DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1101-D

MINERAL RESOURCE POTENTIAL MAP OF THE HOOVER WILDERNESS AND ADJACENT ROADLESS AREAS, CENTRAL SIERRA NEVADA, CALIFORNIA

By

Edwin W. Tooker[1], Nicholas T. Zilka[2], Maurice A. Chaffee[1], Donald Plouff[1],
Gerald F. Brem[1], William J. Keith[1], James F. Seitz[1], and A. M. Leszcykowski[2]

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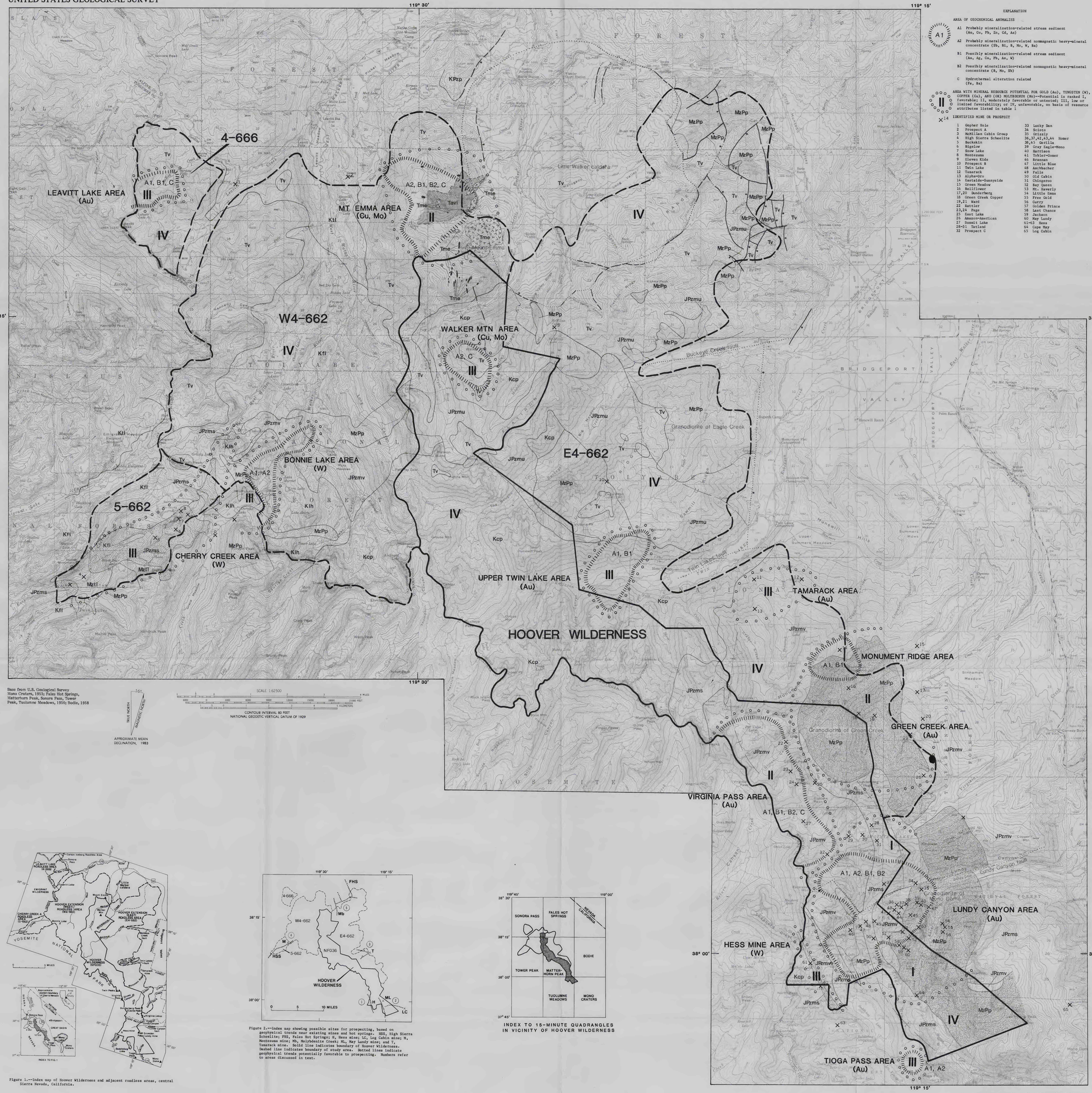

