

Nelson, J.L., Bradford, J.A., Maclean, M. and Maddison, L. (1989): Geology and Metallogeny of the Cassiar and McDame map areas (104P/5, 104P/3 NW 1/4).

B. C. Ministry of Energy, Mines and

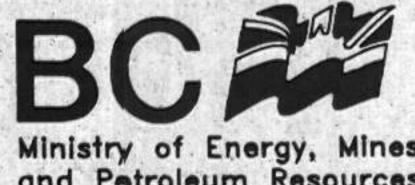
Stanley, C.R. (1987): PROBPLOT: An Interactive Program to Fit Mixtures of Normal (and Log-Normal) Distributions with Maximum Likelihood Optimization Procedures; Association of Exploration Geochemists Special Volume 14.

Petroleum Resources, Open File 1989-9.

EXPLANATION OF SYMBOLS

Mine

ANOMALOUS THRESHOLDS





Geological Survey Branch

MINERAL POTENTIAL MAP 1992-13

MINERAL POTENTIAL ESTIMATE CASSIAR MAP AREA

NTS 104P/5

BY J. L. NELSON

Scale 1:50 000

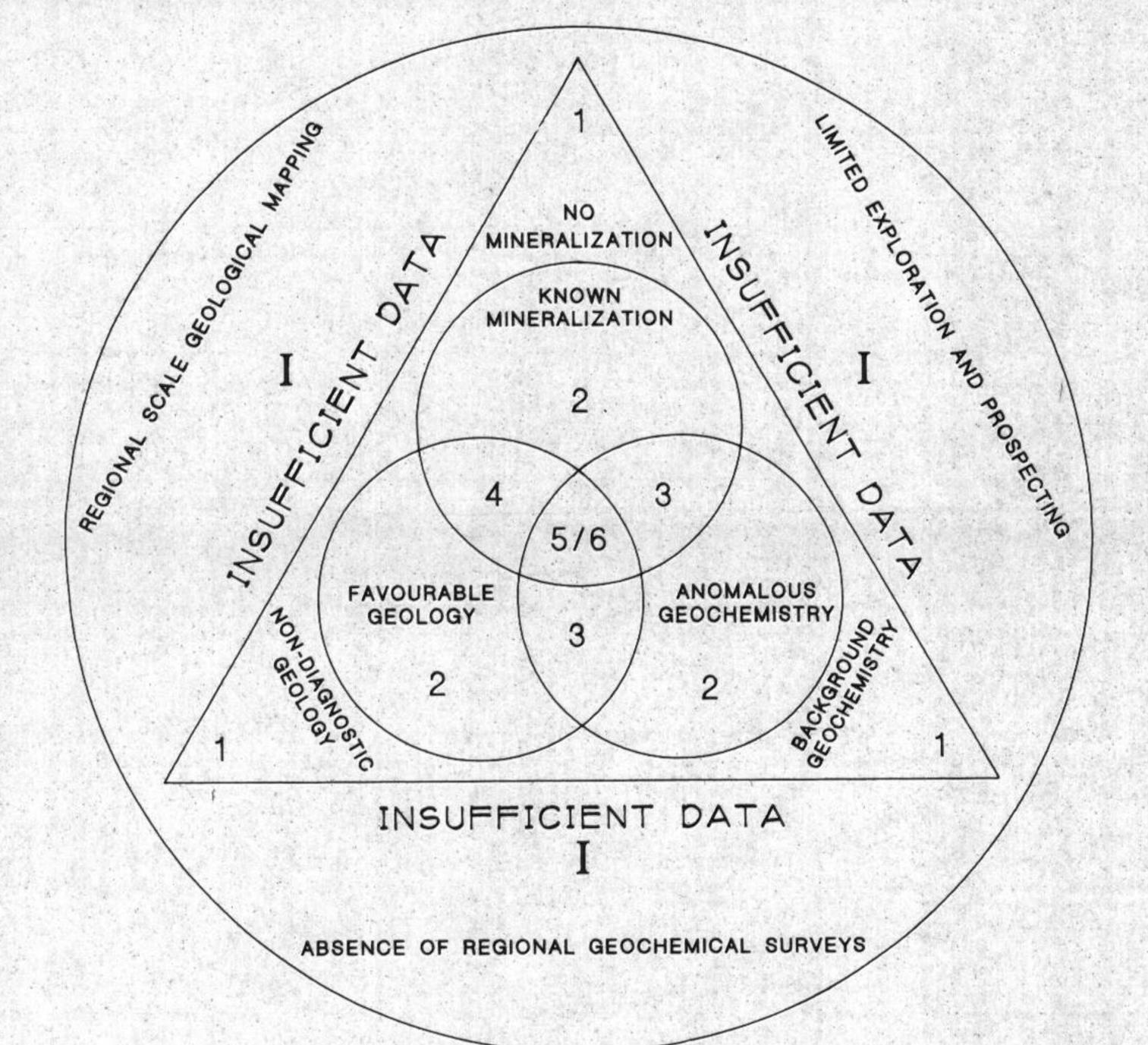
kilometres

INTRODUCTION

The Cassiar map area and the adjoining Needlepoint Mountain map area to the south encompasses one of British Columbia's oldest and most productive mining camps. During the first placer gold rush in the 1870's as many as 500 miners worked on McDame Creek and one of them, Henry McDame, recovered \$6000 worth of gold in 30 days. Old adits and the remains of mills are scattered in the lowlands around McDame and Quartz-rock Creeks. A small group of dedicated placer operations still work the creeks. But economically significant mineral activity has now shifted to bedrock mining. The Erickson and Taurus gold-quartz mines operated in the 1980's, employing up to 300 people. The Cassiar asbestos mine is the major operation in the area. Open since 1953, the mine is the sole economic support for the town of Cassiar (population 1200). From 1953 to 1990 the mine was an open pit on the ridge of McDame Mountain. Now operations have shifted to the McDame under-

