ANNUAL REPORT

YEAR ENDING 28 APRIL 1989

EXPLORATION LICENCE 5935

CORONET HILL, NORTHERN TERRITORY

Compiled by
GOLDEN PLATEAU NL

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CONTENTS

1. INTRODUCTION

Exploration Licence 5935 was granted on 29 April 1988 to Golden Plateau NL for a period of three years. Exploration was conducted by Golden Plateau during the first year of title.

The tenement consists of seven blocks, each one minute square, and covers approximately 22.5 square kilometres commencing 20 kilometres southeast of the newly opened Moline Goldmine. The area is located on Ranford Hill 1:100 000 and Mount Evelyn 1:250 000 topographic maps and is also subject to Mary River Pastoral Lease.

Previous investigations include basemetal exploration by Geopeko and gold exploration by Australian Coal and Gold Holdings. Open file reports of this activity are availbale at the Department of Mines and Energy, Darwin.

Exploration during the first year of title was directed at gold and included detailed geological mapping and limited reconnaissance rock chip sampling.

The tenement also falls within an area where Golden Plateau has acquired existing BMR airborne magnetic data and reprocessed these using the latest image enhancement techniques.

2. CONCLUSIONS AND RECOMMENDATIONS

Geological mapping indicates fold closures within Burrell Creek Formation extend into EL5935. These structures may be prospective for epithermal vein type gold mineralisation.

Airmagnetic features may indicate additional structures which could be suitable hosts for gold mineralisation.

It is recommended that reconnaissance geochemical sampling and study of airmagnetic data is completed. Detailed mapping and possibly soil sampling should be completed over interpreted airmagnetic features.

3. CURRENT EXPLORATION

3.1 Geology and Geochemistry

Exploration Licence 5934 is located in the eastern part of the lower Proterozoic Pine Creek Geosyncline near the boundary with the middle Proterozoic McArthur Basin. Dating indicates that deposition took place about 1900 Ma ago on an

Archaean (c2500Ma) basement (Needham. et al., 1988). The Pine Creek geosyncline contains an almost entirely sedimentary depositional pile estimated to be about 10 km thick (Needham et al., 1985). Sediments pass from fluviatile at the base to shallow and deeper water marine (turbidite) environments at the top. The orogenic develoment of the Pine Creek geosyncline was punctuated by mafic and felsic magmatism, mainly evident from plutonic rocks. The orogenic stage spanned the interval from 1870 to 1780 Ma (Needham et al., 1988). These features are widely interpreted to imply initiation of the Pine Creek Geosyncline as an intracratonic rift system which subsequently widened and deepened before undergoing a convergent stage which caused orogenesis (Stuart-Smith et al., 1980; Etheridge et al., 1985; Needham and Roarty, 1988).

The Pine Creek Geosyncline is a major gold and uranium province which also contains many minor tin, lead-zinc and copper mineral occurrences. Most of these metalliferous deposits were probably formed by late-stage magmatic fluids associated with post orogenic granitoids (Palfreyman 1984; see also Needham and Roarty, 1980).

The geology of the tenement block is dominated by greywacke sandstones and siltstones with intercalated mudstones. This sequence is the basal part of the Finniss River Group (Burrell Creek Formation) and is stratigraphically underlain immediately northwest by South Alligator Group rocks (Mt Bonnie Formation). The interpreted continuation of the Coronet Fault lies 3 kilometres east of EL5934. This fault is parallel to the South Alligator Fault which forms the eastern margin of the Pine Creek Geosyncline some 30 kilometres northeast of the Licence.

The tenement lies outside the main belt of gold occurrences which lies close to the major axis of the Pine Creek Geosyncline some forty five kilometres southwest. However the recent revival of goldmining at Hercules-Moline by Cyrpus Gold Australia and Greenbushes gives encouragement for further discoveries in this area.

Burrell Creek Formation

The greater part of EL5935 is underlain by a mudrock dominated turbidite sequence belonging to the Burrell Creek Formation in the stratigraphic sequence adopted by the Bureau of Mineral Resources

(BMR). The rounde nature of topography over much of the area produces low outcrops in which bedding surfaces are determined with difficulty.

Two associations were noted during mapping although these are intergradational and not differentiated on Map 2.

The dominant association consists of parallel laminated to parallel bedded mudrocks with occasional solitary sandstone beds. Sandstone beds mapped in this association elsewhere in the region by Golden Plateau are either massive or contain A and AB Bouma cycles with basal flute casts.

