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ANALYTICAL RESULTS, BASIC STATISTICS, AND LOCALITY MAP OF RABBITBRUSH (GENUS *Chrysothamnus*) SAMPLES FROM THE MINERAL HOT SPRINGS AND VALLEY VIEW HOT SPRINGS KNOWN GEOTHERMAL RESOURCE AREAS, NORTHERN SAN LUIS VALLEY, COLORADO

by

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Introduction

The element data given here for two species of rabbitbrush (genus *Chrysothamnus)* are being used in a joint geochemical/remote-sensing study to try to detect any surface expression of these partially concealed geothermal fields.

The study area encompasses the northern part of the San Luis Valley, Colorado between 38°7'30"-38°15"N latitudes and about 105°47'30"-106°W longitudes in Saguache County (fig. 1). The elevation of the sample sites ranges from about 7,600 ft (≈2,320 m) at San Luis Creek along the valley floor to 9,200 ft (≈2,800 m) in the foothills of the Sangre de Cristo Range just above the Sangre de Cristo bounding fault.

The San Luis Valley is surprisingly arid for its altitude. Annual precipitation at the town of Saguache (7,700 ft [≈2,350 m]) averages about 8½ inches (≈22 cm). According to Doesken and McKee (1989), this makes the valley the highest region in the United States to receive so little moisture. This northern end of the valley supports a shrub-grassland characterized by two species of rabbitbrush (*Chrysothamnus parryi* subspecies *howardii* [Parry] Hall and Clem. and, to a lesser extent, C. *nauseosus* ssp. *consimilis* [Greene] Hall and Clem.) on the uplands where the soils are non-saline and relatively non-alkaline. Greasewood (*Sarcobatus vermiculatus* [Hook.] Torr.) dominates the valley floor where conditions are more alkaline and the water table occurs near the surface (Dixon, 1989). Greasewood tolerates soils with as much as nine percent salt. For the most part the soils in the study area are well-drained and non-calcareous.

The San Luis Basin, the northernmost alluvial basin of the Rio Grande drainage, has been studied extensively because of its unconfined and artesian aquifers (Glanzman, 1989). Hydrologic studies that pertain to potentiometric surfaces and changes in the water levels (Crouch, 1985), however, seem to have been concentrated on areas south of the present study. Barrett and Pearl (1978) assess the geothermal-resource potential of the Mineral Hot Springs and Valley View Hot Springs; the hydrogeological data for these springs are given in an earlier report (Barrett and Pearl, 1976).

Host to a complex system of aquifers, the San Luis Valley is the geomorphic expression—an east-dipping half graben—of the Rio Grande Rift, the last in a series of major geologic events (Hanna and Harmon, 1989). The valley lies between low foothills of the San Juan Volcanic Field to the west and the steeply rising Sangre de Cristo Range to the east. Scarps of the northwest-trending Villa Grove fault zone of Holocene age are prominent features in the northern end of the valley, but deep, east-west block faults step downward towards the south. The Villa Grove fault zone divides the study area into at least two structural blocks. The basin fill is probably thickest on the downthrown block of this zone (Lindsey and Soulliere, 1987). Lindsey and Soulliere (1987) provide the most detailed geologic map of the eastern half of the study area; more generalized geology for the western half can be found in Scott and others (1978).

Field Methods

From June 26 to July 8, 1992, 151 sites were sampled; eleven samples were collected from sites along Kerber Creek (northwest corner of Plate 1) in a separate study unrelated to this geothermal project. For this reason their analytical results are not included in this report. More closely-spaced site intervals were positioned normal to several major faults or fault zones that appear on the geologic maps of the area. Such structures (Plate 1) can serve as conduits for mineralized and/or geothermal fluids. Results of an orientation biogeochemical survey conducted in 1990 did, in fact, produce significant metal anomalies on the northwest-trending, Holocene-aged Villa Grove fault zone that appears as small scarps along the eastern slope of the valley. Observations on the vegetation by the geologist who mapped the eastern part of the study area (Lindsey, oral communication, 1992), as well as those by Erdman, indicate that groundwater seepage and drainage disruption does occur intermittently at the base of the scarps.

A gridded sample design was not possible because of limited access to private lands; permission to access about a square mile of land that included Mineral Hot Springs was in fact denied by the corporation that owned the property. Still, the distribution of sample sites covered the study area fairly satisfactorily (Plate 1).

Two forms of rabbitbrush were recognized, a more common form that had a grayish appearance and a less common form that was more green. Earlier correspondence with Dr. Loran Anderson (oral communication, 1992) indicated that these two color forms do occur within the subspecies of rubber rabbitbrush (*Chrysothamnus nauseosus* ssp. *consimilis*) found in the valley. A voucher specimen of the green form was later identified by Dr. Anderson as rubber rabbitbrush, but a voucher of the gray form was Parry's rabbitbrush (*C. parryi* ssp. *howardii*). Field notes included information on the color form, and subsequent analytical results show no species differences.

At each site approximately 10 cm of the terminal branches—leaves and twigs combined—were sampled from several shrubs within a radius of about 10 m. This composite sample serves to minimize large sampling errors (that is, within site variation) that may occur when collecting plant samples (Cohen and others, 1987). The samples were placed in 5 x 12-inch Hubco bags and averaged 50 g, dry-weight basis.

Laboratory Methods

Sample preparation. In the Denver laboratory of the U.S. Geological Survey the plant samples were dried at 40° in a forced-air oven to prevent molding. They were then sent to Minerals Exploration and Environmental Geochemistry, Sample Preparation Services, Reno, Nevada, where they were washed, then dried under ambient conditions with a 30-minute finish drying in microwave ovens. Finally, the samples were milled to a minus-2-mm fraction. Three subsamples of each sample were prepared, as follows:

(1) 10 g of homogenized dry material were pressed into uniform wafers and packaged for extended-count direct instrumental neutron activation analysis (INAA).

(2) ≈1 g of dry material was weighed and placed into a vial for analysis of boron by prompt-gamma activation analysis.
(3) 10 g of dry material were ashed at 470°C for analysis by inductively coupled plasma-atomic emission spectrometry (ICAP).

Each of the three suites of samples, including a small set of analytical duplicates, was placed in a randomized sequence before being sent to the Activation Laboratories Ltd., Ancaster, Ontario, Canada. This procedure was taken to convert any systematic error, which might occur in either sampling or analysis, into random error. Therefore, the samples that were collected in the field to represent some geographic progression were not analyzed in field-number order.

Internal reference samples were inserted between blocks of 23 field samples.

Sample analysis. Inductively coupled instrumental neutron activation analysis (Hoffman, 1992) provided data for 35 elements, including low-level gold.

Inductively coupled plasma emission spectrometry with an aqua regia extraction was requested because it includes a base-metal suite of elements unavailable by INAA. This method uses a 0.5 g sample that is digested with 3 ml 3-1-2 $HCl-HNO_3-H_2O$ at 95° C for one hour and is diluted to 10 ml with water. For plant samples this leachate is nearly total for all elements. The 30-element ICAP package also includes lithium, a critical element in geothermal systems.

Analysis for boron by prompt-gamma INAA (Hoffman, 1992) was added to the request mainly because of its better precision than ICAP; as with lithium, boron can be an important pathfinder element.

Data Tables

The three analytical methods provided data for 66 elements, many of which were duplicated between the two multi-element packages. Selection of the final 41 elements given in tables 1-3 was based, in part, on unpublished sources that evaluate the suitability of the methods for each element. Selection was also based on results of the analytical precision and the extent of censoring (number of samples with concentrations below the detection limits). Five elements (lower limits of detection in parentheses)—arsenic (0.01 parts per million [ppm]), europium (0.05 ppm), iridium (0.1 parts per billion), tantalum (0.05 ppm), and terbium (0.1 ppm)—were deleted from the tables because no samples had detectible levels.

Tables 1, 2, and 3 list the results for five pairs of analytical splits, basic statistics, and the raw data, respectively. The precision (or reproducibility) of the analyses, as shown in table 1, is generally excellent with the possible exception of gold (Au), cadmium (Cd), selenium (Se), tungsten (W), and ytterbium (Yb).

Gaps in the numerical sequence of sample numbers in table 3 (33-34, 36, 95-99, and 149-151) indicate the 11 samples from a separate study referred to above. The sample from site 16 was lost. The sample sites used in this study, therefore, number 139.

Data Format

The data listed in table 3 are also given digitally in a data file on a magnetic medium suitable for entry into an IBM PC or compatible personal computer. The magnetic medium is a double density (360 KByte), 5¼-inch floppy disk (part B of this report) with the data written in an **ASCII** format. The data file contains 139 samples with each sample having sample identifier, latitude, longitude, and analytical results for 41 elements that appear in table 3.

Acknowledgments

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References Cited

Barrett, J.K., and Pearl, R.H., 1976, Hydrogeological data of thermal springs and wells in Colorado: Colorado Geological Survey, Department of Natural Resources Information Series No. 6, 124 p.

Barrett, J.K., and Pearl, R.H., 1978, An appraisal of Colorado's Geothermal Resources, Colorado Geological Survey, Department of Natural Resources, Bulletin 39, 224 p.

Cohen, D.R., Hoffman, E.L., and Nichol, I., 1987, Biogeochemistry—a geochemical method for gold exploration in the Canadian Shield, *in* Garrett, R.G., ed., Geochemical exploration: Journal of Geochemical Exploration, v. 29, p. 49-73.

Crouch, T. M., 1985, Potentiometric surface, 1980, and water-level changes, 1969-80, in the unconfined valley-fill aquifers of the San Luis Basin, Colorado and New Mexico: U.S. Geological Survey Hydrologic Investigations Atlas HA-683.

