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UNITED STATES DEPARTMENT OF THE INTERIOR
(BUREAU OF MINES)

SUMMARY REPORT

MINERAL INVESTIGATION OF THE TEN MILE WEST RARE II AREA (NO. W4-061), BOISE AND ELMORE COUNTIES, IDAHO

By
John R. Benham And Dale W. Avery

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This open file report summarizes the results of a Bureau of Mines wilderness study and will be incorporated in a joint report with the U.S. Geological Survey. The report is preliminary and has not been edited or reviewed for conformity with the U.S. Bureau of Mines standards and nomenclature. Work on this study was conducted by personnel from Western Field Operations Center, East 360 Third Avenue, Spokane, Washington 99202

FOREWORD

The U.S. Bureau of Mines and U.S. Geological Survey jointly conduct mineral surveys of lands which in the U.S. Forest Service Second Roadless Area Review and Evaluation (RARE II) program have been designated for further planning. These evaluations are used in the RARE II program which conforms with the Multiple-Use Sustained-Yield Act of 1960 (74 Stat. 215; 16 U.S.C. 528-531), the Forest and Rangeland Renewable Resources Planning Act of 1974 (88 Stat. 476, as amended; 16 U.S.C. 1601 note), and the National Forest Management Act of 1976 (90 Stat. 2949; 16 U.S.C. 1600 note). Reports on these surveys provide the President, Congress, the U.S. Forest Service, and the general public with information essential for determining the suitability of land for inclusion in the National Wilderness Preservation System.

This report is on the Ten Mile West RARE II area (No. W4-061), Boise and Elmore Counties, Idaho.

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SUMMARY

There is potential for placer and lode gold resources in the Ten Mile West RARE II area. No resources have been identified, but assays of samples from four groups of lode prospect workings show potential for gold, silver, lead, and zinc resources, and gravel from four sites indicate potential for placer gold resources.

Moderate potential for lode gold-silver resources exists at the Gold Bug, Graham Group, and Lone Cabin properties, and there is low potential for silver-zinc resources at the Valley Chief Claim Group.

Gravel was sampled for placer gold at 57 sites along the Crooked River and North Fork Boise River; gold was recovered at 27 sites. One deposit contains 32,000 cu yd of gravel valued at $1.22 per cu yd (at a gold price of $400 per oz). Our samples indicate no site could be mined at a profit; however, the lower portions of alluvial deposits could not be adequately tested and better gold values may be found closer to bedrock, particularly near Johnson Creek campground. Low to moderate potential for placer gold resources exists at four sites.

Two geothermal lease applications, Nos. I-15985 and I-15986, overlap the northern boundary of the study area. These applications are centered around Bonneville Hot Springs, outside the study area.