The minor association is somewhat coarser and consists of medium to fine grained, stacked, parallel-bedded sandstones with abundant mudstone partings. Sandstone bedding surfaces were not determined within EL5934. Elsewhere in the region, mapping by Golden Plateau found these sandstones exhibit AB, ABC Bouma sequences, occasional basal scours and common flute and groove casts.

Mount Bonnie Formation

Mudrock also dominates this Formation which occupies a small area in the northeast corner of the Licence. On a regional scale this formation lies stratigraphically immediately below the Burrell Creek Formation but within EL5935 the two units are in faulted contact.

The unit is differentiated from Burrell Creek Formation in the field by absence of sandstone units and a grey outcrop surface.

Mount Davies Granite

This porphyritic K-feldspar-biotite granite crops out in the northwesternmost corner of EL5935. The intrusion hosts copper-silver-lead mineralisation to the west of the Licence but no mineralisation was observed in the area under licence.

Cretaceous

This much younger unconformable sequence of quartz sandstones and conglomerates occupies a small area on the southern boundary of EL5935 and also forms a number of isolated outliers.

Metamorphism

The upper greenschist facies regional metamorphism is overprinted by thermal metamorphism related to the Cullen Batholith.

The whole of the Licence falls within albite epidote-hornfels facies while the northwestern area adjacent to Mount Davis Granite lies within the biotite isograd.

Folding

Bedding surfaces in EL5935 generally dip steeply to the northeast while the regional cleavage dips southwest. Occasional southwest dips in bedding suggest fold closures within the tenement although none were actually observed during mapping.

Bedding traces observed on air photographs support the southeasterly strike of the seqeuence but also do not confirm fold closures. More detailed mapping is required to define these structures. If anticlinal axes could be defined these would be a prime target for epithermal vein type gold mineralisation.

Faulting

The margin of the Pine Creek Geosyncline is defined by the northwesterly trending South Alligator Fault Zone some kilometres northeast of EL5935. A related, and parallel, set of faults known as the Mary River Fault zone occurs north of the Licence.

The southwestern fault of this set, the Coronet Fault, passes through the northeastern corner of the Licence and bring Mount Bonnie Formation rocks into contact with overlying Burrell Creek Formation.

Rock Chip Sampling

A programme of rock chip was carried out simultaneously with mapping. Sampling was directed towards prospective rock types including vein and quartz and ferruginous horizons. All samples were analysed for gold to 1 ppb Au detection using acid digest, solvent extraction and graphite furnace AAS techniques by Amdel/Classic Comlabs Laboratories in Darwin.

Seventeen rock chip samples were submitted for gold determination. Assay results are given in Appendix

1 and localities are shown on Map 2.

No values greater than 0.1 ppm Au were returned from rock chip samples within EL5935. The maximum value recorded was 0.005 ppm Au.

3.2 Geophysics

The Licence falls within an area where Golden Plateau has acquired existing BMR airmagnetic data and reprocessed these using the latest image enhancement techniques.

The data do not assist in defining fold closures in Burrell Creek Formation. While this is broadly in keeping with Golden Plateau's experience elsewhere in the Pine Creek Geosyncline, certain mudstone units do have a magnetic signature which allow structure to be mapped.

A northwest trending structural break is recognised in the southwest of EL5935 coincident with drainage alignment in the area. This feature shouldc be examined, possibly using reconnaissance soil geochemistry.

4. EXPENDITURE

Geological consulting	5 200
Geophysical data acquisition and reprocessing	3 000
Drafting, reporting	1 800
Administration	1 000
	$11 000

5. REFERENCES

BMR GEOLOGY and GEOPHYSICS, 1986. Geology of Ranford Hill 1:10 000 map series.

ETHERIDGE, M.A., RUTLAND, R.W.R., and WYBORN, L.A.I., 1985. Tectonic process in the Early to Middle Proterozoic of Northern Australia. Conference on tectonics and geochemistry of Early to Middle Proterozoic Fold Belts, Prog. and Abstr., BMR Rec 1985/28, 35-38.

NEEDHAM, R.S., STUART-SMITH, P.G., and PAGE, R.W., 1985. Tectonic evolution of the Pine Creek Geosyncline and contiguous terrains, Northern Territory. Conference on tectonics and geochemistry of Early to Middle Proterozoic Fold Belts, Prog and Abstr. BMR 1985/28, 71-74.

NEEDHAM, R.S., STUART-SMITH, P.G., and PAGE, R.W., 1985. Tectonic evaluation of the Pine Creek Inlier, Northern Territory. Precambrian Research, 41, 543-564.

PALFREYMAN, W.D., 1984. Guide to the Geology of Australia. BML Bull 181, 43.

