UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Analytical results and sample locality map of stream-sediment, panned-concentrate, and rock samples from the Fossil Ridge Wilderness Study Area, Gunnison County, Colorado

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STUDIES RELATED TO WILDERNESS

The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey and the U.S. Bureau of Mines to survey certain areas on Federal lands to determine their mineral resource potential. Results must be made available to the public and be submitted to the President and the Congress. This report presents the results of a geochemical survey of the Fossil Ridge Wilderness Study Area in the Gunnison County, Colorado. The Fossil Ridge Wilderness Study Area was classified as a further planning area during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

INTRODUCTION

In July, 1982 we conducted a reconnaissance geochemical survey of the Fossil Ridge Wilderness Study Area, Gunnison County, Colorado. Access to the vicinity of the study area is provided by highways and roads along Taylor River, Quartz Creek, Gold Creek, and Halls Gulch. Access to the Fossil Ridge Wilderness Study Area was provided mainly by helicopter.

Elevations in the area sampled range from about 8,400 feet to over 13,000 feet. The topography is rugged; much of the area was affected by alpine glaciation. Most of the area sampled is underlain by Proterozoic granitic and metamorphic rocks. Paleozoic sedimentary rocks overlie the earlier crystalline rocks in some areas. Numerous small Tertiary intrusions cut the Proterozoic and Paleozoic rocks (DeWitt and others, 1983).

METHODS OF STUDY

Sample Collection

We collected samples at 192 sites (plate 1). We analyzed 130 stream-sediment samples, 66 panned-concentrate samples, and 66 rock samples.

Stream-sediment samples

Analyses of the stream-sediment samples represent the chemistry of the rock material eroded from the drainage basin upstream from each sample site. Such information is useful in identifying those basins which contain concentrations of elements that may be related to mineral deposits.

The stream-sediment samples consisted of active alluvium collected primarily from first-order (unbranched) and second-order (below the junction of two first-order) streams as shown on USGS topographic maps (scale = 1:24,000). Some sediment samples were taken from dry stream channels. One sample (FR099) was collected from an abandoned channel that had begun to develop soil horizons.

Panned-concentrate samples

We panned concentrate samples from the same active alluvium as the stream-sediment samples. Panned-concentrate samples were usually panned on site. When no water was available, the sample was bagged and panned later.

Rock samples

We collected rock samples from outcrops or exposures in the vicinity of the plotted site location. Most samples were collected from unweathered exposures along ridges and from mineralized outcrops and mine workings. Table 2A contains descriptions of the rock samples from the study area.

Sample Preparation

Stream sediments were sieved for the minus-80-mesh fraction. A small number of the panned concentrates were subjected to a mineral separation scheme in which the nonmagnetic heavy fraction was retained for analysis. Most of the panned concentrates were analyzed without any further preconcentration. The entire panned concentrate was leached for Au. Rock samples were crushed, and a split was pulverized to minus-200 mesh.

Sample Analysis

Spectrographic method

We analyzed the stream-sediment, panned-concentrate, and rock samples for 31 elements using a semiquantitative, direct-current arc emission spectrographic method (Grimes and Marranzino, 1968). The elements analyzed and their limits of determination are listed in Table 1. Spectrographic results were obtained by visual comparison of spectra derived from the sample against spectra obtained from standards made from pure oxides and carbonates. Standard concentrations are geometrically spaced over any given order of magnitude of concentration as follows: 100, 50, 20, 10, and so forth. Samples whose concentrations are estimated to fall between those values are assigned values of 70, 30, 15, and so forth. The precision of the analytical method is approximately plus or minus one reporting unit at the 83 percent confidence level and plus or minus two reporting units at the 96 percent confidence level (Motooka and Grimes, 1976). Values determined for the major elements (iron, magnesium, calcium, and titanium) are given in weight percent; all others are given in parts per million (micrograms/gram).

TABLE 1.--List of analytical determination limits for all Fossil Ridge Wilderness Study Area samples

[Values shown are in parts per million unless designated otherwise. The spectrographic limits of determination for heavy-mineral-concentrate samples are two reporting units higher than the limits given for rocks and stream sediments.]

Elements	Lower determination limit	Upper determination limit
Spectrographic analysis		
Iron (Fe)	0.05%	20%
Magnesium (Mg)	.02%	10%
Calcium (Ca)	.05%	20%
Titanium (Ti)	.002%	1%
Manganese (Mn)	10	5,000
Silver (Ag)	0.5	5,000
Arsenic (As)	200	10,000
Gold (Au)	10	500
Boron (B)	10	2,000
Barium (Ba)	20	5,000
Beryllium (Be)	1	1,000
Bismuth (Bi)	10	1,000
Cadmium (Cd)	20	500
Cobalt (Co)	5	2,000
Chromium (Cr)	10	5,000
Copper (Cu)	5	20,000
Lanthanum (La)	20	1,000
Molybdenum (Mo)	5	2,000
Niobium (Nb)	20	2,000
Nickel (Ni)	5	5,000
Lead (Pb)	10	20,000
Antimony (Sb)	100	10,000
Scandium (Sc)	5	100
Tin (Sn)	10	1,000
Strontium (Sr)	100	5,000
Vanadium (V)	10	10,000
Tungsten (W)	50	10,000
Yttrium (Y)	10	2,000
Zinc (Zn)	200	10,000
Zirconium (Zr)	10	1,000
Thorium (Th)	100	2,000
Atomic Absorption analysis		
Gold (Au)	0.05	
Arsenic (As)	5	
Zinc (Zn)	1	
Cadmium (Cd)	0.1	
Bismuth (Bi)	1	
Antimony (Sb)	2	

Chemical methods

All panned concentrates and other selected samples were analyzed for gold by an atomic absorption spectrophotometric procedure (Thompson and others, 1968). Sieved stream-sediment samples were also analyzed by a cold, reducing, acid leach, followed by organic extraction and atomic absorption spectrophotometric determination of Zn, Cd, As, Sb, and Bi (Viets and others, in press). Pulverized rock samples were subjected to a potassium pyrosulfate fusion and organic extraction (modified from Viets, 1978). These organic extracts were also analyzed for Zn, Cd, As, Sb, and Bi by flame atomic absorption. Determination limits for the various analytical methods are listed in table 1. Uranium was not included in this study because of the recent work performed in the area by the Department of Energy (Broxton and others, 1979; Bolivar and others, 1981; Goodnight and Ludlam, 1981; Maasen, 1981). Geochemical interpretations of the data in this report are provided by Clark and Adrian (1984).

ROCK ANALYSIS STORAGE SYSTEM

Upon completion of all analytical work, the analytical results were entered into a computer data base called RASS (Rock Analysis Storage System). This RASS data base contains both descriptive geological information and analytical data. Any or all of this information may be retrieved and converted to a binary form (STATPAC) for computerized statistical analysis or publication (VanTrump and Miesch, 1976).

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Table 2A.--Descriptions of rock samples from the Fossil Ridge Wilderness Study Area, Gunnison County, Colorado

FR009R--mafic schist (meta volcanic).
FR012R--altered meta granite.
FR013R--altered monzonite with veins.
FR044R--granite.
FR045R--quartzite.
FR046R--granodiorite porphyry.
FR047R--mafic schist (meta volcanic).
FR048R--quartzite.
FR049R--altered granite.
FR050R--red granite with faint limonite stain.
FR051R--lightly altered red granite with limonite stain.
FR052R--altered pegmatitic phase of red granite with minor sulfides and limonite stain.
FR053R--red granite pegmatite with limonite stain.
FR054R--red granite pegmatite.
FR055R--granitic pegmatite with limonite stain.
FR056R--sandstone
FR057R--granite pegmatite.
FR058R--altered granite with limonite stain.
FR059R--altered diorite with limonite stain.
FR060R--sandstone with limonite stain.
FR061R--carbonate sedimentary rock with small veins.
FR062R--quartzite.
FR063R--carbonate sedimentary rock with veins and drusy quartz.
FR064R--massive goethite from above Wahl mine.
FR065A--composite sample from Gold Bug mine dump.
FR065B--composite sample from mine dump.
FR065R--limonite stained grab sample.
FR066R--altered granodiorite with limonite stain.
FR067R--from vein cutting altered granite gneiss.
FR068R--quartz vein.
FR069R--red granite.
FR070R--biotite granite.
FR071R--silicified granite.
FR072R--silicified carbonate sedimentary rock.
FR073R--altered granite.
FR074R--vein quartz with vugs.
FR075R--quartz diorite.
FR076R--altered quartz diorite with limonite stain.
FR132R--vein quartz cobble from stream.
FR144R--silicified limestone near mine adit.
FR145R--carbonate sedimentary rock.
FR146R--coarsely-crystalline mafic metamorphic rock.
FR147R--coarsely-crystalline mafic metamorphic rock with quartz vein.
FR148R--gneiss with granite pegmatite.
FR149R--coarsely-crystalline mafic metamorphic rock.
FR150R--brecciated carbonate sedimentary rock.
FR151R--carbonate sedimentary rock.
FR152R--reddish granite with limonite stain.
FR153R--granitic pegmatite.
FR154R--red granitic pegmatite.
FR155R--red granite.
FR156R--carbonate sedimentary rock.
FR157R--very dark, non-porphyritic, andesite.
FR158R--limonite stained edge of andesite plug.
FR159R--silicified limestone next to andesite plug.
FR160R--carbonate sedimentary rock.
FR161R--lightly altered carbonate sedimentary rock.
FR162R--reddish granite, very lightly altered.
FR163R--mafic schist.
FR164R--mafic schist.
FR165R--mafic schist.
FR166R--vein quartz cutting granitic pegmatite.
FR176R--composite sample from Fairview mine dump.
FR177R--composite sample from around Cleopatra mine shaft.
FR178R--MnO_2-coated sandstone.
FR179R--composite sample from Clifton claim.