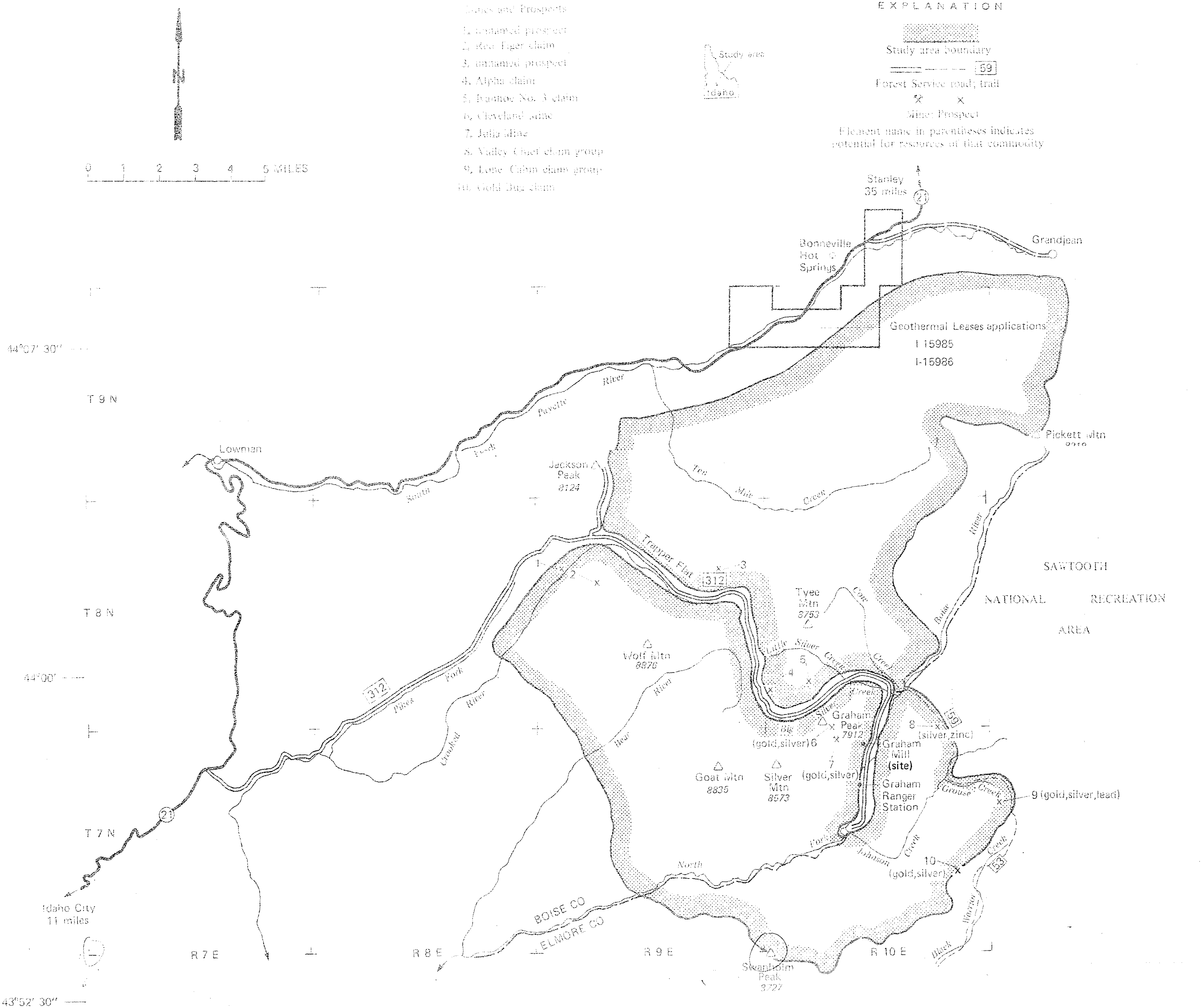
There are 1,135 current lode and placer claims, including 1,052 lode claims in one group. No patented claims, oil and gas leases, or mineral leases are in the study area. The only reported production was 52 oz of silver from the Graham claim area.

INTRODUCTION

The Ten Mile West area, which was designated for further planning under the U.S. Forest Service Second Roadless Area Review and Evaluation (RARE II) program, covers 134 sq mi (85,424 acres). It adjoins the west side of the Sawtooth National Recreation Area and Sawtooth Wilderness (fig. 1). The nearest town is Idaho City, 25 mi southwest of the study area. Access is obtained by travelling 16 mi northeast of Idaho City on State Highway 21 to Forest Service Road (Willow Creek Road) 384, then 3 mi east to Forest Service Road 312, and 26 mi of four wheel drive to Graham in the area's interior. The Graham road is closed by snow about nine months out of the year.

Topographically, the area consists mostly of steep, glacially-eroded mountains and valleys. Elevations range from a high of 8,970 ft at Goat Mountain to a low of 4,850 ft where the North Fork Boise River exits the study area.

