UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

GEOCHEMICAL ANALYSES OF ROCK AND STREAM-SEDIMENT SAMPLES FROM THE NORTH FORK OF THE LITTLE HUMBOLDT RIVER WILDERNESS STUDY AREA, HUMBOLDT COUNTY, NEVADA

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

Any use of trade names is for descriptive purposes only and does not imply endorsement by the USGS.

[1]Menlo Park, California

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STUDIES RELATED TO WILDERNESS

Bureau of Land Management Wilderness Study Areas

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and the U.S. Bureau of Mines to conduct mineral surveys on certain areas 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 results of a geochemical survey of the North Fork of the Little Humboldt River Wilderness Study Area (NV-020-827), Humboldt County, Nevada.

INTRODUCTION

The North Fork of the Little Humboldt River Wilderness Study Area (NV-020-827) occupies 8,900 acres along the steep canyon of the North Fork of the Little Humboldt River in north-central Nevada about 20 mi east-northeast of Paradise Valley, Nev., and about 55 mi northeast of Winnemucca, Nev. (fig. 1). This report presents the results of geochemical analyses of 22 rock samples collected by the U.S. Geological Survey during the summer of 1984 and of 32 stream-sediment samples collected by Barringer Resources, Inc. while under contract to the U.S. Bureau of Land Management.

The study area lies near the boundary between the Basin and Range province and the Owyhee Plateau (Peterson and Wong, 1985) where characteristics of both provinces overlap. A bimodal suite of rhyolite and basalt typical of the Owyhee Plateau and the Snake River Plain to the north characterize the rocks of the area. Numerous high angle, small displacement faults in the area are similar to structural features found in the Basin and Range province. Small amounts of cherty silica have been introduced into the rhyolite, particularly in the southern part of the study area. The basalt, which is tentatively correlated with the Miocene Big Island Formation of Coats (1985), forms a thin sequence of flows overlying the rhyolite, which Peterson and Wong (1985) have correlated with tuffaceous rhyolites of the Swisher Mountain Tuff in Idaho (Ekren and others, 1984). One locality containing probable cinnabar stains was noted during a U.S. Bureau of Mines study of the area. This location is about 0.75 mi west of the canyon and about 2.75 mi north of the southern boundary of the study area (A.M. Leszcykowski, oral commun., 1985).

ROCK DATA

Twenty-two rock samples were collected for semiquantitative emission spectrographic analysis and for flame atomic-absorption spectroscopy (fig. 2). Twenty of the samples are representative of the basalt or rhyolite units from which they were collected, while the remaining two samples (84GW29 and 84JP14) contain introduced silica. Most samples are unweathered but a thin weathering rind was present on some.

Sample preparation and analytical procedure

Samples were crushed to 6 mm, split, and pulverized prior to analysis for 31 elements (table 1) by standard semiquantitative emission spectrography (Grimes and Marranzino, 1968) and for 5 elements by flame atomic absorption.

