TERRITORY RESOURCES N.L.

EXPLORATION LICENCE 5119

BAN BAN SPRINGS - NORTHERN TERRITORY

ANNUAL REPORT FOR YEAR 1 (1987/88)

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JUNE 1988

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1.0 Summary

Literature research has shown that very little systematic exploration has taken place over EL 5119 in recent times.

The discovery of a substantial hardrock gold deposit in the nearby old Woolwonga Gold Field has highlighted the prospectivity of this area.

Exploration this year comprised literature research, aerial photograph interpretation and reconnaissance panning and rock sampling, and was aimed primarily at hardrock gold mineralisation.

The exploration results downgraded the potential for hardrock gold mineralisation, however encouraging indications of alluvial gold and hardrock tin mineralisation were found.

2.0 Introduction

Exploration licence 5119 is situated approximately 125km southeast of Darwin, on Ban Ban Springs station (figure 1).

The exploration licence was granted on 3 June 1987 to Ronald and Maureen Hills, and was transferred to Territory Resources NL on 23 September 1987.

This is the first Annual Report for EL5119, and covers work carried out between 3 June 1987 and 2 June 1988.

3.0 Location and Description

Exploration licence 5119 is located approximately 25km northeast of the Hayes Creek Inn and 3km east of the Ban Ban Springs homestead (figure 1).

The licence comprises 15 graticular blocks in a rectangular shape, 5 blocks long and 3 blocks wide (figure 2).

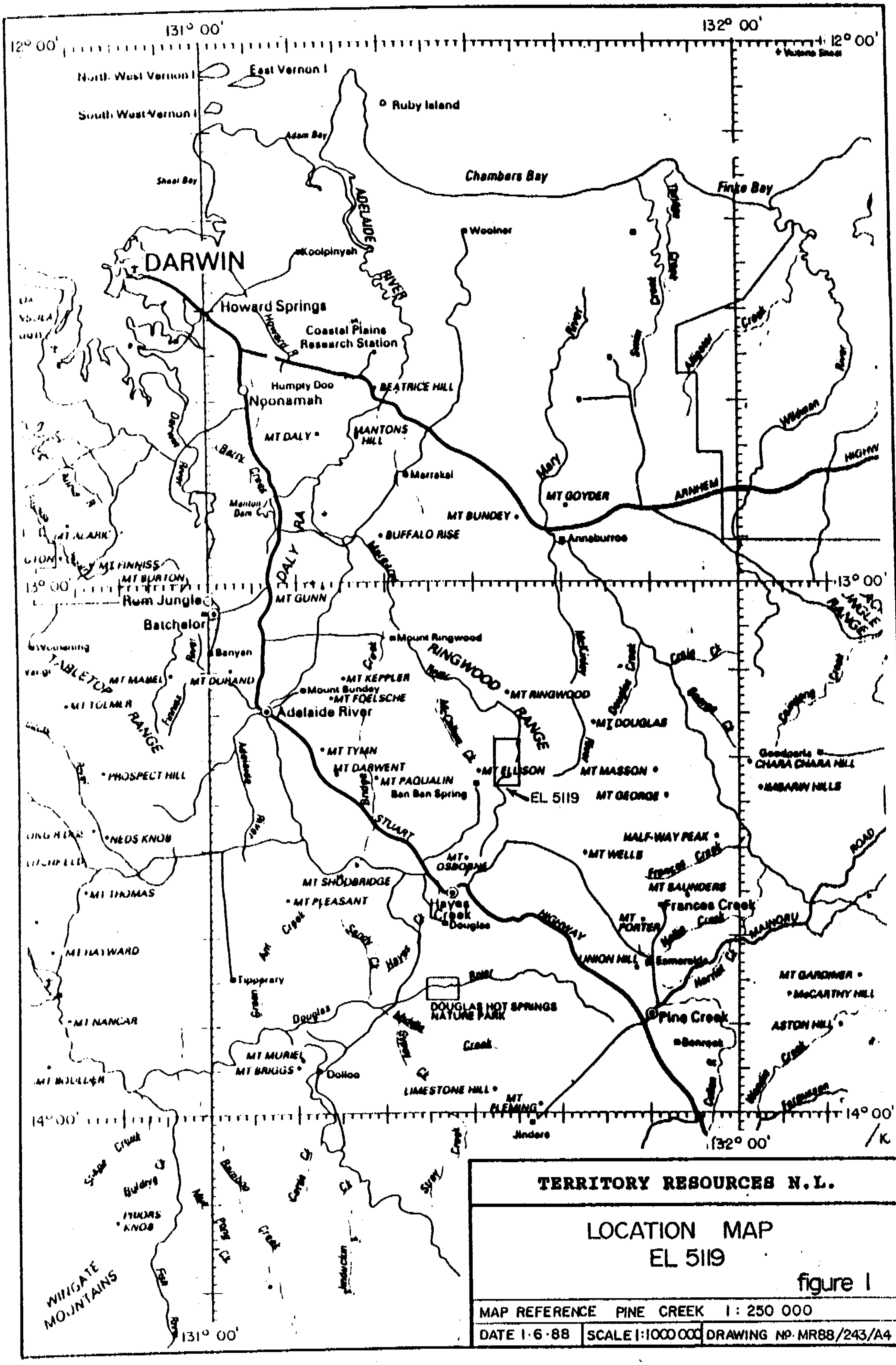
The topography varies from relatively flat and gently undulating in the south and east along the Margaret River, to hilly in the central and western regions. The highest point lies 146m above sea level, some 70m above the lowlying flood plains surrounding the Margaret River.

