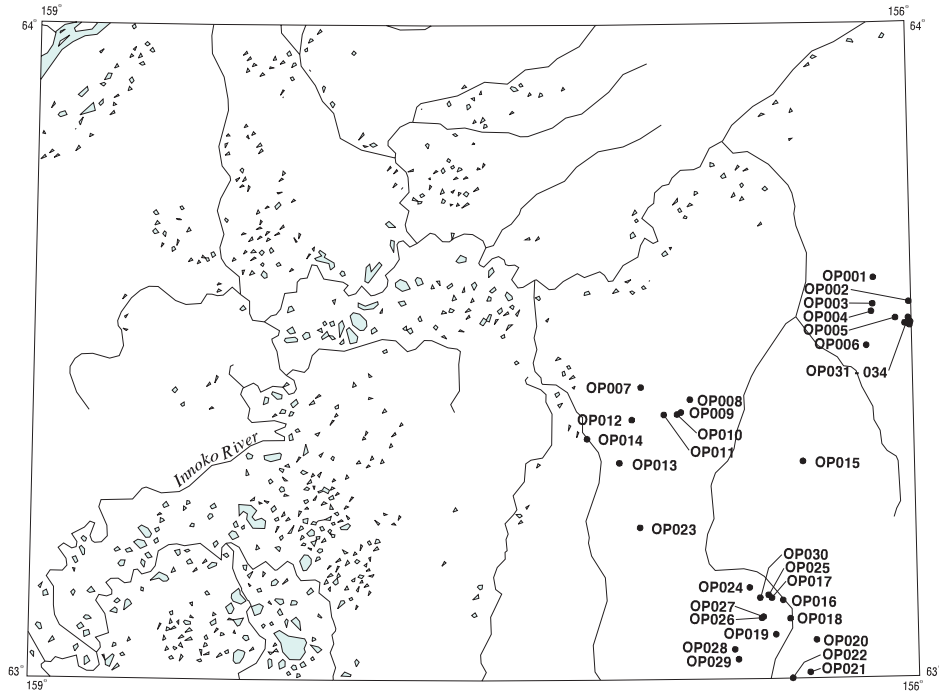


Ophir quadrangle

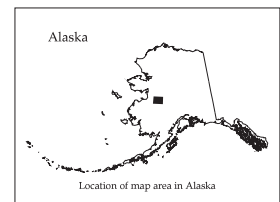
Descriptions of the mineral occurrences shown on the accompanying figure follow. See U.S. Geological Survey (1996) for a description of the information content of each field in the records. The data presented here are maintained as part of a statewide database on mines, prospects and mineral occurrences throughout Alaska.



*Distribution of mineral occurrences in the Ophir
1:250,000-scale quadrangle, Alaska*

This and related reports are accessible through the USGS World Wide Web site <http://ardf.wr.usgs.gov>. Comments or information regarding corrections or missing data, or requests for digital retrievals should be directed to: Frederic Wilson, USGS, 4200 University Dr., Anchorage, AK 99508-4667, e-mail fwilson@usgs.gov, telephone (907) 786-7448. This compilation is authored by:

Samuel S. Dashevsky
Fairbanks, AK



This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

OPEN-FILE REPORT 02-77

Site name(s): Graham Creek**Site type:** Prospect**ARDF no.:** OP001**Latitude:** 63.6102**Quadrangle:** OP C-1**Longitude:** 156.1279**Location description and accuracy:**

Graham Creek is a large, north-flowing tributary to Colorado Creek. The headwater tributaries to Graham Creek include Bear Creek (OP003) and Cripple Creek (OP005). Mining occurred along both Bear and Cripple creeks, and an additional mine is marked on the current topographic map along the north side of Cripple Creek just south of the junction of Cripple Creek and Graham Creek. The exact location of prospecting along Graham Creek is not known; the coordinates are arbitrarily chosen at the approximate midpoint of Graham Creek. This location is accurate within 3 miles.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The rocks in the vicinity of Graham Creek consist of chert, argillite, and volcanoclastic rocks. A headwater tributary of Graham Creek, Cripple Creek, drains a monzonitic intrusion (Chapman and others, 1985). This Cretaceous/Tertiary monzonitic intrusion is the probable source of gold in these creeks (Bundtzen and others, 1987).

Prospecting and development work were reported along Graham Creek in 1940 (Smith, 1942); the exact location of prospecting is unknown. Two headwater tributaries to Graham Creek, Bear Creek (OP003) and Cripple Creek (OP005), were both mined.

Alteration:**Age of mineralization:**

Quaternary. Cripple Creek, a headwater tributary of Graham Creek, drains a Cretaceous/Tertiary monzonitic intrusive body that is the probable source of gold in these creeks (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:

Prospecting and development work were reported along Graham Creek in 1940 (Smith, 1942); the exact location of the work is unknown. Two headwater tributaries to Graham Creek, Bear Creek (OP003) and Cripple Creek (OP005) were both mined.

Production notes:**Reserves:****Additional comments:****References:**

Smith, 1942; Cobb, 1972 (MF-367); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Smith, 1942

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Colorado Creek**Site type:** Mines**ARDF no.:** OP002**Latitude:** 63.5724**Quadrangle:** OP C-1**Longitude:** 156.0078**Location description and accuracy:**

Colorado Creek is a large, generally northwest-flowing tributary to Hunch Creek. Tailings are shown on the U.S. G. S. Ophir C-1 topographic map (1954) for approximately 2 miles along Colorado Creek; the coordinates correspond to the approximate midpoint of these tailings, which is in sec. 20, T. 22 S., R. 15 E., Kateel River Meridian. Colorado Creek also flows in the Medfra C-6 quadrangle; see also MD014. Colorado Creek is locality 9 of Cobb (1972 [MF 367]). This location is accurate.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Coulsonite, gold, ilmenite, magnetite, powellite, samarskite, scheelite, stibnite, xanthoconite**Gangue minerals:****Geologic description:**

The rocks in the vicinity of Colorado Creek are Cretaceous sandstone and conglomerate of the Kuskokwim group and altered volcanic rocks (Bundtzen and others, 1987). The gravel in the creek consists primarily of granitic rocks and chert (Mertie, 1936). The gravel is about 8 feet thick and buried under 10-20 feet of muck (Eakin, 1914; Mertie, 1936).

A 6.5-mile-long paystreak extends along Colorado Creek from the Cripple Creek Mountains. This paystreak crosses into the Medfra C-6 quadrangle for approximately 2 miles and then returns to the Ophir quadrangle. Placer gold was recovered during large, non-float operations that also mined several feet of bedrock (Mertie, 1936; Cobb, 1973 [B 1374]). The fineness of the +10 mesh gold in Colorado Creek is 909.6, with 82.8 parts silver, and 2.57 parts impurities. The -8 to +14 mesh gold is 900.2 fine, with 91.8 parts Ag, and 8.15 parts impurities (Bundtzen and others, 1987). Heavy minerals found in concentrates from the Rosander Mining Co. placers include magnetite, ilmenite, coulsonite, anthophyllite, samarskite, powellite, and xanthoconite. An estimated 50% of the concentrate is magnetite; some platinum is reported in gold bullion (Bundtzen and others, 1987).

Roehm (1937) reports the presence of scheelite and stibnite at Colorado Creek. The gold at Colorado Creek may be derived from Cretaceous or Tertiary meta-aluminous, alkali-calcic to quartz-alkalic monzonite plutons that are located nearby (Bundtzen and others, 1987), with local contributions from quartz-stibnite veins (see OP032), and mineralized fault zones and epithermal systems (see OP031).

Mining along Colorado Creek began in 1913 (Eakin, 1913) and continues to the present (2001). Colorado Creek has consistently been one of the largest placer mines in the area and has been active nearly continuously with documentation of mining in 1913, 1915, 1924, 1930, 1935, 1937, 1939, 1940, 1950, and from 1979 to the present (Eakin, 1913; Mertie and Harrington, 1916; Smith, 1933; Smith, 1937; Roehm, 1937; Smith, 1941; Smith, 1942; Bundtzen and others, 1992). Both creek and bench placers of Colorado Creek have been mined (Cobb, 1973 [B 1374]). A conservative estimate of the total production for Colorado Creek is 110,000 ounces of gold and 4,644 ounces of silver (Bundtzen, 1999).

Also see OP005 and OP031-033, and MD014 (in the Medfra quadrangle).

Alteration:

Age of mineralization:

The Colorado Creek placer deposit is middle Pleistocene, based on isotopic dates from overburden and geological inference (Bundtzen and others, 1987; Thorson and Guthrie, 1992). The source of the placer gold may be the Cretaceous or Tertiary meta-aluminous, alkali-calcic to quartz-alkalic monzonite plutons that are located nearby (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; medium

Site Status: Active

Workings/exploration:

Mining began in 1913 and continues to the present (2001). Colorado Creek has consistently been one of the largest placer mines in the district. Mining at Colorado Creek may be nearly continuous. Reports exist of mining in 1913, 1915, 1924, 1930, 1935, 1937, 1939, 1940, 1950, and from 1979 to the present (Eakin, 1913; Mertie and Harrington, 1916; Smith, 1933; Smith, 1937; Roehm, 1937; Smith, 1941; Smith, 1942; Bundtzen and others, 1992). Both creek and bench placers of Colorado Creek have been mined (Cobb, 1973 [B 1374]). The first mechanized mining along Colorado Creek was prior to World War II, when Sidney Paulson began mining with a dragline. The Fullerton brothers (Colorado Creek Mining Co.) mined Colorado Creek from about 1950 until about 1957 (Ron Rosander, oral commun., 2001). In 1983, a woolly mammoth skeleton was found at

Colorado Creek; Rosander Mining Co. donated the skeleton to the University of Alaska Museum. Rosander Mining Co. has worked the ancestral channels of Colorado Creek's right bench since 1979 (Bundtzen and others, 1992). Additional exploration of the Colorado Creek area, including soil sampling, took place during the summer of 1998.

Production notes:

A conservative estimate of production from Colorado Creek is 110,000 ounces of gold (Bundtzen, 1999).

Reserves:**Additional comments:**

For more information on Colorado Creek, contact the current claim owner, Ron Rosander, in McGrath, AK.

References:

Eakin, 1913; Eakin, 1914; Mertie and Harrington, 1916; Smith, 1933; Smith, 1937; Roehm, 1937; Smith, 1941; Smith, 1942; Cobb, 1972 (MF-367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Bundtzen and others, 1987; Bundtzen and others, 1992; Thorson and Guthrie, 1992; Swainbank and others, 2000.

Primary reference: Bundtzen and others, 1987

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Bear Creek**Site type:** Mine**ARDF no.:** OP003**Latitude:** 63.5699**Quadrangle:** OP C-1**Longitude:** 156.1318**Location description and accuracy:**

Bear Creek is a small, northeast-flowing headwater tributary to Graham Creek. The coordinates are for the approximate midpoint of mining at Bear Creek, on a bench between Bear Creek and Cripple Creek in sec. 22, T. 22 S., R. 14 E., Kateel River Meridian. Bear Creek is locality 7 of Cobb (1972 [MF 367]). The location is accurate within 1/2 mile.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The Bear Creek area is underlain by chert, argillite, and volcanoclastic rocks. The upper portion of Cripple Creek, a nearby tributary to Graham Creek, is underlain by volcanic graywacke and conglomerate. The headwaters of Cripple Creek drain a small monzonite pluton. The rocks along the lower part of Cripple Creek are chert, argillite, and volcanoclastic strata; in the upper part of the creek, these rocks are in fault contact with structurally overlying volcanic graywacke and conglomerate (Chapman and others, 1985).

Mining along Bear Creek took place on a bench between Cripple and Bear creeks. Placer mining was intermittent from 1922 until 1961, and again from 1970 until at least 1991 (Brooks and Capps, 1924; Smith, 1939 [B 910-A]; Smith, 1942; White and Killeen, 1953; Cobb, 1972 [MF 367]; Cobb, 1973 [OFR 76-576]; Bundtzen and others, 1990; Bundtzen and others, 1992). The average fineness of gold is 901 (Metz and Hawkins, 1981). Production from Bear Creek prior to 1961 was at least 10,412 ounces of gold and 1,150 ounces of silver (Bundtzen and others, 1987).

Alteration:**Age of mineralization:**

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Placer mining was intermittent from 1922 until 1961, and again from 1970 until at least 1991 (Brooks and Capps, 1924; Smith, 1939 [B 910-A]; Smith, 1942; White and Killeen, 1953; Cobb, 1972 [MF 367]; Cobb, 1973 [OFR 76-576]; Bundtzen and others, 1990; Bundtzen and others, 1992).

Production notes:

Production from Bear Creek prior to 1961 was at least 10,412 ounces of gold and 1,150 ounces of silver (Bundtzen and others, 1987).

Reserves:**Additional comments:**

See also Cripple Creek (OP005).

References:

Brooks and Capps, 1924; Smith, 1939 (B 910-A); Smith, 1942; White and Killeen, 1953; Cobb, 1972 (MF-367); Cobb, 1973 (OFR 76-576); Metz and Hawkins, 1981; Chapman and others, 1985; Bundtzen and others, 1987; Bundtzen and others, 1990; Bundtzen and others, 1992.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Beaver Creek

Site type: Mine

ARDF no.: OP004

Latitude: 63.5585

Quadrangle: OP C-1

Longitude: 156.1368

Location description and accuracy:

Beaver Creek is not labeled on the U.S. Geological Survey topographic map; it is probably the creek that flows through the middle of sections 22 and 27, T. 22 S., R. 14 E., Kateel River Meridian (Cobb, 1976 [OFR 76-567]). Beaver Creek is a north-northeast flowing, headwater tributary of Graham Creek. The coordinates are for the approximate midpoint of the creek. The location is accurate within 2 miles.

