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COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS.

1953/113.

EDITH RIVER AREA - PROSPECTING ACTIVITIES

20TH JULY TO 6TH AUGUST, 1953.

by

N. O. JONES.

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PLANS AND SECTIONS.

<u>Plate No.</u>	<u>Plans.</u>	<u>Scale.</u>
1.	Locality map, and reference to Australian 4 mile and 1 mile Series.	1 inch - 1 mile.
2.	Showing area prospected, and sketch plan of prospect No. 14.	2 inches - 1 mile.

SUMMARY.

Prospecting was carried out along favourable structures in an area of granite and sediments. One uranium prospect was discovered near the Yenberrie wolfram field but appears to be very small and low in grade.

INTRODUCTION.

The area prospected is shown in Plate 2, and lies to the south and east of that prospected earlier (Gardner 1953). It comprises the area covered by the central portions of aerial photographs:-

No. 5164, Run 3A, Mount Todd, Survey 417 and No. 188, Run 4, Mount Todd, Survey 314.

The prospecting was carried out by Geologists D.E. Gardner and N. Jones and survey hands S.J. Quain, of the geological party, and A. Brewster and E. Rigby of the Geophysical Party.

Most of the area is composed of sediments of the Brocks Creek group, of Lower Proterozoic age, with granite in the south-west, and also in small bosses in the northern part. The granite was prospected in a similar manner to that used in the earlier prospecting but no attempt was made to obtain complete coverage of the sediments. In the sediments prospecting was carried out along structures selected by examination of aerial photographs. Some general notes on the geology of the area were also made.

GENERAL GEOLOGY.

The Lower Proterozoic sediments of the Brocks Creek group are tuffs and tuffaceous sandstones and shales. They are strongly but irregularly folded, often into pitching anticlines and synclines. The folding could not be mapped accurately, particularly near the contact where no trend lines could be seen on the aerial photographs. The sediments have been considerably faulted and there is minor shearing and brecciation associated with irregularities in the folding but major shearing was not observed in this area.

The regional metamorphism has been of low grade but the contact sediments have been hornfelsed and there is also a broad zone of hardening. The area is crossed by numerous veins which are almost entirely of massive quartz.

The granite bosses near Yenberrie Creek are composed of a medium grained granite which becomes porphyritic towards the centre of both of the two larger masses. The granite at the Yenberrie wolfram field has a margin of greisen. Within this granite and extending from it into the sediments are several greisenous shears, and aplites and quartz reefs which tend to a radiating pattern.

The granite in the south-west of the area is similar to that described in the report on the earlier prospecting (Gardner, 1953). The shear zones in this portion are, however, marked by a much larger amount of massive reef quartz. The granite is mainly coarse but two small areas of "fine" granite are present.

PROSPECTING.

The granite in the south-west of the area was prospected in a similar manner to the previous prospecting. The shear zones were generally highly silicified and sometimes greisenised. Numerous massive quartz reefs were present especially near the faulted contact. The highest count obtained was 160 counts per minute and background was approximately 80 counts per minute. The zone of brecciation which contained several prospects to the north was covered by alluvium in this area.

The granite boss near Yenberrie contains several greisenous shears and in one of these a small deposit (Prospect No. 14) was found. The counts in greisenous shears and aplites near the Yenberrie wolfram field was generally about 150 counts per minute, and in some places up to 200 counts per minute. The small granite bosses to the north gave a maximum of 100 counts per minute.

Prospecting in the sediments was confined to structures selected by examination of aerial photographs. Several different types of structure were examined but no uranium prospects were found. A large part of the sediments is concealed by scree material and favourable structures are seldom exposed by weathering, in contrast to the relatively good exposures of the shears in the granite. The background count in the sediments is 50 counts per minute and no counts exceeding 130 counts per minute were obtained. The following types of structures were prospected:-