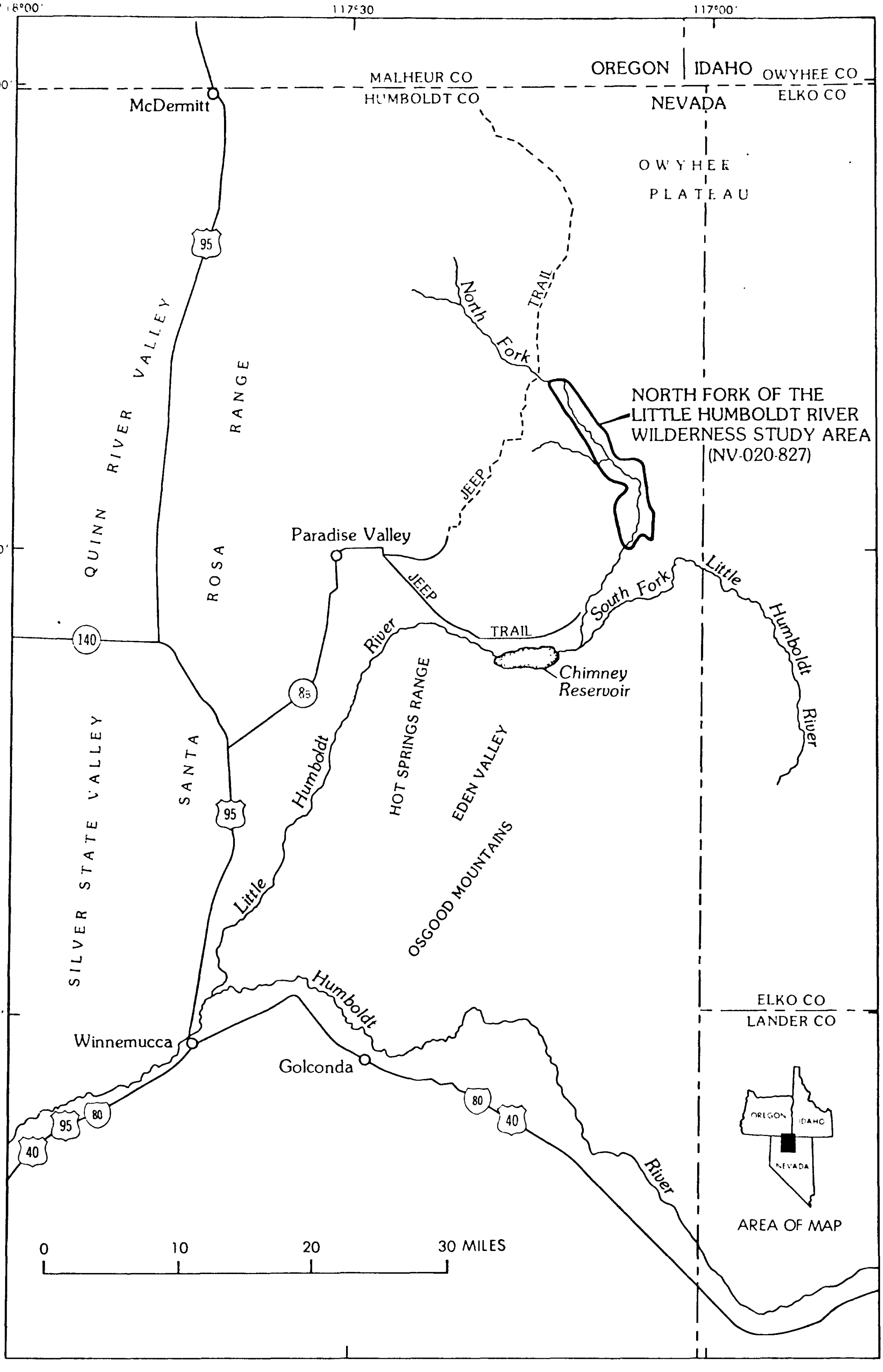

Figure 1. Index map showing the location of the North Fork of the Little Humboldt River Wilderness Study Area, Humboldt County, Nevada.