Commodities:

Main: Au

Other: Ag

Ore minerals: Gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Beaver Creek are chert, argillite, and volcanoclastic strata (Chapman and others, 1987). Prospecting or mining along Beaver Creek was first reported in 1926 (Holzheimer, 1926 [MR 64-1]). Prospecting and development work are also reported in 1940 (Smith, 1942). At least 1,640 ounces of gold and 163 ounces of silver were recovered from Beaver Creek between 1910 and 1950 (Bundtzen and others, 1987). The average fineness of the gold at Beaver Creek is 910 (Metz and Hawkins, 1981).

Also see OP003.

Alteration:

Age of mineralization:

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Probably inactive

Workings/exploration:

Prospecting or mining along Beaver Creek was first reported in 1926 (Holzheimer, 1926 [MR 64-1]. Prospecting and development work are also reported in 1940 (Smith, 1942). There is no report of any further prospecting or mining.

Production notes:

At least 1,640 ounces of gold and 163 ounces of silver were mined from Beaver Creek between 1910 and 1950 (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Holzheimer, 1926 (MR 64-1); Smith, 1942; Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Cripple Creek; Fox Gulch; Slug Gulch

Site type: Mines

ARDF no.: OP005

Latitude: 63.5481

Quadrangle: OP C-1

Longitude: 156.0548

Location description and accuracy:

Cripple Creek is a northwest-flowing headwater tributary of Graham Creek. Mining took place for approximately 3 1/2 miles of Cripple Creek; on a bench between Cripple Creek and Bear Creek (OP003); and near its junction with Graham Creek. The coordinates are for the approximate midpoint of 3 miles of tailings on Cripple Creek marked on the U.S. Geological Survey Ophir C-1 topographic map. This location is accurate. Cripple Creek corresponds to localities 6 and 8 of Cobb (1972 [MF 367]). Fox Gulch is at the head of Cripple Creek.

Commodities:

Main: Au

Other: Ag

Ore minerals: Gold, stibnite

Gangue minerals:

Geologic description:

The bedrock at the head of Cripple Creek consists of sandstone and shale; the lower portion of Cripple Creek is underlain by serpentized greenstone in fault contact with the sandstone and shale (White and Killeen, 1953; Chapman and others, 1985). Cretaceous or Tertiary monzonite intrusions occur at the head of Cripple Creek (Chapman and others, 1985), and may be the source of placer gold in Cripple Creek (Bundtzen and others, 1987). The gravel in Cripple Creek includes chert, greenstone, andesite, basalt porphyry, sandstone, slate, and granitic rocks (White and Killeen, 1953).

Placer gold was mined for 3.3 miles along Cripple Creek; on a bench between Cripple and Bear creeks (OP003); and near the mouth of Cripple Creek just upstream from its junction with Graham Creek. Both creek and bench placers were mined (Cobb, 1973 [B 1374]). Near the mouth, 5-6 feet of gravel were under 2-12 feet of muck (Mertie, 1936). The average gold fineness at Cripple Creek is 908 (Smith, 1941). Holzheimer (1926) reports stibnite at the head of Cripple Creek.

Mining of stream and bench placers at Cripple Creek began in 1913 and continued until 1947; additional mining occurred in 1967, and intermittently from 1978(?) until the pres-

ent (2001) (Eakin, 1914; Brooks, 1915; Smith, 1926; Smith, 1930; Smith, 1932; Smith, 1933 [B 836]; Smith, 1933 [B 834-A]; Smith, 1934 [B 857-A]; Smith, 1934 [B 864-A]; Mertie, 1936; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 [B 910-A]; Smith, 1939 [B 917-A]; Smith, 1941; Smith, 1942; White and Killeen, 1953; Cobb, 1973 [B 1374]; Bundtzen and others, 1987; Bundtzen and others, 1992). In 1933, Cripple Creek was the largest non-dredge operation in the district (Smith, 1934 [B 864-A]). In 1936, drag-line mining began along Cripple Creek.

A conservative estimate of production from Cripple Creek is 38,542 ounces of gold and 401 ounces of silver; these totals do not include modern production (Bundtzen and others, 1987).

A small, northwest-flowing headwater tributary to Cripple Creek, called Slug Gulch was also mined during the 1970's by Steve Nerod (Ron Rosander, oral commun., 2001). Slug Gluch is a small valley immediately south of the Porphyry Knob prospect (OP031).

Alteration:

Age of mineralization:

Quaternary. The source of the gold at Cripple Creek may be the meta-aluminous alkali-calcic to quartz-alkalic monzonite plutons at the head of the creek (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; medium

Site Status: Active

Workings/exploration:

Mining of stream and bench placers at Cripple Creek began in 1913 and continued until 1947; additional mining occurred in 1967, and intermittently from 1978(?) until the present (2001) (Eakin, 1914; Brooks, 1915; Smith, 1926; Smith, 1930 [B 810]; Smith, 1932; Smith, 1933 [B 836]; Smith, 1933 [B 834-A]; Smith, 1934 [B 857-A]; Smith, 1934 [B 864-A]; Mertie, 1936; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 [B 910-A]; Smith, 1939 [917-A]; Smith, 1941; Smith, 1942; White and Killeen, 1953; Cobb, 1973 [B 1374]; Bundtzen and others, 1987; Bundtzen and others, 1992). In 1914 there were 5 underground placer mines, and about \$15,000 worth of gold was produced (Brooks, 1915). In 1933, Cripple Creek was the largest non-dredge operation in the district (Smith, 1934 [B 864-A]). In 1936, drag-line mining began along Cripple Creek. By 1937, Cripple Creek had a post office, a 2200-foot landing field, and a radio station (Roehm, 1937). More recent production has occurred in the 1970's, 1980's and 1990's.

Production notes:

A conservative estimate of production from Cripple Creek is 38,542 ounces of gold and 401 ounces of silver; these totals do not include modern production (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Eakin, 1914; Brooks, 1915; Smith, 1926; Smith, 1930 (B 810); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Mertie, 1936; Smith, 1936; Smith, 1937; Roehm, 1937; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941; Smith, 1942; White and Killeen, 1953; Cobb, 1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987; Bundtzen and others, 1992.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Butte Creek

Site type: Prospect

ARDF no.: OP006

Latitude: 63.5068

Quadrangle: OP C-1

Longitude: 156.1556

Location description and accuracy:

Butte Creek is a small, southwest-flowing tributary to Folger Creek; Folger Creek flows northwest into the Innoko River. The exact location of prospecting along Butte Creek is not known; the coordinates are for an arbitrary location at the approximate midpoint of Butte Creek, in sec. 9, T. 23 S., R. 14 E., Kateel River Meridian. This location is accurate within 5 miles.

Commodities:

Main: Au?

Other:

Ore minerals: Gold?

Gangue minerals:

Geologic description:

The bedrock in the vicinity of Butte Creek consists of chert, argillite, and volcanoclastic rocks. The headwater tributaries of Butte Creek (Quartz Creek and Shorty Creek) drain a Cretaceous or Tertiary monzonite intrusion (Chapman and others, 1985). Such plutons probably are the source of the gold in Butte Creek (Bundtzen and others, 1987).

Prospecting was reported along Butte Creek during 1914. There is no further report of activity (Eakin, 1914).

Alteration:

Age of mineralization:

Quaternary. The headwater tributaries of Butte Creek (Quartz Creek and Shorty Creek) drain a Cretaceous or Tertiary monzonite intrusion (Chapman and others, 1985). Such plutons probably are the source of the gold in Butte Creek (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Undetermined.**Site Status:** Probably inactive**Workings/exploration:**

Prospecting was reported along Butte Creek during 1914. There is no further report of activity (Eakin, 1914).

Production notes:**Reserves:****Additional comments:****References:**

Eakin, 1914; Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Eakin, 1914**Reporter(s):** C.E. Cameron**Last report date:** 8/7/01

Site name(s): Eldorado Creek

Site type: Mine

ARDF no.: OP007

Latitude: 63.4466

Quadrangle: OP B-2

Longitude: 156.9280

Location description and accuracy:

Eldorado Creek is a north-flowing tributary to Madison Creek. Mining and prospecting activity took place at both the head and the mouth of Eldorado Creek. The coordinates are for the placer mine near the mouth of Eldorado Creek in the SE1/4, sec. 33, T. 23 S., R. 10 E., Kateel River Meridian. The location is accurate within 1 mile.

Commodities:

Main: Au

Other: Ag

Ore minerals: Gold

Gangue minerals:

Geologic description:

The bedrock along the lower part of Eldorado Creek is volcanic; the upper part is underlain by chert, argillite, and volcanoclastic rocks. A Cretaceous or Tertiary monzonite pluton intrudes the strata in the uppermost part of the creek (Chapman and others, 1987). The monzonite contains large feldspar phenocrysts and stockwork quartz veining and is heavily weathered at the surface to quartz and feldspar (S. Dashevsky, written commun., 2000). This monzonite pluton is the likely source of the gold in Eldorado Creek (Bundtzen and others, 1987).

Roehm (1937) documents prospecting at an open cut along Eldorado Creek, groundsluicing at its mouth, and prospecting at the head of the creek.

Also see OP008-012.

Alteration:

Age of mineralization:

Quaternary. The source of the gold at Eldorado Creek may be the Cretaceous or Tertiary monzonite pluton exposed near the headwaters of the creek (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Roehm (1937) documents prospecting at an open cut along Eldorado Creek, groundsluicing at its mouth, and prospecting at the head of the creek.

Production notes:**Reserves:****Additional comments:****References:**

Roehm, 1937; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Roehm, 1937

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Esperanto Creek; Keating Gulch**Site type:** Mines**ARDF no.:** OP008**Latitude:** 63.4273**Quadrangle:** OP B-2**Longitude:** 156.7609**Location description and accuracy:**

Esperanto Creek is a northwest-flowing tributary to Madison Creek. Mining took place for nearly 2 miles along and near the head of Esperanto Creek. The head of Esperanto Creek is also called Keating Gulch. The coordinates are for the approximate midpoint of mining, in sec. 9, T. 24 S., R. 11 E., Kateel River Meridian. This point coincides with the location of the Esperanto placer mine, marked on the U.S. Geological Survey Ophir B-2 topographic map. The location is accurate within 500 feet. Esperanto Creek is location 5 of Cobb (1972 [MF 367]).

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The rocks at the head of Esperanto Creek are Tertiary chert, argillite, and volcanoclastic rocks in thrust contact with Paleozoic carbonate rocks (Chapman and others, 1985). A Cretaceous or Tertiary monzonite pluton cuts this fault near the headwaters of Esperanto Creek. The monzonite is heavily weathered and contains large feldspar phenocrysts and quartz stockwork veins. Most of the mine tailings seem to be composed of quartz and feldspar from the weathered monzonite (Dashevsky, 2001).

Placer gold on Esperanto Creek was found in gravels 1 foot thick (Mertie, 1936). The gold averages about 869 fine (Smith, 1941; Metz and Hawkins, 1981). The source of gold at Esperanto Creek may be the Cretaceous or Tertiary monzonite pluton at the head of the creek (Bundtzen and others, 1987).

Gold mining along Esperanto Creek began in 1922 and continued intermittently until at least 1962 (Brooks and Capps, 1924; Bundtzen and others, 1987). Continuous, mechanized mining took place from 1935 to 1940 (Smith, 1937; Smith, 1938; Smith, 1939 [B 910-A]; Smith, 1939 [B 917-A]; Smith, 1941; Smith, 1942). Production from 1922 - 1962 was 4,429 ounces of gold and 699 ounces of silver (Bundtzen and others, 1987).

Alteration:**Age of mineralization:**

Quaternary. The placer gold is probably derived from a Cretaceous or Tertiary monzonite pluton at the head of Esperanto Creek (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Gold mining along Esperanto Creek began in 1922 and continued intermittently until at least 1962 (Brooks and Capps, 1924; Bundtzen and others, 1987). Continuous, mechanized mining took place from 1935 to 1940 (Smith, 1937; Smith, 1938; Smith, 1939 [B 910-A]; Smith, 1939 [B 917-A]; Smith, 1941; Smith, 1942).

Production notes:

The production from 1922 to 1962 was 4,429 ounces of gold and 699 ounces of silver (Bundtzen and others, 1987).

Reserves:**Additional comments:****References:**

Brooks and Capps, 1924; Mertie, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941; Smith, 1942; Cobb, 1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Metz and Hawkins, 1981; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Madison Creek**Site type:** Mine**ARDF no.:** OP009**Latitude:** 63.4080**Quadrangle:** OP B-2**Longitude:** 156.7919**Location description and accuracy:**

Madison Creek is a large, generally west-flowing tributary to Tolstoi Creek. Tributaries to Madison Creek include Deep Creek (OP011), Eldorado Creek (OP007), and Esperanto Creek (OP008). Mining took place on Madison Creek near its headwaters, in sec. 17, T, 24 S., R. 11 E., Kateel River Meridian. Madison Creek is locality 4 of Cobb (1972 [MF 367]). The location is accurate within 1/2 mile.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold, ilmenite, magnetite**Gangue minerals:****Geologic description:**

Bedrock in the vicinity of Madison Creek is mostly Tertiary volcanic rocks; the headwaters drain an area underlain by chert and argillite intruded by Cretaceous or Tertiary monzonite (Chapman and others, 1985).

