectra	Polycentropus	Polypedilum	Prionocera	Procladius?
Gypsum Canyon Spring	0	0	0	0	1	0	0	0	0
Easter pasture Canyon Garden	0	0	0	0	1	0	0	0	0
Swett Canyon Spring	0	0	0	0	0	0	1	0	0
Buoy 114a Spring B	0	0	1	0	0	0	0	0	0











Site Name	Tinodes	Tipula	Trissopelopia	Tropisternus	Uvarus	Wormaldia	Zaitzevia
San Juan Garden	1	1	0	0	0	0	0
Ribbon Canyon Garden	1	0	0	1	0	0	0
Escalante River Spring A	1	0	0	0	0	0	1
Escalante River Spring B	1	0	0	0	0	0	0
Long Canyon Spring	0	0	0	1	0	0	0
Bowns Canyon Garden	1	0	0	0	0	0	0
Escalante River Spring C	0	0	0	0	0	0	0
Cow Canyon Garden A	0	0	0	0	0	0	0
Cow Canyon Garden B	1	0	0	1	0	0	0
Cow Canyon Garden C	0	0	0	0	0	0	0
Rana Canyon Garden	1	0	0	0	0	0	0
Buoy 114a Spring A	0	0	0	0	0	0	0
Wall Spring	0	0	0	0	0	0	0
Good Hope Bay Spring A	0	0	0	0	0	0	0
Good Hope Bay Spring B	0	0	0	0	0	0	1
Good Hope Bay Spring C	0	0	0	0	0	0	0
Good Hope Bay Spring D	0	0	0	0	0	0	0
Forgotten Canyon Spring	0	0	0	0	0	0	0
Moqui Canyon Spring	0	0	0	0	0	0	0
Cottonwood C. H. Garden	0	0	0	0	0	0	0
Sleepy Hollow HG	0	1	0	1	1	0	0
Cave Spring	0	0	0	0	0	0	0
Cabin Spring	0	0	0	0	0	0	0
Freshwater Spring	0	0	0	0	0	0	0
Big Spring	0	1	0	0	0	0	0
Buck Farm Canyon	0	0	0	0	0	0	0
Bert's Canyon	0	0	0	0	0	0	0
Saddle Canyon	1	0	0	0	0	0	0
Nankoweap Twin Springs 1	0	0	0	0	0	1	0
Hance Rapid Spring	0	1	0	0	0	0	0
Elves Chasm	1	1	1	0	0	0	0
126 Mile Left Canyon	0	0	0	1	0	0	0
Lower Deer Creek Spring	0	1	0	0	0	0	0
River Mile 142R Seep	0	0	0	0	0	0	0
River Mile 147R Seep	0	1	0	1	0	0	0
Ledges	0	0	0	1	0	0	0
Slimy Tick Canyon	1	0	0	1	0	0	0
Fern Glen	1	0	0	0	0	0	0
Mohawk Canyon	0	0	0	0	0	0	0
Cove Canyon	0	0	0	1	0	0	0
Knowles Canyon Garden	0	0	0	1	0	0	0

Site Name	Tinodes	Tipula	Trissopelopia	Tropisternus	Uvarus	Wormaldia	Zaitzevia
Gypsum Canyon Spring	0	0	0	0	0	0	0
Easter pasture Canyon Garden	0	0	0	0	0	0	0
Swett Canyon Spring	0	0	0	0	1	0	0
Buoy 114a Spring B	0	0	0	0	0	0	0

#### A4. Floristic data

Species	ACRONYM	GLCA	GRCA	CANY-ARCH	Primary Habitat	Distribution	Origin	Relictual?	Dispersal Mode	Flower Color
<i>Adiantum capillus-veneris</i>	ADCA	yes	yes	yes	B	SW	Tropical	no	Megawind	none
<i>Apocynum cannabinum</i>	APCA	yes	yes	yes	D	TW	Temperate	no	Megawind	white
<i>Aquilegia micrantha</i>	AQMI	yes	no	yes	B	EN	Temperate	no	Smooth	white
<i>A. chrysantha</i>	AQCH	no	yes	no	D	SW	Temperate	no	Smooth	yellow
<i>A. desertorum</i>	AQDE	no	yes	no	B	SW	Temperate	yes	Smooth	red
<i>Aster glaucodes</i>	ASGL	yes	yes	yes	D	RR	Temperate	no	Miniwind	white
<i>Astragalus praelongus</i>	ASPR	no	yes	no	D	RR	Temperate	no	Smooth	white
<i>Castilleja exilis</i>	CAEX	yes	no	yes	D	WW	Western	no	Smooth	red
<i>C. linariifolia</i>	CALI	yes	yes	yes	D	RR	Western	no	Smooth	red
<i>Camissonia sp.</i>	CAMsp	no	yes	no	D	SW	Western	no	Smooth	white
<i>Chloracantha spinosa</i>	CHSP	no	yes	no	P	SW	Madrean	no	Miniwind	white
<i>Cirsium rydbergii</i>	CIRY	yes	no	no	D	EN	Temperate	no	Miniwind	pink
<i>Cirsium sp. GRCA</i>	CIRsp	no	yes	no	D	EN	Temperate	no	Miniwind	pink
<i>Epilobium ciliatum</i>	EPCI	yes	yes	yes	P	BT	Temperate	no	Megawind	pink
<i>Epipactus giganteus</i>	EPGI	yes	yes	yes	D	TW	Temperate	no	Megawind	brown
<i>Equisetum X ferrisii</i>	EQFE	no	yes	no	S	TW	Boreal	no	Smooth	none
<i>E. hyemale</i>	EGHY	yes	no	yes	P	TW	Boreal	no	Smooth	none
<i>E. arvense</i>	EQAR	yes	no	no	S	BT	Boreal	no	Smooth	none
<i>Euphorbia brachycera</i>	EUBR	no	no	yes	D	WW	Tropical	no	Smooth	white
<i>Euthamia occidentalis</i>	EUOC	yes	yes	no	P	WW	Western	no	Miniwind	yellow
<i>Gnaphalium chilense</i>	GNCH	yes	no	no	D	WW	Cosmopolitan	no	Miniwind	white
<i>Hedeoma drummondii</i>	HEDR	no	no	yes	D	WW	Madrean	no	Sticktight	pink
<i>Hutchinsia procumbens</i>	HUPR	yes	no	no	D	TW	Temperate	no	Smooth	white
<i>Lepidium fremontii</i>	LEFR	yes	no	no	D	SW	Temperate	no	Smooth	white
<i>Lobelia cardinalis</i>	LOCA	yes	yes	no	D	SW	Madrean	no	Smooth	red
<i>Mimulus cardinalis</i>	MICA	no	yes	no	B	SW	Madrean	no	Smooth	red
<i>M. eastwoodiae</i>	MIEA	yes	no	yes	B	EN	Temperate	no	Smooth	red
<i>M guttatus</i>	MIGU	yes	no	no	D	WW	Temperate	no	Smooth	yellow
<i>Nolina microcarpa</i>	NOMI	no	yes	no	D	SW	Madrean	no	Smooth	white
<i>Oenothera elata</i>	OEEL	yes	no	yes	D	WW	Temperate	no	Smooth	yellow
<i>O. longissima</i>	OELO	no	yes	no	D	SW	Temperate	no	Smooth	yellow
<i>Iva acerosa</i>	IVAC	yes	yes	yes	S	SW	Madrean	no	Miniwind	none
<i>Parietaria pennsylvanica</i>	PAPE	yes	yes	no	D	TW	Temperate	no	Smooth	none
<i>Perityle specuicola</i>	PESP	yes	no	no	B	EN	Madrean	no	Miniwind	pink
<i>Phacelia perityloides</i>	PHPE	no	yes	no	B	SW	Western	no	Smooth	pink
<i>Platanthera zothecina</i>	PLZO	yes	no	yes	D	EN	Temperate	yes	Megawind	white
<i>Polygonum coccineum</i>	POCO	no	yes	no	D	TW	Boreal	no	Floater	white
<i>Primula specuicola</i>	PRSP	yes	no	yes	B	EN	Boreal	no	Smooth	pink
<i>Ranunculus cymbalaria</i>	RACY	yes	no	yes	P	TW	Boreal	no	Smooth	yellow
<i>Salvia davidsonii</i>	SADA	no	yes	no	D	SW	Madrean	no	Smooth	pink
<i>Sisyrinchium demissum</i>	SIDE	no	yes	no	D	WW	Temperate	yes	Smooth	blue

