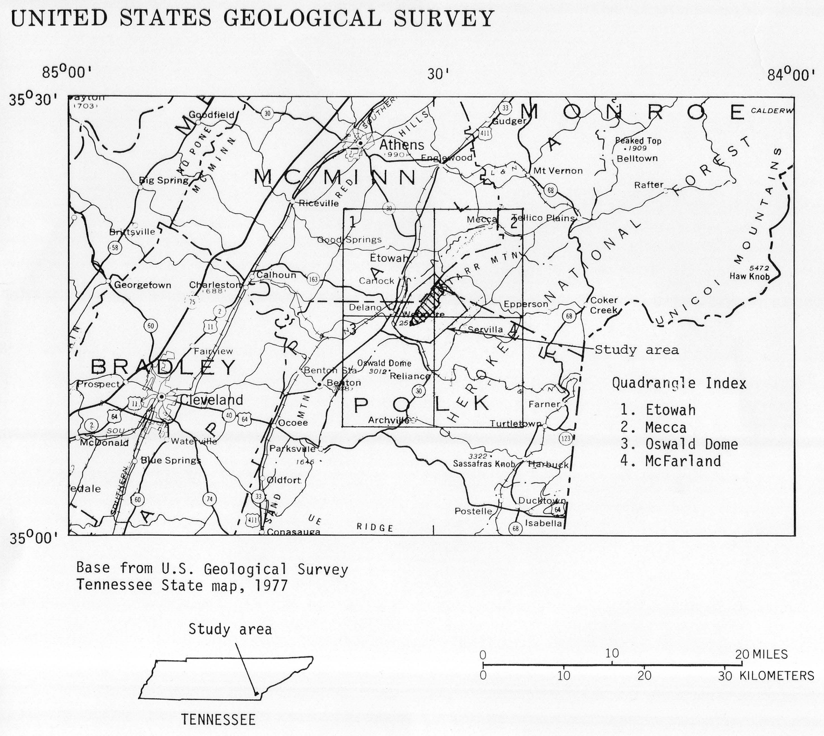
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF–1474–B



Base from U.S. Geological Survey
Tennessee State map, 1977

Figure 1.--Index map showing location of Gee Creek Wilderness (striped) and surrounding study area.

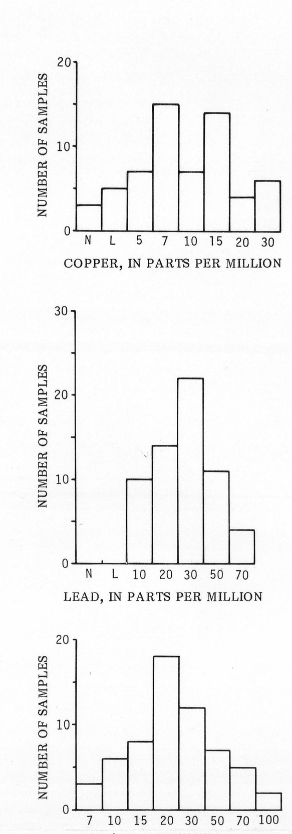
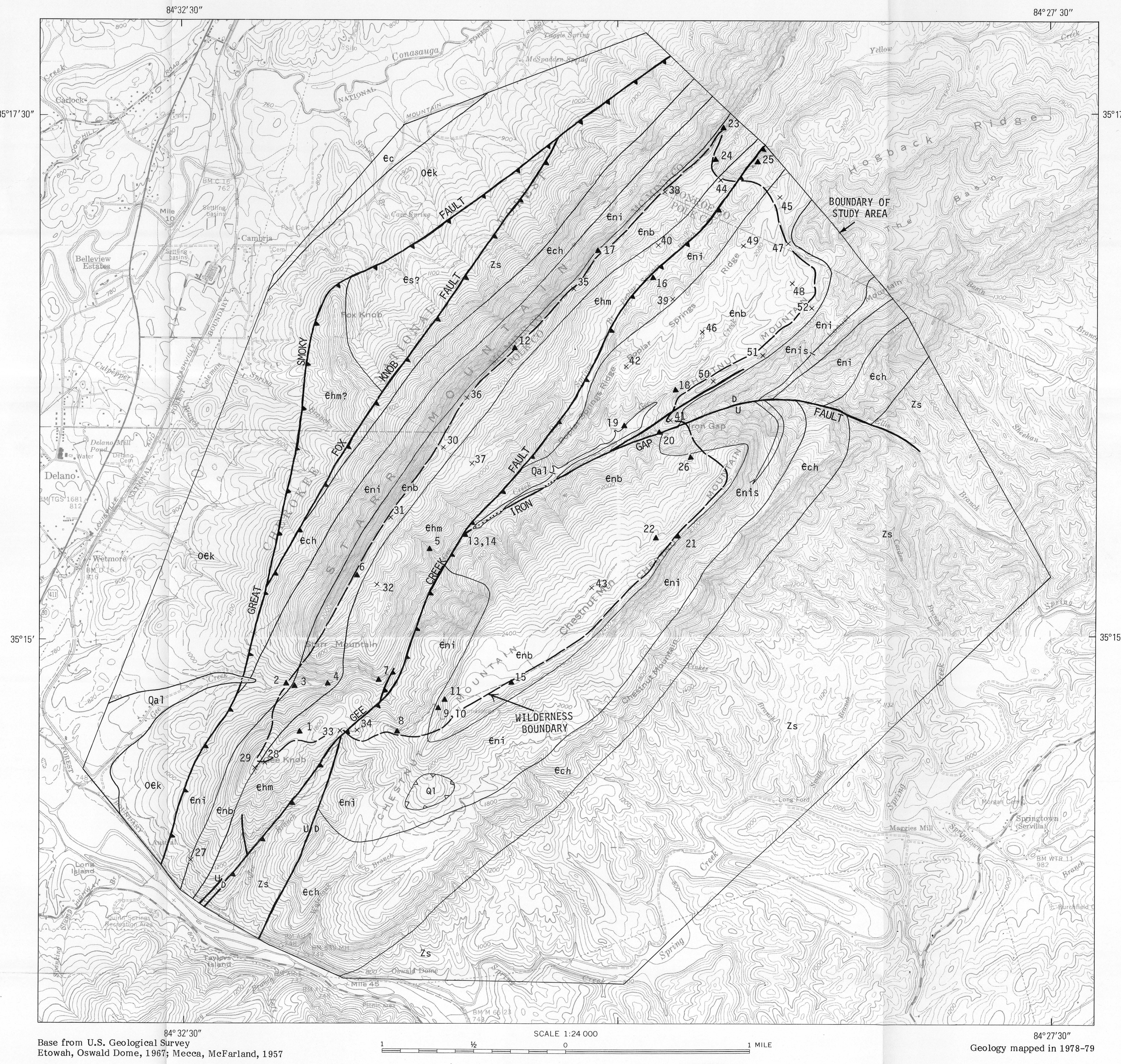


Figure 3. Distribution of copper, lead, and zinc in stream samples. Data from atomic absorption analyses for zinc are grouped in six steps per order of magnitude for comparison with spectrographic data for copper and lead.