The Bureau of Mines, Western Field Operations Center, Spokane, Washington, searched the literature and county mining claim records and performed field examinations of the Ten Mile West RARE II area in 1981 and 1982. The eastern part of the study area was evaluated in 1967 by the U.S. Bureau of Mines and the U.S. Geological Survey as part of their mineral resources study of the Sawtooth Primitive Area (Kiilsgaard and others, 1970). Geologic studies of two lode claim groups, the Graham and Valley Chief, were done in 1979 by a private concern.



Mines and Prospects
1. unnamed prospect
2. Red Tiger claim
3. unnamed prospect
4. Alpha claim
5. Ivanhoe No. 3 claim
6. Cleveland Mine
7. Julia Mine
8. Valley Chief claim group
9. Lone Cabin claim group
10. Gold Bug claim
Study area
Idaho
EXPLANATION
Study area boundary
59
Forest Service road; trail
Mine; Prospect
Element name in parentheses indicates potential for resources of that commodity
0 1 2 3 4 5 MILES
Stanley
35 miles
21
Grandjean
Bonneville
Hot
Springs
Geothermal Leases applications
I 15985
I-15986
44°07′ 30″
T 9 N
Payette
River
South
Fork
Lowman
Jackson
Peak
8124
Ten
Mile
Creek
Pickett Mtn
River
Boise
SAWTOOTH
NATIONAL
RECREATION
AREA
Trapper Flat
312
1
2
3
Tyee
Mtn
8753
Cow
Creek
T 8 N
Wolf Mtn
8876
Little
Silver
Creek
5
4
44°00′
312
Pikes
Fork
River
Crooked
Bear
River
Creek
Silver
Big
Graham
Peak
7912
(gold,silver) 6
8
(silver,zinc)
59
Graham
Mill
(site)
7
(gold,silver)
Goat Mtn
8835
Silver
Mtn
8573
Graham
Ranger
Station
Grouse
Creek
9 (gold,silver,lead)
T 7 N
21
Fork
North
Johnson
Creek
10
(gold,silver)
Creek
53
Warrior
Black
Idaho City
11 miles
BOISE CO
ELMORE CO
R 7 E
R 8 E
R 9 E
R 10 E
Swanholm
Peak
43°52′ 30″

Figure 1. – Location map of the Ten Mile West RARE II Area, showing lode sample sites.

115°37′ 30″ 115°30′ 115°22′ 30″ 115°15′

Geologically, the entire area is underlain by granitic rocks of the Idaho Batholith. The varieties include granodiorite, lueco-granite, quartz pegmatite, and quartz latite, all of which have been intruded by mafic or ultramafic dikes. In some areas, northeast trending quartz veins and vein complexes up to 40 ft wide were noted. The major structural features are the Bear River and Montezuma Faults. They trend northwest and form a large graben in which all of the mineral occurrences lie. Sericitic alteration is progressively stronger near the Montezuma Fault.

There are no producing mines in the study area; however, six areas of interest are currently being held by claimants. Three of these areas are lode claim groups at old prospects. The others are placer claim groups located in the Crooked River and North Fork Boise River valleys.

A total of 1,427 claims have been located in the study area. Of these, 1,123 are current lode claims and 12 are current 160-acre placer claims. One block of 1,052 lode claims is owned by Argonaut Mines Ltd., California. Of the old, abandoned claims, 281 were lode and 11 were placer claims. There are no patented claims, oil and gas leases, or mineral leases in the study area.

MINERALIZED AREAS

Lode Claims

Gold Bug Claim

The Gold Bug Prospect workings are on the ridge between Johnson and Black Warrior Creeks (fig. 1, no. 10) in section 24, T. 7 N., R. 10 E. Access is by either Forest Service Trail 053 or 059. The Gold Bug was originally located in 1903, along with 17 contiguous claims, and the adit, pits, and trenches were dug about that time.

