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**An assessment of
radiation anomalies in
the Alligator Rivers
Region – a review**

K Pfitzner & P Martin

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By Kirrilly Pfitzner & Paul Martin

**Environmental Research Institute of the Supervising Scientist
GPO Box 461, Darwin Nt 0801, Australia**

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Summary

Uranium is a naturally occurring mineral that is found throughout the Kakadu and Alligator Rivers region. Uranium has been mined by people in the area since the 1950s. One characteristic of uranium mineral deposits is that they give off radiation. In addition to uranium, two other elements in mineral deposits produce radiation – these are called thorium and potassium.

One of the roles of the Supervising Scientist is to determine what impact uranium mining has on the environment. Often, it is helpful to look at areas that have not been mined, but where uranium occurs, to increase our understanding of radiation.

To help do this, **eriss** has prepared some maps of all known uranium, thorium and potassium sites in the Alligator Rivers Region (which includes Kakadu and western Arnhemland). These sites are called anomalies, and can be very small deposits, old mine sites such as Nabarlek and Coronation Hill, and operating mine sites such as the Ranger mine.

The maps were prepared by collating all existing information on the sites gathered from the NT Government, mining companies and mineral databases. This is called a desktop study as we prepared it on a computer. We are not looking for new uranium sites – we only mapped those that are already known. This report summarises the known radiation anomalies in the region.

According to existing information, there are 164 known uranium locations in the Alligator Rivers region. We have produced different maps to show the uranium mines that have been rehabilitated, the locations that were mined a long time ago and were abandoned, and prospects. Prospects are places where uranium is known to occur, but have not been mined. We also made maps to show the location of uranium anomalies by their size. Geologists size anomalies by the amount of metal they contain. Nabarlek was a large mine. There are large, medium and small sized uranium anomalies in the Alligator River Region. In addition to large, medium and small-sized anomalies, some anomalies are “occurrence sized”. These anomalies are usually very small.

Apart from radiation anomalies, a number of other metal deposits occur in the Alligator Rivers region. These include iron, copper, tin, lead, nickel and gold. These metals have also been mapped.

The next stage of the mapping project will be to visit a number of these sites and take radiation readings. Once we have this information we can produce more accurate maps of where the uranium is located and of radiation levels at the sites.

An assessment of radiation anomalies in the Alligator Rivers Region – a review

By Kirrilly Pfitzner & Paul Martin

1 Introduction

This is the first report for the project ‘An assessment of radiation anomalies in the Alligator Rivers Region’. The aim of the project is to collate and verify existing information on radiation anomalies in the Alligator Rivers Region (ARR), and to produce publications, including maps, which enable people to gain an overall understanding of the presence of radiation anomalies in the Region.

The ARR contains several known radiation anomalies. Most notable are the uranium anomalies known as Ranger, Jabiluka, Nabarlek and Koongarra, as well as Sleisbeck and several in the upper South Alligator River valley. However, there are other less well-known uranium and thorium anomalies (e.g. the Austatom uranium orebody). Bringing together this information on these anomalies provides an overall picture of radiation in this environment, placing radiological risk to humans and ecosystems in perspective. It would also assist any future research on radiation in the region by helping in experimental design.

Needham (1988) described the regional geology and mineral occurrences in a geographic region named the “Alligator Rivers uranium field”. This region is bounded in the west by the South Alligator River, in the south and east by the Arnhem Land Plateau, and in the north by the tablelands of Coburg Peninsular (figure 1). Within this region, Needham (1988) states that uranium accounts for 72 of the 77 metalliferous mines and prospects in the Alligator Rivers uranium field.

This study differs in spatial extent to that of Needham (1988). The aim of this project is to document the location of the radiological anomalies within the ARR for contribution to landscape-scale analyses.

2 The study approach

The overall study approach is based on collating and analysing data, particularly information that the Northern Territory Department of Business Industry Resources and Development (DBIRD) provide in the public domain. This includes the NT Geological Survey (NTGS) MODAT Mineral Occurrence Database and existing airborne gamma spectrometry data (from DBIRD), as well as historical documents.

The focus of this report is an examination of the NT Geological Survey MODAT Mineral Occurrence Database. MODAT was developed within the NTGS to meet an ever-growing demand for accurate point data of all known mineral occurrences within the Northern Territory. This database provides a comprehensive overview of radiation anomalies in the Region and is used in this report to document that existing data. Once this data has been collated and presented for the ARR, recommendations for further studies, should this be required, can be made.

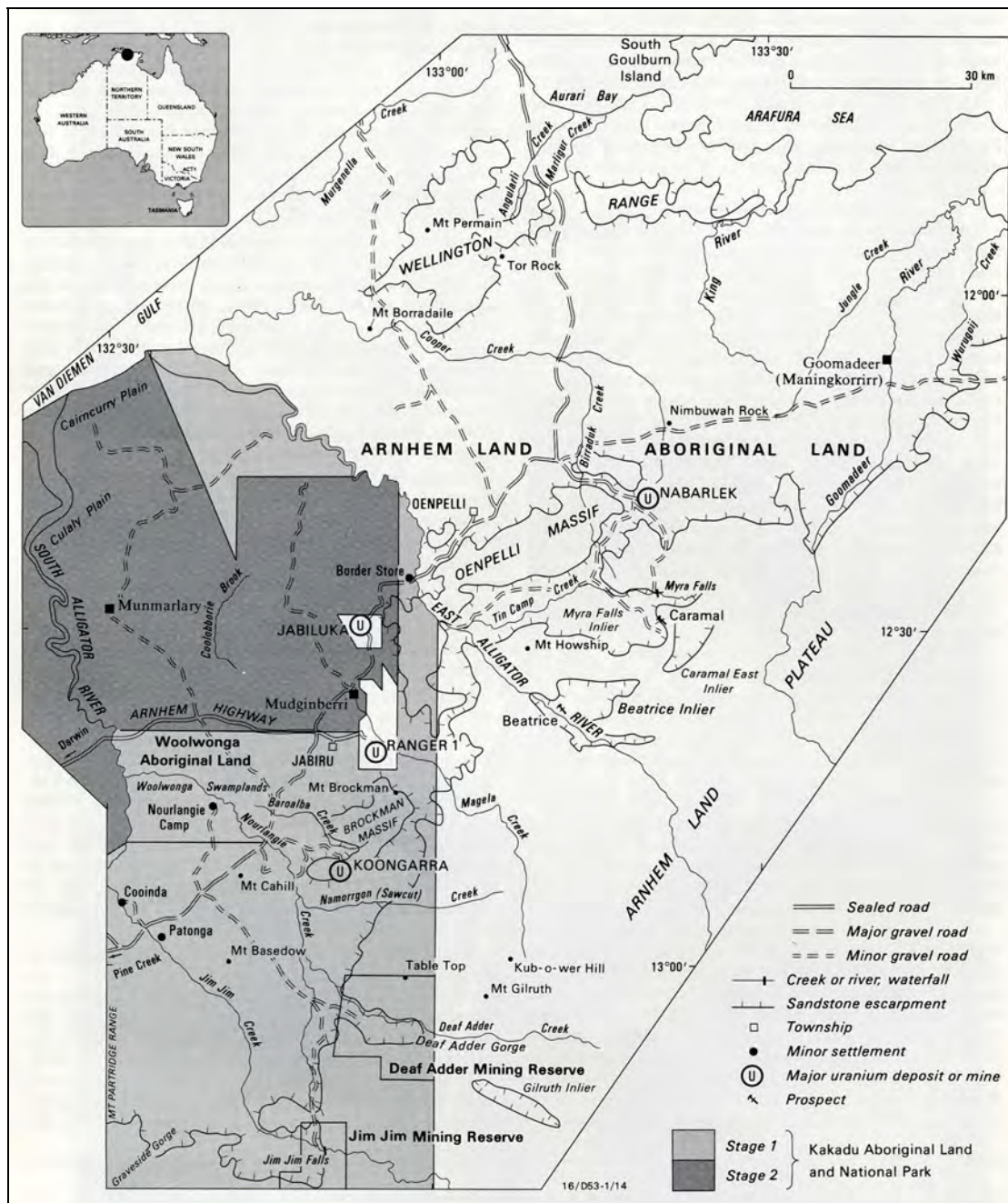


Figure 1 Location of the "Alligator River Uranium Field", as defined by Needham (1988)
Source: Needham (1988)

2.1 Modat Data

Modat Version 1.1 was used for this study. According to Geoscience Information (NTGS) an updated version of Modat is planned for release in the near future, however, is unlikely to contain changes for the ARR (Z Bajwah, pers comm).

MODAT provides information on known metalliferous and non-metalliferous mineral occurrences and deposits within the Northern Territory. The data is captured by geologists by reviewing company reports and/or fieldwork and stored in an Access97 database. Deposit name, location (site), size, shape, origin, geological setting, host lithology and metamorphism, structure, mineralisation, wall rock alteration, past production and references are documented. Positional accuracy is defined as approximately 100-300 metres using 100K Topographical Maps, with new sites located by a hand-held GPS.