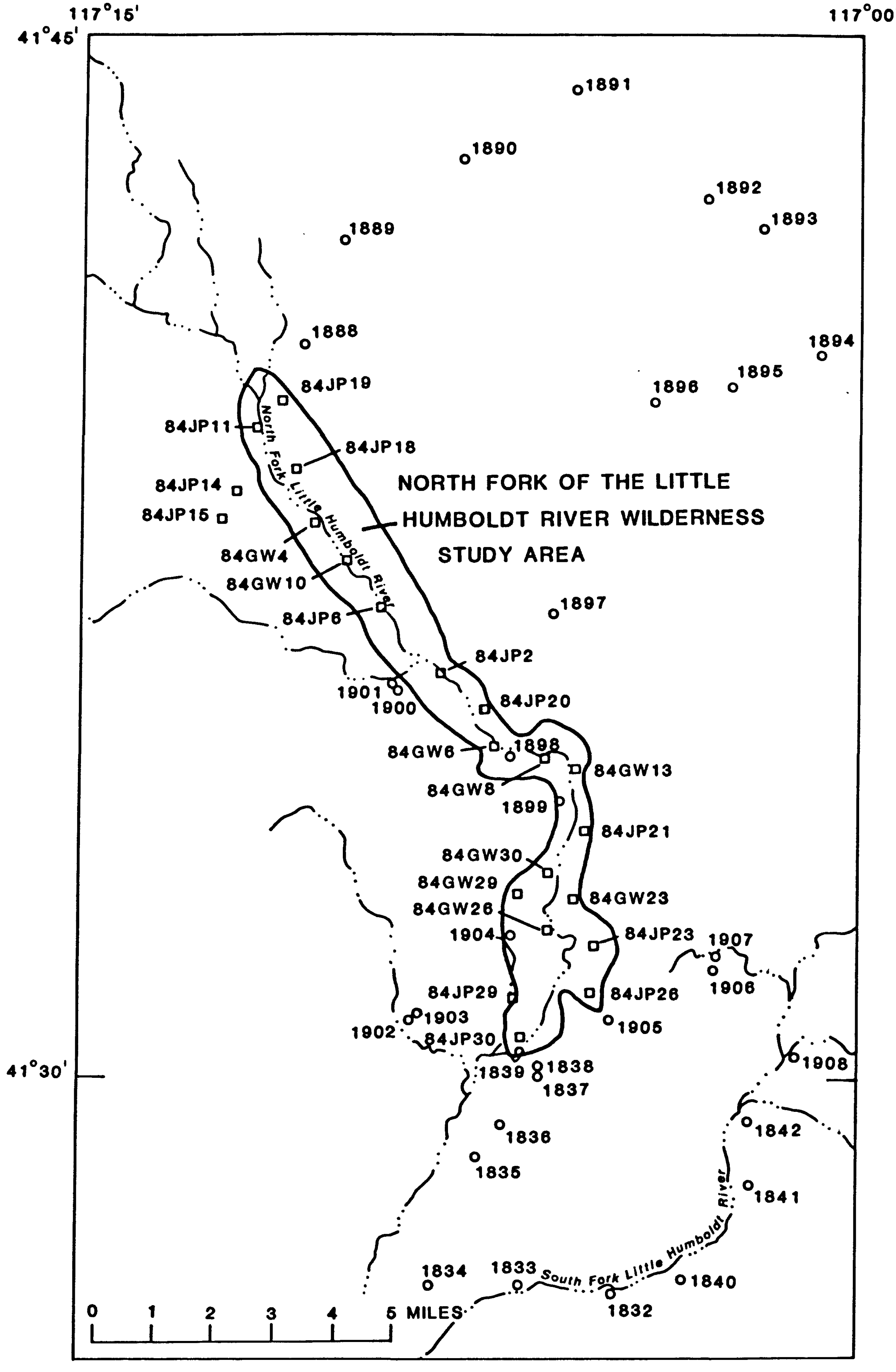

Figure 2. Map showing sampling sites for rock (squares) and stream-sediment (circles) samples collected in and near the North Fork of the Little Humboldt River Wilderness Study Area.

Before analysis by atomic absorption the samples were placed in a hydrochloric acid and hydrogen peroxide solution to solubilize metals not bound in silicate structures (S. A. Wilson, written commun., 1985). The metals of interest were then selectively extracted into an organic solution (Aliquat 336-MIBK) containing ascorbic acid and potassium iodide. Once the metals were extracted in this manner, they were analyzed. Sample analyses were performed by L.A. Bradley and P.H. Briggs at the U.S. Geological Survey in Denver, Colo.

Data

Table 1 lists the trace-element analyses for 22 rock samples. All analytical values for rock determinations are reported in parts per million (ppm) except for calcium, iron, magnesium, and titanium, which are reported in percents. Semiquantitative spectrographic analyses are reported as the midpoints of a 6-step geometric interval whose boundaries are 0.12, 0.18, 0.26, 0.38, 0.56, 0.83, 1.2, and so on, and whose midpoints are 0.15, 0.2, 0.3, 0.5, 0.7, 1.0, and so on. The precision of these values is approximately plus or minus one interval at a 68 percent confidence level or two intervals at a 98 percent confidence level (Motooka and Grimes, 1976). Atomic absorption methods are quantitative and are reported as discrete values.

Rock data were entered into a Lotus 1-2-3 file for data manipulation and presentation in tabular form.

STREAM-SEDIMENT DATA

Barringer Resources, Inc. collected and analyzed 32 stream-sediment samples in and surrounding the wilderness study area (fig. 2) as part of a larger project covering a substantial part of northwest Nevada. Their study was undertaken through a contract with the U.S. Bureau of Land Management in order to study the geochemistry of several wilderness study areas in that part of Nevada. All the data presented below for stream sediments have been extracted from their report (Connors and others, 1982). Stream sediments were collected from the active portions of streams and sieved to minus-30 mesh. Most samples were collected from the centers of dry stream channels.