All workings are in a fine-grained, leucocratic granite containing quartz pegmatites with muscovite. The adit, possibly 200 ft long originally, is only open for 96 ft. It crosscuts numerous faults trending northeast. One of these faults contains up to 1.7 ft of white gouge. Several pits and trenches were dug on top of the ridge above the adit and expose iron-stained zones within the granite.

Eighteen samples were taken. Five grab samples from dumps and stockpiles at prospect pits above the adit contained 0.028, 0.274, 0.506, 0.52 and 3.20 oz gold per ton. Two had 0.44 and 2.6 oz silver per ton. The property has moderate potential for gold-silver resources.

Graham Group

(Alpha and Ivanhoe No. 3 Claims; Cleveland and Julia Mines)

The Graham Claim Group consists of 54 claims originally located between 1882 and 1894. Prospect workings are in four groups (fig. 1, nos. 4-7) on and near Graham Peak and along the divide separating Big and Little Silver Creeks. Workings consist of four open adits ranging from 28 to 250 ft long, three caved adits estimated to be from 20 to 300 ft long, and six prospect pits and trenches.

Col. Mathew Graham and associates located the original claims. London investors financed part of the mine and mill (oral communication, Rupert Thorne, 1982). They sent Vivian Thorne to Idaho as their contrbller (his son Rupert Thorne of Idaho City, still owned the property in 1979). The property is now included in the group of 1,052 claims recently located by Tomas Stimpel for Argonaut Mines, Ltd.

The mill was constructed over a period of two years by British carpenters and stone masons. Ore was supplied to the mill by a gravity-powered bucket tram. The original tram, which was destroyed by an avalanche, was eventually rebuilt but is now in ruins.

By 1888 the first ore from the mines was stockpiled at the tram leading to the mill. In 1889, the mill operated for five days and produced 52 oz of silver (Rupert Thorne, oral communication, 1982). It is not known which of the workings was the source of the silver. In the late 1930's, the U.S. Forest Service dismantled the mill and salvaged scrap metal for the war effort.

The groups of workings are within the Bear River - Montezuma Fault graben in granitic rocks. The lithologies include granodiorite, quartz pegmatite, and quartz latite, all of which have been intruded by mafic and ultramafic dikes. A 181-ft adit on the Julia Claim, follows a series of quartz mylonite veins in quartz latite. An 83-ft adit on the Cleveland Claim exposes several altered shear zones in quartz pegmatite. A 28-ft adit on the Ivanhoe No. 3 Claim exposes a 2-ft-thick diabase dike and a 2-ft-wide altered zone containing disseminated pyrite in granite.

Forty-three samples were taken at the workings. A sample from a stockpile of about 150 tons on the Julia Claim assayed 4.2 oz silver per ton. Another sample from a 1.5 ton stockpile on the Cleveland Claim assayed 3.3 oz silver per ton and 0.062 oz gold per ton. A sample from the 70 ton dump on the Alpha Claim assayed 5.0 oz silver per ton. The remaining 40 samples contained no appreciable mineral values. There is moderate potential for gold-silver resources.

Lone Cabin Claim Group

Most of the following data is from the 1970 Sawtooth Primitive Area investigation (Kiilsgaard and others, 1970, p. D73--Upper Grouse Creek property). The 1981 examination for the RARE II study showed no work had been done at the property since the earlier study.

The Lone Cabin Claims are located at the headwaters of Grouse Creek in section 8, T. 7 N., R. 11 E. Access is by Forest Service Trail 059, which begins at the Graham road near Silver Creek. The claims were originally located as the Log Cabin claim group in 1904. Since then, they have been relocated three times and are currently held by the 1953 claimants, W.O. Byrl and Walter Storey.

There are four adits, one caved shaft, two trenches, and several pits on the property. The two major adits were about 200 ft long. All of the workings are in luecoratic granite. The workings explore faults and veins that trend northeast and are associated with the regional Montezuma Fault.