For this study, spatially of interest were the ARR, and mineralogically, the uranium and thorium commodities. The approach can be summarised as follows:

The ARR area was subset from the NT commodities database in a geographical information systems (GIS) environment, and converted to UTM GDA94. Because uranium (and thorium) mineralisation is of prime importance here, these commodities were extracted and their features described. Common names of uranium commodities, the status of the mine (whether abandoned mine, mineral occurrence, operating mine, or prospect), and the size of the mine (large, medium, small, occurrence only) were defined.

2.1.1 Definition of MODAT database terms:

A number of terms are defined in the MODAT database and are therefore used in this report. For example, Ranger I is defined as an “abandoned” mineral deposit, even though it is still under ERARM. These terms, as defined by MODAT are defined below and used in this report.

Commodity: Is a mixture of an element, mineral or product term: eg, Mica, Cu, Au, Barite etc. MODAT is primarily designed to cater for metallic commodities. Here, the term commodity is replaced with anomaly.

Common Name: This is the preferred name given to the mineral occurrence, deposit or prospect, although unnamed mineral occurrences exist. The *names* shown are either the most commonly used or the most recently known. Other less well-known names, if any, are also captured.

Status: Relates to the current state of the mineral deposit. Four status classes are recognised.

Operating Mine: a significant mineral deposit that is currently being mined.

Abandoned Mine: a significant mineral deposit with recorded past production.

Prospect: a mineral deposit with an exploration history but no production recorded.

Mineral Occurrence: a minor mineral deposit with no production or significant exploration history.

Size: Four classes of deposits have been established - based on contained metal, which is derived from total production plus total known resources. Classes *small*, *medium* and *large* are based on internationally recognisable size categories (eg, North America, South Africa and Circum Pacific Mineral Resources maps). The category *occurrence only* has been added to show mineral occurrences that appear very small and have not been mined or delineated in any detail. For uranium the classes are large (> 10 000), medium (10 000 – 100), small (100-

1), and occurrence (<1), based on past production reserves in tonnes of metal or mineral contained.

2.2 Ancillary data

Landsat coverage at 300 m pixel resolution (ACRES Geoscience Australia), was subset to provide a backdrop for the ARR area. AUSLIG 250K Australian topographic data (particularly roads, wetlands and localities) was also subset to the ARR region for reference.

In addition, river catchment boundaries, from the Australian Water Resources Commission Drainage Divisions and Basins (AUSLIG) were used to relate the position of known anomalies to a hydrological setting.

The ARR uranium Modat data and ancillary information were used to produce maps and tables of anomalies in a GIS environment.

3 Results

The results are presented in a series of figures and tables. Figure 2 provides a spatial reference for the remaining figures.

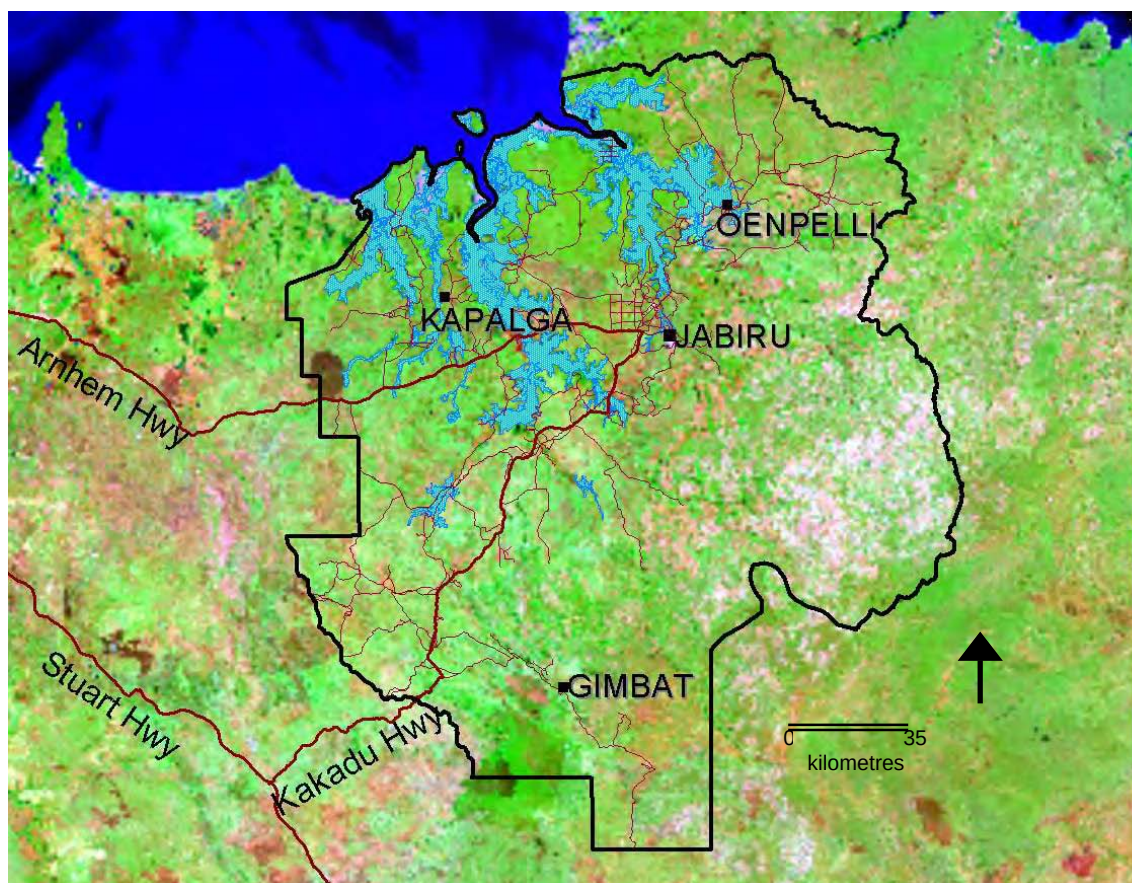


Figure 2 The ARR study area. Landsat (300 m resolution) scene is used as a backdrop
(© Commonwealth of Australia – ACRES Geoscience Australia)
The representation of roads and water bodies are derived from 1:250 000 topographic data supplied by
AUSLIG Australia's national mapping agency.

According to the MODAT commodity file, there are 198 known commodities (including uranium) occurring in the ARR.

Figure 3 maps the spatial location of mineral commodities other than uranium, which include iron, copper, tin, lead, thorium, nickel and gold (Fe, Cu, Sn, Pb, Th, Ni, and Au). There is one thorium commodity listed in the ARR, named Pul Pul Hill (ID 421) in the upper South Alligator River valley area. The status of Pul Pul Hill is listed as “mineral occurrence” (minor deposit with no production or significant exploration history) and the size as “occurrence only”(very small and not delineated in any detail).

Of the 198 commodities in the ARR, 163 have uranium as the major commodity (with the exception of Jabiluka which is listed as uranium and gold). Figure 4 highlights the spatial location of the known uranium commodities in the ARR. Table 1 documents these names and their identification number. There are 26 unnamed commodities (refer to figure 5 for their spatial location).

Ranger (# 3) mine is the only operational mine in the ARR. There are 17 abandoned uranium mines that are spatially mapped in figure 6 (and listed in table 2). There are 121 uranium mineral occurrences (minor deposits with no production or significant exploration history) that are spatially mapped in figure 7 and listed in table 3. There are 24 uranium “prospects” (a mineral deposit with an exploration history but no production recorded) (figure 8 and table 4).

Figure 9 maps the spatial location of the large (> 10 000 t) and medium (10 000 – 100 t) sized deposits. There are 5 large-sized deposits, namely Jabiluka, Ranger 1 (number 3), Koongarra 1, Ranger 1 (number 1) and Nabarlek, and six medium-sized deposits, including Palette, El Sherana, El Sherana West, Rockhole 1 and 2, and North Ranger (number 1). There are 16 small-sized (100 – 1 t) deposits (figure 10 and table 5), and 135 occurrence only (< 1 tonne of mineral) deposits (figure 11 and table 6).

Figure 12 displays the major drainage divisions (Australian Water Resources Commission Drainage Divisions and Basins, AUSLIG) of the ARR, which according to AUSLIG, include the South and East Alligator River catchments, Wildman, Mary, Daly, Liverpool and Goomadeer catchments. Also displayed in figure 12 are the locations of all mineral commodities in the ARR. Table 7 documents the commodity name, identification number and the broad drainage division the commodity is located in.

Attached after the references are the site identification and common names of all known uranium anomalies in the ARR. Accompanying this, are the details outlined in the MODAT database (including mining method, ore characteristics and reserves), where available.