Dixon, H.N., 1989, Relationships of the greasewood community to ground water in the San Luis Valley, *in* Water in the valley—A 1989 perspective on water supplies, issues, and solutions in the San Luis Valley, Colorado: Colorado Ground-Water Association Guidebook, 8th Annual Field Trip, August 19-20, 1989, p. 169-176.

Doesken, N.J., and McKee, T.B., 1989, The incredible climate of the San Luis Valley, *in* Water in the valley—A 1989 perspective on water supplies, issues, and solutions in the San Luis Valley, Colorado: Colorado Ground-Water Association Guidebook, 8th Annual Field Trip, August 19-20, 1989, p. 80-98.

Glanzman, R.K., 1989, Hydrogeochemistry of the closed basin, San Luis Valley, Colorado, *in* Water in the valley—A 1989 perspective on water supplies, issues, and solutions in the San Luis Valley, Colorado: Colorado Ground-Water Association Guidebook, 8th Annual Field Trip, August 19-20, 1989, p. 49-71.

Hanna, T.M., and Harmon, E.J., 1989, An overview of the historical, stratigraphic, and structural setting of the aquifer system of the San Luis Valley, *in* Water in the valley—A 1989 perspective on water supplies, issues, and solutions in the San Luis Valley, Colorado: Colorado Ground-Water Association Guidebook, 8th Annual Field Trip, August 19-20, 1989, p. 1-34.

Hoffman, E.L., 1992, Instrumental neutron activation in geoanalysis, *in* Hall, G.E.M., ed., Geoanalysis: Journal of Geochemical Exploration, v. 44, p. 297-319.

Lindsey, D.A., Johnson, B.R., and Andriessen, P.A.M., 1983, Laramide and Neogene structure of the northern Sangre de Cristo Range, *in* Lowell, J.D., ed., Rocky Mountain foreland basins and uplifts: Denver, Colorado, Rocky Mountain Association of Geologists, p. 219-228.

Lindsey, D.A., and Soulliere, S.J., 1987, Geologic map and sections of the Valley View Hot Springs Quadrangle, Custer and Saguache Counties, Colorado: U.S. Geological Survey Miscellaneous Field Studies Map MF-1942.

Scott, G.R., Taylor, R.B., Epis, R.C., and Wobus, R.A., 1978, Geologic map of the Pueblo 1° x 2° Quadrangle, south-central Colorado: U.S. Geological Survey Miscellaneous Investigations Series Map I-1022.

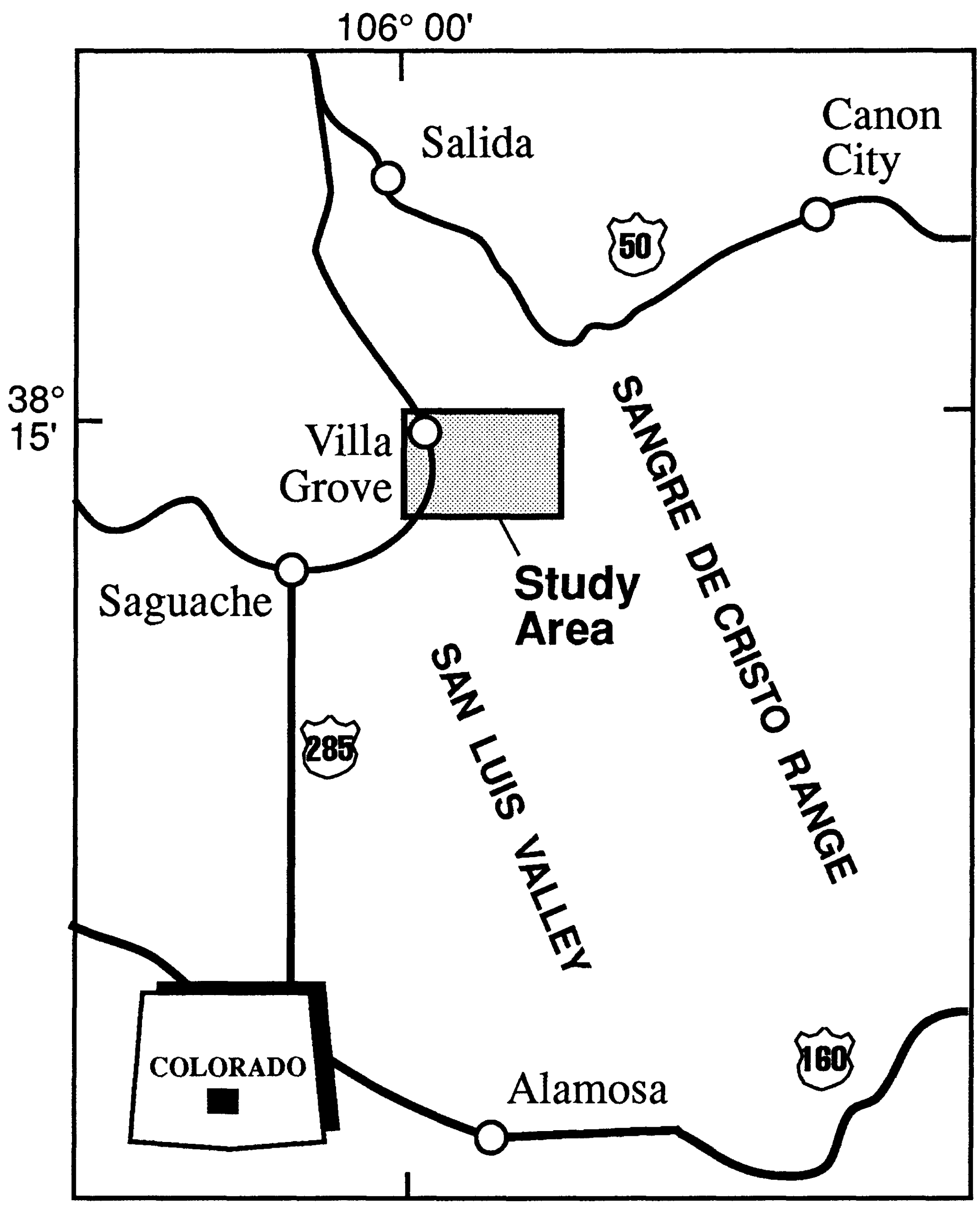

Figure 1.--Index map of the geothermal study area in the northern San Luis Valley, Saguache County, Colorado

Table 1. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) analytical splits from the northern San Luis Valley, Colorado
[-i, analyzed on ash by inductively coupled plasma emission spectrometry; -n, analyzed on dry matter by instrumental neutron activation; R suffix, repeat analysis of split; <, below the limit of detection]

Sample	Ag ppm-i	Al %-i	Au ppb-n	B ppm-n	Ba ppm-i	Bi ppm-i	Br ppm-n	Ca %-i	Cd ppm-i	Ce pm-n
020	.3	.07	.6	46.6	381	<5	28	14.35	1.4	.3
020R	.4	.06	.1	43.1	444	<5	27	17	.8	.2
040	<.2	.04	.2	53.7	189	<5	93	10.22	1	.2
040R	<.2	.05	.2	57.6	193	<5	87	9.73	1.2	.3
060	<.2	.15	.8	62.7	142	<5	62	9.15	2.6	.4
060R	<.2	.12	.8	59.4	121	<5	57	7.51	1.2	.3
080	<.2	.16	1	75.1	169	<5	45	11.58	2.5	.5
080R	<.2	.13	1.5	79.4	149	<5	47	10.37	.6	.4
100	<.2	.04	.2	43.3	45	<5	110	6.76	<.5	<.1
100R	<.2	.05	<.2	48.9	49	<5	120	8.3	<.5	.3

Sample	Co ppm-n	Cr ppm-n	Cs ppm-n	Cu ppm-i	Fe %-i	Hf ppm-n	Hg ppm-n	K %-n	La ppm-n	Li ppm-i	Lu ppm-n
020	.2	<.3	<.05	153	.11	<.05	<.05	1.97	.14	4	<.001
020R	.2	.4	<.05	145	.09	<.05	<.05	1.84	.14	3	<.001
040	1.1	<.3	<.05	112	.06	<.05	<.05	2.25	.1	3	<.001
040R	1.4	<.3	<.05	119	.1	<.05	<.05	2.12	.17	5	<.001
060	.3	.4	<.05	99	.18	.05	.06	2.18	.2	6	<.001
060R	.4	<.3	<.05	91	.17	<.05	<.05	2.04	.2	5	<.001
080	.3	<.3	<.05	117	.22	<.05	<.05	1.64	.23	11	<.001
080R	.3	.6	<.05	107	.17	<.05	<.05	1.68	.25	11	<.001
100	.9	<.3	<.05	90	.09	<.05	<.05	2.76	.13	1	<.001
100R	.7	<.3	<.05	93	.11	<.05	.05	2.92	.13	1	<.001

Sample	Mg %-i	Mn ppm-i	Mo ppm-i	Na %-i	Ni ppm-i	P %-i	Pb ppm-i	Rb ppm-n	Sb ppb-n	Sc ppm-n
020	3	925	4	.71	9	2.349	2	3	<7	.03
020R	3.02	935	3	.74	9	2.213	5	3	<5	.03
040	2.09	972	8	.43	10	1.81	5	2	<5	.02
040R	2.31	1,062	8	.51	11	2.213	3	3	<5	.05
060	3.05	689	3	.74	7	2.433	5	3	<5	.05
060R	2.66	673	3	.37	8	2.375	6	<1	<5	.05
080	2.71	1,617	7	.65	10	2.467	2	2	10	.04
080R	2.39	1,427	6	.72	8	2.16	2	2	5	.05
100	2.18	286	11	.55	17	3.276	4	4	7	.03
100R	2.29	309	12	.52	19	3.286	3	4	<5	.03