The local fault system, which trends N. 65° E. and dips 57° NW. contains veins of vuggy quartz, with minor pyrite and galena. Much of the fault zone is sericiticly altered and iron stained. A select sample from the property assayed 3.5 oz gold per ton, 4.4 oz silver per ton, and 2.0 percent lead (table 1). Six of eleven other samples assayed from 0.11 to 0.80 oz gold per ton and 0.3 to 1.5 oz silver per ton. The caved condition of the workings precluded an estimate of resource tonnage and grade. There is moderate potential for gold-silver resources.

Valley Chief Claim Group

The following data are mainly from the 1967 investigation (Kiilsgaard and others, 1970, p. D79-- Bayhorse Pass Prospects). The 1981 examination showed the property under lease, but no indication of activity.

The claims are on Bayhorse (Bayhouse) Pass in sections 1 and 2, T. 7 N., R. 10 E. Access is by Forest Service Trail 059 which begins at the Graham road, near the mouth of Silver Creek.

The claims were originally located in 1904 as the Black Bear, Goldfish, and Apex. Since then, they have been relocated seven times by various claimants. They were leased in 1980 to Brent Mining, Inc., Denver, Colorado.

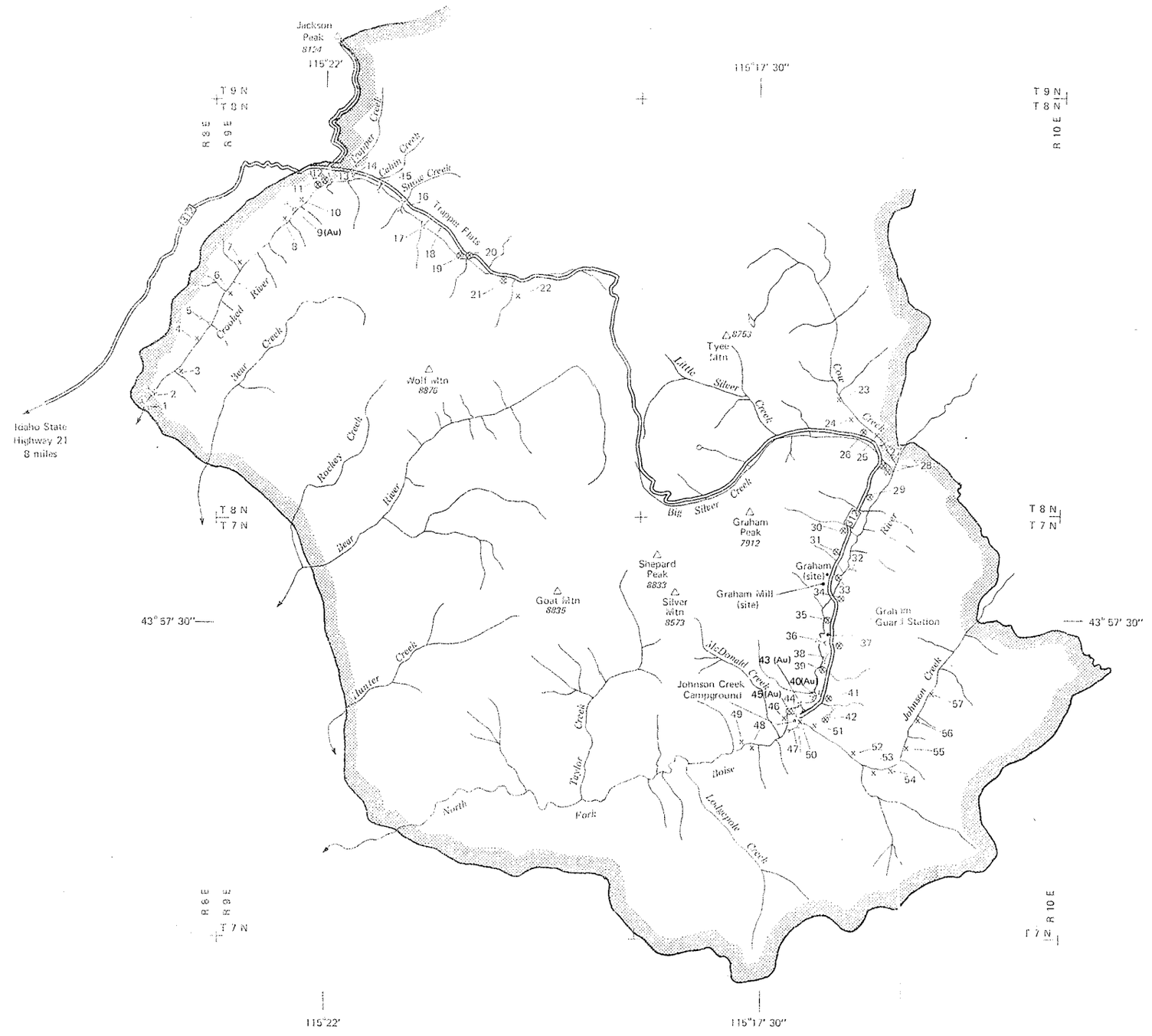
Workings include two caved adits and several prospect pits. The upper adit, described as being short, follows a 1-ft-thick, quartz-rich fault gouge zone trending N. 20° E., and dipping SE. This iron- and manganese-stained zone contains disseminated pyrite and possibly some tetrahedrite. The lower caved adit, reported to be 200 to 300 ft long, follows a 1-to-5 ft-thick quartz vein containing pyrite, chalcopyrite, and possibly some tetrahedrite. This vein strikes N. 40° E. and dips easterly.

