

Calista Corporation

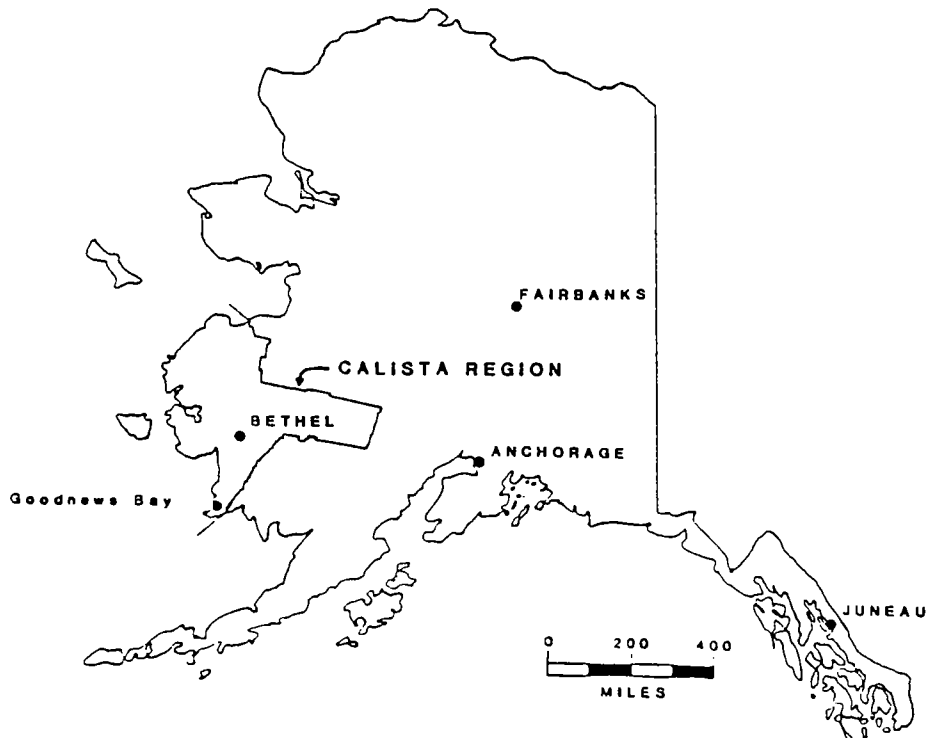
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GOODNEWS BAY GOLD DISTRICT

Calista Corporation is one of twelve regional Native corporations established by the Alaska Land Claims Settlement Act. Calista will, when the land selection process is complete, have over six and one-half acres of subsurface estate. Calista is soliciting joint venture partners to develop the mineral resources of Southwestern Alaska.

Land

Calista's land selections were based on village needs and on extensive exploration conducted by Resource Associates of Alaska (RAA) during 1973-75 with additional work done in 1984-1988. Calista still has land selection rights to additional lands and much of the surrounding federal lands are closed to mineral entry pending additional or amended selections. The net result is that the major portion of the mineral potential in Southwestern Alaska is either directly or indirectly controlled by Calista Corporation.



WATTAMUSE PROSPECT

Wattamuse Creek in the Goodnews Bay Region of southwest Alaska produced over 27,000 ounces of gold, most of it during three years of small dredge and dragline operations in the early 1940's. A lode source for the placer gold has been identified at the headwaters of Wattamuse and Granite Creeks in a quartz vein system bearing anomalous gold, arsenic and bismuth values.

Location and Access

Wattamuse Creek is a tributary of Cascade Creek, a right limit tributary of Slate Creek which is itself a right limit tributary of the Goodnews River. It is located 19 miles northeast of Goodnews Bay (Bering Sea). Wattamuse and Cascade Creeks lie on the south flank of a northeast-trending belt of low mountains north of the Goodnews River. The village of Goodnews Bay, population 250, has a 3,000 foot airstrip with regular flight service, a post office and a telephone system. It has a growing fishing industry and summer barge service. Additionally, a 2,700 foot airstrip is located near Wattamuse at the confluence of Slate and Cascade Creeks. The Goodnews River, two miles by trail from Wattamuse Creek, is navigable by small boats and a winter trail extends from Goodnews Bay to Wattamuse.

General Features

Lode

The Wattamuse lode prospect is on a saddle between the head of Wattamuse Creek and a glacial lake forming the headwaters of Granite Creek to the south. This 1,070 ft. saddle consists of granodiorite to monzodiorite intrusive rock cut by 1" to 1' wide quartz veins. The quartz veins contain arsenopyrite, orpiment, realgar, pyrite, chalcopyrite and stibnite that have gold content to 9.5 PPM (.28 oz/ton) (USBM). A mafic dike is exposed on the canyon wall above Granite Lake near the contact between the intrusive rock and the metasediments. The dike rock contains arsenopyrite, pyrrhotite and chalcopyrite with 3.3 PPM (.1 oz/ton) Au (USBM).

In late August of 1987, mapping and sampling in the Wattamuse area was conducted by Calista Mineral Exploration. Sampling was done on a soilgrid across a saddle in the northwest corner, Section 1, T.10S., R.72W. Additionally, five silt samples from streams draining the saddle southward to Granite Creek were taken. Soil values across the grid ranged to 1.2-1.4 PPM Au with an average of .31 PPM Au. More than half the samples were above .2 PPM Au. Stream silt samples averaged .6 PPM with two samples greater than 1.0 PPM Au. The extent of the soil and stream sediment anomaly suggests that the vein system is extensive or that gold porphyry type mineralization may be discovered in this area.