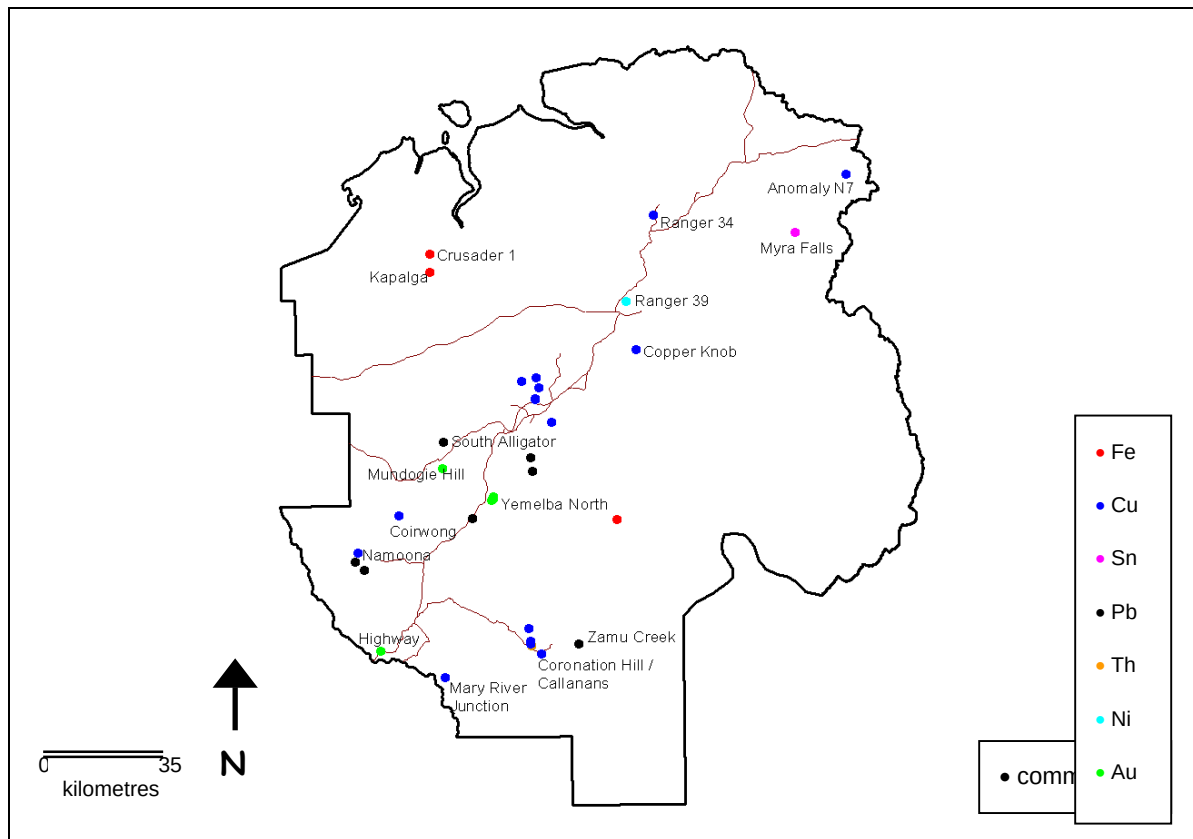


Figure 3 Anomalies other than uranium in the ARR

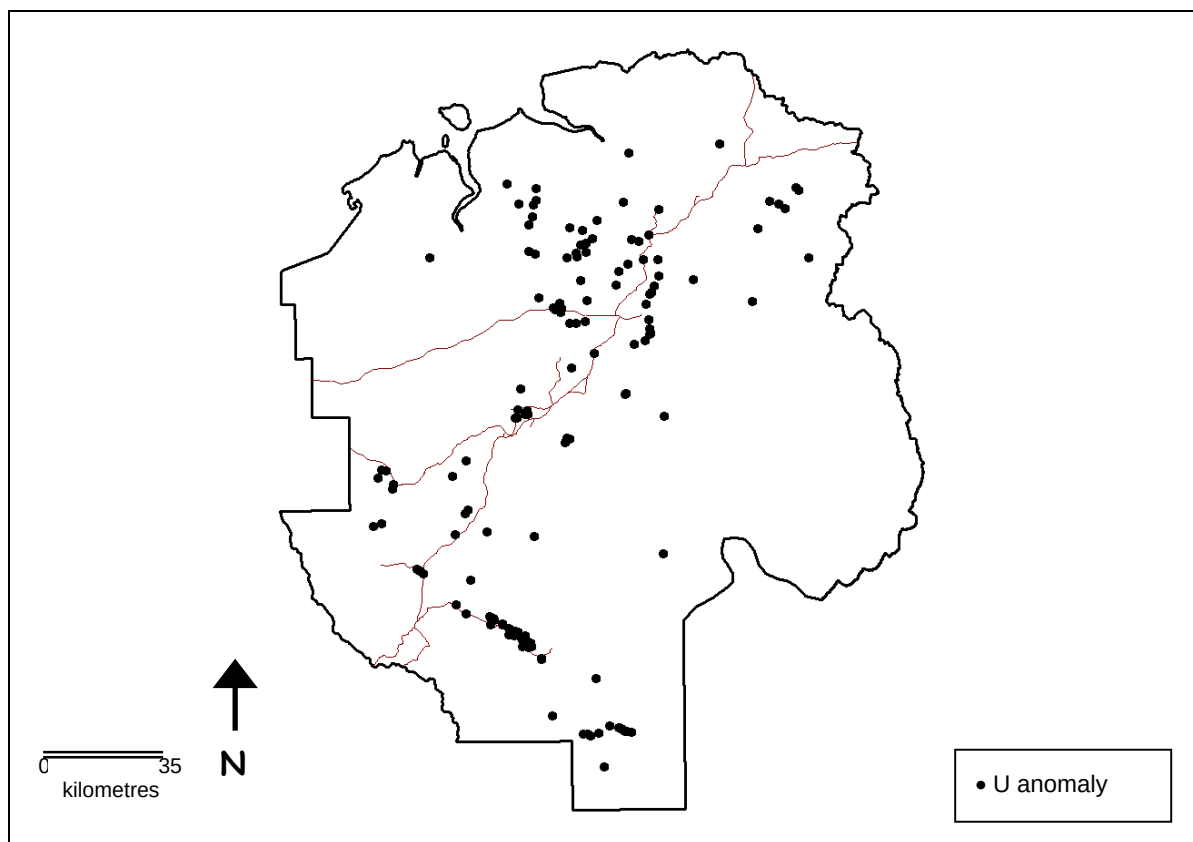


Figure 4 All known uranium (and uranium/gold) anomalies in the ARR

Table 1 Uranium commodities in the ARR

ID	NAME	ID	NAME	ID	NAME
2566	Jabiluka	295	Airstrip	699	AN 321
5	Tadpole	298	Ranger 37	701	Unnamed
39	Anomaly 5A	299	El Sherana North	704	Unnamed
52	Ranger 50	301	Ranger 55	1082	Ranger 43
53	Anomaly 5a	302	Stag Creek	1083	Ranger 13
62	Ranger 30	311	Ranger 19	1352	Ranger 1, No 3
73	Ranger 29	312	High Road	1419	El Sherana
74	Anomaly 77 South	315	El Sherana East	1420	El Sherana West
82	Ranger 45	318	Hades Flats	1421	Flying Fox
93	Magela 2	319	Carvats	1426	Koolpin
100	Ranger 49	322	7J	1435	Scinto 1
101	Anomaly 5073	323	Orchid Gully	1436	Scinto 5
112	Mordijimuk	329	Ranger 14 west	1437	Scinto 6
113	Anomaly 5087	330	Alligator Fault	1438	Scinto Camp
119	Anomaly N84	333	Ranger 14 east	1442	Sterrets No1
128	Unnamed	337	Monolith	1443	Sterrets No2
138	Anomaly N147	344	Ranger 1 No 2	1444	Stockpile 1
139	Anomaly 5P	345	Koolpin East	1445	Stockpile 2
143	Ranger 26	348	Unnamed	1448	Teagues
144	Anomaly TE-1	351	Anomaly Q	1468	Beatrice
154	Ranger 24	352	Cliff Face	1486	Ranger 68
155	Coirwong Gorge	355	Scinto 5 South	1773	Unnamed
158	Ranger 23	360	Palette	1832	Barramundie Creek
159	Anomaly 5G	364	Unnamed	1833	Christmas Creek
172	Ranger 58	368	Palms	1879	Ranger 59
173	Graveside	378	Unnamed	1880	Ranger 20
175	Ranger 8	381	Unnamed	1908	Caramel
181	Ranger 17	382	Saddle Ridge NE	1910	Sandstone South
182	Anomalies 5218-19	384	Unnamed	1911	Sandstone North
187	Ranger 60	385	Saddle Ridge North	1915	Ranger 25
190	Ranger 32	388	Unnamed	1916	Ranger 57
194	Ranger 31	389	Clear Springs	1917	Urralugoorwa
199	Ranger 2	392	Unnamed	2204	Ranger 63
202	Ranger 71	397	Saddle Ridge	2205	Ranger 9
205	Ranger 61	401	Unnamed	2245	Anomaly 5C
210	Ranger 44	405	Unnamed	2246	Barramundie South
215	Ranger 33	406	Saddle Ridge East	2314	Anomaly 2J
218	Ranger 35	411	Unnamed	2317	Coronation Hill
219	Gerowie Creek No1	412	Saddle Ridge E Extended	2318	Skull
226	Gerowie Creek No2	414	Unnamed	2319	Sleisbeck
231	Gorrunghar	415	Saddle Ridge S	2320	Rockhole No2
232	Gerowie Creek No3	417	Unnamed	2321	Rockhole No1
238	Gurrigarri	420	Anomaly A	2467	Arrarra
239	Waterfall Creek	427	Coronation South	2468	Crusader 2
247	Five Sisters	475	3/171 Prospect	2564	Koongarra 1
256	Ranger 4	479	Unnamed	2565	North Ranger 1
271	BMR 1	679	Unnamed	2567	Ranger 1 No. 1
272	O'Dwyers	681	Unnamed	2568	Nabarlek
278	Ranger 28	684	Unnamed	2624	Koongarra 2
282	Ranger 10	687	Unnamed	2625	Algodo
283	9600NW Anomaly	689	Unnamed	2626	Ranger 1 No4
287	Ranger 54	691	Unnamed	2627	Ranger 1 No5
288	9200NW Anomaly	693	Unnamed	2628	Ranger 1 No9
292	Ranger 53	695	Unnamed		
294	Austatom	697	Unnamed		