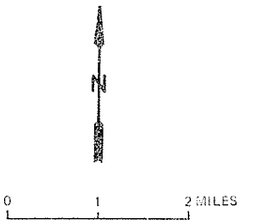
Many rocks at the workings have strong sericitic alteration, along with disseminated pyrite and vuggy quartz. This alteration suite appears to be strongest nearer the Montezuma Fault, which the claims adjoin on the downthrown (west) side. Assays of seven of nine samples ranged from 0.6 to 14.6 oz silver per ton; the higher grade samples also contained significant copper-lead-zinc values. There is moderate potential for silver-zinc resources.

Placer Claims

Gravel deposits were investigated for placer gold along two major drainage systems; the Crooked River in the central and western portions of the study area, and the North Fork Boise River in the southeastern part (fig. 2).

Three sampling techniques were used during the investigation: (1) reconnaissance pan samples, using a 14-in. gold pan and grizzly, were taken from stream and river banks; (2) channels were excavated and sampled in terraces, moraines, and stream and river banks; (3) circular pits, up to 15 ft deep, were dug into glacial-fluvial gravels using a backhoe, and bulk samples were collected from the bottom and along one side of each pit.





EXPLANATION

Study area boundary*

312 Forest Service road

Channel sample site

Pit sample site

Pan sample site

43(Au) Au-site with placer gold resource potential

*A narrow travel corridor follows Forest Service Road 312 in the study area.

Figure 2. – Placer sample sites, South-Central Region of the 10 Mile West RARE II Area

Crooked River

Gold-bearing glacio-fluvial materials in the Crooked River Valley and along Trapper Flat were deposited during the Quaternary Period. They are composed of porphyritic, granitic rocks, with andesite and other dike rocks intermixed. Monzogranite and biotite-hornblende-granodiorite (Kiilsgaard, 1982) are the primary source of the gold. Cobbles and boulders composed of granitic rocks make up 30 to 60 percent of the sand and gravel. The remaining materials are a combination of silts, sands, pebbles, and gravels which are recent weathering products of the granitic rocks. White-quartz vein material, normally less than 0.25 ft thick, is randomly intermixed within this material. Uneconomic amounts of bright, very small, chunky, angular flakes of gold are disseminated within the stream washed sediments. The gold is neither well sorted nor concentrated. The Crooked River Valley rarely exceeds 300 ft in width and the glacio-fluvial deposits are estimated to be less than 15 ft thick. Poorly sorted lateral morainal deposits, on both the north and south sides of Trapper Flat, limit stream worked material to a width of 600 ft or less. Thickness of sand and gravel deposits, as determined in backhoe pits, is between 4 and 15 ft.