Table 2B.--Analytical data for rock samples from the Fossil Ridge Wilderness Study Area

(The following qualifiers are used in reporting analytical data: --, no determination made; N, element not detected; <, detected but present at a concentration less than the value reported; and >, element present at a concentration greater than the upper detection limit. Rock samples are coded with the suffix R, A or B.)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR009R	38 47 49	106 36 8	15.00	5.00	7.00	1.000	1,500	N	N	N	10	200
FR012R	38 44 58	106 35 28	1.00	.30	.20	.100	100	N	N	N	30	500
FR013R	38 45 33	106 35 44	5.00	2.00	.20	.300	500	3.0	N	N	10	1,000
FR044R	38 44 41	106 38 2	1.50	.50	.70	.150	500	N	N	N	10	500
FR045R	38 44 19	106 37 30	1.00	7.00	10.00	.050	1,500	N	N	N	30	150
FR046R	38 43 59	106 37 50	2.00	1.50	2.00	.200	1,000	.5	N	N	<10	2,000
FR047R	38 43 42	106 37 22	3.00	1.50	.05	.300	300	N	N	N	100	700
FR048R	38 43 19	106 37 42	.20	.05	<.05	.050	15	.5	N	N	30	50
FR049R	38 42 57	106 37 28	1.00	.15	.15	.050	150	N	N	N	20	300
FR050R	38 42 25	106 37 23	.70	.10	.07	.030	100	N	N	N	20	500
FR051R	38 41 53	106 37 29	1.00	.20	.30	.100	150	N	N	N	20	500
FR052R	38 41 32	106 37 42	1.00	.20	.20	.100	1,000	N	N	N	100	200
FR053R	38 41 8	106 37 38	2.00	.70	.70	.150	500	N	N	N	200	1,000
FR054R	38 41 43	106 38 11	2.00	.50	.50	.200	300	N	N	N	50	300
FR055R	38 41 3	106 38 30	2.00	.70	.70	.200	700	N	N	N	100	700
FR056R	38 40 47	106 36 38	.20	.10	.30	.010	150	N	N	N	20	100
FR057R	38 41 7	106 37 12	2.00	.50	.50	.200	300	N	N	N	50	1,000
FR058R	38 41 48	106 36 18	1.00	.20	.20	.100	700	N	N	N	20	500
FR059R	38 42 13	106 36 7	2.00	.70	1.00	.300	1,000	N	N	N	20	1,500
FR060R	38 41 11	106 35 22	.20	.05	<.05	.070	70	.5	N	N	20	500
FR061R	38 42 0	106 34 53	.30	10.00	10.00	.003	200	N	N	N	N	N
FR062R	38 42 32	106 34 56	1.00	5.00	10.00	.100	1,000	N	N	N	30	700
FR063R	38 43 8	106 35 7	.20	10.00	15.00	.020	200	N	N	N	<10	<20
FR064R	38 43 42	106 35 15	20.00	.10	.30	<.002	100	.7	500	N	<10	20
FR065A	38 44 40	106 35 6	10.00	.10	<.05	.050	700	50.0	200	30	10	70
FR065B	38 44 45	106 35 35	10.00	.05	<.05	.010	150	20.0	<200	20	N	<20
FR065R	38 44 52	106 35 12	20.00	.30	<.05	.030	200	1.5	N	N	<10	<20
FR066R	38 44 14	106 34 33	1.50	.30	1.00	.200	200	N	N	N	20	1,000
FR067R	38 43 6	106 33 57	15.00	.05	<.05	.020	100	70.0	N	100	<10	300
FR068R	38 41 47	106 33 44	.30	.07	<.05	.020	70	<.5	N	N	10	<20
FR069R	38 41 23	106 32 43	3.00	1.50	1.50	.300	300	N	N	N	50	700
FR070R	38 41 1	106 32 11	2.00	1.00	1.00	.100	200	N	N	N	30	500
FR071R	38 41 11	106 31 51	.30	.07	.10	.020	30	N	N	N	10	50
FR072R	38 41 47	106 31 25	.50	10.00	15.00	.010	1,000	2.0	N	N	N	<20
FR073R	38 41 44	106 32 42	.50	.20	1.00	.050	100	N	N	N	20	500
FR074R	38 42 49	106 30 58	.50	.30	<.05	.015	100	<.5	N	N	10	<20
FR075R	38 40 58	106 31 12	2.00	.50	2.00	.150	700	N	N	N	10	1,500
FR076R	38 40 40	106 30 27	5.00	.20	.05	.200	70	.5	N	N	10	200
FR132R	38 33 49	106 41 37	<.05	<.02	<.05	<.002	<10	N	N	N	10	<20
FR144R	38 37 26	106 37 15	.50	10.00	15.00	.005	700	N	N	N	<10	<20
FR145R	38 39 1	106 39 8	.20	10.00	20.00	.015	100	N	N	N	<10	<20
FR146R	38 39 3	106 39 28	5.00	2.00	.05	.300	500	N	N	N	50	700
FR147R	38 38 24	106 40 34	.30	.10	.05	.007	200	N	N	N	20	50
FR148R	38 38 3	106 41 11	1.50	.50	.70	.015	150	N	N	N	20	200
FR149R	38 38 54	106 40 0	5.00	1.50	.05	.200	500	N	N	N	20	700

Table 28.--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR009R	N	N	N	70	300	70	N	N	N	70	20	N	70
FR012R	2.0	<10	N	N	<10	<5	50	N	20	5	50	N	5
FR013R	1.5	<10	N	50	10	100	100	N	<20	7	15	N	7
FR044R	2.0	N	N	<5	<10	10	<20	N	<20	5	100	N	5
FR045R	<1.0	N	N	N	<10	<5	N	N	N	<5	10	N	<5
FR046R	1.0	N	N	7	<10	<5	70	N	<20	<5	150	N	10
FR047R	1.5	N	N	20	100	<5	100	N	<20	20	50	N	15
FR048R	1.0	N	N	N	<10	<5	<20	N	N	5	<10	N	<5
FR049R	3.0	N	N	N	<10	10	<20	N	<20	5	70	N	5
FR050R	2.0	N	N	N	N	5	N	N	N	5	50	N	<5
FR051R	2.0	N	N	<5	<10	<5	50	N	<20	5	70	N	5
FR052R	50.0	15	N	5	<10	5	<20	N	30	5	50	N	5
FR053R	1.0	N	N	5	<10	10	50	N	N	7	50	N	10
FR054R	5.0	N	N	5	10	<5	<20	N	20	7	30	N	10
FR055R	3.0	<10	N	5	<10	10	50	N	<20	5	100	N	10
FR056R	<1.0	N	N	N	<10	N	<20	N	N	5	N	N	N
FR057R	1.5	N	N	5	<10	20	100	N	<20	5	50	N	10
FR058R	3.0	<10	N	5	10	<5	100	5	<20	<5	50	N	5
FR059R	1.5	N	N	7	<10	5	100	N	20	<5	50	N	7
FR060R	<1.0	N	N	<5	<10	<5	<20	N	N	5	20	N	<5
FR061R	<1.0	N	N	N	<10	<5	N	N	N	<5	20	N	N
FR062R	<1.0	N	N	N	10	<5	N	N	N	<5	30	N	<5
FR063R	<1.0	N	N	N	<10	N	N	N	N	<5	N	N	<5
FR064R	2.0	20	N	10	<10	700	N	15	N	10	100	N	N
FR065A	2.0	50	N	20	50	5,000	N	20	N	5	200	N	<5
FR065B	1.0	150	N	50	10	2,000	<20	N	N	10	300	N	N
FR065R	<1.0	N	N	10	<10	7,000	N	10	N	7	30	N	N
FR066R	1.5	<10	N	5	N	30	70	N	20	5	<10	N	<5
FR067R	5.0	150	N	10	20	2,000	<20	7	N	20	20	N	5
FR068R	N	<10	N	N	<10	5	N	N	<20	5	N	N	N
FR069R	1.0	N	N	10	<10	<5	<20	N	<20	10	30	N	7
FR070R	<1.0	N	N	7	<10	<5	70	N	N	7	20	N	5
FR071R	<1.0	N	N	N	N	<5	N	N	N	<5	20	N	<5
FR072R	<1.0	N	N	<5	<10	<5	N	N	N	<5	50	N	N
FR073R	1.5	N	N	N	N	<5	N	N	N	<5	20	N	<5
FR074R	1.0	N	N	N	<10	<5	N	N	N	<5	N	N	N
FR075R	1.0	N	N	5	<10	<5	50	N	20	<5	50	N	5
FR076R	1.0	15	N	7	<10	70	<20	N	20	<5	10	N	5
FR132R	N	N	N	N	<10	<5	N	N	N	5	N	N	N
FR144R	<1.0	N	N	N	<10	<5	N	N	N	<5	70	N	<5
FR145R	N	N	N	N	N	<5	N	N	N	<5	15	N	N
FR146R	1.0	N	N	20	200	<5	70	N	N	20	20	N	20
FR147R	N	N	N	<5	<10	<5	N	N	N	5	N	N	N
FR148R	1.0	N	N	7	<10	5	N	N	N	10	50	N	N
FR149R	1.0	N	N	15	150	<5	50	N	N	15	30	N	20