The depth to bedrock in Madison Creek is 31 feet (Brooks, 1908). In 1917, two claims were being mined; the lower claim contained fine gold and the upper claim contained coarse gold (Harrington, 1919). The gold in Madison Creek is 881 fine (Metz and Hawkins, 1981). Minerals in pan concentrates include magnetite, ilmenite, augite, hornblende, garnet, and zircon (Harrington, 1919). The source of the gold is probably the monzonite intrusion at its headwaters (Bundtzen and others, 1987).

Gold was discovered in Madison Creek in 1907 but it may not have been actively mined until 1917 (Brooks, 1908; Harrington, 1919). Intermittent, small-scale mining occurred until at least after World War II (Brooks, 1922; Brooks and Capps, 1924; Smith, 1939 [B 910-A]; Cobb, 1973 [B 1374]; Cobb, 1976 [OFR 76-576]). More recent production from Madison Creek is reported in 1989 (Bundtzen and others, 1990), 1991 (Bundtzen and others, 1992), and 1992 (Swainbank and others, 1993). The production from Madison Creek from 1917 to 1947 and 1982 to 1984 was 3,103 ounces of gold and 338 ounces of silver (Bundtzen and others, 1987).

Also see OP007, 008, 010, and 011.

Alteration:

Age of mineralization:

Quaternary. The probable source of gold in Madison Creek is the Cretaceous or Tertiary monzonite intrusion at its headwaters (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Active?

Workings/exploration:

Gold was discovered in Madison Creek in 1907 but it may not have been mined until 1917 (Brooks, 1908; Harrington, 1919). In 1917, two claims were being mined. Intermittent, small-scale mining occurred until at least after World War II (Brooks, 1922; Brooks and Capps, 1924; Smith, 1939 [B 910-A]; Cobb, 1973 [B 1374]; Cobb, 1976 [OFR 76-576]). More recent production from Madison Creek is reported in 1989 (Bundtzen and others, 1990), 1991 (Bundtzen and others, 1992), and in 1992 (Swainbank and others, 1993).

Production notes:

The production from Madison Creek from 1917 to 1947 and 1982 to 1984 was 3,103 ounces of gold and 338 ounces of silver (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Brooks, 1908; Harrington, 1919; Brooks, 1922; Brooks and Capps, 1924; Mertie and Harrington, 1924; Smith, 1939 (B 910-A); Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Metz and Hawkins, 1981; Chapman and others, 1985; Bundtzen and others, 1987; Bundtzen and others, 1990; Bundtzen and others, 1992; Swainbank and others, 1993.

Primary reference: Harrington, 1919

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Joffre Creek**Site type:** Prospect**ARDF no.:** OP010**Latitude:** 63.4050**Quadrangle:** OP B-2**Longitude:** 156.8053**Location description and accuracy:**

Joffre Creek is a small, north-flowing headwater tributary to Madison Creek; it is not named on current U.S. Geological Survey topographic maps. The exact locations of prospecting and mining along Joffre Creek are not known; the coordinates are arbitrarily chosen for the approximate midpoint of the creek, in the SE 1/4 sec. 18, T. 24 S., R. 11 E., Kateel River Meridian. The location is accurate within 2 miles.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The country rocks in the vicinity of the lower part of Joffre Creek are volcanic; in the upper part, they comprise chert, argillite, and volcanoclastic rocks, and a Cretaceous or Tertiary monzonite intrusive body (Chapman and others, 1987). The monzonite contains large feldspar phenocrysts and stockwork quartz veining, and is heavily weathered at the surface to quartz and feldspar (S. Dashevsky, written commun., 2000). This monzonite body is the likely source of the gold in Joffre Creek (Bundtzen and others, 1987).

Harrington (1919) reports considerable prospecting along Joffre Creek (along with Madison, Esperanto, and Eldorado creeks).

Also see OP007-009 and OP011-013.

Alteration:**Age of mineralization:**

Quaternary. The source of gold in Joffre Creek is probably the Cretaceous or Tertiary monzonite pluton in its headwaters (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:

Harrington (1919) reports considerable prospecting along Joffre Creek.

Production notes:

Reserves:

Additional comments:

References:

Harrington, 1919; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Harrington, 1919

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Iron Creek**Site type:** Mine**ARDF no.:** OP011**Latitude:** 63.4045**Quadrangle:** OP B-2**Longitude:** 156.8504**Location description and accuracy:**

Iron Creek is a small, west-flowing tributary to Eldorado Creek. There is some uncertainty about which tributary of Eldorado Creek is Iron Creek. Harrington (1919) shows Iron Creek as entering Eldorado Creek a considerable distance from the mouth of Eldorado Creek. A local prospector (Doug Clark, oral commun., 2001) confirms this and claims that Iron Creek is the eastern headwater tributary of Eldorado Creek. The junction of this tributary and Eldorado Creek is approximately three miles from the mouth of Eldorado Creek. Iron Creek is locality 3 of Cobb (1972 [MF 367]); his location is at least two miles south of the mouth of Eldorado Creek and two miles east of Eldorado Creek. The current (1954/1965) U.S. Geological Survey Ophir B-2 topographic map shows Iron Creek near the mouth of Eldorado Creek. For this record, the coordinates are at the approximate midpoint of Iron Creek as described by Harrington (1919) and Clark, in sec. 13, T. 24 S., R. 10 E., Kateel River Meridian. The location is accurate within 5 miles.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

Bedrock in the vicinity of Iron Creek consists of volcanic rocks; a monzonite intrusion underlies its headwaters (Chapman and others, 1985; S. Dashevsky, unpublished data, 2000). Gravel in Iron Creek consists of phyllitic rocks and granite, overlain by four feet of muck (Harrington, 1919). There was some placer mining in Iron Creek by 1917 (Harrington, 1919). Small-scale prospecting has occurred since that then.

Also see OP007-009.

Alteration:**Age of mineralization:**

Quaternary. The source of the placer gold is probably a Cretaceous or Tertiary monzonite intrusion in the headwaters of Iron Creek (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Gold mining along Iron Creek was underway by 1917 (Harrington, 1919). Small-scale prospecting has occurred since then.

Production notes:

Reserves:

Additional comments:

References:

Harrington, 1919; Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Harrington, 1919

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Deep Creek**Site type:** Prospect**ARDF no.:** OP012**Latitude:** 63.3971**Quadrangle:** OP B-2**Longitude:** 156.9594**Location description and accuracy:**

Deep Creek is a short, north-flowing tributary to Madison Creek. The exact location of early mining and prospecting along Deep Creek is not known; the coordinates mark the location of modern claims, in sec. 20, T. 24 S., R. 10 E., Kateel River Meridian. The location is accurate within 1000 feet.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The bedrock in the vicinity of Deep Creek consists of volcanic and volcanoclastic rocks, chert, and argillite (Chapman and others, 1985). A Cretaceous or Tertiary monzonite pluton that underlies the headwaters of nearby Esperanto (OP008) and Eldorado creeks (OP007) may extend to the headwaters of Deep Creek. The monzonite contains large feldspar phenocrysts and quartz stockwork veins. At the surface, it is heavily weathered to quartz and feldspar (S. Dashevsky, written commun., 2000).

Between 1916 and 1920, 276 ounces of gold and 23 ounces of silver were mined from Deep Creek (T. Bundtzen, 1987, written commun., 1987).

Alteration:**Age of mineralization:**

Quaternary. The source of the gold at Deep Creek may be a Cretaceous or Tertiary monzonite pluton near its headwaters (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small**Site Status:** Active?**Workings/exploration:**

Between 1916 and 1920, 276 ounces of gold and 23 ounces of silver were mined from Deep Creek (T. Bundtzen, written commun., 1987).

Production notes:**Reserves:****Additional comments:****References:**

Chapman and others, 1985.

Primary reference: This record**Reporter(s):** C.E. Cameron**Last report date:** 8/7/01

Site name(s): Boob Creek

Site type: Mine

ARDF no.: OP013

Latitude: 63.3312

Quadrangle: OP B-3

Longitude: 157.0029

Location description and accuracy:

Boob Creek is a north-flowing tributary to Mastodon Creek. For this record, the site is plotted about 2.6 miles southeast of the site of Tolstoi, at the south boundary of sec. 8, T. 25 S., R. 10 E. The coordinates mark the approximate midpoint of placer mining along Boob Creek, near a cabin marked on the U.S. Geological Survey Ophir B-3 topographic map. Boob Creek is locality 2 of Cobb (1972 [MF 367]). The location is accurate.

Commodities:

Main: Au

Other: Ag, Hg, Pt, Sn

Ore minerals: Cassiterite, cinnabar, gold, magnetite, platinum, pyrite

Gangue minerals: Garnet, quartz

Geologic description:

The country rocks in the Boob Creek area consist of Cretaceous sandstone and shale, Jurassic greenstone and cherty tuff, Paleozoic limestone and metamorphic rocks, Cretaceous or Tertiary monzonite intrusions, and an ultramafic complex at Mt. Hurst (Chapman and others, 1985; Roberts, 1984; Hawley and others, 1991; Bundtzen and Miller, 1997). The layered ultramafic rocks exposed at Mt. Hurst may be present in the Boob Creek area and may be the source of platinum-group metals at Boob Creek.

Placer gold and platinum-group metals occur in gravels approximately 2 to 4 feet thick, buried beneath 25-30 feet of muck (Harrington, 1919). It is also likely that additional buried ancient stream channels exist in the Boob Creek area that may contain gold and platinum. Harrington (1919) reports that platinum made up about 1% of the metal produced from Boob Creek. Concentrates also contain cinnabar, magnetite, pyrite, garnet, magnesiochromite, hematite, zircon, anthophyllite, diopside, and obsidian (Harrington, 1919). Microprobe analyses of platinum grains from Boob Creek show that the grains are mostly ferrian platinum, with lesser amounts of osmian iridium. Some inclusions of rhodium and iridium sulfide (prassoite) are also present, as well as mertite and platinum and palladium arsenides and sulfides (Tom Bundtzen, undated unpublished data). Gold at Boob Creek is approximately 902 fine, with 86 parts silver and 12 parts impurities

(Bundtzen and others, 1987).

Gold was discovered along Boob Creek in 1916, and in the following year 3,100 ounces of gold and 30 ounces of platinum were recovered (Harrington, 1919). Mining, exploration, and development along Boob Creek continued at a reduced rate intermittently until the mid 1960's. Boob Creek was re-staked during the 1980's and sporadic exploration and small-scale mining have occurred since that time (Dashevsky, 2001). Shafts and drifts were hand-dug during the 1980's and 1990's; some recovery of gold, platinum, and fossil ivory was reported (Hawley and Buxton, 1991; Bundtzen and others, 1992; Dashevsky, 2001). One ounce of platinum was recovered during 1995 exploration work (Bundtzen and others, 1996).

Conservative production estimates from Boob Creek are 3,170 ounces of gold and 320 ounces of silver (Bundtzen and others, 1987). Most of this is probably from the first year after discovery. More recent production figures are not available.

Also see OP008, 009, 012, and 020.

Alteration:

Age of mineralization:

Quaternary. The source of the placer gold at Boob Creek may be the Cretaceous or Tertiary monzonite in the area; the source of the platinum is probably ultramafic rocks, such as those at Mt. Hurst.

Deposit model:

Placer Au-Pt (Cox and Singer, 1986; model 39 a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Active

Workings/exploration:

Gold was discovered along Boob Creek in 1916, and in the following year 3,100 ounces of gold and 30 ounces of platinum were recovered (Harrington, 1919). In 1916, a pay streak was reported as 75 to 100 feet wide and traceable through 5 claims (Hawley and Buxton, 1991). In 1918, the principal owner of the Boob Creek claims, J.E. Riley, was murdered, and mining, exploration, and development along Boob Creek continued at a reduced rate intermittently until the mid-1960's. Boob Creek was re-staked during the 1980's and sporadic exploration and small-scale mining have occurred since that time (S. Dashevsky, 2001). Although over 100 shafts have been sunk into the Boob Creek area, locations are documented only for shafts sunk within the last 20 years (Hawley and Buxton, 1991; Dashevsky, 2001). Shafts and drifts were hand-dug during the 1980's and 1990's; some recovery of gold, platinum, and fossil ivory was reported (Hawley and Buxton, 1991; Bundtzen and others, 1992; Dashevsky, 2001). Ground-penetrating radar studies were conducted in the Boob Creek area in 2000, in an attempt to locate buried aurifer-

ous channels (3D Mining, unpublished data, 2000).

Production notes:

Conservative production estimates from Boob Creek are 3,170 ounces of gold and 320 ounces of silver (Bundtzen and others, 1987). Most of this is probably from the first year after discovery. More recent production figures are not available.

Although over 100 shafts have been sunk into the Boob Creek area, locations are documented only for shafts sunk within the last 20 years (Hawley and Buxton, 1991; Dashevsky, 2001). Two shafts were dug during 1984, and nearly 4 ounces of gold, 11 grains of platinum, and a 225-pound tusk of fossil ivory, as well as other ivory and bone items were recovered. In 1987, 3 shafts and 4 drifts were completed, and 1.62 ounces of gold and a trace of platinum were recovered. During 1989, 1 shaft and 3 drifts were sunk, and 2.69 ounces of gold, 6.75 grains of platinum, and approximately 15 pounds of fossil ivory were recovered (Hawley and Buxton, 1991). In 1991, further exploration work was done on Boob Creek and gold and platinum were recovered (Bundtzen and others, 1992). Further exploration took place in 1995; minor gold and 1 ounce of platinum were recovered (Bundtzen and others, 1996).