EXPLANATION

AREA OF GEOCHEMICAL ANOMALIES

A1 Probably mineralization-related stream sediment (As, Cu, Pb, Zn, Cd, Au)

A2 Probably mineralization-related nonmagnetic heavy-mineral concentrate (Sb, Bi, B, Mo, W, Ba)

B1 Possibly mineralization-related stream sediment (As, Ag, Cu, Pb, Zn, W)

B2 Possibly mineralization-related nonmagnetic heavy-mineral concentrate (As, Mo, Sb)

C Hydrothermal alteration related (Fe, Ba)

AREA WITH MINERAL RESOURCE POTENTIAL FOR GOLD (Au), TUNGSTEN (W), COPPER (Cu), AND/OR MOLYBDENUM (Mo)—Potential is ranked I, favorable; II, moderately favorable or untested; III, low or limited favorability; IV, unfavorable, on basis of resource attributes listed in table 1

IDENTIFIED MINE OR PROSPECT

1	Gopher Hole	33	Lucky Dan
2	Prospect A	34	Silver
3	McMillan Cabin Group	35	Quartz
4	High Sierra Scheelite	36,37,41,43,44	Homer
5	Buckskin	38,45	Gorilla
6	Bigelow	39	Gray Eagle-Mono
7	Snow Lake	40	Harrison
8	Monkeymine	42	Tobin-Comer
9	Eleven Kids	46	Brannan
10	Tamarack	47	Little Blue
11	Twin Lake	48	Schlueter
12	Tamarack	49	Fallon
13	Alpha-Omega	50	Old Cabin
14	Eastside-Sunnyside	51	Chingerno
15	Green Meadow	52	Bay Queen
16	Bellflower	53	Mt. Waverly
17,20	Dunderberg	54	Little Emma
18	Green Creek Copper	55	Free Gold
19,21	Ruth	56	Lundy
22	Antrier	57	Golden Prince
23,24	Page	58	Last Chance
25	East Lake	59	Jackson
26	Amazon-American	60	May Lundy
27	Sunset Lake	61-63	Rose
28-31	Tetland	64	Cope May
32	Prospect C	65	Log Cabin

CORRELATION OF MAP UNITS

VOLCANIC ROCKS	PLUTONIC ROCKS	METAMORPHIC ROCKS	
Tawi, Tv			TERTIARY
	Age relations uncertain		
	MzPp, Kcp, Kkl, Kkl, Kkh, Mzt1, JPzmu, JPzmv, JPzms	MESOZOIC AND PERMIAN?	CRETACEOUS
			JURASSIC TO PALEOZOIC

DESCRIPTION OF MAP UNITS

VOLCANIC ROCKS

Tv VOLCANIC FLOWS, TUFFS, AND LAHARS (TERTIARY)—These deposits vary in composition from rhyolite to basalt. As mapped, unit includes the Dunderberg Peak and Relief Peak Formations of Slemmons (1966), undivided Stanislaus Group, and Valley Springs Formation

Tawi ALTERED ROCKS (TERTIARY)—Hydrothermally and propylitically altered volcanic and intrusive rocks

PLUTONIC ROCKS

Tmc GRANODIORITE OF MOUNT EMMA AND ASSOCIATED DIKES (TERTIARY)

Kcp CATHEDRAL PEAK GRANODIORITE (CRETACEOUS)

Kkl GRANODIORITE OF TOPAZ LAKE (CRETACEOUS)