The Margaret River and its' tributaries drain the area. Flood plains of the Margaret River comprise black soil plains which are subject to inundation during the wet season.

Access is achieved by station tracks following fence lines north of the NT Gas road. The licence area has recently been divided into three paddocks by electric fences, and these are accompanied by good access tracks.

4.0 Geological Setting (refer to figure 3)

Exploration licence 5119 is situated in the central portion of the Pine Creek Geosyncline. The stratigraphy of the licence region comprises the Lower Proterozoic Gerowie Tuff and Mount Bonnie Formation of the South Alligator Group, and the overlying Burrell Creek Formation of the Finniss River Group. The Lower Proterozoic sequence has been intruded by the Margaret Granite which covers the northern part of the exploration licence. A contact metamorphic aureole surrounds the granite, and covers the entire exploration licence. Both hornblende and biotite zones have been delineated close to the granite by BMR mapping.


131° 00'
132° 00'
12° 00'
13° 00'
14° 00'
North West Vernon I
East Vernon I
South West Vernon I
Ruby Island
Adam Bay
Shoal Bay
Chambers Bay
Finke Bay
ADELAIDE RIVER
Woolner
Koolpinyah
DARWIN
Howard Springs
Coastal Plains Research Station
Humpty Doo
Noonamah
BEATRICE HILL
MT DALY
MANTONS HILL
Marrakai
Manton Dam
MT BUNDEY
BUFFALO RISE
MT GOYDER
Annaburroo
ARNHEM
HIGHW
Mary River
Wildman River
Alligator Creek
DALY
MT FINNISS
MT BURTON
Rum Jungle
MT GUNN
Batchelor
Banyan
Mount Ringwood
RINGWOOD RANGE
MT RINGWOOD
TABLETOP RANGE
MT MABEL
MT DUHAND
MT TOLMER
MT KEPPLER
Mount Bundey
MT FOELSCHE
Adelaide River
MT DOUGLAS
MT TYMN
MT DARWENT
MT PAQUALIN
Ban Ban Spring
MT ELLISON
EL 5119
MT MASSON
MT GEORGE
Goodparla
CHARA CHARA HILL
MABARIN HILLS
PROSPECT HILL
NEDS KNOB
STUART
MT OSBORNE
HALF-WAY PEAK
MT WELLS
Frances Creek
MT SAUNDERS
MT SHOOBRIDGE
MT PLEASANT
MT THOMAS
Hayes Creek
Douglas
HIGHWAY
MT PORTER
UNION HILL
Emerald
ROAD
MAINORU
MT HAYWARD
Tipperary
DOUGLAS HOT SPRINGS NATURE PARK
MT GARDINER
McCARTHY HILL
MT NANCAR
Pine Creek
ASTON HILL
Bonrook
MT MURIEL
MT BRIGGS
Dolloo
LIMESTONE HILL
MT FLEMING
Jindare
Fergusson
PRIORS KNOB
WINGATE MOUNTAINS