Sample preparation and analytical procedure

Stream-sediment samples were dried for 24 hours, sieved to minus-80 mesh and split into 0.25 gm subsamples for analysis. To obtain heavy-mineral concentrates to be analyzed for gold and silver, 500 gm of bulk sample were sieved to minus-20 mesh and panned until only heavy minerals remained. All oxides and 12 trace elements (Be, Cd, Co, Cr, Cu, Ni, Pb, Sr, Th, V, Zn, and Zr) were analyzed by induction-coupled argon plasma emission. Atomic absorption procedures were used to analyze for 7 elements (Ag, Au, Ba, Hg, Mo, Sb, and Sn). Colorimetric, fluorimetric, and carbon fusion and specific ion electrode methods were used to analyze for arsenic and tungsten, uranium, and fluorine, respectively. The method for analyzing for lithium was not given. Specific preparation and analytical procedures are outlined in Connors and others (1982, v. IV, Appendix C, Geochemistry).

Table 1.--Results of rock geochemical analyses from the North Fork of the Little Humboldt River Wilderness Study Area
[Analyses designated "-AA" are atomic absorption; other analyses are spectrographic]

Sample number	Rock type	Ag ppm	As ppm	As-AA ppm	Au ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Bi-AA ppm	Ca pct.	Cd ppm	Cd-AA ppm	Co ppm	Cr ppm	Cu ppm	Fe pct.	La ppm	Mg pct.
84GW04	BASALT	<0.5	<700	<5.	<15	<10	500	1.5	<10	3.	3.0	<30	1.0	30	100	70	7.0	30	7.00
84GW10	BASALT	<0.5	<700	<5.	<15	15	700	<1.0	<10	<2.	3.0	<30	1.0	30	300	50	7.0	<30	7.00
84GW13	BASALT	<0.5	<700	<5.	<15	<10	2000	<1.0	<10	<2.	3.0	<30	1.2	30	70	50	7.0	<30	5.00
84GW26	BASALT	<0.5	<700	<5.	<15	15	700	<1.0	<10	2.	3.0	<30	1.0	30	200	30	7.0	30	7.00
84GW30	BASALT	<0.5	<700	<5.	<15	<10	700	<1.0	<10	<2.	5.0	<30	1.3	50	150	50	7.0	<30	7.00
84JP02	BASALT	<0.5	<700	<5.	<15	<10	300	<1.0	<10	<2.	5.0	<30	1.1	50	150	30	7.0	<30	7.00
84JP06	BASALT	<0.5	<700	<5.	<15	30	300	<1.0	<10	<2.	5.0	<30	0.7	50	200	50	7.0	30	5.00
84JP19	BASALT	<0.5	<700	<5.	<15	<10	700	<1.0	<10	7.	5.0	<30	0.9	30	150	30	7.0	30	7.00
84JP20	BASALT	<0.5	<700	<5.	<15	<10	700	<1.0	<10	<2.	5.0	<30	0.9	30	300	50	7.0	<30	7.00
84GW06	RHYOLITE	<0.5	<700	<5.	<15	10	700	2.0	<10	<2.	1.0	<30	0.1	<5	<10	5	1.0	70	0.30
84GW08	RHYOLITE	<0.5	<700	<5.	<15	10	1000	3.0	<10	<2.	0.7	<30	0.3	<5	<10	7	1.5	100	0.20
84GW23	RHYOLITE	<0.5	<700	<5.	<15	<10	1500	1.5	<10	<2.	0.7	<30	0.2	<5	<10	7	2.0	70	0.30
84GW29	RHYOLITE	<0.5	<700	<5.	<15	20	700	1.5	<10	<2.	0.3	<30	0.2	<5	<10	7	1.5	30	0.30
84JP11	RHYOLITE	<0.5	<700	<5.	<15	<10	1500	1.5	<10	<2.	0.7	<30	0.2	<5	<10	10	2.0	70	0.30
84JP14	RHYOLITE	<0.5	<700	12.	<15	<10	1500	2.0	<10	<2.	0.7	<30	0.3	<5	<10	5	2.0	70	0.10
84JP15	RHYOLITE	<0.5	<700	<5.	<15	10	2000	2.0	<10	<2.	0.5	<30	0.2	<5	<10	7	1.5	70	0.15
84JP18	RHYOLITE	<0.5	<700	<5.	<15	10	1500	2.0	<10	<2.	0.7	<30	0.2	<5	<10	7	1.5	70	0.30
84JP23	RHYOLITE	<0.5	<700	<5.	<15	10	1500	2.0	<10	<2.	0.7	<30	0.3	<5	<10	10	1.5	70	0.30
84JP29	RHYOLITE	<0.5	<700	<5.	<15	<10	1500	2.0	<10	<2.	0.5	<30	0.2	<5	<10	7	1.5	100	0.07
84JP21	VITROPHYRE	<0.5	<700	<5.	<15	<10	2000	3.0	<10	<2.	1.0	<30	0.2	<5	<10	7	2.0	100	0.50
84JP26	VITROPHYRE	<0.5	<700	<5.	<15	<10	1500	1.5	<10	<2.	0.7	<30	0.2	<5	<10	5	1.5	70	0.30
84JP30	VITROPHYRE	<0.5	<700	<5.	<15	<10	1500	1.5	<10	<2.	1.0	<30	0.2	<5	<10	5	2.0	70	0.30

