

**MINERAL RESOURCE POTENTIAL OF THE
WEAVER BALLY ROADLESS AREA,
TRINITY COUNTY, CALIFORNIA**

SUMMARY REPORT

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STUDIES RELATED TO WILDERNESS

Under the provisions of the Wilderness Act (Public Law 88-577, September 3, 1964) and related acts, the U.S. Geological Survey and the U.S. Bureau of Mines have been conducting mineral surveys of wilderness and primitive areas. Areas officially designated as "wilderness," "wild," or "canoe" when the act was passed were incorporated into the National Wilderness Preservation System, and some of them are presently being studied. The act provided that areas under consideration for wilderness designation should be studied for suitability for incorporation into the Wilderness System. The mineral surveys constitute one aspect of the suitability studies. The act directs that the results of such surveys are to be made available to the public and be submitted to the President and the Congress. This report discusses the results of a mineral survey of the Weaver Bally Roadless Area (05-804), Shasta-Trinity National Forest, Trinity County, California. The Weaver Bally Roadless 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.

SUMMARY

The Weaver Bally Roadless Area is mainly underlain by the Salmon Hornblende Schist which is host for most of the gold-bearing quartz lodes in the area. A granodiorite stock intrudes the schist near Monument Peak; this pluton and several smaller, but similar, intrusive bodies are the hosts for the other gold-bearing quartz lodes.

Gold and by-product silver have been identified in quartz lodes at the Globe mine where approximately 33,000 tons of indicated marginal reserves (2,000 tons in the roadless area and 31,000 tons in the adjacent proposed Trinity Alps Wilderness) contain 0.45 oz gold per ton and probably 0.1 oz silver per ton, based on assays by the Globe Consolidated Mining Company in 1916. There is an additional 150,000 tons of inferred marginal reserves (35,000 tons in the roadless area and 115,000 tons in the adjacent proposed wilderness) at the Globe mine averaging 0.38 oz gold per ton and probably 0.1 oz silver per ton. There is a high resource potential for gold in this area.

Sample assay results and small tonnages of gold-bearing quartz indicate a moderate potential for gold resources at the Chloride, Mason-Thayer (adjacent to the study area), and Meckel-Fields mines. Assay results indicate a low potential for gold resources at the Poor-No-More and Arbuckle prospects.

Geochemical sampling and geologic mapping have identified a northeast-trending area containing anomalous gold values on Weaver Bally Mountain. Based on the geologic setting and anomalous geochemical samples, a low to moderate resource potential for gold is assigned to the Weaver Bally Mountain area.

There are no indications of geothermal, hydrocarbon, or nuclear energy resources.

INTRODUCTION

The Weaver Bally Roadless Area, contiguous with the south boundary of the proposed Trinity Alps Wilderness (fig. 1), includes approximately 12,600 acres of the Shasta-Trinity National Forest and 1,600 acres of private land. The roadless area is on the southeast flank of the Salmon-Trinity Alps (part of the Klamath Mountains) in Trinity County, about 4 mi northeast of Weaverville, Calif. Access is by California Highway 299; the area is approximately 110 mi from Eureka and 55 mi from Redding.

The terrain is mountainous and steep; elevations range from 2,000 ft at Clear Gulch to 7,771 ft at Monument Peak (fig. 1). The climate is temperate with hot dry summers and cold wet winters; substantial snow accumulates at elevations above 3,000 ft. Most of the area is heavily forested with conifers. Slopes above 6,000 ft and dry south-facing slopes below 3,500 ft are sparsely wooded.

**GEOLOGY AND GEOCHEMISTRY PERTAINING TO
MINERAL RESOURCE ASSESSMENT**

Most of the Weaver Bally Roadless Area is underlain by the Salmon Hornblende Schist (Davis and others, 1965), which is host for most of the gold-bearing quartz lodes. In the eastern part of the mapped area, low-grade metamorphic rocks (phyllite and metatuff) of the Stuart Fork Formation (Davis and others, 1965) are faulted against the Salmon Hornblende Schist. The hornblende schist is intruded by a granodiorite stock of probable Jurassic age near Monument Peak, and two other similar granodiorite plutons are shown on the geologic map (fig. 2). South of Monument Peak along Weaver Bally Mountain, there are many unmapped small dikes and sills of dacite porphyry and alaskite that may be offshoots of the larger pluton at Monument Peak.