Placer

Wattamuse Creek heads in a cirque wall that cuts the mineralized saddle from the east and empties three miles downstream into Cascade Creek. Granodiorite boulders are found in the upper canyon of Wattamuse Creek but are uncommon near its mouth. The creek cuts chert, metasediments and andesite tuffs. Gravels are coarse and five to seven feet deep. Part of the lower sections of the creek have been mined with a dragline. The canyon is 300 feet wide at its mouth, narrowing to less than 200 feet a mile from its head.

Three sluice samples from gravels in Slate Creek and in bench gravel deposits along the creek were processed through a small vibrating screen sluice. Values up to \$6.00 a yard³ were recovered.

Cascade Creek has a narrow upper canyon that broadens to a 400-500 foot wide valley from the mouth of Wattamuse Creek until it reaches the Slate Creek Valley. The gravels are somewhat less coarse than those in Wattamuse Creek and are 8 to 10 feet deep. The main paystreak of Cascade Creek is just below the mouth of Wattamuse Creek. Results of drilling Cascade Creek above the mouth of Wattamuse Creek were poor. The creek cuts bedrock of folded sediments with andesitic tuffs and volcanics which is exposed in low-bluffs along the valley walls.

History

The first claims were staked on Wattamuse Creek in 1915 and placer gold was discovered at the mouth of Wattamuse in 1917. Hand mining was done by one or two operations until the early 1930's. In 1933, gold was found on benches along the creek and New York Alaska Dredging Co. drilled the property in 1934. In 1936, more drilling was done and property was leased to Walter Johnson by Joe Jean, an early miner. A 2 1/2 foot dredge was built on the site in 1938 and Bristol Bay Mining Co. began dredging operations on Lower Discovery at the mouth of the creek the next year. Recovery values were four times greater than indicated by drilling due to large boulders in the creek gravels. Dredging continued until 1941 with the dredge going down Cascade Creek from the mouth of Wattamuse Creek to the mouth of Cascade Creek on Slate Creek. Approximately 800,000 yd³ were mined. The narrow canyon and limited water supply in Wattamuse Creek prohibited the use of the dredge and Bristol Bay Mining used a dragline to mine claims 2 above and 5-8 above in 1946 and 1947. Little activity has occurred to the present except for sporadic sniping with small equipment. The derelict dredge remains on Lower Cascade Creek near its mouth.

In 1974, the Wattamuse lode prospect was identified and sampled by Resource Associates of Alaska for Calista Corporation. Calista conducted a soil sample survey on the site in 1987.

Production

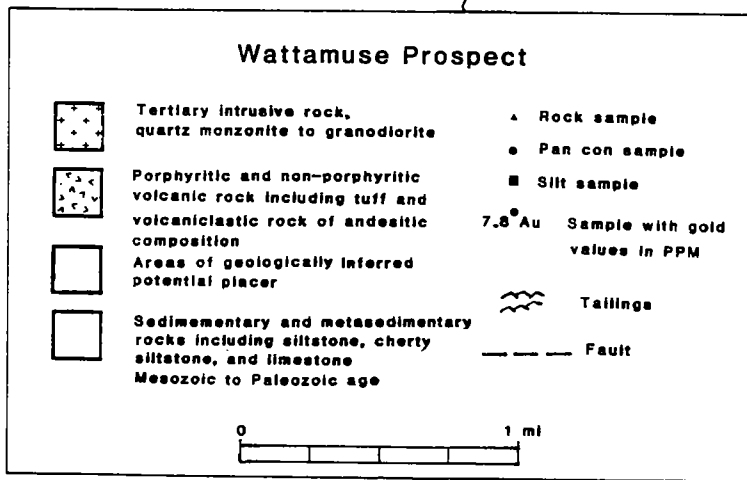
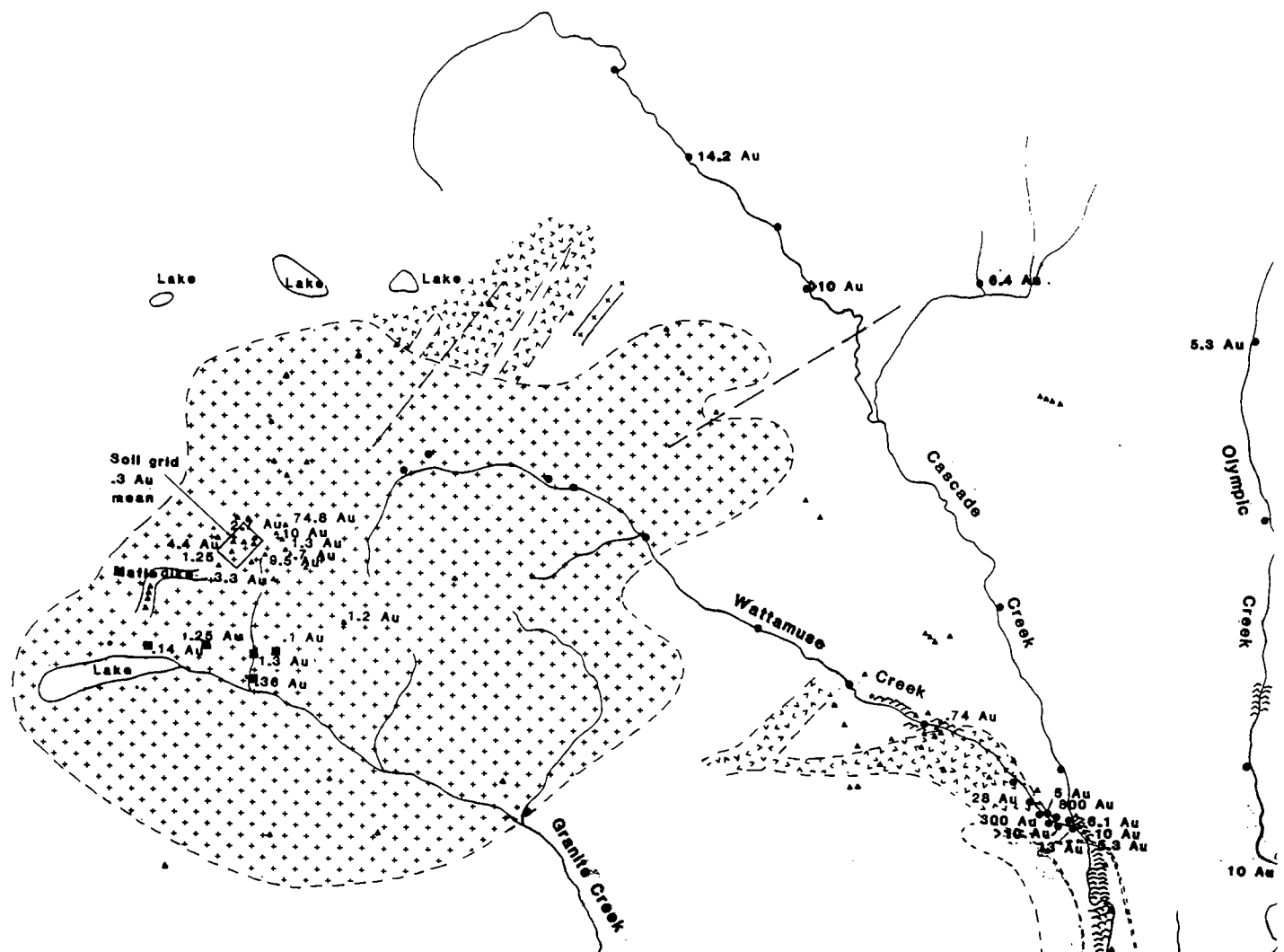
Approximately 18,000 ounces of gold were mined from Wattamuse Creek and 9,300 ounces from Cascade Creek (USBM, 1987). Two-thirds of the Wattamuse and all the Cascade Creek production resulted from the dredge and dragline operations during 1939, 1940 and 1941. In 1931 the reported average grade of the paystreak was 0.04 oz/yd³, suggesting that up to 0.015 oz/yd³ Au may remain in the 800,000 yd³ of tailings.

