

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Analyses and descriptions of geochemical samples,
Buzzard Knob Roadless Area, Rabun and Towns Counties, Georgia

by

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Open-File Report 89-102

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

1989

- 1 Denver, Colo.
- 2 Reston, Va.

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STUDIES RELATED TO WILDERNESS

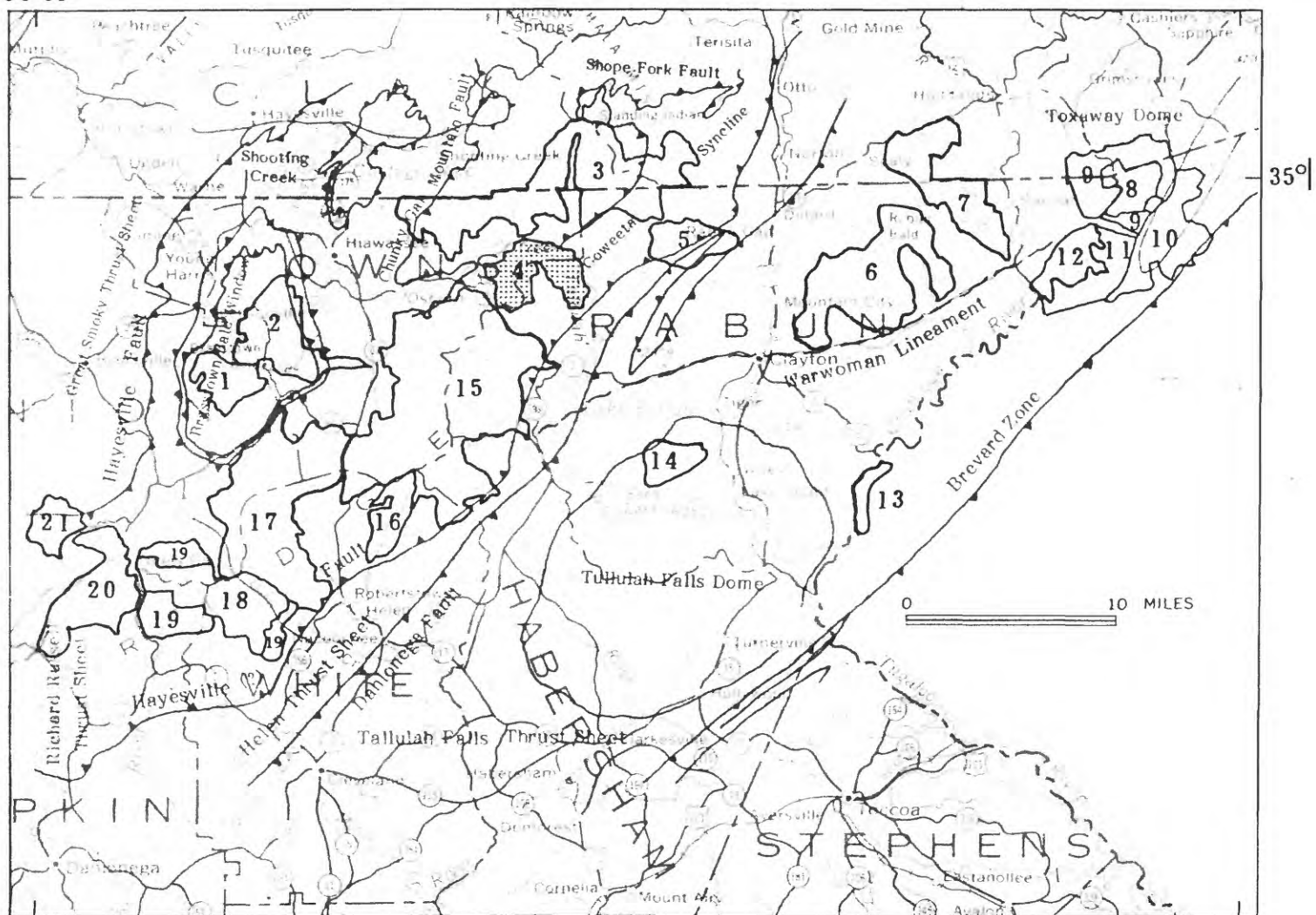
The Wilderness Act (Public Law 88-577, September 3, 1964) and related acts require the U.S. Geological Survey (USGS) and the U.S. Bureau of Mines to survey certain areas on Federal lands in order to determine the mineral values, if any, that may be present. Results must be made available to the public and be submitted to the President and the Congress. This report presents the analytical results of a geochemical survey of the Buzzard Knob Roadless Area (08-223) in the Chattahoochee National Forest, Rabun and Towns Counties, Ga. The area was classified as nonwilderness during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January, 1979.

Abstract

Semiquantitative spectrographic analyses for 31 elements on 30 stream-sediment, 22 panned-concentrate, 71 soil, and 72 rock samples from the Buzzard Knob Roadless Area, Rabun and Towns Counties, Ga., are reported here in detail. Atomic-absorption analyses for zinc in most samples and for gold in selected samples are also reported. Brief descriptions are given of rock samples analyzed, which include metamorphic and igneous rocks. Sample locations are given in Universal Transverse Mercator (UTM) coordinates.

INTRODUCTION

The analyses presented in this report (Table 1) are of 30 stream-sediment, 22 panned-concentrates, 71 soil, and 72 rock samples from the Buzzard Knob Roadless Area, Ga. (Fig. 1). These were collected by F. G. Lesure, J. P. D'Agostino and J. A. Goss in April 1985. Stream sediment samples were collected from most of the small drainage basins in the study area.



EXPLANATION

3. Southern Nantahala Wilderness

8. Ellicott Rock Wilderness

Roadless Areas

- | | |
|-----------------------------------|-------------------------------|
| 1. Wolf Pen 8-149 | 12. Rand Mountain 8-148 |
| 2. Brasstown 8-146 | 13. Long Creek 8-113 |
| 4. Buzzard Knob 8-223 | 14. Worley Ridge 8-224 |
| 5. Southern Nantahala B8-025 | 15. Tray Mountain 8-030 |
| 6. Rabun Bald 8-147 | 16. Anna Ruby 8-225 |
| 7. Overflow 8-026 | 17. Chattahoochee River 8-029 |
| 9. Ellicott Rock Extension A8-031 | 18. Raven Cliff A8-028 |
| 10. Persimmon Mountain L8-116 | 19. Raven Cliff B8-028 |
| 11. Ellicott Rock Expansion 8-112 | 20. Blood Mountain 8-027 |
| 21. Board Camp 8-145 | |

Figure 1.-- Index map showing locations of wilderness and roadless areas and major structural features in northeastern Georgia and adjacent North and South Carolina. The Buzzard Knob area is stippled. Number after roadless name is Forest Service identification number.

These represent several handfuls, randomly collected, of the finest sediment available at the sample site in the stream. A heavy mineral sample from coarser sediment was taken at 22 sites by panning one or more panfuls of gravel using a 14 in. standard gold pan. After air drying at room temperature, the remaining light minerals, mostly quartz and feldspar, were removed from the panned concentrate using bromoform (specific gravity 2.8). Magnetite was removed using a hand-held magnet and discarded. The remaining concentrate was analyzed without further preparation. Rock samples analyzed are described briefly in a separate section of this report. All are chip samples taken across bedding or layering over a measured thickness of representative material from outcrops or road cuts. The samples are representative of the major rock types exposed in the area. Some of the rock is partly weathered, but generally the freshest material available was sampled. The soil samples are grab samples from the A₂ or upper B soil zone, just below the dark, organic-rich surface soil (A₁ zone). Soils were dried, sieved to minus 80-mesh (0.007 in. or 0.177 mm), and then pulverized to minus 140-mesh (0.004 in. or 0.105 mm). Maps showing sample localities and discussion of the results of the analytical work are given by Peper and others (in press).