MzPp PLUTONIC ROCKS, UNDIVIDED (MESOZOIC AND PERMIAN?)—Predominantly granitic to granodioritic in composition. As mapped, unit includes the granite of Eagle Creek (Late Cretaceous), granodiorite of Buckeye Creek (Mesozoic?), granodiorite of Green Creek (Late Cretaceous), granodiorite of Long Canyon (Late Cretaceous), alaskite of Grave Meadow (Late Cretaceous), granite of Upper Twin Lakes (Late Cretaceous), granodiorite of Bond Pass (Late Cretaceous), granodiorite of Tioga Pass (Cretaceous and Jurassic?), granite of Dotsero Lake (Early Cretaceous), granodiorite of Log Cabin Creek (Late Cretaceous), granite of Devils Gate (Late Cretaceous), gabbro of Mount Watson (Late Cretaceous), and quartz diorite of Odell Lake (Triassic or Permian?). Shaded units, underlined above, are associated with gold mineralization

Kkl GRANODIORITE OF PARDUNE LAKE (CRETACEOUS)

Kkh GRANODIORITE OF LAKE HARMET (CRETACEOUS)

Mzt1 GABBRO OF TWIN LAKES (MESOZOIC)

METAMORPHIC ROCKS

JPzmv METASEDIMENTARY AND METAVOLCANIC ROCKS, UNDIVIDED (JURASSIC TO PALEOZOIC?)—Roof-pendant rocks. Locally, divided into metasedimentary rocks, JPzms, and metavolcanic rock, JPzmv. Patterned units are associated with gold or tungsten mineralization

CONTACT

FAULT—Dashed where approximately located; dotted where inferred. Arrows indicate relative movement; bar and ball on downthrown side

ANTICLINE—Normal and overturned. Dashed where approximately located

SYNCLINE—Dashed where approximately located

APPROXIMATE BOUNDARY OF HOOVER WILDERNESS (HW36)

APPROXIMATE BOUNDARY OF ROADLESS AREA

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 mineral resource potential survey of the Hoover Wilderness and Cherry Creek A, Hoover Extension (East) (E4-662), Leavitt Lake (W-666), and Lewis Lake (W-667) Roadless Areas, Inyo National Forest, Mono and Tuolumne Counties, California. Hoover Wilderness (HW36) was established by Public Law 88-577, September 3, 1964. Cherry Creek A (5-662) Roadless Area was classified as a further planning area and Hoover Extension (East) (E4-662), Hoover Extension (West) (W-662), and Leavitt Lake (W-666) Roadless Areas were classified as recommended wilderness areas during the Second Roadless Area Review and Evaluation (RARE II) by the U.S. Forest Service, January 1979.

SUMMARY

A mineral resource potential survey of Hoover Wilderness and surrounding Cherry Creek A, Hoover Extension (East and West), and Leavitt Lake Roadless Areas was conducted by the U.S. Geological Survey and U.S. Bureau of Mines. Studies included geologic mapping and geochemical and geophysical surveys by the U.S. Geological Survey, and a search of mining and production records and examination of mines and prospects by the U.S. Bureau of Mines. On the basis of these studies, the mineral resource potential of the wilderness and adjacent roadless areas is ranked from I, favorable to IV, unfavorable, depending on the number of resource attributes in any area (table 1).

Known gold deposits, some mined as early as 1871, are located in the southern half of the wilderness and adjoining roadless area in the Lundy Canyon, Virginia Lakes, Silver Canyon, and Dunderberg Creek areas. U.S. Bureau of Mines records indicate that these deposits have produced a total production of at least 42,300 troy oz of gold and 18,000 oz of silver, mainly from the May Lundy mine (60)[1]. There is reasonable expectation that gold is present in extensions of some of the productive vein deposits, such as the Tamarack (12), Dunderberg (17, 20), Tetland (28-31), May Lundy (60), and Jackson (59) mines (table 2). Any production from a single mine probably will be limited, owing to the small size of local high-grade ore shoots in veins along shear surfaces in lens-shaped bodies in metasedimentary rocks that extend only to shallow depths.