Sample	Se ppm-n	Sm ppb-n	Sr ppm-i	Th ppm-n	Ti %-i	U ppm-n	V ppm-i	W ppm-n	Yb ppb-n	Zn ppm-i
020	<.1	19	682	<.1	.01	<.01	<2	<.05	<5	505
020R	<.1	20	665	<.1	.01	<.01	<2	.11	<5	488
040	<.1	12	751	<.1	.01	<.01	<2	<.05	18	277
040R	<.1	18	769	<.1	.01	<.01	<2	<.05	<5	312
060	.1	27	570	<.1	.01	<.01	<2	<.05	<5	349
060R	.2	26	471	<.1	.01	<.01	2	<.05	<5	326
080	<.1	27	1,000	<.1	.01	<.01	3	<.05	<5	306
080R	<.1	30	892	<.1	.01	<.01	2	<.05	<5	263
100	<.1	11	492	<.1	.01	<.01	<2	<.05	<5	207
100R	.6	13	510	<.1	.01	<.02	<2	<.05	<5	221

Table 2. Basic statistics for rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado
[B, not analyzed; L, below the limit of detection; -i, analyzed on ash by inductively coupled plasma emission spectrometry; -n, analyzed on dry matter by instrumental neutron activation; ( ), statistics based on uncensored data only; --, no data]

Variable	Lower limit	Minimum	Maximum	50th percentile	Mean	Standard deviation	Valid	B	L
Ag ppm-i	.2	<.2	1.5	<.2	--	--	43	0	96
Al %-i	.01	.01	.21	.07	.078	.0436	139	0	0
Au ppb-n	.1	<.1	3.0	.3	(.44)	(.398)	130	0	9
B ppm-n	.5	24	86	50	(50)	(10.8)	135	4	0
Ba ppm-i	1	25	458	134	134	54.4	139	0	0
Bi ppm-i	5	<5	10	<5	--	--	1	0	138
Br ppm-n	.01	5.8	180	47	55	34.9	139	0	0
Ca %-i	.01	1.75	17.91	10	10	2.61	139	0	0
Cd ppm-i	.5	<.5	11.3	1.6	(1.8)	1.44	128	0	11
Ce ppm-n	.1	<.1	1.0	.2	--	--	103	0	36
Co ppm-n	.1	<.1	1.5	.3	(.46)	(.329)	131	0	8
Cr ppm-n	.3	<.3	1.3	<.3	--	--	27	0	112
Cs ppm-n	.05	<.05	.09	<.05	--	--	6	0	133
Cu ppm-i	1	15	209	102	104	30.4	139	0	0
Fe %-i	.01	.02	.37	.13	.13	.055	139	0	0
Hf ppm-n	.05	<.05	.14	<.05	--	--	14	0	125
Hg ppm-n	.05	<.05	.11	<.05	--	--	7	0	132
K %-n	.001	.256	3.4	1.96	1.9	.422	139	0	0
La ppm-n	.01	.04	.67	.13	.15	.089	139	0	0
Li ppm-i	1	1	20	3	3.9	2.73	139	0	0
Lu ppm-n	.001	<.001	.009	<.001	--	--	26	0	113
Mg %-i	.01	.33	3.7	2.47	2.4	.496	139	0	0
Mn ppm-i	2	123	1851	800	821	292	139	0	0
Mo ppm-i	2	<2	20	5	(5.7)	(3.23)	135	0	4
Na %-i	.01	.08	2.6	.54	.60	.343	139	0	0
Ni ppm-i	1	1	24	11	11	4.15	139	0	0
P %-i	.005	.333	3.349	2.25	2.2	.409	139	0	0
Pb ppm-i	2	2	61	5	6.1	5.81	139	0	0
Rb ppm-n	1	<1	13	2	(2.5)	(1.67)	124	0	15
Sb ppb-n	5	<5	27	<5	--	--	30	0	109
Sc ppm-n	.01	.01	.13	.03	.031	.0170	139	0	0
Se ppm-n	.1	<.1	1.7	<.1	--	--	30	0	109
Sm ppb-n	1	6	92	16	19	12.4	139	0	0
Sr ppm-i	1	95	1443	517	553	218	139	0	0
Th ppm-n	.1	<.1	.1	<.1	--	--	2	0	137
Ti %-i	.01	.01	.01	.01	--	--	139	0	0
U ppm-n	.01	<.01	.07	<.01	--	--	6	0	133
V ppm-i	2	<2	4	<2	--	--	46	0	93
W ppm-n	.05	<.05	.16	<.05	--	--	20	0	119
Yb ppb-n	5	<5	35	<5	--	--	44	0	95
Zn ppm-i	1	56	668	301	323	119	139	0	0
Ash %	--	4.8	8.9	6.0	6.0	.652	139	0	0

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado
[-i, analyzed on ash by inductively coupled plasma emission spectrometry; -n, analyzed on dry matter by instrumental neutron activation; <, below the limit of detection]

Sample	Latitude	Longitude	Ag ppm-i	Al %-i	Au ppb-n	B ppm-n	Ba ppm-i	Bi ppm-i	Br ppm-n	Ca %-i	Cd ppm-i
001	38 11 11	105 50 9	<.2	.16	.4	60.4	147	<5	58	11.35	1.1
002	38 11 14	105 50 39	<.2	.07	.3	39.4	171	<5	56	15.52	2.1
003	38 11 15	105 51 11	.7	.1	.1	40.2	219	<5	25	17.6	2.9
004	38 11 14	105 51 50	<.2	.13	.7	36.9	215	<5	37	13.88	3.5
005	38 11 15	105 52 21	.2	.03	.3	64.2	227	<5	25	14.42	1.6
006	38 11 13	105 52 52	<.2	.04	1.5	39.9	163	<5	27	16.96	.5
007	38 11 17	105 54 4	<.2	.04	<.1	28.2	108	<5	11	11.58	1.3
008	38 11 18	105 54 37	.5	.12	3	54	173	<5	29	12.63	3.6
009	38 11 19	105 55 9	.2	.1	1	59.4	152	<5	38	9.84	1.3
010	38 11 18	105 55 21	.6	.06	.2	52.6	163	<5	42	9.92	3.6
011	38 11 19	105 55 33	<.2	.12	.2	58.3	182	<5	61	12.99	1.4
012	38 11 19	105 55 46	.2	.1	<.1	36	161	<5	38	10.36	1.7
013	38 11 19	105 56 0	.7	.05	.2	52.5	125	<5	50	11.4	1.9
014	38 11 21	105 56 13	<.2	.13	<.1	54	200	<5	30	12.77	<.5
015	38 13 17	105 56 39	<.2	.11	.4	32.4	141	<5	12	15.97	6.3
017	38 13 16	105 57 5	<.2	.05	.2	39.1	179	<5	33	14.49	5.4
018	38 13 16	105 57 18	<.2	.19	.2	46.9	153	<5	30	14.06	5.3
019	38 13 17	105 57 25	.5	.15	.2	38.7	151	<5	36	11.59	11.3
020	38 13 9	105 58 45	.3	.07	.6	46.6	381	<5	28	14.35	1.4
021	38 13 12	105 58 37	<.2	.03	.3	37.7	183	<5	27	12.58	2.1
022	38 11 7	105 55 31	<.2	.06	.7	51	163	<5	41	10.93	1.3
023	38 12 16	105 49 3	.2	.01	.4	46.4	229	<5	5.8	15.06	1.9
024	38 12 12	105 49 15	<.2	.04	.4	43.3	172	<5	15	8.56	1.8
025	38 12 7	105 49 25	<.2	.11	.2	40	146	<5	21	11.39	2.1
026	38 11 59	105 49 35	<.2	.13	.2	40	155	<5	22	11.43	1.5
027	38 11 50	105 49 39	<.2	.06	.2	41.2	120	<5	24	8.95	.7
028	38 11 42	105 49 48	<.2	.13	.2	48.1	145	<5	58	10.44	2.1
029	38 11 34	105 49 57	<.2	.07	.2	39.7	166	<5	37	10.87	4.1
030	38 11 28	105 50 8	<.2	.01	1	50	25	<5	45	1.75	<.5
031	38 11 20	105 50 17	<.2	.09	.2	24.1	170	<5	27	12.66	2
032	38 14 36	105 59 13	<.2	.07	.1	38.2	140	<5	29	11.64	2.4
035	38 13 11	105 57 3	<.2	.06	.9	42.6	116	<5	16	8.84	1.6
037	38 12 35	105 56 33	<.2	.11	.1	76.2	158	<5	42	11.56	5.1
038	38 11 45	105 56 35	<.2	.05	1	48.3	151	<5	22	13.15	1.7
039	38 11 11	105 56 38	.2	.03	.8	63.1	149	<5	41	8.45	2
040	38 11 16	105 56 51	<.2	.04	.2	53.7	189	<5	93	10.22	1
041	38 10 23	105 56 48	<.2	.04	.2	39.2	153	<5	37	9.25	1.7
042	38 7 53	105 59 35	<.2	.1	.6	36.9	145	<5	39	7.64	1.1
043	38 8 6	105 58 11	<.2	.05	.6	45.6	150	<5	50	9.57	1.2
044	38 8 33	105 57 24	.2	.05	.8	54.4	163	<5	68	10.2	2.3
045	38 9 4	105 56 39	<.2	.07	.6	38.6	186	<5	28	13.77	1.6
046	38 7 45	105 54 50	<.2	.06	.4	60.9	192	<5	32	15.48	1.4
047	38 7 48	105 52 54	1.5	.08	.2	70.6	69	<5	47	11.83	.9
048	38 8 10	105 52 54	<.2	.06	.9	59.3	82	<5	87	12.49	1.6
049	38 13 27	105 55 15	.2	.14	2.1	--	161	<5	58	10.82	5.2
050	38 13 26	105 54 22	<.2	.05	.2	56.5	152	<5	30	11.26	2.3
051	38 12 43	105 54 31	.5	.08	.6	63.2	170	<5	55	15.34	4.8
052	38 11 42	105 54 35	1.1	.07	.2	35.8	88	<5	40	8.82	3.9
053	38 8 49	105 52 54	<.2	.06	.3	67.4	84	<5	34	9.94	1.2
054	38 9 6	105 52 53	.6	.09	.2	51.5	112	<5	49	13.54	.7
055	38 9 28	105 52 54	<.2	.08	.5	44.6	88	<5	54	7.59	.7
056	38 9 58	105 52 54	<.2	.07	.5	48.6	129	<5	45	16.24	.6
057	38 11 5	105 52 51	.3	.05	.6	59.2	178	<5	28	13.16	1.1
058	38 11 39	105 52 52	<.2	.04	.3	84.6	211	<5	61	12.78	.9
059	38 12 8	105 52 50	<.2	.14	.6	61.9	146	10	49	10.9	3.9
060	38 12 35	105 52 50	<.2	.15	.8	62.7	142	<5	62	9.15	2.6
061	38 12 36	105 53 22	<.2	.07	<.1	48.4	157	<5	29	11.84	2.6
062	38 13 9	105 53 20	.2	.03	.3	54.6	72	<5	50	7.24	.7
063	38 12 59	105 52 49	<.2	.09	.4	61.5	133	<5	40	12.1	1.8
064	38 13 25	105 52 48	.2	.05	.1	47.2	94	<5	44	7.8	.7