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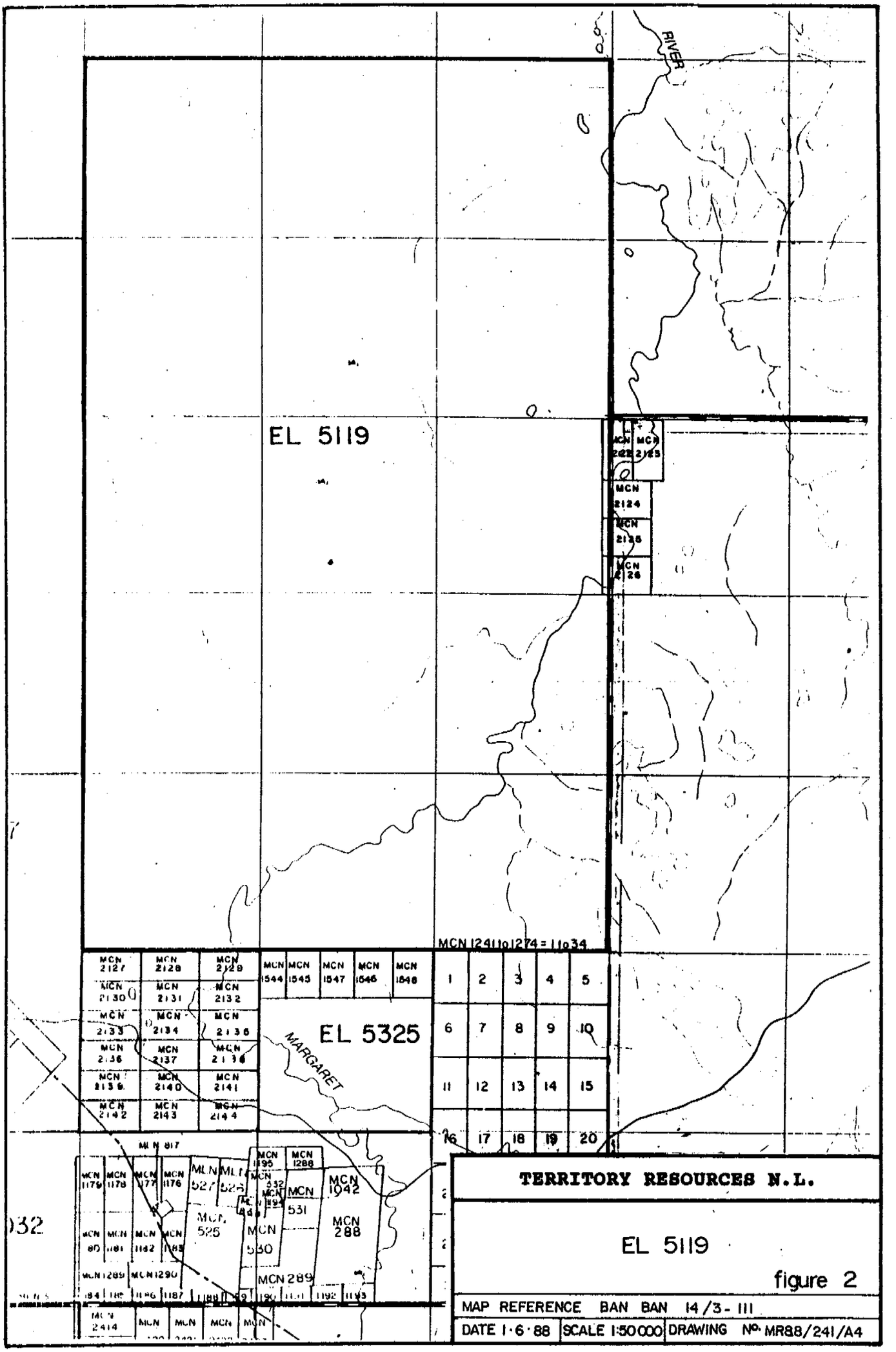
LOCATION MAP
EL 5119

figure 1

MAP REFERENCE PINE CREEK 1 : 250 000		
DATE 1·6·88	SCALE 1:1000 000	DRAWING Nº MR88/243/A4



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EL 5119

figure 2

MAP REFERENCE BAN BAN 14/3-111

DATE 1·6·88 | SCALE 1:50000 | DRAWING No. MR88/241/A4

The majority of the licence area is underlain by well cleaved phyllites and arenaceous phyllites of the Burrell Creek Formation which tend to outcrop along low rises. The Gerowie Tuff and Mount Bonnie Formations occur in the northern and western sections of the licence. They comprise siliceous metasediments, cherts, tuffs and banded iron formations.

In close proximity to the granite contact, most lithologies have been altered to hornfels. Layered quartz veining and tourmalinisation are also associated with the granitic intrusion.