Tungsten deposits (scheelite) are known in Cherry Creek A Roadless Area and in the southern tip of the Hoover Wilderness, but production in the wilderness itself has been small. There is only a low or limited favorability for extensions of tungsten deposits in the study area, mainly from a group of six claims in the Cherry Creek A Roadless Area (area 5-662, table 2).

A buried disseminated copper and molybdenum occurrence may be present in a volcanic porphyry system near Mount Emma in the Hoover Extension (West) Roadless Area (area W-662, table 2). Drilling to depths of 1,000 feet or more and subsurface exploration will be necessary to confirm the presence of any ore body. The potential for conventional types of base-metal and uranium occurrences in and near the wilderness and roadless areas is considered low. There are no known sources of geothermal energy or of fossil fuels in the area, and no energy potential must be considered low. Any future mineral production in the study area will be limited by difficult access and by special requirements for mining and milling that are necessary to protect the environment.

INTRODUCTION

The study area lies along and mainly east of the crest of the Sierra Nevada in Mono and Tuolumne Counties, Calif. (fig. 1). The areas are located mostly in the Toiyabe National Forest, but small parts extend also into the Stanislaus and Inyo National Forests. The Hoover Wilderness is about 31 mi (50 km) in length and ranges from 1.2 to 18.6 mi (2-30 km) in width, encompassing approximately 159,000 acres. The roadless areas comprise approximately an additional 50,000 acres. The Hoover Wilderness and adjacent roadless areas are bounded on the west by the Emigrant Wilderness and Yosemite National Park and on the north and east are adjacent to Little Walker caldera, Bridgeport Valley, and Mono Lake basin. Elevations range from greater than 12,000 ft along the crest of the Sierra Nevada to 7,200 ft near Twin Lakes. The region is spectacularly scenic and is characterized by marked relief that has been enhanced by glacial erosion. Access to the wilderness and roadless areas is by two paved highways that cross the Sierra Nevada, at Sonora Pass on the north and Tioga Pass on the south, and by a number of spur roads from the east.

GEOLOGY

By E. W. Tooker, G. F. Brem, J. F. Seitz, and W. J. Keith

The Hoover Wilderness and adjacent roadless areas are dominated by two main geologic units: a Mesozoic batholithic complex and a sequence of metamorphosed sedimentary and volcanic rocks and a younger volcanic sequence that overlies and partly conceals the batholithic complex (Keith and Seitz, 1981). The axially extensive batholithic rocks consist of numerous plutons, ranging in age from Permian(?) to Tertiary and in composition from quartz diorite to granodiorite and granite. Two small gabbro plutons are also present. The granitic plutons were intruded into a sequence of tightly folded metavolcanic and metasedimentary rocks of Paleozoic and Mesozoic age. Steeply dipping northwest-trending veins in and near contacts between the plutonic and metamorphic rocks are the principal gold deposits that have been mined in the wilderness. The large composite pluton comprised of the Cathedral Peak Granodiorite, lying mainly along the west side of the wilderness, is sparsely altered and cut by a system of widely spaced joints. Local shear zones are closely associated with calcareous metasedimentary rocks close to plutonic contacts. Miocene or younger volcanic rocks include flows, breccias, and lahars that have been intruded by dikes and sills and a small granodiorite pluton (Slemmons, 1966). These rocks are the remnants of a stratovolcano overlying the ring fracture system of Little Walker caldera (Brem, unpub. data, 1982).