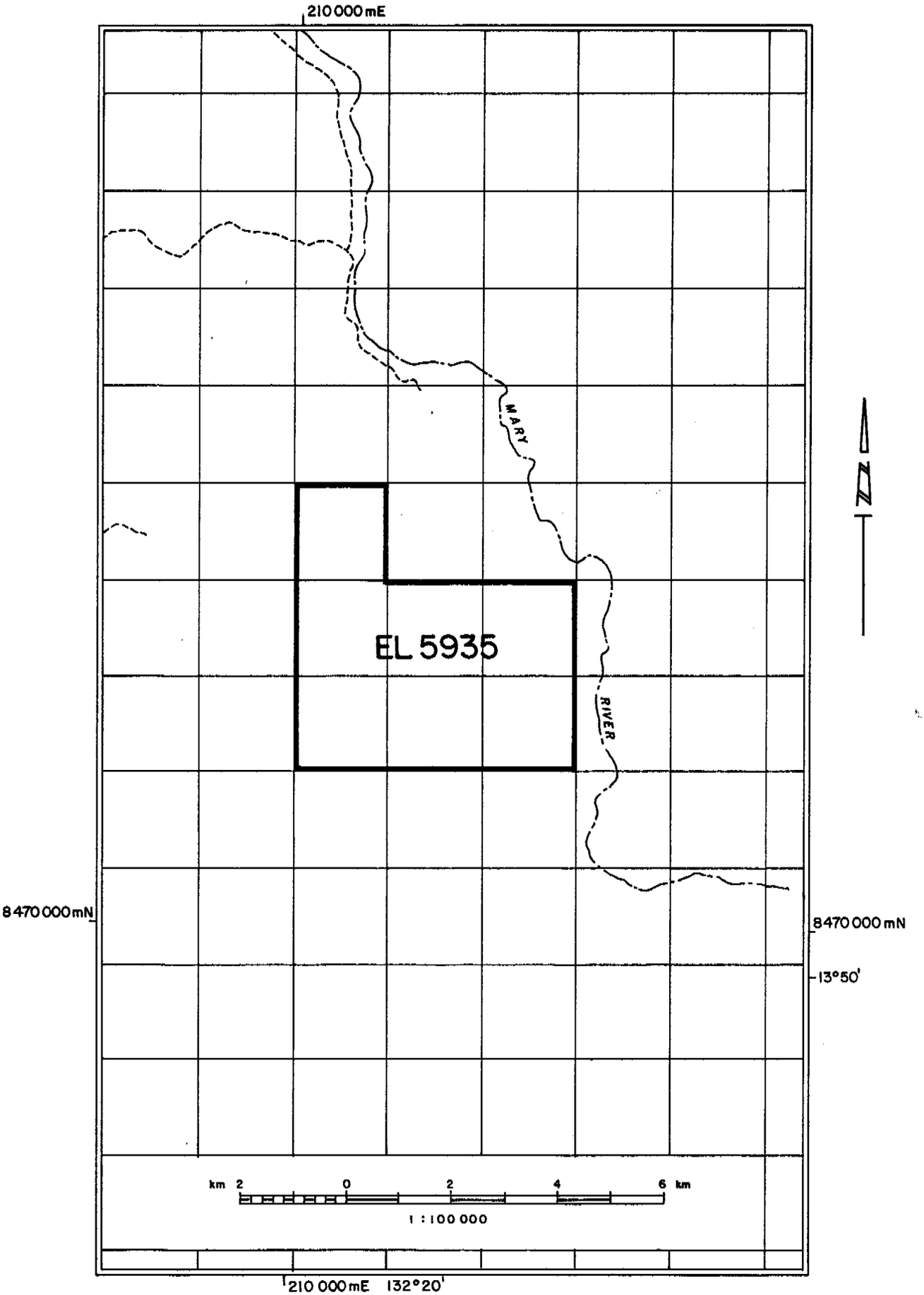
STUART-SMITH, P.G., WILLS, K., CRICK, I.J., and NEEDHAM, R.S., 1980. Evolution of the Pine Creek Geosyncline. in J. Ferguson and A.B. Goleby (eds) Uranium in the Pine Creek Geosyncline. Proc. Series IAEA, Vienna, 23-37.