ANALYTICAL TECHNIQUES

Each sample was analyzed semiquantitatively for 31 elements by means of a six-step, D.C. (direct-current) arc, optical-emission spectrographic method (Grimes and Marranzino, 1968) by R. T. Hopkins and M. S. Erickson in the USGS laboratories, Denver, Colo. In addition, most of the samples were analyzed for zinc by an atomic-absorption technique (Ward and others, 1969, p. 20) by M. A. Pokorny, USGS laboratories, Denver, Colo. The panned-concentrate samples and 5 rock samples were analyzed for gold by atomic absorption methods by T. A. Roemer and C.A. Huyck (Thompson and others, 1968). The semiquantitative spectrographic values are reported as six steps per order of magnitude (1, 0.7, 0.5, 0.3, 0.2, 0.15 or multiples of ten of these numbers) and are approximate midpoints of geometric brackets whose boundaries are 1.2, 0.83, 0.56, 0.38, 0.26, 0.18, 0.12, etc. The expected precision is within one adjoining reporting interval on each side of the reported value 83 percent of the time and within two adjoining intervals 96 percent of the time (Motooka and Grimes, 1976).

The visual lower limits of determination for the 31 elements that were determined spectrographically are as follows:

For those given in percent:

Calcium	0.05	Magnesium	0.02
Iron	0.05	Titanium	0.002

For those given in ppm:

Antimony	100	Molybdenum	5
Arsenic	200	Nickel	5
Barium	20	Niobium	20
Beryllium	1	Scandium	5
Bismuth	10	Silver	0.5

Boron	10	Strontium	100
Cadmium	20	Thorium	100
Chromium	10	Tin	10
Cobalt	5	Tungsten	50
Copper	5	Vanadium	10
Gold	10	Yttrium	10
Lanthanum	20	Zinc	200
Lead	10	Zirconium	10
Manganese	10		

Rock sample descriptions

GA04-

- 021R 1 m chip sample, quartz-feldspar-biotite gneiss, medium-gray, fine-grained, migmatitic, minor quartz veins.
- 022R 1 m chip sample, quartz-feldspar-biotite gneiss, medium-gray, fine-grained, migmatitic.
- 023R 1 m chip sample, hornblende-feldspar gneiss, partly saprolite.
- 026R 1 m chip sample, quartz-feldspar-biotite gneiss, light- to medium-gray, fine-grained, migmatitic.
- 060R 0.15 m chip sample, mica schist.
- 061R 1 m chip sample, alteration and contact zone between amphibolite, mica gneiss, and vein quartz.
- 062R 1 m chip sample, amphibolite, weathered, minor vein quartz.
- 063R 0.3 m chip sample, mica schist.
- 064R Composite sample, hornblende gneiss float.
- 067R 1 m chip sample, mica schist and vein quartz.
- 068R 1.3 m chip sample, mica schist.
- 069R 0.6 m chip sample, biotite gneiss.
- 102R 1 m chip sample, vein quartz, white.
- 103R 0.3 m chip sample, mica schist, minor magnetite and garnet, medium-gray, medium-grained.
- 105R Composite sample of six boulders of vein quartz.
- 106R 3 m chip sample, vein quartz, minor limonite after sulfides(?) along wall of vein.
- 109R 1 m chip sample, hornblende-feldspar gneiss, medium-dark-gray, fine- to medium-grained.
- 112R 1 m chip sample, quartz-feldspar-biotite gneiss, medium-gray, fine-grained, minor red garnet.
- 115R 1 m chip sample, interlayered mica gneiss and schist, minor garnet in schist layers, medium-grained.
- 116R 2 m chip sample, interlayered quartz-feldspar-biotite-muscovite-garnet gneiss and schist and quartz-feldspar migmatite, light-medium-gray, medium-grained.
- 117R 1 m chip sample, biotite-quartz-feldspar-garnet schist, fine- to medium-grained, minor iron sulfides.

GA04-118R	1 m chip sample, quartz-feldspar-biotite-muscovite gneiss, medium-gray, fine-grained, minor iron sulfides.
119R	1 m chip sample, biotite-muscovite-quartz-feldspar-garnet schist, medium- to dark-gray, coarse-grained; garnet red-brown, minor magnetite.
120R	2 m chip sample, quartz-feldspar-biotite-muscovite-garnet gneiss, light-gray, fine-grained.
122R	Composite sample of several boulders of granite, light-gray, medium-grained, gneissic.
124R	2 m chip sample, quartz-feldspar-biotite gneiss, medium-gray, fine-grained.
128R	1 m chip sample, biotite-muscovite-quartz-feldspar-garnet schist, coarse-grained garnet, minor magnetite.
135R	1 m chip sample, biotite-muscovite-quartz-feldspar-garnet schist, coarse-grained, minor magnetite.
141R	1 m chip sample, hornblende-feldspar-quartz-epidote gneiss, medium-dark-gray, fine-grained.
143R	1 m chip sample, biotite-quartz-feldspar-garnet schist, minor sillimanite and graphite, weathered.
147R	1 m chip sample, hornblende-feldspar gneiss, dark-gray, fine-grained.
148R	1 m chip sample, vein quartz.
150R	1 m chip sample, soapstone, talc-chlorite-magnetite-carbonate schist, olive-gray to dark-brown, weathered.
201R	1 m chip sample, hornblende-feldspar gneiss, dark-gray, fine-grained, weathered.
202R	Composite of several boulders of limonitic float, porous mass of quartz and limonite, brown; gossan formed from calc-silicate.
203R	Composite of several boulders of calc-silicate, quartz-epidote rock, moderate-olive-brown, coarse-grained.
204R	1 m chip sample, quartz-feldspar-biotite-garnet gneiss, medium-light- to medium-dark-gray, fine-grained, rare graphite.
205R	1 m chip sample, biotite-muscovite-garnet schist interlayered with quartz-feldspar lenses, gray, coarse-grained, minor magnetite.

GA04-
207R Composite sample of several boulders hornblende-feldspar gneiss dark gray, fine-grained, minor quartz-feldspar-epidote layers.

209R Composite sample of float, quartz-epidote-magnetite rock; calc-silicate gneiss, fine-grained.

210R 1 m chip sample, hornblende-feldspar gneiss, medium-dark-gray, fine- to medium-grained.

211R 1 m chip sample, interlayered hornblende-feldspar gneiss and biotite-garnet schist. Gneiss dark-gray, fine-grained; schist coarse-grained.

213R 1 m chip sample, biotite schist and hornblende-feldspar gneiss, some epidote, migmatitic.

215R 1 m chip sample, hornblende-feldspar gneiss, dark gray, fine-grained, some calc-silicate gneiss layers.

217R 1 m chip sample, quartz-feldspar-biotite gneiss, brownish- to medium-gray, fine-grained, migmatitic.

218R 1 m chip sample, quartz-feldspar-biotite gneiss, medium-dark-gray, fine-grained.

221R Composite sample of float, calc-silicate gneiss; epidote-quartz-hornblende gneiss, granoblastic.

222R 1 m chip sample, quartz-feldspar-biotite-garnet gneiss and schist. Schist coarse-grained, gneiss fine-grained, migmatitic. Garnet in schist 0.6-1 cm.

224R 1 m chip sample, interlayered biotite-muscovite-garnet-sillimanite schist and quartz-feldspar-biotite-garnet gneiss. Garnets, pink, 1-4 mm.

225R 1 m chip sample, hornblende-feldspar gneiss, dark-gray, fine-grained, minor iron-sulfides.

