GEOLOGY AND LITHOGEOCHEMISTRY OF THE CAPOOSE SILVER PROSPECT

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This description is based on recent investigations of the Capoose silver prospect of Granges Exploration (AB) in the Fawnie Range 110 kilometres southeast of Burns Lake. The property is centred on a geochemical anomaly discovered by Rio Tinto Canadian Exploration Ltd. Rio worked on the property from 1969 until 1971.

GEOLOGICAL SETTING AND MINERALOGY

The area is underlain mainly by Jurassic lavas of rhyolite to dacite composition with minor amounts of interlayered argillite. Mineralized areas form conspicuous gossans throughout the Fawnie Range. Recent trenching and drilling has focused on garnetiferous rhyolite lava and breccia on the ridge immediately north and northwest of the Granges camp-site (Figure 1). Highest silver values coincide with the occurrence of galena and sphalerite.

LITHOGEOCHEMISTRY

In the course of a geological survey of the Fawnie Range, hand specimens were collected randomly from bedrock exposures. These were subsequently analysed, courtesy of Granges Exploration, for a selection of path-finding elements. The results on 45 samples are as follows:

	Geometric Mean* ppm	Deviation ppm
Ag	0.6	0.2-5.5
Cu	16	4-90
Pb	16	7-200
Zn	134	40-500
As	9.6	2-75
S	0.16%	0.3-1.30%

*Owing to a range in values through several magnitudes it is necessary to use log transforms to calculate means and standard deviations.

The behaviour of element pairs is demonstrated as follows:

	Ag	Cu	Pb	Zn	As
Cu	0.41				
Pb	0.69	0.46			
Zn	0.65	0.51	0.93		
As	0.02	0.14	-0.01	0.07	
S	0.05	0.01	0.12	0.11	-0.04

There is excellent positive correlation for the Pb-Zn pair, good correlation comparing Ag with Pb and Zn, but only fair comparing Cu with Pb, Zn and Ag. Little correlation is seen comparing these metals and sulphur or arsenic.

Element concentrations (Figure 1) were contoured according to the procedure outlined in Geological Fieldwork, 1980 (Paper 1981-1, p. 27).