Reserves:**Additional comments:****References:**

Mertie and Harrington, 1916; Smith, 1917; Brooks, 1918; Brooks, 1919; Harrington, 1919; Martin, 1919; Martin, 1920; Brooks and Martin, 1921; Mertie, 1923; Brooks and Capps, 1924; Mertie and Harrington, 1924; Mertie, 1969; Cobb, 1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Bundtzen and others, 1987; Hawley and Buxton, 1991; Bundtzen and others, 1992; Bundtzen and others, 1996; Dashevsky, 2001.

Primary reference: Harrington, 1919

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Tolstoi Creek**Site type:** Prospect**ARDF no.:** OP014**Latitude:** 63.3684**Quadrangle:** OP B-3**Longitude:** 157.1124**Location description and accuracy:**

Tolstoi Creek is a north-flowing tributary to the Dishna River. Gold-bearing tributaries of Tolstoi Creek in the Ophir quadrangle include Madison Creek (OP009), Esperanto Creek (OP008), Eldorado Creek (OP007), Boob Creek (OP013) and Iron Creek (OP011). The exact locations of mining and prospecting along Tolstoi Creek are not known; the coordinates are an arbitrary point on the creek approximately midway between the junctions of Madison and Mastodon creeks. References to mining and prospecting along Tolstoi Creek may apply to tributaries of Tolstoi Creek rather than Tolstoi Creek. The location is accurate within 50(?) miles.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The rocks in the vicinity of Tolstoi Creek are volcanic, but Madison Creek, a tributary of Tolstoi Creek, drains a large Cretaceous or Tertiary monzonite intrusive body (Chapman and others, 1985). The monzonite is heavily weathered and contains feldspar phenocrysts (Mertie, 1936; S. Dashevsky, unpublished data, 2000).

A placer gold strike on Tolstoi Creek during the winter of 1915 - 1916 was reported by Mertie and Harrington (1916). This reference may instead apply to tributaries of Tolstoi Creek. In 1989, the Tolstoi Mining Co. sampled Tolstoi Creek for placer platinum (Bundtzen and others, 1990).

Also see OP007, 008-011, and 013.

Alteration:**Age of mineralization:**

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Undetermined.

Site Status: Active

Workings/exploration:

A placer gold strike on Tolstoi Creek during the winter of 1915 - 1916 was reported by Mertie and Harrington (1916). This reference may instead apply to tributaries of Tolstoi Creek. In 1989, the Tolstoi Mining Co. sampled Tolstoi Creek for placer platinum (Bundtzen and others, 1990). Also see OP007, OP008 - OP011, and OP013.

Production notes:**Reserves:****Additional comments:****References:**

Mertie and Harrington, 1916; Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987; Bundtzen and others, 1990.

Primary reference: Mertie and Harrington, 1916

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Dominion Creek; Warren Pup**Site type:** Mine**ARDF no.:** OP015**Latitude:** 63.3314**Quadrangle:** OP B-1**Longitude:** 156.3791**Location description and accuracy:**

Dominion Creek is approximately 20 miles long and flows northeast into Folger Creek. The exact location of mining along Dominion Creek is not known. The coordinates are for a cabin marked on the U.S. Geological Survey Ophir B-1 topographic map (1954), on a short, northwest-flowing tributary to Dominion Creek, locally called Warren Pup, where placer mine tailings indicate mining activity (T.K. Bundtzen, oral commun., 2001). This location is in the southeast corner of sec. 9, T. 25 S., R. 13 E., Kateel River Meridian, and is accurate within 5 miles. Ron Rosander (oral commun., 2001) reports that Warren Pup is called Dominion Creek by local prospectors and miners.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The bedrock in the vicinity of Dominion Creek consists mostly of chert, argillite, and volcanoclastic rocks. The headwaters of Dominion Creek drain a Cretaceous or Tertiary monzonite pluton, and Warren Pup drains a monzonite pluton underlying the area of hill 2636 (Warner) (Chapman and others, 1985). These plutons probably are the source of the gold in Dominion Creek (Bundtzen and others, 1987).

Smith (1942) reports prospecting on Dominion Creek by deep shafts. These shafts were being dug by 1940, and mining along Dominion Creek continued until at least 1950 (Fowler, 1950). Warren Pup contains placer mine tailings from pre-1950's mining (T.K. Bundtzen, oral commun., 2001).

Alteration:**Age of mineralization:**

Quaternary. The headwaters of Dominion Creek drain Cretaceous or Tertiary monzo-

nite plutons that probably are the source of the gold in Dominion Creek (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Undetermined.

Site Status: Undetermined

Workings/exploration:

Smith (1942) reports prospecting on Dominion Creek by deep shafts. These shafts were being dug by 1940. In 1950, John Aho was mining the upper portion of Dominion Creek using a bulldozer and hydraulic equipment (Fowler, 1950).

Production notes:**Reserves:****Additional comments:****References:**

Smith, 1942; Fowler, 1950; Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Fowler, 1950

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Innoko River**Site type:** Prospect**ARDF no.:** OP016**Latitude:** 63.1198**Quadrangle:** OP A-1**Longitude:** 156.4537**Location description and accuracy:**

Prospecting occurred along the Innoko River for two miles between the town of Ophir and the mouth of Ganes Creek. The exact location of the workings is not known. The coordinates mark the point on the Innoko river approximately midway between Ophir and the mouth of Ganes Creek, in sec. 30, T. 27 S., R. 13 E., Kateel River Meridian. The location is accurate within 3 miles.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The area drained by this part of the Innoko River is underlain mainly by undivided clastic sedimentary rocks. The river also drains several monzonite intrusive bodies (Chapman and others, 1985), and probably flows across dikes varying in composition from andesite to rhyolite, similar to those in the Ganes Creek (OP018) area.

During 1937 the Ophir Development Company operated a Kirk-Hillman airplane drill and drilled for 2 miles along the west side of the Innoko River somewhere between the mouth of Ganes Creek to Ophir Creek (Roehm, 1937). Roehm (1937) writes that good results were reported, but there is no indication of further activity.

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Undetermined.**Site Status:** Probably inactive**Workings/exploration:**

During 1937 the Ophir Development Company operated a Kirk-Hillman airplane drill and drilled for 2 miles along the west side of the Innoko River somewhere between the mouth of Ganes Creek to Ophir Creek (Roehm, 1937). Roehm (1937) writes that good results were reported, but there is no indication of further activity.

Production notes:**Reserves:****Additional comments:**

See also Victor Gulch (OP017).

References:

Roehm, 1937; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Roehm, 1937**Reporter(s):** C.E. Cameron**Last report date:** 8/7/01

Site name(s): Victor Gulch; Victor Creek**Site type:** Mine**ARDF no.:** OP017**Latitude:** 63.1233**Quadrangle:** OP A-1**Longitude:** 156.4915**Location description and accuracy:**

Victor Gulch is a short, northeast-flowing tributary to the Innoko River. The junction of Victor Gulch and the Innoko River is about 1.8 miles southeast of Ophir. The coordinates are for the approximate midpoint of mining activity in Victor Gulch, in the NW 1/4 sec. 25, T. 27 S., R. 12 E., Kateel River Meridian. Victor Gulch is locality 16 of Cobb (1972 [MF 367]). The location is accurate within 1000 feet.

Commodities:**Main:** Au**Other:** Ag, Hg**Ore minerals:** Cinnabar, gold, pyrite**Gangue minerals:****Geologic description:**

The country rock in the vicinity of the Victor Gulch placer mine is mainly slate with vertical cleavage. The slate is cut by numerous fine-grained, fractured, and highly altered dacitic and andesitic dikes. Some of the fractured material is pyritized (Mertie, 1936).

The thickness of overburden ranges from 25 to 40 feet; the gold is on, or in crevices in, bedrock. Many gold nuggets are present and some quartz in the gravel contains free gold (Mertie, 1936). The gold is 881 fine (Smith, 1941). Cinnabar occurs in the concentrates (Mertie, 1936).

Placer mining on Victor Gulch was nearly continuous from 1920 until 1937, and has been intermittent since that time (Cobb, 1976 [OFR 76-576]; Roehm, 1937). Production from Victor Gulch from 1920 to 1958 was 2,690 ounces of gold and 332 ounces of silver (Bundtzen and others, 1987).

Also see OP019, OP025-027, and OP030.

Alteration:

Dacitic to andesitic dikes are highly altered and some of the fractured material is pyritized (Mertie, 1936; B 864-C).

Age of mineralization:**Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Placer mining on Victor Gulch was nearly continuous from 1920 until 1937, and has been intermittent since that time (Cobb, 1976; OFR 76-576; Roehm, 1937). In 1950, Fowler reported a 2-nozzle bulldozer and hydraulic operation on Victor Gulch.

Production notes:

The production from Victor Gulch from 1920 to 1958 was 2,690 ounces of gold and 332 ounces of silver (Bundtzen and others, 1987).

Reserves:**Additional comments:**

See also Spruce Creek (OP026), Little Creek (OP019), Tamarack Creek (OP027), Ophir Creek (OP030), and Anvil Creek (OP025).

References:

Brooks, 1922; Mertie, 1936; Roehm, 1937; Cobb, 1972 (MF-367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Bundtzen and others, 1987.

Primary reference: Mertie, 1936 (B 864-C)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Ganes Creek**Site type:** Mines**ARDF no.:** OP018**Latitude:** 63.0916**Quadrangle:** OP A-1**Longitude:** 156.4299**Location description and accuracy:**

Ganes Creek is a northeast-flowing tributary to the Innoko River. The junction of Ganes Creek and the Innoko River is approximately 5 miles southeast of the town of Ophir. Extensive early and modern mining has occurred along the length of Ganes Creek; only operations in the lower part of Ganes Creek and at the mouth of Ganes Creek are in the Ophir quadrangle; many operations on upper Ganes Creek are in the Iditarod quadrangle. The coordinates are at the mine approximately 1/2 mile north of the mouth of Ganes Creek, although mining has occurred at various points along the creek. The location is accurate. The site corresponds to locations 22 and 23 of Cobb (1972 [MF 367]).

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold, ilmenite, magnetite**Gangue minerals:** Quartz**Geologic description:**

The Ganes Creek area is underlain by undivided clastic sedimentary rocks that are cut by quartz veins and by sets of northeast-trending, Cretaceous or Tertiary dikes ranging in composition from rhyolite to andesite (Maddren, 1910; Mertie, 1936; Chapman and others, 1985; Dashevsky, 2000). The Yankee-Ganes Creek fault trends northeast between Yankee Creek (OP021) and Ganes Creek and may be a splay of the Iditarod-Nixon Fork fault. Placer mining has occurred at various points along Ganes Creek: very close to its mouth; about 7 miles upstream; and at several locations in the Iditarod quadrangle. For more information, see the Ganes Creek record for the Iditarod quadrangle.

The gold in Ganes Creek is coarse, and sometimes attached to quartz (Maddren, 1910). Five gold nuggets have been found that weigh more than 20 ounces; the largest weighed 122 ounces. The gold averages 846 fine (Smith, 1941). Minerals in pan concentrates from the lower portion of Ganes Creek include magnetite, ilmenite, enstatite, and eckermanite (Bundtzen and others, 1987). Gold is present in benches, alluvial gravel, and in the fractured top few feet of bedrock (Maddren, 1911). The likely sources of the gold are

the rhyolite dikes, possibly along with some contribution from monzonite dikes and small intrusive bodies (Bundtzen and others, 1987).

Gold was discovered on Ganes Creek during the winter of 1906-1907 (Brooks, 1908); mining was continuous from 1907 until 1946 (Cobb, 1976 [OFR 76-576]). Dredging was intermittent until at least 1965 (Cobb, 1973 [B 1374]). Large-scale, mechanized mining has occurred intermittently from 1965 until the present (2001).

A conservative estimate of production from Ganes Creek between 1907 to 1986, including the portion in the Iditarod quadrangle, is 103,000 ounces of gold and 15,420 ounces of silver (Bundtzen and others, 1987).

Also see OP019 and OP021.

Alteration:

Age of mineralization:

Quaternary. The likely sources of the gold in Ganes Creek are the Cretaceous or Tertiary rhyolite dikes, possibly along with some contribution from monzonite dikes and small intrusive bodies (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; large

Site Status: Active

Workings/exploration:

Gold was discovered on Ganes Creek during the winter of 1906-1907, and \$10,000 to \$20,000 in coarse gold was mined that winter (Brooks, 1908). Mining was continuous from 1907 until 1946; from 1923 until 1940 dredges were used (Cobb, 1976 [OFR 76-576]). Eakin (1941) reports that most of the bench placer ground along Ganes Creek was mined out by the end of 1912. Dredges were active intermittently from 1940 until at least 1965 (Cobb, 1973 [B 1374]). Large-scale, mechanical mining has occurred intermittently along Ganes Creek from 1965 to the present (2001).

Production notes:

A conservative estimate of production from Ganes Creek between 1907 to 1986, including the portion in the Iditarod quadrangle, is 103,000 ounces of gold and 15,420 ounces of silver (Bundtzen and others, 1987).

Reserves:

Additional comments:

The upper portion of Ganes Creek, which has also been mined, is in the Iditarod quad-

rangle.