230R 1 m chip sample, interlayered biotite-muscovite-quartz-feldspar schist and quartz-feldspar-biotite gneiss. Schist, dark-gray, medium-grained; gneiss fine-grained.

232R 1.5 m chip sample, biotite-muscovite-quartz-feldspar schist, minor sillimanite(?), weathered, light-brown, fine-grained.

237R 1 m chip sample, quartz-muscovite-biotite schist, minor sillimanite and garnet, weathers grayish-red, medium-grained; garnet seive-like, 0.5-1 cm.

GA04-
238R Composite sample of several boulders, calc-silicate gneiss, quartz-epidote-carbonate(?) gneiss, weathered, light-brown to olive-gray, fine-grained.

240R 1 m chip sample, biotite-muscovite-garnet-sillimanite schist interlayered with quartz-feldspar-garnet-biotite gneiss, dark-gray to tan, medium- to coarse-grained.

241R 1.5 m chip sample, hornblende-feldspar gneiss, minor garnet, dark-gray, fine-grained.

246R Composite sample of several boulders, quartz vein, barren.

249R 1 m chip sample, quartz-feldspar-biotite-muscovite-garnet gneiss and schist, fine-grained.

251R 1 m chip sample, quartz-feldspar-biotite gneiss, light-gray, fine-grained, migmatitic.

255R 1 m chip sample, biotite-muscovite-quartz-feldspar-garnet gneiss and schist, light- to medium-gray, medium-grained.

257R 1 m chip sample, hornblende-feldspar gneiss, minor quartz-epidote veining, minor iron sulfides. Dark-gray to greenish-gray, fine-grained, migmatitic.

263R 1 m chip sample, vein quartz, barren, limonite stain.

265R 1 m chip sample, talc-schist saprolite, light brown to tan, soft.

267R 1 m chip sample, hornblende-feldspar gneiss, dark-gray, fine-grained.

268R 1 m chip sample, meta-pyroxenite(?), olive-gray, medium-grained.

270R 1 m chip sample, soapstone, talc-chlorite-tremolite(?) schist, light-olive-gray, weathered.

271R 1 m chip sample, quartz-feldspar-biotite-muscovite-garnet schist, light-gray, fine-grained.

272R 1 m chip sample, soapstone, talc-chlorite-tremolite(?) schist, olive-gray, weathered.

402R 0.3 m chip sample, mica schist.

404R Grab sample, biotite-garnet-feldspar gneiss.

405R Grab sample, garnet-bearing amphibolite.

409R 0.15 m chip sample, biotite-muscovite-garnet schist.

EXPLANATION OF TABLE 1

The X and Y coordinates are Universal Transverse Mercator (UTM) grid, zone 17. The X coordinate is the easting value, in meters; the Y is the northing, in meters.

Table 1 lists the results of analyses of all sample media. The letters following the sample numbers designate the type of sample: "C" designates panned concentrates, "D" designates soils, "R" designates rocks, and "S" designates stream sediments.

Iron, magnesium, calcium, and titanium, concentrations are reported in percent (%); all others are in parts per million (ppm). Letters before chemical symbols indicate the method of analysis: S, six-step semiquantitative spectrographic method; AA, atomic absorption. Other symbols on the table are: --, not determined; <, not detected or is below the lower limit of determination, which is number shown; >, amount detected is above the upper limit of determination, which is number shown.

Elements looked for spectrographically but not found, except as noted, are listed below. The lower limits of determination for these elements are in parentheses, the first number is for rock, soil, and stream sediment; the second number is for panned-concentrate samples.

Ag (0.5), As (200; 500), Au (20; 20), Bi (10; 20), Cd (20; 50), Sb (100; 200), and W (50; 100).

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TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
STREAM SEDIMENTS														
GA03001S	259940	3870740	7	0.5	0.15	>1.000	700	<10	300	<1	10	150	20	150
GA03003S	258710	3871760	7	1	0.7	1	700	<10	500	1	20	150	30	150
GA04001S	264060	3866980	3	0.2	0.1	>1.000	1000	15	200	1	10	50	20	20
GA04002S	264260	3866960	5	0.3	0.3	>1.000	1000	20	200	1.5	15	100	30	20
GA04004S	264420	3867400	15	0.2	0.07	>1.000	1000	15	150	<1	20	150	20	<20
GA04006S	264300	3868200	7	0.7	2	1	1500	10	150	1	20	150	20	20
GA04008S	264390	3868280	5	0.3	0.5	1	700	15	300	1	15	100	20	150
GA04010S	261150	3867660	5	0.5	0.2	>1.000	1000	15	300	1	20	100	15	20
GA04012S	261200	3867560	3	0.7	0.5	0.7	1000	50	300	1.5	20	100	20	30
GA04014S	261450	3867280	5	0.7	0.7	>1.000	1000	15	200	1.5	20	100	15	70
GA04016S	261520	3867360	5	0.7	0.5	1	1000	15	300	1.5	20	100	20	20
GA04018S	260420	3868320	3	0.7	0.7	0.7	1000	10	200	1.5	20	150	20	30
GA04024S	261350	3870490	5	0.7	0.7	0.7	700	10	300	1.5	20	100	20	30
GA04027S	263830	3871140	2	0.3	0.15	0.5	500	<10	500	<1	10	50	15	70
GA04029S	263790	3871240	2	0.5	0.1	0.7	500	15	500	1	10	50	20	20
GA04031S	265170	3871300	3	0.7	1	0.7	700	10	500	1.5	20	70	20	30
GA04037S	265840	3870460	5	0.5	1	>1.000	700	15	300	<1	10	100	20	70
GA04039S	266940	3869920	5	0.5	0.7	>1.000	700	10	200	1.5	10	100	20	20
GA04040S	267100	3868020	10	0.3	0.07	>1.000	700	20	200	<1	15	100	20	<20
GA04041S	264210	3869340	10	0.3	0.15	>1.000	700	10	300	<1	10	100	20	100
GA04043S	264700	3867800	3	0.7	1	1	700	15	300	1.5	15	100	30	30
GA04044S	266970	3870890	5	0.7	0.7	1	700	15	300	1.5	20	150	20	20
GA04046S	261500	3871550	10	0.5	1	>1.000	1000	<10	200	<1	10	150	20	200
GA04048S	261740	3871340	7	0.7	0.7	1	1000	<10	300	<1	10	100	20	20
GA04050S	261700	3871220	5	0.7	0.2	>1.000	1000	<10	500	<1	10	100	20	30
GA04052S	260300	3870710	3	0.5	0.15	1	500	<10	500	1	10	100	30	50
GA04054S	260880	3871780	15	0.3	0.05	>1.000	1000	<10	200	<1	20	150	20	<20
GA04056S	264590	3868900	5	0.7	0.7	1	1000	10	300	1	10	100	30	50
GA04335S	265160	3871160	5	0.5	0.3	1	700	10	300	<1	15	100	30	30
GA04355S	265400	3870720	5	0.5	0.7	1	700	10	300	1.5	15	70	20	50
ROCKS														
GA04021R	262740	3871320	2	0.7	0.3	0.5	300	10	300	<1	7	50	20	20
GA04022R	262460	3871360	3	0.7	0.3	0.5	500	<10	500	<1	7	50	20	30
GA04023R	261960	3871440	5	1	1.5	0.7	700	<10	150	3	70	300	30	20
GA04026R	261350	3870490	3	1	0.5	0.7	500	<10	500	<1	10	50	7	20
GA04060R	263360	3866780	15	1.5	<0.05	0.7	1500	15	700	1	20	100	100	100
GA04061R	263420	3866810	7	0.5	7	0.3	5000	<10	<20	2	10	50	<5	100
GA04062R	263500	3866830	3	0.02	0.7	0.3	300	10	50	<1	5	10	10	300
GA04063R	263640	3866820	1.5	0.5	0.05	0.2	300	30	1000	<1	5	10	15	70
GA04064R	263620	3866820	2	0.7	0.1	0.5	700	10	700	1	7	15	7	<20
GA04067R	263530	3866760	2	0.05	2	0.5	2000	10	50	1	15	30	<5	150
GA04068R	263350	3866830	10	1	<0.05	0.7	1000	20	700	<1	10	30	100	200
GA04069R	263310	3866850	1.5	0.3	0.2	0.3	500	15	200	1.5	10	30	10	<20
GA04102R	262530	3867600	<0.05	<0.02	<0.05	0.003	<10	10	<20	<1	<5	10	<5	<20
GA04103R	262480	3867880	10	2	0.2	1	1000	<10	500	<1	70	150	10	70
GA04105R	262500	3868040	0.07	<0.02	<0.05	0.01	<10	<10	<20	<1	<5	<10	30	<20
GA04106R	262640	3868040	0.15	<0.02	<0.05	0.03	<10	<10	<20	<1	<5	<10	70	<20
GA04109R	261530	3867420	7	3	>1.000	1000	1000	<10	70	<1	70	150	150	<20
GA04112R	264370	3870380	2	0.7	0.5	0.3	500	10	200	1.5	7	30	<5	<20
GA04115R	265300	3871200	3	1.5	0.3	0.5	700	<10	500	1	15	70	50	30
GA04116R	266580	3870540	5	1	1	0.7	1000	10	500	1.5	20	70	100	30