Cenozoic laterites, colluvium and alluvium overlie bedrock over much of the licence area. In particular, alluvial sands and rounded pebbles are evident along low rises adjacent to the Margaret River. Quaternary black soil plains occupy the low-lying areas.

The dominant structural orientation is NW-SE, tending towards W-E along the eastern side of the licence. Cleavage and bedding are generally sub-parallel, although the latter is not always clearly distinguishable. A southeast plunging anticline forms the major structural feature of the area, and an adjoining syncline is inferred to extend into the licence area (see figure 3).

A substantial hardrock gold discovery has recently been reported at the old Woolwonga Gold Field which is situated approximately 3km to the south EL 5119, and the abandoned Mount Ellison copper mine lies 3.5km to the west. A number of small, unnamed tin? workings occur within the licence area.

The Cenozoic sediments in the vicinity of the Margaret River were probably deposited by a major river system which drained all of the hardrock gold deposits in the region. Exploration in our adjoining tenements along this system suggests that it may comprise a large volume, low - grade alluvial gold resource.

5.0 Previous Exploration

A literature search of open file records at the Department of Mines and Energy library has revealed the following sequence of 'modern' exploration over the licence area.

Licence	Company	Reference	Record No.
ATP1680	-	-	*
ATP1649	-	-	*
ATP2182	-	-	*
ATP1959	Cent. Pacif. Mins.	Pietsch&Shields(1971)	CR71/9
"	" " "	Baarda (1973)	CR73/203A
EL615	" " "	Ivanac (1974)	CR74/101
EL678	Comalco	Stainton (1973)	CR73/117A
"	"	Gove (1973)	CR73/187
"	"	Gove (1975)	CR75/41
EL1137	CRA	Wills (1977)	CR77/115
"	"	Wills (1978)	CR78/167
"	"	Wills (1979)	CR79/56
EL1982	AAR Ltd.	Hassall (1981a)	CR81/135
EL2103	"	Hassall (1981b)	CR81/236
EL3562	Euralba Mining	Fisher (1983)	CR84/20

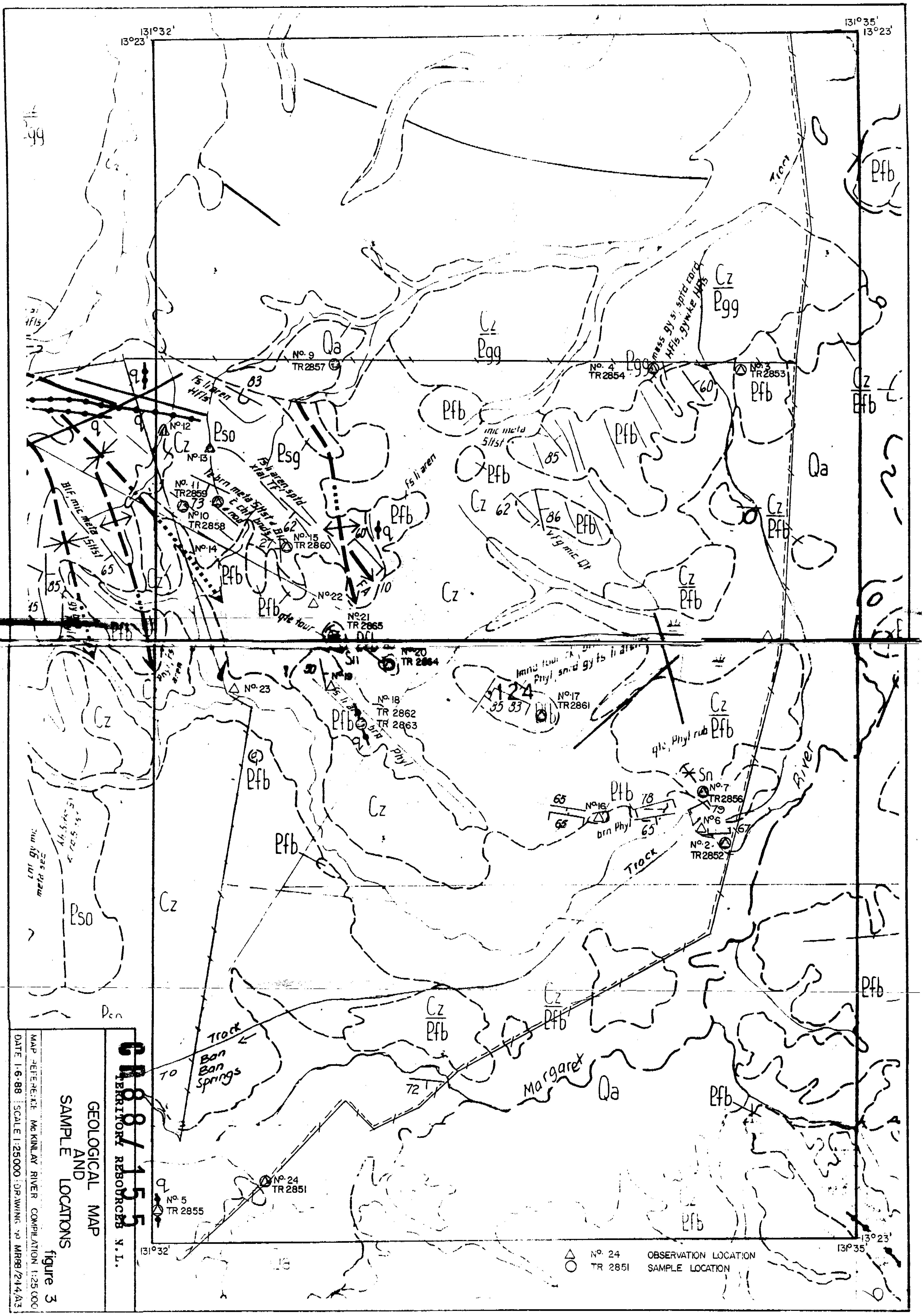
* No Report listed on Open File.