References:

Brooks, 1908; Maddren, 1910; Maddren, 1911; Eakin, 1914; Mertie, 1936; Roehm, 1937; Fowler, 1950; Cobb, 1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987; Dashevsky, 2000 (Ganes Creek project).

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Little Creek; Gold Run; Discovery; Bonanza; No. 6 Pup

Site type: Mines

ARDF no.: OP019

Latitude: 63.0674

Quadrangle: OP A-1

Longitude: 156.4791

Location description and accuracy:

Little Creek is a northeast-flowing tributary to the Innoko River. The confluence of Little Creek and the Innoko River is approximately 7 miles southeast of Ophir. Mining occurred along nearly the entire 5 miles of Little Creek. The coordinates are for the approximate midpoint of mining, in the NE 1/4 sec. 13, T. 28 S., R. 12 E., Kateel River Meridian. The site corresponds to localities 19 to 21 of Cobb (1972 [MF 367]). The location is accurate. This record also includes references to No. 6 Pup, a tributary to Little Creek that was prospected for tungsten (scheelite).

Commodities:

Main: Au

Other: Ag, W

Ore minerals: Gold, scheelite

Gangue minerals:

Geologic description:

The rocks in the vicinity of Little Creek are shale and argillite (Maddren, 1911). Little Creek also drains several small, Cretaceous or Tertiary monzonite plutons and rhyolite dikes, which probably are the source of the placer gold (Chapman and others, 1985; Bundtzen and others, 1987).

Almost the whole 5-mile length of Little Creek has been mined. Gold was found in cracks in fractured bedrock, on 'benches' beside the stream which were mined using open cut methods, and in Little Creek's floodplain (Maddren, 1911; Eakin, 1914). The upper 6 feet of bedrock were mined for gold; the bedrock was buried under 10 to 25 feet of unconsolidated material (Maddren, 1911). The gold reportedly was coarse with many nuggets (Maddren, 1910), and averaged 830 fine (Smith, 1941). Minerals identified in panned concentrates include magnetite, ilmenite, siderite, monazite, pyrite, edenite, enstatite, and richterite (Bundtzen and others, 1987). No. 6 Pup, a tributary to Little Creek, contains abundant scheelite, probably from an igneous source (Joesting, 1942; Bundtzen and others, 1987).

Gold was discovered along Little Creek in 1907. By 1914, there was open-cut mining

on the lower portions of Little Creek (Eakin, 1914). In 1925, a dredge was brought to Little Creek and continued to mine fairly steadily until at least 1940 (Moffit, 1927; Smith, 1929; Smith, 1930 [B 810]; Smith, 1930 [B 813]; Smith, 1932; Smith, 1933 [B 836]; Smith, 1933 [B 844-A]; Smith, 1934 [B 857-A]; Smith, 1934 [B 864-A]; Mertie, 1936; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 [B 910-A]; Smith, 1939 [B 917-A]; Smith, 1941; Joesting, 1942). After 1940, there was intermittent mining on Little Creek. The estimated production from 1908 through 1986 is 47,600 ounces of gold and 8,092 ounces of silver (Bundtzen and others, 1987).

Alteration:**Age of mineralization:**

Quaternary. The sources of the gold in Little Creek are probably the Cretaceous or Tertiary rhyolite dikes, possibly along with some contribution from the monzonite plutons (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; medium

Site Status: Active?

Workings/exploration:

Gold was discovered along Little Creek in 1907. Early prospecting and mining was conducted by digging shafts and drifts in the upper portions of the creek (Maddren, 1910; Eakin, 1914). By 1914, there was open-cut mining on the lower portions of the creek (Eakin, 1914). In 1925, a dredge was brought to the creek and continued to mine fairly steadily until at least 1940 (Moffit, 1927; Smith, 1929; Smith, 1930 [B 810]; Smith, 1930 [B 813]; Smith, 1932; Smith, 1933 [B 836]; Smith, 1933 [B 844-A]; Smith, 1934 [B 857-A]; Smith, 1934 [B 864-A]; Mertie, 1936; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 [B 910-A]; Smith, 1939 [B 917-A]; Smith, 1941; Joesting, 1942). After 1940, there was intermittent mining on Little Creek. In 1950, 3 mines were operating (Williams, 1950), and in 1959, the Little Creek Mining Co. was operating a bulldozer and dragline (Saunders, 1960). Additional sporadic mining has occurred since 1960.

Production notes:

The estimated production from Little Creek from 1908 through 1986 is 47,600 ounces of gold and 8,092 ounces of silver (Bundtzen and others, 1987).

Reserves:**Additional comments:**

References:

Maddren, 1910; Maddren, 1911; Eakin, 1914; Moffit, 1927; Smith, 1929; Smith, 1930 (B 810); Smith, 1930 (B 813); Smith, 1932; Smith, 1933 (B 836); Smith, 1933 (B 844-A); Smith, 1934 (B 857-A); Smith, 1934 (B 864-A); Mertie, 1936; Smith, 1936; Smith, 1937; Smith, 1938; Smith, 1939 (B 910-A); Smith, 1939 (B 917-A); Smith, 1941; Joesting, 1942; Williams, 1950; Saunders, 1960; Cobb, 1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): California Creek**Site type:** Occurrence**ARDF no.:** OP020**Latitude:** 63.0585**Quadrangle:** OP A-1**Longitude:** 156.3424**Location description and accuracy:**

California Creek is a northeast-flowing tributary to Yankee Creek, whose mouth is approximately 1000 feet south of the junction of Yankee Creek and the Innoko River. The coordinates are for the location of a pan-concentrate sample collected from California Creek by Bundtzen and others (1987), in the SW1/4SW1/4, sec. 14., T. 28 S., R. 13 E., Kateel River Meridian. The location is accurate within 500 feet.

Commodities:**Main:** Ag**Other:** Au**Ore minerals:** Gold, ilmenite, magnetite, silver**Gangue minerals:****Geologic description:**

The bedrock in the area around California Creek is mostly sedimentary. The area also contains several Cretaceous or Tertiary monzonite plutons (Chapman and others, 1985), and dikes of varying composition. A pan-concentrate from California Creek contained magnetite, ilmenite, enstatite, anatase, rutile, edenite, two grains of native silver, and one grain of gold (Bundtzen and others, 1987).

Alteration:**Age of mineralization:****Deposit model:**

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: None

Site Status: Undetermined

Workings/exploration:

A pan-concentrate from California Creek contained magnetite, ilmenite, enstatite, anatase, rutile, edenite, two grains of native silver, and one grain of gold (Bundtzen and others, 1987).

Production notes:

Reserves:

Additional comments:

References:

Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Bundtzen and others, 1987

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Yankee Creek**Site type:** Mine**ARDF no.:** OP021**Latitude:** 63.0091**Quadrangle:** OP A-1**Longitude:** 156.3652**Location description and accuracy:**

Yankee Creek is a north-northeast-flowing tributary to the upper Innoko River. Only the lower 4.5 miles of Yankee Creek are in the Ophir quadrangle; the rest of it flows through the Iditarod quadrangle. Mining activity occurred in both quadrangles. The junction of Yankee Creek and the Innoko River is approximately 8 miles southeast of the town of Ophir. The coordinates are for the approximate midpoint of mining activity along Yankee Creek in the Ophir quadrangle; it is near a landing strip and cabins marked on the U.S. Geological Survey Ophir A-1 topographic map (1954, minor revisions 1966), in sec. 3, T. 29 S., R. 13 E., Kateel River Meridian. Yankee Creek corresponds to localities 24 and 25 of Cobb (1972 [MF 367]). This location is accurate.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The bedrock in the vicinity of Yankee Creek is slate, sandstone, and decomposed igneous rock (Mertie, 1936); the area also contains Cretaceous or Tertiary rhyolitic dikes and alkali-calcic monzonite plutons. These intrusive rocks are the likely source of gold in Yankee Creek (Bundtzen and others, 1987). Only the lower 4 1/2 miles of Yankee Creek are in the Ophir quadrangle; extensive mining along Yankee Creek also occurred in the Iditarod quadrangle.

Gold is found in the coarse gravels; in 1911, these gravels were about 8 feet thick and buried under 1 to 3 feet of muck and silt (Maddren, 1911). Bundtzen and others (1987) report that the gold is 849.6 fine, with 129.5 parts silver, and 20.0 parts impurities. Smith (1941) reports an average gold fineness of 882.

Heavy minerals identified in pan concentrates from lower Yankee Creek include magnetite, ilmenite, magnesiochromite, scheelite, and free gold (Bundtzen and others, 1987). Marten Gulch, a locally-named tributary to Yankee Creek in the Ophir quadrangle, con-

tained magnetite, ilmenite, siderite, hornblende, hypersthene, eckermanite, and hidalgoite (a lead- arsenic sulfate) (Bundtzen and others, 1987).

Yankee Creek was first prospected during the winter of 1908-1909, and mining began in 1909 (Maddren, 1910; Maddren, 1911). Mining was nearly continuous from 1910 until 1940 (Cobb, 1976 [OFR 76-576]). Williams (1950) and Saunders (1960) report mining along Yankee Creek in 1950 and 1959.

A conservative estimate of production from Yankee Creek between 1909 to 1968 and 1981 to 1986 is 62,500 ounces of gold and 12,650 ounces of silver (Bundtzen and others, 1987).

Alteration:

Age of mineralization:

Quaternary. The source(s) of the placer gold probably are the Cretaceous or Tertiary rhyolitic dikes and monzonite plutons in the area (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; medium

Site Status: Undetermined

Workings/exploration:

Yankee Creek was first prospected during the winter of 1908-1909, and mining began during 1909 (Maddren, 1910; Maddren, 1911). Mining along Yankee Creek was nearly continuous from 1910 until 1940 (Cobb, 1976 [OFR 76-576]). A dredge was installed in 1921 and operated every year until 1940 (Cobb, 1976 [OFR 76-576]). After 1940, mining was intermittent. Williams (1950) and Saunders (1960) report that Rosander and Reed mined Yankee Creek in 1950 and 1959.

Production notes:

A conservative estimate of production from Yankee Creek between 1909 to 1968 and 1981 to 1986 is 62,500 ounces of gold and 12,650 ounces of silver (Bundtzen and others, 1987).

Reserves:

Additional comments:

Also see the ARDF site for Yankee Creek in the Iditarod quadrangle.

References:

Maddren, 1910; Maddren, 1911; Mertie, 1936; Williams, 1950; Saunders, 1960; Cobb,

1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Vita

Site type: Occurrence

ARDF no.: OP022

Latitude: 63.0005

Quadrangle: OP A-1

Longitude: 156.4247

Location description and accuracy:

The Vita occurrence is located approximately 1 1/2 miles southwest of the head of California Creek, in the center of the southern half of sec. 5, T. 29 S., R. 13 E. The location is accurate within 1000 feet. This occurrence is on Doyon, Ltd. conveyed lands.

Commodities:

Main: Au

Other:

Ore minerals:

Gangue minerals:

Geologic description:

The bedrock in the vicinity of the Vita occurrence consists of a thin feldspathic dike that intrudes Cretaceous sedimentary rocks. A rock sample collected in 1989 contained 250 ppb gold (Central Alaska Gold Company, unpublished company report, 1990, held by Doyon, Ltd.). Sixteen soil samples collected in 1990 assayed between 120 to 1070 ppb gold. The gold values appear to be confined to the margins of the thin dike.

Alteration:

Age of mineralization:

The age of mineralization is inferred to be Late Cretaceous or Early Tertiary, based on K-Ar and Ar/Ar dating of other granitic bodies in the southern portion of the Ophir quadrangle (Bundtzen and Miller, 1997).

Deposit model:

Plutonic-related Au

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

Production Status: None

Site Status: Undetermined

Workings/exploration:

A rock sample collected in 1989 contained 250 ppb gold (Central Alaska Gold Company, unpublished company report, 1990, held by Doyon, Ltd.). Sixteen soil samples collected in 1990 assayed between 120 to 1070 ppb gold.

Production notes:

Reserves:

Additional comments:

For more information, contact Doyon, Ltd. in Fairbanks, Alaska.

References:

Bundtzen and Miller, 1997.

Primary reference: This report

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Mount Hurst**Site type:** Occurrence**ARDF no.:** OP023**Latitude:** 63.2325**Quadrangle:** OP A-2**Longitude:** 156.9343**Location description and accuracy:**

Mt. Hurst is a 2882-foot-high peak approximately 25 miles northwest of Ophir. The site corresponds to location 10 of Roberts (1984), in section 15, T. 26 S., R. 10 E, Kateel River Meridian. It is on a northeast-trending ridge, approximately 1 mile northeast of the summit of Mt. Hurst. The location is accurate within 1/2 mile.

Commodities:**Main:** Cr, Pt**Other:****Ore minerals:** Chrome spinel, chromite, spinel**Gangue minerals:****Geologic description:**

Mt. Hurst is composed of chromite- and chrome spinel-bearing ultramafic rocks surrounded by lower Paleozoic crystalline limestone, schist, slate, phyllite, quartz, and chert. A nearby upper Paleozoic sequence of greenstone, metavolcanic rocks, tuff, and chert-bearing sedimentary rocks suggests a possible ophiolitic origin for the ultramafic rocks (Roberts, 1984).

The ultramafic rocks at Mt. Hurst are crudely layered; certain layered zones are traceable for more than 2 miles. Rock types include dunite, wehrlite, harzburgite, lherzolite, and clinopyroxenite. One outcrop of dunite has been altered to carbonate, quartz, and talc. At least two minor occurrences of basalt and one outcrop of gabbro are also present (Roberts, 1984).