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-
CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
STREAM SEDIMENTS														
GA03001S	<5	<20	20	30	7	<10	<100	150	70	<200	700	<100	-	35
GA03003S	<5	<20	30	30	7	<10	<100	150	70	<200	1000	<100	-	45
GA04001S	<5	<20	20	20	7	<10	<100	100	20	<200	1000	<100	-	30
GA04002S	<5	<20	30	30	7	<10	<100	150	50	<200	500	<100	-	40
GA04004S	<5	20	30	30	7	<10	<100	300	70	300	700	<100	-	25
GA04006S	<5	<20	50	30	10	<10	100	200	50	<200	700	<100	-	45
GA04008S	<5	<20	20	30	7	<10	<100	150	100	<200	500	<100	-	35
GA04010S	<5	<20	30	20	7	<10	<100	150	20	<200	700	<100	-	40
GA04012S	<5	<20	30	30	7	<10	<100	150	30	<200	700	<100	-	50
GA04014S	<5	<20	30	20	10	<10	<100	150	70	<200	700	<100	-	35
GA04016S	<5	<20	30	30	7	<10	<100	150	50	<200	300	<100	-	50
GA04018S	<5	<20	70	20	10	<10	<100	150	70	<200	200	<100	-	55
GA04024S	<5	<20	30	30	10	<10	<100	150	100	<200	500	<100	-	50
GA04027S	<5	<20	10	30	7	<10	<100	70	30	<200	500	<100	-	40
GA04029S	<5	<20	20	30	7	<10	<100	100	50	<200	1000	<100	-	65
GA04031S	<5	<20	30	30	10	<10	150	100	30	<200	150	<100	-	55
GA04037S	<5	<20	15	30	7	<10	150	200	70	<200	>1000	<100	-	50
GA04039S	<5	20	30	30	7	<10	<100	150	30	<200	500	<100	-	30
GA04040S	<5	20	20	30	7	<10	<100	200	20	<200	500	<100	-	30
GA04041S	<5	<20	20	30	7	<10	<100	200	70	<200	1000	<100	-	40
GA04043S	<5	<20	30	20	7	<10	<100	150	30	<200	500	<100	-	50
GA04044S	<5	<20	50	20	10	<10	<100	150	30	<200	300	<100	-	50
GA04046S	<5	<20	20	20	7	<10	<100	200	100	<200	700	<100	-	35
GA04048S	<5	<20	20	30	7	<10	<100	150	50	<200	700	<100	-	60
GA04050S	<5	<20	20	20	7	<10	<100	150	50	<200	>1000	<100	-	60
GA04052S	<5	<20	20	30	7	<10	<100	150	50	<200	700	<100	-	60
GA04054S	<5	20	20	20	7	<10	<100	300	30	<200	700	<100	-	20
GA04056S	<5	30	30	30	7	<10	<100	150	30	<200	500	<100	-	55
GA04335S	<5	20	20	30	7	<10	<100	150	70	<200	700	<100	-	50
GA04355S	<5	<20	20	30	10	<10	150	100	100	<200	1000	<100	-	50
ROCKS														
GA04021R	<5	<20	20	150	7	<10	100	70	15	<200	300	<100	-	80
GA04022R	<5	<20	20	20	7	<10	100	70	20	<200	150	<100	-	65
GA04023R	<5	<20	70	10	20	<10	<100	200	20	<200	70	<100	-	55
GA04026R	<5	<20	30	30	7	<10	150	100	20	<200	200	<100	-	50
GA04060R	<5	<20	30	20	50	<10	<100	100	100	<200	200	<100	-	20
GA04061R	<5	<20	20	10	15	<10	500	50	50	<200	100	<100	-	45
GA04062R	<5	<20	15	20	10	<10	100	50	30	<200	50	<100	-	15
GA04063R	<5	<20	15	20	5	<10	100	20	20	<200	70	<100	-	5
GA04064R	<5	<20	15	<10	10	<10	<100	30	20	<200	200	<100	-	55
GA04067R	<5	<20	10	<10	10	<10	200	30	50	<200	150	<100	-	45
GA04068R	<5	<20	15	15	20	<10	<100	50	50	<200	200	<100	-	40
GA04069R	<5	<20	10	15	10	<10	100	30	10	<200	200	<100	-	15
GA04102R	<5	<20	5	<10	<5	<10	<100	<10	<10	<200	<10	<100	<0.05	<5
GA04103R	<5	<20	150	30	15	<10	150	150	100	200	200	<100	-	80
GA04105R	<5	<20	5	<10	<5	<10	<100	<10	<10	<200	10	<100	<0.05	<5
GA04106R	<5	<20	5	<10	<5	<10	<100	<10	<10	<200	<10	<100	<0.05	5
GA04109R	<5	<20	100	<10	20	<10	100	300	30	<200	100	<100	-	10
GA04112R	<5	<20	15	20	5	<10	150	70	20	<200	150	<100	-	40
GA04115R	<5	<20	50	70	10	<10	<100	100	50	<200	200	<100	-	70
GA04116R	<5	<20	70	30	15	<10	200	100	30	<200	100	<100	-	85