Table 1.--Results of rock geochemical analyses from the North Fork of the Little Humboldt River Wilderness Study Area--Continued

Sample number	Mn ppm	Mo ppm	Nb ppm	Ni ppm	Pb ppm	Sb ppm	Sb-AA ppm	Sc ppm	Sn ppm	Sr ppm	Th ppm	Ti pct.	V ppm	W ppm	Y ppm	Zn ppm	Zn-AA ppm	Zr ppm
84GW04	1500	<5	<20	70	<10	<100	3.	30	<10	300	<200	>1.00	300	<50	50	<200	58	150
84GW10	1500	<5	<20	150	<10	<100	<2.	30	<10	300	<200	1.00	300	<50	30	<200	78	100
84GW13	1500	<5	<20	100	<10	<100	3.	20	<10	300	<200	0.50	150	<50	20	<200	65	70
84GW26	1500	<5	<20	150	<10	<100	2.	30	<10	300	<200	1.00	300	<50	30	<200	67	150
84GW30	1500	<5	<20	150	<10	<100	<2.	30	<10	300	<200	0.70	300	<50	20	<200	71	70
84JP02	1000	<5	<20	150	<10	<100	<2.	30	<10	300	<200	0.70	300	<50	20	<200	68	70
84JP06	1000	<5	<20	150	<10	<100	<2.	30	<10	300	<200	0.70	300	<50	30	<200	58	100
84JP19	1500	<5	<20	150	<10	<100	3.	30	<10	300	<200	1.00	300	<50	20	<200	87	100
84JP20	1500	<5	<20	150	<10	<100	<2.	30	<10	300	<200	1.00	300	<50	20	<200	66	100
84GW06	200	<5	20	<5	30	<100	<2.	7	<10	150	<200	0.20	30	<50	50	<200	36	300
84GW08	300	<5	30	<5	30	<100	<2.	7	<10	150	<200	0.20	30	<50	50	<200	34	300
84GW23	300	<5	30	<5	20	<100	<2.	7	<10	150	<200	0.30	20	<50	30	<200	35	300
84GW29	150	<5	<20	<5	15	<100	<2.	<5	<10	100	<200	0.15	15	<50	20	<200	26	150
84JP11	300	<5	30	<5	20	<100	<2.	7	<10	150	<200	0.30	20	<50	30	<200	43	300
84JP14	300	<5	<20	<5	15	<100	<2.	7	<10	200	<200	0.20	15	<50	30	<200	70	300
84JP15	200	<5	<20	7	15	<100	<2.	7	<10	150	<200	0.15	15	<50	20	<200	65	300
84JP18	300	<5	30	<5	20	<100	<2.	5	<10	150	<200	0.20	15	<50	30	<200	25	300
84JP23	500	<5	30	<5	20	<100	<2.	7	<10	150	<200	0.30	30	<50	30	<200	33	300
84JP29	300	<5	20	<5	20	<100	<2.	7	<10	150	<200	0.30	20	<50	30	<200	58	300
84JP21	500	<5	30	<5	20	<100	<2.	7	<10	150	<200	0.30	30	<50	50	<200	11	300
84JP26	300	<5	30	<5	20	<100	<2.	7	<10	150	<200	0.30	15	<50	30	<200	12	300
84JP30	300	<5	20	<5	20	<100	<2.	5	<10	150	<200	0.30	15	<50	30	<200	22	300

Data

Table 2 lists the oxide and trace-element analyses for 32 stream-sediment and concentrate samples. Oxide values are reported in percents and single-element values are reported in ppm except for mercury, which is reported in parts per billion (ppb). Values are reported as discrete values with analytical precision for all methods within 15 percent at a 95 percent confidence level.