Table 2B.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa	As-ppm aa	Zn-ppm aa	Cd-ppm aa	Bi-ppm aa	Sb-ppm aa
R009R	N	300	300	N	70	<200	100	N	[illegible]	<5	45	N	N	N
R012R	N	100	20	N	50	N	70	N	[illegible]	N	5	N	N	N
R013R	N	200	100	N	50	N	200	N	1.40	<5	15	N	1	N
R044R	N	100	20	N	50	N	70	N	[illegible]	5	45	N	N	N
R045R	N	N	15	N	15	N	200	N	[illegible]	5	<5	N	N	N
R046R	N	1,500	70	N	30	<200	200	N	[illegible]	5	200	N	N	N
R047R	N	<100	70	N	50	N	100	N	[illegible]	5	100	N	N	N
R048R	N	N	15	N	10	N	300	N	[illegible]	N	5	N	N	N
R049R	N	<100	10	N	30	N	20	N	[illegible]	N	10	N	N	N
R050R	N	<100	<10	N	20	N	20	N	[illegible]	<5	10	N	N	N
R051R	N	<100	10	N	50	N	70	N	[illegible]	N	50	N	N	N
R052R	N	N	15	N	30	N	50	N	[illegible]	N	<5	N	5	N
R053R	N	100	20	N	30	N	50	N	[illegible]	N	15	N	N	N
R054R	N	<100	30	N	50	N	70	N	[illegible]	N	20	N	N	N
R055R	N	100	50	N	50	N	100	N	[illegible]	N	60	N	1	N
R056R	N	N	<10	N	<10	N	30	N	[illegible]	N	<5	N	N	N
R057R	N	<100	30	N	70	N	100	N	[illegible]	N	55	N	N	N
R058R	N	<100	10	N	30	N	100	N	[illegible]	<5	20	N	N	N
R059R	N	1,000	70	N	30	N	200	N	[illegible]	<5	5	N	N	N
R060R	N	<100	15	N	10	N	100	N	[illegible]	<5	10	N	N	N
R061R	N	N	<10	N	<10	N	N	N	[illegible]	N	20	N	N	N
R062R	N	<100	10	N	20	N	200	N	[illegible]	N	<5	N	N	N
R063R	N	N	10	N	<10	N	<10	N	[illegible]	N	<5	N	N	N
R064R	N	N	100	N	10	3,000	N	N	.80	350	7,000	8.1	31	20
R065A	N	N	30	N	15	500	300	N	52.00	90	320	.5	34	6
R065B	N	N	70	N	15	<200	N	N	190.00	360	160	.7	650	8
R065R	<10	N	10	N	<10	200	50	N	.05	40	200	.7	N	N
R066R	N	500	30	N	20	N	100	N	[illegible]	N	25	N	N	N
R067R	N	<100	50	N	50	<200	<10	N	180.00	30	160	N	130	N
R068R	N	N	10	N	<10	N	N	N	[illegible]	N	<5	N	N	N
R069R	N	700	50	N	20	N	200	N	[illegible]	N	50	N	N	N
R070R	N	500	20	N	10	N	50	N	[illegible]	N	50	N	N	N
R071R	N	<100	<10	N	<10	N	10	N	N	<5	<5	N	N	N
R072R	N	<100	<10	N	10	N	<10	N	[illegible]	<5	55	.4	N	<2
R073R	N	200	10	N	<10	N	70	N	[illegible]	<5	10	N	N	N
R074R	N	N	10	N	10	N	<10	N	[illegible]	N	15	N	N	N
R075R	N	1,000	30	N	20	N	100	N	[illegible]	<5	35	N	N	N
R076R	N	200	30	N	20	N	100	N	[illegible]	N	5	N	5	N
R132R	N	N	<10	N	<10	N	N	N	[illegible]	N	N	N	N	N
R144R	N	N	<10	N	10	N	<10	N	[illegible]	<5	35	N	N	N
R145R	N	<100	10	N	10	N	<10	N	[illegible]	<5	100	.2	N	N
R146R	N	100	100	N	50	<200	100	N	[illegible]	<5	75	N	N	N
R147R	N	N	<10	N	10	N	N	N	[illegible]	N	10	N	N	N
R148R	N	200	10	N	10	N	<10	N	[illegible]	<5	10	N	N	N
R149R	N	100	70	N	20	<200	50	N	[illegible]	<5	95	N	N	N

Table 2B.--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR150R	38 39 15	106 38 8	.15	3.00	20.00	.015	70	N	N	N	N	<20
FR151R	38 39 13	106 37 43	.15	10.00	20.00	<.002	70	N	N	N	N	<20
FR152R	38 39 17	106 39 20	2.00	.30	.70	.200	200	N	N	N	50	200
FR153R	38 39 19	106 40 29	1.50	.70	.70	.200	300	N	N	N	50	1,000
FR154R	38 40 15	106 40 50	2.00	.50	.70	.200	300	N	N	N	50	500
FR155R	38 38 1	106 38 15	1.00	.20	.50	.070	300	N	N	N	50	700
FR156R	38 38 35	106 37 2	.50	10.00	20.00	.020	150	N	N	N	20	<20
FR157R	38 39 14	106 36 33	10.00	2.00	5.00	.500	1,000	N	N	N	10	50
FR158R	38 39 15	106 36 32	1.00	.10	.10	.015	500	N	N	N	10	30
FR159R	38 39 17	106 36 32	1.50	.50	5.00	.200	1,000	15.0	N	N	70	<20
FR160R	38 39 46	106 37 15	.05	1.00	20.00	.002	50	N	N	N	N	N
FR161R	38 39 58	106 36 23	.70	2.00	5.00	.100	150	<.5	N	N	50	150
FR162R	38 39 17	106 35 36	1.00	.20	.20	.070	300	N	N	N	30	300
FR163R	38 40 23	106 35 51	7.00	2.00	.20	.500	200	N	N	N	200	1,000
FR164R	38 35 54	106 44 36	5.00	2.00	.10	.300	300	N	N	N	10	1,000
FR165R	38 34 51	106 42 20	7.00	2.00	<.05	.500	500	N	N	N	20	500
FR166R	38 35 40	106 40 38	<.05	<.02	<.05	<.002	30	N	N	N	10	N
FR176R	38 39 50	106 31 52	7.00	.05	<.05	.020	70	5,000.0	1,000	N	<10	>5,000
FR177R	38 39 49	106 31 50	1.00	.05	<.05	.015	30	500.0	300	N	<10	>5,000
FR178R	38 39 57	106 32 4	.50	.10	<.05	.050	200	N	N	N	50	150
FR179R	38 40 12	106 32 16	1.00	.10	.20	.020	70	500.0	N	N	50	200

Table 2B.—continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR150R	N	N	N	N	10	N	N	N	N	N	N	N	N
FR151R	N	N	N	N	<10	N	N	N	N	N	N	N	N
FR152R	1.5	N	N	5	<10	10	50	N	20	7	50	N	10
FR153R	1.5	N	N	5	<10	7	50	N	N	5	50	N	7
FR154R	1.5	N	N	7	<10	10	70	N	<20	5	50	N	10
FR155R	2.0	N	N	<5	<10	5	N	N	<20	5	70	N	5
FR156R	<1.0	N	N	N	10	N	N	N	N	5	<10	N	<5
FR157R	<1.0	N	N	50	10	20	<20	N	<20	10	20	N	30
FR158R	2.0	50	N	<5	<10	30	N	N	30	5	30	N	<5
FR159R	2.0	20	70	10	10	70	N	5	<20	10	5,000	N	10
FR160R	N	N	N	N	N	<5	N	N	N	N	10	N	N
FR161R	N	N	N	5	<10	5	<20	N	N	7	15	N	<5
FR162R	3.0	N	N	5	N	<5	<20	N	<20	5	50	N	5
FR163R	2.0	N	N	30	300	20	50	N	<20	70	20	N	20
FR164R	1.0	N	N	20	200	<5	50	N	<20	20	50	N	20
FR165R	1.0	N	N	30	300	<5	70	N	<20	70	20	N	20
FR166R	N	N	N	N	N	N	N	N	N	<5	N	N	N
FR176R	<1.0	N	150	5	N	15,000	<20	70	N	10	>20,000	>10,000	<5
FR177R	<1.0	N	150	N	<10	5,000	70	30	N	5	5,000	2,000	N
FR178R	<1.0	N	N	<5	<10	<5	<20	N	N	5	<10	N	N
FR179R	N	10	200	5	<10	2,000	<20	<5	N	<5	>20,000	700	N

Table 2B.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa	As-ppm aa	Zn-ppm aa	Cd-ppm aa	Bi-ppm aa	Sb-ppm aa
FR150R	N	100	10	N	<10	N	<10	N	--	N	<5	N	N	N
FR151R	N	100	<10	N	<10	N	N	N	--	N	15	N	N	N
FR152R	N	<100	20	N	50	N	100	N	--	N	20	N	N	N
FR153R	N	100	20	N	50	N	50	N	--	<5	65	N	N	N
FR154R	N	100	30	N	70	N	300	N	--	<5	50	N	N	N
FR155R	N	100	10	N	50	N	50	N	--	<5	10	N	N	N
FR156R	N	<100	<10	N	<10	N	10	N	--	N	5	N	N	N
FR157R	N	500	100	N	50	N	100	N	--	<5	80	N	N	N
FR158R	N	N	15	N	15	N	10	N	.10	<5	N	N	20	N
FR159R	N	N	70	N	20	1,000	100	N	N	20	1,300	32.0	8	18
FR160R	N	300	<10	N	10	N	N	N	--	N	20	N	N	N
FR161R	N	<100	10	N	20	N	150	N	--	N	50	.4	N	N
FR162R	N	<100	10	N	50	N	50	N	--	N	10	N	1	N
FR163R	N	N	100	N	50	N	300	N	--	<5	75	N	1	N
FR164R	N	200	100	N	30	<200	100	N	--	<5	90	N	N	N
FR165R	N	100	100	N	30	<200	200	N	--	<5	160	N	N	N
FR166R	N	N	10	N	<10	N	N	N	--	N	<5	N	N	N
FR176R	N	500	15	N	10	>10,000	50	N	3.30	1,200	20,000	150.0	N	18,000
FR177R	N	500	10	N	10	5,000	N	N	.30	200	4,000	200.0	N	2,600
FR178R	N	N	10	N	10	N	200	N	--	<5	<5	N	N	N
FR179R	N	100	70	N	10	>10,000	<10	N	.55	35	75,000	150.0	1	700

Table 3.--Analytical data for stream-sediment samples from the Fossil Ridge Wilderness Study Area