Gold- and silver-bearing milky-white quartz veins, 0.5 to 10 ft thick, occur mainly along shear and alteration zones within hornblende schist. The veins are coplanar with the general trend of metamorphic foliation, and most strike between east and northeast and dip moderately to steeply

south (Cox, 1967, p. 47). Sulfide minerals, predominantly pyrite with minor chalcopyrite and arsenopyrite, are commonly visible, but rarely constitute more than about 5 percent of the volume of the vein material. The veins generally have sharp contacts with the unweathered hornblende schist host rocks; however, about 40 percent of the wallrock has undergone argillic and chloritic alteration, and structural features such as foliation have been obliterated. The quartz veins probably were emplaced along the metamorphic foliation within tensional shear zones during the emplacement of granitic plutons, suggesting that the deposits formed during the Jurassic.

Gold and silver are concentrated in ore shoots within quartz veins. The shoots can be distinguished in some places by granular quartz and manganese stains, and, less reliably, by sulfide minerals and limonite stains. In other places they can only be distinguished by sample assays. The shoots appear to be the last hydrothermal passages and openings to solidify during formation of the quartz lodes. Mining has primarily consisted of selective stoping of the shoots.

During an earlier mineral resource assessment of the northern part of the area (Hotz and others, 1972), numerous stream-sediment and rock samples were collected and chemically analyzed. Additional samples were collected and analyzed during the present study and all of these data are contained in the geologic and geochemical report (Blake, 1983).

Geochemical anomalies, chiefly gold, are associated with the small altered dacite porphyry dikes along Weaver Bally Mountain and in the adjacent granodiorite stock at Monument Peak. Some rock samples contain as much as 2.77 oz gold per ton. No anomalous values of gold, silver, or other metals were found in the stream sediments.

Prospect sites were examined, sampled, and mapped where warranted (Peters, 1983). During the course of this investigation, 170 rock samples and 40 placer samples were collected from the 29 localities shown on figure 2 and the results are given in table 1. Chip samples were taken from mineralized structures and grab samples were taken from dumps where entry to excavations was impossible. These samples were fire assayed for gold and silver. Quantitative values of visible or anomalous minerals were determined by atomic absorption, colorimetric, or X-ray fluorescent methods. At least one sample from each locality was analyzed by semiquantitative spectrographic methods; elements in anomalous concentrations were then analyzed by the aforementioned quantitative methods. Reconnaissance pan samples of alluvium were collected from drainages with placer claims. Alluvium commonly contained abundant milky quartz (as much as 5 percent by visual estimate) in areas underlain by the Salmon Hornblende Schist. Samples were panned to a rough concentrate and processed on a laboratory-size Wilfley table. Heavy-mineral fractions were checked for gold and other heavy minerals. Gold was found in trace amounts in concentrates from most of the placer deposits (table 1).

MINING DISTRICTS AND MINERALIZATION

Trinity County records indicate that approximately 400 mining claims were located within, or adjacent to, the Weaver Bally Roadless Area. About 200 claims appear to have been placer operations along Canyon Creek, west of the roadless area; about 150 lode claims and 50 placer claims have been located in the roadless area. Many of the properties were relocated several times.

In 1889, several lode deposits including the Chloride, the Bailey-Smith, and the Globe groups were discovered within the study area (Trinity Journal, October 19, 1907) and the first gold production came in 1891 (Dunn, 1892, p. 483). Canyon City, a placer camp 7 mi north of Junction City, was later abandoned for the new lode camp of Dedrick, 3 mi farther up Canyon Creek (Peters, 1983). In 1896, the Chloride and Bailey groups consolidated, and in 1900, all three groups were consolidated under the Globe Mining Company. The Globe became the main producing mine after 1906. By 1910, the group had produced over \$700,000 in gold and silver (Brown, 1916, p. 891). In 1910, the mines were

purchased by the Globe Consolidated Mining Company, which invested \$150,000 in capital improvements, including a 20-stamp mill, a 100-ton-per-day cyanide plant, and a 5,600-ft-long tramway (Logan, 1926, p. 21). The improvements were completed in 1913 and in 1914 more than 24,000 tons of ore were mined. Production ceased after 1916. Globe Consolidated sold the property in 1919 and large-scale production never resumed. Total reported production from the Globe Consolidated group was 113,970 oz of gold and 26,650 oz of silver (Hotz and others, 1972, p. 114).