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-
CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
ROCKS														
GA04117R	266620	3870530	5	1	0.7	0.5	1000	20	500	3	15	100	50	30
GA04118R	267100	3869840	2	0.3	1	0.5	500	15	500	1.5	10	50	20	<20
GA04119R	267390	3869140	7	1.5	0.5	0.7	700	10	700	1.5	70	150	20	50
GA04120R	267390	3869140	2	0.5	1	0.5	700	<10	150	2	10	30	20	30
GA04122R	265200	3868560	1.5	0.2	0.05	0.1	500	30	500	2	<5	15	15	<20
GA04124R	265920	3868840	3	0.7	0.5	0.5	700	<10	500	2	10	30	15	20
GA04128R	265400	3869660	7	1.5	0.2	0.7	1000	<10	700	<1	50	100	7	30
GA04135R	263520	3870360	5	1.5	0.2	0.7	1000	<10	500	1	30	100	30	100
GA04141R	261680	3869580	7	3	7	0.5	1500	<10	<20	<1	70	150	100	<20
GA04143R	262480	3866490	5	1	1.5	0.5	1000	15	300	3	10	70	30	30
GA04147R	261260	3866350	7	3	3	0.5	1000	15	<20	<1	70	100	100	<20
GA04148R	260970	3866960	0.2	<0.02	<0.05	<0.002	<10	<10	<20	<1	<5	15	<5	<20
GA04150R	261130	3868200	7	10	0.7	0.3	1500	<10	70	<1	100	5000	30	<20
GA04201R	263320	3866900	10	3	5	1	1000	<10	20	<1	70	100	150	<20
GA04202R	262640	3867260	7	0.02	1	0.2	>5000	<10	50	7	10	30	150	<20
GA04203R	262640	3867260	3	0.03	3	0.2	2000	<10	<20	3	10	20	50	20
GA04204R	262460	3837620	5	1.5	1	0.7	700	10	500	1.5	30	100	150	20
GA04205R	262370	3868270	7	1.5	0.3	0.7	1500	<10	700	<1	50	150	15	50
GA04207R	262300	3868740	5	3	5	0.5	1000	<10	<20	<1	70	150	5	<20
GA04209R	262310	3868820	7	1.5	10	0.5	1000	<10	<20	<1	50	150	30	<20
GA04210R	263060	3869250	7	5	10	0.7	1500	<10	<20	<1	70	300	30	<20
GA04211R	263080	3869280	10	2	2	1	1000	15	500	1	50	150	30	30
GA04213R	263400	3869020	5	2	3	0.3	1000	<10	150	3	70	150	7	<20
GA04215R	263920	3868680	10	5	7	0.5	1500	10	<20	<1	100	200	50	<20
GA04217R	261800	3867160	7	1.5	1	0.7	700	15	1500	1.5	50	100	30	30
GA04218R	262990	3870810	3	1	1.5	0.5	700	<10	500	2	10	30	<5	20
GA04221R	263950	3870380	7	0.3	10	0.3	1000	<10	<20	2	20	20	70	70
GA04222R	264120	3870760	5	1.5	0.5	0.5	1000	<10	500	1.5	10	70	20	70
GA04224R	265560	3870730	3	1	0.7	0.5	700	<10	700	1	10	70	20	30
GA04225R	268850	3867060	7	3	7	0.7	15	<10	<20	<1	70	70	150	<20
GA04230R	265620	3868120	5	1	0.7	0.7	700	<10	500	1	20	150	50	70
GA04232R	265380	3867860	5	1	0.15	0.7	500	10	700	<1	30	100	<5	<20
GA04237R	266640	3866260	3	0.5	<0.05	0.5	150	10	500	1	10	70	20	20
GA04238R	264160	3870340	5	0.5	10	0.5	1500	<10	20	1	15	70	10	50
GA04240R	264900	3869580	5	1	0.2	0.5	1500	<10	500	1	10	70	30	50
GA04241R	265090	3869480	7	3	7	0.5	1000	<10	<20	<1	70	200	70	<20
GA04246R	266480	3869040	0.1	0.02	<0.05	0.005	<10	20	<20	<1	<5	15	<5	<20
GA04249R	267140	3870200	5	0.7	0.7	0.7	700	10	700	1	20	70	30	20
GA04251R	262880	3870840	3	0.7	1	0.5	700	<10	300	2	15	30	<5	20
GA04255R	263310	3869530	5	1	0.5	0.5	500	<10	700	1	15	70	30	20
GA04257R	261830	3869200	7	3	5	0.5	1000	<10	20	<1	100	200	<5	<20
GA04263R	261670	3868560	0.3	0.02	<0.05	0.005	<10	<10	20	<1	<5	20	15	<20
GA04265R	261100	3868160	10	7	0.05	0.3	1000	<10	<20	1	100	5000	100	20
GA04267R	261190	3868240	10	3	5	1	1000	<10	100	<1	70	150	200	<20
GA04268R	261120	3868480	10	10	1.5	0.3	1500	<10	<20	<1	200	5000	50	<20
GA04270R	260430	3868820	10	7	1.5	0.3	1000	<10	<20	<1	150	5000	30	<20
GA04271R	260490	3869030	5	1.5	2	0.7	1000	<10	300	2	10	70	30	30
GA04272R	260640	3869130	7	10	0.3	0.3	1000	<10	20	<1	100	3000	30	<20
GA04402R	263425	3866780	3	0.5	0.1	0.2	1000	20	1000	<1	5	15	15	100
GA04404R	263540	3866800	2	1	<0.05	0.3	500	20	700	1	10	50	20	150
GA04405R	263580	3866820	2	0.7	0.1	0.5	1000	15	1000	1	10	20	7	50
GA04409R	263360	3866710	10	2	0.1	1	1000	10	1000	1	20	70	100	200

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	S-Mc ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
ROCKS														
GA04117R	<5	<20	30	30	10	<10	<100	100	50	<200	150	<100	-	25
GA04118R	<5	<20	30	20	5	<10	200	70	20	<200	300	<100	-	35
GA04119R	<5	<20	100	50	20	<10	150	150	70	<200	200	<100	-	100
GA04120R	<5	<20	30	30	5	<10	200	70	30	<200	150	<100	-	30
GA04122R	<5	<20	10	50	5	<10	150	30	<10	<200	30	<100	-	10
GA04124R	<5	<20	20	30	7	<10	200	100	20	<200	150	<100	-	40
GA04128R	<5	<20	100	50	20	<10	100	150	50	200	200	<100	-	90
GA04135R	<5	<20	70	30	20	<10	<100	150	50	<200	70	<100	-	40
GA04141R	<5	<20	70	<10	30	<10	<100	200	20	<200	30	<100	-	10
GA04143R	<5	<20	20	50	10	<10	200	70	70	<200	150	<100	-	50
GA04147R	<5	<20	100	<10	30	<10	<100	200	30	<200	30	<100	-	15
GA04148R	<5	<20	<5	<10	<5	<10	<100	<10	<10	<200	<10	<100	-	<5
GA04150R	<5	<20	1000	10	10	<10	<100	100	30	<200	50	<100	-	85
GA04201R	<5	<20	100	<10	30	<10	100	300	30	<200	150	<100	-	15
GA04202R	<5	<20	30	15	7	30	<100	100	20	<200	100	<100	<0.05	105
GA04203R	<5	<20	15	20	7	20	150	70	20	<200	150	<100	-	35
GA04204R	<5	<20	70	30	15	<10	200	150	30	<200	150	<100	-	40
GA04205R	<5	<20	70	30	30	<10	<100	150	70	200	100	<100	-	25
GA04207R	<5	<20	70	15	30	<10	150	200	20	<200	30	<100	-	10
GA04209R	<5	<20	100	<10	30	<10	100	200	20	<200	30	<100	-	5
GA04210R	<5	<20	100	10	50	<10	200	300	20	<200	30	<100	-	30
GA04211R	<5	<20	100	50	30	<10	200	200	70	<200	500	<100	-	70
GA04213R	<5	<20	70	30	15	<10	300	150	20	<200	<10	<100	-	65
GA04215R	<5	<20	100	<10	50	<10	<100	150	20	<200	30	<100	-	10
GA04217R	<5	<20	70	70	10	<10	300	150	50	<200	150	<100	-	80
GA04218R	<5	<20	30	30	7	<10	200	70	50	<200	150	<100	-	65
GA04221R	<5	<20	20	30	7	15	1000	100	300	<200	200	<100	-	40
GA04222R	<5	<20	15	30	10	<10	<100	70	70	<200	150	<100	-	60
GA04224R	<5	<20	20	30	10	<10	150	70	30	<200	200	<100	-	55
GA04225R	<5	<20	30	<10	50	<10	150	300	10	<200	30	<100	-	25
GA04230R	<5	<20	50	30	10	<10	300	100	50	<200	500	<100	-	80
GA04232R	<5	<20	50	30	15	<10	<100	150	70	<200	150	<100	-	60
GA04237R	<5	<20	30	20	10	<10	<100	70	10	<200	100	<100	-	90
GA04238R	<5	<20	30	20	10	20	700	70	70	<200	300	<100	-	20
GA04240R	<5	<20	15	50	15	<10	<100	150	100	<200	300	<100	-	40
GA04241R	<5	<20	100	<10	50	<10	<100	300	30	<200	15	<100	-	15
GA04246R	<5	<20	5	<10	<5	<10	<100	<10	<10	<200	<10	<100	<0.05	<5
GA04249R	<5	<20	30	30	7	<10	200	150	30	<200	500	<100	-	60
GA04251R	<5	<20	30	30	7	<10	200	70	30	<200	200	<100	-	45
GA04255R	<5	<20	20	30	10	<10	100	100	70	<200	150	<100	-	80
GA04257R	<5	<20	150	10	50	<10	100	300	30	<200	30	<100	-	20
GA04263R	<5	<20	5	<10	<5	<10	<100	10	<10	<200	<10	<100	<0.05	<5
GA04265R	<5	<20	700	<10	20	<10	<100	70	20	<200	50	<100	-	15
GA04267R	<5	<20	100	10	30	<10	150	300	50	<200	100	<100	-	10
GA04268R	<5	<20	1000	<10	15	<10	<100	100	15	<200	20	<100	-	20
GA04270R	<5	<20	1000	<10	20	<10	<100	150	15	<200	30	<100	-	20
GA04271R	<5	<20	30	50	10	<10	300	70	70	<200	700	<100	-	95
GA04272R	<5	<20	1000	<10	10	<10	<100	100	10	<200	15	<100	-	25
GA04402R	<5	<20	15	10	10	<10	100	20	30	<200	150	<100	-	20
GA04404R	<5	<20	15	30	10	<10	100	50	30	<200	100	<100	-	20
GA04405R	<5	<20	15	<10	10	<10	<100	50	30	<200	500	<100	-	60
GA04409R	<5	<20	20	20	20	<10	<100	100	70	<200	150	<100	-	15

