

**CORRELATION OF MAP UNITS**

|              |                             |
|--------------|-----------------------------|
| Qtz          | QUATERNARY AND TERTIARY     |
| Tv           | TERTIARY                    |
| Tkg          | TERTIARY AND CRETACEOUS     |
| Tkd          |                             |
| Unconformity |                             |
| Cs           | CAMBRIAN                    |
| Unconformity |                             |
| Zyd          | LATE AND MIDDLE PROTEROZOIC |
| Yps          |                             |
| Ywh          | MISSOULA GROUP              |
| Yeb          | RAVALLI GROUP               |
| Yp           | Belt Supergroup             |
| Unconformity |                             |
| Xag          | EARLY PROTEROZOIC           |

**DESCRIPTION OF GEOLOGIC MAP UNITS**

Qtz VALLEY FILL DEPOSITS (QUATERNARY AND TERTIARY)—Alluvium, glacial deposits, and semiconsolidated to consolidated conglomerate interlayered in places with shale, coal, and volcanic ash; shown only in major valleys and basins or along main stream courses

Tv VOLCANIC ROCKS (TERTIARY)—Largely andesitic to dacitic welded tuff

Tkg GRANITIC INTRUSIVE ROCKS (TERTIARY AND CRETACEOUS)

Tkd DIORITIC INTRUSIVE ROCKS (TERTIARY AND CRETACEOUS)

Cs SEDIMENTARY ROCKS (CAMBRIAN)—Includes Red Lion Formation, Hasmark Dolomite, Silver Hill Formation, Flathead Quartzite, and equivalent rocks

Zyd DIORITIC TO GABBROIC SILLS AND DIKES (LATE AND MIDDLE PROTEROZOIC)

Yps MISSOULA GROUP (MIDDLE PROTEROZOIC)—Includes Pilcher, Libby, Garnet Range, and McNamara Formations, Bonner Quartzite, and Striped Peak, Mount Shields, Shepard, and Snowplow Formations

Ywh WALLACE AND HELENA FORMATIONS (MIDDLE PROTEROZOIC)

Yeb RAVALLI GROUP (MIDDLE PROTEROZOIC)—Includes Empire, St. Regis, Spokane, Revett, and Burke Formations

Yp PRICHARD FORMATION (MIDDLE PROTEROZOIC)

Xag ANORTHOSITE, SCHIST, AND GNEISS (EARLY PROTEROZOIC)

**CONTACT**

— FAULT—Dotted where concealed. Bar and ball on downthrown side; arrows show relative direction of apparent horizontal movement

— THRUST FAULT—Dotted where concealed. Sawtooth on upper plate

Note: The generalized and simplified geologic map was prepared as an underlay for various geophysical and geochemical data collected in the Wallace 1° x 2° quadrangle. A fuller treatment of geologic units and structure can be found on map I-1509-A in the Wallace CUSMAP folio.

This map is part of a folio of maps of the Wallace 1° x 2° quadrangle, Montana-Idaho, prepared under the Continuous United States Mineral Assessment Program (CUSMAP). Background information about this folio is published in U.S. Geological Survey Circular 920.

**OCCURRENCE MODEL FOR PLACER GOLD DEPOSITS**

**REGIONAL SETTING**

Placer gold has been found in many areas of the Wallace quadrangle in stream sediments of old (Tertiary and Pleistocene), as well as modern (Holocene), drainages or other valley-fill deposits. The most abundant prospects and dredging operations have been along present stream courses in second or third order tributaries to principal rivers such as the Clark Fork, Saint Regis, and Coeur d'Alene Rivers. Minor amounts of gold are reported from higher level terraces along principal rivers.

Sources for the gold in most of the placer deposits are Tertiary or older gold-bearing veins. For some areas, such as the divide that defines the Idaho-Montana State line in the south-central part of the quadrangle, known gold-bearing veins are sparse, yet several placer gold prospects and deposits have been found.

**DEPOSIT CHARACTERISTICS**

Gold commonly occurs as flakes to large nuggets in small pockets and as erratically dispersed particles through some sands and gravels. Specific data are not recorded on the location of high-grade ore relative to present stream morphology. Many citations state that the ore is in "near-surface gravels," whereas others cite "bedrock pockets."

**RESOURCE POTENTIAL**

Reliable information on gold resources is not commonly available. One estimate of grade along Prichard Creek near the western edge of the quadrangle was given as about 0.008 ounce per cubic yard of gravel (Lyden, 1948).

**RATING SCALE**

Geologic characteristics

+3 Quaternary stream sediments dominated by boulder gravel to sand, commonly forming narrow zones within glaciated valleys; Tertiary stream gravels

+2 Tertiary pediment and fan deposits containing coarse sand, gravel, and boulder gravel

+1 Pleistocene glacial debris that contains gravelly tills and channels of outwash

0 Tertiary and Quaternary valley-fill deposits of mixed or undetermined composition, high-level tills, or Quaternary stream sediments dominated by fine clastics

-1 Tertiary deposits consisting primarily of fine clastics, coal, and volcanic ash

-2 Glacial-lake silt widespread glacial deposits occurring largely as tills or terminal moraines