Other properties, including the Mason-Thayer (adjacent to the roadless area), Meckel-Fields, and Arbuckle properties (fig. 2), were discovered and developed between 1890 and World War I, coincident with mining at the Globe Consolidated group. Production from these properties has been small. Major work on lodes in the Weaver Bally area, and on placers peripheral to the area, ceased during World War I when increased prosperity drove up mining costs (Clark, 1970, p. 7). High gold prices during recent years have brought a resurgence of interest in the area. Mines and prospects in the Weaver Bally area, including a description of workings and sample data, are summarized in table 1.

In 1982, 55 lode claims and 17 placer claims were held in the roadless area, with five patented claims at the Globe mine. Seven lode properties and about ten placer claims were being explored in the study area in 1982. Placer operations in the study area are limited to seasonal, one- or two-man suction-dredging operations in creek beds. Stream gradients are steep, and there are no substantial gravel bars in the study area.

ASSESSMENT OF MINERAL RESOURCE POTENTIAL

Gold with by-product silver is the only identified mineral resource within the Weaver Bally Roadless Area. The only area with a high resource potential is the Globe mine, which has an estimated 33,000 tons of indicated marginal reserves averaging 0.45 oz gold per ton (2,000 tons in the roadless area and 31,000 tons in the adjacent proposed Trinity Alps Wilderness). Using a ratio based on total past production from the Globe Consolidated group (113,970 oz of gold and 26,650 oz of silver), the by-product silver content should average 0.1 oz per ton. Additional inferred marginal reserves at the Globe mine are estimated to total 150,000 tons averaging 0.38 oz gold per ton and probably 0.1 oz silver per ton (35,000 tons in the roadless area and 115,000 tons in the proposed wilderness).

Several other small deposits of gold-bearing quartz have been identified by this study. A moderate potential for gold resources was indicated at the Chloride, Mason-Thayer, and Meckel-Fields mines. A low resource potential for gold is indicated at the Poor-No-More and Arbuckle prospects. The geochemical anomaly associated with small dikes along Weaver Bally Mountain indicates a low to moderate resource potential for gold there. Abundant milky quartz in alluvium and a fairly extensive cover of surficial deposits and vegetation suggest that additional quartz lodes occur. A minor percentage of these lodes could be expected to have low resource potential for gold in those areas underlain by the Salmon Hornblende Schist.