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-
CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
SOILS														
GA01132D	266380	3869840	3	0.07	<0.05	0.7	70	15	300	<1	<5	50	20	<20
GA03261D	260070	3869400	2	0.5	0.3	0.3	300	<10	200	2	7	30	30	30
GA04020D	262880	3871400	2	0.07	<0.05	0.7	150	15	150	<1	<5	50	20	20
GA04065D	263580	3866840	3	0.07	<0.05	0.7	200	20	300	<1	5	50	7	<20
GA04101D	263100	3867090	3	0.15	<0.05	0.5	300	10	200	1.5	5	50	50	30
GA04104D	262540	3868060	3	0.2	0.05	1	500	15	300	1	10	70	30	30
GA04107D	262930	3867940	3	0.3	<0.05	0.7	200	<10	500	1	7	100	70	30
GA04108D	263280	3867950	5	0.2	<0.05	1	300	20	300	<1	7	100	30	30
GA04110D	263360	3870580	3	0.7	<0.05	0.7	200	<10	300	2	20	50	30	300
GA04111D	264330	3870320	5	0.7	<0.05	1	200	10	500	1	20	100	100	50
GA04113D	264620	3870720	2	0.15	<0.05	0.3	300	20	150	3	<5	50	30	20
GA04114D	265060	3870810	3	0.2	<0.05	0.7	300	<10	300	2	5	70	50	<20
GA04112D	265200	3869020	3	0.3	0.05	1	500	10	300	1	10	100	15	<20
GA04123D	265420	3868440	7	0.7	<0.05	1	300	15	200	2	70	100	50	50
GA04125D	266620	3867380	3	0.3	<0.05	0.7	300	<10	500	1.5	10	70	30	30
GA04126D	266100	3867070	3	0.07	<0.05	0.7	200	20	150	<1	<5	70	15	20
GA04127D	264800	3869780	3	0.7	<0.05	0.5	300	<10	700	2	15	70	20	50
GA04129D	265400	3869900	3	0.3	<0.05	1	300	15	200	<1	10	70	30	30
GA04130D	265700	3869640	3	0.15	<0.05	1	300	10	300	<1	7	70	30	30
GA04131D	266000	3869940	5	0.3	<0.05	0.7	200	30	300	5	20	100	70	30
GA04133D	266300	3870200	3	0.15	<0.05	0.7	150	<10	300	<1	10	50	30	30
GA04134D	266640	3870020	3	0.2	<0.05	1	150	20	500	<1	<5	100	30	20
GA04136D	263380	3870090	3	0.15	<0.05	0.5	200	10	200	<1	<5	50	10	30
GA04137D	262560	3869670	3	0.3	0.15	0.5	500	<10	300	3	10	50	<5	30
GA04138D	262740	3869300	3	0.7	0.05	0.5	300	<10	500	3	10	70	200	30
GA04139D	262350	3869140	3	0.7	0.15	0.5	300	<10	500	2	10	70	30	30
GA04140D	261640	3869820	3	0.15	<0.05	1	300	<10	200	<1	7	70	30	30
GA04142D	261120	3868840	2	0.3	<0.05	0.7	150	<10	150	1.5	15	70	30	30
GA04144D	262620	3866360	2	0.15	<0.05	0.5	150	10	300	1.5	<5	50	30	30
GA04145D	262060	3866300	3	0.7	0.5	0.3	300	10	500	3	10	70	30	50
GA04146D	261620	3866300	3	0.3	0.3	1	700	10	150	3	20	70	70	50
GA04149D	260960	3866980	2	0.3	0.3	0.5	150	10	200	2	10	30	20	30
GA04206D	262280	3868540	3	0.2	<0.05	0.7	500	15	500	2	10	50	30	30
GA04207D	262300	3868740	3	0.15	0.05	1	700	10	300	<1	10	50	30	30
GA04208D	262310	3868820	3	0.7	1	0.5	1000	<10	150	2	30	200	30	20
GA04212D	263280	3869100	3	0.3	<0.05	0.7	150	<10	300	2	7	70	50	30
GA04214D	263620	3868880	3	0.15	<0.05	0.7	200	<10	200	1.5	7	50	30	30
GA04216D	262860	3866720	3	0.5	0.3	0.7	1000	20	200	3	20	150	30	50
GA04220D	263620	3870740	3	0.3	0.15	0.5	200	15	300	1.5	5	70	7	30
GA04223D	264260	3871000	3	0.3	<0.05	0.5	150	<10	500	2	5	50	100	30
GA04226D	264870	3868880	3	0.2	<0.05	0.7	300	10	300	2	10	50	30	30
GA04227D	265260	3868680	5	0.2	<0.05	1	200	30	300	1.5	10	100	30	50
GA04228D	265240	3868580	5	0.7	<0.05	0.7	500	30	300	3	30	100	100	50
GA04231D	264910	3868480	5	0.3	<0.05	1	300	10	300	3	30	70	100	50
GA04233D	265840	3867920	3	0.15	<0.05	0.7	150	20	150	<1	<5	50	20	30
GA04233D	266180	3867540	3	0.2	<0.05	0.7	200	<10	500	1	7	70	30	30
GA04234D	266810	3867230	2	0.2	0.07	0.5	300	<10	200	1.5	<5	50	30	30
GA04235D	267120	3837030	3	0.2	<0.05	0.7	300	<10	200	1.5	10	50	10	30
GA04236D	266610	3866700	3	0.15	<0.05	0.7	150	<10	150	1	<5	70	20	30
GA04239D	264480	3870040	3	0.5	0.05	0.5	150	<10	300	2	10	50	20	50
GA04242D	265220	3869480	5	0.7	0.07	0.7	500	<10	500	1.5	20	100	30	30
GA04243D	265500	3869420	3	0.07	<0.05	1	200	<10	200	<1	<5	50	20	20
GA04244D	265880	3869260	3	0.03	<0.05	1	300	15	70	<1	<5	50	10	<20