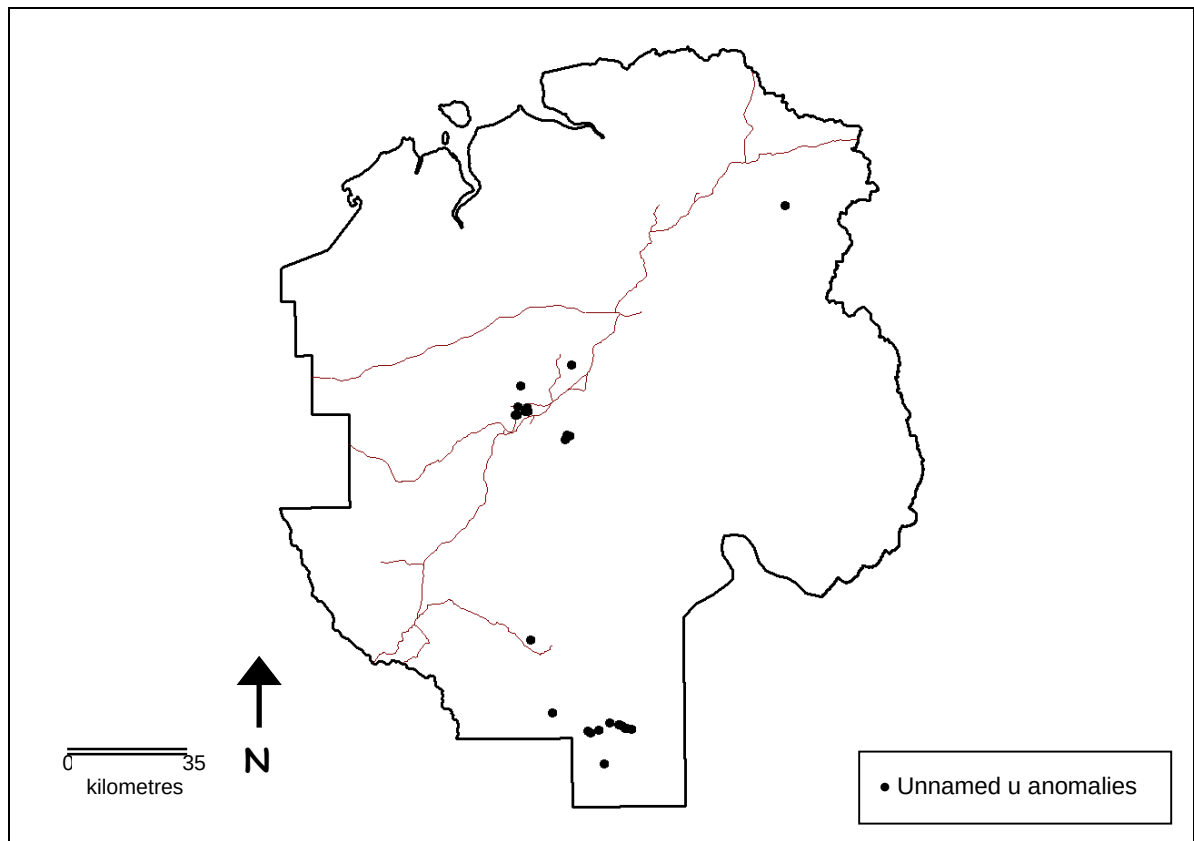


Figure 5 The location of unnamed uranium anomalies in the ARR

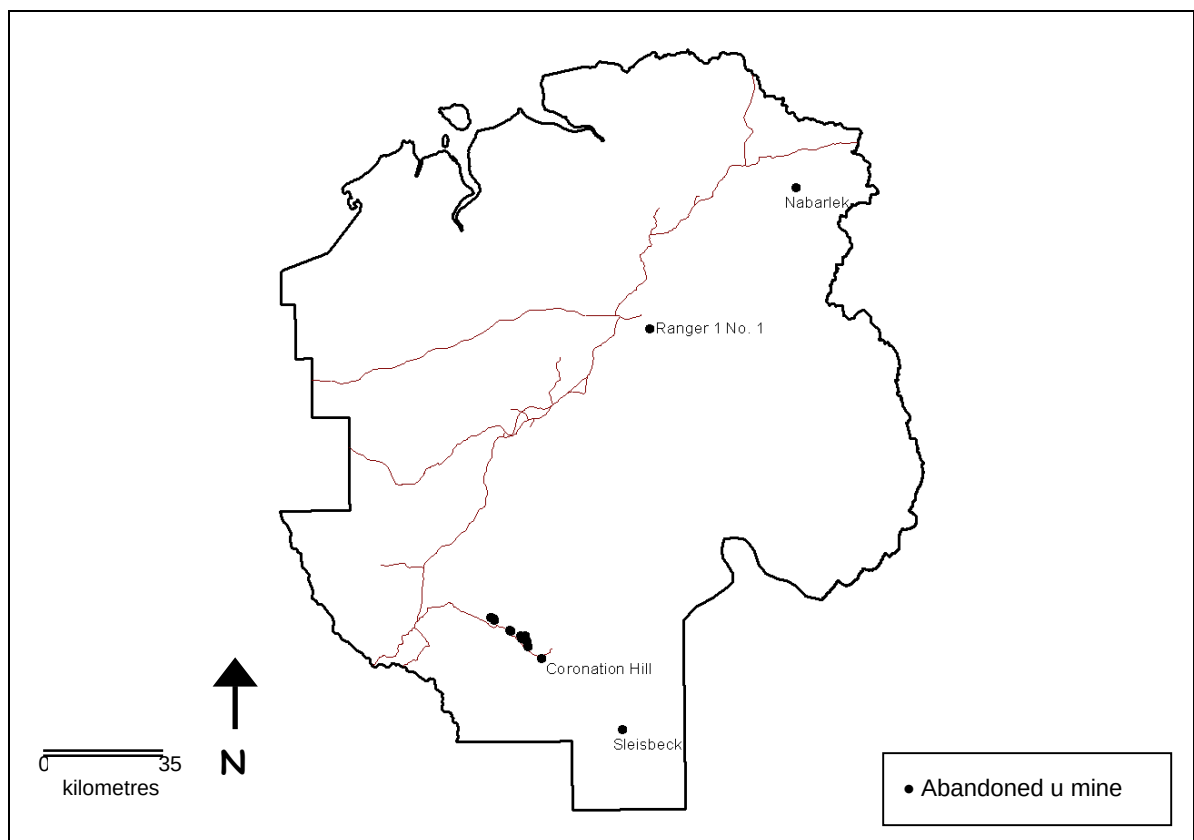


Figure 6 "Abandoned" uranium mines in the ARR

Table 2 “Abandoned” uranium mines in the ARR

DEPOSIT ID	COMMON NAME	DEPOSIT ID	COMMON NAME
272	O'Dwyers	1443	Sterrets No2
360	Palette	2317	Coronation Hill
397	Saddle Ridge	2318	Skull
1419	El Sherana	2319	Sleisbeck
1420	El Sherana West	2320	Rockhole No2
1426	Koolpin	2321	Rockhole No1
1436	Scinto 5	2567	Ranger 1 No. 1
1437	Scinto 6	2568	Nabarlek
1442	Sterrets No1		