Conclusions

Three areas of precious metal potential exist at Wattamuse Creek. These include: 1) reserves in previously mined tailings in Wattamuse and Cascade Creeks; 2) unmined sections of Wattamuse Creek and 3) the potential lode in the saddle between Wattamuse and Granite Creeks.

References

- Fechner, S.A., Bureau of Mines Mineral Investigation of the Goodnews Bay Mining District, Alaska, OFR1-88, 1988.
- Harrington, G.L., Mineral Resources of the Goodnews Bay Region, U.S. Geol. Surv. Bull. 714, 1919
- Hoare, J.M., and W.L. Coonrad, Geologic Map of the Goodnews Quadrangle, Alaska, U.S. Geol. Surv. Misc. Geol. Invest. Map I-339, 1961.



Goodnews River

* 40,000 ounces placer production

KOWKOW PROSPECT

The Kowkow - Butte Creek placer area is part of the Arolik River drainage, a large glacial outwash stream that flows into Kuskokwim Bay. Mountains composed of sedimentary and metamorphic rock in contact with mafic volcanic units rise steeply from a broad rolling outwash plain. Streams head in these mountains and drain across the plains, cutting and reworking glacial deposits.

Location and Access

The Kowkow prospect is in the Goodnews Quadrangle in the Arolik River basin approximately 35 miles southeast of the village of Quinhagak and about four miles inland from the Bering Sea in a front range of the northeast trending Ahklun Mountains. Butte Creek and Kowkow Creek are tributaries of Trail Creek, itself a tributary of Faro Creek, a major tributary of the Arolik River. The Arolik is navigable to river boats and a tractor trail leads from the river to the prospect sites. A small airstrip on tailings at the site of the old mining camp provides access by small planes. The village of Quinhagak has regular daily air service from Bethel, a regional hub with jet service from Anchorage. It has a Post Office and telephone service and is the site of a fast-growing sport-fishing industry on the Kenektok River. A 25 mile long winter trail runs from the village of Goodnews Bay to Kowkow Creek. Goodnews Bay has summer barge service.

General Features

Lode

Trail Creek and its tributaries, Butte and Kowkow Creeks, head in sedimentary and metamorphic rocks at or near contacts with intermediate to mafic volcanic and intrusive bodies. The valleys of these creeks are broad with low gradients although the heads are steepwalled. Butte Creek heads in Paleozoic crystalline limestone, cherts and green garnet-bearing schists. A gabbroic plug cuts the limestone and chert immediately north of the creek. The creek valley is 800 feet wide and 2 miles long. The placer creeks cut or are adjacent to a major terrane boundary separating Paleozoic rocks from older rocks of undetermined age.

Kowkow Creek and Trail Creek head in Island Mountain; a prominent feature on the 500 foot elevation glacial plain. Island Mountain is a northeast trending ridge of northwest dipping sedimentary and metasedimentary rocks overlain by andesitic volcanic rocks including greenstones, chloritic tuffs and tuffaceous siltstones. A small gabbro plug near the contact of these rocks is probably the source of small amounts of platinum found with the placer gold in the streams. The head of Kowkow Creek is eroding across the contact surface between the upper sedimentary and lower volcanic units. This contact is defined by a silty, limonitic, pyritic, quartz-rich yellow-green phyllite interbedded with jasper that may be exhalitive in origin. Samples taken from this horizon have not been anomalous in gold.

There is a change in age and degree of metamorphism between the Island Mountain bedrock and the bedrock outcropping at Butte Creek, suggesting possible faulting between these outcrops. In addition, the linkage between the Precambrian Kilbuck Terrane and the Nukluk subterrane of the Goodnews Terrane is expressed as an overthrust fault just north of Butte Creek which contributed low-grade metamorphism related to the event.