Chromitite samples collected from the Mt. Hurst area are anomalous in platinum (0.014 - 0.026 ounce per ton) and palladium (0.003 ounce per ton). Wehrlite samples also contained minor amounts of platinum. Altered dunite samples contained elevated concentrations of mercury, antimony, arsenic, and silver. Coalescent or banded chromite is present almost exclusively within dunite layers in wehrlite (Roberts, 1984). Heavy-mineral concentrates panned from three separate drainages on the flanks of Mt. Hurst respectively contained 1474 ppb platinum, 1508 ppb platinum, and 2674 ppb gold (Roberts, 1984).

The largest chrome spinel occurrence in the Mt. Hurst area is at this site (Roberts, 1984, locality 10). It is in a chromite band in a light orange-brown dunite lens in well-layered, light-green wehrlite. The chromite band trends northeast for about 30 feet; the southern end disappears beneath vegetation, soil and talus. It pinches and swells from 6 to 30 inches thick over 30 feet. Concentrations of chrome spinel within the chromite band vary from 30 to 80% of the rock. Chromitite samples from this locality contain about 30% chromic oxide (Roberts, 1984).

The chrome spinel occurrences on Mt. Hurst appear to be very sparse and variable in size and quality. The presence of detectable platinum and palladium in sediments shed from the ultramafic rocks at Mt. Hurst (see Boob Creek, OP013) suggests a potential for paleo-placers (Roberts, 1984).

Alteration:**Age of mineralization:****Deposit model:**

Podiform chromite (Cox and Singer, 1986; model 8a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

8a

Production Status: None

Site Status: Undetermined

Workings/exploration:

The U.S. Bureau of Mines first investigated Mt. Hurst as a potential source of chromic oxide and platinum-group metals in 1981. Since then, there have been staking and minor exploration programs by private interests.

Production notes:**Reserves:****Additional comments:**

See also Boob Creek (OP013).

References:

Roberts, 1984; Foley and others, 1989.

Primary reference: Roberts, 1984

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Dodge Creek**Site type:** Mine**ARDF no.:** OP024**Latitude:** 63.1395**Quadrangle:** OP A-2**Longitude:** 156.5659**Location description and accuracy:**

Dodge Creek is a short, north-flowing tributary of the Innoko River. The junction of Dodge Creek and the Innoko River lies approximately one mile west-northwest of the town of Ophir. The coordinates are at the mine along Dodge Creek marked on the U.S. Geological Survey Ophir A-2 topographic map (1954, minor revisions 1955), in the NW1/4 sec. 22, T. 27 S., R. 12 E., Kateel River Meridian. Dodge Creek is location 12 of Cobb (1972 [MF 367]). The location is accurate within 500 feet.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold, ilmenite, magnetite, pyrite**Gangue minerals:****Geologic description:**

The bedrock in the vicinity of Dodge Creek consists of sandstone, shale, and siltstone, and several small monzonite intrusive bodies (Chapman and others, 1985).

Gold in Dodge Creek is reportedly deep (Brooks, 1916). Heavy minerals in placer concentrates include magnetite, ilmenite, siderite, pyrite, amphibole, pyroxene, and zircon (Bundtzen and others, 1987). The source of the gold may be bimodal dike swarms, peraluminous rhyolite, and alkali-calcic monzonitic intrusive rocks in the Ophir area (Bundtzen and others, 1987).

Gold was discovered on Dodge Creek in 1915 and mining probably began in 1916 (Brooks, 1916). Mining continued intermittently until possibly as recent as 1962. The estimated production from Dodge Creek is 408 ounces of gold and 40 ounces of silver (Bundtzen and others, 1987). The gold was 911 fine (Metz and Hawkins, 1981).

Alteration:**Age of mineralization:**

Quaternary. The placer gold is probably derived from Cretaceous or Tertiary intrusive

rocks (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Probably inactive

Workings/exploration:

Gold was discovered on Dodge Creek in 1915 and mining probably began in 1916 (Brooks, 1916). Mining continued intermittently until possibly as recent as 1962.

Production notes:

The estimated production from Dodge Creek is 408 ounces of gold and 40 ounces of silver (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Brooks, 1916; Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Metz and Hawkins, 1981; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Bundtzen and others, 1987

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Anvil Creek

Site type: Mine

ARDF no.: OP025

Latitude: 63.1278

Quadrangle: OP A-2

Longitude: 156.5025

Location description and accuracy:

Anvil Creek is a 2.5-mile-long, northeast-flowing tributary to the Innoko River; the junction of Anvil Creek and the Innoko River is approximately 1 mile southeast of the town of Ophir. The coordinates are for the mine marked on the U.S. Geological Survey Ophir A-2 topographic map (1954, minor revisions 1965), in the SE 1/4SE 1/4 sec. 23, T. 27 S., R. 12 E., Kateel River Meridian. Anvil Creek is locality 15 of Cobb (1972 [MF 367]). The location is accurate within 500 feet.

Commodities:

Main: Au

Other: Ag, Hg

Ore minerals: Cinnabar, gold

Gangue minerals:

Geologic description:

The rocks in the vicinity of Anvil Creek are sandstone, shale, and siltstone (Chapman and others, 1985). The creek probably also drains a small, Cretaceous or Tertiary intrusive body.

The gold in Anvil Creek occurs in a narrow paystreak in stream gravels and in less-rich bench deposits. The gold was found on bedrock surfaces and in crevices within the upper 6 inches of bedrock. The largest nugget reported from Anvil Creek was 6 ounces. The nuggets have a fineness of 878 parts gold and 117 parts silver (Mertie, 1936). Mertie (1936) also reports considerable cinnabar in concentrates.

Gold was discovered along Anvil Creek in 1917. Production occurred intermittently in Anvil Creek until 1950, and intermittently from the 1970's until at least 1986 (Brooks and Capps, 1924; Smith, 1932; Smith, 1936; Smith, 1938; Mertie, 1936; Roehm, 1937; Fowler, 1950).

An unnamed 'pup' tributary of Anvil Creek runs parallel to Anvil Creek and then enters an old oxbow on the south side of the Innoko River. This tributary was staked in 1980 and reportedly contains about 4 feet of gravel under 6 feet of mud. Although no coarse gold has been found, many grains of fine gold were recovered (Dick Forsgren, written

commun., 2001).

Bundtzen and Miller (1997) used radioactive-isotope dating techniques to demonstrate that the age of hydrothermal sericite from the Ophir-Little Creek prospect area is 70 Ma, contemporaneous with primary igneous white mica in dikes near Ophir. Lode gold mineralization in this area probably is related to magmatic fluids from these Upper Cretaceous or Tertiary dikes (or other, coeval plutons), which probably are the source of at least some of the placer gold in Anvil Creek (Bundtzen and Miller, 1997).

Alteration:

Age of mineralization:

Quaternary. Bundtzen and Miller (1997) used radioactive-isotope dating techniques to demonstrate that the age of hydrothermal sericite from the Ophir-Little Creek prospect area is 70 Ma, contemporaneous with primary igneous white mica in dikes near Ophir. Lode gold mineralization in this area probably is related to magmatic fluids from these Upper Cretaceous or Tertiary dikes (or other, coeval plutons), which probably are the source of at least some of the placer gold in Anvil Creek (Bundtzen and Miller, 1997).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

A narrow paystreak beneath the channel of Anvil Creek was worked by drift mining; less-rich bench deposits were worked by open cuts (Mertie, 1936). Mining occurred along Anvil Creek from 1917 to 1950 and also from the 1970's until at least 1986 (Bundtzen and others, 1987).

Production notes:

Between 1917 and 1950, an estimated 3,394 ounces of gold and 12 ounces of silver were produced from Anvil Creek. Anvil Creek was also mined from the 1970's until at least 1986 (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Brooks and Capps, 1924; Smith, 1932; Mertie, 1936; Smith, 1936; Smith, 1938; Roehm, 1937; Fowler, 1950; Cobb, 1972 (MF 367); Cobb, 1973 (B 1374); Cobb, 1976 (OFR 76-

576); Chapman and others, 1985; Bundtzen and others, 1987; Bundtzen and Miller, 1997.

Primary reference: Mertie, 1936

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Spruce Creek**Site type:** Mine**ARDF no.:** OP026**Latitude:** 63.0928**Quadrangle:** OP A-2**Longitude:** 156.5264**Location description and accuracy:**

Spruce Creek is a northeast-flowing tributary to the Innoko River. The junction of Spruce Creek and the Innoko River is approximately 2 miles southeast of the town of Ophir. The coordinates are for the approximate midpoint of tailings shown on the U.S. Geological Survey Ophir A-2 topographic map (1954, minor revisions 1965), in sec. 2, T. 28 S., R. 12 E., Kateel River Meridian. Spruce Creek is locality 17 of Cobb (1972 [MF 367]). This location is accurate. Also see Tamarack Creek (OP027), a small tributary to Spruce Creek.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Chromite, gold, ilmenite, magnetite**Gangue minerals:****Geologic description:**

The bedrock in the vicinity of Spruce Creek mainly of slate cut by highly altered dacitic (?) dikes (Maddren, 1910; Mertie, 1936). Cretaceous or Tertiary monzonite intrusive bodies may also occur in the stream drainage (Bundtzen and others, 1987).

Most of the gold in Spruce Creek is in bedrock crevices on low benches (Maddren, 1911; Eakin, 1914; Mertie, 1936). The overburden was about 10 to 15 thick over 2 to 6 feet of auriferous gravels (Eakin, 1914). Some of the gold recovered was very coarse, and included at least one 16-ounce nugget was recovered (Mertie, 1936). The gold at Spruce Creek is 870.7 fine, with 100.3 parts silver, and 29.0 parts impurities (Bundtzen and others, 1987). Smith (1941) reports that gold from Spruce Creek averages 879 fine; Metz and Hawkins (1981) report a fineness of 873.

Heavy minerals identified in a pan-concentrate sample from Spruce Creek include magnetite, chromite, ilmenite, orthoferrosilite, reibeckite, and fluorapatite. This sample was collected just downstream from a swarm of peraluminous dikes that contain up to 6% chromite (Bundtzen and others, 1987). The source of the gold is probably these peraluminous dikes, along with some contribution from monzonite intrusions (Bundtzen and

others, 1987).

Gold was discovered in Spruce Creek in 1907, but there is no record of production until 1910 (Maddren, 1909; Maddren, 1910; Maddren, 1911). Mining was nearly continuous between 1910 and 1940 (Cobb, 1976 [OFR 76-576]). After 1940, reports of mining along Spruce Creek are sporadic. There probably has been more recent production.

A conservative estimate of production from Spruce Creek from 1909 to 1950 and 1955 to 1986 is 35,400 ounces of gold and 4,600 ounces of silver (Bundtzen and others, 1987).

Also see OP018, 019, 021, 027, and 030.

Alteration:

Age of mineralization:

Quaternary. The sources of the placer gold probably are Cretaceous or Tertiary peraluminous dikes, along with some contributions from monzonite intrusive bodies in the Spruce Creek drainage basin (Bundtzen and others, 1987).

Deposit model:

Placer Au (on benches) (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Active?

Workings/exploration:

Gold was discovered in Spruce Creek in 1907, but there is no record of production until 1910 (Maddren, 1909; Maddren, 1910; Maddren, 1911). Mining was nearly continuous between 1910 and 1940 (Cobb, 1976 [OFR 76-576]). After 1940, reports of mining are sporadic. Williams (1950) reports that Matheson and Savage's dragline-dozer-hydraulic operation (Fowler, 1950) on Spruce Creek closed in 1950 due to the son's induction into the army. Assessment work is reported in 1959 (Saunders, 1960). There probably has been more recent production.

Production notes:

A conservative estimate of production from Spruce Creek from 1909 to 1950 and 1955 to 1986 is 35,400 ounces of gold and 4,600 ounces of silver (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Maddren, 1909; Maddren, 1910; Maddren, 1911; Eakin, 1914; Mertie, 1936; Smith, 1941; Fowler, 1950; Williams, 1950; Saunders, 1960; Cobb, 1972 (MF 367); Cobb, 1976

(OFR 76-576); Metz and Hawkins, 1981; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Tamarack Creek**Site type:** Mine**ARDF no.:** OP027**Latitude:** 63.0946**Quadrangle:** OP A-2**Longitude:** 156.5206**Location description and accuracy:**

Tamarack Creek is a short, northwest-flowing tributary of Spruce Creek; Spruce Creek is about 3.5 miles south of Ophir. The coordinates are at the placer mine marked near the mouth of Tamarack Creek on the U.S. Geological Survey Ophir A-2 topographic map (1954, minor revisions 1965), in NW1/4 sec. 2, T. 28 S., R. 12 E., Kateel River Meridian. Tamarack Creek is locality 18 of Cobb (1972 [MF 367]). The location is accurate within 100 feet.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold, ilmenite, magnetite, native silver, pyrite**Gangue minerals:****Geologic description:**

The rocks in the vicinity of Tamarack creek are shale and siltstone. The creek probably also drains Cretaceous or Tertiary monzonite plutons, and dikes of various compositions (Chapman and others, 1985). These intrusive rocks probably are the source of the placer gold in Tamarack Creek (Bundtzen and others, 1987).