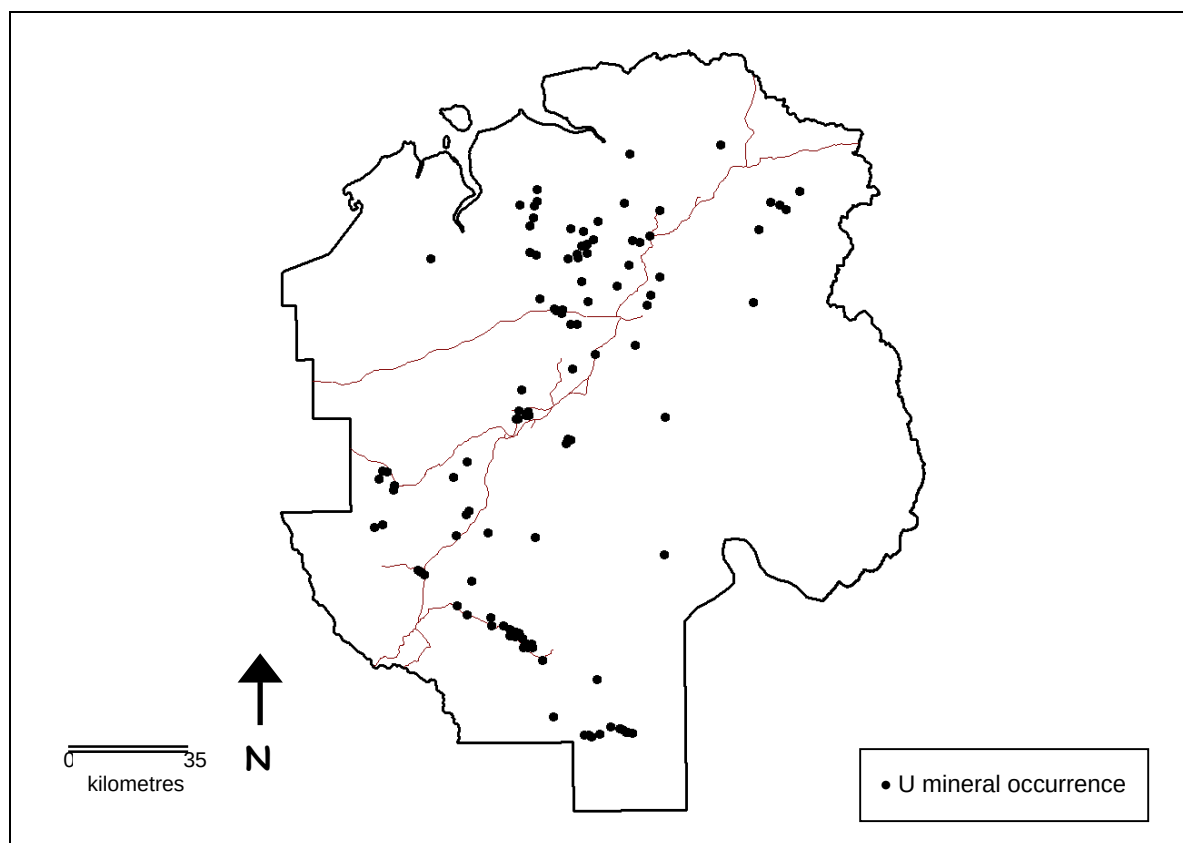


Figure 7 Location of uranium mineral occurrences (minor mineral deposits with no production or significant exploration) in the ARR

Table 3 Uranium mineral occurrences in the ARR

ID	NAME	ID	NAME	ID	NAME
5	Tadpole	238	Gurrigarri	420	Anomaly A
39	Anomaly 5A	239	Waterfall Creek	427	Coronation South
52	Ranger 50	247	Five Sisters	475	3/171 Prospect
53	Anomaly 5a	271	BMR 1	479	Unnamed
62	Ranger 30	278	Ranger 28	679	Unnamed
73	Ranger 29	282	Ranger 10	681	Unnamed
74	Anomaly 77 South	287	Ranger 54	684	Unnamed
82	Ranger 45	288	9200NW Anomaly	687	Unnamed
93	Magela 2	292	Ranger 53	689	Unnamed
100	Ranger 49	295	Airstrip	691	Unnamed
101	Anomaly 5073	298	Ranger 37	693	Unnamed
112	Mordijimuk	299	El Sherana North	695	Unnamed
113	Anomaly 5087	301	Ranger 55	697	Unnamed
119	Anomaly N84	302	Stag Creek	699	AN 321
128	Unnamed	311	Ranger 19	701	Unnamed
138	Anomaly N147	312	High Road	704	Unnamed
139	Anomaly 5P	315	El Sherana East	1421	Flying Fox
143	Ranger 26	319	Carvats	1438	Scinto Camp
144	Anomaly TE-1	323	Orchid Gully	1444	Stockpile 1
154	Ranger 24	329	Ranger 14 west	1445	Stockpile 2
155	Coirwong Gorge	330	Alligator Fault	1448	Teagues
158	Ranger 23	333	Ranger 14 east	1468	Beatrice
159	Anomaly 5G	337	Monolith	1486	Ranger 68
172	Ranger 58	345	Koolpin East	1832	Barramundie Creek
173	Graveside	348	Unnamed	1833	Christmas Creek
175	Ranger 8	351	Anomaly Q	1879	Ranger 59
181	Ranger 17	364	Unnamed	1880	Ranger 20
182	Anomalies 5218-19	368	Palms	1910	Sandstone South
187	Ranger 60	378	Unnamed	1911	Sandstone North
190	Ranger 32	381	Unnamed	1915	Ranger 25
194	Ranger 31	384	Unnamed	1916	Ranger 57
199	Ranger 2	385	Saddle Ridge North	1917	Urralugoorwa
202	Ranger 71	388	Unnamed	2204	Ranger 63
205	Ranger 61	389	Clear Springs	2205	Ranger 9
210	Ranger 44	392	Unnamed	2245	Anomaly 5C
215	Ranger 33	401	Unnamed	2246	Barramundie South
218	Ranger 35	405	Unnamed	2314	Anomaly 2J
219	Gerowie Creek No1	411	Unnamed	2467	Arrarra
226	Gerowie Creek No2	412	Saddle Ridge East Extended	2468	Crusader 2
231	Gorrunghar	414	Unnamed		
232	Gerowie Creek No3	417	Unnamed		

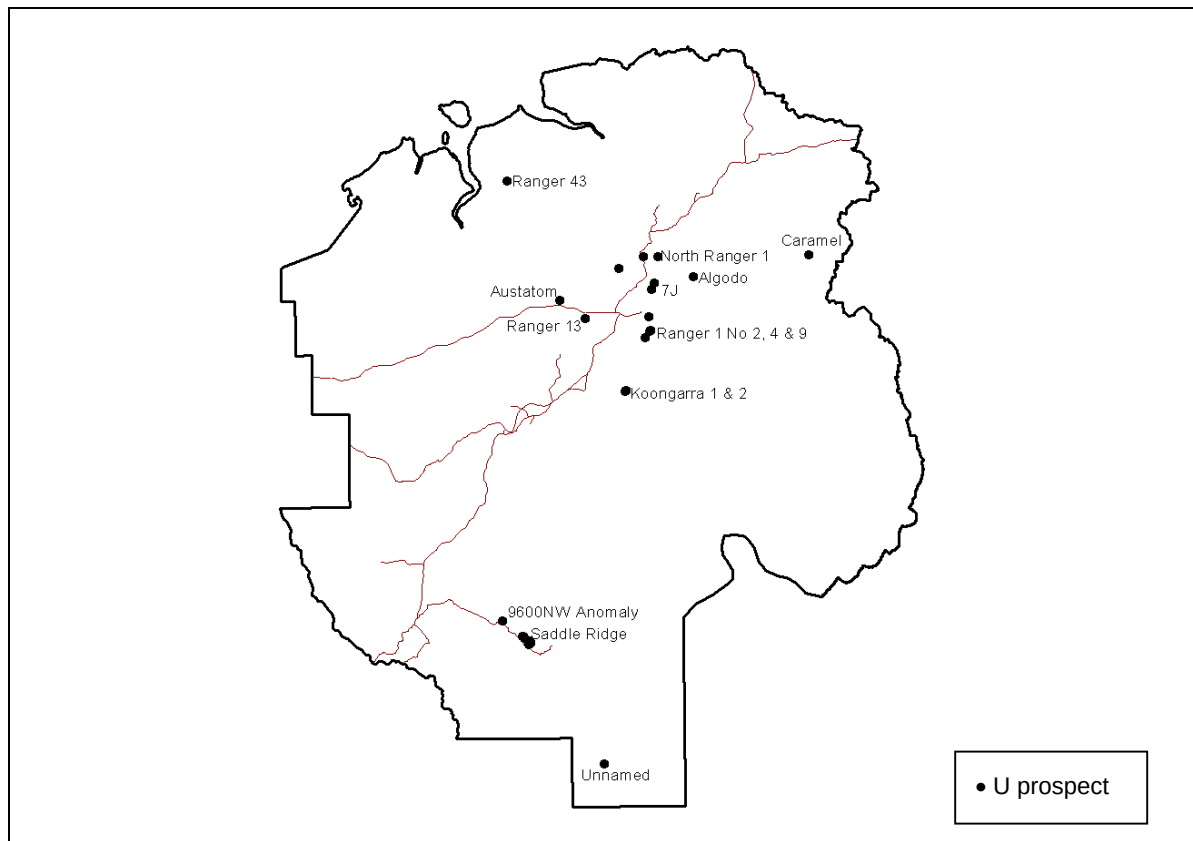


Figure 8 Known uranium prospects in the ARR
(mineral deposits with an exploration history but no production recorded)

Table 4 Known uranium prospects in the ARR

ID	NAME	ID	NAME	ID	NAME
2566	Jabiluka	355	Scinto 5 South	1908	Caramel
256	Ranger 4	382	Saddle Ridge NE	2564	Koongarra 1
283	9600NW Anomaly	406	Saddle Ridge East	2565	North Ranger 1
294	Austatom	415	Saddle Ridge South	2624	Koongarra 2
318	Hades Flats	1082	Ranger 43	2625	Algodo
322	7J	1083	Ranger 13	2626	Ranger 1 No 4
344	Ranger 1 No 2	1435	Scinto 1	2627	Ranger 1 No 5
352	Cliff Face	1773	Unnamed	2628	Ranger 1 No 9