Base from U.S. Geological Survey
Etowah, Oswald Dome, 1967; Mecca, McFarland, 1957

SCALE 1:24 000
CONTOUR INTERVAL 40 FEET

Geology mapped in 1978-79

Figure 2.--Generalized geologic map of the Gee Creek Wilderness and vicinity and location of rock and soil samples.

EXPLANATION

Qal — Alluvium
Ql — Landslide deposits (QUATERNARY)
O€k — Knox Dolomite (ORDOVICIAN)
€c — Conasauga Shale
€s — Shady Dolomite
FAULT
€hm — undifferentiated; mostly sandstone; mostly siltstone and shale; sandstone, siltstone, and shale. Hesse Sandstone and Murray Shale, undifferentiated
€nb — Nebo Sandstone
€ni, €nis — Nichols Shale; €nis, sandstone lentil
€ch — Cochran Conglomerate (Chilhowee Group; CAMBRIAN)
Zs — Sandsuck Shale (Walden Creek Group of Ocoee Supergroup; PRECAMBRIAN)

Contact

Thrust fault
Sawteeth on upper plate; dotted where concealed

High-angle fault
U, upthrown side; D, downthrown side; dotted where concealed

Rock sample

Soil sample

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 Gee Creek Wilderness in Cherokee National Forest, Polk and Monroe Counties, Tenn. The Gee Creek Wilderness was established by Public Law 93-622, January 3, 1975.

INTRODUCTION

The reconnaissance geochemical survey of the Gee Creek Wilderness included the collection of 26 rock samples and 26 soil samples (fig. 2) and 61 bulk stream-sediment samples (fig. 4). These were analyzed for 34 elements, among which are the more common metals that potentially could occur in economic concentrations.

Samples were collected in April and July, 1979. The rock samples are from outcrops and consist of grab, chip, and channel samples (Table 2). The stream-sediment samples consist of several handfuls of the finest sediment in the stream bed or along the bank. Soil samples were collected below the humus layer and were located where stream-sediment or rock samples were generally lacking.

ANALYTICAL PROCEDURES

Rock samples were crushed to approximately 0.25 in. (6mm) and pulverized to minus 140 mesh (0.105 mm) in a vertical grinder with ceramic plates. Stream sediments and soils were dried and sieved to minus 80 mesh (0.177 mm) and then pulverized.

Each sample was analyzed semiquantitatively for 34 elements by a six-step, direct-current arc, optical emission spectrographic method by Shannon Gore, as part of a contract with Specomp Services, Inc., Hayden, Colo. In addition, each sample was analyzed by an atomic absorption technique for zinc (Ward and others, 1969, p. 20) by B. F. Arbogast, Karl Krill, and J. D. Sharkey, U.S. Geological Survey Laboratories, Denver, Colo., and by a spectrofluorometric method for uranium by J. D. Mensik, as part of a contract with Geoco, Inc., Wheat Ridge, Colo. The analyses are given in table 1; sample locations are shown in figures 1 and 4.

The semiquantitative spectrographic values are reported to the nearest number in the series 0.15, 0.2, 0.3, 0.5, 0.7, and 1, or multiples of 10 of these numbers, and are approximate geometric midpoints of the concentration ranges. The precision is expected to be within one adjoining reporting interval on each side of the reported value 83 percent of the time within two adjoining intervals 96 percent of the time (Motooka and Grimes, 1976).

RESULTS

The analytical results indicate that no well-defined anomalous areas are apparent in the Gee Creek Wilderness. The quantities of all elements in the analyses, including those for copper, lead, and zinc, for example, have a normal distribution (figs. 3, 4, and 5), and do not exceed amounts present in average sedimentary rocks (Turekian and Wedepohl, 1961; Pettijohn, 1963). Many of the elements have slightly higher concentrations in the southwest part of the area (fig. 2), and apparently are related to proximity to several faults (see fig. 1), a factor which also controls the location of small iron deposits (Gazdik and Behum, 1983).

Fourteen thin sections of sandstones were point-counted to determine their mineralogical content (fig. 5; table 3), particularly to see if any are pure enough in quartz to be considered for glass making.

REFERENCES

Epstein, J. B., 1983, Geologic map of the Gee Creek Wilderness, Polk and Monroe Counties, Tennessee: U.S. Geological Survey Miscellaneous Field Studies Map MF-1474-A.
Epstein, J. B., Gazdik, G. C., and Behum, P. T., 1983, Mineral resource potential of the Gee Creek Wilderness, Polk and Monroe Counties, Tennessee: U.S. Geological Survey Miscellaneous Field Studies Map MF-1474-D.
Gazdik, G. C., and Behum, P. T., 1983, Mines, quarries, prospects, and analyses of samples, Gee Creek Wilderness, Polk and Monroe Counties, Tennessee: U.S. Geological Survey Miscellaneous Field Studies Map MF-1474-C.
Motooka, J. M., and Grimes, D. J., 1976, Analytical precision of one-sixth order semiquantitative analyses: U.S. Geological Survey Circular 738, 25 p.
Pettijohn, F. J., 1963, Chemical composition of sandstones—Excluding carbonate and volcanic sands, Chapter S, in Fleischer, Michael, ed., Data of geochemistry: U.S. Geological Survey Professional Paper 440-S, p. S1-S21.
Turekian, K. K., and Wedepohl, K. H., 1961, Distribution of the elements in some major units of the Earth's crust: Geological Society of America Bulletin, v. 72, p. 175-191.
Ward, F. N., Nakagawa, H. M., Harms, T. F., and Van Sickle, G. H., 1969, Atomic-absorption methods of analysis useful in geochemical exploration: U.S. Geological Survey Bulletin 1289, 45 p.