(The following qualifiers are used in reporting analytical data: --, no determination made; N, element not detected; <, detected but present at a concentration less than the value reported; and >, element present at a concentration greater than the upper detection limit. Stream-sediment samples are coded with the suffix S; soil samples are coded with L.)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR001S	38 47 25	106 30 27	5.0	2.00	2.00	.50	500	.5	N	N	20	300
R002S	38 46 29	106 30 9	2.0	1.00	1.00	.30	300	.5	N	N	30	500
R003S	38 46 29	106 32 24	1.5	.30	.70	.30	300	N	N	N	20	700
FR004S	38 44 54	106 32 30	1.5	.50	1.00	.30	500	N	N	N	20	1,000
FR005S	38 45 8	106 33 1	2.0	.30	.70	.20	2,000	N	N	N	20	500
R006S	38 45 35	106 33 32	2.0	.50	.70	.50	500	N	N	N	50	700
R007S	38 45 41	106 34 2	3.0	.70	1.00	.50	700	1.0	N	N	20	500
R008S	38 47 32	106 34 28	.7	.15	.20	.20	100	<.5	N	N	50	300
FR010S	38 46 5	106 37 17	2.0	.70	.50	.30	700	N	N	N	100	300
FR011S	38 46 7	106 37 13	1.5	.50	1.00	.50	500	N	N	N	10	500
FR014S	38 44 44	106 29 35	2.0	.30	.50	.20	200	.5	N	N	30	500
FR015S	38 44 35	106 32 47	3.0	.70	1.00	.50	500	N	N	N	70	500
R016S	38 43 47	106 33 58	3.0	.50	.50	.50	200	N	N	N	100	300
FR017S	38 43 36	106 32 5	1.5	.30	1.00	.20	150	N	N	N	30	500
FR018S	38 43 38	106 29 59	1.5	.30	.70	.15	200	N	N	N	20	700
FR019S	38 42 52	106 29 58	1.5	.50	.50	.20	300	2.0	N	N	20	500
FR020S	38 42 25	106 29 58	1.5	.50	.50	.20	300	.7	N	N	20	700
FR021S	38 41 31	106 29 56	1.5	.30	.50	.10	700	1.0	N	N	10	500
FR022S	38 43 23	106 31 59	2.0	.30	.70	.15	300	N	N	N	10	700
FR023S	38 43 21	106 32 1	1.5	.50	.50	.15	200	.5	N	N	20	500
FR024S	38 41 54	106 32 9	1.5	.50	.30	.15	150	<.5	N	N	20	500
FR025S	38 43 6	106 33 5	2.0	1.00	1.00	.30	500	N	N	N	20	500
FR026S	38 42 57	106 33 3	3.0	1.00	1.50	.50	500	N	N	N	10	500
FR027S	38 42 41	106 33 7	2.0	.70	.70	.30	500	N	N	N	20	700
FR028S	38 42 57	106 34 20	2.0	.70	.70	.30	500	<.5	N	N	50	500
FR029S	38 41 26	106 35 43	5.0	.50	.20	.70	700	N	N	N	200	300
FR030S	38 41 42	106 33 48	3.0	.70	.30	.30	1,000	<.5	N	N	150	500
FR031S	38 43 11	106 36 14	2.0	.50	.30	.15	1,000	.7	N	N	70	300
FR032S	38 43 8	106 36 8	2.0	.70	.50	.30	1,000	<.5	N	N	150	500
FR033S	38 43 16	106 36 12	3.0	.50	.30	.50	700	N	N	N	200	300
FR034S	38 41 12	106 33 48	3.0	1.50	2.00	.70	1,000	N	N	N	10	500
FR035S	38 40 29	106 33 47	2.0	1.00	1.50	.50	700	N	N	N	20	500
FR036S	38 39 38	106 33 3	3.0	1.50	1.50	.50	1,000	1.5	N	N	50	500
FR037S	38 39 43	106 33 4	2.0	1.00	1.00	.50	300	N	N	N	20	1,000
FR038S	38 44 29	106 36 13	3.0	1.50	2.00	.15	500	N	N	N	50	300
FR039S	38 44 40	106 36 23	2.0	.70	.50	.20	500	.5	N	N	70	500
FR040S	38 39 10	106 36 15	2.0	.70	.50	.20	1,500	N	N	N	100	300
FR041S	38 39 0	106 36 41	1.5	5.00	3.00	.20	1,000	.5	N	N	100	200
FR042S	38 40 2	106 35 43	1.5	.50	.50	.20	700	<.5	N	N	300	500
FR043S	38 40 38	106 35 48	3.0	.70	.20	.30	500	N	N	N	200	500
FR074L	38 42 49	106 30 58	2.0	1.00	.30	.30	300	1.0	N	N	30	700
FR077S	38 40 3	106 38 42	2.0	.70	.50	.20	500	.5	N	N	100	500
FR078S	38 40 1	106 38 42	5.0	1.00	.70	.50	500	.7	N	N	300	300
FR079S	38 40 5	106 38 55	1.5	.50	1.50	.20	500	N	N	N	70	300
FR080S	38 40 18	106 39 17	2.0	.50	.50	.70	1,000	N	N	N	100	300

Table 3.--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR001S	<1.0	N	N	30	150	30	N	N	<20	20	30	N	20
FR002S	1.0	N	N	10	30	30	<20	N	<20	15	50	N	10
FR003S	<1.0	N	N	7	<10	5	<20	N	20	5	30	N	5
FR004S	1.0	N	N	7	10	5	<20	N	<20	5	30	N	7
FR005S	1.5	N	N	10	<10	15	50	7	N	7	20	N	5
FR006S	1.0	N	N	10	10	20	50	10	20	10	30	N	7
FR007S	1.0	15	N	10	10	300	50	5	<20	10	30	N	7
FR008S	<1.0	N	N	5	<10	<5	N	N	N	<5	15	N	5
FR010S	2.0	N	N	10	20	10	200	<5	N	15	70	N	7
FR011S	1.0	N	N	7	<10	<5	N	N	N	5	30	N	5
FR014S	1.0	N	N	7	<10	10	<20	N	30	7	30	N	5
FR015S	2.0	N	N	10	15	7	100	<5	<20	10	50	N	10
FR016S	2.0	N	N	10	15	7	<20	N	N	7	50	N	7
FR017S	1.0	N	N	7	10	5	<20	N	N	5	50	N	5
FR018S	1.5	N	N	5	<10	5	N	N	N	5	50	N	<5
FR019S	1.5	N	N	5	10	20	<20	5	N	5	70	N	<5
FR020S	1.0	N	N	7	<10	30	<20	7	N	10	100	N	<5
FR021S	1.5	N	N	10	<10	500	50	20	N	10	150	N	<5
FR022S	1.0	N	N	5	<10	<5	<20	N	N	5	50	N	7
FR023S	1.0	N	N	7	<10	7	70	N	N	7	50	N	5
FR024S	1.0	N	N	7	10	10	<20	N	N	10	50	N	5
FR025S	1.0	N	N	10	20	5	100	N	<20	10	20	N	10
FR026S	1.0	N	N	15	20	5	<20	N	<20	15	30	N	10
FR027S	1.0	N	N	10	10	10	<20	N	<20	10	50	N	7
FR028S	3.0	N	N	10	10	15	50	N	30	10	50	N	7
FR029S	2.0	N	N	15	150	10	200	<5	100	20	70	N	10
FR030S	2.0	N	N	10	50	30	100	50	20	15	100	N	15
FR031S	5.0	N	N	10	15	50	100	10	<20	10	50	N	7
FR032S	2.0	N	N	15	30	20	50	5	<20	15	70	N	10
FR033S	1.5	N	N	10	100	5	100	N	<20	10	50	N	7
FR034S	1.5	N	N	20	50	5	50	N	<20	20	30	N	20
FR035S	1.5	N	N	20	20	10	50	N	<20	15	50	N	10
FR036S	1.0	N	N	15	30	15	50	N	<20	15	200	N	7
FR037S	1.0	N	N	10	15	10	100	N	<20	10	50	N	7
FR038S	2.0	N	N	5	10	7	50	N	N	5	30	N	5
FR039S	3.0	N	N	7	30	30	150	5	<20	10	50	N	7
FR040S	2.0	N	N	10	10	15	50	N	N	10	100	N	10
FR041S	1.5	N	N	10	50	10	<20	N	N	10	150	N	7
FR042S	2.0	N	N	10	30	20	70	10	<20	15	100	N	10
FR043S	3.0	N	N	20	100	30	<20	10	<20	20	50	N	15
FR074L	1.5	N	N	10	10	10	<20	N	<20	10	70	N	7
FR077S	2.0	N	N	7	10	30	100	N	<20	10	50	N	10
FR078S	1.5	N	N	10	150	15	100	N	<20	15	100	N	10
FR079S	1.5	N	N	7	20	10	70	N	<20	10	50	N	7
FR080S	1.0	N	N	10	100	20	300	N	20	15	50	N	10

Table 3.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa	As-ppm aa	Zn-ppm aa	Cd-ppm aa	Bi-ppm aa	Sb-ppm aa
FR001S	N	200	150	N	30	N	150	N	--	<5	30	.4	<1	N
FR002S	N	200	70	N	30	N	200	N	--	<5	75	.7	1	N
FR003S	N	300	30	N	20	N	300	N	--	<5	45	.1	1	N
FR004S	N	500	30	N	20	N	300	N	--	<5	35	.1	1	N
FR005S	N	200	30	N	20	N	50	N	--	<5	35	.3	1	N
FR006S	N	300	50	N	30	N	500	N	--	<5	30	N	1	N
FR007S	N	300	30	N	20	N	150	N	.90	25	110	.2	24	N
FR008S	N	N	20	N	15	N	200	N	--	<5	5	.1	1	N
FR010S	N	150	50	N	50	N	300	N	--	<5	40	.2	1	N
FR011S	N	500	20	N	10	N	50	N	--	<5	25	.1	1	N
FR014S	N	200	30	N	15	N	50	N	--	<5	35	.3	1	N
FR015S	N	200	50	N	50	N	200	N	--	<5	45	.2	3	N
FR016S	N	100	50	N	30	N	200	N	--	<5	35	.2	1	N
FR017S	N	300	20	N	10	N	70	N	--	<5	20	.1	N	N
FR018S	N	300	20	N	<10	N	70	N	--	<5	30	.1	1	N
FR019S	N	200	20	N	10	N	150	N	N	<5	75	1.1	1	N
FR020S	N	300	20	N	10	200	70	N	--	<5	180	1.4	1	N
FR021S	N	200	20	N	20	300	70	N	N	<5	600	7.0	2	N
FR022S	N	500	30	N	15	N	70	N	--	<5	25	.1	N	N
FR023S	N	300	30	N	15	N	150	N	--	<5	45	.2	1	N
FR024S	N	200	30	N	15	N	100	N	--	<5	45	.4	1	N
FR025S	N	300	50	N	30	N	150	N	--	<5	25	.1	1	N
FR026S	N	500	50	N	20	N	100	N	--	<5	40	N	3	N
FR027S	N	300	50	N	20	N	200	N	--	<5	65	.2	1	N
FR028S	N	150	50	N	150	N	150	N	--	<5	60	.3	2	N
FR029S	N	100	100	N	70	N	200	<100	--	<5	35	.2	1	N
FR030S	N	100	50	N	50	N	200	N	--	<5	70	.2	2	N
FR031S	N	<100	50	N	50	N	100	N	--	<5	75	.3	2	N
FR032S	N	100	50	N	150	N	300	N	--	<5	60	.4	1	N
FR033S	N	100	70	N	50	N	200	N	--	<5	30	.1	1	N
FR034S	N	300	100	N	50	N	500	N	--	<5	30	N	1	N
FR035S	N	300	70	N	30	N	100	N	--	<5	40	.2	1	N
FR036S	N	200	70	N	30	<200	500	N	N	<5	200	1.3	1	2
FR037S	N	500	50	N	30	N	200	N	--	<5	40	.3	<1	N
FR038S	N	100	50	N	50	N	100	N	--	<5	30	.2	<1	N
FR039S	N	100	50	N	70	N	100	N	--	<5	30	.5	2	N
FR040S	N	100	70	N	20	200	100	N	--	<5	350	2.2	1	N
FR041S	N	N	50	N	20	<200	150	N	--	<5	300	2.0	<1	<2
FR042S	N	200	50	N	30	N	200	N	--	<5	60	.4	2	N
FR043S	N	<100	50	N	30	N	100	N	--	<5	50	.3	2	N
FR074L	N	200	50	N	20	N	200	N	N	<5	60	.3	1	<2
FR077S	N	100	50	N	50	N	100	N	--	<5	90	.7	1	N
FR078S	N	100	70	N	50	<200	200	N	--	<5	190	1.2	<1	<2
FR079S	N	100	50	N	50	N	300	N	--	<5	35	.7	<1	N
FR080S	N	100	50	N	100	N	500	<100	--	<5	40	.3	1	N