Placer

The Kowkow Creek valley floor is 600 feet wide and two miles long with an additional mile of narrower canyon in its Island Mountain head. The historic paystreak was on a yellow clay false bedrock, possibly related to glaciation. The pebbly gravel in Butte Creek is mostly

meta-sedimentary in composition with some greenstone boulders. The paystreak was between 50 and 180 feet wide, 6 to 8 feet deep.

Most of the 5 1/2 mile length of Trail Creek is cut in the glacial outwash of the Arolik basin. Its gradient, particularly in the section below the mouth of Kowkow Creek is very low, and the width of the valley floor ranges from 600 to 800 feet in the lower sections. The depth to false bedrock is 20 to 25 feet on the left limit a mile below Kowkow Creek but decreases to 9 feet on the left limit.

History

Gold was discovered on Butte Creek in the early 1900's and mining probably began at the same time. The first reported mining was in 1911 with a reported production for that year of \$12,000 or 600 ounces. Hand mining continued to 1919 with an estimated total production of \$70,000. Drilling and resumption of mining began in 1926 and continued until World War II with no recorded mining from 1928 to 1935. In some years, mining was hindered due to lack of water. In the late 1930's, six men were working with a hydraulic and bulldozer. Mining ended about 1940.

Discovery and mining on Kowkow Creek began in 1913 and continued to World War II. Production by hand mining methods had produced less than 1500 ounces by 1919. Very limited drilling in 1926 reported average pay of 60¢/yd³ for 60 feet in width and \$2.50/yd³ for 40 feet in width. In 1938, a dragline and bulldozer were in operation, and fifteen men were employed by the Kowkow Mining Co. until World War II ended mining.

Since World War II, the Arolik area has seen little mining or exploration activity. The U.S. Bureau of Mines sampled stream sediments and pan concentrates from Trail, Butte, Kowkow and Dry Creeks and from small streams draining Island Mountain in 1982. Pan concentrates by U.S.B.M. averaged 20.44 PPM for the 14 samples taken in these creeks. A sediment sample from south Island Mountain below the gabbro body contained 25 PPM platinum. Sediment samples averaged 0.12 PPM but one unaveraged sample from bench gravels along Trail Creek was 82 PPM.

In 1986 and 1987, Calista Corporation conducted field mapping and sampling programs on Butte, Trail and Kowkow Creeks and Island Mountain. No anomalous samples were discovered. Stream sediment samples averaged .2 PPM with five samples greater than 2 PPM. Pan concentrates averaged 5.9 PPM. The 1987 work was unable to reproduce the 25 PPM platinum result.