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-
CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
SOILS														
GA01132D	<5	<20	5	20	7	<10	<100	100	<10	<200	300	<100	-	10
GA03261D	<5	<20	20	15	7	<10	<100	70	50	<200	200	<100	-	80
GA04020D	<5	<20	15	15	7	<10	<100	100	20	<200	700	<100	-	35
GA04065D	<5	<20	7	15	10	<10	<100	50	20	<200	700	<100	-	15
GA04101D	<5	<20	30	30	10	<10	<100	100	30	<200	200	<100	-	100
GA04104D	<5	<20	20	20	10	<10	<100	150	50	<200	700	<100	-	55
GA04107D	<5	<20	20	30	10	<10	<100	100	15	<200	150	<100	-	40
GA04108D	<5	<20	20	30	10	<10	<100	150	20	<200	500	<100	-	30
GA04110D	<5	<20	50	30	10	<10	<100	100	150	<200	200	<100	-	100
GA04111D	<5	<20	30	30	10	<10	<100	100	70	<200	500	<100	-	120
GA04113D	<5	<20	15	20	7	<10	<100	70	20	<200	500	<100	-	40
GA04114D	<5	<20	30	20	15	<10	<100	100	20	<200	150	<100	-	75
GA04121D	<5	<20	20	15	10	<10	<100	100	20	<200	700	<100	-	65
GA04123D	<5	<20	100	30	20	<10	<100	150	50	200	200	<100	-	30
GA04125D	<5	<20	30	30	10	<10	<100	100	50	<200	200	<100	-	45
GA04126D	<5	<20	<5	30	7	<10	<100	100	10	<200	1000	<100	-	15
GA04127D	<5	<20	20	20	7	<10	<100	70	50	<200	500	<100	-	85
GA04129D	<5	<20	30	20	10	<10	<100	150	20	<200	200	<100	-	50
GA04130D	<5	<20	15	30	7	<10	<100	150	15	<200	700	<100	-	40
GA04131D	<5	<20	30	30	10	<10	<100	100	20	200	200	<100	-	20
GA04133D	<5	<20	15	20	7	<10	<100	100	20	<200	300	<100	-	30
GA04134D	<5	<20	20	30	7	<10	<100	100	10	<200	300	<100	-	10
GA04136D	<5	<20	7	20	7	<10	<100	100	30	<200	700	<100	-	45
GA04137D	<5	<20	15	20	7	<10	<100	70	30	<200	200	<100	-	95
GA04138D	<5	<20	30	50	10	<10	<100	70	30	200	150	<100	-	220
GA04139D	<5	<20	30	30	7	<10	<100	70	30	<200	300	<100	-	90
GA04140D	<5	<20	30	20	7	<10	<100	150	70	<200	200	<100	-	70
GA04142D	<5	<20	50	30	10	<10	<100	100	50	<200	150	<100	-	60
GA04144D	<5	<20	15	30	7	<10	<100	70	15	<200	150	<100	-	55
GA04145D	<5	<20	20	30	7	<10	<100	70	50	<200	200	<100	-	85
GA04146D	<5	<20	30	20	15	<10	<100	200	50	<200	150	<100	-	60
GA04149D	<5	<20	20	30	7	<10	<100	70	30	<200	500	<100	-	60
GA04206D	<5	<20	20	30	7	<10	<100	150	50	<200	200	<100	-	50
GA04207D	<5	<20	20	30	7	<10	<100	150	50	<200	500	<100	-	50
GA04208D	<5	<20	50	30	30	<10	<100	200	50	<200	30	<100	-	110
GA04212D	<5	<20	30	30	7	<10	<100	100	20	<200	150	<100	-	50
GA04214D	<5	<20	30	20	10	<10	<100	100	20	<200	300	<100	-	65
GA04216D	<5	<20	50	30	10	<10	<100	150	70	<200	200	<100	-	100
GA04220D	<5	<20	20	30	7	<10	<100	100	30	<200	300	<100	-	60
GA04223D	<5	<20	20	15	15	<10	<100	70	30	<200	300	<100	-	65
GA04226D	<5	<20	30	30	10	<10	<100	100	20	<200	200	<100	-	35
GA04227D	<5	<20	30	50	15	<10	<100	150	20	<200	150	<100	-	15
GA04228D	<5	<20	50	30	20	<10	<100	100	70	<200	200	<100	-	30
GA04229D	<5	<20	50	30	15	<10	<100	150	50	<200	100	<100	-	50
GA04231D	<5	<20	10	30	7	<10	<100	70	30	<200	500	<100	-	35
GA04233D	<5	<20	20	30	7	<10	<100	100	20	<200	300	<100	-	80
GA04234D	<5	<20	20	30	7	<10	<100	70	20	<200	500	<100	-	60
GA04235D	<5	<20	30	30	7	<10	<100	70	30	<200	500	<100	-	85
GA04236D	<5	<20	20	30	10	<10	<100	70	15	<200	200	<100	-	85
GA04239D	<5	<20	30	30	7	<10	<100	70	30	<200	200	<100	-	80
GA04242D	<5	<20	30	30	10	<10	<100	100	20	<200	500	<100	-	70
GA04243D	<5	<20	5	20	7	<10	<100	100	15	<200	200	<100	-	20
GA04244D	<5	<20	<5	15	7	<10	<100	150	10	<200	700	<100	-	15