Table 3.--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR081S	38 40 31	106 39 20	5.0	.50	.50	.70	1,000	N	N	N	200	300
FR082S	38 40 19	106 38 33	1.5	.50	.50	.30	1,000	N	N	N	100	300
FR083S	38 40 16	106 37 39	5.0	.70	.15	.30	200	N	N	N	150	300
FR084S	38 41 30	106 40 8	2.0	.50	.50	.50	700	N	N	N	500	300
FR085S	38 41 29	106 40 6	2.0	.30	.15	.20	500	N	N	N	150	200
FR086S	38 43 40	106 40 21	1.0	.20	.30	.10	500	N	N	N	50	200
FR087S	38 39 46	106 38 32	3.0	1.50	1.00	.30	500	.7	N	N	150	300
FR088S	38 40 14	106 40 11	2.0	.70	.70	1.00	1,000	N	N	N	200	300
FR089S	38 40 48	106 39 41	3.0	1.00	.70	.70	1,000	N	N	N	300	300
FR090S	38 42 46	106 40 15	1.5	.30	.20	.20	300	<.5	N	N	300	500
FR091S	38 43 8	106 40 23	1.0	.20	.30	.20	200	N	N	N	50	300
FR092S	38 42 0	106 41 2	3.0	.50	.70	1.00	1,000	N	N	N	100	500
FR093S	38 41 12	106 40 50	2.0	.30	.20	.30	700	N	N	N	100	200
FR094S	38 41 49	106 39 4	2.0	.50	.50	.50	700	N	N	N	500	500
FR095S	38 43 5	106 38 32	1.0	.30	.30	.15	500	N	N	N	70	500
FR096S	38 42 56	106 38 31	1.0	.20	.20	.15	700	N	N	N	50	300
FR097S	38 39 51	106 39 44	2.0	.70	.50	.50	1,000	N	N	N	100	500
FR098S	38 42 20	106 38 56	1.5	.50	.20	.20	500	N	N	N	50	200
FR099S	38 43 4	106 40 26	2.0	.70	.20	.30	1,000	N	N	N	70	700
FR100S	38 43 6	106 42 29	1.0	.20	.30	.20	1,000	N	N	N	100	500
FR101S	38 43 30	106 43 29	2.0	.50	.70	.70	1,000	N	N	N	50	700
FR102S	38 41 32	106 43 46	2.0	.70	.70	1.00	1,500	N	N	N	200	500
FR103S	38 41 14	106 44 4	3.0	.50	1.00	1.00	2,000	N	N	N	300	500
FR104S	38 41 11	106 43 19	2.0	.70	1.50	1.00	1,500	N	N	N	500	500
FR105S	38 41 16	106 44 28	2.0	.70	.70	.70	1,000	1.5	N	N	100	500
FR106S	38 40 35	106 44 50	2.0	.70	1.00	1.00	1,000	N	N	N	500	700
FR107S	38 40 34	106 44 52	3.0	.50	.70	1.00	1,000	N	N	N	500	300
FR108S	38 39 38	106 42 39	2.0	.70	1.00	1.00	700	N	N	N	200	500
FR109S	38 39 37	106 42 42	3.0	.50	.70	1.00	1,000	N	N	N	500	500
FR110S	38 39 48	106 41 59	2.0	.50	1.00	.70	1,000	N	N	N	300	500
FR111S	38 39 45	106 41 57	2.0	.70	.70	.70	700	N	N	N	200	500
FR112S	38 38 50	106 41 42	2.0	.20	.50	.70	1,000	N	N	N	50	300
FR113S	38 43 1	106 46 24	2.0	.50	.70	1.00	1,000	N	N	N	200	500
FR114S	38 41 45	106 45 48	3.0	.70	.50	.50	700	N	N	N	70	500
FR115S	38 41 12	106 45 14	3.0	.50	.50	1.00	1,000	N	N	N	200	500
FR116S	38 36 4	106 45 55	2.0	.70	.50	.50	700	N	N	N	100	700
FR117S	38 35 38	106 45 56	2.0	.70	.50	.30	300	N	N	N	50	500
FR118S	38 39 56	106 44 33	5.0	.30	.30	.50	300	N	N	N	100	500
FR119S	38 39 39	106 44 8	2.0	1.00	1.00	1.00	1,000	N	N	N	150	500
FR120S	38 39 30	106 44 8	2.0	.70	.70	.70	1,000	N	N	N	200	500
FR121S	38 38 51	106 44 28	3.0	.70	.50	.30	500	N	N	N	200	500
FR122S	38 39 17	106 42 8	3.0	.70	1.00	>1.00	1,000	N	N	N	200	500
FR123S	38 39 8	106 41 32	2.0	.50	.30	>1.00	1,500	N	N	N	300	500
FR124S	38 39 6	106 41 34	5.0	.70	.20	1.00	1,000	N	N	N	150	500
FR125S	38 38 25	106 43 43	2.0	.50	.20	.50	200	N	N	N	100	500

Table 3.--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR081S	1.5	N	N	10	100	15	700	<5	20	15	70	N	10
FR082S	1.5	N	N	15	20	10	50	N	<20	10	50	N	10
FR083S	1.5	N	N	10	100	10	50	<5	<20	15	70	N	10
FR084S	2.0	N	N	7	30	15	50	N	20	15	30	N	10
FR085S	1.0	N	N	7	20	7	<20	N	<20	10	30	N	7
FR086S	2.0	N	N	5	10	10	50	N	<20	5	50	N	5
FR087S	1.0	N	N	10	100	15	50	N	<20	15	100	N	10
FR088S	1.0	N	N	15	50	10	700	N	30	15	70	N	15
FR089S	1.0	N	N	20	70	15	500	N	20	15	50	N	15
FR090S	2.0	N	N	7	20	10	<20	N	<20	10	50	N	5
FR091S	5.0	N	N	5	10	5	N	N	<20	5	50	N	5
FR092S	1.5	N	N	15	20	7	100	N	20	10	50	N	15
FR093S	1.0	N	N	10	10	5	<20	N	N	7	50	N	10
FR094S	2.0	N	N	5	15	5	<20	N	<20	10	70	N	7
FR095S	5.0	N	N	5	20	7	N	N	<20	10	70	N	5
FR096S	5.0	N	N	5	10	10	70	<5	<20	5	50	N	5
FR097S	1.0	N	N	10	50	10	70	N	20	15	50	N	15
FR098S	5.0	N	N	5	10	30	70	<5	<20	10	50	N	7
FR099S	1.0	N	N	10	30	15	<20	N	<20	15	50	N	7
FR100S	2.0	N	N	5	10	5	150	N	<20	5	70	N	5
FR101S	2.0	N	N	10	20	15	300	N	20	10	50	N	10
FR102S	2.0	N	N	10	30	15	500	N	30	15	50	N	10
FR103S	1.5	N	N	15	30	15	1,000	N	20	10	70	N	10
FR104S	1.5	N	N	15	20	20	150	N	30	15	50	N	10
FR105S	1.5	N	N	15	20	20	300	N	20	15	50	N	10
FR106S	1.5	N	N	15	100	20	500	N	30	20	50	N	10
FR107S	1.0	N	N	10	100	10	100	N	20	15	30	N	7
FR108S	1.5	N	N	10	30	10	200	N	20	15	50	N	15
FR109S	1.0	N	N	10	100	15	500	N	30	15	50	N	10
FR110S	1.5	N	N	10	20	20	300	N	20	10	50	N	10
FR111S	1.5	N	N	15	70	15	50	N	20	15	30	N	10
FR112S	1.5	N	N	7	50	20	200	N	20	15	30	N	7
FR113S	1.5	N	N	7	30	10	150	N	20	15	50	N	7
FR114S	2.0	N	N	15	30	20	100	N	20	15	50	N	10
FR115S	1.0	N	N	10	70	10	300	N	20	15	50	N	10
FR116S	1.0	N	N	10	30	10	50	N	<20	15	20	N	10
FR117S	1.0	N	N	15	30	15	50	N	<20	15	20	N	10
FR118S	1.0	N	N	10	100	20	<20	N	<20	15	30	N	10
FR119S	2.0	N	N	15	70	30	200	N	20	15	50	N	15
FR120S	3.0	N	N	15	50	30	300	N	20	15	50	N	15
FR121S	2.0	N	N	15	100	20	100	N	N	20	30	N	15
FR122S	1.0	N	N	15	150	20	100	N	30	20	30	N	15
FR123S	1.0	N	N	15	50	15	1,000	N	50	15	70	N	10
FR124S	1.0	N	N	15	200	10	100	N	20	15	30	N	10
FR125S	1.5	N	N	10	150	10	70	N	<20	15	30	N	10