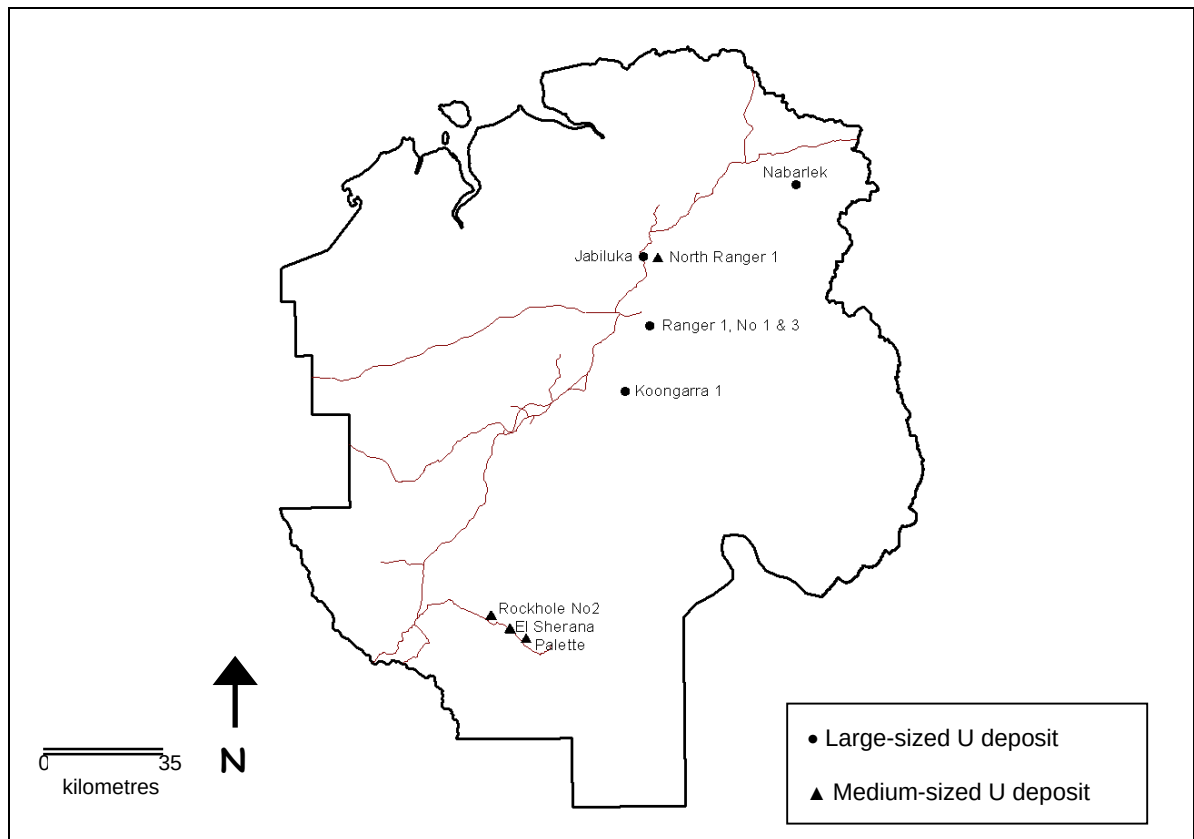


Figure 9 Large (> 10 000 t) and medium (10 000 – 100) sized uranium deposits in the ARR

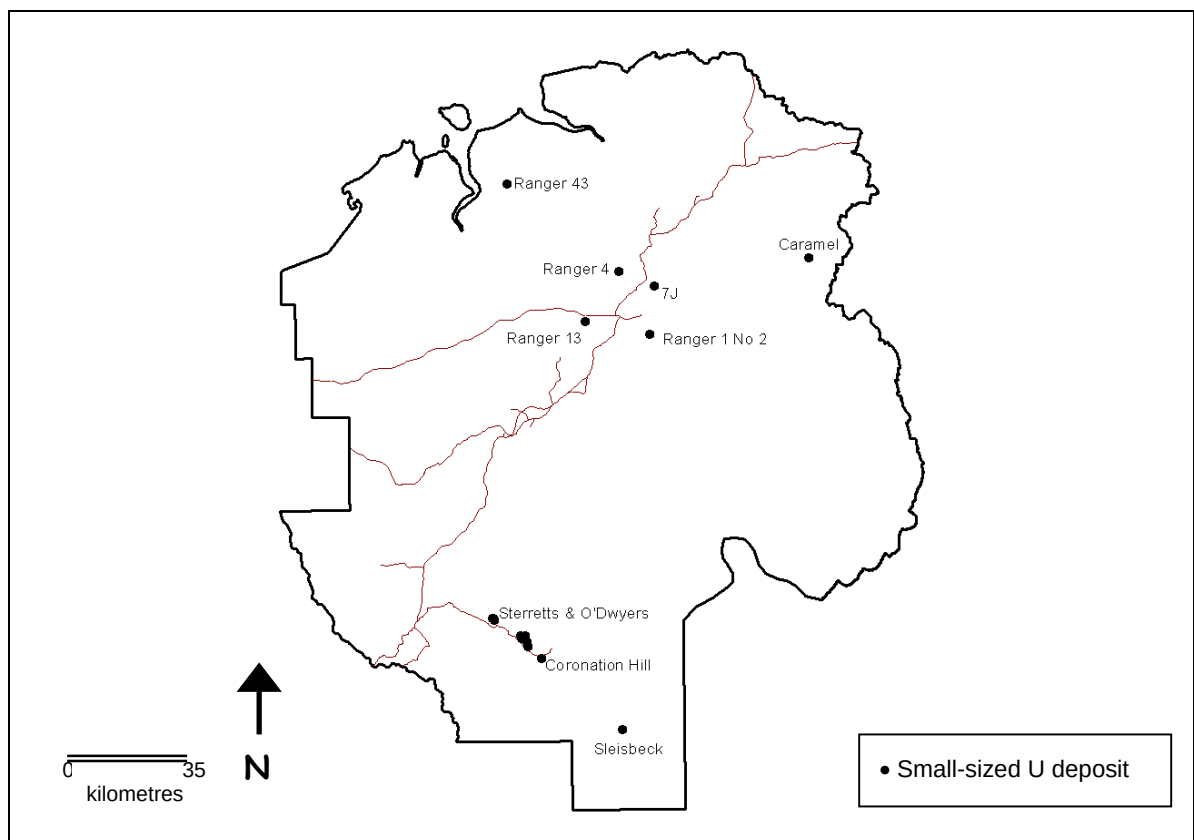


Figure 10 Small (100 – 1 t) sized uranium deposits in the ARR

Table 5 Small-sized uranium deposits in the ARR

ID	NAME	ID	NAME
256	Ranger 4	1436	Scinto 5
272	O'Dwyers	1437	Scinto 6
322	7J	1442	Sterrets No1
344	Ranger 1 No 2	1443	Sterrets No2
397	Saddle Ridge	1908	Caramel
1082	Ranger 43	2317	Coronation Hill
1083	Ranger 13	2318	Skull
1426	Koolpin	2319	Sleisbeck