Table 1.— *Analyses of rock, stream-sediment, and soil samples from the Gee Creek Wilderness, Polk and Monroe Counties, Tenn.*

[All analyses are by emission spectrography except for zinc which is by atomic absorption. Numbers in parentheses below element symbols are lower limits of detection, in parts per million. Symbols: L, detected but below the limit of determination (the value shown in parentheses after the element symbol); N, not detected; G, greater than. Elements looked for spectrographically but not found, and their lower limits of detection, in parts per million: Ag (0.5), As (200), Au (10), Bi (10), Cd (20), Li (100), Mo (5), Sb (100), Sn (10), Th (100), W (50), and Zn (200), except for Ag (sample 19, 0.5 ppm), Sn (sample 8, L; sample 13, 10 ppm; and sample 14, 10 ppm), Th (sample 26, 100 ppm), and Zn (sample 8, L). Descriptions of the rock samples are given in table 2.]

Sample no.	Fe (0.05)	Mg (0.02)	Ca (0.05)	Ti (0.002)	Na (0.15)	Al (0.5)	Mn (10)	B (10)	Ba (20)	Be (1)	Co (5)	Cr (10)	Cu (5)	La (20)	Nb (20)	Ni (5)	Pb (10)	Sc (5)	Sr (100)	U (1)	V (10)	Y (10)	Zn (5)	Zr (10)
	(percent)						(parts per million)																	
ROCK SAMPLES																								
1	.5	.03	L	.2	N	1	15	N	20	L	N	20	N	20	10	L	10	N	L	L	10	10	10	700
2	2	.5	.1	.3	1	7	100	20	700	3	15	100	30	100	10	50	30	20	100	L	100	70	55	150
3	.7	.3	L	.15	.15	3	500	N	200	L	N	30	N	N	N	7	20	N	L	L	10	10	L	200
4	.5	.15	.05	.3	.3	5	100	10	500	1	N	30	7	50	10	7	30	5	L	L	30	20	L	500
5	2	.5	.05	.3	.1	7	150	70	700	5	30	150	30	100	10	50	30	20	100	1	70	70	20	200
6	.07	.02	L	.15	N	1	N	N	20	L	N	10	N	N	N	L	10	N	N	L	10	N	L	70
7	1.5	.5	.15	.3	.5	7	100	15	1500	1	10	70	20	50	10	20	30	10	100	L	50	50	5	700
8	3	.5	.07	.3	1.5	7	200	20	700	3	15	100	50	150	N	50	30	20	100	L	70	70	100	50
9	3	.5	L	.3	.7	7	150	20	1500	2	20	100	20	70	10	70	30	20	100	1	70	70	20	700
10	2	.7	L	.3	.7	7	30	70	1000	3	15	50	L	100	10	30	30	20	100	2	100	50	20	300
11	.2	.05	L	.5	N	1	70	L	200	L	N	30	N	N	10	L	10	5	L	2	15	10	10	700
12	.1	.02	L	.15	N	1	100	N	30	L	N	20	N	20	N	L	10	N	N	L	10	10	L	300
13	3	1	.1	.5	.7	7	500	70	1000	5	20	150	30	100	10	50	30	30	200	2	100	70	20	200
14	3	.7	.07	.5	.7	7	300	70	1000	5	30	150	50	150	10	70	20	30	200	2	50	70	25	150
15	.15	.07	L	.2	N	2	15	L	150	L	N	20	N	20	10	5	20	N	N	L	15	N	L	50
16	3	1	.07	.3	1.5	7	500	70	700	3	15	100	70	100	10	50	30	20	100	2	100	50	65	500
17	.07	.03	L	.15	N	1	10	15	20	L	N	10	N	N	N	7	10	N	N	L	10	N	L	70
18	.2	.07	L	.15	.15	2	50	L	150	3	N	10	N	N	N	5	20	N	N	L	15	10	L	300
19	.7	.15	L	.15	.15	2	300	L	150	3	50	20	L	50	N	L	10	N	N	L	30	50	L	G1000
20	.2	.05	L	.2	N	2	N	L	N	L	N	20	N	20	N	7	10	N	N	L	10	10	L	200
21	.1	L	L	.15	N	1	N	N	20	L	N	10	N	20	N	5	10	N	N	L	10	10	L	50
22	3	.15	L	.3	.15	7	70	15	70	L	N	150	15	50	20	15	20	20	L	3	200	20	20	300
23	.05	.03	L	.2	N	1	10	L	N	L	N	10	N	N	N	5	20	N	N	L	10	N	L	70
24	2	.2	L	1	.15	6	L	50	150	2	5	50	L	150	20	7	30	30	L	3	100	70	10	700
25	3	.15	N	.2	.15	4	150	20	70	1	5	30	30	50	N	7	10	N	L	N	30	20	25	500
26	.2	.03	L	.2	N	2	N	N	N	L	N	10	N	20	N	7	10	N	N	L	L	N	L	70
High	3	1	.15	1	1.5	7	500	70	1500	5	50	150	50	150	20	70	30	30	200	3	200	70	100	G1000
Low	.05	L	N	.15	N	1	N	N	N	L	N	10	N	N	N	L	10	N	N	L	L	N	L	50
Mean	1.3	.3	.03	.29	.33	4	130	20	410	1.5	9	56	14	53	6	20	20	10	42	1	47	32	18	335
SOIL SAMPLES																								
27	1.5	.15	L	.3	.15	6	70	15	70	1	N	30	20	70	10	20	10	5	L	1	70	30	20	300
28	1.5	.15	.05	.7	.3	6	50	15	150	1	N	50	7	70	10	5	20	15	L	L	70	50	15	700
29	.3	.07	L	.2	.2	3	15	L	50	L	N	20	10	50	N	L	70	N	L	L	20	10	15	200
30	1.5	.15	.05	.5	.2	6	70	15	150	1	N	50	7	50	10	15	10	10	L	L	70	30	25	700
31	1.5	.15	.07	.7	.3	7	70	15	300	2	N	50	7	100	20	7	20	15	100	L	70	70	15	700
32	1.5	.15	L	.7	.3	5	70	15	200	1	N	50	7	70	10	5	20	10	100	2	70	30	20	700
33	1.5	.15	.05	.7	.3	5	100	10	200	1	N	30	7	70	20	5	10	10	100	L	70	30	20	700
34	3	.3	.05	.5	.7	7	100	15	500	2	10	70	20	150	20	20	30	15	100	L	100	50	20	300
35	1.5	.15	.05	.5	.2	4	100	15	150	1	N	30	7	50	10	5	30	5	L	L	70	30	30	700
36	1.5	.15	L	.5	.3	4	30	15	300	1	N	30	10	100	10	5	70	10	L	L	70	70	25	500
37	1	.1	.05	.7	.2	4	70	15	150	1	N	30	5	70	10	5	10	10	L	L	70	30	20	700
38	1.5	.15	.07	.3	.3	4	100	15	100	L	N	30	20	50	N	10	70	N	L	L	70	10	40	200
39	1	.1	L	.3	.2	4	50	10	100	L	N	30	5	50	N	7	30	N	L	L	70	20	15	500
40	2	.3	.05	.3	.2	7	30	20	150	2	N	70	10	70	N	20	20	15	L	1	100	30	20	300
41	1.5	.15	.05	.7	.2	5	30	20	100	1	N	30	7	50	20	5	30	10	L	L	70	50	15	G1000
42	1	.1	L	.3	.2	4	20	10	70	1	N	30	5	70	10	5	10	5	L	L	70	30	15	700
43	3	.2	.07	.7	.3	6	150	20	200	1	N	70	7	100	20	10	30	15	L	1	150	50	25	300
44	1	.1	L	.5	.15	3	20	15	70	1	N	30	L	50	10	5	10	5	L	L	30	30	10	700
45	1	.1	.05	.3	.3	3	70	10	150	L	N	30	5	50	N	7	300	N	L	L	50	20	15	200
46	1.5	.15	.05	.7	.3	5	150	15	150	L	N	50	7	70	20	5	30	10	L	L	70	30	15	700
47	1.5	.1	.05	.5	.2	3	70	15	150	L	N	50	7	70	10	7	30	5	100	L	70	30	15	500
48	1.5	.15	L	.5	.2	4	100	15	150	1	N	50	7	70	10	15	20	5	L	L	70	50	15	300
49	.7	.07	L	.3	.15	4	70	L	50	L	N	20	5	20	10	10	20	5	L	L	30	30	10	300
50	2	.15	L	.3	.3	4	100	15	200	1	N	50	15	70	10	7	70	10	100	L	70	30	20	700
51	1	.1	.05	.7	.3	4	150	10	150	1	N	50	7	70	20	7	10	15	L	L	70	70	15	1000
52	1	.1	L	.5	.3	5	70	10	150	1	N	50	5	20	10	10	20	5	L	L	70	30	15	700