- (a) Narrow gossanous outcrops. These were found adjacent to a fault trending 010 degrees about 1 mile north-west of Mount Todd Battery. The gossans were associated with ironed stained quartz veins in a series of minor shears but never exceeded 12 inches in width and were discontinuous along the shear. The maximum count obtained was 120 counts per minute, which did not improve at a shallow depth. Traces of copper and lead may be present.
- (b) Silicified zones in arenaceous rocks. In appearance these are similar to bedded quartzites but stand out in a very strong relief, and are often on the trend of structure controlled gullies. All showed iron staining on the joint planes and a small amount of brecciation. The counts obtained were usually about 100 counts per minute. Contact metamorphosed sediments near the granite bosses of ten resembled these zones in appearance and in the counts obtained.
- (c) Quartz veins and breccias. Counts in these were generally at background unless they were strongly iron stained when up to 100 counts per minute were obtained. The iron stained portions of the faulted granite contact gave 80 to 100 counts per minute.
- (d) Marked trend lines which were followed by creeks. Some of these are certainly faults but very little outcrop was available and no significant counts were obtained.

PROSPECT NO. 14.

This prospect has co-ordinates, relative to the centre point of photo 5164, Run 3A, Mount Todd, or 0.8 inches south, 0.15 inches west. A strongly outcropping greisenous and silicified shear in the fine granite trends 009 degrees (Photo-mosaic grid). The shear extends through a

greisenous contact at the margin of the granite into the sediments where it is only slightly silicified and contains a little slightly gossanous material.

The prospect lies on the eastern wall of the greisenised granite where later fracturing has occurred. At the surface 500 to 600 counts per minute were obtained over an area of 18 inches by 3 feet. A pit dug at the edge of the shear ran, at an depth of 2 feet, into hard, massive greisen which gave 200 to 300 counts per minute. On the west wall of the pit 400 counts per minute were obtained. At this point a band a few inches wide has been sheared and apparently slightly mineralized. It contains hematitic material, but apparently as colouring matter rather than massive, and in places has small cavities.

At a point in the sediments along the shear a count twice the local sedimentary background of 100 counts per minute was obtained on slightly gossanous material. At a depth of one foot the counts had dropped to background.

In view of the small size of the deposit no further work is recommended.

CONCLUSIONS AND RECOMMENDATIONS.

One small prospect was found in the area but the area does not appear favourable for the occurrence of a uranium prospect of any size. It is recommended that no further prospecting be carried out in this area unless anomalies are found by the airborne scintillometer survey.

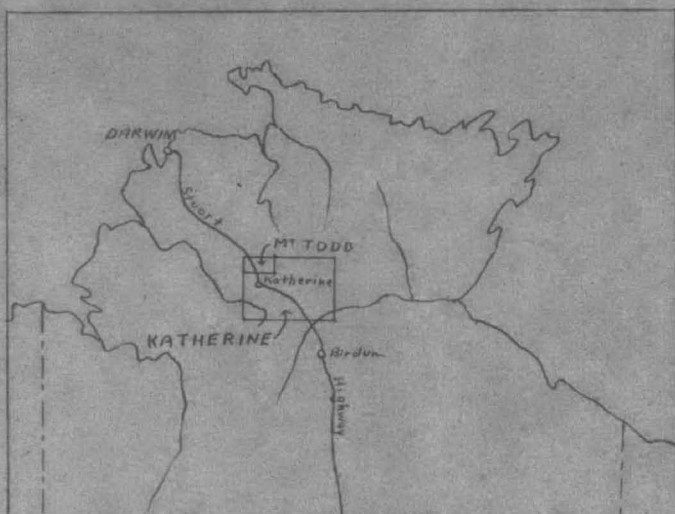
REFERENCE.

Gardner D.E.	1953: Prospecting Activities, Edith River Area. Progress report for period 7th to 17th July.
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EDITH RIVER PROSPECTING