Heavy minerals in pan concentrates from Tamarack Creek include magnetite, ilmenite, pyrite, pyroxene, amphibole, and several grains of native silver (Bundtzen and others, 1987). Mertie (1936) reports that a paystreak yielding good returns was being mined in 1934.

Production from Tamarack Creek probably is combined with production figures for Spruce Creek (OP026).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Mertie (1936) reports that a paystreak yielding good returns was being mined in 1934.

Production notes:

Production from Tamarack Creek probably is combined with production for Spruce Creek (OP026).

Reserves:**Additional comments:****References:**

Mertie, 1936; Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Mertie, 1936

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Bedrock Gulch**Site type:** Mine**ARDF no.:** OP028**Latitude:** 63.0453**Quadrangle:** OP A-2**Longitude:** 156.6180**Location description and accuracy:**

Bedrock Gulch, about 7.5 miles south-southeast of Ophir, is a short, north tributary to Dollar Creek, which is an east tributary to Beaver Creek. Bedrock Gulch is not named on U.S. Geological Survey topographic maps; most of it is in sec. 20, T. 28 S., R. 12 E., Kateel River Meridian. This site is location 10 of Cobb (1972 [MF 367]). The location is accurate within 1/2 mile.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The area of Bedrock Gulch is underlain by undivided clastic rocks (Chapman and others, 1987). The thickness of pay gravel in the 1950's was 3-4 feet, and it was covered by 7 to 8 feet of muck and overburden. Saunders (1960) noted that Mr. Lindquist, the operator, expected to finish placer mining that area in 1959 and then move 3 or 4 miles downstream and continue mining. Smith (1937) reports active non-dredge mining along Bedrock Gulch in 1935. The next report of mining is in 1959 (Saunders, 1960).

Alteration:**Age of mineralization:**

Quaternary.

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Smith (1937) reports non-dredge mining along Bedrock Gulch in 1935. The next mention of mining is in 1959, when Saunders (1960) reports that Hjalmar Lindquist was mining the upper portion of the gulch with a TD-14 tractor. Mr. Lindquist expected to finish mining that area in 1959 and then move 3 or 4 miles downstream and continue mining.

Production notes:

Reserves:

Additional comments:

References:

Smith, 1937; Saunders, 1960; Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and Miller, 1997.

Primary reference: Saunders, 1960

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Ester Creek**Site type:** Mine**ARDF no.:** OP029**Latitude:** 63.0301**Quadrangle:** OP A-2**Longitude:** 156.6060**Location description and accuracy:**

Ester Creek is a short, west-flowing tributary to Dollar Creek, which is a headwater tributary to Beaver Creek. The coordinates are for the mine symbol marked on the U.S. Geological Survey Ophir A-2 topographic map (1954, minor revisions 1965). The symbol is near the midpoint of Ester Creek, in the SE1/4 sec. 29, T. 28 S., R. 12 E., Kateel River Meridian. Ester Creek is locality 11 of Cobb (1972 [MF 367]).

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold**Gangue minerals:****Geologic description:**

The drainage area of Ester Creek is underlain by undivided Cretaceous clastic rocks. The headwaters also drain several small, Cretaceous or Tertiary dikes and subvolcanic plutons (Chapman and others, 1985).

The gold in Ester Creek is 841 fine according to Metz and Hawkins (1981). Mertie (1936) reports a fineness of 836 gold and 156 parts silver. Gold was being mined in 1926, and it was probably mined earlier (Holzheimer, 1926 [MR 64-1]). Mertie (1936) reports mining in 1933, and Bundtzen and others (1987) indicate mining sometime during the 1980's.

Production from Ester Creek between the early 1900's to 1964 was 1,110 ounces of gold and 210 ounces of silver. Production figures for Ester Creek from 1980 to 1986 are unavailable (Bundtzen and others, 1987).

Also see OP028.

Alteration:**Age of mineralization:**

Quaternary. The source of the placer gold is probably Cretaceous or Tertiary intrusive

rocks (Bundtzen and others, 1987).

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; small

Site Status: Undetermined

Workings/exploration:

Gold was being mined in Ester Creek in 1926, and it was probably mined earlier (Holzheimer, 1926 [MR 64-1]). Mertie (1936) reports mining in 1933, and Bundtzen and others (1987) indicate mining sometime during the 1980's.

Production notes:

Production from Ester Creek from the early 1900's to 1964 was 1,110 ounces of gold and 210 ounces of silver. Production figures for Ester Creek from 1980 to 1986 are unavailable (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Holzheimer, 1926 (MR 64-1); Mertie, 1936; Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Metz and Hawkins, 1981; Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Bundtzen and others, 1987

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Ophir Creek**Site type:** Mines**ARDF no.:** OP030**Latitude:** 63.1237**Quadrangle:** OP A-2**Longitude:** 156.5311**Location description and accuracy:**

Ophir Creek has been mined for about 2 1/2 miles above its mouth, near the town of Ophir on the Innoko River. Mining also took place near its head. The coordinates are for the approximate midpoint of mine tailings marked on the U.S. Geological Survey Ophir A-2 topographic map (1954, minor revisions 1965). This point is on lower Ophir Creek, in sec. 26, T. 27 S., R. 12 E., Kateel River Meridian. Ophir Creek corresponds to localities 13 and 14 of Cobb (1972 [MF 367]). The location is accurate.

Commodities:**Main:** Au**Other:** Ag**Ore minerals:** Gold, ilmenite, magnetite, pyrite**Gangue minerals:** Quartz**Geologic description:**

Bedrock in the vicinity of Ophir Creek consists of shale and siltstone (Chapman and others, 1985). The creek also drains small monzonite intrusive bodies, and igneous rock pebbles and cobbles are reported in the stream gravels (Mertie, 1936). Some vein quartz is also reported in the gravels (Mertie, 1936).

Most of the gold on Ophir Creek is in crevices in the top 2 to 5 feet of bedrock (Madden, 1910). The gold is coarse with many nuggets. It also occurs in bench and stream gravels (Madden, 1910; Madden, 1911). In 1933, one claim on Ophir Creek averaged \$7 to 8 per square foot of bedrock. Nuggets as large as 14 ounces have been recovered (Mertie, 1936). The gold averages 898 fine (Smith, 1941). Heavy minerals in pan concentrates include magnetite, ilmenite, edenite, zircon, rutile, orthoferrosilite, and pyrite (Bundtzen and others, 1987). The likely source of the gold is nearby rhyolite dikes and monzonite plutons (Bundtzen and others, 1987).

Gold was discovered on Ophir Creek in 1908, and mining occurred nearly continuously until 1940 (Cobb, 1976 [OFR 76-576]). In 1950, at least one person was mining along Ophir Creek (Williams, 1950). Mining is also reported during 1959, but the operator at that time planned to move to the Ruby district in 1960 (Saunders, 1960). More recent ex-

ploration or mining is probable but not documented.

The estimated production from Ophir Creek from 1908 to 1961 is 66,489 ounces of gold and 7,004 ounces of silver. Production figures for more recent mining from 1978 to 1985 are unknown (Bundtzen and others, 1987).

Alteration:

Age of mineralization:

Quaternary. The likely source of placer gold at Ophir Creek is nearby Cretaceous or Tertiary rhyolite dikes and monzonite plutons (Bundtzen and others, 1987).

Deposit model:

Placer Au (stream and bench) (Cox and Singer, 1986; model 39a)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a

Production Status: Yes; medium

Site Status: Active?

Workings/exploration:

Gold was discovered on Ophir Creek in 1908, and mining occurred nearly continuously until 1940 (Cobb, 1976 [OFR 76-576]). By 1914, the creek was one of the chief gold-producing streams in the area, and 8 mines were operating (Eakin, 1914; Brooks, 1915). Drifting, draglines, and hydraulicking were all used to recover the gold. In 1950, at least one person was mining along Ophir Creek (Williams, 1950). Mining is also reported during 1959, but the operator at that time planned to move to the Ruby district in 1960 (Saunders, 1960). More recent exploration or mining is probable but not documented.

Production notes:

The estimated production from Ophir Creek from 1908 to 1961 is 66,489 ounces of gold and 7,004 ounces of silver. Production figures for more recent mining from 1978 to 1985 are unknown (Bundtzen and others, 1987).

Reserves:

Additional comments:

References:

Maddren, 1909; Brooks, 1910; Maddren, 1910; Maddren, 1911; Brooks, 1912; Eakin, 1914; Brooks, 1915; Mertie, 1936; Williams, 1950; Saunders, 1960; Cobb, 1972 (MF 367); Cobb, 1976 (OFR 76-576); Chapman and others, 1985; Bundtzen and others, 1987.

Primary reference: Cobb, 1976 (OFR 76-576)

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Porphyry Knob**Site type:** Prospect**ARDF no.:** OP031**Latitude:** 63.5397**Quadrangle:** OP C-1**Longitude:** 156.0227**Location description and accuracy:**

The Porphyry Knob prospect is on a prominent , 1800-foot hill, informally called Porphyry Knob, at the head of Cripple Creek and Colorado Creek. It is in the SW1/4NW1/4 sec. 32, T. 22 S., R. 15 E., Kateel River Meridian. The location is accurate within 50 feet.

Commodities:**Main:** Ag, Au**Other:****Ore minerals:** Arsenopyrite, chalcopyrite, gold, pyrite, stibnite**Gangue minerals:** Quartz**Geologic description:**

The rocks in the vicinity of the Porphyry Knob prospect consist of highly altered, intermediate to mafic, volcanic, volcanoclastic, and flow-layered rocks interbedded with black shale, graywacke, and minor conglomerate of the Cretaceous Kuskokwim group (McGinnis, 1997). In the Colorado Creek area, high-angle, northeast-trending faults are cut by later, northwest-trending faults.

Gold at the Porphyry Knob prospect occurs in a gently-dipping sequence of intermediate to mafic volcanic, volcanoclastic, and marine sedimentary rocks. The principal country rock at the prospect is altered andesite. Dacite porphyry is also an important hostrock, but petrographic work by Placer Dome Exploration demonstrates that the light-colored, porphyritic rocks characteristic of this prospect are in fact altered andesite and basalt, despite their leucocratic appearance in hand specimen (McGinnis, 1997). The altered volcanic rocks contain abundant disseminated pyrite and arsenopyrite and are cut by quartz and limonite veins up to 2 centimeters thick. The dacite porphyry contains veins and veinlets of quartz + adularia + pyrite +/- apatite +/- ankerite +/- calcite. The andesite contains veins and veinlets of quartz +/- albite + ankerite +/- calcite + pyrite + arsenopyrite (McGinnis, 1997). Fine colorings of native gold can be panned from soil on the south-east margin of the prospect area (Avalon Development, 1998).

Ten core holes were drilled into the prospect by Placer Dome Exploration in 1997. The most significant intercept averaged 1.9 grams of gold per ton over 19.2 meters, and in-

cludes an intercept 2 meters long of 7.5 grams of gold per ton (McGinnis, 1997). The most abundant sulfides in the core included arsenopyrite, chalcopyrite, pyrite, and stibnite (Duncan, 2000). The gold:silver ratio at Porphyry Knob is generally low and ranges from 1:1 to 1:10 (Duncan, 1999). The prospect is marked by soil samples containing up to 3610 ppb gold, anomalous amounts of arsenic, antimony, and mercury, and minor bismuth (Avalon Development, 1998).

The igneous rocks display intense levels of phyllic, silicic, and carbonate alteration. The sedimentary rocks exhibit local sericitic, silicic, carbonate, hornfels, and skarn alteration (Avalon Development, 1998; Duncan, 1999).

The Porphyry Knob prospect may be part of a gold-bearing, quartz-adularia-type epithermal system (Avalon Development, 1998; Duncan, 1999; Dashevsky, 2000). Also see the Moose Jaw prospect (OP032), and Eldorado Creek (OP033).

Alteration:

The igneous rocks display intense levels of phyllic, silicic, and carbonate alteration. The sedimentary rocks exhibit local sericitic, silicic, carbonate, hornfels, and skarn alteration (Avalon Development, 1998; Duncan, 1999).

Age of mineralization:

Cretaceous or younger. Mineralized sills intrude Cretaceous sedimentary rocks of the Kuskokwim Group.

Deposit model:

Epithermal gold (quartz-adularia) (Cox and Singer, 1986; model 25b, 25c?).

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

25b, 25c?

Production Status: None**Site Status:** Active**Workings/exploration:**

Gold mineralization was identified on Porphyry Knob by S. Nerod during the 1970's at the Nerod trench in the southern part of the prospect area. In 1994, 1995, and 1996, Ron Rosander, the claim owner, contracted James Barker to evaluate lode sources of placer gold in the Colorado Creek area. Barker (1966) collected 254 soil samples, 93 rock samples, and 12 samples of placer gold for scanning-electron microscope and trace element analysis. Barker also conducted geologic mapping and a ground-based magnetometer survey. In 1996, the Alaska Division of Geological and Geophysical Surveys conducted geologic mapping in the Cripple Creek Mountains, and Placer Dome Exploration flew an east-west-oriented aeromagnetic survey over the Cripple Creek Mountains (Avalon Development, 1998).

Placer Dome Exploration drilled 10 core holes totaling 1372 meters in the Porphyry Knob prospect during 1997, soil sampled along a large grid, and conducted geologic mapping, trenching, and road construction (McGinnis, 1997). Nova Gold explored the Por-

phyry Knob prospect in 1998 and conducted further geologic mapping, rock sampling, and soil sampling (Avalon Development, 1998). During 1999, Northern Associates, Inc., was contracted by Poisedon Minerals, Ltd. to conduct further soil sampling in the Colorado Creek area, including Porphyry Knob.