High	3	3	.07	.7	.7	7	150	20	500	2	10	70	20	150	20	20	300	15	100	2	150	70	40	G1000
Low	.3	.07	L	.2	.15	3	15	L	50	L	N	20	L	20	N	L	10	N	L	L	20	10	10	200
Mean	1.4	.1	.03	.5	.26	4.7	74	13	160	.8	.4	42	8.4	67	11	9	38	8	23	L	70	36	19	550
STREAM-SEDIMENT SAMPLES																								
53	1	.07	.07	.3	.3	4	300	10	200	1	5	50	7	70	10	15	30	5	100	L	30	50	25	300
54	.7	.07	.1	.7	.15	4	1000	10	150	1	50	50	10	20	10	20	30	10	L	L	70	30	20	G1000
55	1.5	.1	.05	.7	.3	5	1500	10	200	2	70	50	15	70	N	20	70	10	100	L	50	70	25	700
56	2	.5	.2	.5	.7	7	3000	15	700	5	50	100	30	150	10	20	70	20	200	2	70	70	85	700
57	1.5	.2	.15	.3	.3	6	1500	15	300	2	30	70	15	100	10	30	70	10	L	2	70	50	25	700
58	1.5	.5	.05	.7	.5	7	70	50	700	2	15	100	10	100	10	30	30	20	100	L	70	70	10	700
59	2	.5	.07	.5	.3	5	100	15	500	3	30	70	15	100	N	30	50	5	100	2	70	50	55	300
60	1.5	.5	.2	.7	.3	5	50	5	300	3	15	70	10	100	10	30	50	5	100	L	50	70	25	1000
61	2	.5	.1	.5	.5	5	700	20	700	3	15	70	10	100	10	30	50	5	100	L	70	30	30	1000
62	1.5	.15	.05	.7	.3	4	300	5	300	1	10	50	7	100	20	5	30	10	100	L	70	70	10	700
63	1.5	.2	.07	.3	.3	4	700	15	300	3	15	50	7	70	N	30	20	10	100	L	50	30	20	300
64	2	.3	.2	.3	.7	6	2000	20	500	3	50	70	30	100	20	50	50	15	100	L	70	50	55	300
65	2	.3	.2	.3	.7	6	1500	20	700	3	30	70	30	100	N	50	50	15	100	L	70	50	40	300
66	2	.15	.07	.3	.5	5	1500	20	300	3	50	50	10	150	N	30	50	10	100	L	70	50	70	300
67	2	.2	.07	.3	.5	6	1000	20	300	3	30	70	15	100	N	30	30	15	100	L	70	50	40	300
68	1.5	.15	.07	.3	.3	5	700	15	300	2	50	70	15	100	N	30	70	10	100	L	70	30	30	200
69	1.5	.1	.07	.7	.3	4	500	5	300	2	30	50	15	70	N	30	30	10	100	L	70	50	30	300
70	.5	.1	.05	.2	.15	3	300	15	150	3	15	10	L	20	N	15	10	N	L	L	30	10	10	500
71	2	.2	.2	.3	.7	6	3000	20	500	5	30	70	30	100	N	30	50	15	100	L	70	50	70	200
72	2	.2	.05	.3			500	50	500	1.5	10	20	10	20	N	10	10	5	N		50	20	15	500
73	3	.5	.15	.5			1500	50	500	2	20	50	30	50	L	20	20	10	N		70	50	40	500
74	1.5	.3	.2	.3	.7	6	3000	20	500	5	20	70	30	100	N	50	50	15	100	1	70	50	85	200
75	1.5	.3	.15	.3	.5	6	3000	15	300	5	20	50	15	100	N	50	30	15	100	1	70	70	70	300
76	1.5	.2	.1	.5	.3	4	2000	20	300	5	15	50	15	100	10	30	30	15	100	1	70	70	25	700
77	1	.15	.07	.5	.3	3	700	15	300	3	15	30	7	50	10	15	30	5	100	L	70	50	20	500
78	1.5	.15	.05	.5	.3	4	500	15	300	2	15	30	5	50	10	20	20	10	100	L	70	20	15	300
79	.3	.07	L	.3	N	2	150	15	50	1	5	10	N	20	N	L	10	5	N	L	30	30	10	700
80	.3	.07	L	.3	N	2	70	15	50	L	5	10	N	20	10	L	10	5	L	L	30	70	5	700
81	1.5	.15	L	.3	.3	4	700	15	300	3	15	30	5	20	10	20	30	10	100	L	50	30	25	500
82	1	.15	.05	.5	.2	4	300	15	300	2	15	50	7	70	10	15	20	10	100	L	50	50	20	700
83	.7	.07	L	.3	.15	3	200	15	150	2	15	30	L	20	N	7	10	5	L	L	50	30	15	G1000
84	1	.15	L	.3	.2	3	500	15	200	3	10	20	5	20	N	15	20	5	L	L	50	30	15	700
85	.7	.15	.07	.3	.2	4	70	10	200	3	10	30	5	20	10	15	20	5	L	L	50	20	20	700
86	1.5	.15	.07	.3	.2	4	700	10	200	2	10	30	7	50	10	10	20	5	L	L	50	30	20	700
87	2	.2	.1	.5	.5	6	1500	15	500	3	30	70	20	100	N	50	30	15	100	L	70	70	65	300
88	1.5	.2	.1	.3	.3	6	1500	15	500	3	30	70	15	100	N	30	50	10	100	1	70	30	30	500
89	1.5	.2	.1	.3	.2	6	2000	50	300	2	15	30	7	100	N	30	20	10	100	L	70	30	25	300
90	1.5	.2	L	.3	.3	6	70	15	500	1	10	70	7	70	N	15	20	10	100	L	50	50	15	700
91	1	.15	L	.3	.3	4	300	15	300	1	10	30	5	20	N	10	20	15	100	L	50	70	15	700
92	.2	.05	L	.3	N	2	100	L	50	2	10	10	N	20	N	5	10	N	L	L	20	10	10	300
93	.5	.1	L	.5	.15	3	150	10	150	2	15	30	5	N	10	5	20	10	L	L	50	70	5	1000
94	.3	.07	L	.3	N	2	150	10	70	1	10	20	L	20	N	L	10	5	L	L	30	20	5	700
95	.7	.1	L	.5	.2	3	300	15	300	2	15	20	L	70	10	5	30	10	L	L	30	70	15	700
96	1.5	.2	.1	.3	.3	6	200	15	300	2	15	50	7	70	10	15	30	15	100	L	70	50	30	700
97	2	.1	L	.5			1000	15	300	3	20	15	10	20	L	15	10	L	N		20	50	15	G1000
98	1.5	.15	.05	.7	.3	6	300	15	300	3	15	70	15	100	10	15	30	15	100	L	70	50	25	200
99	2	.2	.07	.5	.3	7	700	15	300	3	50	70	20	100	10	30	30	20	100	1	70	70	40	500
100	1.5	.15	.07	.5	.3	4	700	15	300	3	20	30	7	70	10	30	10	10	100	L	70	50	40	500
101	1	.15	.07	.5	.3	4	700	15	200	3	20	30	7	50	10	30	20	10	100	L	50	30	30	700
102	1.5	.15	.05	.3	.3	4	1000	15	300	3	20	30	7	20	N	30	30	5	100	L	50	30	30	300
103	1	.15	.05	.3	.2	4	100	15	200	2	5	30	7	70	N	10	30	10	100	2	50	70	20	700
104	1.5	.15	.07	.3	.5	5	700	15	500	3	20	50	7	50	N	20	30	5	100	2	50	30	20	700
105	.15	.03	L	.2	N	2	150	N	20	1	10	10	L	50	N	7	10	N	L	L	15	10	10	300
106	1.5	.2	.15	.3	.5	6	1000	15	500	3	15	50	15	70	N	30	30	10	100	L	70	50	30	500
107	1.5	.2	.1	.5	.3	6	200	15	300	2	10	50	5	70	10	15	20	10	100	L	50	70	25	1000
108	2	.2	.2	.3	.5	6	2000	15	500	5	20	70	20	100	10	50	30	15	100	1	70	70	60	200
109	2	.15	L	.5	.2	6	100	15	200	1	10	70	7	50	10	20	20	10	L	1	70	30	30	700
110	1.5	.2	.07	.7	.5	6	700	15	500	3	70	70	20	100	10	30	30	20	100	1	70	70	30	1000
111	1.5	.2	.07	.5	.3	6	1000	15	300	3	15	70	15	100	10	30	50	15	100	L	70	50	35	300
112	2	.3	.07	.5	.5	7	700	20	500	3	20	70	15	100	10	30	30	15	200	1	70	50	25	700
113	1.5	.15	.07	.3	.3	6	1000	20	300	3	20	70	15	70	10	30	50	10	100	L	50	50	35	500
High	3	.5	.2	.7	.7	7	3000	50	700	5	70	100	30	150	20	50	70	20	200	2	70	70	85	G1000
Low	.15	.03	L	.2	N	2	50	N	20	L	5	10	N	N	N	L	10	N	N	L	15	10	5	200
Mean	1.4	.19	.07	.4	.3	5	850	17	330	2.5	22	48	11	69	5	23	31	10	74	L	57	48	29	564