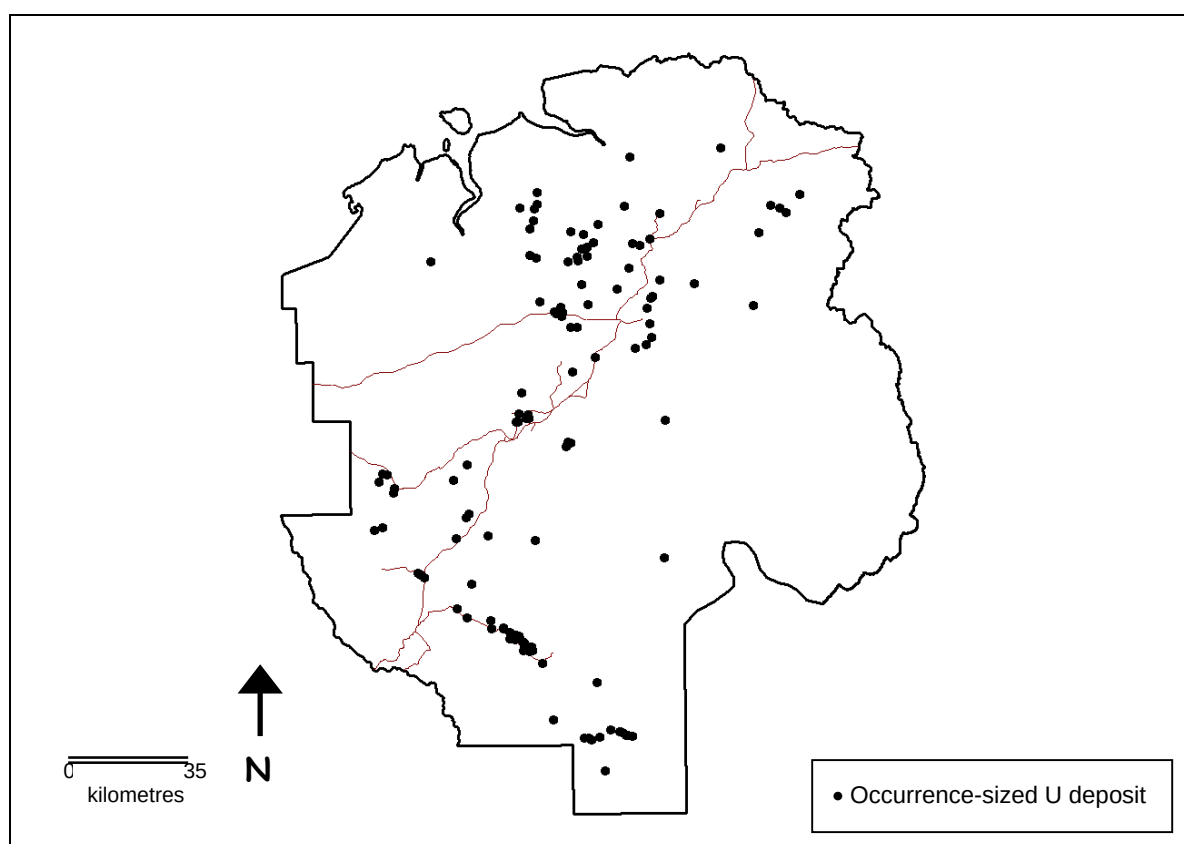


Figure 11 Occurrence only – sized (< 1 tonne) uranium deposits in the ARR

Table 6 Occurrence only sized uranium deposits in the ARR

ID	NAME	ID	NAME	ID	NAME
5	Tadpole	278	Ranger 28	420	Anomaly A
39	Anomaly 5A	282	Ranger 10	427	Coronation South
52	Ranger 50	283	9600NW Anomaly	475	3/171 Prospect
53	Anomaly 5a	287	Ranger 54	479	Unnamed
62	Ranger 30	288	9200NW Anomaly	679	Unnamed
73	Ranger 29	292	Ranger 53	681	Unnamed
74	Anomaly 77 South	294	Austatom	684	Unnamed
82	Ranger 45	295	Airstrip	687	Unnamed
93	Magela 2	298	Ranger 37	689	Unnamed
100	Ranger 49	299	El Sherana North	691	Unnamed
101	Anomaly 5073	301	Ranger 55	693	Unnamed
112	Mordijimuk	302	Stag Creek	695	Unnamed
113	Anomaly 5087	311	Ranger 19	697	Unnamed
119	Anomaly N84	312	High Road	699	AN 321
128	Unnamed	315	El Sherana East	701	Unnamed
138	Anomaly N147	318	Hades Flats	704	Unnamed
139	Anomaly 5P	319	Carvats	1421	Flying Fox
143	Ranger 26	323	Orchid Gully	1435	Scinto 1
144	Anomaly TE-1	329	Ranger 14 west	1438	Scinto Camp
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159	Anomaly 5G	345	Koolpin East	1468	Beatrice
172	Ranger 58	348	Unnamed	1486	Ranger 68
173	Graveside	351	Anomaly Q	1773	Unnamed
175	Ranger 8	352	Cliff Face	1832	Barramundie Creek
181	Ranger 17	355	Scinto 5 South	1833	Christmas Creek
182	Anomalies 5218, 5219	364	Unnamed	1879	Ranger 59
187	Ranger 60	368	Palms	1880	Ranger 20
190	Ranger 32	378	Unnamed	1910	Sandstone South
194	Ranger 31	381	Unnamed	1911	Sandstone North
199	Ranger 2	382	Saddle Ridge NE	1915	Ranger 25
202	Ranger 71	384	Unnamed	1916	Ranger 57
205	Ranger 61	385	Saddle Ridge North	1917	Urralugoorwa
210	Ranger 44	388	Unnamed	2204	Ranger 63
215	Ranger 33	389	Clear Springs	2205	Ranger 9
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219	Gerowie Creek No1	401	Unnamed	2246	Barramundie South
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238	Gurrigarri	412	Saddle Ridge E Ext	2625	Algodo
239	Waterfall Creek	414	Unnamed	2626	Ranger 1 No4
247	Five Sisters	415	Saddle Ridge South	2627	Ranger 1 No5
271	BMR 1	417	Unnamed	2628	Ranger 1 No9