Stream-sediment data for the North Fork of the Little Humboldt River study area were entered into a Lotus 1-2-3 file for data manipulation and presentation in tabular form.

INTERPRETATION OF DATA

The geochemical data for rock samples (table 1) reveals that there is very little variation among rocks of a single lithologic unit, although basalt can be readily distinguished from rhyolite by examining the data for many of the elements. Even the two rhyolite samples containing visible introduced silica do not show any geochemical indications of mineralization, although sample 84JP14 contains detectable arsenic by atomic-absorption analysis. Therefore, the rock data represent background values for the basalt and rhyolite in the study area. The silica probably formed by diagenetic alteration of the rhyolite by ground water percolation.

With the exception of four isolated high values for three elements, the stream-sediment data also represent background values of the rock from which the sediments were derived. A single arsenic value of 20 ppm was reported for sample 1842 and two mercury values of 20 and 30 ppb were reported for samples 1905 and 1888, respectively. These values slightly exceed the normal background levels in the area (see table 2). Both of these elements may serve as useful indicator elements for gold deposits and a variety of other deposits; however, the isolated occurrences of these higher values and the low level of the anomalies suggests that these data represent fluctuations in background rather than indications that mineralization has occurred in the area. A single high fluorine value of 2,400 ppm in sample 1893 is about 3 to 4 times higher than other values reported for the area. It is possible that fluorite-bearing silica deposits are present near the sampling site. As with arsenic and mercury, however, this fluorine analysis probably does not indicate a mineralizing system. Barringer Resources, Inc. used a variety of statistical methods in their interpretations for northwest Nevada including factor analysis, characteristic analysis, and discriminant analysis, the last of which proved not to be useful (Connors and others, 1982). They also concluded that the area does not have any significant geochemical anomalies that can be associated with mineralization.

Table 2.--Results of stream-sediment geochemical analyses from the North Fork of the Little Humboldt River Wilderness Study Area (Connors and others, 1982)