Species	ACRONYM	GLCA	GRCA	CANY-ARCH	Primary Habitat	Distribution	Origin	Relictual?	Dispersal Mode	Flower Color
<i>Maianthemum stellata</i>	MAST	yes	no	yes	D	TW	Temperate	yes	Fleshy	white
<i>Solanum</i> sp.	SOLsp	no	yes	no	D	SW	Cosmopolitan	no	Fleshy	white
<i>Solidago canadensis</i>	SOCA	yes	no	yes	S	TW	Temperate	no	Miniwind	yellow
<i>S. velutina</i>	SOVE	yes	yes	yes	D	SW	Temperate	no	Miniwind	yellow
<i>Stephanomeria tenuifolia</i>	STTE	yes	yes	yes	D	WW	Western	no	Miniwind	pink
<i>Thelypodium integrifolium</i>	THIN	yes	no	yes	D	WW	Western	no	Miniwind	pink
<i>T. wrightii</i>	THWR	no	yes	no	D	SW	Western	no	Miniwind	white
<i>Viola nephrophylla</i>	VINE	yes	no	no	D	BT	Temperate	yes	Smooth	pink
<i>Yucca toftiae</i>	YUTO	yes	no	no	D	EN	Madrean	no	Smooth	white
<i>Zigadenus vaginatus</i>	ZIVA	yes	no	yes	B	EN	Madrean	yes	Smooth	white
<i>Clematis ligusticifolia</i>	CLLI	yes	yes	yes	S	WW	Cosmopolitan	no	Megawind	white
<i>Maurandya antirrhinifolia</i>	MAAN	no	yes	no	D	SW	Madrean	no	Smooth	pink
<i>Parthenocissus vitacea</i>	PARVIT	yes	no	no	D	SW	Temperate	no	Fleshy	none
<i>Sarcostemma cynanchoides</i>	SACY	no	yes	no	B	SW	Tropical	no	Megawind	white
<i>Toxicodendron rydbergii</i>	TORY	yes	yes	yes	D	TW	Tropical	no	Fleshy	white
<i>Vitis arizonica</i>	VIAR	no	yes	no	S	SW	Temperate	no	Fleshy	none
<i>Andropogon glomeratus</i>	ANGL	yes	yes	no	D	TW	Tropical	no	Sticktight	none
<i>Bothriochloa barbinodis</i>	BOBA	yes	yes	no	D	SW	Tropical	no	Sticktight	none
<i>Calamagrostis scopulorum</i>	CASC	yes	yes	yes	D	RR	Temperate	yes	Sticktight	none
<i>Elymus canadensis</i>	ELCA	yes	yes	yes	P	TW	Temperate	no	Sticktight	none
<i>E. trachycaulis</i>	ELTR	yes	yes	no	D	BT	Temperate	no	Sticktight	none
<i>Glyceria striata</i>	GLST	yes	no	no	S	BT	Temperate	yes	Smooth	none
<i>Hilaria rigida</i>	HIRI	no	yes	no	D	SW	Madrean	no	Sticktight	none
<i>Imperata brevifolia</i>	IMBR	yes	yes	no	D	SW	Madrean	no	Sticktight	none
<i>Muhlenbergia andina</i>	MUAN	yes	yes	no	D	WW	Temperate	no	Smooth	none
<i>M. asperifolia</i>	MUAS	yes	yes	yes	S	WW	Temperate	no	Smooth	none
<i>M. thurberi</i>	MUTH	yes	yes	yes	D	SW	Temperate	no	Sticktight	none
<i>Muhlenbergia</i> sp. GRCA	MUHsp	no	yes	no	B		Temperate	no	Smooth	none
<i>Panicum acuminatum</i>	PAAC	yes	yes	yes	D	TW	Tropical	no	Smooth	none
<i>Panicum</i> sp. GRCA	PACsp	no	yes	no	B		Tropical	no	Smooth	none
<i>P. virgatum</i>	PANVIR	yes	yes	yes	P	TW	Tropical	no	Smooth	none
<i>Phragmites australis</i>	PHAU	yes	yes	yes	S	TW	Cosmopolitan	no	Sticktight	none
<i>Schyzachrium scoparium</i>	SCSC	yes	yes	yes	D	TW	Tropical	no	Sticktight	none
<i>Sorghastrum nutans</i>	SONU	yes	yes	no	B	TW	Tropical	no	Sticktight	none
<i>Carex curatorum</i>	CACU	yes	yes	no	D	EN	Temperate	no	Smooth	none
<i>C. aurea</i>	CAAU	yes	yes	yes	D	BT	Temperate	no	Smooth	none
<i>C. aquatilis</i>	CAAQ	yes	yes	yes	P	BT	Temperate	no	Smooth	none
<i>C. hystericina</i>	CAHY	yes	no	yes	P	TW	Temperate	no	Smooth	none
<i>C. "specuicola"</i>	CASP	no	yes	no	B	EN	Temperate	no	Smooth	none
<i>Cladium californicum</i>	CLCA	yes	yes	no	S	SW	Temperate	no	Smooth	none
<i>Eleocharis palustris</i>	ELPA	yes	no	no	S	BT	Boreal	yes	Smooth	none