Twenty-two sites (fig. 2) were sampled along the Crooked River or near the King Royale and Trapper Flat association placer claim groups. A total of 174 samples were collected. Gold, primarily in trace amounts, was found in 15 samples. No gold resources were identified. Because of a high water table at 18 of the sites, gravel on or near bedrock, where gold is often concentrated, could not be sampled. Site 9 (fig. 2) contains 3,400 cu yds of gold-bearing gravel worth 25 cents per cu yd (at a gold price of $400 per troy oz). Moderate potential exists for placer gold resources at this site.

North Fork Boise River

The area of primary interest for placer gold deposits along North Fork of the Boise River is the section flowing between Cow Creek and Johnson Creek (fig. 2). The valley appears to be in a graben. Several down-faulted blocks occur on each side of the river, and each block is covered with a thin veneer of glacial till. A flood plain up to 1,000 ft wide is found along the floor of the valley; thickness of sand and gravel averages 10 ft. Country rock is the same biotite-granodiorite found at Trapper Flat.

Five association placer claims of the Graham Group are located along the portion of the river within the study area. Fourteen sites, of 22 examined, contained detectable quantities of gold, but none of the sites have economic deposits. Site 40 contains 434,000 cu yds of gravel containing gold worth 58 cents per cu yd; site 43 has 75,000 cu yds of gold-bearing gravel worth 89 cents per cu yd; site 45 has 32,000 cu yds of gravel containing gold valued at $1.22 per cu yd. Gravel near bedrock could not be tested at these sites because of overlying boulders. Moderate potential exists for placer gold resources here.

Eleven Cow Creek placer claims are located within the study area. Five sites (fig. 2, nos. 23-27) were examined. Of the 23 samples collected, two contained traces of gold. Seven reconnaissance pan samples were collected along Johnson Creek; one sample contained a trace of gold.

Geothermal Energy

The entire study area is classified by the U.S. Geological Survey as "valuable prospectively for geothermal steam and associated geothermal resources" (Muffler, 1978). In the extreme northern end of the study area, geothermal lease applications nos. I-15985 and I-15986 extend into the area (fig. 1). They occupy secs. 4, 7, 8, and 9, T. 9 N., R. 10 E., secs. 1 and 12, T. 9 N., R. 9 E., and secs. 28 and 33, T. 10 N., R. 10 E. These lease applications mainly center around Bonneville Hot Springs, which is not in the study area.

Table 1.--Mines, prospects, and claims in the Ten Mile West study area

(Underlined name indicates mineral resource potential)

Map no.	Name	Summary	Workings	Sample data
1	Unnamed prospect	Trench cut into iron-stained granodiorite containing a 0.5-ft-thick quartz vein trending N. 20° E. and dipping 49° SE.	A trench, 20 X 4 X 3 ft deep following the quartz vein.	One sample: assay values were insignificant.
2	Red Tiger Claim	Working cut into rhyolite with a quartz vein complex.	A caved adit trending S. 65° W. and probably less than 30 ft long.	One sample: assay values were insignificant.
3	Unnamed prospect	Pits dug in weathered and iron-stained granite cut by andesite dike.	Two pits, one 14 X 13 X 6 ft deep, another 6 X 4 X 2 ft deep.	Two samples: assay values were insignificant.
4, 5, 6, and 7	Graham Claim Group (Alpha and Ivanhoe No. 3 claims; Cleveland and Julia Mines)	Workings are in granitic rocks. They expose quartz mylonite veins. A relatively large mill was built which only operated for 5 days and produced 52 oz of silver.	Four open adits: one 181-ft adit on the Julia Claim; two adits on the Cleveland Claim with 343 ft of workings; and one 28-ft adit on the Ivanhoe No. 3 claim. Three caved adits and six prospect pits and trenches also are present.	Forty three samples; one from the Alpha Claim (fig. 1, no. 4) adit dump contained 5.0 oz silver per ton; one from a stockpile on the Julia Mine dump (fig. 1, no. 7) contained 4.2 oz silver per ton; one from a stock pile on the Cleveland Mine dump (fig. 1, no. 6) contained 3.3 oz silver and 0.062 oz gold per ton.