Sample number	Al2O3 pct.	CaO pct.	Fe2O3 pct.	K2O pct.	MgO pct.	MnO pct.	Na2O pct.	P2O5 pct.	TiO2 pct.	Ag ppm	As ppm	Au ppm	Ba ppm	Be ppm	Cd ppm	Co ppm	Cr ppm	Cu ppm	F ppm
1832	14.77	2.70	4.20	2.99	1.38	0.09	2.68	0.21	0.71	<0.005	10	<0.001	770	1.76	4.7	32	32.0	28.2	500
1833	14.36	2.59	3.31	3.43	1.19	0.10	3.12	0.17	0.56	<0.005	4	<0.001	740	1.87	4.4	28	24.7	19.0	450
1834	14.69	2.28	4.37	3.11	1.60	0.08	2.43	0.21	0.64	<0.005	6	<0.001	670	2.08	4.6	32	27.0	28.1	800
1835	14.70	2.47	4.29	3.21	1.44	0.07	2.98	0.17	0.76	<0.005	4	<0.001	670	2.04	5.0	32	41.8	25.4	720
1836	14.14	2.48	3.67	2.95	1.23	0.09	2.90	0.17	0.62	<0.005	6	<0.001	730	1.65	4.4	27	31.6	24.5	480
1837	15.07	2.71	4.43	2.82	1.36	0.07	2.53	0.20	0.76	<0.005	4	<0.001	670	1.83	4.5	30	34.2	28.7	490
1838	14.61	2.61	3.65	3.32	0.87	0.07	3.13	0.15	0.69	<0.005	8	<0.001	850	2.08	5.1	37	35.0	22.5	580
1839	14.45	2.65	5.31	3.16	1.49	0.09	2.54	0.20	0.94	<0.005	12	<0.001	630	2.10	5.3	40	37.4	30.4	700
1840	13.96	2.47	4.26	3.10	0.89	0.11	2.96	0.17	0.77	<0.005	10	<0.001	840	1.83	3.8	12	28.5	24.8	520
1841	13.83	2.58	3.70	2.80	1.06	0.07	2.89	0.14	0.59	<0.005	5	<0.001	680	2.14	4.4	22	31.7	23.0	870
1842	12.98	2.41	5.70	3.35	0.99	0.10	2.42	0.16	1.16	<0.005	20	<0.001	620	2.08	5.1	28	30.6	25.1	650
1888	15.20	2.71	5.38	2.41	1.52	0.11	2.31	0.19	0.86	<0.005	6	<0.001	720	1.80	4.6	23	61.1	36.3	660
1889	15.14	3.64	5.61	2.37	2.21	0.01	2.43	0.22	0.83	<0.005	8	<0.001	750	1.64	5.1	22	106.1	42.6	700
1890	14.95	3.00	5.32	2.27	1.66	0.12	2.50	0.16	0.84	<0.005	10	<0.001	700	1.61	4.7	23	93.3	38.3	670
1891	14.58	2.55	4.83	2.48	1.33	0.12	2.69	0.20	0.79	<0.005	10	<0.001	690	1.69	5.2	28	57.4	35.5	600
1892	14.77	2.86	5.52	2.32	1.68	0.01	2.33	0.19	0.92	<0.005	12	<0.001	750	1.65	5.1	24	77.0	37.6	600
1893	14.52	2.22	4.75	2.63	1.25	0.08	2.53	0.22	0.71	<0.005	12	<0.001	640	1.71	5.0	22	48.4	39.6	2400
1894	14.85	2.90	4.76	2.32	1.34	0.09	2.64	0.16	1.03	<0.005	2	<0.001	720	1.65	4.9	17	80.9	31.6	630
1895	14.68	3.18	5.63	2.34	1.75	0.12	2.53	0.19	1.02	<0.005	8	<0.001	710	1.64	5.7	30	110.4	39.0	620
1896	14.82	3.12	5.83	2.31	1.71	0.11	2.40	0.18	1.00	<0.005	10	<0.001	690	1.75	5.3	27	86.8	40.0	640
1897	14.86	2.96	4.92	2.49	1.41	0.01	2.63	0.19	0.90	<0.005	10	<0.001	750	1.68	5.4	32	61.0	35.0	790
1898	14.76	2.55	4.60	2.55	1.29	0.11	2.47	0.17	0.78	<0.005	6	<0.001	670	1.76	4.9	26	47.3	32.0	700
1899	14.73	3.19	5.78	2.12	1.58	0.03	2.40	0.17	1.05	<0.005	12	<0.001	930	1.70	5.6	48	67.6	38.3	710
1900	14.25	2.89	6.11	2.58	1.34	0.02	2.72	0.17	1.24	<0.005	12	<0.001	910	1.86	5.4	31	53.5	31.0	630
1901	14.27	4.07	8.69	1.95	2.55	0.02	2.29	0.19	1.73	<0.005	10	<0.001	760	1.41	7.0	35	109.2	41.4	340
1902	14.13	2.58	4.26	2.82	1.05	0.10	2.74	0.15	0.85	<0.005	10	<0.001	810	1.97	4.3	14	35.2	23.8	400
1903	14.36	2.76	5.22	2.81	1.26	0.12	2.69	0.19	1.06	<0.005	12	<0.001	810	1.96	4.8	14	42.4	28.3	275
1904	15.36	2.86	5.51	2.50	1.39	0.11	2.56	0.16	1.07	<0.005	14	<0.001	710	1.84	5.3	28	56.4	36.5	320
1905	14.48	2.30	5.18	2.89	1.05	0.02	2.67	0.17	0.96	<0.005	12	<0.001	930	1.93	4.6	24	41.9	30.6	460
1906	14.74	3.20	5.70	2.40	1.59	0.11	2.67	0.17	1.04	<0.005	14	<0.001	760	1.58	5.1	25	67.3	33.0	560
1907	14.63	4.36	8.71	1.96	2.67	0.02	2.51	0.21	1.76	<0.005	10	<0.001	700	1.48	6.8	27	103.3	41.3	450
1908	14.06	2.63	4.60	3.27	1.22	0.08	2.57	0.15	0.78	<0.005	6	<0.001	680	2.07	4.3	15	37.0	27.2	320