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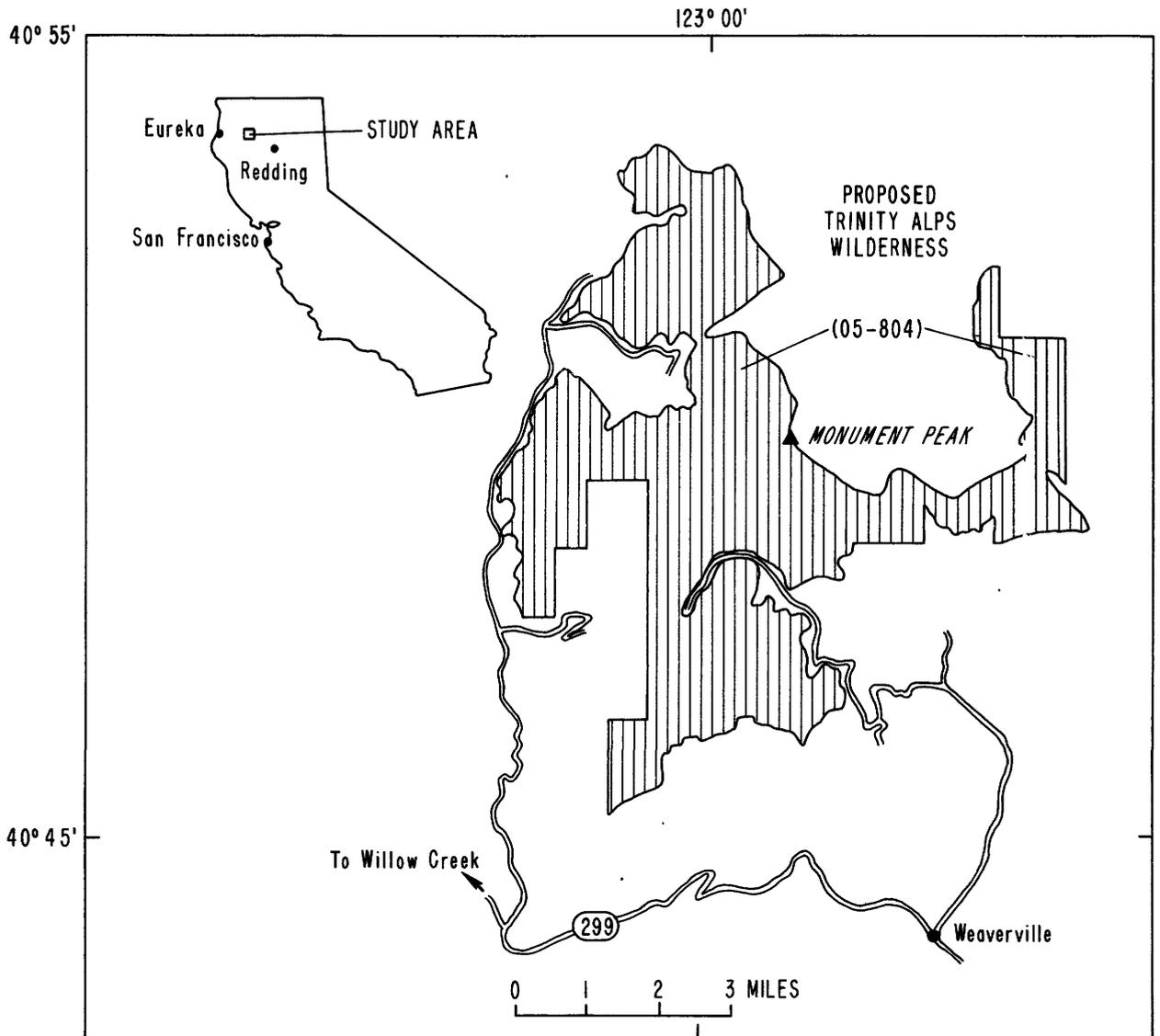
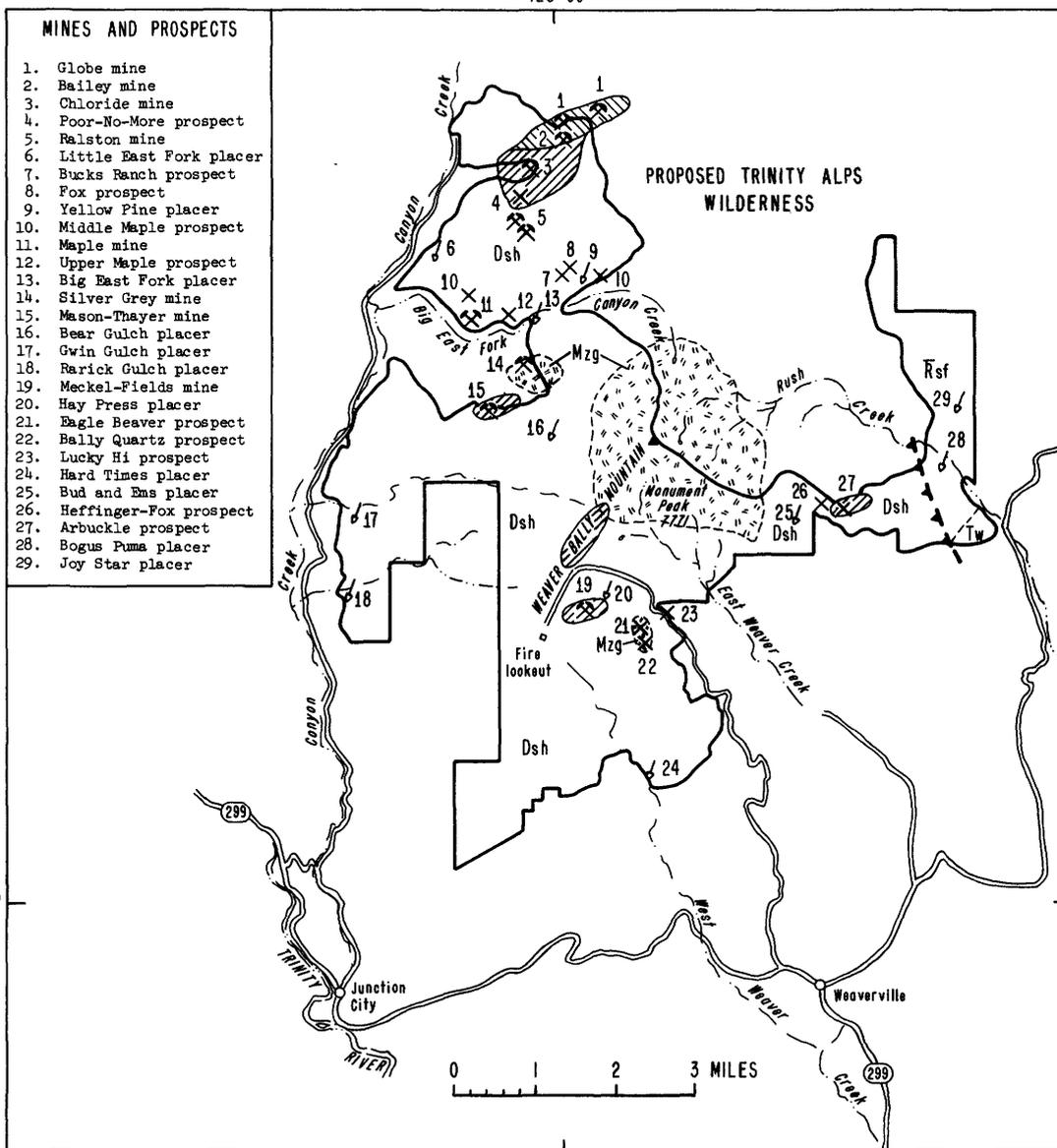