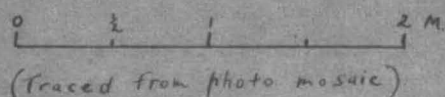
20TH. JULY — 6TH. AUGUST, 1953

LOCALITY MAP



POSITION OF AREA DEALT WITH IN
REPORT AND RELATION TO AUSTRALIAN
FOUR MILE AND ONE MILE SERIES

SCALE



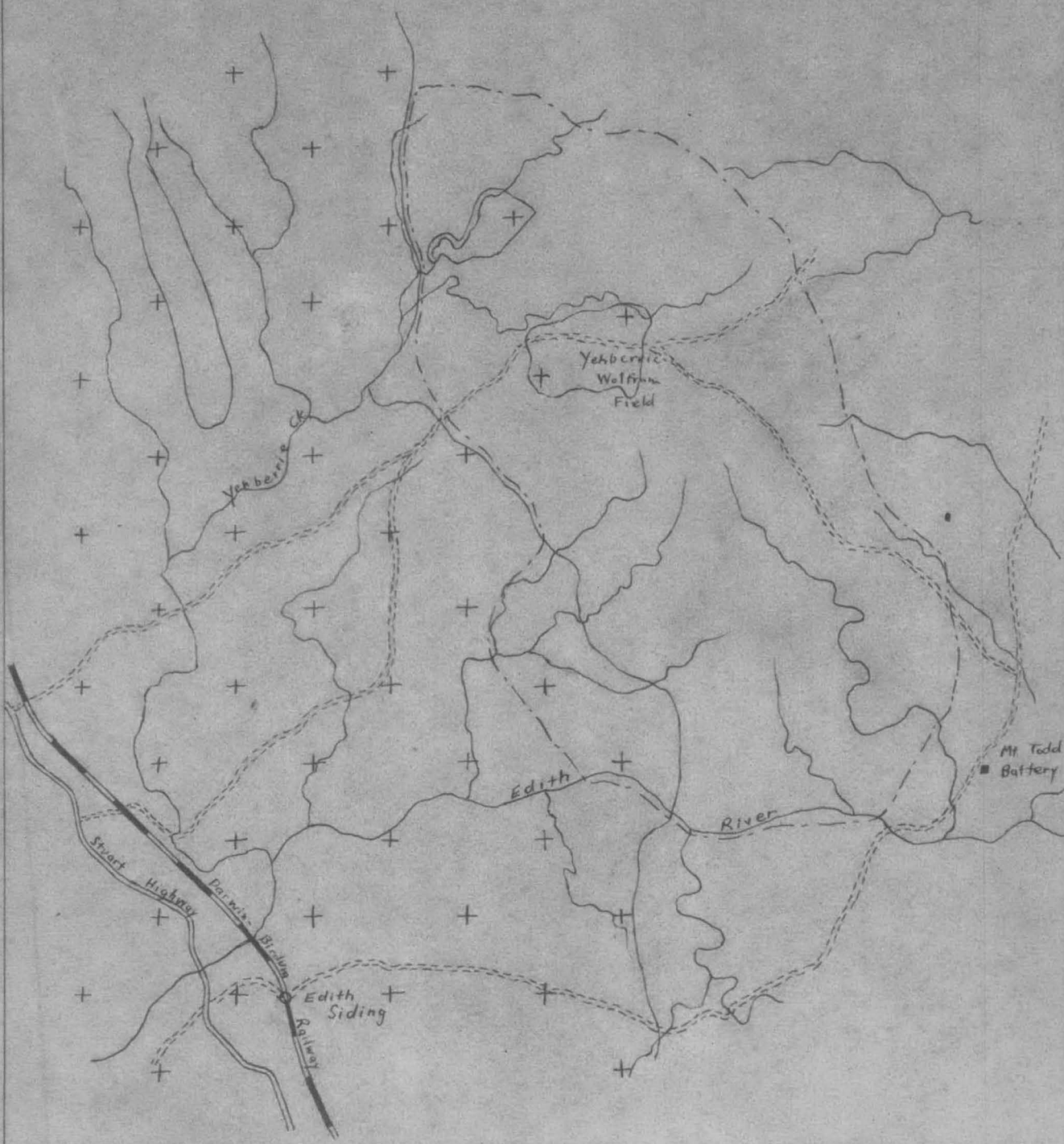
REFERENCE

++ Granite

() Boundary of area
prospected

Area without symbol is sediments
of Brooks Ck. Group.