Inferred cross and shear faults occur within or separate plutonic and metamorphic roof-pendant rocks. Steeply dipping northeast-trending cross faults, or zones that cut across the structure of the metasedimentary rocks, are inferred from the following: (1) apparent offsets of rock units, (2) abrupt changes in the field structures of roof-pendant rocks, (3) contacts between plutons, (4) linear zones of accelerated erosion and glacial scour, and (5) linear zones of aligned lakes, as shown on aerial photographic patterns. Smaller northwest-trending shear faults in roof pendants generally are subparallel to lithologic contacts. The shear faults locally separate or cut out metamorphic units and in some places occur along contacts with plutonic units.

Movement along the Lundy Canyon fault is uncertain, but the offset of strata in the pendant appears to be right lateral. The inferred Twin Lakes fault coincides with a tongue of the Cathedral Peak Granodiorite that separates two sequences of metasedimentary rocks exposed on opposing canyon walls. The Twin Lakes fault is downthrown on the west and appears to separate Little Walker caldera and associated younger rocks from the plutonic-metamorphic terrane to the south. A warm spring also issues from this inferred fault zone. The southwestward projection of the inferred fault follows the break in batholithic terranes across the Sierra Nevada divide into the Cherry Creek drainage. The main mass of the Cathedral Peak pluton lies to the south, and a generally older plutonic terrane containing locally altered roof pendants lies to the north.

GEOCHEMISTRY

By M. A. Chaffee

The geochemical survey of the Hoover Wilderness and adjoining roadless areas, compiled by Chaffee, Bankster, and others (1982), Chaffee, Hill, and others (1980), and Chaffee and others (1983a-c), is summarized in Chaffee and others (1982). The geochemical interpretations are based on analyses of 74 rock samples, 182 minus-0.2-mm stream-sediment samples, and 180 nonmagnetic heavy-mineral concentrates. Analytical data for rock and stream-sediment samples from Leavitt Lake Roadless Area are tabulated in a separate report on Cenozoic Iceberg and Leavitt Lake Roadless Areas (Chaffee, unpub. data, 1982)). The three types of samples yield different types of data. Rock samples provide background information on the distribution and abundance of elements in primarily unaltered rock units. Stream-sediment samples, collected in first-order (unbranched) and second-order (below junction of two first-order) stream channels, provide data on the composite mineral suite present in a given drainage basin. Concentrate samples typically contain a number of minerals that provide information about elements commonly associated with metallic mineralization.

The geochemical survey has revealed localized anomalies for as many as 14 elements (Ag, As, Au, B, Ba, Bi, Cd, Cu, Pb, Mo, Sb, W, and (or) Zn) that may be related to potential mineralization. The most significant anomalies in the Hoover Wilderness are those found between Buckeye Creek and the bedding northwest trend area just to the north and in the study area. These anomalies seem to be related to the Paleozoic and Mesozoic metasedimentary and metavolcanic roof pendants in the Sierra Nevada batholith. Small to extensive areas of pervasive hydrothermal alteration are present in many of these metamorphosed units.

The strongest anomalies in the Hoover Wilderness are centered in Lundy Canyon and are characterized by the occurrence of anomalous elements in more than one sample type, relatively high numbers of anomalous elements present, and (or) high values. Anomalies in the southern part of the area in stream sediment and concentrate anomalies in the southern part of the area are the result of contamination from past mining activity. Irrespective of this, the overall characteristics suggest that as yet undiscovered mineral deposits (particularly blind deposits) containing any or all of the elements Ag, Au, Cu, Pb, Zn, Cd, As, Sb, Bi, and W may be present within the metamorphic rocks.

A number of areas contain overlapping geochemical anomalies for group 1 (pathfinder elements related) and group 2 (possible mineralization related) elements for both stream-sediment and concentrate samples. The sources of most of these anomalies have not been identified and their significance is not known. Two anomalous areas are particularly significant: (1) areas in Lundy Canyon where known precious-metal mineralization occurs, and (2) the area immediately northwest of Mount Emma, where anomalous metallic elements coincide with areas of altered rock (Tooker and others, 1982).