Table 3.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa	As-ppm aa	Zn-ppm aa	Cd-ppm aa	Bi-ppm aa	Sb-ppm aa
FR081S	N	100	100	N	100	N	500	<100	--	<5	60	.2	<1	N
FR082S	N	100	100	N	50	N	200	N	--	<5	70	.3	<1	N
FR083S	N	100	100	N	30	N	150	N	--	<5	55	.2	1	N
FR084S	N	100	50	N	70	N	200	N	--	<5	65	.2	1	N
FR085S	N	<100	70	N	50	N	100	N	--	<5	65	.4	1	N
FR086S	N	100	20	N	50	N	100	N	--	<5	25	.1	<1	N
FR087S	N	100	100	N	30	<200	200	N	--	5	230	1.2	N	N
FR088S	N	100	50	N	200	N	500	<100	--	<5	55	.1	N	N
FR089S	N	100	70	N	200	N	300	<100	--	<5	70	.2	N	N
FR090S	N	100	50	N	30	N	200	N	--	<5	35	.1	1	N
FR091S	N	100	50	N	50	N	50	N	--	<5	25	.1	1	N
FR092S	N	150	70	N	70	N	300	N	--	<5	55	.1	1	N
FR093S	N	100	50	N	30	N	100	N	--	<5	60	.3	<1	N
FR094S	N	100	30	N	50	N	200	N	--	<5	50	.1	1	N
FR095S	N	100	30	N	30	N	100	N	--	<5	25	.1	<1	N
FR096S	N	100	30	N	50	N	200	N	--	<5	30	.1	1	N
FR097S	N	100	30	N	100	N	700	N	--	<5	70	.1	<1	N
FR098S	N	100	30	N	50	N	70	N	--	5	60	.3	2	N
FR099S	N	100	50	N	30	N	300	N	--	5	100	.2	1	N
FR100S	N	100	20	N	50	N	300	N	--	<5	20	.1	1	N
FR101S	N	150	50	N	100	N	500	<100	--	N	50	.1	<1	N
FR102S	N	100	50	N	150	N	500	<100	--	<5	65	.1	1	N
FR103S	N	100	50	N	300	N	1,000	<100	--	<5	65	.1	1	N
FR104S	N	100	70	N	150	N	1,000	N	--	<5	70	.1	1	N
FR105S	N	100	50	N	200	N	500	<100	N	N	80	.1	1	N
FR106S	N	100	50	N	300	N	500	<100	--	N	50	.1	1	N
FR107S	N	100	70	N	70	N	500	N	--	N	20	.1	1	N
FR108S	N	100	50	N	300	N	1,000	N	--	N	65	.1	2	N
FR109S	N	100	50	N	150	N	700	<100	--	<5	40	.1	1	N
FR110S	N	100	50	N	150	N	500	<100	--	<5	55	.1	1	N
FR111S	N	100	50	N	150	N	500	N	--	<5	65	.1	N	N
FR112S	N	100	50	N	70	N	300	N	--	<5	40	.1	N	N
FR113S	N	100	50	N	200	N	200	N	--	N	35	.1	N	N
FR114S	N	100	70	N	70	N	300	N	--	<5	80	.3	N	N
FR115S	N	100	70	N	200	N	1,000	N	--	N	35	.1	N	N
FR116S	N	100	70	N	50	N	500	N	--	<5	20	.1	N	N
FR117S	N	100	70	N	30	N	500	N	--	<5	30	.1	N	N
FR118S	N	100	70	N	30	N	150	N	--	<5	25	.1	N	N
FR119S	N	100	50	N	100	N	500	N	--	<5	85	.3	1	N
FR120S	N	100	70	N	100	N	700	<100	--	<5	65	.2	1	N
FR121S	N	100	100	N	50	N	100	N	--	<5	40	.3	1	N
FR122S	N	150	70	N	150	N	300	N	--	<5	35	.1	N	N
FR123S	N	<100	50	N	200	N	500	<100	--	<5	40	.2	N	N
FR124S	N	100	100	N	70	N	300	N	--	<5	20	.7	N	N
FR125S	N	100	100	N	50	N	300	N	--	<5	25	N	N	N

Table 3.--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR126S	38 38 21	106 43 53	1.0	1.00	.70	.50	500	N	N	N	50	500
FR127S	38 37 41	106 43 44	1.0	.70	.20	.30	300	N	N	N	50	500
FR128S	38 37 27	106 43 8	5.0	.70	.20	.50	700	N	N	N	150	300
FR129S	38 35 58	106 43 37	3.0	.50	.30	.30	500	N	N	N	50	300
FR130S	38 35 3	106 44 28	2.0	.50	.50	.30	200	N	N	N	70	500
FR131S	38 34 45	106 42 37	5.0	1.50	1.00	.70	500	N	N	N	200	500
FR132S	38 33 49	106 41 37	5.0	1.50	1.50	.70	500	N	N	N	50	30
FR133S	38 34 31	106 41 23	5.0	2.00	1.00	.70	500	N	N	N	50	700
FR134S	38 35 11	106 41 4	3.0	2.00	2.00	.50	500	N	N	N	50	700
FR135S	38 35 58	106 40 45	3.0	1.00	1.00	.50	500	N	N	N	100	500
FR136S	38 35 58	106 40 40	5.0	1.50	.70	.50	500	N	N	N	300	300
FR137S	38 36 16	106 40 32	3.0	1.00	.70	.30	500	N	N	N	20	500
FR138S	38 36 55	106 40 13	3.0	1.50	1.00	.50	500	N	N	N	200	500
FR139S	38 36 27	106 40 12	5.0	1.50	1.50	.70	500	N	N	N	50	1,000
FR140S	38 36 54	106 39 59	3.0	1.00	.70	.50	300	N	N	N	20	700
FR141S	38 37 11	106 39 32	2.0	1.00	.50	.30	500	N	N	N	100	500
FR142S	38 37 8	106 39 31	5.0	3.00	2.00	.70	700	N	N	N	20	2,000
FR143S	38 37 28	106 37 18	1.5	10.00	10.00	.15	1,500	.7	N	N	20	100
FR167S	38 43 34	106 45 34	2.0	.70	.50	.30	500	N	N	N	50	700
FR168S	38 44 7	106 44 14	2.0	.70	.50	.50	1,000	N	N	N	100	700
FR169S	38 44 42	106 42 48	2.0	.50	.50	.70	1,000	N	N	N	50	700
FR170S	38 45 0	106 41 29	1.5	1.00	1.00	.15	700	N	N	N	200	500
FR171S	38 45 28	106 40 50	1.5	.50	.30	.20	500	N	N	N	70	500
FR172S	38 46 28	106 37 31	1.5	.70	1.00	.70	700	N	N	N	20	700
FR173S	38 49 10	106 34 40	3.0	1.50	1.50	.70	700	N	N	N	50	500
FR174S	38 35 49	106 36 11	3.0	1.50	1.50	.70	700	N	N	N	50	700
FR175S	38 36 13	106 35 56	3.0	1.00	1.50	.50	1,000	.5	N	N	50	300
FR180S	38 39 58	106 31 27	2.0	.50	.50	.30	500	.7	N	N	30	500
FR181S	38 39 45	106 31 14	2.0	1.00	1.00	.30	500	1.5	N	N	70	700
FR182S	38 39 45	106 30 41	2.0	.70	.50	.30	300	.5	N	N	50	500
FR183S	38 39 42	106 33 33	2.0	1.00	1.00	.50	500	1.0	N	N	50	700
FR184S	38 39 49	106 33 54	3.0	1.00	1.00	.50	300	N	N	N	20	500
FR185S	38 39 20	106 34 25	5.0	1.00	.50	.50	700	.5	N	N	150	500
FR186S	38 38 3	106 34 41	5.0	1.50	1.00	.50	700	1.5	N	N	20	300
FR187S	38 37 35	106 34 57	5.0	1.50	2.00	.50	1,000	N	N	N	30	300
FR188S	38 36 46	106 35 44	5.0	1.50	1.50	1.00	1,000	<.5	N	N	20	200
FR189S	38 34 48	106 37 50	7.0	2.00	2.00	1.00	1,000	N	N	N	20	700
FR190S	38 35 14	106 38 1	5.0	1.50	2.00	1.00	1,000	N	N	N	20	500
FR191S	38 35 22	106 38 7	5.0	1.00	1.50	.70	500	N	N	N	20	1,000
FR192S	38 35 21	106 38 11	5.0	2.00	2.00	1.00	700	N	N	N	30	1,000

Table 3.--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR126S	1.0	N	N	15	50	15	50	N	<20	10	20	N	15
FR127S	1.0	N	N	10	50	20	70	N	<20	15	50	N	10
FR128S	1.0	N	N	20	100	15	70	N	<20	15	20	N	10
FR129S	<1.0	N	N	10	50	10	<20	N	<20	10	15	N	7
FR130S	1.0	N	N	7	30	10	<20	N	N	10	20	N	7
FR131S	1.5	N	N	20	200	20	70	N	<20	20	30	N	30
FR132S	1.5	N	N	20	100	30	100	N	30	20	50	N	15
FR133S	2.0	N	N	30	200	70	100	N	<20	100	50	N	15
FR134S	5.0	N	N	30	150	20	150	N	<20	30	50	N	20
FR135S	1.0	N	N	20	100	50	50	N	<20	20	30	N	20
FR136S	1.5	N	N	20	200	30	70	N	<20	50	20	N	15
FR137S	5.0	N	N	20	20	50	100	N	<20	15	50	N	10
FR138S	1.5	N	N	20	200	20	50	<5	<20	30	20	N	20
FR139S	2.0	N	N	20	150	30	150	N	<20	70	50	N	20
FR140S	3.0	N	N	15	20	30	100	N	20	15	70	N	10
FR141S	1.0	N	N	15	30	20	50	N	<20	15	50	N	10
FR142S	1.5	N	N	30	200	50	70	N	<20	100	50	N	20
FR143S	<1.0	N	N	10	10	7	N	N	N	10	200	N	<5
FR167S	1.5	N	N	10	50	15	700	N	20	15	100	N	10
FR168S	2.0	N	N	10	30	30	150	N	20	15	70	N	15
FR169S	1.5	N	N	10	50	10	150	N	20	10	50	N	10
FR170S	1.5	N	N	7	20	10	<20	N	<20	15	100	N	7
FR171S	1.5	N	N	7	30	7	500	N	20	10	70	N	5
FR172S	1.0	N	N	7	15	5	100	N	<20	10	50	N	7
FR173S	<1.0	N	N	20	150	15	<20	N	<20	20	20	N	20
FR174S	1.5	N	N	30	100	30	70	N	<20	20	50	N	30
FR175S	1.0	N	N	30	100	50	50	N	<20	20	100	N	20
FR180S	1.0	N	N	10	10	10	<20	N	<20	10	100	N	5
FR181S	1.0	N	N	10	30	30	<20	N	<20	15	200	N	7
FR182S	1.0	N	N	10	15	10	<20	N	<20	10	50	N	7
FR183S	1.0	N	N	20	50	15	50	N	<20	15	150	N	10
FR184S	2.0	N	N	20	30	20	50	N	<20	20	50	N	15
FR185S	2.0	N	N	20	150	30	50	7	20	20	70	N	15
FR186S	1.0	N	N	20	50	70	50	N	<20	15	100	N	30
FR187S	1.0	N	N	30	70	70	50	N	<20	20	70	N	30
FR188S	<1.0	N	N	30	150	70	<20	N	<20	20	150	N	30
FR189S	1.5	N	N	30	200	15	100	N	<20	30	50	N	30
FR190S	1.5	N	N	50	100	70	50	N	<20	30	50	N	30
FR191S	1.5	N	N	20	150	50	150	N	20	20	70	N	20
FR192S	2.0	N	N	30	200	70	100	N	<20	70	70	N	20