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Ce ppm-n	Co ppm-n	Cr ppm-n	Cs ppm-n	Cu ppm-i	Fe %-i	Hf ppm-n	Hg ppm-n	K %-n	La ppm-n	Li ppm-i
001	.4	.3	.4	<.05	112	.25	<.05	<.05	1.56	.24	4
002	<.1	.3	<.3	<.05	99	.16	<.05	<.05	1.43	.12	3
003	.2	.1	.3	<.05	103	.18	<.05	<.05	1.67	.17	3
004	.4	.3	<.3	<.05	144	.19	<.05	<.05	1.78	.24	1
005	<.1	.4	<.3	<.05	125	.1	<.05	<.05	1.29	.07	3
006	.2	.2	<.3	<.05	106	.1	<.05	<.05	1.45	.12	5
007	.1	<.1	<.3	<.05	118	.15	<.05	<.05	1.66	.09	4
008	.3	.1	<.3	<.05	90	.18	<.05	<.05	1.65	.16	4
009	.3	.3	<.3	<.05	100	.15	<.05	<.05	1.91	.21	3
010	.3	.3	<.3	<.05	97	.13	<.05	<.05	1.64	.15	4
011	.4	.5	<.3	<.05	97	.19	<.05	<.05	1.87	.27	5
012	.5	.4	<.3	<.05	112	.17	<.05	<.05	1.8	.24	3
013	.2	.6	<.3	<.05	97	.13	<.05	<.05	1.4	.12	3
014	.3	.3	<.3	<.05	109	.17	<.05	<.05	1.73	.24	4
015	.3	<.1	<.3	<.05	100	.13	<.05	<.05	1.78	.19	2
017	<.1	.2	<.3	<.05	119	.1	<.05	<.05	2.03	.12	3
018	.4	.3	<.3	<.05	96	.25	<.05	<.05	1.87	.26	3
019	.2	.4	<.3	<.05	111	.2	<.05	<.05	1.41	.16	6
020	.3	.2	<.3	<.05	153	.11	<.05	<.05	1.97	.14	4
021	.1	.2	<.3	<.05	208	.11	<.05	<.05	1.56	.06	6
022	.1	.1	.3	<.05	102	.1	<.05	<.05	1.89	.1	4
023	<.1	<.1	.6	<.05	137	.06	<.05	<.05	1.55	.06	1
024	.2	.2	<.3	<.05	92	.07	<.05	<.05	2.39	.12	2
025	.2	.2	<.3	<.05	114	.2	<.05	<.05	2.15	.2	4
026	.3	.1	<.3	<.05	137	.23	<.05	<.05	1.79	.18	6
027	.2	.2	<.3	<.05	87	.13	<.05	<.05	2.24	.11	2
028	.4	.4	<.3	<.05	127	.23	<.05	.05	2.19	.26	8
029	.2	.2	<.3	<.05	125	.15	<.05	<.05	1.6	.14	4
030	.3	.2	<.3	.05	15	.02	<.05	<.05	1.82	.17	1
031	<.1	.2	<.3	<.05	90	.16	<.05	<.05	1.43	.11	2
032	.3	.3	1.3	<.05	84	.11	.06	<.05	2.07	.19	4
035	.1	<.1	<.3	<.05	71	.11	<.05	<.05	2.08	.1	2
037	.3	.7	.4	<.05	91	.16	<.05	<.05	2.7	.23	2
038	.1	.1	<.3	<.05	94	.12	<.05	<.05	1.81	.1	3
039	<.1	.8	<.3	<.05	116	.07	<.05	<.05	2.22	.09	20
040	.2	1.1	<.3	<.05	112	.06	<.05	<.05	2.25	.1	3
041	<.1	.2	<.3	<.05	105	.1	<.05	<.05	1.92	.08	5
042	.4	.7	<.3	<.05	84	.16	<.05	<.05	2.24	.23	3
043	.2	.2	<.3	<.05	114	.13	<.05	.08	1.75	.11	5
044	<.1	.9	<.3	<.05	113	.1	<.05	<.05	1.85	.1	4
045	.2	.2	<.3	<.05	123	.14	<.05	<.05	1.81	.16	7
046	.3	.1	.4	<.05	119	.14	<.05	<.05	1.47	.17	6
047	<.1	.3	<.3	<.05	174	.14	<.05	<.05	1.56	.11	6
048	<.1	.9	<.3	<.05	122	.14	<.05	<.05	1.54	.09	4
049	1	.5	.8	<.05	106	.17	.07	<.05	3.01	.53	2
050	.2	.3	<.3	<.05	74	.14	<.05	.05	1.81	.1	4
051	.3	.5	<.3	<.05	120	.13	<.05	<.05	2.09	.18	3
052	.2	.5	<.3	<.05	64	.12	<.05	<.05	2.17	.13	2
053	.2	.4	<.3	<.05	146	.12	<.05	<.05	1.57	.08	4
054	.2	.5	<.3	<.05	137	.14	<.05	<.05	1.89	.17	5
055	.3	.5	<.3	.07	112	.14	<.05	<.05	2.07	.14	6
056	.2	.3	<.3	<.05	121	.14	<.05	<.05	1.61	.11	4
057	.1	.1	<.3	<.05	108	.11	<.05	<.05	2.02	.12	7
058	<.1	.7	<.3	<.05	150	.12	<.05	<.05	1.58	.09	5
059	.3	.2	<.3	<.05	137	.37	<.05	<.05	1.96	.13	20
060	.4	.3	.4	<.05	99	.18	.05	.06	2.18	.2	6
061	.2	.3	<.3	<.05	143	.15	<.05	<.05	1.49	.1	7
062	<.1	.3	<.3	<.05	132	.08	<.05	<.05	1.86	.07	5
063	<.1	.1	<.3	<.05	115	.15	<.05	<.05	1.67	.13	4
064	.2	.8	<.3	<.05	85	.1	<.05	<.05	1.97	.09	4