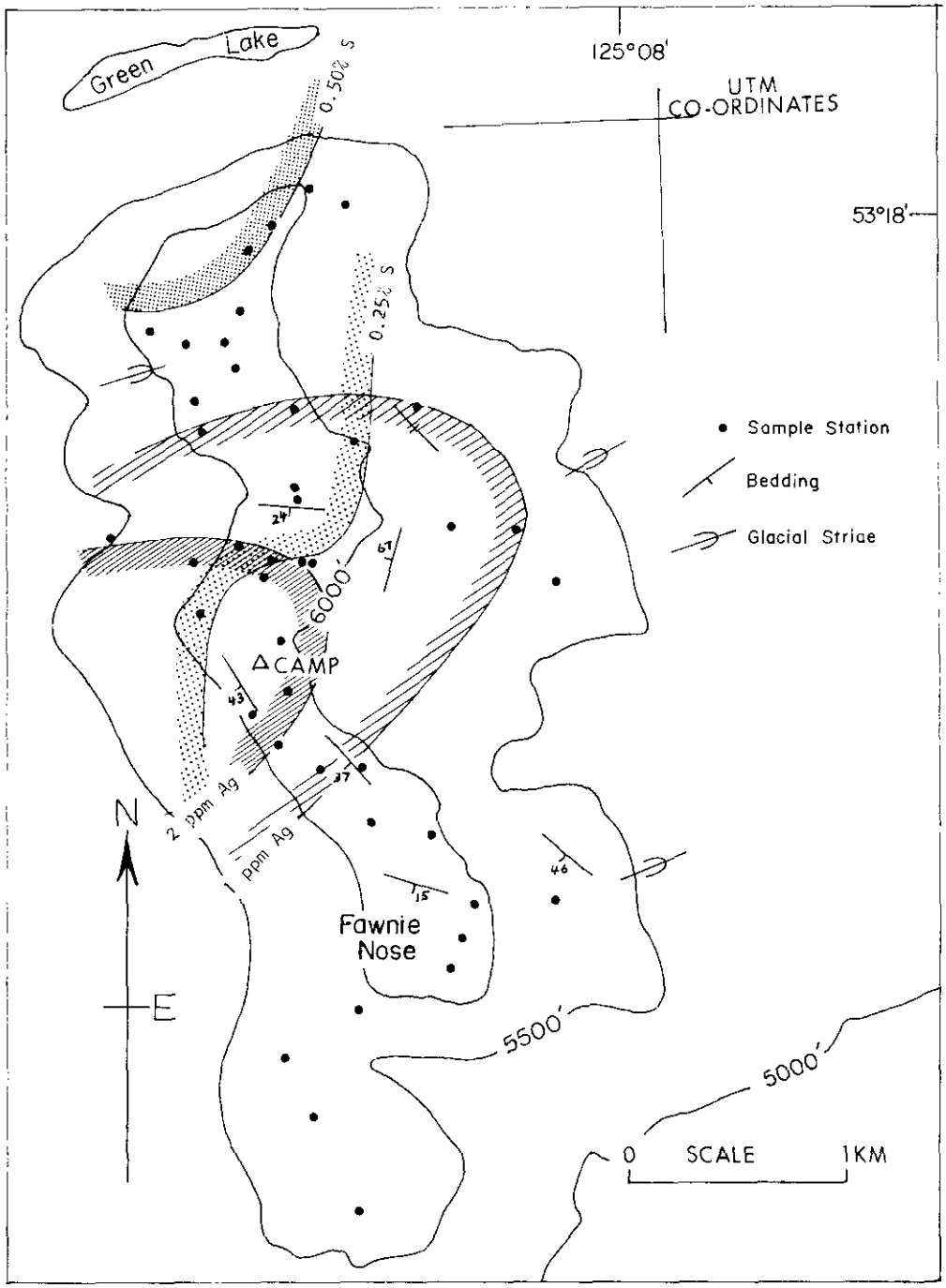

Figure 1. Lithogeochemical contours for silver and sulphur in the vicinity of the Capoose prospect.

Sulphur at the 0.25 per cent level and higher coincides with the gossans and the area of pyritization on the north and west side of the ridge north of Fawnie Nose; sulphur abundance rises toward Green Lake. Silver contours crosscut sulphur contours and define a northeast-trending anomaly with concentrations in excess of 2 ppm in vicinity of the Granges campsite and to the north and west. The patterns for copper, lead, and zinc are similar to that of silver.

DISCUSSION

A broad silver lithogeochemical anomaly has been delineated in the vicinity of current diamond drilling by Granges Exploration near Capoose Lake. This coincides with locally high values for lead, revealed by Rio Tinto Canadian Exploration Ltd. (1970).

The predominantly felsic composition (Figure 2) and subareal and submarine setting of the volcanic rocks give wide scope for a volcanogenic interpretation of the origin of mineralization. However, in the opinion of the senior author, detailed evidence points to the Capoose granitic intrusion, located just west of the map-area, as the ultimate source. As in many porphyry-type deposits, widespread disseminated