Species	ACRONYM	GLCA	GRCA	CANY-ARCH	Primary Habitat	Distribution	Origin	Relictual?	Dispersal Mode	Flower Color
<i>E. rostellata</i>	ELRO	yes	no	no	P	TW	Boreal	no	Smooth	none
<i>Fimbristylis spadicea</i>	FISP	yes	no	no	S	TW	Cosmopolitan	no	Smooth	none
<i>Scirpus americana</i>	SCAM	yes	yes	no	P	TW	Cosmopolitan	no	Smooth	none
<i>S. pungens</i>	SCPU	yes	yes	no	P	TW	Cosmopolitan	no	Smooth	none
<i>Juncus balticus</i>	JUBA	yes	yes	yes	P	BT	Boreal	no	Smooth	none
<i>J. ensifolius</i>	JUEN	yes	yes	yes	P	BT	Boreal	no	Smooth	none
<i>J. torreyi</i>	JUTO	yes	yes	no	S	TW	Boreal	no	Smooth	none
<i>Typha domingensis</i>	TYDO	yes	yes	yes	P	WW	Temperate	no	Floater	none
<i>Potomageton foliosus</i>	POFO	yes	yes	no	P	TW	Boreal	no	Floater	none
<i>P. natans</i>	PONA	yes	no	no	P	BT	Boreal	yes	Floater	green
<i>Zannichellia palustris</i>	ZAPA	yes	yes	no	P	TW	Cosmopolitan	no	Floater	none
<i>Acer negundo</i>	ACNE	yes	no	yes	P	TW	Temperate	no	Miniwind	none
<i>Baccharis emoryi</i>	BAEM	yes	yes	no	S	SW	Madrean	no	Miniwind	white
<i>B. salicifolia</i>	BASAL	yes	yes	no	S	SW	Madrean	no	Miniwind	white
<i>B. sarathroides</i>	BASAR	no	yes	no	S	SW	Madrean	no	Miniwind	white
<i>B. sergiloides</i>	BASE	no	yes	no	D	SW	Madrean	no	Miniwind	white
<i>Betula occidentalis</i>	BEOC	yes	no	yes	S	BT	Boreal	yes	Miniwind	none
<i>Brickellia longifolia</i>	BRLO	yes	yes	yes	D	SW	Madrean	no	Miniwind	white
<i>Cercis canadensis</i>	CECA	yes	yes	no	D	TW	Temperate	no	Smooth	pink
<i>Celtis laevigata</i>	CELA	yes	yes	yes	D	WW	Temperate	no	Fleshy	green
Comp. Sp. GRCA	COMP	no	yes	no	B	SW	Madrean	no	Miniwind	yellow
<i>Cornus sericea</i>	COSE	yes	no	yes	D	BT	Boreal	yes	Fleshy	white
<i>Flaveria macdougalii</i>	FLMA	no	yes	no	B	EN	Madrean	no	Miniwind	yellow
<i>Forestiera pubescens</i>	FOPU	yes	no	yes	P	SW	Temperate	no	Fleshy	none
<i>Fraxinus pennsylvanica</i>	FRPE	no	yes	no	P	TW	Temperate	no	Miniwind	none
<i>Mahonia repens</i>	MARE	yes	no	no	D	WW	Temperate	yes	Fleshy	none
<i>Petrophytum caespitosum</i>	PECA	yes	yes	no	B	WW	Boreal	no	Smooth	white
<i>Polygala scoparioides</i>	POSC	no	yes	no	B	SW	Madrean	no	Smooth	none
<i>P. fremontii</i>	POFR	yes	yes	yes	S	SW	Boreal	no	Megawind	white
<i>Prosopis glandulosa</i>	PRGL	no	yes	no	S	SW	Madrean	no	Fleshy	yellow
<i>Prunus sp.</i>	PRUsp.	no	yes	no	D		Temperate	no	Fleshy	white
<i>Ptelea trifoliata</i>	PTTR	no	yes	no	D	SW	Madrean	no	Miniwind	none
<i>Quercus gambelii</i>	QUGA	yes	no	no	S	RR	Madrean	no	Fleshy	none
<i>Frangula betulifolia</i>	FRBE	yes	yes	yes	D	SW	Madrean	no	Fleshy	none
<i>Rhus glabra</i>	RHGL	yes	yes	no	S	TW	Temperate	yes	Fleshy	none
<i>Robinia neomexicana</i>	RONE	no	yes	no	S	SW	Temperate	yes	Smooth	pink
<i>Rosa woodsii</i>	ROWO	yes	no	yes	D	BT	Boreal	yes	Fleshy	pink
<i>Salix exigua</i>	SAEX	yes	yes	yes	P	WW	Boreal	no	Megawind	none
<i>S. goodingii</i>	SAGO	yes	yes	yes	S	SW	Boreal	no	Megawind	none
<i>S. lutea</i>	SALU	yes	no	no	P	WW	Boreal	yes	Megawind	none
<i>Salix sp. GLCA</i>	SALsp	yes	no	no	S		Boreal	no	Megawind	none