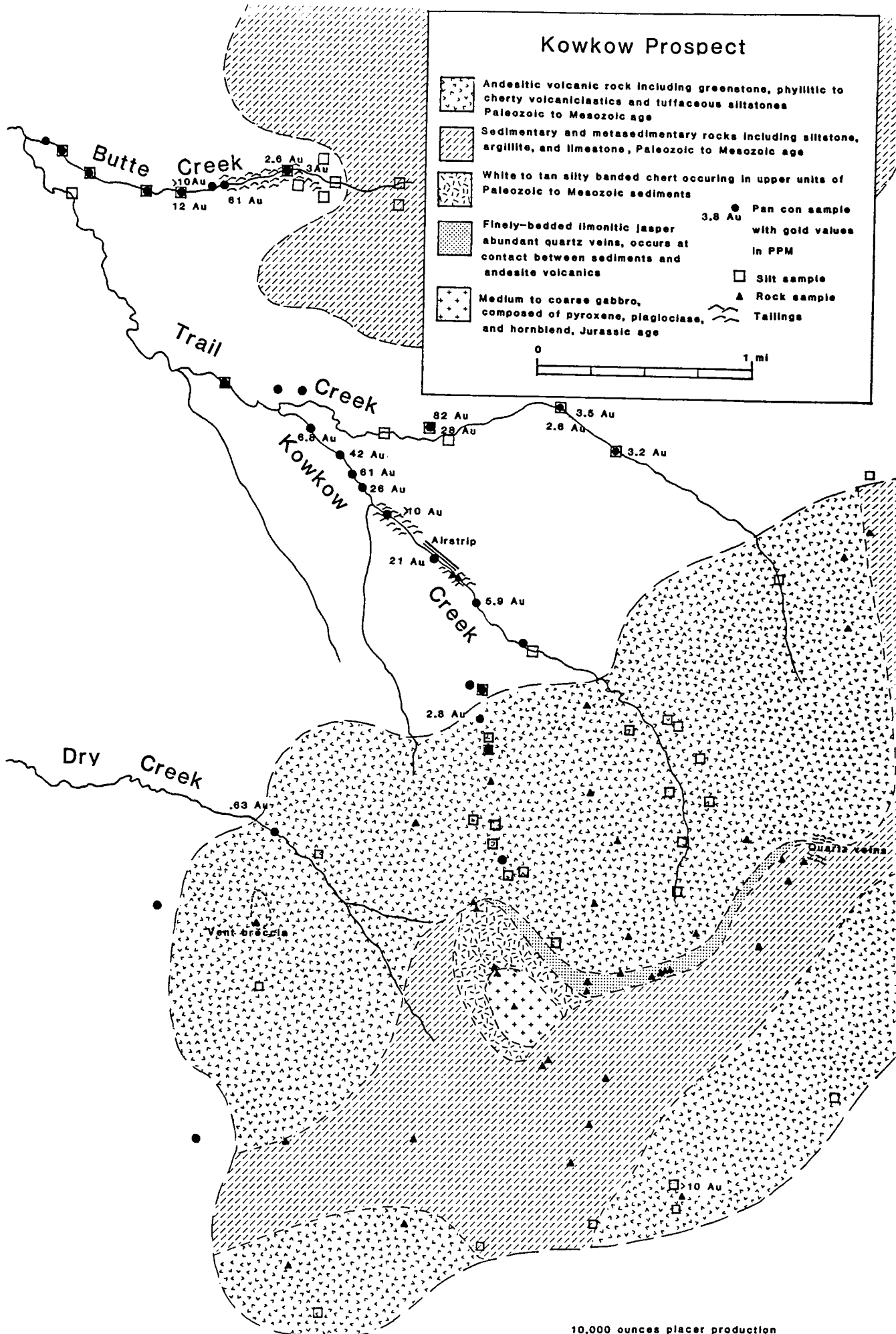
Production

Production records are very sketchy for the Butte Creek and Kowkow Creek placers. Production from hand mining in the years prior to 1920 was reported at 5000 ounces for both placers. Some mining and exploration occurred during the late 1920's but mechanized equipment was not employed until the late 1930's and operations remained small until mining was halted in the early 1940's. It is estimated that total production was 10,000 ounces or less.

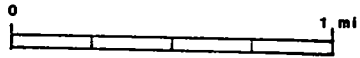
Conclusion

More work prospecting the terrane boundary, the volcanic/sedimentary contact and the gabbro/limestone contact is necessary. The favorable location (proximity to tidewater), the placer gold occurrence, and complex geology makes the Kowkow and Arolik District a priority for Calista Corporation.

Kowkow Prospect



- Andesitic volcanic rock including greenstone, phyllitic to cherty volcanoclastics and tuffaceous siltstones, Paleozoic to Mesozoic age
- Sedimentary and metasedimentary rocks including siltstone, argillite, and limestone, Paleozoic to Mesozoic age
- White to tan silty banded chert occurring in upper units of Paleozoic to Mesozoic sediments
- Finely-bedded limonitic Jasper abundant quartz veins, occurs at contact between sediments and andesite volcanics
- Medium to coarse gabbro, composed of pyroxene, plagioclase, and hornblend, Jurassic age
- 3.8 Au Pan con sample with gold values in PPM
- Silt sample
- Rock sample
- Tailings



10,000 ounces placer production

References

- Fechner, S.A., Bureau of Mines Mineral Investigation of the Goodnews Bay Mining District, Alaska, OFR1-88, 1988.
- Harrington, G.L., Mineral Resources of the Goodnews Bay Region, U.S. Geol. Surv. Bull. 714, 1919
- Hoare, J..M., and W.L. Coonrad, Geologic Map of the Goodnews Quadrangle, Alaska, U.S. Geol. Surv. Misc. Geol. Invest. Map I-339, 1961.

The Ikuk Prospect

The Ikuk prospect was discovered in 1974 by Research Associates of Alaska (RAA), working for Calista Corporation. Anomalous gold, silver, arsenic, and copper values were identified in a color anomaly exposed on a steep cirque headwall.

Location and Access

The prospect is located on a ridge between Ikuktitlig and Explorer Mountains 11 miles north of Goodnews Bay (Bering Sea). Access to the site is by helicopter. The village of Goodnews Bay, population 250, has a 3,000 foot airstrip, telephone, post office, year-round airline service and summer barge service. A winter tractor trail from Goodnews Bay passes 3 miles from the prospect site.