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	X-COORD.	Y-COORD.	S-Fe %	S-Mg %	S-Ca %	S-Ti %	S-Mn ppm	S-B ppm	S-Ba ppm	S-Be ppm	S-Co ppm	S-Cr ppm	S-Cu ppm	S-La ppm
SOILS														
GA04245D	266240	3869080	3	0.03	<0.05	1	200	<10	150	1	10	50	30	<20
GA04247D	266790	3869020	3	0.1	<0.05	0.7	700	70	200	1.5	10	50	30	20
GA04248D	266940	3868900	3	0.2	0.05	1	500	10	500	1.5	15	70	20	30
GA04250D	267390	3870210	3	0.3	<0.05	1	500	10	300	2	10	100	20	30
GA04252D	262330	3870700	3	0.3	<0.05	0.7	300	<10	500	1.5	7	50	7	30
GA04253D	262520	3870800	5	0.5	<0.05	1	700	<10	500	1.5	10	70	7	30
GA04254D	262800	3870850	2	0.07	<0.05	0.5	150	<10	150	<1	<5	50	7	20
GA04256D	261960	3869180	3	0.3	0.7	0.7	1000	30	200	2	20	100	50	30
GA04258D	261390	3869220	3	0.2	<0.05	1	150	70	300	1	10	70	50	30
GA04259D	261160	3869240	3	0.3	<0.05	1	100	70	200	1.5	15	50	50	30
GA04260D	260920	3869460	3	1.5	2	0.5	500	<10	30	1.5	70	700	150	20
GA04262D	261700	3868620	3	0.07	<0.05	1	150	15	300	<1	<5	50	30	20
GA04264D	261480	3868280	3	0.3	<0.05	0.7	300	10	300	2	50	50	30	30
GA04266D	260950	3868150	3	0.3	<0.05	0.7	150	<10	500	1.5	7	70	30	150
GA04269D	260720	3868550	2	0.1	<0.05	0.5	150	30	150	2	5	30	50	30
GA04406D	263660	3866870	2	0.2	<0.05	0.5	300	15	300	<1	5	50	20	70
GA04407D	263620	3866840	2	0.07	<0.05	0.5	300	20	300	<1	5	50	15	70
GA04408D	263475	3866790	2	0.07	0.5	0.5	500	15	150	1.5	7	50	20	100
PANNED-CONCENTRATES														
GA03002C	259940	3870740	1	0.2	0.2	2	200	20	300	<2	<10	50	<10	1500
GA03004C	258710	3871760	0.5	0.15	0.2	1	50	20	300	<2	20	100	<10	500
GA04003C	264280	3867040	0.3	0.05	0.2	0.5	70	20	150	<2	<10	20	<10	100
GA04005C	264420	3867400	0.5	0.1	<0.1	0.2	100	20	200	<2	<10	50	<10	500
GA04007C	264300	3868200	0.5	0.1	0.5	1	100	20	100	<2	<10	50	<10	<50
GA04009C	264390	3868280	0.5	0.2	0.3	1	100	20	200	<2	<10	70	15	<50
GA04013C	261200	3867560	0.7	0.5	0.3	2	200	100	500	<2	10	100	10	100
GA04015C	261450	3867280	0.5	0.3	0.2	>2.	150	200	150	<2	<10	150	10	100
GA04019C	260420	3868320	0.7	0.3	0.2	2	100	20	200	<2	<10	150	10	<50
GA04025C	261350	3870490	0.7	0.2	0.3	>2.	100	20	300	<2	<10	150	20	<50
GA04028C	263830	3871140	0.3	0.05	0.3	>2.	150	20	70	<2	<10	50	30	150
GA04030C	263790	3871240	0.2	0.1	0.3	>2.	50	20	700	<2	<10	50	20	<50
GA04032C	265170	3871300	0.5	0.1	0.3	>2.	50	20	150	<2	<10	100	<10	<50
GA04034C	265160	3871160	0.5	0.1	0.3	>2.	100	20	100	<2	<10	50	20	300
GA04036C	265400	3870720	0.2	0.1	0.5	>2.	100	20	100	<2	<10	50	15	<50
GA04042C	264210	3869340	0.5	0.1	0.2	0.15	70	20	200	<2	<10	50	<10	<50
GA04045C	266970	3870890	0.5	0.2	0.1	0.7	100	20	100	<2	<10	150	<10	<50
GA04047C	261500	3871550	0.5	0.2	0.5	>2.	100	20	200	<2	<10	100	15	<50
GA04049C	261740	3871340	0.7	0.2	0.5	>2.	150	100	300	<2	<10	100	15	700
GA04051C	261700	3871220	0.2	0.05	0.3	>2.	100	100	200	<2	<10	30	10	300
GA04053C	260300	3870710	0.5	0.05	0.1	>2.	30	20	70	<2	<10	100	<10	150
GA04055C	260880	3871780	0.5	0.1	0.15	1.5	50	20	300	<2	<10	100	<10	100

TABLE 1. ANALYSES OF STREAM-SEDIMENT, ROCK, SOIL, AND PANNED-
CONCENTRATE SAMPLES, BUZZARD KNOB ROADLESS AREA

Sample Number	S-Mo ppm	S-Nb ppm	S-Ni ppm	S-Pb ppm	S-Sc ppm	S-Sn ppm	S-Sr ppm	S-V ppm	S-Y ppm	S-Zn ppm	S-Zr ppm	S-Th ppm	AA-Au ppm	AA-Zn ppm
SOILS														
GA04245D	<5	<20	30	30	7	<10	<100	150	<10	<200	500	<100	-	5
GA04247D	<5	<20	20	30	7	<10	<100	70	30	<200	500	<100	-	60
GA04248D	<5	<20	30	30	7	<10	<100	100	50	<200	500	<100	-	95
GA04250D	<5	<20	50	30	7	<10	<100	100	50	<200	500	<100	-	120
GA04252D	<5	<20	30	30	7	<10	<100	70	50	<200	200	<100	-	110
GA04253D	<5	<20	50	30	10	<10	<100	100	150	<200	500	<100	-	140
GA04254D	<5	<20	5	20	5	<10	<100	70	20	<200	700	<100	-	35
GA04256D	<5	<20	50	30	15	<10	<100	150	70	<200	300	<100	-	75
GA04258D	<5	<20	30	30	7	<10	<100	100	20	<200	300	<100	-	60
GA04259D	<5	<20	50	30	7	<10	<100	100	30	<200	150	<100	-	60
GA04260D	<5	<20	150	20	30	<10	<100	150	30	<200	70	<100	-	45
GA04262D	<5	<20	15	20	7	<10	<100	100	15	<200	500	<100	-	20
GA04264D	<5	<20	50	30	7	<10	<100	100	50	<200	150	<100	-	130
GA04266D	<5	<20	20	20	7	<10	<100	70	30	<200	500	<100	-	75
GA04269D	<5	<20	50	20	7	<10	<100	70	30	<200	150	<100	-	60
GA04406D	<5	<20	15	30	15	<10	<100	50	30	<200	1000	<100	-	55
GA04407D	<5	<20	10	30	10	<10	<100	50	50	<200	1000	<100	-	40
GA04403D	<5	<20	20	50	10	<10	100	50	30	<200	1000	<100	-	95
PANNED-CONCENTRATES														
GA03002C	<10	<50	30	<20	<10	<20	200	70	500	<500	>2000	<200	<0.16	10
GA03004C	<10	70	20	<20	<10	<20	<200	70	70	<500	>2000	<200	<0.2	10
GA04003C	<10	<50	20	<20	<10	<20	<200	50	70	<500	>2000	<200	<0.08	<10
GA04005C	<10	<50	10	<20	<10	<20	<200	70	100	<500	>2000	<200	1.7	<10
GA04007C	<10	<50	<10	<20	<10	<20	<200	70	20	<500	>2000	<200	0.4	<10
GA04009C	<10	<50	10	100	<10	70	<200	100	100	<500	>2000	<200	<0.28	10
GA04013C	<10	100	15	<20	<10	<20	<200	150	100	<500	>2000	<200	<0.33	20
GA04015C	<10	50	10	<20	<10	<20	<200	150	150	<500	>2000	<200	<0.27	20
GA04019C	<10	50	10	<20	<10	<20	<200	100	50	<500	>2000	<200	<0.44	20
GA04025C	<10	<50	15	<20	<10	<20	<200	150	100	<500	>2000	<200	<0.31	10
GA04028C	<10	100	10	<20	<10	<20	200	150	700	<500	>2000	<200	<0.37	<10
GA04030C	<10	50	15	<20	<10	<20	200	150	1000	<500	>2000	<200	<0.23	<10
GA04032C	<10	50	10	<20	<10	<20	<200	150	100	<500	>2000	<200	<0.17	10
GA04034C	<10	<50	15	<20	<10	<20	<200	100	500	<500	>2000	<200	<0.2	<10
GA04036C	<10	<50	10	<20	<10	<20	200	150	700	<500	>2000	<200	<0.12	<10
GA04042C	<10	<50	<10	<20	<10	<20	<200	50	30	<500	>2000	<200	<0.19	<10
GA04045C	<10	<50	20	<20	<10	<20	<200	100	20	<500	>2000	<200	<0.4	<10
GA04047C	<10	<50	20	<20	<10	<20	<200	150	200	<500	>2000	<200	<0.24	20
GA04049C	<10	<50	10	<20	<10	<20	200	150	500	<500	>2000	<200	<0.34	10
GA04051C	<10	<50	20	<20	<10	<20	200	100	1000	<500	>2000	<200	<0.22	<10
GA04053C	<10	<50	20	<20	<10	<20	<200	100	300	<500	>2000	<200	<0.31	<10
GA04055C	<10	70	10	<20	<10	<20	200	100	100	<500	>2000	<200	<0.22	10