Species	ACRONYM	GLCA	GRCA	CANY-ARCH	Primary Habitat	Distribution	Origin	Relictual?	Dispersal Mode	Flower Color
<i>Symphoricarpos longiflorus</i>	SYLO	yes	no	no	S	WW	Boreal	no	Fleshy	white
<i>Tessaria sericea</i>	TESE	yes	yes	no	P	SW	Tropical	no	Miniwind	pink



Species	Pollination Mode	Life Form	Vegetative	Presence/Absence (N=55)	Cover Data (%)	Number Habitats/Sites (N=90)
<i>Adiantum capillus-veneris</i>	water	forb	yes	43	12.5	64
<i>Apocynum cannabinum</i>	insect	forb	yes	16	0.9	20
<i>Aquilegia micrantha</i>	insect	forb	no	8	9.5	15
<i>A. chrysantha</i>	insect	forb	no	12	4.7	18
<i>A. desertorum</i>	insect	forb	no	2	1.6	4
<i>Aster glaucodes</i>	insect	forb	yes	5	8.6	6
<i>Astragalus praelongus</i>	insect	forb	no	6	1.1	6
<i>Castilleja exilis</i>	selfer	annual	no	3	0.1	5
<i>C. linariifolia</i>	insect	forb	no	4	0.3	4
<i>Camissonia</i> sp.	insect	forb	no	3	0.2	5
<i>Chloracantha spinosa</i>	insect	forb	yes	1	0.1	1
<i>Cirsium rydbergii</i>	insect	forb	no	12	15.3	23
<i>Cirsium</i> sp. GRCA	insect	forb	no	4	9.5	6
<i>Epilobium ciliatum</i>	insect	forb	yes	1	0.5	1
<i>Epipactus giganteus</i>	insect	forb	no	37	0.6	55
<i>Equisetum X ferrisii</i>	water	forb	yes	6	1.3	6
<i>E. hyemale</i>	water	forb	yes	11	9.7	18
<i>E. arvense</i>	water	forb	yes	1	0.1	1
<i>Euphorbia brachycera</i>	selfer	annual	no	1	0.5	1
<i>Euthamia occidentalis</i>	insect	forb	yes	5	10.3	5
<i>Gnaphalium chilense</i>	selfer	annual	no	1	0.1	1
<i>Hedeoma drummondii</i>	insect	forb	no	1	0.1	1
<i>Hutchinsia procumbens</i>	selfer	annual	no	1	0.1	1
<i>Lepidium fremontii</i>	insect	forb	no	1	0.5	1
<i>Lobelia cardinalis</i>	insect	forb	no	19	0.8	26
<i>Mimulus cardinalis</i>	insect	forb	no	14	3.6	24
<i>M. eastwoodiae</i>	insect	forb	no	9	19	9
<i>M. glabratus</i>	insect	forb	no	1	0.5	1
<i>Nolina microcarpa</i>	insect	forb	no	1	0.5	1
<i>Oenothera elata</i>	insect	annual	no	8	0.4	8
<i>O. longissima</i>	insect	forb	no	1	0.5	1
<i>Iva acerosa</i>	insect	forb	no	7	26.6	10
<i>Parietaria pennsylvanica</i>	selfer	annual	no	4	0.3	4
<i>Perityle specuicola</i>	insect	forb	no	1	0.1	1
<i>Phacelia perityloides</i>	insect	annual	no	1	0.1	1
<i>Platanthera zothecina</i>	insect	forb	no	2	12.9	4
<i>Polygonum coccineum</i>	insect	forb	yes	1	0.5	1
<i>Primula specuicola</i>	insect	forb	no	12	4.6	14
<i>Ranunculus cymbalaria</i>	insect	forb	yes	1	0.5	1
<i>Salvia davidsonii</i>	insect	forb	no	2	0.5	2
<i>Sisyrinchium demissum</i>	insect	forb	no	2	0.5	4

Species	Pollination Mode	Life Form	Vegetative	Presence/Absence (N=55)	Cover Data (%)	Number Habitats/Sites (N=90)
<i>Maianthemum stellata</i>	insect	forb	yes	4	1.5	4
<i>Solanum</i> sp.	insect	forb	no	1	0.1	1
<i>Solidago canadensis</i>	insect	forb	yes	9	1.3	10
<i>S. velutina</i>	insect	forb	yes	28	1.3	37
<i>Stephanomeria tenuifolia</i>	insect	forb	no	3	0.1	3
<i>Thelypodium integrifolium</i>	insect	annual	no	3	0.2	3
<i>T. wrightii</i>	insect	annual	no	8	0.5	8
<i>Viola nephrophylla</i>	selfer	forb	yes	2	0.3	2
<i>Yucca toftiae</i>	insect	forb	no	3	0.4	3
<i>Zigadenus vaginatus</i>	insect	forb	no	4	7.5	9
<i>Clematis ligusticifolia</i>	insect	vine	no	14	7.4	17
<i>Maurandya antirrhinifolia</i>	insect	vine	no	4	1.4	4
<i>Parthenocissus vitacea</i>	insect	vine	no	6	20.7	8
<i>Sarcostemma cynanchoides</i>	insect	vine	no	4	2.2	5
<i>Toxicodendron rydbergii</i>	insect	vine	no	17	8.8	20
<i>Vitis arizonica</i>	insect	vine	no	3	2.5	4
<i>Andropogon glomeratus</i>	wind	graminoid	no	14	7.9	17
<i>Bothriochloa barbinodis</i>	wind	graminoid	no	1	0.5	1
<i>Calamagrostis scopulorum</i>	wind	graminoid	yes	15	5.9	23
<i>Elymus canadensis</i>	wind	graminoid	no	9	0.8	11
<i>E. trachycaulis</i>	wind	graminoid	no	5		6
<i>Glyceria striata</i>	wind	graminoid	yes	3	1.4	5
<i>Hilaria rigida</i>	wind	graminoid	yes	2		2
<i>Imperata brevifolia</i>	wind	graminoid	yes	6	8.9	6
<i>Muhlenbergia andina</i>	wind	graminoid	yes	2	0.5	3
<i>M. asperifolia</i>	wind	graminoid	yes	12	6	14
<i>M. thurberi</i>	wind	graminoid	yes	15	5.2	22
<i>Muhlenbergia</i> sp. GRCA	wind	graminoid	yes	1		1
<i>Panicum acuminatum</i>	wind	graminoid	yes	19	3	25
<i>Panicum</i> sp. GRCA	wind	graminoid	yes	1	0.5	1
<i>P. virgatum</i>	wind	graminoid	yes	3	0.4	4
<i>Phragmites australis</i>	wind	graminoid	yes	29	8.3	37
<i>Schyzachrium scoparium</i>	wind	graminoid	no	7	11.2	10
<i>Sorghastrum nutans</i>	wind	graminoid	no	2	17	3
<i>Carex curatorum</i>	wind	graminoid	yes	11	16.9	17
<i>C. aurea</i>	wind	graminoid	yes	18	0.9	22
<i>C. aquatilis</i>	wind	graminoid	yes	7	12.9	8
<i>C. hystricina</i>	wind	graminoid	yes	3	0.4	3
<i>C. "specuicola"</i>	wind	graminoid	yes	2	16.5	4
<i>Cladium californicum</i>	wind	graminoid	yes	8	8.8	15
<i>Eleocharis palustris</i>	wind	graminoid	yes	1	5	1