APPENDIX 1
EL 5935

ROCK CHIP SAMPLES

Sample Number	Gold (ppm Au)
36538	x
36539	x
36540	0.001
36541	x
36542	x
36543	0.002
36544	0.003
36545	x
36546	0.002
36547	x
36548	x
36549	x
36550	x
36551	x
36552	x
36553	0.004
36554	0.005
36555	x

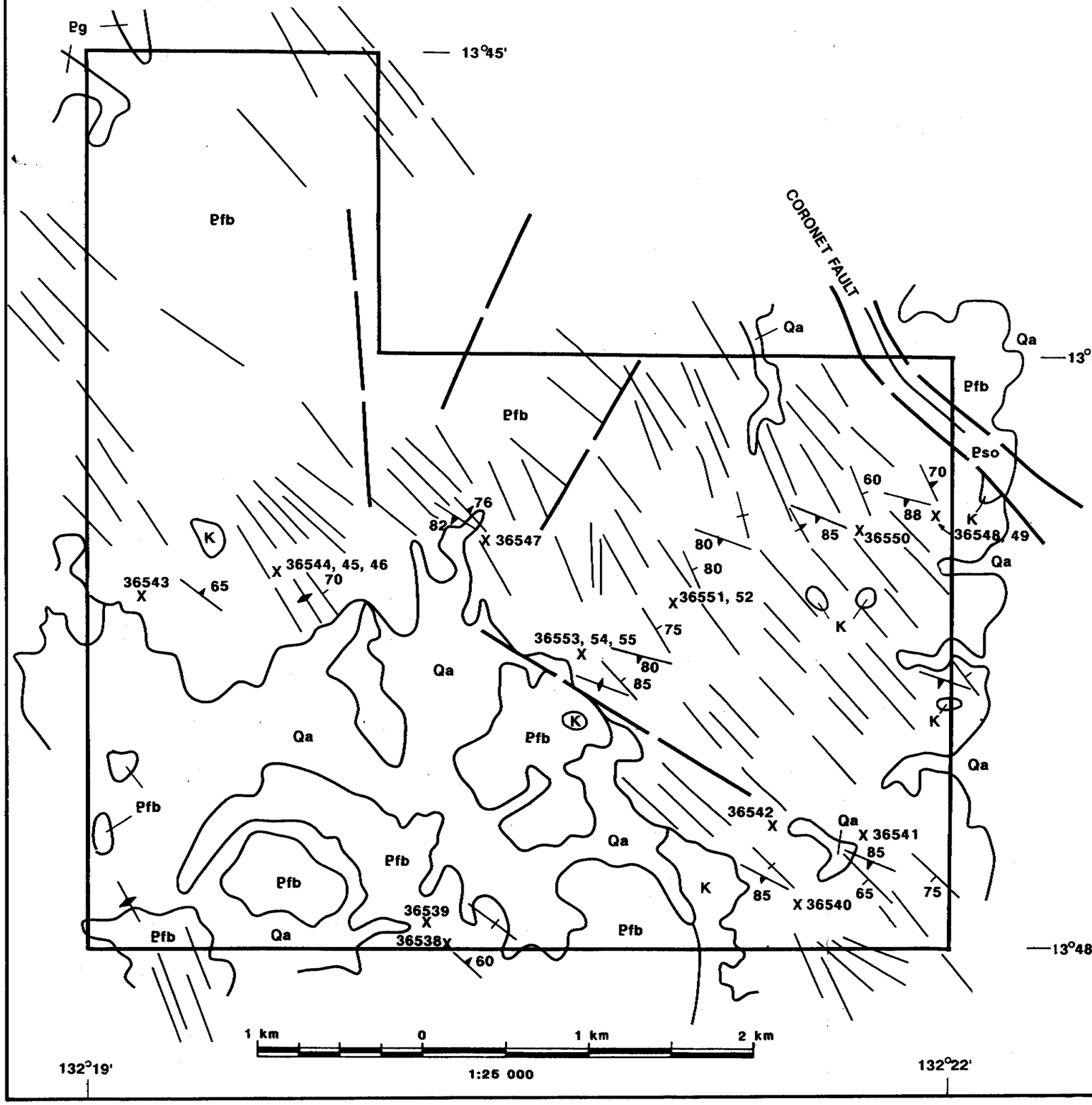
x = less than 0.001 ppm Au



LOCALITY MAP

RANFORD HILL EL 5935

Part of Raford Hill Tenement Map 15/4



LEGEND

Qa	Alluvium
K	Crataceous Quartz Sandstone and Conglomerate.
Pfb	Burrell Creek Formation greywacke sequence of mudrocks and fine sandstone horizons.
Pso	Mount Bonnie Formation fine grained phyllites and argiltites.
Pg	Mount Davies Granite coarse grained biotite granite.

Cleavage Orientation

Bedding Orientation

Airphoto Interpreted Bedding Trend

Photo lineament or Fault (inferred).

X 36538 Rock chip sample site

GOLDEN PLATEAU
RANFORD HILL EL 5935
GEOLOGY

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