Grid North
(Photo mosaic)



EDITH RIVER AREA

PROSPECTING

20TH. JULY — 6TH. AUGUST, 1953

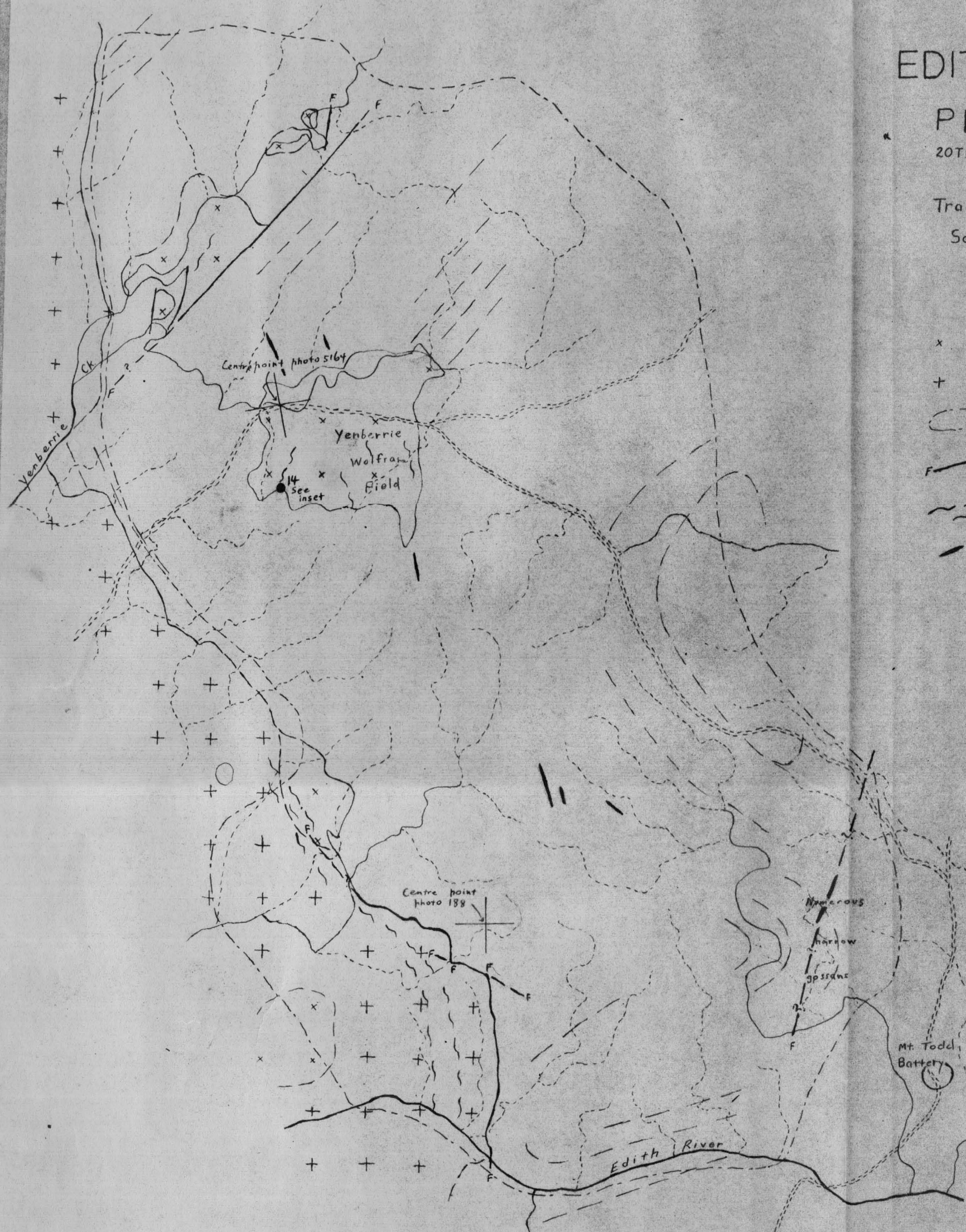
Traced from aerial photographs

Scale approx. 2 inches : 1 mile

REFERENCE

- x x Fine granite
- + + Coarse granite
- Boundary of area prospected
- F Faults
- Shear zones in granite
- Silicified zone in sediments
- Area without symbol is sediments of Lower Proterozoic Brock's Cr Group

Grid North
(Photo mosaic)



PROSPECT N° 14

Scale 40 ft.