General Features

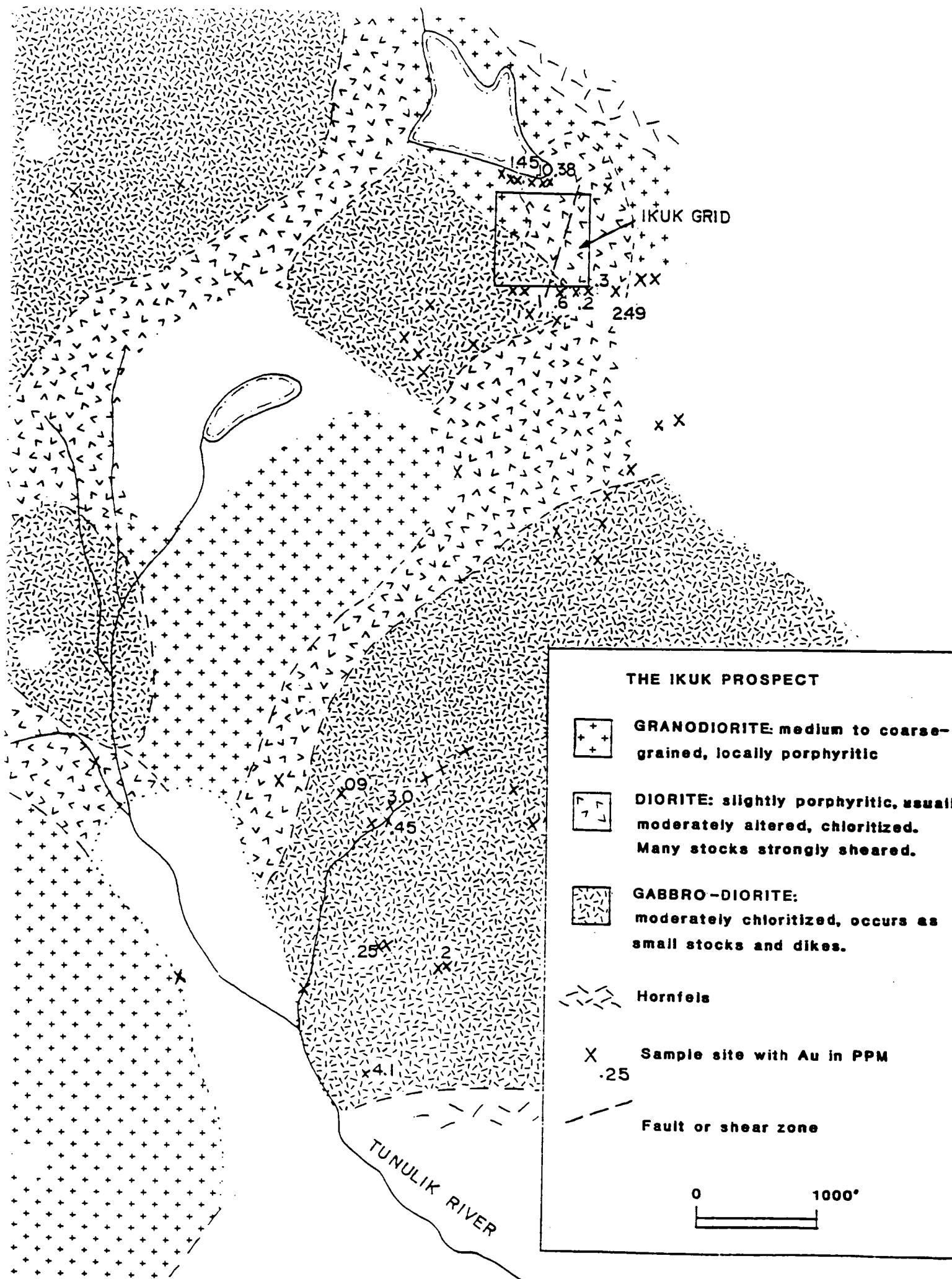
Explorer/Ikuktitlig Mountain is at the southwestern end of a belt of Tertiary intrusives that hosts the Wattamuse, Cascade, Slate and Bear Creek gold placers. The color anomaly and the associated mineralized zone is on the north side of a 1,600 foot ridge between the Tunulik River headwaters and Camp Creek, a tributary of Barnum Creek which empties into the Goodnews River. The ridge is part of an intrusive complex of gabbro, diorite, and granodiorite forming the core of Explorer Mountain. The mineralized area consists of diorite/gabbro which has been intruded by aplite dikes. A fractured, weakly silicified, propylitic and sericite altered zone, 800 feet wide, is exposed in the steep headwall of a glacial cirque. Mineralization consists of chalcopyrite, arsenopyrite, pyrrhotite, and pyrite occurring in blebs, stringers, and disseminations. Arsenopyrite bearing quartz veins carry the highest gold values.

RAA sampled a 1000 by 1000 foot grid across the cirque wall, taking 80 samples in the grid and 12 more on the saddle adjacent to the grid. Nineteen of these samples contained from 0.1 to 1.1 ppm gold. One sample contained 168 ppm silver but anomalous silver values were generally between 5 to 25 ppm. Arsenic values reached 9900 ppm and the mean for the entire grid area was 787 ppm.

In September of 1989, Calista sampled the anomalous area. Fifteen of twenty samples contained anomalous gold, including 6 samples with values greater than 1 ppm. Two samples assayed 0.3 and 0.7 opt Au respectively. Sampling on the south side of the mineralized saddle established that anomalous mineralization continues across the saddle to the south side of the ridge. A train of fractured and gossanous material trends southeast, 350 feet downslope of the crest of the saddle.

Recommendations






The mineralization at the Ikuk prospect should be defined by channel sampling the cirque wall. In addition, the extent of southward extension of the mineralized zone should be tested by a close spaced soil grid. RAA took several hundred samples in the area, most of which were analyzed at the RAA lab in Fairbanks; our experience suggests that we can obtain valuable information by reassaying the RAA sample pulps.