Figure 1.--Index map showing location of the Weaver Bally (05-804) Roadless Area (lined), northern California.

123° 00'



EXPLANATION

MINERAL RESOURCE POTENTIAL

- Area of high mineral resource potential for gold and by-product silver
- Area of low to moderate resource potential for gold and by-product silver
- Property with resource potential--Number refers to table I and list above
- Mine--Recorded production
- Prospect
- Placer prospect
- Boundary of roadless area

GEOLOGIC UNITS

- WEAVERVILLE FORMATION (OLIGOCENE ?)--Fine-grained sandstone, shale, and conglomerate
- GRANODIORITE (MESOZOIC)--Equigranular hornblende-biotite granodiorite
- STUART FORK FORMATION (TRIASSIC AND (OR) OLDER)--Fine-grained metatuff and phyllite
- SALMON HORNBLLENDE SCHIST (DEVONIAN)
- Approximate contact
- Approximate thrust fault--Sawteeth on upper plate

Figure 2.--Simplified geology (Blake, 1983), mineral resource potential, and mines and prospects in the Weaver Bally Roadless Area.

Table 1.--Mines and prospects in and near the Weaver Bally Roadless Area

[Underlined names refer to properties with mineral resources or potential; those not underlined have no identified potential or are poorly exposed and a determination was not made; asterisk (*) indicates property completely outside study area]

Map no. (fig. 2)	Name (all are gold properties)	Summary	Workings and production	Sample data and resource estimate
1	<u>Globe mine</u> (lode)	Gold occurs in ore shoots of friable, commonly manganese-stained quartz within milky quartz lenses (average 200 ft long by 8 to 10 ft thick) along a shear zone which strikes N. 60° to 80° E. and dips 60° S. (Diller and Ferguson, 1913, p. 71). Hornblende schist host rock.	Approximately 8,000 ft of underground workings, of which only 300 ft are currently accessible. Total past production, including Bailey and Chloride mine production, was 113,970 oz of gold and 26,650 oz of silver (Hotz and others, 1972, p. B114).	Assessment is based on 221 fire-assayed chip samples taken by the Globe Consolidated Mining Company in 1916. Indicated marginal reserves total 33,000 tons (2,000 tons in the Weaver Bally area and 31,000 tons in the proposed Trinity Alps Wilderness) averaging 0.45 oz gold per ton. In addition there is approximately 150,000 tons (35,000 tons of which is in the Weaver Bally area) of inferred marginal reserves averaging 0.38 oz gold per ton. There is a high potential for additional gold resources.
2	Bailey mine (lode)	Quartz lenses range from 3 to 5 ft thick (Dunn, 1892, p. 483; Diller and Ferguson, 1913, p. 72). Hornblende schist host rock.	Approximately 4,200 ft of underground workings (800 ft on the Bailey shear zone, 2,000 ft on the Globe shear zone, and 1,400 ft of crosscut) is inaccessible. Production included with Globe mine.	One grab sample of quartz and one chip sample from a quartz vein striking N. 80° E. and dipping 58° SE. contained no detectable gold.
3	<u>Chloride mine</u> (lode)	Quartz lenses range from 1.5 to 10 ft thick, averaging 5 ft thick, and are 60 ft long. They occur along a shear zone that strikes from N. 35° E. to N. 75° E. and dips 75° SE. Hornblende schist host rock.	Approximately 890 ft of underground workings in the main adit and 240 ft of workings in the upper adit are accessible. Production included with Globe mine.	Thirty-eight chip samples (eight from upper adit and 30 from main adit) were taken. Upper adit samples contained less than 0.01 oz gold per ton and 0.2 oz silver per ton. Five samples from the main adit contained 7.5, 1.2, 0.4, 0.3, and 0.1 oz gold per ton; three samples contained 0.8, 0.3, and 0.2 oz silver per ton. Other adit samples contained less than 0.1 oz gold per ton and less than 0.2 oz silver per ton. There is a moderate potential for gold resources.
4	<u>Poor-No-More prospect</u> (lode)	May have been located under several names in county records; located as Poor-No-More in 1973. A 1.7-ft-thick quartz vein strikes N. 55° E. and dips 50° SE. Hornblende schist host rock.	One 40-ft-long adit and a caved adit.	Five chip samples taken; two contained 0.542 and 0.138 oz gold per ton; one contained 0.2 oz silver per ton. There is a low potential for gold resources.
5	Ralston mine (lode)	A shear zone in the north adit strikes N. 55° to 75° E. and contains 140 linear ft of 1-ft-thick quartz lenses. The south adit contains numerous quartz veins averaging 3 ft thick, with various attitudes. Hornblende schist host rock.	Approximately 315 ft of underground workings in the north adit and 940 ft of workings in the south adit are accessible. Records indicate production of 351 oz of gold and 37 oz of silver.	Fifty-five chip samples (20 from the north adit and 35 from the south adit) were taken. Three samples from the north adit contained 0.212, 0.01, and 0.008 oz gold per ton, no silver detected. Four samples from the south adit contained 0.410, 0.044, 0.038, and 0.026 oz gold per ton; ten samples contained from 0.16 to 0.85 oz silver per ton.