-3 Bedrock outcrops; landslide deposits

Geochemical anomalies

+2 Gold in any amount in stream-sediment samples

+1 Gold in any amount in panned-concentrate samples

0 No gold detected

Known mineral occurrences

+2 Gold produced from one or more placer deposits in the drainage system

+1 One or more placer prospects or occurrences in the drainage system

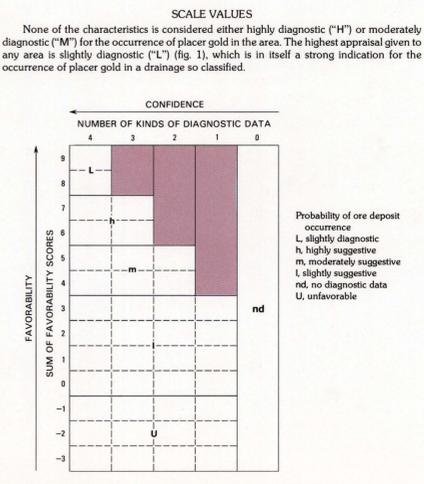
0 No placers known

Abundance of probable sources

+2 Gold produced from two or more veins in the drainage system

+1 One or more productive gold veins, prospects, or occurrences in the drainage system; fracture zones continuous through drainage system from gold-bearing veins in adjacent areas

0 No gold-bearing veins known or projectable through the drainage system



**DISCUSSION**

Two areas deserve special mention regarding gold potential of the Wallace quadrangle. The first concerns possible undiscovered placer deposits in the west-central part of the quadrangle along drainages of Loop and Bullion Creeks. Abundant sources for placer gold occur in veins north of these drainages, yet we find no record in our files for placer gold prospects or producers in the area. If our files are not in error, then prospecting of these drainages for placer gold seems warranted.

The second area may contain undiscovered gold in veins. Placer gold has been found in drainages along both sides of the State-line divide from Little Joe Mountain south to the edge of the quadrangle. That same area, particularly near Cascade Point, contains a series of small positive aeromagnetic anomalies that may indicate deeply buried intrusives beneath the divide. Sources for much of the placer gold are unknown, but they were probably mesothermal veins. These veins may either have been destroyed during the erosion that led to transport of the gold into the present drainages, or they may be too thin and widely dispersed to mine. However, the possibility should not be overlooked that some mineable vein sources remain undiscovered in the heavily timbered country that bounds the State-line divide.

**EXPLANATION FOR RESOURCE APPRAISAL**

- VEIN FROM WHICH GOLD HAS BEEN PRODUCED
- PROSPECT OR OCCURRENCE OF GOLD-BEARING VEIN
- × PLACER FROM WHICH GOLD HAS BEEN PRODUCED
- × PROSPECT OR OCCURRENCE OF GOLD-BEARING PLACER
- ▲ SAMPLE OF PANNED STREAM-SEDIMENT CONCENTRATE—Gold content given in parts per million (ppm); semiquantitative spectrographic analysis has limit of sensitivity of 20 ppm; gold content may not all be free gold
- AREA OF INCOMPLETE GEOCHEMICAL DATA
- OUTLINE OF PRINCIPAL VALLEY-FILL DEPOSITS
- m RESOURCE APPRAISAL BASED ON RATING SCALE GIVEN IN TEXT—Values in parentheses are maximum for outlined area and are listed in order of geology, geochemistry, known resources, and abundance of probable sources
- nd AVAILABLE DATA ARE NOT DIAGNOSTIC FOR EITHER FAVORABLE OR UNFAVORABLE GROUND
- U UNFAVORABLE AREA BASED ON GEOLOGIC CHARACTERISTICS—See rating scale for explanation of negative number

**GEOLOGIC PROBABILITY FOR OCCURRENCE OF PLACER GOLD DEPOSITS—**

- L Slightly diagnostic
- h Highly suggestive
- m Moderately suggestive
- l Slightly suggestive
- nd No diagnostic data
- U Unfavorable

**GENERAL REFERENCES**

Chesson, Sharon, Griffith, Thomas, and Wallace, R. R., 1984, Maps showing mineral occurrence data for the Wallace 1° x 2° quadrangle, Montana and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-1354-F.

Harrison, J. E., Griggs, A. B., and Wells, J. D., 1981, Generalized geologic map of the Wallace 1° x 2° quadrangle, Montana and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-1354-A.

Kleinokopf, M. D., Harrison, J. E., and Bankey, V. L., 1985, Aeromagnetic and gravity anomaly maps and a hydrothermal veins favorability map of the Wallace 1° x 2° quadrangle, Montana and Idaho: U.S. Geological Survey Miscellaneous Field Studies Map MF-1354-E.

Lyden, C. J., 1948, The gold placers of Montana: Montana Bureau of Mines and Geology Memoir 26, 151 p.

Ransome, F. L., and Calkins, F. C., 1908, The geology and ore deposits of the Coeur d'Alene district, Idaho: U.S. Geological Survey Professional Paper 62, 203 p.

Umpleby, J. B., and Jones, E. L., Jr., 1923, Geology and ore deposits of Shoshone County, Idaho: U.S. Geological Survey Bulletin 732, 156 p.

**RESOURCE APPRAISAL MAP FOR PLACER GOLD IN THE WALLACE 1° x 2° QUADRANGLE, MONTANA AND IDAHO**

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