Species	Pollination Mode	Life Form	Vegetative	Presence/Absence (N=55)	Cover Data (%)	Number Habitats/Sites (N=90)
<i>E. rostellata</i>	wind	graminoid	yes	5	13.8	8
<i>Fimbristylis spadiacea</i>	wind	graminoid	yes	1	5	1
<i>Scirpus americana</i>	wind	graminoid	yes	1	70.5	1
<i>S. pungens</i>	wind	graminoid	yes	2	0.5	4
<i>Juncus balticus</i>	wind	graminoid	yes	12	9.7	18
<i>J. ensifolius</i>	wind	graminoid	yes	8	0.4	9
<i>J. torreyi</i>	wind	graminoid	yes	3	0.4	3
<i>Typha domingensis</i>	wind	graminoid	yes	20	5.7	21
<i>Potomageton foliosus</i>	water	aquatic	yes	3	16.8	3
<i>P. natans</i>	water	aquatic	yes	1	5	1
<i>Zannichellia palustris</i>	water	aquatic	yes	1	0.5	1
<i>Acer negundo</i>	wind	woody	no	3	0.4	3
<i>Baccharis emoryi</i>	insect	woody	no	20	7.3	25
<i>B. salicifolia</i>	insect	woody	no	4	2.2	5
<i>B. sarathroides</i>	insect	woody	no	1	0.5	1
<i>B. sergiloides</i>	insect	woody	no	3	0.1	3
<i>Betula occidentalis</i>	wind	woody	no	3	12.7	4
<i>Brickellia longifolia</i>	insect	woody	no	29	5.5	22
<i>Cercis canadensis</i>	insect	woody	no	8	13.9	8
<i>Celtis laevigata</i>	insect	woody	no	13	9.8	16
Comp. Sp. GRCA	insect	woody	no	3	0.1	3
<i>Cornus sericea</i>	insect	woody	yes	2	1.9	3
<i>Flaveria macdougalii</i>	insect	woody	yes	8	20.1	14
<i>Forestiera pubescens</i>	wind	woody	yes	1	0.1	1
<i>Fraxinus pennsylvanica</i>	wind	woody	no	1	0.5	1
<i>Mahonia repens</i>	insect	woody	yes	1	5	1
<i>Petrophytum caespitosum</i>	insect	woody	yes	10	11.7	10
<i>Polygala scoparioides</i>	insect	woody	no	1	0.1	1
<i>P. fremontii</i>	wind	woody	no	15	15.4	15
<i>Prosopis glandulosa</i>	insect	woody	no	1	50	1
<i>Prunus sp.</i>	insect	woody	no	1	0.1	1
<i>Ptelea trifoliata</i>	wind	woody	no	2	0.1	2
<i>Quercus gambelii</i>	wind	woody	yes	11	10.1	12
<i>Frangula betulifolia</i>	insect	woody	yes	27	9	33
<i>Rhus glabra</i>	insect	woody	yes	1	0.5	1
<i>Robinia neomexicana</i>	insect	woody	yes	2	2.8	2
<i>Rosa woodsii</i>	insect	woody	no	4	9.4	6
<i>Salix exigua</i>	wind	woody	yes	12	12.5	13
<i>S. goodingii</i>	wind	woody	no	6	16.9	6
<i>S. lutea</i>	wind	woody	yes	2	16.9	3
<i>Salix sp. GLCA</i>	wind	woody	no	1	0.1	1

Species	Pollination Mode	Life Form	Vegetative	Presence/Absence (N=55)	Cover Data (%)	Number Habitats/Sites (N=90)
<i>Symphoricarpos longiflorus</i>	insect	woody	no	1	0.1	1
<i>Tessaria sericea</i>	insect	woody	yes	6	1	6

## A5. Vegetation-species abundance by spring by geomorphology

Prominence Data

PLOT	GEOTYPE	ADCA	APCA	AQMI	AQCH	AQDE	ASGL	ASPR	CAEX	CALI	CHSP	CIRY	CIRSIUM sp.	EPCI	EPGI	EQxFE	EQHY	EQAR	EUBR	EUOC	GNCH
GL0197	DB	3	0	0	0	0	0	0	0	1	0	4	0	0	2	0	0	0	0	0	0
GL0297	B	2	0	0	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GL0297	D	2	0	0	0	0	2	0	0	0	0	3	0	0	1	0	4	0	0	0	0
GL0297	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
GL0397	DR	4	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0
GL0497	DR	2	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
GL0597	D	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0597	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0697	B	2	0	2	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0
GL0697	D	4	1	3	0	0	0	0	1	0	0	4	0	0	2	0	2	0	0	0	0
GL0697	P	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4	0
GL0797	S	2	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GL0897	D	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GL0897	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	2	0
GL0997	D	3	2	0	0	0	1	0	0	2	0	0	0	0	0	0	2	0	0	1	0
GL1097	B	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
GL1097	D	0	0	2	0	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0
GL1097	D	0	0	1	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0
GL1097	P	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0
GL1197	D	3	2	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GL1297	DR	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0
GL1397	DB	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
GL1497	S	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GL1597	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1697	S	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GL1797	S	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GL1897	B	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1897	D	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GL2097	S	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL2197	SR	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GL2297	D	3	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1
GL2297	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	2	0
GL2397	B	3	0	0	0	0	0	0	0	1	0	4	0	0	1	0	0	0	0	0	0
GL2397	D	2	1	0	0	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0	0
AR0198	B	0	0	3	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
AR0198	D	0	0	3	0	0	0	0	0	0	0	3	0	0	2	0	2	0	0	0	0
AR0198	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
AR0298	B	3	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
AR0298	D	3	2	3	0	0	0	0	0	0	0	3	0	0	1	0	2	0	0	0	0
CA0198	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0198	D	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Prominence Data