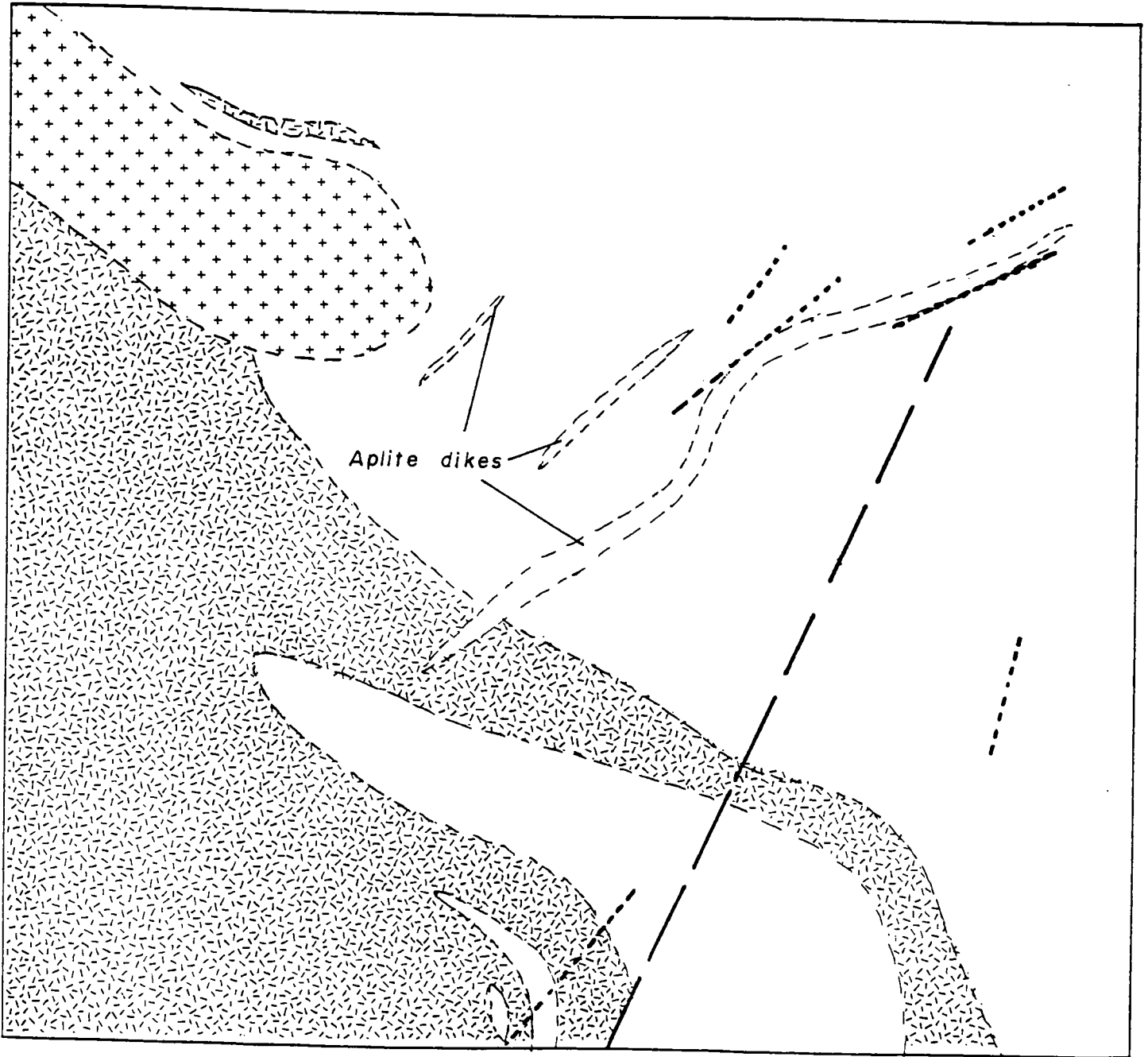


GEOLOGY OF IKUK GRID

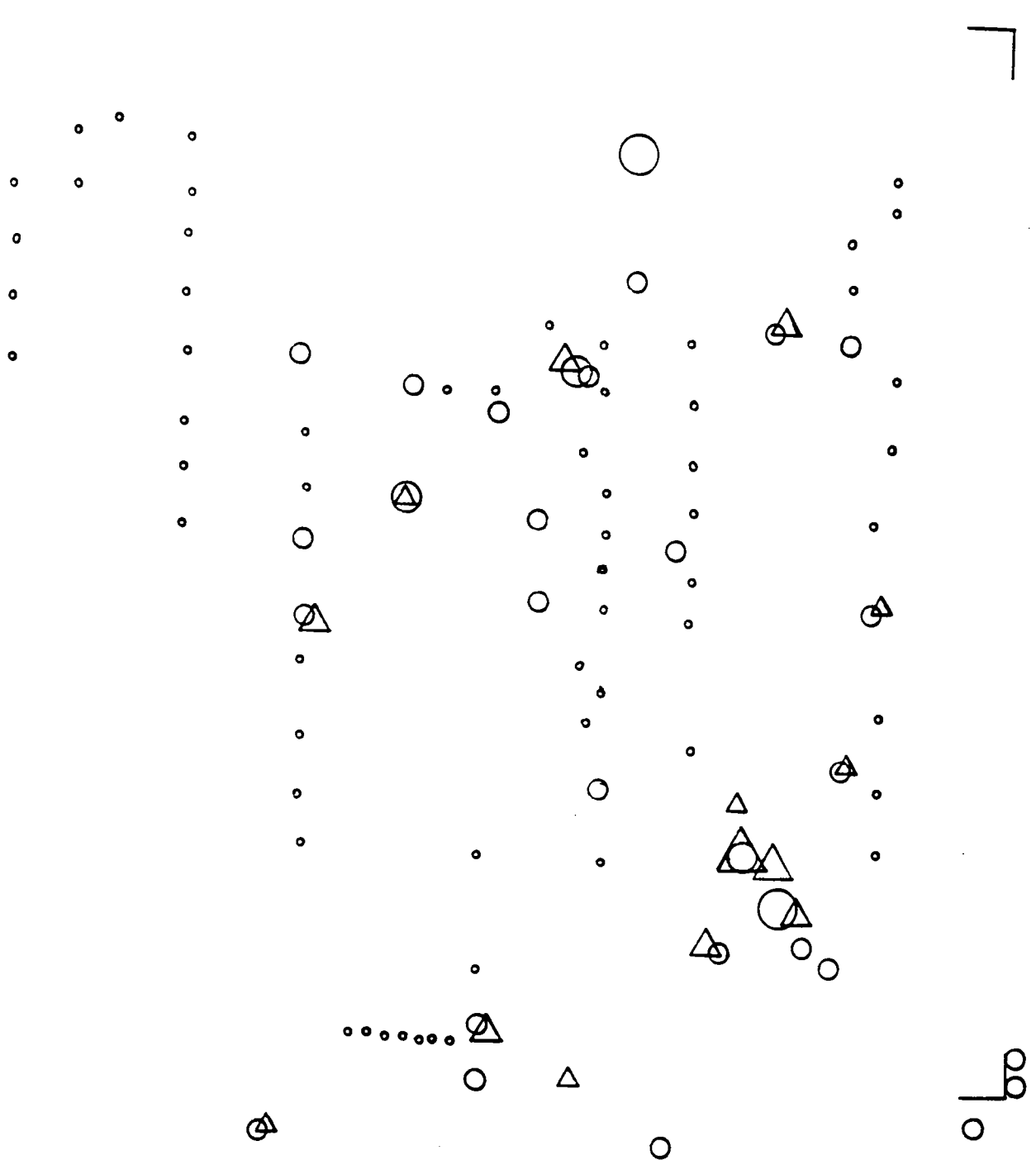
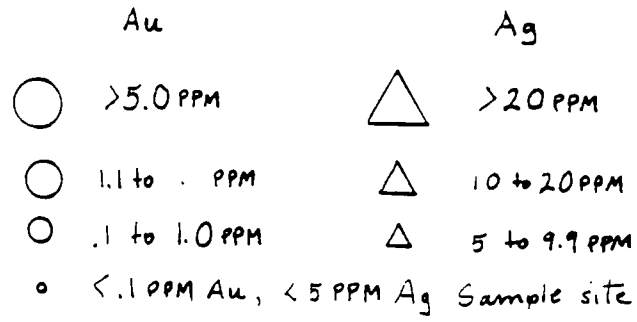