Low-level anomalies are present in other areas, but are more restricted in size and number. Such areas are present in Cherry Creek, Green Creek, upper West Walker River, Molybdenite Creek, and Leavitt Lake. The source of the Mount Emma anomalies, as well as those in other parts of the study area (Chaffee and others, 1983a-c), are not known and deserve further detailed investigation. Low-level anomalies in the Leavitt Lake Roadless Area are present for the elements Bi, Cu, and Sb in samples of stream sediment and for the elements As, Ba, Pb, and Pb in samples of nonmagnetic heavy-mineral concentrates. The most significant anomalies in both sample types were found in the upper part of the McKay Creek drainage basin, but the source of the anomalies is not known. They may be related to bedrock sources or they may be caused by contamination from past mining activity. Further detailed investigation may help to determine the sources of the anomalies.

GEOPHYSICS

By Donald Plouff

Geophysical studies of the Hoover Wilderness and adjoining roadless areas include a Bouguer gravity anomaly map and a residual magnetic intensity map (Plouff, 1982). Gravity anomalies reflect lateral changes in the density of the underlying rocks. Magnetic intensities are useful for indicating combinations of geologic trends related to existing mineral prospects and geochemical anomalies.

The gravity anomaly map (Plouff, 1982) shows the southeast edge of a major region to the southwest of the wilderness that is dominated by nearly flat gravity gradients and relatively low values. This is interpreted as a southeastward thickening of the crust and the effect of a root beneath the Sierra Nevada. Unfortunately the large regional gravity gradient obscures anomalies associated with near-surface density distributions that might be related to ore deposition. Several anomalies, however, can be recognized. The source of a prominent gravity low at Twin Lakes is unknown, but the anomaly may reflect the density contrast between underlying plutonic rocks and overlying volcanic rocks and (or) a buried caldera. A prominent northeast-trending elongated gravity high in the southern part of the area overlies a belt of metamorphic rocks in roof pendants that are surrounded by less dense plutonic rocks. The prominent gravity low located near the northeast corner of the map area reflects the low density of the tuffs and sedimentary deposits that fill Little Walker caldera (Zelka and others, 1976).

[1]Numbers in parenthesis refer to map locations.

INTRODUCTION

The magnetic intensity map (Plouff, 1982) shows great diversity in the magnetization of the underlying rocks along the eastern flank of the Sierra Nevada. Although the map is complicated by topographic effects, there is a good correlation between magnetic intensity and geology. Metasedimentary rocks have low magnetization, and the Mesozoic and Cenozoic plutonic and volcanic rocks have low to moderate magnetization, although several plutons yield relatively high values. The level of magnetization in metavolcanic rocks is variable, particularly in relation to that of surrounding rocks. Tertiary volcanic rocks have widely varying magnetizations, including reversed remanent magnetization that produces magnetic lows.

Interpretation of the geophysical maps reveals anomaly patterns in five areas that may warrant further study (fig. 2):

(1) A prominent gravity high and magnetic discontinuous belt of magnetic highs extends northeastward through saddling Lake near the southeast corner of the map area. The anomaly primarily reflects high density and lower magnetization of the underlying belt of metasedimentary rocks in roof pendants that in surrounding plutonic rocks.

(2) The May Lundy (60) and adjacent mines in the Homer mining district occur along the broad east flank of a north-trending gravity high. Further southeast, the Log Cabin mine (65) occurs in a magnetic low that forms part of a ring pattern that is open to the south. The north flank of a magnetic high and an associated gravity high to the south.

(3) The Tamarack area, southeast of Twin Lakes on the east side of the study area, occurs in metasedimentary rock within gradients along the south edges of east- and northeast-trending magnetic and gravity lows, respectively.

(4) The mines in the Cherry Creek area occur along a prominent magnetic gradient. The gradient in part follows the trend of the metamorphosmorate of Conway Lake and its contact with plutonic rocks to the northwest.