Table 1.--Mines and prospects in and near the Weaver Bailey Roadless Area--Continued

Map no. (fig. 2)	Name (all are gold properties)	Summary	Workings and production	Sample data and resource estimate
6	Little East Fork prospect (placer)	County records indicate about 12 placer claims were located between 1911 and 1982 along the Little East Fork of Canyon Creek. A steep stream gradient has resulted in no significant grave deposition.	Streambed has been extensively suction dredged.	Four pan samples taken from the streambed contained less than $\$0.01 \frac{1}{3}$ gold per yd ³ of gravel.
7,8	Bucks Ranch and Fox prospects (lodes)	County records indicate 12 lode claims beginning with the Fox group of six claims in 1894. Hornblende schist host rock.	Several pits and a caved adit (?) with a small dump.	Grab sample of epidotized schist from a small dump; no gold or silver detected.
9	Yellow Pine prospect (placer)	Located in 1901 by George L. Bailey. No significant gravel bars.	No evidence of mining.	Two pan samples: contained less than $\$0.01 \frac{1}{3}$ gold per yd ³ of gravel.
10	Middle Maple prospect (lode)	A 1- by 3-ft quartz pocket in hornblende schist host rock.	Approximately 330 ft of underground workings.	A chip sample across the quartz pocket contained no detectable gold or silver.
11	Maple mine (lode)	County records indicate the first location was in 1891. A 0.9-ft-thick quartz vein at the lower portal strikes N. 50° E. and dips 56° NW. Hornblende schist host rock.	Two caved adits. Crawford (1894, p. 312) indicated 270 ft of workings at the lower adit and 90 ft of workings at the upper adit. Hamilton (1915, p. 895) reported that gold valued at \$10,000 was produced (gold at \$20.67 per oz).	A chip sample from the vein at the lower portal and a grab sample of quartz from the dump at the upper portal contained no detectable gold or silver.
12	Upper Maple prospect (lode)	More than 50 ft of drift (partially flooded) follows a 1- to 3-ft-thick chloritic shear zone which strikes N. 80° E. and dips 70° N. Hornblende schist and granitic host rock.	Approximately 325 ft of crosscut adit; more than 50 ft of partially stopped drifts is at the end of the adit.	One of three chip samples taken from a chlorite gouge zone contained 0.026 oz gold per ton. Four chip samples of minor structures contained no detectable gold or silver.
13	Big East Fork prospect (placer)	County records indicate several placer claims along the upper Big East Fork of Canyon Creek. No significant gravel bars.	No evidence of mining.	Three pan samples taken contained less than $\$0.01 \frac{1}{3}$ gold per yd ³ of gravel.
14	Silver Grey mine (lode)	County records indicate the first location was in 1892. Crawford (1894, p. 313) described an upper adit with 140 ft of workings and a lower adit with 214 ft of workings. An accessible (94-ft-long) adit is in hornblende-biotite granodiorite. Averill (1941, p. 58) reported that samples from a 2-ft-thick quartz lense in the lower adit assayed 0.53 and 0.72 oz gold per ton.	Two caved adits and one 94-ft-long adit. Hamilton (1915, p. 898) reported that gold valued at \$25,000 was produced (gold at \$20.67 per oz).	A chip sample at the upper caved portal across gouge in a 4-ft-thick fault zone striking N. 80° E. and dipping vertically contained 0.086 oz gold per ton. A grab sample of quartz from the dump at the lower caved portal contained 0.028 oz gold per ton. A chip sample of granodiorite across the face of the open adit contained no detectable gold.
15	Mason-Thayer * (Craig) mine (lode)	County records indicate the first location was in 1891. A shear zone containing 1- to 8-ft-thick quartz lenses strikes N. 85° E. and dips 35° to 50° SE. (Brown, 1916, p. 887; Diller and Ferguson, 1913, p. 72).	Approximately 2,450 ft of underground workings are currently accessible. Records indicate production of 82 oz gold and 48 oz silver.	Thirty-four chip samples taken: 12 samples contained from 0.1 to 0.48 oz gold per ton; 12 samples contained from 0.2 to 2.2 oz silver per ton. There is a moderate potential for gold resources.
16	Bear Gulch prospect (north) (placer)	County records indicate several possible placer claims. No significant gravel bars.	None.	Three pan samples contained less than $\$0.01 \frac{1}{3}$ gold per yd ³ of gravel.