Table 1.--Mines, prospects, and claims in the Ten Mile West study area--Continued

Map no.	Name	Summary	Workings	Sample data
8	Valley Chief Claim Group	All workings are dug into granite and follow altered fault zones and quartz veins. The veins range from 2- to 5-ft thick. These geologic structures are also related to the Montezuma Fault. A strong quartz-sericite-pyrite alteration suite becomes progressively more pronounced approaching the fault.	Two caved adits; one is estimated to be 200 to 300 ft long, and the other is shorter.	Nine samples were taken during the 1967 examination. Two samples of selected dump material assayed 14.6 and 7.3 oz silver per ton, 0.1 and 0.3 percent copper, 0.7 and 0.4 percent lead, 0.6 and 1.0 percent zinc, and 0.07 and a trace of bismuth; five other samples assayed significant silver--from 0.6 to 3.8 oz per ton.
9	Lone Cabin Claim Group	All workings are dug into luecocratic granite and follow faults and veins trending northwest. Geologic structures are related to the Montezuma Fault. Veins contain vuggy quartz, altered granite, and minor disseminated sulfides.	Four caved adits; several prospect trenches and pits.	Twelve rock samples were taken during the 1967 investigation. Of these, one select sample assayed 3.5 oz gold per ton, 4.4 oz silver per ton, and 2.0 percent lead; a chip sample from across the 10-in quartz vein assayed 0.80 oz gold per ton; five grab and select samples assayed from 0.11 to 0.79 oz gold per ton and 0.3 to 1.5 oz silver per ton. One other sample was taken, but its exact location is not reported.

Table 1.--Mines, prospects, and claims in the Ten Mile West study area--Continued

Map no.	Name	Summary	Workings	Sample data
10	Gold Bug Claim	Adit and prospect pits dug in fine-grained, iron-stained, leucocratic granite, with some quartz pegmatites and muscovite. Adit crosscuts numerous northwest-trending faults.	A 96-ft adit, 5 prospect pits, and a 38 ft open cut.	Eighteen samples were taken: two in 1967 contained 0.56 and 3.20 oz gold per ton; three in 1981 assayed 0.506 0.274 and 0.028 oz gold per ton. Two samples assayed 0.41 and 2.6 oz silver per ton.

ASSESSMENT OF MINERAL DEPOSITS

The Ten Mile West RARE II area contains four sites with potential for placer-gold resources. Also, assays of samples taken at various workings on three lode claim groups in the area, and another probably extending into it, indicate a potential for lode gold, silver, lead, and zinc resources.

The four sites along the North Fork Boise River and Crooked River have small volumes of auriferous gravel with values ranging from $0.32 to $1.22 in gold per cu yd. Placer gold was found at many localities along the two rivers, but the gold is mostly disseminated, angular, and bright suggesting it has not been transported far. However, a high water table and large boulders prevented testing of the gravel near bedrock in some places to determine if high gold values occur there.

Most of the workings at the lode deposits were caved, which precluded an estimate of tonnage and grade at the four properties. High values occurred in dump and stockpile material. Two of the four properties are near the Montezuma Fault, and one is near the parallel Bear River Fault. This suggests the faults in the vicinity of the known occurrences are exploration targets for metallic mineral resources.

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