Table 3.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa	As-ppm aa	Zn-ppm aa	Cd-ppm aa	Bi-ppm aa	Sb-ppm aa
FR126S	N	100	70	N	50	N	300	N		<5	25	.1	N	N
FR127S	N	100	50	N	50	N	200	N		<5	55	.2	<1	N
FR128S	N	100	100	N	50	N	200	N		<5	15	N	N	N
FR129S	N	100	70	N	30	N	200	N		<5	15	N	<1	N
FR130S	N	100	70	N	20	N	200	N		<5	25	.1	N	N
FR131S	N	200	100	N	70	N	300	N		<5	30	N	N	N
FR132S	N	500	100	N	50	N	500	N		<5	55	.3	<1	N
FR133S	N	200	100	N	50	N	300	N		<5	100	.5	1	N
FR134S	N	300	100	N	50	N	100	N		<5	40	N	<1	N
FR135S	N	100	100	N	50	N	200	N		<5	65	.3	N	N
FR136S	N	100	100	N	50	N	300	N		<5	30	.3	N	N
FR137S	N	300	70	N	70	N	200	N		<5	65	.3	N	N
FR138S	N	100	100	N	70	N	200	N		<5	20	.1	N	N
FR139S	N	300	100	N	50	N	300	N		<5	55	.2	N	N
FR140S	N	200	70	N	50	N	500	N		<5	60	.2	<1	N
FR141S	N	100	50	N	30	N	100	N		<5	60	.3	N	N
FR142S	N	700	100	N	50	N	200	N		<5	50	.1	N	N
FR143S	N	N	50	N	15	N	30	N		<5	230	1.2	N	N
FR167S	N	150	50	N	150	N	300	100		<5	45	.1	N	N
FR168S	N	100	70	N	100	N	500	N		<5	55	.2	<1	N
FR169S	N	100	70	N	70	N	500	N		<5	40	.1	<1	N
FR170S	N	100	50	N	20	N	100	N		<5	45	.1	N	N
FR171S	N	<100	50	N	300	N	700	100		<5	30	N	N	N
FR172S	N	500	50	50	50	N	200	N		<5	15	N	N	N
FR173S	N	150	150	N	30	N	300	N		<5	20	.1	N	N
FR174S	N	300	150	N	50	N	700	N		<5	40	.1	N	N
FR175S	N	150	150	N	50	N	70	N		5	140	.7	N	N
FR180S	N	200	50	N	20	N	300	N		<5	100	.7	N	N
FR181S	N	200	70	N	20	300	200	N	N	<5	250	1.4	N	6
FR182S	N	200	50	N	30	N	100	N		<5	40	.2	N	N
FR183S	N	500	70	N	30	N	300	N		<5	75	.4	N	N
FR184S	N	200	70	N	30	N	100	N		<5	50	.2	1	N
FR185S	N	150	100	N	50	N	150	N		<5	55	.2	1	N
FR186S	70	100	100	N	50	200	100	N	.60	<5	130	.8	N	N
FR187S	N	100	150	N	30	<200	100	N		<5	140	.8	N	N
FR188S	N	150	150	N	30	N	70	N		<5	45	.4	N	N
FR189S	N	200	200	N	100	N	700	N		<5	25	.1	<1	N
FR190S	N	200	150	N	70	N	300	N		<5	40	.2	1	N
FR191S	N	300	150	N	70	N	1,000	N		<5	55	.1	N	N
FR192S	15	300	200	N	70	N	500	N		<5	50	.1	1	N

Table 4.--Analytical data for panned-concentrate samples from the Fossil Ridge Wilderness Study Area

(The following qualifiers are used in reporting analytical data: --, no determination made; N, element not detected; <, detected but present at a concentration less than the value reported; and >, element present at a concentration greater than the upper detection limit. Panned-concentrate samples are coded with the suffix P.)

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR001P	38 47 25	106 30 27	10.0	5.00	5.0	>2.0	2,000	N	N	N	20	<50
FR002P	38 46 29	106 30 9	10.0	.70	1.5	2.0	500	N	N	N	20	500
FR003P	38 46 29	106 32 24	5.0	.20	1.5	1.5	300	N	N	N	<20	500
FR004P	38 44 54	106 32 30	2.0	.20	1.5	1.5	200	N	N	N	20	700
FR005P	38 45 8	106 33 1	1.5	.20	1.0	.2	700	N	N	N	20	1,000
FR006P	38 45 35	106 33 32	15.0	.20	1.0	2.0	1,000	N	N	N	20	500
FR007P	38 45 41	106 34 2	15.0	.30	1.5	2.0	1,500	2	N	N	20	500
FR008P	38 47 32	106 34 28	1.5	1.00	.1	.7	150	<1	N	N	50	50
FR010P	38 46 5	106 37 17	3.0	.50	.1	2.0	3,000	N	N	N	150	200
FR011P	38 46 7	106 37 13	3.0	.50	1.5	2.0	700	N	N	N	20	500
FR015P	38 44 35	106 32 47	20.0	.50	1.0	2.0	1,000	N	N	N	50	500
FR016P	38 43 47	106 33 58	15.0	.50	.5	2.0	700	N	N	N	200	300
FR018P	38 43 38	106 29 59	3.0	.20	.7	.5	200	N	N	N	100	700
FR019P	38 42 52	106 29 58	2.0	.15	.5	.5	100	<1	N	N	50	500
FR020P	38 42 25	106 28 58	10.0	.15	.5	.3	200	N	N	N	50	500
FR021P	38 41 31	106 29 56	2.0	.20	.2	.3	200	N	N	N	50	700
FR022P	38 43 23	106 31 59	2.0	.10	1.5	1.0	150	N	N	N	50	500
FR023P	38 43 21	106 32 1	10.0	.10	1.0	.7	150	N	N	N	50	700
FR026P	38 42 57	106 33 3	5.0	1.00	3.0	2.0	500	N	N	N	100	700
FR028P	38 42 57	106 34 20	5.0	.70	.7	.7	500	N	N	N	100	700
FR029P	38 41 26	106 35 43	10.0	.70	.2	1.0	3,000	N	N	N	200	200
FR032P	38 43 8	106 36 8	2.0	.30	.3	.5	700	N	N	N	500	500
FR033P	38 43 16	106 36 12	20.0	2.00	1.0	2.0	10,000	N	N	N	1,500	70
FR034P	38 41 12	106 33 48	10.0	3.00	5.0	1.5	200	N	N	N	50	300
FR035P	38 40 29	106 33 47	7.0	1.50	2.0	1.0	1,500	N	N	N	70	700
FR077P	38 40 3	106 38 42	5.0	.50	.2	.3	700	N	N	N	150	700
FR078P	38 40 1	106 38 42	7.0	.70	.2	.5	1,000	N	N	N	500	500
FR080P	38 40 18	106 39 17	5.0	.50	.3	1.0	2,000	N	N	N	200	500
FR081P	38 40 31	106 39 20	5.0	.50	.1	.3	2,000	N	N	N	500	700
FR085P	38 41 29	106 40 6	20.0	.50	1.0	>2.0	7,000	N	N	N	500	<50
FR089P	38 40 48	106 39 41	5.0	.70	1.5	>2.0	5,000	N	N	N	1,000	300
FR090P	38 42 46	106 40 15	5.0	.20	.7	2.0	3,000	N	N	N	500	200
FR091P	38 43 8	106 40 23	5.0	.20	.3	1.0	2,000	N	N	N	150	300
FR096P	38 42 56	106 38 31	10.0	.70	10.0	1.0	>10,000	N	N	N	5,000	N
FR100P	38 43 6	106 42 29	15.0	.20	1.0	>2.0	>10,000	N	N	N	100	<50
FR102P	38 41 32	106 43 46	10.0	.10	.7	>2.0	10,000	N	N	N	200	150
FR103P	38 41 14	106 44 4	10.0	.20	2.0	>2.0	5,000	N	N	N	700	200
FR105P	38 41 16	106 44 28	10.0	.20	3.0	>2.0	10,000	N	N	N	300	300
FR106P	38 40 35	106 44 50	7.0	.30	1.5	>2.0	>10,000	N	N	N	1,000	300
FR107P	38 40 34	106 44 52	10.0	.30	1.0	>2.0	10,000	N	N	N	700	200
FR108P	38 39 38	106 42 39	7.0	.30	2.0	>2.0	10,000	N	N	N	2,000	200
FR109P	38 39 37	106 42 42	5.0	.20	.5	>2.0	5,000	<1	N	N	300	300
FR111P	38 39 45	106 41 57	7.0	.30	1.5	>2.0	7,000	N	N	N	2,000	200
FR113P	38 43 1	106 46 24	7.0	.30	2.0	>2.0	10,000	N	N	N	1,000	300
FR115P	38 41 12	106 45 14	5.0	.50	2.0	2.0	5,000	N	N	N	2,000	200

Table 4.--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR001P	N	N	N	70	200	15	200	N	100	100	50	N	50
FR002P	<2	N	N	15	<20	20	1,500	N	150	10	70	N	10
FR003P	<2	N	N	10	<20	<10	500	N	70	<10	50	N	<10
FR004P	2	N	N	10	<20	<10	300	N	70	<10	20	N	<10
FR005P	<2	N	N	10	<20	<10	N	N	N	<10	N	N	N
FR006P	<2	N	N	10	<20	<10	200	<10	100	10	N	N	<10
FR007P	<2	100	N	50	<20	1,500	500	10	100	15	50	N	<10
FR008P	N	N	N	10	<20	<10	N	N	N	<10	N	N	N
FR010P	<2	N	N	10	20	<10	200	N	70	15	20	N	10
FR011P	<2	N	N	15	<20	<10	200	N	70	10	N	N	10
FR015P	50	50	N	20	30	10	200	N	100	20	500	N	10
FR016P	15	N	N	20	30	10	100	N	<50	20	30	N	10
FR018P	2	N	N	10	<20	<10	<50	N	<50	<10	20	N	<10
FR019P	2	N	N	10	N	<10	N	N	50	<10	<20	N	N
FR020P	<2	N	N	15	<20	15	200	N	<50	<10	150	N	N
FR021P	2	N	N	10	<20	150	100	20	<50	<10	100	N	N
FR022P	<2	N	N	10	<20	<10	150	N	50	<10	<20	N	10
FR023P	<2	N	N	10	<20	<10	200	N	50	<10	30	N	10
FR026P	<2	100	N	15	<20	<10	100	N	50	20	20	N	15
FR028P	5	N	N	15	<20	10	200	N	<50	15	20	N	10
FR029P	2	N	N	20	200	10	N	N	<50	30	50	N	10
FR032P	3	N	N	10	<20	<10	N	N	N	10	30	N	<10
FR033P	100	N	N	50	500	10	200	N	200	100	20	N	50
FR034P	3	N	N	30	50	<10	300	N	150	30	20	N	20
FR035P	5	N	N	15	20	<10	150	N	50	20	50	N	10
FR077P	<2	N	N	10	20	10	<50	N	<50	15	70	N	10
FR078P	2	N	N	15	50	<10	<50	N	<50	20	50	N	10
FR080P	<2	N	N	10	20	<10	<50	N	70	15	20	N	10
FR081P	<2	N	N	15	20	<10	<50	N	N	30	<20	N	10
FR085P	<2	N	N	70	1,000	<10	500	N	200	200	20	N	20
FR089P	<2	N	N	15	20	<10	300	N	100	15	20	N	15
FR090P	2	N	N	10	20	<10	N	N	50	<10	20	N	<10
FR091P	3	N	N	10	20	<10	N	N	N	15	50	N	<10
FR096P	2	N	N	30	20	<10	200	N	500	20	20	N	70
FR100P	<2	N	N	30	100	20	500	N	200	10	70	N	50
FR102P	2	N	N	15	50	<10	700	N	300	10	50	N	10
FR103P	<2	N	N	15	70	<10	700	N	200	10	70	N	15
FR105P	<2	N	N	15	100	10	200	N	200	<10	20	N	10
FR106P	<2	N	N	15	30	10	300	N	200	10	50	N	10
FR107P	N	N	N	20	200	15	1,000	N	150	20	50	N	20
FR108P	<2	N	N	15	20	<10	1,500	N	200	<10	70	N	20
FR109P	2	N	N	10	<20	<10	N	N	100	<10	<20	N	10
FR111P	2	N	N	10	20	<10	300	N	150	10	<20	N	10
FR113P	<2	N	N	15	70	20	2,000	N	100	10	100	N	20
FR115P	<2	N	N	10	20	<10	500	N	50	10	30	N	10