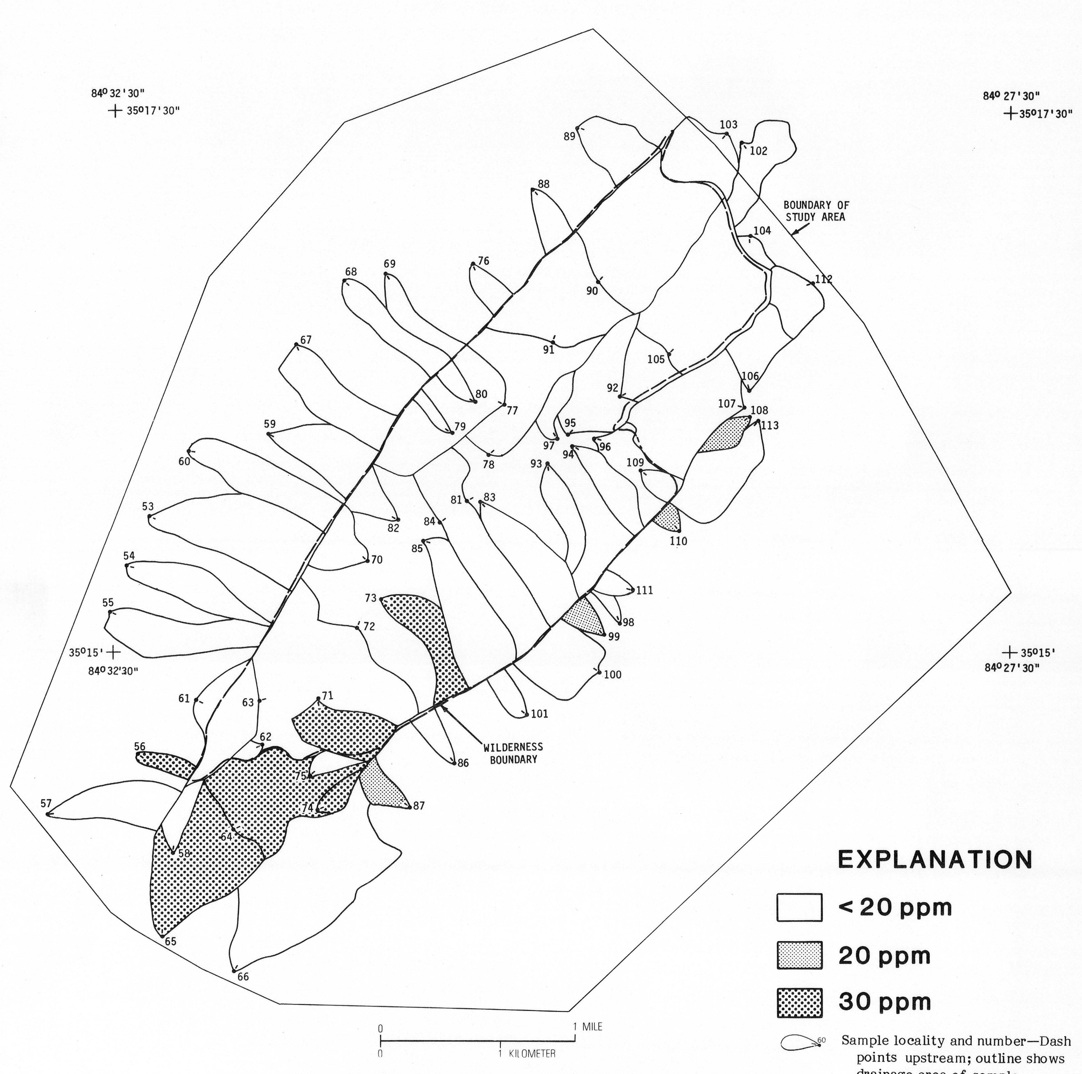
Table 2.--*Description of rock samples listed in table 1.*
[Formation symbols same as in figure 2.]