Table 2.--Results of stream-sediment geochemical analyses from the North Fork of the Little Humboldt River Wilderness Study Area (Connors and others, 1982)--Continued

Sample number	Hg ppm	Li ppm	Mo ppm	Ni ppm	Pb ppm	Sb ppm	Sn ppm	Sr ppm	Th ppm	U ppm	V ppm	W ppm	Zn ppm	Zr ppm
1832	10	34	<1	25	10	<1.	0.4	299.2	38.1	0.4	74.2	<2	106	143.2
1833	6	28	2	20	15	<1.	<0.2	300.6	40.4	0.2	59.3	<2	86	146.4
1834	10	46	1	25	10	<1.	<0.2	253.0	45.2	0.5	66.8	<2	120	187.5
1835	6	41	<1	26	10	<1.	<0.2	282.8	47.1	0.3	79.6	<2	116	167.7
1836	6	28	<1	27	10	<1.	<0.2	301.3	34.0	0.3	64.6	2	105	135.5
1837	4	33	<1	24	10	<1.	<0.2	306.1	40.7	3.6	73.8	<2	107	146.4
1838	4	27	2	21	5	<1.	<0.2	250.8	43.0	2.4	59.4	<2	86	193.4
1839	4	37	1	30	10	<1.	<0.2	240.2	52.1	1.5	91.2	<2	119	179.2
1840	4	25	1	18	10	<1.	<0.2	290.2	25.8	0.7	72.3	<2	99	143.5
1841	4	37	<1	19	10	<1.	<0.2	302.1	31.2	0.4	58.7	<2	89	173.4
1842	4	44	1	21	10	<1.	<0.2	244.6	40.4	0.9	93.3	<2	125	182.9
1888	30	39	2	40	10	<1.	<0.2	293.0	30.2	1.4	92.6	<2	127	155.4
1889	6	34	2	54	5	<1.	<0.2	302.4	26.4	0.7	103.7	<2	108	140.0
1890	4	32	1	44	10	<1.	<0.2	299.5	29.0	1.0	94.8	<2	101	152.2
1891	10	32	1	33	10	<1.	<0.2	301.7	30.9	0.9	86.8	<2	111	164.1
1892	4	35	2	43	5	<1.	<0.2	285.5	29.6	1.3	105.2	<2	104	149.9
1893	4	33	2	28	5	<1.	<0.2	261.5	29.4	1.1	76.7	<2	117	163.8
1894	4	31	2	32	5	<1.	<0.2	300.5	26.6	0.9	98.2	<2	95	146.5
1895	4	32	1	46	10	<1.	<0.2	304.2	30.7	1.7	113.3	<2	103	151.4
1896	4	35	<1	45	5	<1.	<0.2	279.6	29.9	0.9	110.3	<2	104	159.1
1897	4	30	2	37	5	<1.	<0.2	315.4	34.0	1.3	97.9	<2	101	147.8
1898	4	31	2	31	10	<1.	<0.2	307.7	33.9	1.3	84.8	<2	104	147.7
1899	6	34	2	48	15	<1.	<0.2	264.4	36.9	1.6	127.9	<2	99	150.9
1900	6	29	2	33	20	<1.	<0.2	299.4	37.5	1.3	116.7	<2	120	163.7
1901	4	27	1	60	5	<1.	<0.2	245.6	28.6	1.2	212.5	<2	125	151.5
1902	6	32	2	23	5	<1.	<0.2	312.6	33.4	1.1	79.1	<2	99	161.2
1903	6	28	2	25	5	<1.	<0.2	321.1	30.0	1.1	91.1	<2	125	180.1
1904	8	32	2	35	10	<1.	<0.2	306.5	32.3	1.6	106.0	<2	126	162.1
1905	20	32	2	24	15	<1.	<0.2	289.9	37.7	1.4	91.2	<2	109	170.4
1906	6	29	2	37	5	<1.	<0.2	300.5	29.1	1.1	117.2	<2	99	144.8
1907	6	27	1	61	10	<1.	<0.2	256.2	25.9	0.8	214.8	<2	124	151.2
1908	6	45	2	26	10	<1.	<0.2	269.5	32.7	1.1	79.0	<2	106	176.7

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