Production notes:

Reserves:

Additional comments:

For more information, contact Ron Rosander in McGrath, AK.

References:

McGinnis and others, 1997; Avalon Development, 1998; Duncan, 1999; Dashevsky, 2000 (Colorado Creek project).

Primary reference: McGinnis, 1997

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Moose Jaw**Site type:** Prospect**ARDF no.:** OP032**Latitude:** 63.5412**Quadrangle:** OP C-1**Longitude:** 156.0037**Location description and accuracy:**

The Moose Jaw prospect is located on the east side of Eldorado Creek near the headwaters of Colorado Creek. The prospect is at an elevation of about 2000 feet, in the NE1/4 of sec. 32, T. 22 S., R. 15 E., Kateel River Meridian. The location is accurate.

Commodities:**Main:** Sb**Other:****Ore minerals:** Stibiconite, stibnite**Gangue minerals:** Quartz**Geologic description:**

Bedrock in the vicinity of the Moose Jaw prospect consists of intermediate to mafic volcanic and volcanoclastic rocks, and of Cretaceous Kuskokwim Group black shale, limestone, graywacke, and conglomerate intruded by Cripple Mountain monzonite (McGinnis, 1997; Avalon Development Corp., 1998; Duncan, 1999). Hornfelsed sedimentary rocks, and rare basalt and rhyodacite dikes are present (Barker, 1996; Avalon Development, 1998).

Mineralization at the Moose Jaw prospect was exposed in a now-reclaimed trench. What remains is a small pile of stibnite, stibiconite, and vuggy crystalline quartz boulders (Avalon Development, 1998). Several thin quartz-limonite veins are present in float 20 meters to the southeast.

Exploration at the Moose Jaw prospect consists of geologic mapping and sampling by Barker during 1994, 1995, and 1996; soil sampling, rock sampling, and geologic mapping by NovaGold during 1998; and mobile-metallic-ion (MMI) sampling by Poseidon Minerals, Ltd. during 1999 (Barker, 1996; Avalon Development Corp., 1998; Duncan, 1999).

Also see OP031, 033, and 034; and in the Medfra quadrangle, MD019 and 020.

Alteration:

Alteration at the Moose Jaw prospect consists of extensive hornfelsing of the sedimentary rocks adjacent to igneous rocks.

Age of mineralization:

Cretaceous or younger. The igneous rocks associated with the prospect intrude Cretaceous strata of the Kuskowkwim Group.

Deposit model:

Epithermal Au (Cox and Singer, 1986; model 25b, 25c?)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

25b, 25c?

Production Status: None**Site Status:** Active**Workings/exploration:**

During 1994, 1995, and 1996, claimholder Ron Rosander contracted geologist James Barker to evaluate the lode sources of placer gold in the Colorado Creek area. Barker collected 254 soil samples, 93 rock samples, and 12 samples of placer gold for scanning-electron microscope and trace-element analysis. Geologic mapping and a ground-based magnetometer survey were also carried out (Barker, 1996; McGinnis, 1997). In 1996, the Alaska Division of Geological and Geophysical Surveys conducted geologic mapping in the Cripple Creek Mountains and Placer Dome Exploration flew an east-west-oriented aeromagnetic survey over the Cripple Creek Mountains. Nova Gold conducted geologic mapping, rock sampling, and soil sampling during the summer of 1998 (Avalon Development, 1998). During 1999, Poseidon Minerals, Ltd. carried out soil sampling in the Colorado Creek area, and used mobile-metallic-ion (MMI) analyses (Duncan, 1999).

Production notes:**Reserves:****Additional comments:**

For more information, contact Ron Rosander in McGrath, AK.

References:

Barker, 1996; Avalon Development, 1998; Duncan, 1999; Dashevsky, 2000 (Colorado Creek project).

Primary reference: Duncan, 1999**Reporter(s):** C.E. Cameron**Last report date:** 8/7/01

Site name(s): Eldorado Creek (tributary of Colorado Creek)**Site type:** Mine**ARDF no.:** OP033**Latitude:** 63.5479**Quadrangle:** OP C-1**Longitude:** 156.0106**Location description and accuracy:**

Eldorado Creek is a short, generally north-flowing headwater tributary to Colorado Creek. Placer mining on Eldorado Creek was an extension of mining on Colorado Creek. Placer tailings begin at the mouth of Eldorado Creek and continue for nearly 1 mile upstream. The coordinates are for the approximate midpoint of the lower group of tailings, in the southern half of sec. 29, T. 22 S., R. 15 E., Kateel River Meridian. The location is accurate.

Commodities:**Main:** Au**Other:****Ore minerals:** Gold, magnetite**Gangue minerals:** Garnet, quartz**Geologic description:**

The rocks in the vicinity of Eldorado Creek consist of intermediate to mafic volcanic and volcanoclastic rocks, and of Cretaceous Kuskokwim Group black shale, limestone, graywacke, and conglomerate intruded by Cripple Mountain monzonite (McGinnis, 1997; Avalon Development Corp., 1998; Duncan, 1999). The rocks adjacent to the monzonite are hornfelsed, with local development of garnet- and magnetite-bearing skarn in calcareous volcanic and sedimentary rocks (Avalon Development Corp., 1998; S. Dashevsky, oral commun., 2001).

Extensive placer mining was carried out along El Dorado Creek for about one mile upstream from its junction with Colorado Creek. Tailings in the upper part of Eldorado Creek do not follow the modern streambed and extend to the western walls of the stream drainage up to the flanks of Porphyry Knob (OP031) (S. Dashevsky, oral commun., 2001).

Placer mining on Eldorado Creek was conducted by the Strandberg family in the 1950's and by Mr. Nerod in the 1970's (McGinnis, 1997). Production figures for Eldorado Creek are not available (see OP002; and in the Medfra quadrangle, MD014, for Colorado Creek drainage production figures).

Also see OP002, 031, and 032; and in the Medfra quadrangle, MD014.

Alteration:

Rocks adjacent to the monzonite are hornfelsed, with local development of garnet- and magnetite-bearing skarn in calcareous volcanic and sedimentary rocks (Avalon Development Corp., 1998; S. Dashevsky, 2001, oral commun.).

Age of mineralization:

Placer deposits along nearby Colorado Creek area are middle Pleistocene, based on isotopic dates from overburden and geological inference (Bundtzen and others, 1987; Thorson and Guthrie, 1992). The skarn deposits are Cretaceous or younger.

Deposit model:

Placer Au (Cox and Singer, 1986; model 39a) and Skarn (Cox and Singer, 1986; model 18d)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

39a; 18d

Production Status: Yes**Site Status:** Active**Workings/exploration:**

Prior to World War II, placer mining was conducted by William Critchley along the lower portion of Eldorado Creek, and William (Billy the Greek) Senatikis mined the upper portion (Ron Rosander, oral commun., 2001). The Strandberg family mined on Eldorado Creek in the 1950's and Mr. Nerod mined in the 1970's (McGinnis, 1997).

During 1994, 1995, and 1996, claimholder Ron Rosander contracted geologist James Barker to evaluate the lode sources of placer gold in the Colorado Creek area. Barker collected 254 soil samples, 93 rock samples, and 12 samples of placer gold for scanning-electron microscope and trace element analysis. Geologic mapping and a ground-based magnetometer survey were also carried out (Barker, 1996; McGinnis, 1997). In 1996, the Alaska Division of Geological and Geophysical Surveys conducted geologic mapping in the Cripple Creek Mountains and Placer Dome Exploration flew an east-west-oriented aeromagnetic survey over the Cripple Creek Mountains. Nova Gold conducted geologic mapping, rock sampling, and soil sampling during the summer of 1998 (Avalon Development, 1998). During 1999, Poseidon Minerals, Ltd. carried out soil sampling in the Colorado Creek area, and used mobile-metallic-ion (MMI) analyses (Duncan, 1999).

Production notes:**Reserves:****Additional comments:**

For more information on Eldorado Creek, contact Ron Rosander in McGrath, AK.

References:

Thorson and Guthrie, 1992; McGinnis and others, 1997; Avalon Development Corp., 1998; Duncan, 1999; Dashevsky, 2000 (Colorado Creek project).

Primary reference: Duncan, 1999

Reporter(s): C.E. Cameron

Last report date: 8/7/01

Site name(s): Eldorado Basin; Moose Jaw Mountain**Site type:** Prospect**ARDF no.:** OP034**Latitude:** 63.5366**Quadrangle:** OP C-1**Longitude:** 156.0060**Location description and accuracy:**

The Eldorado Basin prospect is located in the headwaters of Eldorado Creek, which flows into Colorado Creek. The coordinates are for the midpoint of a 2200-meter-long, northeast-trending mineralized zone that crosses Eldorado Creek at an elevation of approximately 2000 feet. The location is accurate within 200 feet. This zone extends northeast into the Medfra quadrangle, where the Nerod East (MD020) and Bear Paw prospects are located.

The Moose Jaw Mountain prospect described in this record is different from the Moose Jaw prospect (OP033). The Moose Jaw Mountain prospect is in the Medfra quadrangle, but is part of the northeast-trending mineralized zone that begins in the Ophir quadrangle. The Moose Jaw prospect (OP033) is on the western flank of Moose Jaw mountain, in the Ophir quadrangle.

Commodities:**Main:** Au**Other:** Cu, Sb**Ore minerals:** Arsenopyrite, chalcopyrite, stibnite**Gangue minerals:** Actinolite, epidote, quartz**Geologic description:**

The rocks in the vicinity of Eldorado Creek consist of intermediate to mafic volcanic and volcanoclastic rocks, and of Cretaceous Kuskokwim Group black shale, limestone, graywacke, and conglomerate intruded by Cripple Mountain monzonite (McGinnis, 1997; Avalon Development Corp., 1998; Duncan, 1999). The headwaters of Eldorado Creek contain limonite-stained, gossanous breccia (Avalon Development Corp., 1998).

The Eldorado Basin prospect is on a mineralized zone that trends northeast across the headwaters of the Eldorado Creek for 2200 meters. This zone extends northeast into the Medfra quadrangle and terminates at Colorado Creek, northeast of the summit of Moose Jaw Mountain. At the Eldorado Basin prospect, the zone contains scattered, thin veins of quartz and stibnite, of arsenopyrite and quartz, and locally of actinolite, chalcopyrite, or epidote. Soil samples collected from the Eldorado Basin contain up to 674 ppm copper,

2250 ppb gold, 2818 ppm arsenic, 945 ppm antimony, and 12 ppm bismuth (Avalon Development Corp., 1998).

The northeast extension of this zone is defined by soil samples on Moose Jaw Mountain. Two mineralized areas have been identified: a NW-SE-trending, 400-meter by 50-meter area; and an adjacent area 1400 meters long by 200 to 400 meters wide. The 1400-meter-long area is open to the south (Duncan, 1999). Soil samples from these areas contain up to 515 ppb gold, 2770 ppm arsenic, 2942 ppm antimony, and 9 ppm bismuth (Avalon Development, 1998). Hypabyssal, porphyritic rock at the top of Moose Jaw Mountain is cut by veins less than 5 centimeters thick of crystalline quartz, stibnite, arsenopyrite, and scorodite (Avalon Development, 1998).

Exploration in the Eldorado Basin includes geologic mapping and sampling by Barker during 1994, 1995, and 1996; soil sampling, rock sampling, and geologic mapping by NovaGold during 1998; and mobile-metallic-ion (MMI) sampling by Poseidon Minerals Ltd. during 1999 (Barker, 1996; Avalon Development Corp., 1998; Duncan, 1999).

Also see OP002 and OP031-033.

Alteration:

The headwater regions of Eldorado Creek contain limonite-stained, gossanous breccia (Avalon Development Corp., 1998).

Age of mineralization:

The igneous rocks inferred to be responsible for this deposit intrude Cretaceous strata of the Kuskowkwim Group.

Deposit model:

Epithermal Au? (Cox and Singer, 1986; model 25b, 25c?)

Deposit model number (After Cox and Singer, 1986 or Bliss, 1992):

25b, 25c?

Production Status: None

Site Status: Active

Workings/exploration:

During 1994, 1995, and 1996, claimholder Ron Rosander contracted geologist James Barker to evaluate the lode sources of placer gold in the Colorado Creek area. Barker collected 254 soil samples, 93 rock samples, and 12 samples of placer gold for scanning-electron microscope and trace element analysis. Geologic mapping and a ground-based magnetometer survey were also carried out (Barker, 1996; McGinnis, 1997). In 1996, the Alaska Division of Geological and Geophysical Surveys conducted geologic mapping in the Cripple Creek Mountains and Placer Dome Exploration flew an east-west-oriented aeromagnetic survey over the Cripple Creek Mountains. Nova Gold conducted geologic mapping, rock sampling, and soil sampling during the summer of 1998 (Avalon Development, 1998). During 1999, Poseidon Minerals, Ltd. carried out soil sampling in the Colorado Creek area, and used mobile-metallic-ion (MMI) analyses (Duncan, 1999).

Production notes:

Reserves:

Additional comments:

For more information, contact Ron Rosander, in McGrath, AK.

References:

Barker, 1996; McGinnis and others, 1997; Avalon Development Corp., 1998; Duncan, 1999; Dashevsky, 2000 (Colorado Creek project).

Primary reference: Duncan, 1999

Reporter(s): C.E. Cameron

Last report date: 8/7/01

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