(5) A moderate gravity high and magnetic high are centered near Mount Emma in the northeast part of the study area. The magnitude of the geophysical anomalies suggests that igneous rocks associated with the Mount Emma eruptive center may extend a few miles beneath the surface.

MINES AND MINING DISTRICTS

By N. T. Zilka and A. M. Leszcykowski

Prospecting and mining in and adjoining the Hoover Wilderness began during the late 1850's in the Jordan mining district, east of Lundy canyon, and in the Mono mining district, south of Tioga Pass (DeDecker, 1966). Total production from the area is unknown, but records of the Bureau of Mines indicate production records do not exist; however, U.S. Bureau of Mines records[2] show more than 41,000 tons of ore were mined yielding 42,500 oz of gold, and 18,000 oz of silver. Other reports indicate that the total production exceeded 128,000 tons of ore worth 12,900,000 at the time of production (gold at $20.67/oz). Most of this production was from the May Lundy mine.

Tungsten ore also occurs in Hoover Wilderness and adjoining roadless areas. Scheelite was discovered in the Buckskin mine in 1937 and was followed by the mineral industry (a contractor specializing in exploration) in the Mount Emma southern part of Hoover Wilderness. Exploration to determine the extent and grade of gold resources at the May Lundy mine (60) is being conducted by Minerals Management, Inc. Small-scale gold mining is continuing at the Tetland mine (28-31) and in several other localities.

[2]Production units used: ton, short ton(s); oz troy ounce(s)

EXPLANATION OF CRITERIA FOR, AND AREAS OF, MINERAL RESOURCE POTENTIAL

Mineral resource potential in the wilderness and roadless areas is ranked into four classes, from I, favorable, to IV, unfavorable. Ranking is based on the following criteria: I, Favorable—Areas with a combination of resource attributes such as the presence of mineral productive deposits, the possibility for developing extensions of these deposits, outcrop exposures of ore minerals, and (or) a favorable geologic, geochemical, and geophysical setting sufficient to establish a favorable mineral resource potential. II, moderately favorable or untested—Areas with a few small deposits or mineralized prospects and a mixed combination of geologic, geochemical, and geophysical attributes sufficient for proposing a new ore occurrence. III, low or limited favorability—Areas with few if any prospects and only minor indications of favorable geologic attributes, or with geologic structures that preclude extensive near-surface deposits to sufficient depth for mining, or areas without exposed resulting geologic terranes containing some of the resource attributes listed above but provide suspicion that an undiscovered mineral deposit is present.

On the basis of this study, and one by the U.S. Bureau of Mines (Zilka and Leszcykowski, 1982), mineral resource potential is considered to be favorable (I) in one area, moderately favorable or untested (II) in three areas, of low or limited (III) favorability in eight areas, and unfavorable (IV) in the remaining areas. Each of these areas and the specific criteria for ranking are discussed in the text.

The Lundy Canyon area, located partly within the southern tip of the wilderness, is ranked as having good (I) mineral resource potential for gold deposits. The area, which encompasses most of the pluton comprised of the granodiorite of Mono Dome, contains geochemical anomalies of A1, A2, B1, and B2 types. A large number of mines are present in this area, including the May Lundy (60), which produced most of the gold from within the wilderness. An area of moderately favorable (II) potential for gold and (or) tungsten is also present. Further investigations are needed before the copper-molybdenum potential of this area is substantiated. The Mount Emma unit was originally mapped by Rinehart (unpub. data, 1982) in an area shown by Kaith and Seitz (1981) as underlain by the undivided Stanislaus Group.

Three areas have a low or limited (III) favorability for tungsten resources. The Walker Mountain area has a low or limited favorability and is roughly coincident with a roof pendant of metasedimentary rocks. Six scheelite claims in the area have estimated resources of 480,000 tons (table 2). The Bonnie Lake area is located just northwest of the Cherry Creek area, and contains geochemical anomalies of the A1 and A2 types. The third tungsten area is the Rose mine area, in the southern tip of Hoover Wilderness. The area encompasses a narrow strip of metasedimentary rocks and is considered to have a limited tungsten resource (table 2).