17	Gwin Gulch prospect (placer)	County records indicate intermittent placer activity beginning in 1885. No significant gravel bars.	Suction dredge operating at time of study.	Three pan samples contained less than \$0.01 $\frac{1}{3}$ gold per yd ³ of gravel.
18	Rarick Gulch prospect (placer)	County records indicate intermittent placer activity beginning in 1901. No significant gravel bars.	Streambed shows evidence of suction dredging.	Three pan samples contained less than \$0.01 $\frac{1}{3}$ gold per yd ³ of gravel.
19	Meckel-Fields (Rose) mine (lode)	County records indicate the first location was in 1895 (Rose mine); the Potillo (caved adit 200 ft northeast) was located in 1898. A 0.5-ft-thick quartz lense occurs along an east-striking shear zone dipping 85° S. in hornblende schist (Averill, 1941, p. 48 and 53; Diller and Ferguson, 1913, p. 72).	Approximately 260 ft of underground workings are accessible. Logan (1926, p. 19) reported gold valued at \$2,500 was produced (gold at \$20.67 per oz) from a 2-ft-deep working on the vein.	Eighteen chip samples were taken from the Meckel-Field adit, and one grab sample from the Potillo dump. Four samples averaged 1.39 oz gold per ton. Five samples averaged 0.38 oz silver per ton. There is a moderate potential for gold resources.
20	Hay Press prospect (placer)	County records indicate the first location was in 1899. No significant gravel bars.	A caved adit trends N. 35° W. into a hillside of glacial moraine.	Four pan samples contained less than \$0.01 $\frac{1}{3}$ gold per yd ³ of gravel.
21	Eager Beaver prospect (lode)	A 1.8-ft-thick quartz vein strikes N. 70° E. and dips 65° NW. in granodiorite.	Approximately 70 ft of caved workings trend N. 75° E.	A chip sample across the vein contained 0.106 oz gold per ton. A sample of granodiorite contained no detectable gold or silver.
22	Bally Quartz prospect (lode)	A sloughed trench appears to be on a quartz vein in granodiorite.	A 40-ft-long trench (caved adit?) trends N. 75° E.	One grab sample of quartz and one grab sample of granodiorite contained no detectable gold or silver.
23	Lucky Hi prospect (lode)	A 2.2-ft-thick quartz vein strikes N. 74° E. and dips 88° NW. in hornblende schist.	A 60- by 20-ft northwest-trending shallow excavation.	One chip sample across the vein and one grab sample of quartz contained no detectable gold or silver.
24	Hard Times prospect (placer)	County records indicate the first placer location was in 1898. No significant gravel bars.	None.	Seven pan samples contained less than \$0.01 $\frac{1}{3}$ gold per yd ³ of gravel.
25	Bud and Ems prospect (placer)	County records indicate the first location was in 1965. No significant gravel bars.	None.	Three pan samples contained less than \$0.01 $\frac{1}{3}$ gold per yd ³ of gravel.
26	Heffinger-Fox prospect (lode)	A 0.6-ft-thick quartz vein (1,250 ft west of Arbuckle prospect) strikes N. 35° W. and dips vertically in hornblende schist.	None.	Two chip samples across the vein contained no detectable gold or silver.
27	Arbuckle prospect (lode)	County records indicate the first location was in 1892. A 1.6-ft-thick quartz vein occurs in a chloritized shear zone striking N. 85° E. and dipping 50° NW. in hornblende schist.	A 15-ft-deep shaft and two 25-ft-long trenches exposed the vein.	One of four chip samples across the vein contained 0.366 oz gold per ton. A grab sample of quartz from the shaft dump contained 0.322 oz gold per ton. There is a low potential for gold resources.
28	Bogus Puma prospect (placer)	County records indicate intermittent placer activity beginning in 1895. No significant gravel bars.	Suction dredge operating at time of study.	Four pan samples contained less than \$0.01 $\frac{1}{3}$ gold per yd ³ of gravel.
29	Joy Star prospect (placer)	County records indicate intermittent activity beginning in 1939. No significant gravel bars.	None.	Three pan samples contained no detectable gold.