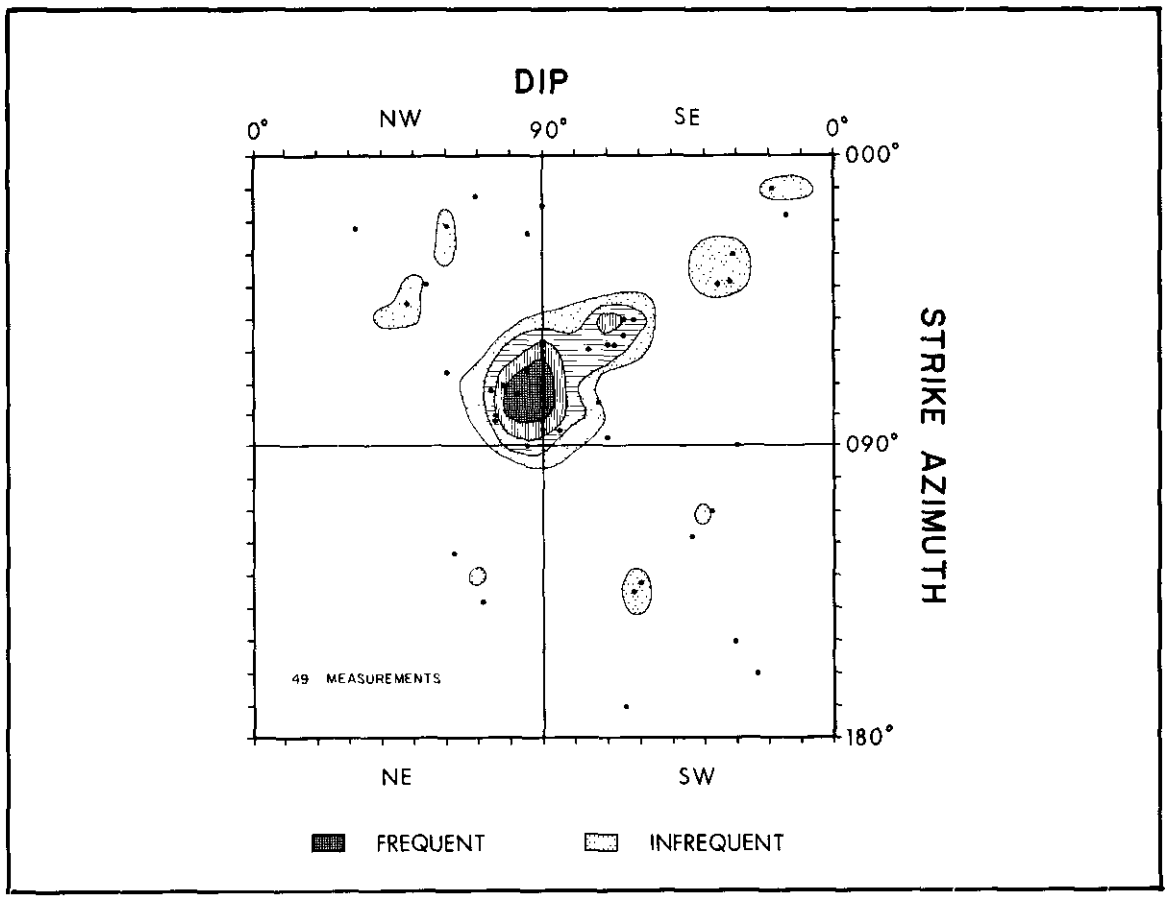

Figure 2. Composition frequency of Capoose prospect.

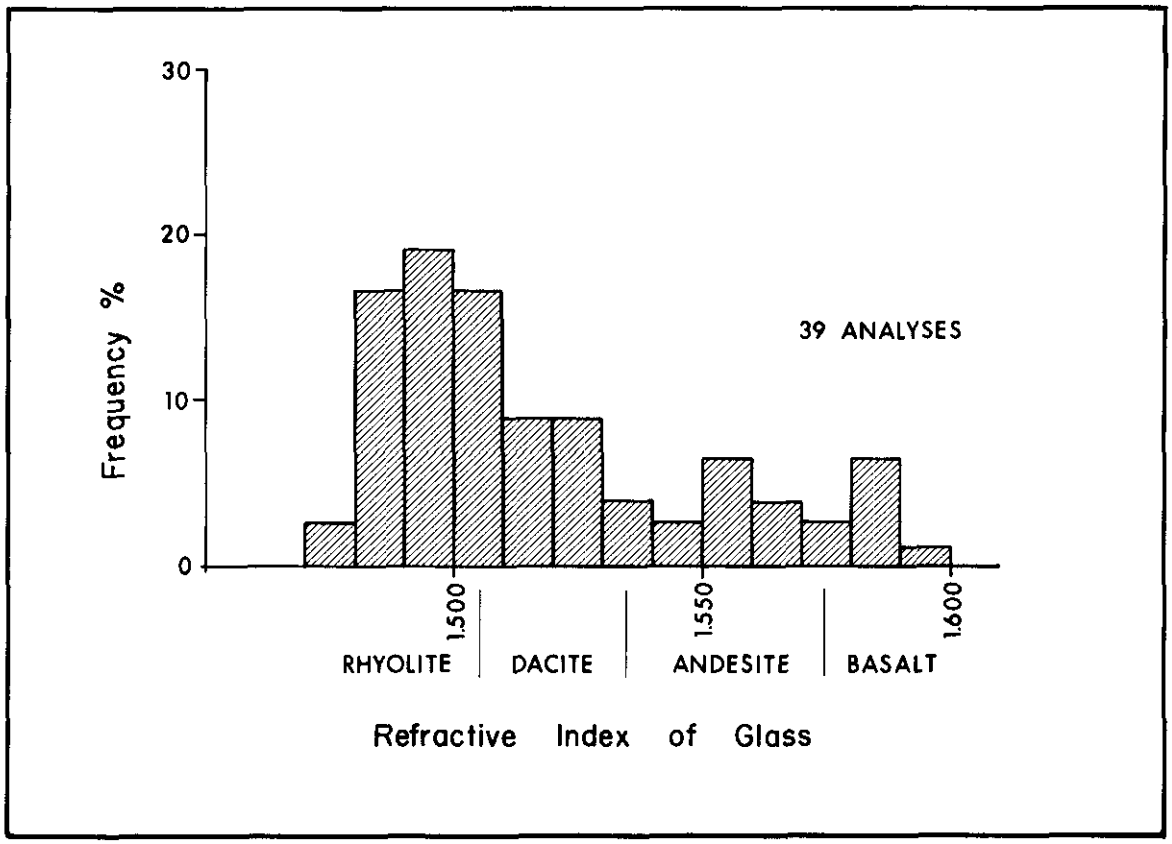

Figure 3. Fracture frequency plot for the area near the Capoose prospect.

pyrite near Green Lake and in the area to the south is peripheral to the granite. The mineralizing solutions were apparently channelled along southwesterly dipping beds (Figure 1) and a set of strong east-northeasterly to northeasterly trending cross-fractures (Figure 3). This mineralizing event is superimposed on the pyritic halo around the granite.

Dispersed, low-grade mineralization combined with the remoteness of the area has hampered exploration of the prospect.

ACKNOWLEDGMENTS

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B.C. Ministry of Energy, Mines and Pet. Res., Geological Fieldwork, Paper 1980-1, p. 123; 1980, Paper 1981-1, pp. 27, 120-123; Assessment Report 2780.