1. 2-m chip sample; massive, fine-to medium-grained quartzose sandstone. (€hm).
2. 2-m chip sample; limonitic, micaceous siltstone. (€ni).
3. 0.5-m chip sample; moderately sorted, medium-grained feldspathic sandstone. (Basal bed of €nb).
4. 1-m chip sample; slightly limonitic, crossbedded and laminated, medium-grained slightly feldspathic sandstone. (€nb).
5. 1-m channel sample; siltstone and minor thin-bedded, laminated, very fine grained sandstone. (€hm).
6. 1-m chip sample; slightly limonitic, medium-grained quartzose sandstone. (€nb).
7. 2-m chip sample; slightly limonitic, fine- to medium-bedded, very fine grained feldspathic graywacke. (€hm).
8. 2-m chip sample; thin-bedded, very fine grained micaceous and feldspathic sandstone and silty shale. (€ni).
9. 1-m chip sample; limonitic, glauconitic, laminated and crossbedded, thin- to medium-bedded feldspathic graywacke. (€nb).
10. Grab sample; sandy siltstone. (€nb).
11. 1-m chip sample; massive, laminated, crossbedded, fine- to medium-grained quartzose sandstone. (€nb).
12. 1-m chip sample; thick-bedded, granular, fine- to medium-grained quartzose sandstone. (€nb).
13. Grab sample; sheared shale. (€hm).
14. Grab sample; Clayey fault gouge. (Between €hm and €nb).
15. 1-m chip sample; slightly limonitic, medium-to thick-bedded, crossbedded and planar-bedded, fine- to medium-grained slightly feldspathic sandstone. (€nb).
16. 1-m chip sample; laminated shale, siltstone, and crossbedded fine-grained sandstone. (€ni).
17. 2-m chip sample; thin- to thick-bedded, planar-bedded and crossbedded, fine- to medium-grained quartzose sandstone. (€nb).
18. 2-m chip sample; thin- to medium-bedded, planar-bedded, fine- to medium-grained glauconitic and feldspathic sandstone. (€nb).
19. 1-m chip sample; slightly limonitic, glauconitic, medium-to very coarse grained slightly conglomeratic quartzose sandstone. (€nb).
20. 1-m chip sample; laminated, medium- to thick-bedded, medium-grained slightly feldspathic sandstone. (€nb).
21. 1-m channel sample; medium-bedded, planar-bedded and crossbedded, medium- to slightly coarse grained slightly glauconitic sandstone. (€nb).
22. Grab sample; weathered, hematitic, fine-grained sandstone. (€nb).
23. 1-m chip sample; thin- to thick-bedded, crossbedded, medium-grained slightly glauconitic quartzose sandstone. (€nb).
24. Grab sample; weathered limonitic, slightly micaceous, fine-grained sandstone. (€nb).
25. 0.5-m chip sample; limonitic and hematitic, thin- to medium-bedded, laminated and cross-laminated, medium-grained graywacke. (€ni).
26. 2-m chip sample; leached, friable, medium- to thick-bedded, slightly glauconitic, planar-bedded and crossbedded, fine- to medium-grained sandstone. (€nb).

Table 3.— *Thin-section analyses of sandstones in the Gee Creek Wilderness.*
[Mineral content determined by point counting approximately 400 grains. See Figure 7 for locations.]