Despite the inclusion in a relatively large number of previous licence areas, comparatively little work has been conducted specifically on EL 5119.

Central Pacific Minerals NL covered a large area with ATP 1959 and later, EL 615, and apart from a brief reconnaissance, conducted no work on EL 5119.

In 1973/74, Comalco Ltd operated EL 678 which covered the western half of the current EL 5119. No work however, was conducted on the EL 5119 portion of the licence. Instead, Comalco focussed their efforts on lead, zinc and flourite mineralisation in the vicinity of the Olive Prospect which lies to the west of EL 5119.

CRA Ltd carried out regional mapping and gossan sampling on EL 1137 in 1977, reducing it to 15% of the original area in the first year. The western section of EL 5119 was retained, along with an area to the west. In 1978, CRA conducted a soil geochemistry (Cu, Pb and Zn) sampling program with sample spacing at 50m intervals along lines approximately 1km apart. One line of this program covered the anticlinal closure in the vicinity of the Gerowie Tuff/Mount Bonnie Formation and granite contact, however no anomalous values were recorded.



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GEOLOGICAL MAP AND SAMPLE LOCATIONS

figure 3

MAP REFERENCE McKINLAY RIVER COMPILATION 1:25 000

DATE 1·6·88 SCALE 1:25000 DRAWING No MR88/244/A3

AAR Ltd conducted exploration over the eastern side of EL 5119 in 1979/80 as part of EL 1982. A photogeological study was carried out at 1:25,000 scale, and a small number of rock chip samples were collected and assayed for Cu, Pb, Zn, U and W. No significant results were obtained.

The central and western sections of EL 5119 were included in the relinquished portion of AAR's EL 2103. This area was also photogeologically mapped at 1:25,000 scale, and 8 rock samples were collected and analysed for Cu, Pb, Zn and U (including 3 samples for As and Au). The assay values were generally low, except for one situated near location 18 in figure 3, which returned 15.9% Cu.

The latest documented exploration on EL 5119 was carried out by W.J.E. Fisher Pty Ltd for Euralba Mining Ltd in 1983 on the then, EL 3562. A helicopter supported survey was conducted, and 11 samples collected and analysed for Au, Pb and Ag. No significantly anomalous results were obtained; the highest gold value being 0.3ppm, whilst most common result was 0.1ppm Au. No further work was recommended on the hardrock areas, but an auger drilling and backhoe pitting program was proposed for evaluating the areas adjacent to the Margaret River for alluvial gold and tin. This work does not appear to have been carried out in subsequent years.

6.0 Exploration for Year 1

Work completed during year 1 comprised literature research (summarised above), aerial photograph interpretation (initially 1;60,000 scale, but acquired 1:25,000 scale), ground reconnaissance, rock chip sampling and panning. Exploration concentrated upon the hardrock gold potential of the area.

6.1 Conventional Panning

A number of reconnaissance samples of creek bed sediment and soil were collected and panned from various locations throughout the exploration licence. The results are listed in Table 1.

Most significant of these results were a number of colours of gold that were obtained from the Cenozoic alluvium in the vicinity of the Margaret River.