PLOT	GEOTYPE	ADCA	APCA	AQMI	AQCH	AQDE	ASGL	ASPR	CAEX	CALI	CHSP	CIRY	CIRSIUM sp.	EPCI	EPGI	EQxFE	EQHY	EQAR	EUBR	EUOC	GNCH
CA0198	P	0	2	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
AR0398	B	0	0	3	0	0	0	0	1	0	0	3	0	0	1	0	0	0	0	0	0
AR0398	D	0	0	4	0	0	2	0	1	0	0	3	0	0	2	0	0	0	2	0	0
CA0298	B	4	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
CA0298	D	2	3	3	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0
CA0298	P	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
GR0198	D	4	0	0	0	2	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0
GR0298	B	4	0	0	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
GR0298	D	3	2	0	0	2	0	0	0	0	0	0	4	0	0	2	0	0	0	0	0
GR0398	B	4	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
GR0498	B	2	0	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
GR0498	D	2	2	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0
GR0598	S	2	2	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0
GR0698	BD	4	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR0698	P	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR0798	B	4	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GR0798	D	3	0	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR0898	S	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0998	S	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
GR1098	B	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1098	D	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
GR1098	B	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1198	D	2	0	0	2	0	0	1	0	0	0	0	0	0	1	2	0	0	0	0	0
GR1298	B	4	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1298	DR	3	0	0	0	0	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1398	B	3	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1398	D	2	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1498	B	2	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GR1498	B	3	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
GR1498	P	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
GR1598	B	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1598	B	5	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR1598	D	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1698	B	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GR1798	DR	3	0	0	2	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
GR1898	B	5	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	B	4	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GR1898	B	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
GR1998	S	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR2098	DR	4	0	0	1	0	0	0	0	0	0	0	0	0	1	3	0	0	0	2	0
GR2198	D	4	2	0	0	2	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0

Prominence Data

PLOT	GEOTYPE	ADCA	APCA	AQMI	AQCH	AQDE	ASGL	ASPR	CAEX	CALI	CHSP	CIRY	CIRSIUM sp.	EPCI	EPGI	EQxFE	EQHY	EQAR	EUBR	EUOC	GNCH
GL0198	B	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GL0198	D	2	1	0	0	0	4	2	0	0*	0	0	0	0	2	0	0	0	0	0	0
GL0298	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0398	B	4	0	0	0	0	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0
GL0398	D	0	2	0	0	0	0	0	0	0	0	3	0	0	2	0	2	0	0	0	0
GL0398	P	0	2	0	0	0	0	0	0	0	0	2	0	0	2	0	3	0	0	0	0
GL0498	S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0598	S	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0



Prominence Data

PLOT	PLZO	HEDR	HUPR	LEFR	LOCA	MIEA	MICA	MIGL	NOMI	OEEL	OELO	IVAC	PAPE	PECA	PESP	PHPE	POCO	PRSP	RACY	SADA	SIDE	MAST
GL0197	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
GL0297	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
GL0497	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0
GL0597	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0597	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
GL0697	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
GL0697	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
GL0797	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
GL0897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0997	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1197	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1297	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0
GL1397	0	0	0	0	1	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL1497	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1597	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL1697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1797	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1897	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1897	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
GL2097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL2197	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
GL2297	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL2297	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
GL2397	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0
GL2397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0198	2	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
AR0198	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0298	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
AR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
CA0198	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0198	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Prominence Data

PLOT	PLZO	HEDR	HUPR	LEFR	LOCA	MIEA	MICA	MIGL	NOMI	OEEL	OELO	IVAC	PAPE	PECA	PESP	PHPE	POCO	PRSP	RACY	SADA	SIDE	MAST
CA0198	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
AR0398	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
AR0398	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GR0198	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0
GR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
GR0298	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GR0398	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GR0498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0
GR0498	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
GR0598	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GR0698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0798	0	0	0	0	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
GR0798	0	0	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0998	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1098	0	0	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
GR1198	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1298	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
GR1298	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1398	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
GR1398	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
GR1498	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1498	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
GR1498	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
GR1598	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1698	0	0	0	0	1	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0
GR1798	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1998	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR2098	0	0	0	0	1	0	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
GR2198	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0

Prominence Data

PLOT	PLZO	HEDR	HUPR	LEFR	LOCA	MIEA	MICA	MIGL	NOMI	OEEL	OELO	IVAC	PAPE	PECA	PESP	PHPE	POCO	PRSP	RACY	SADA	SIDE	MAST
GL0198	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0198	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0
GL0298	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
GL0398	0	0	0	0	1	0	0	0	0	0	0	3	0	0	1	0	0	2	0	0	0	0
GL0398	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL0398	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL0498	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL0598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Prominence Data