Four areas have low or limited (III) favorability for gold. These are the Tamarack area, which coincides with geochemical anomalies of the A1 and B1 types. Tamarack area in Hoover Extension (East) Roadless Area, the Upper Twin Lake area that coincides with geochemical anomalies of the A1 and B1 types, and the Leavitt Lake area in the Leavitt Lake Roadless Area, which coincides with an area of A1, B1, and C type geochemical anomalies.

Lastly, the Walker Mountain area has low or limited (III) favorability for copper and molybdenum. The area coincides with geochemical anomalies of the A1 and C types.

The remaining areas in the wilderness and adjoining roadless areas are considered to have unfavorable (IV) mineral resource potential.

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Figure 1.—Index map of Hoover Wilderness and adjacent roadless areas, central Sierra Nevada, California.

Figure 2.—Index map showing possible sites for prospecting, based on geophysical trends near existing mines and hot springs. HSS, High Sierra Scheelite; FHS, Falses Hot Springs; H, Hess mine; LC, Log Cabin mine; N, Montezuma mine; Mb, Molybdenite Creek; Ms, May Lundy mine; and T, Tamarack mine. Solid line indicates boundary of Hoover Wilderness. Dashed line indicates boundary of study area. Dotted lines indicate geophysical trends potentially favorable to prospecting. Numbers refer to areas discussed in text.

INDEX TO 15-MINUTE QUADRANGLES IN VICINITY OF HOOVER WILDERNESS

Table 1.—Summary classification of mineralized areas in Hoover Wilderness and adjoining roadless areas and comparison of the favorable attributes on which the classification is based

Evaluation class	I — Favorable	II — Moderately favorable or untested			III — Low or limited favorability						IV — Unfavorable
Area	Lundy Canyon (Au)	Mt. Emma (Cu, Mo)	Virginia Pass (Au)	Monument Ridge—Green Creek (Au)	Cherry Creek (W)	Rose mine (W)	Bonnie Lake (W)	Walker Mtn (Cu, Mo)	Tioga Pass (Au)	Upper Twin Lake (Au)	Leavitt Lake (Au)	Tamarack (Au)	All other areas
Resource attributes													
Productive mines	------		X		X	X							X
Possible extensions of deposits	------	X		X									
Mineralized outcrops or prospect sites	---	X	X	X	X	X	X	X					X
Favorable source or host rock	------	X	X	X	X	X							X
Feeder and deposit-tional structures	----	X	X	X	X	X							X
Wallrock alteration	---	X	X					X					X
Geochemical anomalies:													
a. Stream sediments - b. Nonmagnetic heavy-mineral concentrates	----	X	X	X			X	X	X	X	X		
		X	X	X						X			
Geophysical anomalies:													
a. Aeromagnetic	---	X				X	X	X	X	X			X
b. Gravity	------	X	X	X		X							

Table 2.—Location, type of occurrence, and estimated resource potential in the Hoover Wilderness and adjoining roadless areas

Area	Mine reference number	Property	Type of occurrence	Estimated resource
5-662	4-9	High Sierra Scheelite, Buckskin, Bigelow, Snow Lake, Monkeymine, and Eleven Kids	Contact	480,000 tons, submerginal tungsten-bearing material
East of E4-662	12	Tamarack	Vein	High-grade pockets, gold
East of E4-662	17, 20	Dunderberg	Vein	3-5 million tons, submarginal gold-bearing materials
Hoover	28-31	Tetland	Vein	Small reserves, gold
Hoover	60	May Lundy (including Jackson)	Vein	351,436 tons, reserves of ore material containing gold; 50,000 tons, recoverable tailings
Hoover	61-63	Rose	Contact	Limited, tungsten

Explanatory pamphlet accompanies map

[1]U.S. Geological Survey
[2]U.S. Bureau of Mines

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