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Lu ppm-n	Mg %-i	Mn ppm-i	Mo ppm-i	Na %-i	Ni ppm-i	P %-i	Pb ppm-i	Rb ppm-n	Sb ppb-n	Sc ppm-n
001	<.001	2.28	761	6	.84	11	1.93	11	3	<5	.04
002	<.001	2.38	868	14	.79	9	2.635	6	5	<5	.02
003	.002	2.72	975	11	.74	14	2.341	2	3	<5	.03
004	<.001	2.53	1,238	8	.91	22	2.388	6	2	<5	.04
005	<.001	2.19	596	8	1.22	11	2.661	2	2	<5	.02
006	<.001	2.62	726	6	1.6	9	1.996	2	2	8	.02
007	<.001	3.09	626	8	.85	7	2.16	10	5	<5	.02
008	<.001	2.95	1,335	6	.56	14	2.699	13	2	6	.03
009	<.001	2.3	833	6	.49	11	2.196	6	3	<5	.03
010	.002	2.29	802	5	.58	8	2.111	4	2	<5	.02
011	<.001	2.83	1,241	4	.62	13	2.053	8	2	<5	.04
012	<.001	2.7	912	4	.49	11	2.402	2	2	7	.03
013	<.001	3.34	912	9	.63	9	2.39	3	1	12	.02
014	<.001	2.76	1,298	9	.6	10	2.539	5	2	<5	.03
015	<.001	2.32	959	7	.49	8	2.058	3	3	9	.03
017	<.001	2.04	1,071	5	.52	7	2.062	4	2	<5	.03
018	.003	2.72	769	14	.58	7	2.413	13	9	9	.05
019	.002	2.58	1,269	8	.91	17	2.254	7	2	14	.03
020	<.001	3	925	4	.71	9	2.349	2	3	<7	.03
021	<.001	3.32	1,025	5	.6	16	2.667	5	2	<5	.01
022	<.001	2.57	1,023	6	.65	13	2.373	12	1	<5	.02
023	<.001	2.05	863	7	.9	11	2.424	2	1	<5	.02
024	.002	1.92	479	3	.63	11	1.946	2	2	16	.03
025	.004	2.2	585	5	.54	16	2.514	2	3	<5	.04
026	.002	2.45	611	5	.81	12	2.341	12	3	<5	.04
027	<.001	2.22	478	4	.57	11	2.283	5	2	7	.03
028	<.001	2.16	762	4	.52	10	1.971	4	2	<5	.05
029	.003	2.5	1,004	5	.75	24	2.135	7	1	<5	.03
030	<.001	.33	123	<2	.08	1	.333	2	2	<5	.04
031	<.001	2.79	1,028	4	.55	14	2.355	6	3	<5	.03
032	<.001	1.69	490	7	.5	9	1.885	2	3	<5	.03
035	<.001	2.52	567	3	.44	20	2.363	5	4	7	.02
037	.003	2.61	1,036	3	.97	12	2.726	9	3	<5	.04
038	<.001	3.33	907	5	.43	9	3.077	6	2	6	.02
039	<.001	2.42	780	8	.31	17	2.771	4	2	<5	.02
040	<.001	2.09	972	8	.43	10	1.81	5	2	<5	.02
041	<.001	2.61	801	4	.35	12	2.089	11	2	<5	.02
042	.004	1.89	700	2	.3	15	2.808	7	2	<5	.04
043	<.001	1.99	940	8	.55	11	2.261	7	1	<5	.02
044	<.001	2.7	1,165	7	.55	20	3.293	8	<1	<5	.02
045	.002	1.95	1,384	8	.49	15	2.423	6	3	<5	.03
046	<.001	2.1	1,161	9	1.76	13	2.183	2	<1	<5	.04
047	<.001	3.23	1,448	6	1.01	11	3.349	6	<1	<5	.02
048	<.001	2.17	1,000	5	.75	9	2.737	9	<1	<5	.02
049	<.001	2.04	973	7	.52	14	2.053	7	2	26	.1
050	<.001	2.57	1,043	6	.7	7	1.935	6	2	<5	.02
051	<.001	2.35	1,032	4	.35	17	2.648	6	2	<5	.03
052	<.001	2	671	<2	.37	7	1.955	2	1	<5	.03
053	<.001	2.48	1,136	8	1.03	12	2.215	5	2	<5	.02
054	.002	3.06	929	6	1.11	9	2.074	3	3	<5	.04
055	<.001	2.44	752	5	.73	6	2.472	6	1	10	.03
056	<.001	2.4	799	12	.88	7	1.936	6	<1	<5	.03
057	<.001	2.55	928	10	1.45	10	2.764	4	2	10	.03
058	<.001	2.6	802	9	1.1	8	2.161	4	<1	<5	.02
059	<.001	3.7	1,380	8	.76	22	2.707	19	2	<5	.03
060	<.001	3.05	689	3	.74	7	2.433	5	3	<5	.05
061	<.001	3.17	1,851	10	1.93	8	2.708	2	2	<5	.02
062	<.001	2.93	710	20	2.65	5	2.836	5	3	<5	.02
063	.002	2.78	706	4	.63	17	2.127	6	2	<5	.03
064	<.001	2.38	413	4	.41	9	2.061	18	2	<5	.02

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Se ppm-n	Sm ppb-n	Sr ppm-i	Th ppm-n	Ti %-i	U ppm-n	V ppm-i	W ppm-n	Yb ppb-n	Zn ppm-i	Ash %
001	<.1	30	945	<.1	.01	<.01	2	<.05	19	297	5.3
002	1	13	711	<.1	.01	<.01	<2	<.05	<5	195	5.8
003	<.1	21	570	<.1	.01	<.01	2	.09	13	340	5.6
004	<.1	26	568	<.1	.01	.05	2	<.05	14	401	4.8
005	.5	8	944	<.1	.01	<.01	<2	<.05	<5	347	5.5
006	<.1	13	1,226	<.1	.01	<.01	<2	<.05	10	300	5
007	<.1	11	530	<.1	.01	<.01	<2	.1	5	494	5.4
008	<.1	19	744	<.1	.01	<.01	2	<.05	13	486	5.3
009	<.1	24	554	<.1	.01	<.01	2	<.05	8	426	5.9
010	<.1	18	502	<.1	.01	<.01	<2	<.05	<5	306	5.8
011	<.1	31	583	<.1	.01	<.01	2	<.05	<5	310	5.7
012	<.1	27	496	<.1	.01	<.01	2	<.05	<5	271	5.3
013	.3	15	421	<.1	.01	<.01	<2	<.05	14	267	5.3
014	<.1	30	517	<.1	.01	<.01	3	.07	<5	429	5.2
015	.1	25	731	<.1	.01	<.01	2	<.05	14	561	5.6
017	.2	14	722	<.1	.01	<.01	<2	<.05	13	431	5.5
018	.5	38	791	<.1	.01	<.01	2	.09	<5	668	6.2
019	<.1	23	598	<.1	.01	<.01	2	<.05	11	605	5
020	<.1	19	682	<.1	.01	<.01	<2	<.05	<5	505	5.4
021	1.1	6	728	<.1	.01	<.01	<2	<.05	<5	597	5.4
022	<.1	11	575	<.1	.01	<.01	<2	.09	13	304	5.4
023	<.1	7	473	<.1	.01	<.01	<2	<.05	<5	535	5.4
024	<.1	16	411	<.1	.01	<.01	<2	.05	6	238	6.3
025	.2	28	509	<.1	.01	<.01	2	<.05	15	320	6.2
026	<.1	24	494	<.1	.01	<.01	2	.08	9	317	5.8
027	<.1	17	365	<.1	.01	<.01	<2	<.05	<5	257	6.8
028	.4	37	564	<.1	.01	<.01	2	<.05	15	260	5.7
029	<.1	19	573	<.1	.01	<.01	<2	.16	<5	406	5.5
030	<.1	24	95	<.1	.01	<.01	<2	.13	15	57	5.5
031	<.1	15	796	<.1	.01	<.01	2	.06	12	522	5.3
032	<.1	23	401	<.1	.01	<.01	<2	<.05	16	263	6.8
035	<.1	13	466	<.1	.01	<.01	<2	<.05	<5	355	6.2
037	.3	32	651	<.1	.01	<.01	2	<.05	<5	508	8.9
038	<.1	11	366	<.1	.01	<.01	<2	<.05	<5	281	6
039	<.1	9	525	<.1	.01	<.01	<2	<.05	<5	311	6.5
040	<.1	12	751	<.1	.01	<.01	<2	<.05	18	277	5.8
041	<.1	8	673	<.1	.01	<.01	<2	<.05	<5	203	5.3
042	<.1	27	398	<.1	.01	<.01	2	<.05	<5	335	5.7
043	<.1	9	490	<.1	.01	.04	<2	.05	<5	199	5.3
044	<.1	9	641	<.1	.01	<.01	<2	<.05	16	486	5.4
045	<.1	18	908	<.1	.01	<.01	2	<.05	<5	263	6.4
046	<.1	21	1,078	<.1	.01	<.01	<2	<.05	17	359	5.3
047	<.1	12	828	<.1	.01	<.01	<2	<.05	<5	440	5.9
048	<.1	9	988	<.1	.01	<.01	<2	<.05	<5	364	5.9
049	<.1	72	446	<.1	.01	<.02	3	<.05	23	427	6.2
050	.3	14	785	<.1	.01	<.01	<2	<.05	9	361	6.1
051	<.1	19	749	<.1	.01	<.01	2	<.05	<5	467	6.3
052	<.1	17	442	<.1	.01	<.01	<2	.05	<5	432	6.6
053	<.1	9	696	<.1	.01	<.01	<2	.06	<5	267	5.6
054	<.1	22	844	<.1	.01	<.01	2	<.05	18	246	5.5
055	<.1	16	519	<.1	.01	<.01	<2	<.05	<5	205	6.9
056	<.1	14	1,158	<.1	.01	<.01	<2	<.05	<5	290	5.6
057	<.1	16	908	<.1	.01	<.01	<2	<.05	<5	326	5.8
058	<.1	10	716	<.1	.01	<.01	<2	<.05	7	207	6
059	.1	14	530	<.1	.01	<.01	<2	<.05	15	301	5.4
060	.1	27	570	<.1	.01	<.01	<2	<.05	<5	349	5.5
061	<.1	12	691	<.1	.01	<.01	<2	<.05	10	656	5
062	<.1	8	442	<.1	.01	<.01	<2	<.05	<5	431	5.3
063	<.1	18	486	<.1	.01	<.01	<2	<.05	12	349	5.5
064	<.1	13	370	<.1	.01	<.01	<2	<.05	<5	224	5.7