PLOT	SOCA	SOSP	STTE	THIN	THWR	VINE	YUTO	ZIVA	CLLI	MAAN	PARV	SACY	TORY	VIAR	ANGL	BOBA	CASC	ELCA	ELTR	GLST	HIRI	IMBR
GL0197	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0	3	1	0	0	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
GL0297	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
GL0397	0	2	0	1	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0
GL0497	2	3	0	1	0	0	0	0	3	0	3	0	2	0	2	0	0	1	0	0	0	0
GL0597	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0
GL0597	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0697	0	3	0	0	0	1	0	0	1	0	2	0	2	0	2	0	2	0	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
GL0797	1	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	2	0	0
GL0897	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	0	2	2	0	0	0	0
GL0897	0	2	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	3	0	0	0	0
GL0997	2	2	0	0	0	0	0	0	2	0	4	0	2	0	0	0	2	2	0	0	0	0
GL1097	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0
GL1097	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	5	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	4	0	4	0	1	0	0	0	2	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1197	0	2	0	0	0	2	0	0	2	0	1	0	0	0	0	0	3	0	0	0	0	0
GL1297	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
GL1397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1497	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1597	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1697	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1797	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1897	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GL1897	2	0	0	2	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0
GL2097	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	0	0
GL2197	3	2	0	0	0	0	2	0	1	0	0	0	3	0	3	0	0	0	0	0	0	0
GL2297	0	2	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
GL2297	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
GL2397	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
GL2397	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0
AR0198	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	2	0	0
AR0198	5	0	0	0	0	0	0	2	2	0	0	0	4	0	0	0	2	0	0	2	0	0
AR0198	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0
AR0298	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0298	0	0	0	0	0	0	0	3	0	0	0	0	4	0	0	0	0	0	0	3	0	0
CA0198	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0198	0	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	2	0	1	0	0	0

Prominence Data

PLOT	SOCA	SOSP	STTE	THIN	THWR	VINE	YUTO	ZIVA	CLLI	MAAN	PARV	SACY	TORY	VIAR	ANGL	BOBA	CASC	ELCA	ELTR	GLST	HIRI	IMBR
CA0198	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0
AR0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0398	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0
GR0198	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0
GR0298	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
GR0298	0	2	0	0	2	0	0	0	0	3	0	0	0	0	0	0	2	0	4	0	0	0
GR0398	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0498	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
GR0498	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0
GR0598	0	2	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	2
GR0698	0	2	0	0	0	0	0	0	0	0	0	3	0	0	3	0	2	0	0	0	0	0
GR0698	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GR0798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0798	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0898	0	1	0	0	2	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0
GR0998	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GR1098	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1098	0	2	0	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0
GR1098	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GR1198	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
GR1298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
GR1298	0	0	0	0	0	0	0	0	0	2	0	0	0	5	3	0	0	0	0	0	0	0
GR1398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
GR1398	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1798	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
GR1898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR2098	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0	0
GR2198	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	2

Prominence Data

PLOT	SOCA	SOSP	STTE	THIN	THWR	VINE	YUTO	ZIVA	CLLI	MAAN	PARV	SACY	TORY	VIAR	ANGL	BOBA	CASC	ELCA	ELTR	GLST	HIRI	IMBR
GL0198	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
GL0198	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	2
GL0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0398	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0398	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0398	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0498	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0598	0	2	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	2	0	0	0	0

Prominence Data

PLOT	MUAN	MUAS	MUTH	MUPLY sp	PAAC	PANICUM sp	PANV	PHAU	SCSC	SONU	CACU	CASP	CAAU	CAAQ	CAHY	CAREX sp	CLCA	ELPA
GL0197	2	0	0	0	2	0	0	3	0	2	4	0	0	0	0	0	0	0
GL0297	2	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0	0	0
GL0297	2	0	0	0	1	0	0	3	0	0	2	0	0	0	0	0	0	0
GL0297	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
GL0397	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
GL0497	0	0	0	0	3	0	0	5	0	0	3	0	2	0	0	0	0	0
GL0597	0	0	0	0	2	0	0	2	1	0	0	0	2	0	0	0	0	0
GL0597	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
GL0697	0	0	0	0	2	0	0	1	0	0	4	0	0	0	0	0	0	0
GL0697	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0
GL0797	0	0	0	0	2	0	0	2	0	0	0	0	2	0	0	0	0	0
GL0897	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
GL0897	0	0	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0
GL0997	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	5	0	0	0	0	0	4	1	0	0	0
GL1197	0	0	0	0	4	0	0	2	0	0	4	0	0	0	0	0	0	0
GL1297	0	0	2	0	3	0	0	4	0	0	0	0	2	0	0	0	0	0
GL1397	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1497	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0
GL1597	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
GL1697	0	0	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0
GL1797	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL1897	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
GL1897	0	0	0	0	2	0	0	3	0	0	3	0	2	0	0	0	0	0
GL2097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL2197	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
GL2297	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
GL2297	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0
GL2397	0	0	0	0	2	0	0	2	0	0	4	0	2	0	0	0	0	0
GL2397	0	0	2	0	2	0	2	2	0	0	2	0	2	0	0	0	0	0
AR0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0198	0	2	0	0	2	0	0	2	0	0	0	0	2	2	2	0	0	0
AR0198	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0298	0	2	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0

Prominence Data

PLOT	MUAN	MUAS	MUTH	MUPLY sp	PAAC	PANICUM sp	PANV	PHAU	SCSC	SONU	CACU	CASP	CAAU	CAAQ	CAHY	CAREX sp	CLCA	ELPA
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
AR0398	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
AR0398	0	0	0	0	3	0	0	0	4	0	0	0	2	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
CA0298	0	0	0	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0
CA0298	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
GR0198	0	0	3	0	0	0	0	0	2	0	2	0	2	0	0	0	0	0
GR0298	0	0	2	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0
GR0298	0	0	3	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
GR0398	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
GR0498	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
GR0498	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
GR0598	0	3	2	0	0	0	0	3	0	0	0	0	0	2	0	0	0	3
GR0698	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
GR0698	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
GR0798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0898	0	0	1	0	0	0	0	3	0	0	0	0	0	2	0	0	4	0
GR0998	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
GR1098	0	0	0	0	0	2	0	0	2	4	0	0	0	0	0	0	1	0
GR1098	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	3	0
GR1098	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0
GR1198	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0
GR1298	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
GR1298	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
GR1398	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0
GR1398	0	2	2	0	0	0	0	1	3	0	0	0	0	0	0	0	3	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0
GR1498	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0
GR1498	0	2	0	0	0	0	0	3	3	0	0	0	0	0	0	1	3	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1798	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1998	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	5	0
GR2098	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
GR2198	0	0	4	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0