3/4" = 100'

- | | | | |
|-----------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|----------------|
|  | Fault |  | Gabbro-diorite |
|  | Fractures |  | Diorite |
| | |  | Granodiorite |



IKUK GRID Anomalous Values Dot Plot



IKUK GRID ARSENIC VALUES

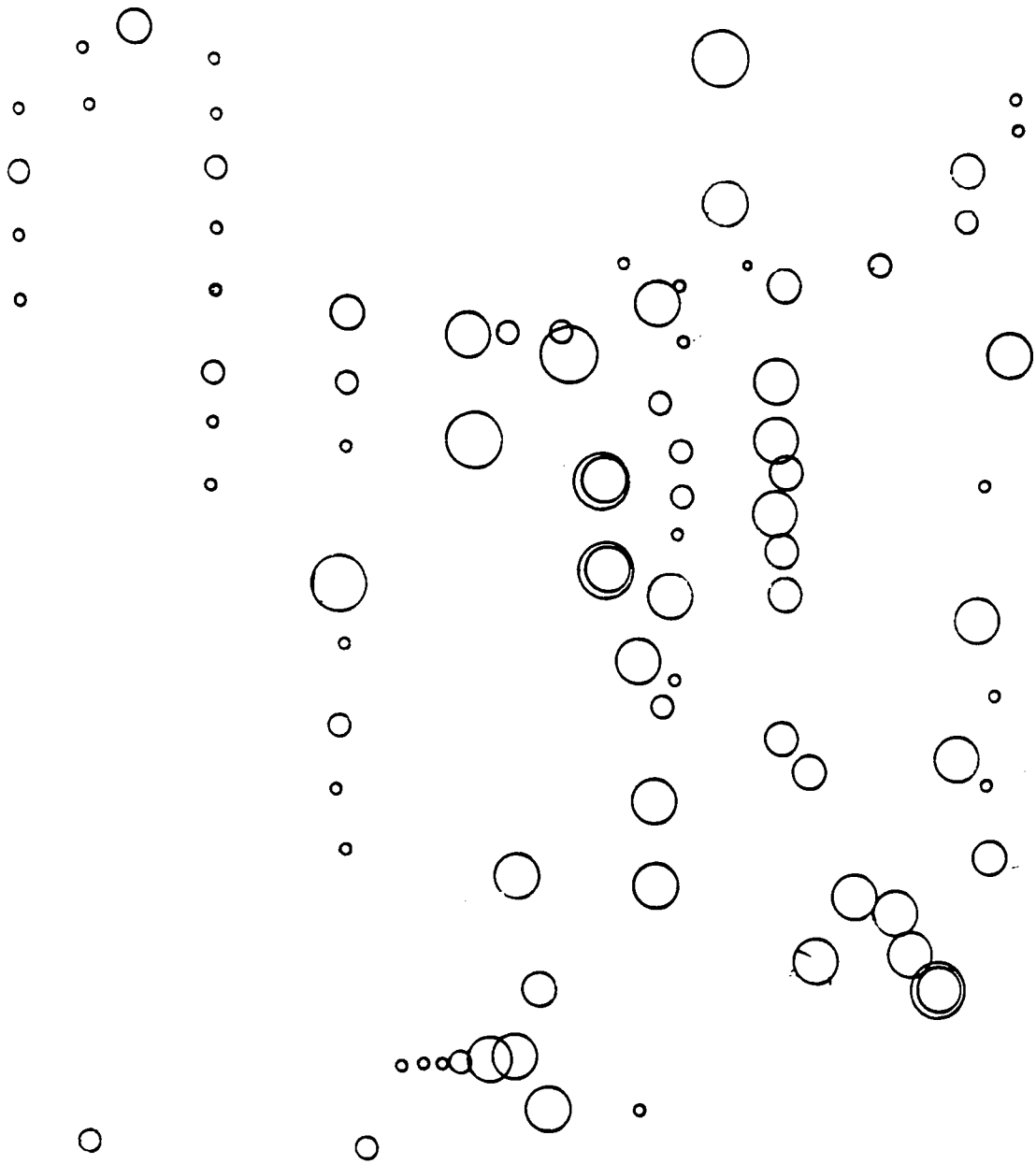
○ >4000 PPM

○ 1000-4000

○ 500-999

○ 100 - 499

○ <100



REFERENCES

- Fechner, S.A., Bureau of Mines Mineral Investigation of the Goodnews Bay Mining District, Alaska, OFR1-88, 1988.
- Harrington, G.L., Mineral Resources of the Goodnews Bay Region, U.S. Geol. Surv. Bull. 714, 1919.
- Haverslew, Roderick E., Heiner, Lawrence E., Hirst, Peter E., Knabel, Jeff, Munzert, Jim, Land and Mineral Resource Evaluation - Calista Corporation - Final Report of Exploration Activities During 1974, RAA 1975.
- Hoare, J.M., and Coonrad, W.L., Geologic Map of the Goodnews Quadrangle, Alaska, U.S. Geol. Surv. Misc. Geol. Invest. Map I-339, 1961.