Table 4.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa
FR001P	N	300	200	<100	100	N	700	N	.50
FR002P	<20	300	200	N	200	N	300	<200	N
FR003P	N	500	100	N	100	N	150	N	N
FR004P	N	500	70	N	70	N	100	N	N
FR005P	N	500	50	N	<20	N	100	N	N
FR006P	N	200	300	N	100	N	500	N	N
FR007P	N	300	100	N	100	N	200	N	8.10
FR008P	N	N	20	N	<20	N	70	N	<.11
FR010P	N	<200	100	N	100	N	200	N	.25
FR011P	N	300	100	N	50	N	200	N	N
FR015P	N	<200	300	<100	50	N	200	N	1.50
FR016P	N	N	200	N	30	N	300	N	N
FR018P	N	200	70	N	20	N	200	N	N
FR019P	N	200	50	N	20	N	70	N	1.80
FR020P	N	200	150	N	30	N	100	N	1.60
FR021P	N	200	30	N	<20	N	100	N	.15
FR022P	N	300	50	N	70	N	200	N	N
FR023P	N	300	100	N	50	N	150	N	.05
FR026P	N	500	100	N	50	N	500	N	N
FR028P	N	<200	70	N	30	N	70	N	.15
FR029P	N	N	150	N	50	N	70	N	N
FR032P	N	N	50	N	20	N	70	N	N
FR033P	N	N	200	N	200	N	200	N	N
FR034P	N	200	200	<100	150	N	500	N	N
FR035P	N	300	150	N	50	N	200	N	N
FR077P	N	200	100	N	50	N	150	N	N
FR078P	N	<200	100	N	50	N	150	N	N
FR080P	N	N	100	N	100	N	200	N	N
FR081P	N	N	100	N	30	N	100	N	N
FR085P	N	N	500	150	500	N	700	N	N
FR089P	N	N	100	100	200	N	500	N	N
FR090P	N	N	100	N	150	N	200	N	N
FR091P	N	N	150	N	50	N	100	N	N
FR096P	50	N	50	N	2,000	N	1,000	N	N
FR100P	50	N	100	N	1,000	N	1,000	N	N
FR102P	N	N	100	N	700	N	1,000	N	--
FR103P	N	N	100	N	700	N	1,000	N	N
FR105P	N	N	100	N	700	N	1,000	N	N
FR106P	N	N	100	N	500	N	700	N	N
FR107P	N	N	200	N	500	N	1,000	N	N
FR108P	N	N	50	N	700	N	2,000	200	N
FR109P	N	N	70	N	100	N	500	N	N
FR111P	N	N	70	N	200	N	700	N	N
FR113P	N	N	100	N	700	N	2,000	200	N
FR115P	N	N	100	N	200	N	1,000	N	N

Table 4.--continued

Sample	Latitude	Longitude	Fe-pct. s	Mg-pct. s	Ca-pct. s	Ti-pct. s	Mn-ppm s	Ag-ppm s	As-ppm s	Au-ppm s	B-ppm s	Ba-ppm s
FR131P	38 34 45	106 42 37	30.0	.70	.3	>2.0	1,500	N	N	N	150	100
FR132P	38 33 49	106 41 37	20.0	1.50	2.0	>2.0	1,000	N	N	N	100	<50
FR135P	38 35 58	106 40 45	7.0	2.00	3.0	>2.0	2,000	N	N	N	700	70
FR137P	38 36 16	106 40 32	20.0	.70	1.0	>2.0	1,000	N	N	N	50	<50
FR138P	38 36 55	106 40 13	15.0	1.50	.7	>2.0	2,000	N	N	N	500	70
FR140P	38 36 54	106 39 59	20.0	1.00	.5	>2.0	1,000	N	N	N	700	100
FR141P	38 37 11	106 39 32	15.0	1.00	1.0	>2.0	1,500	N	N	N	70	100
FR143P	38 37 28	106 37 18	30.0	.50	.7	1.0	1,000	2	N	N	50	3,000
FR169P	38 44 42	106 42 48	30.0	.30	1.0	>2.0	10,000	N	N	N	100	<50
FR170P	38 45 0	106 41 29	5.0	1.50	2.0	2.0	3,000	3	N	N	1,000	200
FR171P	38 45 28	106 40 50	7.0	2.00	5.0	2.0	3,000	N	N	N	200	<50
FR172P	38 46 28	106 37 31	15.0	1.00	3.0	>2.0	2,000	N	N	N	50	<50
FR174P	38 35 49	106 36 11	10.0	3.00	3.0	>2.0	2,000	N	N	N	30	50
FR175P	38 36 13	106 35 56	20.0	2.00	2.0	>2.0	5,000	2	N	N	20	<50
FR181P	38 39 45	106 31 41	50.0	.10	.1	.7	200	N	N	N	N	N
FR182P	38 39 45	106 30 41	50.0	.15	.5	1.0	300	N	N	N	<20	<50
FR183P	38 39 42	106 33 33	30.0	.50	2.0	>2.0	500	N	N	N	20	<50
FR184P	38 39 49	106 33 54	10.0	1.00	5.0	>2.0	2,000	N	N	N	50	<50
FR185P	38 39 20	106 34 25	20.0	.70	.5	2.0	5,000	N	N	N	300	100
FR187P	38 37 35	106 34 57	10.0	3.00	5.0	1.0	2,000	N	N	N	100	50
FR189P	38 34 48	106 37 50	15.0	1.50	2.0	>2.0	2,000	N	N	N	20	<50

Table 4.--continued

Sample	Be-ppm s	Bi-ppm s	Cd-ppm s	Co-ppm s	Cr-ppm s	Cu-ppm s	La-ppm s	Mo-ppm s	Nb-ppm s	Ni-ppm s	Pb-ppm s	Sb-ppm s	Sc-ppm s
FR131P	N	N	N	70	700	30	500	N	50	70	50	N	20
FR132P	2	N	N	70	500	10	100	20	70	150	70	N	50
FR135P	2	N	N	50	300	10	200	N	70	100	50	N	50
FR137P	<2	N	N	50	700	10	200	N	70	150	50	N	20
FR138P	N	N	N	50	700	10	200	N	100	70	<20	N	30
FR140P	N	N	N	30	500	10	200	N	<50	100	<20	N	20
FR141P	<2	N	N	50	500	15	100	N	50	70	20	N	20
FR143P	7	N	N	100	300	150	500	20	<50	150	1,000	N	20
FR169P	N	N	N	50	100	20	500	N	150	15	20	N	20
FR170P	2	N	N	20	200	10	500	N	70	20	50	N	20
FR171P	3	N	N	30	500	10	>2,000	N	100	50	200	N	50
FR172P	<2	N	N	30	100	10	500	N	200	30	30	N	30
FR174P	3	N	N	50	300	15	<50	N	100	50	<20	N	50
FR175P	N	N	N	70	70	15	N	N	150	20	100	N	50
FR181P	N	N	N	20	30	10	200	N	<50	20	50	N	N
FR182P	N	N	N	50	20	15	1,000	N	100	30	20	N	<10
FR183P	N	N	N	50	50	20	500	N	150	50	150	N	15
FR184P	<2	N	N	50	150	<10	500	N	200	50	50	N	30
FR185P	2	N	N	50	1,000	10	100	N	100	150	<20	N	20
FR187P	N	N	N	50	200	20	<50	N	<50	30	2,000	N	70
FR189P	<2	N	N	70	700	10	<50	N	70	100	20	N	30

Table 4.--continued

Sample	Sn-ppm s	Sr-ppm s	V-ppm s	W-ppm s	Y-ppm s	Zn-ppm s	Zr-ppm s	Th-ppm s	Au-ppm aa
FR131P	N	N	500	N	300	N	200	N	N
FR132P	N	<200	500	200	200	N	>2,000	N	N
FR135P	N	<200	300	N	200	N	2,000	N	N
FR137P	N	<200	500	N	100	N	>2,000	N	N
FR138P	N	N	200	N	200	N	1,000	N	N
FR140P	N	N	500	N	150	N	500	N	N
FR141P	N	N	700	N	100	N	1,000	N	--
FR143P	N	<200	700	N	70	2,000	150	N	N
FR169P	N	N	150	N	700	N	1,000	N	.10
FR170P	N	N	100	N	500	N	1,500	N	N
FR171P	N	N	100	N	>5,000	N	>2,000	1,000	N
FR172P	20	N	200	<100	200	N	>2,000	N	2.30
FR174P	N	300	300	100	100	N	>2,000	N	N
FR175P	N	<200	500	N	70	<500	200	N	1.10
FR181P	N	N	500	N	100	N	1,500	N	4.90
FR182P	N	N	500	N	200	N	700	N	1.10
FR183P	20	<200	500	N	150	N	700	N	N
FR184P	<20	<200	200	<100	200	N	1,000	N	N
FR185P	N	N	500	N	200	N	150	N	N
FR187P	N	<200	500	N	70	N	100	N	.35
FR189P	N	N	700	100	200	N	>2,000	N	N