Sampling from within the vicinity of hardrock quartz vein and banded iron formation outcrops failed to yield any colours of gold, although minor fine to very fine grains of cassiterite were recorded. It should be noted however, that the sampling was not extensive, and it was difficult to find sites where significant secondary concentration could be expected.

6.2 Rock Sampling Program

Fifteen rock chip samples, averaging 3kg weight were collected and assayed for gold (fire assay). The analyses results are listed in Table 2 and Appendix 1, and sample locations are shown in figure 3.

The assay results were generally low, although a number of slightly anomalous values (> 0.05ppm Au) were obtained. The highest assay of 0.27ppm Au was obtained from a thin gossanous banded iron formation within the Mount Bonnie Formation, near the main anticlinal fold axis.

7.0 Conclusions

- Reconnaissance sampling for hardrock gold mineralisation generally gave disappointing results, despite an apparently favourable structural and stratigraphic setting. Conditions may have been unfavourable for the precipitation of gold close to the granite, where most of the samples were collected.

- Reconnaissance panning, the presence of a number of small probable tin workings, and the close proximity to a granite source, indicate potential for hardrock tin mineralisation in the area.

- The greatest economic potential of this area may lie in the essentially untested Cenozoic alluvial and colluvial deposits flanking the Margaret River. A number of colours of gold were obtained from these sediments from a couple of surface panning samples.

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8.0 Expenditure Statement

Salaries: Geologist	Warren Ormsby	$ 6,300.00
Prospector	John Crago	$ 1,280.00
Field Equipment		$ 20.00
Accommodation and Provisions		$ 300.00
Vehicles		$ 515.00
Fuel		$ 103.00
Assays		$ 180.00
Aerial Photograph purchase		$ 224.23
Drafting		$ 245.00
	Sub-total	$ 9,167.23
Overheads (30% of Sub-total)		$ 2,750.17
	Total	$11,917.40

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9.0 References

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Table 1. Reconnaissance Panning Results

Location No. (fig 3)	Sample Volume (litres)	Description	Results
2	3	small creek sediments	No colours
6	3	small creek sediments	2 extra fine
8	6	Cz gravels & sands	1 med-fine & 1 extra fine
10	2	soil, base of hill near BIF	No colours
12	4	small creek sediments	No colours
13	4	base of gully sediment	No colours
14	3	small gully sediment	No colours
17	4	soil, base of hill	Minor fine to very fine cassiterite
20	2	soil from diggings	Minor cassiterite
22	4	Cz ironstone & quartz rubble from old costean	Minor cassiterite
23	8	small creek sediment	Minor cassiterite

Table 2. Rock Sample Descriptions and Results

Sample No.	Description	Au ppm
TR2851	White quartz float, minor chlorite.	0.01
TR2852	Blue grey to translucent float & vein quartz. vein max 20-30cm thick.	0.01
TR2853	Translucent to white quartz float.	0.05
TR2854	Translucent to white quartz float.	<0.01
TR2855	Blue grey quartz, very common arsenopyrite, scorodite staining. Sample over 25m from vein 1-3m wide.	0.09
TR2856	Blue grey quartz vein, 1m x 4m	<0.01
TR2857	White quartz float, pyrite, iron staining, common crystals.	<0.01
TR2858	Gossanous BIF, Mt Bonnie Formation.	0.02
TR2859	Fault? breccia.	0.06
TR2860	Gossanous BIF, Mt Bonnie Formation, numerous small scale folds.	0.27
TR2861	Quartz veins, common tourmaline, gossanous in part.	0.02
TR2862	Gossanous quartz from 3m radius.	0.08
TR2863	Quartz vein, chip samples 45m x max 8m	<0.01
TR2864	Gossanous translucent to white quartz from old diggings, tourmaline.	0.17
TR2865	Gossanous quartz, pyrite, arsenopyrite scorodite staining, tourmaline, from small diggings.	0.08

APPENDIX 1 - ASSAY RESULTS

THE AUSTRALIAN MINERAL DEVELOPMENT LABORATORIES

FORM 38

REPORT A'C D1487/88

ANALYSIS ppm

Sample N°			Au				
TR 2851			0·01				
52			0·01				
53			0·05				
54			<0·01	0·01			
55			0·09				
56			<0·01				
57			<0·01				
58			0·02				
59			0·06				
60			0·27				
61			0·02				
62			0·08				
63			<0·01				
64			0·17				
TR 2865			0·08				

METHOD.

pm3/2