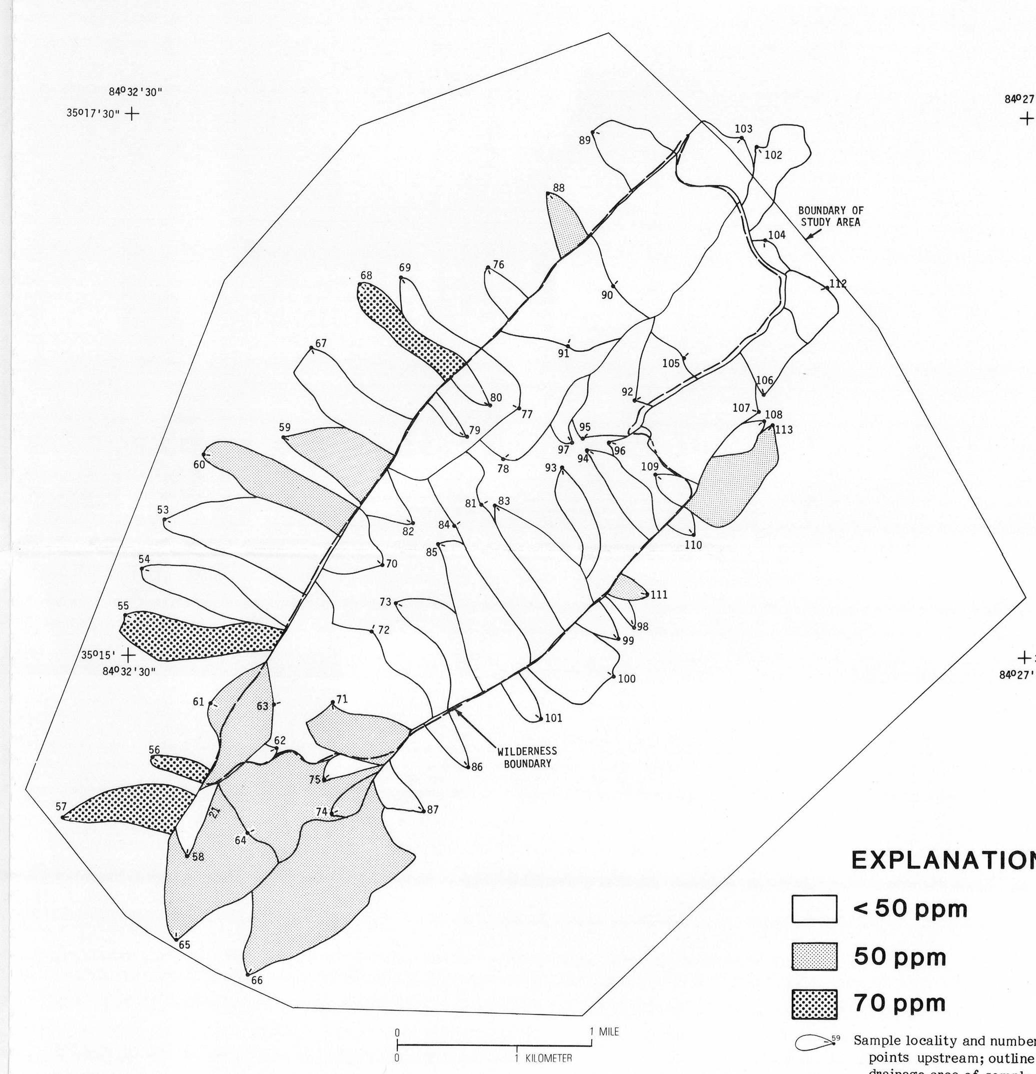
Sample no.	Mineral content (percent)						Formation	Rock name
	Quartz[1]	Feldspar	Mica	Rock fragments	Matrix[2]	Other		
1s	50	1	-	-	50	-	Sandsuck	Graywacke
2s	79	1	-	3	18	-	Cochran	Lithic graywacke
3s	73	1	-	1	25	-	Cochran	Graywacke
4s	74	3	-	-	23	-	Cochran	Feldspathic graywacke
5s	76	1	24	-	-	1[3]	Sandsuck	Protoquartzite
6s	45	3	2	-	50	1	Nichols	Feldspathic graywacke
7s	89	8	1	-	-	2[4]	Nebo	Feldspathic sandstone
8s	89	9	2	-	-	-	Nebo	Feldspathic sandstone
9s	50	9	1	-	40	-	Hesse/Murray	Feldspathic graywacke
10s	92	7	-	-	1	1[5]	Hesse/Murray	Feldspathic sandstone
11s	97	-	-	-	-	3[6]	Nebo	Glauconitic orthoquartzite
12s	92	6	-	-	-	2[7]	Nebo	Glauconitic feldspathic sandstone
13s	97	-	-	2	1	-	Nebo	Orthoquartzite
14s	99	-	-	-	1	1[8]	Nebo	Orthoquartzite

[1] May include minor chert
[2] Mostly fine-grained quartz and muscovite; minor chert in some samples
[3] Opaque minerals
[4] Limonite, opaque minerals, rare hornblende and rutile
[5] Rare zircon and hornblende
[6] Glauconite; rare zircon
[7] Glauconite and limonite; rare zircon
[8] Rare hornblende