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Latitude	Longitude	Ag ppm-i	Al %-i	Au ppb-n	B ppm-n	Ba ppm-i	Bi ppm-i	Br ppm-n	Ca %-i	Cd ppm-i
065	38 13 37	105 52 49	<.2	.07	1.2	41.1	200	<5	21	13.68	1.2
066	38 14 1	105 52 47	<.2	.08	.2	45.1	124	<5	69	10.63	.8
067	38 14 8	105 52 43	<.2	.16	.5	45.3	136	<5	53	9.96	2
068	38 14 45	105 52 40	<.2	.05	.4	51.8	139	<5	20	10.08	1.2
069	38 13 54	105 51 13	.3	.12	.7	45.4	129	<5	34	9.8	2.4
070	38 13 38	105 51 29	<.2	.13	.9	48.1	154	<5	35	10.66	2.9
071	38 13 31	105 51 37	.4	.11	1.2	--	114	<5	42	10.49	2.4
072	38 13 24	105 51 45	<.2	.14	.2	52.6	154	<5	44	11.15	3
073	38 13 17	105 51 52	<.2	.21	.2	45.3	113	<5	110	10.05	.7
074	38 13 15	105 51 54	.3	.12	.2	44.7	159	<5	41	12.31	1.7
075	38 13 4	105 52 7	<.2	.14	.6	86	193	<5	57	11.41	2.2
076	38 12 55	105 52 16	.3	.13	.2	51.4	138	<5	64	6.99	2.2
077	38 12 46	105 52 25	.4	.07	.7	44.9	101	<5	43	10.53	1.8
078	38 8 54	105 55 22	.2	.05	.6	51.5	198	<5	24	14.72	3.1
079	38 8 54	105 55 8	.9	.07	.2	65.7	136	<5	31	12.9	1.7
080	38 8 54	105 54 56	<.2	.16	1	75.1	169	<5	45	11.58	2.5
081	38 8 54	105 54 43	<.2	.13	.6	71.3	146	<5	47	11.7	3.6
082	38 8 53	105 54 27	<.2	.17	.4	61.8	98	<5	42	7.71	1.6
083	38 8 52	105 53 36	.3	.04	.1	56.3	63	<5	69	15.1	1.9
084	38 8 53	105 53 16	<.2	.05	.2	78.5	77	<5	160	17.91	1.9
085	38 7 46	105 51 47	<.2	.1	.6	62.2	139	<5	69	10.4	1.4
086	38 7 43	105 50 43	<.2	.17	.6	50.9	98	<5	180	12.59	.5
087	38 7 56	105 47 21	<.2	.01	.2	62	89	<5	52	7.74	<.5
088	38 8 11	105 49 40	.2	.06	.2	44.2	79	<5	140	11.63	.8
089	38 8 36	105 50 4	.2	.04	.4	59.7	36	<5	110	2.99	<.5
090	38 9 6	105 50 1	<.2	.05	.2	56.6	114	<5	160	14.48	.7
091	38 9 32	105 51 47	<.2	.04	.6	53.8	187	<5	37	11.14	1.1
092	38 9 56	105 51 14	<.2	.1	<.1	53.5	110	<5	130	10.25	<.5
093	38 10 44	105 51 13	.2	.07	<.1	55.6	92	<5	120	8.24	<.5
094	38 10 45	105 50 39	<.2	.04	<.1	63	134	<5	120	11.24	.9
100	38 10 31	105 48 33	<.2	.04	.2	43.3	45	<5	110	6.76	<.5
101	38 10 34	105 48 34	<.2	.08	.3	47.1	91	<5	140	10.53	1
102	38 10 34	105 48 39	<.2	.03	.1	42	90	<5	73	10.36	1.9
103	38 8 37	105 48 51	<.2	.14	.2	51	82	<5	140	10.68	.8
104	38 9 0	105 48 33	<.2	.19	<.1	47.4	62	<5	130	7.99	<.5
105	38 9 56	105 48 30	<.2	.1	.6	53.1	111	<5	76	8.74	1.1
106	38 9 55	105 49 1	<.2	.15	.2	46.6	101	<5	110	9.16	1.3
107	38 10 51	105 48 48	.5	.05	.1	38.4	107	<5	74	7.84	1.2
108	38 10 58	105 49 27	.7	.07	.5	58	114	<5	73	7.72	2
109	38 14 3	105 51 13	.7	.09	.2	46.9	133	<5	60	13.42	3
110	38 14 6	105 51 25	.5	.04	.2	45.8	60	<5	80	8.16	1.9
111	38 14 10	105 51 37	<.2	.04	.1	45.7	53	<5	56	6.88	1.1
112	38 14 18	105 51 48	<.2	.08	.2	35	61	<5	65	7.7	1.3
113	38 14 22	105 51 59	<.2	.11	.3	--	40	<5	110	7.93	<.5
114	38 14 24	105 52 14	<.2	.15	.1	52.6	90	<5	49	8.1	1.8
115	38 14 30	105 52 24	<.2	.07	.9	49.8	110	<5	77	12.58	1.3
116	38 14 38	105 52 28	<.2	.04	.5	47.7	103	<5	16	9.45	1.6
117	38 14 43	105 56 44	<.2	.09	.2	43.1	65	<5	49	9.85	<.5
118	38 14 27	105 56 17	.2	.05	.2	53.6	113	<5	50	10.47	4.1
119	38 14 8	105 55 59	.5	.06	.1	34.5	113	<5	59	12.84	4.5
120	38 13 54	105 55 55	<.2	.1	.2	46.1	112	<5	71	8.84	1.9
121	38 13 32	105 55 53	.2	.1	.1	27.4	95	<5	36	7.72	4.5
122	38 13 2	105 55 49	<.2	.1	.5	41.2	102	<5	53	8.88	1.2
123	38 12 36	105 55 47	<.2	.07	.2	28.9	91	<5	26	8.99	1.3
124	38 12 10	105 55 43	.9	.05	.2	51.8	102	<5	46	8.82	3.9
125	38 11 44	105 55 41	<.2	.05	.9	64.6	67	<5	65	6.07	.9
126	38 10 51	105 55 34	<.2	.03	<.1	59.8	139	<5	60	10.53	.9
127	38 10 28	105 55 31	<.2	.05	.2	55	124	<5	48	9.9	1
128	38 9 59	105 55 41	.4	.05	.2	48.8	136	<5	53	10.57	1.4
129	38 9 31	105 55 25	<.2	.03	.8	67.7	112	<5	78	10.34	2.3

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Ce ppm-n	Co ppm-n	Cr ppm-n	Cs ppm-n	Cu ppm-i	Fe %-i	Hf ppm-n	Hg ppm-n	K %-n	La ppm-n	Li ppm-i
065	<.1	.2	<.3	<.05	101	.12	<.05	<.05	1.48	.09	5
066	.2	.4	<.3	<.05	106	.13	<.05	<.05	1.89	.15	5
067	.3	.3	.3	<.05	92	.2	<.05	<.05	2.04	.25	5
068	.1	<.1	<.3	<.05	88	.1	<.05	<.05	1.8	.08	3
069	.3	.1	<.3	<.05	136	.17	<.05	<.05	1.96	.17	4
070	.3	.5	<.3	<.05	146	.19	<.05	<.05	1.88	.21	6
071	.5	.3	.6	<.05	114	.13	.08	<.05	2.68	.33	5
072	.3	.7	<.3	<.05	142	.18	<.05	<.05	1.55	.2	4
073	.6	1	<.3	<.05	109	.27	.06	<.05	2.12	.35	7
074	.4	.4	<.3	<.05	104	.15	<.05	<.05	2.31	.26	2
075	.2	.3	.3	<.05	122	.24	<.05	.11	2.43	.2	6
076	.3	.4	<.3	<.05	102	.19	<.05	<.05	2.08	.19	5
077	.1	.3	1	<.05	50	.12	.05	<.05	1.96	.15	4
078	.2	.1	<.3	<.05	100	.11	<.05	<.05	1.7	.12	8
079	<.1	.2	<.3	<.05	96	.14	<.05	<.05	1.63	.11	6
080	.5	.3	<.3	<.05	117	.22	<.05	<.05	1.64	.23	11
081	.3	.6	<.3	<.05	100	.21	<.05	<.05	1.92	.2	10
082	.4	.8	<.3	<.05	62	.23	<.05	<.05	1.93	.27	8
083	<.1	.7	.6	<.05	139	.09	<.05	<.05	2.08	.12	3
084	<.1	.8	<.3	<.05	209	.16	<.05	.1	1.43	.09	2
085	<.1	.8	.6	<.05	142	.19	.12	<.05	1.52	.13	5
086	.6	.9	.5	.06	110	.27	.06	<.05	3.4	.46	4
087	<.1	.2	<.3	<.05	95	.07	<.05	<.05	2.46	.06	2
088	.1	.8	<.3	<.05	101	.12	<.05	<.05	1.42	.09	2
089	<.1	.6	<.3	<.05	22	.07	<.05	<.05	1.99	.13	2
090	.2	1	<.3	<.05	97	.12	<.05	<.05	1.87	.1	2
091	.2	.3	<.3	<.05	133	.11	<.05	<.05	1.39	.06	3
092	.4	1.4	<.3	<.05	96	.16	<.05	<.05	2.17	.21	2
093	<.1	.6	<.3	.06	83	.11	<.05	<.05	2.05	.16	2
094	<.1	.6	<.3	<.05	88	.11	<.05	<.05	2.11	.1	2
100	<.1	.9	<.3	<.05	90	.09	<.05	<.05	2.76	.13	1
101	.2	.6	<.3	<.05	105	.15	<.05	<.06	2.35	.14	2
102	<.1	.3	<.3	<.05	199	.11	<.05	<.05	2.01	.08	3
103	.3	.9	.4	<.05	89	.26	<.05	.05	2.25	.27	6
104	1	.3	.8	<.05	79	.28	.14	<.05	2.64	.67	3
105	.3	.4	<.3	<.05	94	.16	.09	<.05	2.25	.23	1
106	.5	.6	<.3	.09	88	.22	.05	<.05	2.21	.24	2
107	.1	1.4	.3	<.05	97	.11	<.05	<.05	2.36	.14	1
108	<.1	.7	<.3	<.05	97	.12	.06	<.05	2.25	.19	2
109	.1	.6	<.3	<.05	103	.15	<.05	<.05	1.4	.1	4
110	.1	1.5	<.3	<.05	130	.07	<.05	<.05	1.84	.08	2
111	.1	.8	<.3	<.05	134	.07	<.05	<.05	2.26	.08	3
112	<.1	.4	<.3	<.05	149	.11	<.05	<.05	2.14	.12	6
113	.4	1.4	<.3	<.05	101	.13	.06	<.05	2.67	.29	2
114	.3	.3	<.3	<.05	112	.19	<.05	<.05	2.41	.22	3
115	.2	.4	<.3	<.05	97	.12	<.05	<.05	1.86	.11	3
116	<.1	.2	<.3	<.05	118	.1	<.05	<.05	2.05	.08	3
117	.2	.5	<.3	<.05	59	.12	<.05	<.05	2.32	.15	1
118	.2	.4	.4	<.05	68	.06	<.05	<.05	2.15	.13	1
119	.2	.7	<.3	<.05	53	.11	<.05	<.05	2.69	.2	3
120	.2	.8	.6	<.05	61	.14	<.05	<.05	2.09	.17	3
121	.3	.2	<.3	<.05	63	.15	<.05	<.05	2.08	.2	3
122	.3	.3	.3	<.05	54	.15	<.05	<.05	2.3	.2	3
123	.1	.2	<.3	<.05	59	.12	<.05	<.05	.265	.05	2
124	<.1	.7	<.3	<.05	52	.09	<.05	<.05	2.23	.11	2
125	.3	.7	.3	<.05	24	.07	<.05	<.05	2.1	.19	2
126	<.1	.6	<.3	<.05	85	.07	<.05	<.05	1.94	.08	4
127	<.1	.4	<.3	<.05	79	.12	<.05	<.05	1.71	.09	5
128	.2	.5	<.3	<.05	71	.1	<.05	<.05	1.94	.13	3
129	.1	.6	<.3	<.05	84	.09	<.05	<.05	2.5	.11	9