Prominence Data

PLOT	MUAN	MUAS	MUTH	MUPLY sp	PAAC	PANICUM sp	PANV	PHAU	SCSC	SONU	CACU	CASP	CAAU	CAAQ	CAHY	CAREX sp	CLCA	ELPA
GL0198	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0198	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0298	0	3	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL0398	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
GL0398	0	0	0	0	0	0	0	3	0	0	3	0	2	0	0	0	0	0
GL0398	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GL0498	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
GL0598	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0

Prominence Data

PLOT	ELRO	FISP	SCAM	SCPU	JUEN	JUBA	JUTO	TYPHA	POFO	PONA	ZAPA	ACNE	BAEM	BASAL	BASAR	BASE	BEOC	BRLO	CEOC	CERE	Comp
GL0197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
GL0297	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
GL0297	0	0	0	0	0	4	0	2	0	0	2	0	0	0	0	0	0	3	0	0	0
GL0397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
GL0497	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0597	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GL0597	5	0	0	2	2	2	0	4	2	0	0	0	1	0	0	0	0	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0697	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GL0697	4	0	0	2	2	4	0	4	0	3	0	2	2	0	0	0	0	0	0	0	0
GL0797	0	0	0	0	0	3	1	2	0	0	0	0	2	0	0	0	0	0	0	3	0
GL0897	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0
GL0897	0	0	0	0	2	5	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0
GL0997	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	2	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0
GL1097	0	0	0	0	2	0	0	3	5	0	0	0	0	0	0	0	0	0	0	0	0
GL1197	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1297	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0
GL1397	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0
GL1497	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	0
GL1597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
GL1697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1797	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
GL1897	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1897	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
GL2097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
GL2197	0	3	0	0	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
GL2297	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	3	0
GL2297	5	0	0	0	0	2	0	2	4	0	0	0	4	0	0	0	0	0	0	0	0
GL2397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
GL2397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
AR0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0198	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
AR0198	0	0	0	0	0	3	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0
AR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	4	0
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0

Prominence Data

PLOT	ELRO	FISP	SCAM	SCPU	JUEN	JUBA	JUTO	TYPHA	POFO	PONA	ZAPA	ACNE	BAEM	BASAL	BASAR	BASE	BEOC	BRLO	CEOC	CERE	Comp
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
AR0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0398	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
CA0298	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
GR0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
GR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
GR0298	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	4	0	0
GR0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1
GR0498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
GR0498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
GR0598	0	0	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	0	0	0
GR0698	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
GR0698	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0
GR0798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
GR0798	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2	0	0
GR0898	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0
GR0998	0	0	0	0	0	0	0	2	0	0	0	0	2	3	2	0	0	0	0	0	0
GR1098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
GR1098	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
GR1098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
GR1198	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	3	0	0
GR1298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
GR1298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
GR1398	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
GR1398	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0
GR1498	0	0	5	0	0	0	0	3	0	0	0	0	2	0	0	0	0	2	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
GR1698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
GR1798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
GR1898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
GR1998	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0
GR2098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	2	0
GR2198	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	2	0	0

Prominence Data

PLOT	ELRO	FISP	SCAM	SCPU	JUEN	JUBA	JUTO	TYPHA	POFO	PONA	ZAPA	ACNE	BAEM	BASAL	BASAR	BASE	BEOC	BRLO	CEOC	CERE	Comp
GL0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0198	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
GL0298	0	0	0	0	0	0	0	2	0	0	0	0	4	0	0	0	0	2	0	0	0
GL0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0398	0	0	0	2	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
GL0398	0	0	0	2	0	2	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0
GL0498	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0598	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	2	4	0	0

Prominence Data

PLOT	COSE	FLMA	FOPU	FRPE	MARE	POAC	POFR	PRGL	PRUNUS sp	PTTR	QUGA	FRBE	RHGL	RONE	ROWO	SAEX	SAGO	SALU	SALIX	SYLO	TESE
GL0197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
GL0297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0397	0	0	0	0	0	0	0	0	0	0	0	3	0	0	4	0	0	0	0	0	0
GL0497	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GL0597	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0
GL0597	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0697	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
GL0697	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GL0797	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	2	0	0	0	0
GL0897	0	0	0	0	0	0	2	0	0	0	3	4	0	0	0	0	0	0	0	0	0
GL0897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
GL0997	0	0	0	0	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	3	0	0	0	0	0	5	4	0	0	0	0	0	0	0	0	0
GL1097	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
GL1197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1297	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL1497	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	1	0	1	0	0
GL1597	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0
GL1697	0	0	0	0	0	0	3	0	0	0	3	3	0	0	0	0	0	0	0	0	0
GL1797	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0	0	0	0
GL1897	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GL1897	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
GL2097	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
GL2197	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0
GL2297	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GL2297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL2397	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GL2397	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0
AR0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0198	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0
AR0198	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	4	2	0	0	0	0
AR0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR0298	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
CA0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0198	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0

Prominence Data

PLOT	COSE	FLMA	FOPU	FRPE	MARE	POAC	POFR	PRGL	PRUNUS sp	PTTR	QUGA	FRBE	RHGL	RONE	ROWO	SAEX	SAGO	SALU	SALIX	SYLO	TESE
CA0198	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
AR0398	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
AR0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CA0298	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
CA0298	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	0	0	0	0
GR0198	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
GR0298	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GR0298	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0
GR0398	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0598	0	0	0	0	0	0	2	0	0	0	0	0	0	2	0	1	0	0	0	0	0
GR0698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	5
GR0798	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR0798	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0
GR0898	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
GR0998	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	0	0	1
GR1098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1098	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	5
GR1098	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GR1198	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0
GR1298	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1298	0	4	0	0	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0
GR1398	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GR1398	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GR1498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1498	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1498	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	3
GR1598	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1598	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
GR1698	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1798	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
GR1898	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
GR1898	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1898	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GR1998	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1
GR2098	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
GR2198	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0

Prominence Data

PLOT	COSE	FLMA	FOPU	FRPE	MARE	POAC	POFR	PRGL	PRUNUS sp	PTTR	QUGA	FRBE	RHGL	RONE	ROWO	SAEX	SAGO	SALU	SALIX	SYLO	TESE
GL0198	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0198	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
GL0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0398	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
GL0398	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	4	0	0	0
GL0498	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GL0598	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	1	0	0	0	0	0