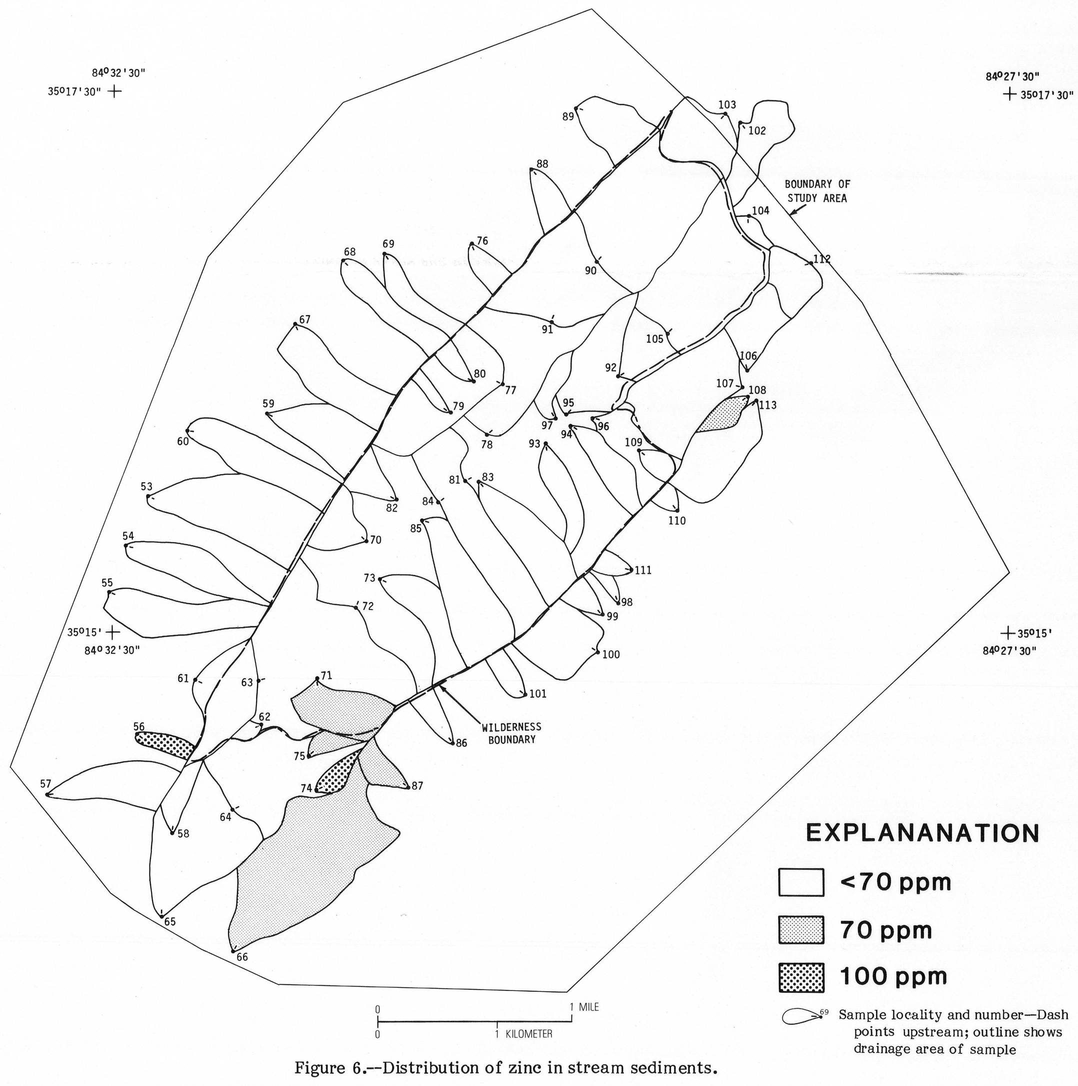
EXPLANATION
< 20 ppm
20 ppm
30 ppm
Sample locality and number—Dash points upstream; outline shows drainage area of sample

Figure 4.--Distribution of copper in stream sediments.



EXPLANATION
< 50 ppm
50 ppm
70 ppm
Sample locality and number—Dash points upstream; outline shows drainage area of sample

Figure 5.--Distribution of lead in stream sediments.



EXPLANANATION
<70 ppm
70 ppm
100 ppm
Sample locality and number—Dash points upstream; outline shows drainage area of sample

Figure 6.--Distribution of zinc in stream sediments.

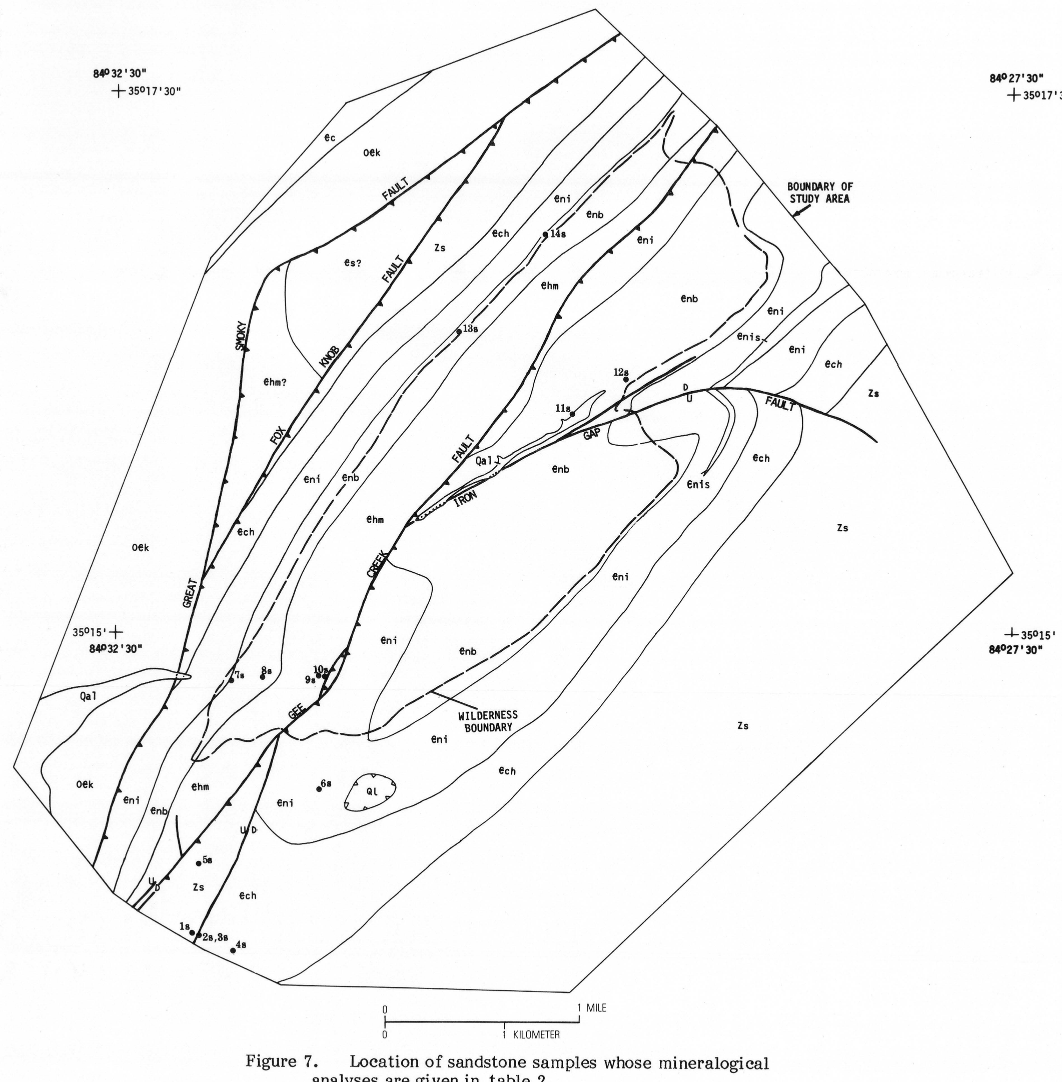


Figure 7. Location of sandstone samples whose mineralogical analyses are given in table 2.

RECONNAISSANCE GEOCHEMICAL MAPS OF THE GEE CREEK WILDERNESS, POLK AND MONROE COUNTIES, TENNESSEE

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