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Lu ppm-n	Mg %-i	Mn ppm-i	Mo ppm-i	Na %-i	Ni ppm-i	P %-i	Pb ppm-i	Rb ppm-n	Sb ppb-n	Sc ppm-n
065	<.001	3.09	813	6	.41	12	2.378	10	2	<5	.02
066	<.001	2.15	768	5	.44	13	2.236	8	2	<5	.03
067	.003	2.27	503	4	.47	11	2.033	11	2	<5	.05
068	<.001	2.7	570	8	.78	5	2.267	7	<1	6	.02
069	.003	2.49	887	4	.44	17	2.922	14	2	<5	.03
070	<.001	2.63	1,145	6	.73	23	2.431	7	<1	<5	.05
071	<.001	2.61	754	3	.58	15	1.847	3	3	15	.07
072	<.001	2.49	983	6	.73	18	1.929	4	1	10	.04
073	.004	2.43	878	3	.35	12	2.054	5	3	<5	.07
074	<.001	2.83	714	3	.47	11	1.879	2	2	10	.05
075	.003	3.05	835	8	.71	15	2.6	2	3	<5	.04
076	.002	2.24	510	5	.36	9	1.804	5	2	<5	.04
077	<.001	2.22	607	3	.43	7	1.768	2	2	<5	.03
078	<.001	2.62	1,424	8	.93	13	1.936	2	3	<5	.03
079	<.001	3.48	1,013	6	.66	11	2.506	5	<1	<5	.02
080	<.001	2.71	1,617	7	.65	10	2.467	2	2	10	.04
081	<.001	2.75	1,598	11	.44	11	2.519	14	<1	<5	.04
082	.004	2.08	734	3	.24	9	2.427	8	1	<5	.04
083	<.001	2.95	478	9	.56	6	2.193	3	<1	<5	.03
084	<.001	2.74	452	6	.58	12	3.157	4	1	<5	.02
085	<.001	3	869	5	.87	13	2.511	6	2	<5	.03
086	.009	3.2	1,003	5	.33	11	2.691	8	13	<5	.09
087	<.001	2.28	499	3	.46	6	2.757	2	<1	8	.01
088	<.001	2.97	758	6	.42	9	2.369	6	2	<5	.02
089	<.001	.74	235	<2	.09	4	.899	2	3	<5	.04
090	<.001	3.04	1,280	5	.69	5	2.141	2	3	<5	.02
091	<.001	2.35	751	15	.94	9	2.854	4	<1	<5	.02
092	<.001	2.03	625	6	.25	10	2.182	2	2	<5	.05
093	<.001	1.75	444	4	.23	8	2.125	5	2	<5	.03
094	<.001	2.35	797	7	.42	11	2.372	6	3	<5	.02
100	<.001	2.18	286	11	.55	17	3.276	4	4	7	.03
101	<.001	3.35	569	19	.5	10	2.425	7	6	11	.02
102	<.001	3.24	586	12	1.16	12	1.888	3	4	<5	.02
103	<.001	3.3	917	5	.42	9	2.459	12	5	<5	.05
104	<.001	1.96	594	2	.12	8	1.887	2	5	19	.13
105	.003	2.2	515	3	.27	14	2.471	2	4	<5	.04
106	<.001	1.87	825	2	.32	16	2.252	9	4	<5	.05
107	.003	1.98	394	3	.22	11	2.463	4	4	<5	.03
108	<.001	1.93	759	3	.3	14	2.265	5	2	<5	.03
109	<.001	2.99	992	7	.48	12	2.371	6	4	<5	.03
110	<.001	2.47	522	<2	.38	16	2.246	2	6	<5	.02
111	<.001	2.11	413	2	.59	10	2.142	2	3	<5	.02
112	<.001	2.36	383	2	.55	10	2.509	5	3	<5	.03
113	<.001	2.78	789	2	.19	15	2.097	10	7	<5	.08
114	.003	2.06	574	3	.21	15	2.298	8	4	<5	.04
115	<.001	2.86	941	5	.52	9	2.111	2	2	<5	.02
116	<.001	2.65	1,031	8	.43	11	2.84	7	3	<5	.02
117	<.001	2.3	438	5	.35	4	2.249	6	9	<5	.03
118	<.001	1.72	1,035	2	.32	14	1.99	3	4	27	.03
119	<.001	1.92	875	3	.43	11	1.942	5	2	<5	.04
120	<.001	2.04	1,033	2	.3	17	2.169	9	3	<5	.03
121	.002	1.82	704	2	.59	11	1.461	4	4	<5	.03
122	<.001	1.84	862	5	.38	15	2.086	3	2	8	.04
123	<.001	2.11	653	3	.33	19	2.178	5	3	<5	.02
124	<.001	2.04	800	3	.34	11	1.881	4	3	10	.03
125	<.001	1.43	394	2	.27	3	1.083	2	5	<5	.04
126	<.001	2.59	1,264	4	.54	12	2.127	8	2	<5	.02
127	<.001	2.66	1,160	5	.41	12	2.418	10	<1	<5	.02
128	<.001	2.84	978	4	.45	8	1.868	2	2	10	.02
129	.002	2.47	849	4	.39	9	2.253	2	2	<5	.02

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Se ppm-n	Sm ppb-n	Sr ppm-i	Th ppm-n	Ti %-i	U ppm-n	V ppm-i	W ppm-n	Yb ppb-n	Zn ppm-i	Ash %
065	<.1	12	442	<.1	.01	<.01	<2	.06	<5	367	5.1
066	<.1	20	637	<.1	.01	<.01	<2	<.05	<5	295	5.7
067	.3	31	316	<.1	.01	<.01	3	<.05	16	405	6
068	<.1	9	478	<.1	.01	<.01	<2	.06	<5	408	5.6
069	<.1	20	354	<.1	.01	<.01	2	<.05	12	478	6.1
070	.4	27	492	<.1	.01	<.01	2	<.05	<5	443	5.5
071	<.1	43	539	<.1	.01	<.01	2	<.05	24	259	5.8
072	<.1	30	667	<.1	.01	<.01	2	<.05	20	351	5.5
073	<.1	47	422	<.1	.01	<.01	3	<.05	23	247	6
074	<.1	32	521	<.1	.01	.04	2	<.05	11	248	5.8
075	<.1	28	586	<.1	.01	<.01	<2	<.05	14	298	7.1
076	<.1	26	504	<.1	.01	<.01	2	<.05	<5	302	5.7
077	<.1	16	291	<.1	.01	.06	2	<.05	<5	206	5.6
078	<.1	15	858	<.1	.01	<.01	<2	.11	<5	276	5.2
079	<.1	12	554	<.1	.01	<.01	<2	<.05	<5	248	5.6
080	<.1	27	1,000	<.1	.01	<.01	3	<.05	<5	306	5.4
081	<.1	23	719	<.1	.01	<.01	<2	<.05	<5	528	5.6
082	<.1	30	442	<.1	.01	<.01	3	<.05	<5	263	5.8
083	<.1	11	873	<.1	.01	<.01	<2	<.05	21	623	6.3
084	<.1	7	1,443	<.1	.01	.07	<2	<.05	<5	446	6.1
085	<.1	15	637	<.1	.01	<.01	<2	<.05	<5	258	6.4
086	1.7	64	636	.1	.01	<.02	3	<.09	<6	172	6.4
087	<.1	6	414	<.1	.01	<.01	<2	<.05	<5	173	6.5
088	<.1	9	552	<.1	.01	<.01	<2	<.05	<5	223	6
089	<.1	15	192	<.1	.01	<.01	<2	<.05	<5	56	5.6
090	<.1	13	747	<.1	.01	<.02	<2	<.06	<5	202	6.1
091	<.1	8	829	<.1	.01	<.01	<2	<.05	<5	341	5.1
092	<.1	26	549	<.1	.01	<.02	2	<.05	<5	163	6.3
093	<.1	19	458	<.1	.01	<.02	2	<.05	<5	182	5.8
094	<.1	10	639	<.1	.01	<.02	<2	.14	<5	275	6.6
100	<.1	11	492	<.1	.01	<.01	<2	<.05	<5	207	8.2
101	.6	17	592	<.1	.01	<.01	<2	<.05	<7	227	7.4
102	.4	9	1,028	<.1	.01	<.01	<2	<.05	<5	285	6.3
103	.2	34	526	<.1	.01	<.02	2	<.05	<5	188	6.3
104	<.1	92	348	.1	.01	<.02	3	<.05	35	180	8
105	.4	30	448	<.1	.01	<.01	3	<.05	<5	235	6.8
106	.2	35	324	<.1	.01	<.02	4	<.05	<5	204	6.9
107	<.1	20	266	<.1	.01	<.01	<2	<.05	<5	253	5.5
108	<.1	20	416	<.1	.01	.06	<2	<.05	<5	235	6.2
109	.1	16	527	<.1	.01	<.01	<2	<.05	<5	304	5.3
110	<.1	11	298	<.1	.01	<.01	<2	<.05	<5	211	5.8
111	.3	10	240	<.1	.01	<.01	<2	<.05	<5	300	6.2
112	<.1	14	322	<.1	.01	<.01	<2	<.05	<5	331	6.1
113	<.1	37	242	<.1	.01	<.02	2	<.05	<6	216	6.6
114	<.1	32	258	<.1	.01	<.01	2	<.05	<5	257	6.5
115	.4	12	352	<.1	.01	<.01	<2	<.05	<5	295	6.3
116	.4	10	259	<.1	.01	<.01	<2	<.05	<5	655	6.1
117	<.1	17	425	<.1	.01	<.01	<2	<.05	<5	396	7.2
118	<.1	14	371	<.1	.01	<.01	<2	<.05	<5	332	6.4
119	<.1	21	477	<.1	.01	<.01	<2	<.05	18	316	6.4
120	.2	20	466	<.1	.01	<.01	2	<.05	<5	475	5.9
121	<.1	26	431	<.1	.01	<.01	2	<.05	<5	342	6.4
122	.5	28	497	<.1	.01	<.01	2	<.05	<5	412	6.5
123	<.1	6	442	<.1	.01	<.01	<2	<.05	<5	459	7
124	<.1	14	420	<.1	.01	<.01	<2	<.05	<5	251	7.1
125	<.1	22	263	<.1	.01	<.01	<2	<.05	16	107	6.3
126	<.1	7	460	<.1	.01	<.01	<2	<.05	<5	305	5.9
127	<.1	10	439	<.1	.01	<.01	<2	.06	<5	378	5.6
128	<.1	18	744	<.1	.01	<.01	<2	<.05	<5	171	6.5
129	<.1	13	559	<.1	.01	<.01	<2	<.05	<5	293	6.3