The geology of the area includes several contrasting tectonic elements: shelf strata deposited on the ancient continental margin of North America; ocean-floor materials that were thrust on top of the edge of North America during Mesozoic mountain building; and Cretaceous granites of the Cassiar Batholith. This diversity of rock types, unusual within limits of a standard topographic sheet, has given rise to a great variety of mineral deposit types. They favour a wide range of lithologic hosts and structural settings, creating a patchwork of high potential zones with only small, scattered sones of low potential.

CLASSIFICATION OF MINERAL POTENTIAL



QUALITATIVE DESCRIPTIONS OF MINERAL POTENTIAL CLASSIFICATIONS

Class	Mineral Potential Very High	Description			
6		Known deposits with identified resources in the ground. Favourable supporting data from all three sources; high degree of confidence in designation. Continued exploration highly probable; potential for mine developement is high.			
5	High	Known occurrences in highly favourable metallogenic environment. Supporting data from all three sources; high degree of confidence in designation. Future exploration highly probable			
4	Moderate	Known or indicated mineral resources in favourable geological environment. Supporting data from these two sources specifically; moderate degree of confidence in designate Future exploration to be expected.			
3	Moderate	Favourable geological and geochemical environment, but significant mineral occurrences lacking. Supportive data from these two sources; moderate degree of confidence in designation. Future exploration likely, particularly if near areas of higher potential.			
2	Moderate to Low	Supporting data from one of three sources, usually geological or geochemical; areas generally lack sufficient prospecting to identify mineralization. Moderate to low degree confidence in designation. Reconnaissance exploration to be expected. Good potential upgrading of classification.			
1	Low	Current data is non-diagnostic for favourable metallogenic environment. Moderate to high degree of confidence in designation. Little likelihood of future exploration for deposit types considered.			
I	Indeterminate	Current data is either outdated or insufficiently detailed for a reasoned determination of mineral potential. High degree of confidence in designation. Future exploration to be expected in parts of the area.			

DEPOSIT TYPE	COMMODITIES/	GEOLOGICAL INDICATORS	EXAMPLE
Asbestos	asbestos (no geochemical indicators)	serpentine multiphase structural history outer contact aureole?	McDame mine 16 million tonnes 5.6% fibre
Gold-quartz veins	Au, Ag, Pb, Zn, Cu; As, Sb	basalt-serpentine hosts carbonate alteration, listwanite probably cryptic contact aureole	Erickson mine 500,000 tonnes 15.6 g/tonne Au 11.3 g/tonne Ag
Silver-lead-zinc Mantos	Ag, Pb, Ag, Cu, Au?; F, Sn, Sb	limestone hosts high-angle faults small felsic fluorine-enriched intrusions	Midway (104)/16) 1.2 million tonnes 410 g/tonne Ag 9.6% Zn, 7% Pb
Sedex massive sulphide	Zn, Pb, Ag, Cu; Ba	basinal shales and siltstones of Earn Group, some in unit IMs of Sylvestor allochthon Growth faults; association with sedex barite deposits	Stronsay (94F) 40 million tonnes 7.8% Zn, 2.2% Pb 47 g/tonne Ag
Sedex barite	barite; Zn, Pb	basinal shales and siltstones of Earn Group; some in unit IMs of Sylvestor allochthon	Ewen barite 104)/16 181,000 tonnes
Porphyries (Molybdenum)	Mo, Cu; F, U	small relatively young intrusions within and east of eastern side of Cassiar batholith	Storie Moly 104P/04 45 million tonnes 0.14% Mo
Skarns	W, Mo, Cu; F, U	carbonate hosts; in contact aureoles of small, relatively young intrusions at and east of eastern margin of Cassiar batholith	Kuhn 409,000 tonnes 0.48% W, 0.134% Mo
Polymetallic veins	Ag, Pb, Zn, Cu; Au	carbonate and other hosts near intrusions; faults Similar stting to mantos but characteristically smaller deposits	Joe Reed vein (104P/06) 40,000 tonnes 220 g/tonne Ag 5.5% Pb, 4% Zn
Copper-gold stockworks	Cu, Au, Ag	variety of hosts (unit IMs, IIIPPHv of Sylvester allochthon); alteration haloes	Mare (104P/12) no reserves
Chromite	Cr, Pt, Au	Dunite cumulates in Sylvester allochthon	traces in 104P/12
Cyprus-type volcanogenic massive sulphides	Cu, Zn, Ag, Au	Volcanic suites of Sylvester allochthon with stratiform sulphides or rhodonite	Lang Creek (104P/04) 27,000 tonnes 1.52% Cu, 0.9% Zn
Placer gold	Au	Known placer creeks	
Geochemical	Uranium	Cassiar batholith (southwest corner of map)	
(no geologic support)	other elements	scattered	