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Latitude	Longitude	Ag ppm-i	Al %-i	Au ppb-n	B ppm-n	Ba ppm-i	Bi ppm-i	Br ppm-n	Ca %-i	Cd ppm-i
130	38 9 4	105 55 22	<.2	.04	.2	51.8	128	<5	25	11.23	.7
131	38 8 37	105 55 21	.2	.04	.6	44.4	124	<5	42	11.65	2.6
132	38 10 47	105 49 35	<.2	.06	.7	51.2	112	<5	120	8.35	.7
133	38 10 38	105 49 43	<.2	.03	.2	58.6	162	<5	73	11.91	1.1
134	38 10 29	105 49 50	<.2	.05	.2	49	172	<5	160	10.15	.8
135	38 11 3	105 49 20	<.2	.11	1.5	--	168	<5	68	11.19	1.8
136	38 11 10	105 49 15	<.2	.18	1.1	54.9	112	<5	58	9.16	1.3
137	38 11 18	105 49 10	<.2	.06	.1	47.3	152	<5	29	13.58	.8
138	38 12 2	105 50 37	<.2	.06	.1	56.4	93	<5	98	10.22	1
139	38 12 34	105 51 47	.7	.06	.2	48.4	99	<5	71	9.76	1.9
140	38 13 14	105 51 47	<.2	.05	.6	56.3	85	<5	84	6.08	.8
141	38 13 22	105 52 7	<.2	.04	.9	41.8	85	<5	47	8.72	<.5
142	38 13 37	105 50 16	.2	.05	.3	51.5	135	<5	16	8.79	3
143	38 13 42	105 50 4	<.2	.03	.2	48.8	113	<5	19	8.69	1.6
144	38 13 48	105 49 51	<.2	.05	.4	50.6	100	<5	13	11.9	1.2
145	38 13 52	105 49 41	<.2	.01	.3	47	181	<5	19	10.72	2.6
146	38 12 42	105 49 22	<.2	.02	.4	49.8	155	<5	25	12.23	1.6
147	38 12 50	105 49 17	<.2	.01	.6	59.3	133	<5	23	12.13	.6
148	38 12 55	105 49 13	<.2	.04	.7	53.3	458	<5	33	11.71	1.2

Sample	Ce ppm-n	Co ppm-n	Cr ppm-n	Cs ppm-n	Cu ppm-i	Fe %-i	Hf ppm-n	Hg ppm-n	K %-n	La ppm-n	Li ppm-i
130	.1	.2	<.3	<.05	97	.09	<.05	<.05	.256	.04	7
131	.2	.3	<.3	<.05	115	.09	<.05	<.05	1.91	.08	8
132	<.1	1.2	<.3	<.05	119	.1	<.05	<.05	2.28	.14	1
133	.2	.6	<.3	<.05	83	.08	<.05	<.05	2.28	.11	2
134	.2	1.2	<.3	<.05	75	.13	<.05	<.05	2.35	.14	4
135	.4	1	.6	<.05	121	.17	<.05	<.05	2.61	.38	4
136	.4	.4	<.3	.06	105	.25	<.05	<.05	2.03	.29	3
137	.1	.1	.3	<.05	124	.09	<.05	<.05	1.94	.14	1
138	.2	1.2	.4	<.05	130	.11	<.05	<.05	2.82	.16	2
139	.2	1.2	.4	<.05	89	.09	<.05	<.05	2.1	.1	4
140	<.1	.9	<.3	<.05	94	.07	<.05	<.05	2.29	.11	2
141	.2	.3	<.3	<.05	99	.07	<.05	<.05	2.61	.09	3
142	.2	.3	<.3	<.05	109	.1	.05	<.05	2.13	.1	3
143	.1	<.1	<.3	<.05	88	.07	<.05	<.05	2.46	.07	2
144	.1	<.1	<.3	<.05	71	.08	<.05	<.05	2.03	.08	3
145	<.1	.1	<.3	<.05	115	.09	<.05	<.05	2.16	.06	4
146	<.1	.2	<.3	<.05	101	.09	<.05	<.05	1.87	.07	3
147	<.1	<.1	<.3	<.05	67	.04	<.05	<.05	2.44	.07	2
148	<.1	.1	<.3	<.05	132	.11	<.05	<.05	1.83	.1	4

Table 3. Results of analyses of rabbitbrush (*Chrysothamnus spp.*) samples from the northern San Luis Valley, Colorado--Continued

Sample	Lu ppm-n	Mg %-i	Mn ppm-i	Mo ppm-i	Na %-i	Ni ppm-i	P %-i	Pb ppm-i	Rb ppm-n	Sb ppb-n	Sc ppm-n
130	<.001	3.51	752	4	.44	8	2.443	6	2	<5	.02
131	<.001	2.9	1,080	7	.61	13	2.891	5	2	<5	.02
132	<.001	2	852	8	.35	18	2.587	4	2	<5	.02
133	<.001	2.07	937	12	.56	13	2.176	3	4	<5	.03
134	<.001	2.87	699	4	.37	10	1.866	61	3	<5	.03
135	<.001	2.46	802	4	.48	17	2.158	11	4	<5	.09
136	.005	2.01	643	4	.44	15	2.098	8	1	<5	.05
137	<.001	2.99	1,013	7	.74	13	2.904	6	2	<5	.03
138	<.001	2.83	735	5	.51	13	2.057	6	2	<5	.03
139	<.001	2.35	773	3	.51	9	2.058	3	3	9	.02
140	<.001	2.63	484	2	.38	9	1.986	8	1	<5	.02
141	<.001	2.68	614	5	.41	15	2.012	10	3	12	.02
142	<.001	2.37	489	3	.54	13	2.196	12	4	<5	.02
143	<.001	2.23	265	4	.66	3	1.848	2	1	<5	.02
144	<.001	2.77	439	5	.79	6	1.979	5	2	6	.02
145	<.001	2.35	713	10	.89	14	2.403	11	3	<5	.02
146	<.001	2.98	688	7	.82	18	2.78	7	<1	<5	.01
147	<.001	2.25	467	8	.55	15	1.936	2	2	<5	.02
148	<.001	2.46	737	3	1.05	14	2.183	6	1	<5	.02

Sample	Se ppm-n	Sm ppb-n	Sr ppm-i	Th ppm-n	Ti %-i	U ppm-n	V ppm-i	W ppm-n	Yb ppb-n	Zn ppm-i	Ash %
130	<.1	6	659	<.1	.01	<.01	<2	<.05	<5	229	6.2
131	<.1	10	666	<.1	.01	<.01	<2	<.05	<5	287	6
132	<.1	14	385	<.1	.01	<.01	<2	<.05	<5	299	6.1
133	<.1	11	626	<.1	.01	<.01	<2	<.05	<5	311	6.4
134	.7	15	689	<.1	.01	<.01	<2	<.05	<5	170	6.8
135	<.1	47	555	<.1	.01	<.02	2	<.05	<6	280	6.5
136	<.1	36	357	<.1	.01	<.01	3	<.05	18	222	6.5
137	<.1	18	470	<.1	.01	<.01	<2	<.05	<5	533	5.7
138	<.1	17	308	<.1	.01	<.01	<2	<.05	<5	299	6.8
139	<.1	14	329	<.1	.01	<.01	<2	<.05	<5	341	6.5
140	<.1	12	290	<.1	.01	<.01	<2	<.05	<5	219	6
141	<.1	12	350	<.1	.01	<.01	<2	<.05	<5	214	6.5
142	<.1	14	365	<.1	.01	<.01	<2	.08	8	323	6.5
143	.1	10	292	<.1	.01	<.01	<2	<.05	5	231	6.9
144	<.1	10	304	<.1	.01	<.01	<2	<.05	<5	193	6.7
145	<.1	6	434	<.1	.01	<.01	<2	.08	<5	423	6.5
146	<.1	7	410	<.1	.01	<.01	<2	<.05	<5	331	6.4
147	<.1	7	315	<.1	.01	<.01	<2	<.05	<5	225	7.4
148	.3	11	498	<.1	.01	<.01	<2	<.05	10	357	6.4