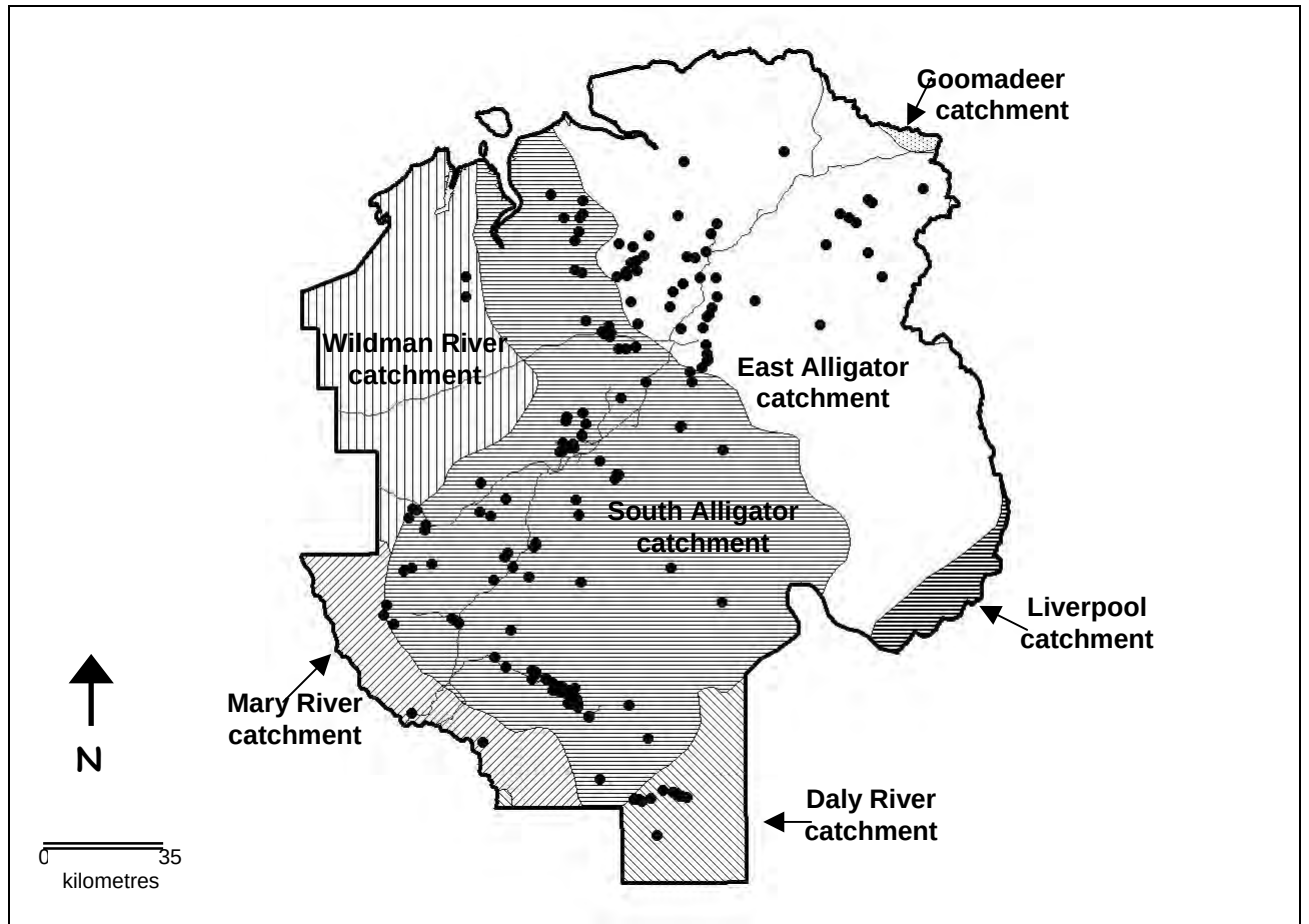


Figure 12 The major drainage division locations of the ARR anomalies

Table 7 The catchment location of the ARR commodities

ID	NAME	CATCHMENT	ID	NAME	CATCHMENT
475	3/171 Prospect	South Alligator	62	Ranger 30	South Alligator
322	7J	East Alligator	194	Ranger 31	East Alligator
288	9200NW Anomaly	South Alligator	190	Ranger 32	East Alligator
283	9600NW Anomaly	South Alligator	215	Ranger 33	East Alligator
295	Airstrip	South Alligator	225	Ranger 34	East Alligator
2625	Algodo	East Alligator	218	Ranger 35	East Alligator
330	Alligator Fault	South Alligator	298	Ranger 37	South Alligator
699	AN 321	Daly River	308	Ranger 39	East Alligator
182	Anomalies 5218 5219	South Alligator	256	Ranger 4	East Alligator
2314	Anomaly 2J	South Alligator	1082	Ranger 43	South Alligator
101	Anomaly 5073	South Alligator	210	Ranger 44	East Alligator
113	Anomaly 5087	South Alligator	82	Ranger 45	South Alligator
53	Anomaly 5a	South Alligator	100	Ranger 49	East Alligator
39	Anomaly 5A	Wildman River	52	Ranger 50	South Alligator
2245	Anomaly 5C	South Alligator	292	Ranger 53	South Alligator
159	Anomaly 5G	South Alligator	287	Ranger 54	South Alligator
139	Anomaly 5P	South Alligator	301	Ranger 55	East Alligator
74	Anomaly 77 S	South Alligator	1916	Ranger 57	East Alligator
420	Anomaly A	South Alligator	172	Ranger 58	East Alligator
138	Anomaly N147	East Alligator	1879	Ranger 59	East Alligator
38	Anomaly N7	East Alligator	187	Ranger 60	East Alligator
119	Anomaly N84	East Alligator	205	Ranger 61	East Alligator
351	Anomaly Q	South Alligator	2204	Ranger 63	East Alligator
144	Anomaly TE-1	South Alligator	1486	Ranger 68	East Alligator
2467	Arrarra	East Alligator	202	Ranger 71	East Alligator
294	Austatom	South Alligator	175	Ranger 8	East Alligator
1832	Barramundie Creek	South Alligator	2205	Ranger 9	East Alligator
2246	Barramundie South	South Alligator	2321	Rockhole No1	South Alligator
1468	Beatrice	East Alligator	2320	Rockhole No2	South Alligator
271	BMR 1	East Alligator	397	Saddle Ridge	South Alligator
424	Callanans	South Alligator	406	Saddle Ridge East	South Alligator
1908	Caramel	East Alligator	412	Saddle Ridge E Ext	South Alligator
319	Carvats	South Alligator	385	Saddle Ridge North	South Alligator
1833	Christmas Creek	South Alligator	382	Saddle Ridge NE	South Alligator
389	Clear Springs	South Alligator	415	Saddle Ridge South	South Alligator
352	Cliff Face	South Alligator	1911	Sandstone North	South Alligator
149	Coirwong	South Alligator	1910	Sandstone South	South Alligator
155	Coirwong Gorge	South Alligator	1435	Scinto 1	South Alligator
1817	Copper Knob	South Alligator	1436	Scinto 5	South Alligator
1603	Coronation Hill	South Alligator	355	Scinto 5 South	South Alligator
2317	Coronation Hill	South Alligator	1437	Scinto 6	South Alligator
427	Coronation South	South Alligator	1438	Scinto Camp	South Alligator
2469	Crusader 1	Wildman River	2318	Skull	South Alligator
2468	Crusader 2	Wildman River	2319	Sleisbeck	Daly River
1419	El Sherana	South Alligator	6	South Alligator	South Alligator
315	El Sherana East	South Alligator	302	Stag Creek	South Alligator
299	El Sherana North	South Alligator	1442	Sterrets No1	South Alligator
1420	El Sherana West	South Alligator	1443	Sterrets No2	South Alligator
247	Five Sisters	South Alligator	1444	Stockpile 1	South Alligator
1421	Flying Fox	South Alligator	1445	Stockpile 2	South Alligator
219	Gerowie Creek No1	South Alligator	5	Tadpole	East Alligator
226	Gerowie Creek No2	South Alligator	1448	Teagues	South Alligator
232	Gerowie Creek No3	South Alligator	1469	Ten Mile Creek	South Alligator
231	Gorrunghar	East Alligator	679	Unnamed	Daly River
173	Graveside	South Alligator	681	Unnamed	Daly River

238	Gurrigarri	East Alligator	684	Unnamed	Daly River
318	Hades Flats	East Alligator	687	Unnamed	Daly River
312	High Road	South Alligator	689	Unnamed	Daly River
506	Highway	Mary River	691	Unnamed	Daly River
2566	Jabiluka	East Alligator	693	Unnamed	Daly River
2259	Kapalga	Wildman River	695	Unnamed	Daly River
1426	Koolpin	South Alligator	697	Unnamed	Daly River
345	Koolpin East	South Alligator	701	Unnamed	Daly River
2564	Koongarra 1	South Alligator	704	Unnamed	Daly River
2624	Koongarra 2	South Alligator	1773	Unnamed	Daly River
93	Magela 2	East Alligator	128	Unnamed	East Alligator
1498	Mary River Junction	Mary River	83	Unnamed	South Alligator
337	Monolith	South Alligator	162	Unnamed	South Alligator
112	Mordijimuk	East Alligator	195	Unnamed	South Alligator
63	Mundogie Hill	South Alligator	348	Unnamed	South Alligator
246	Myra Falls	East Alligator	359	Unnamed	South Alligator
2568	Nabarlek	East Alligator	364	Unnamed	South Alligator
2316	Namoonna	Mary River	367	Unnamed	South Alligator
2565	North Ranger 1	East Alligator	372	Unnamed	South Alligator
272	O'Dwyers	South Alligator	374	Unnamed	South Alligator
323	Orchid Gully	South Alligator	377	Unnamed	South Alligator
360	Palette	South Alligator	378	Unnamed	South Alligator
368	Palms	South Alligator	381	Unnamed	South Alligator
421	Pul Pul Hill	South Alligator	384	Unnamed	South Alligator
344	Ranger 1 No 2	East Alligator	388	Unnamed	South Alligator
2567	Ranger 1 No. 1	East Alligator	392	Unnamed	South Alligator
2626	Ranger 1 No4	East Alligator	393	Unnamed	South Alligator
2627	Ranger 1 No5	East Alligator	401	Unnamed	South Alligator
2628	Ranger 1 No9	East Alligator	402	Unnamed	South Alligator
1352	Ranger 1, No 3	East Alligator	405	Unnamed	South Alligator
282	Ranger 10	South Alligator	409	Unnamed	South Alligator
1083	Ranger 13	South Alligator	411	Unnamed	South Alligator
333	Ranger 14 east	South Alligator	414	Unnamed	South Alligator
329	Ranger 14 west	South Alligator	417	Unnamed	South Alligator
181	Ranger 17	East Alligator	418	Unnamed	South Alligator
311	Ranger 19	East Alligator	479	Unnamed	South Alligator
199	Ranger 2	East Alligator	1453	Unnamed	South Alligator
1880	Ranger 20	South Alligator	1471	Unnamed	South Alligator
158	Ranger 23	South Alligator	1917	Urralugoorwa	East Alligator
154	Ranger 24	South Alligator	239	Waterfall Creek	South Alligator
1915	Ranger 25	South Alligator	129	Yemelba	South Alligator
143	Ranger 26	South Alligator	133	Yemelba Alluvial	South Alligator
278	Ranger 28	South Alligator	120	Yemelba North	South Alligator
73	Ranger 29	South Alligator	1458	Zamu Creek	South Alligator

4 Discussion

According to the Modat database, there are 198 known metal commodities in the ARR.

Non-uranium commodities include Fe, Cu, Sn, Pb, Th, Ni, and Au (refer to figure 3). There are three iron commodities: Kapalga and Crusader 1 (near the West Alligator River) and an unnamed deposit (near Nourlangie Creek). Sixteen copper deposits occur in the ARR, including Anomaly N7, Coirwong, Ranger 34, Callanans (near Coronation Hill), Mary River Junction, Copper Knob, and 10 unnamed Cu commodities. Myra Falls is the only Sn commodity in the ARR. There are 7 Pb commodities (South Alligator, Zamu Creek, Ten Mile Creek, Namoonna and three unnamed Pb commodities). Pul Pul Hill in the upper South Alligator River valley is the only Th deposit. Ranger 39 is the sole Ni commodity in the ARR. There are six Au commodities in the ARR (Mundogie Hill, Yemelba North, Yemelba, Yemelba Alluvial, Highway, and Coronation Hill).

Figure 4 highlights the spatial location of the 164 uranium (and uranium/gold) commodities in the ARR. The names of these locations are listed in table 1. Twenty six of these are unnamed (figure 5), with most of these unnamed deposits located near Coinda and the south of the ARR boundary near Sleisbeck.

Ranger (# 3) mine is the only operational mine in the ARR. There are 17 “abandoned” mines that are spatially mapped in figure 6 and listed in table 2. These include Ranger (#1), Nabarlek, Sleisbeck, and 14 mines in the upper South Alligator River valley area.

There are 121 uranium mineral occurrences (minor mineral deposits with no production or significant exploration history). These deposits are spatially mapped in figure 7 and listed in table 3. Thirty nine of these occurrences are named with the prefix “Ranger”. Thirty three of these are located in the upper South Alligator River valley area. Thirteen of these lie in the south of the ARR near the abandoned Sleisbeck mine. Twenty-six of these are unnamed.

Figure 8 highlights the location of the 24 uranium mineral prospects in the ARR, including Jabiluka (listed in table 4). The unnamed prospect is to the south of the ARR near the Katherine River. Seven of these occur in the upper South Alligator River valley area (9600NW Anomaly, Scinto I, Scinto V South, Cliff Face, Saddle Ridge Northeast, Saddle Ridge East and Saddle Ridge South). Others include Caramel (approximately 22 km due south of Nabarlek), Ranger 1 (# 4, 5, and 9) and Ranger 2, 4, 13, 43, North Ranger, Koongarra 1 and 2, Austatom and Algodo.

Size-wise, five large uranium deposits occur in the ARR: Jabiluka, Ranger 1 (numbers 1 and 3), Koongarra 1 and Nabarlek (refer to figure 9). Figure 9 also highlights the spatial location of the six medium sized deposits, including North Ranger (# 1), and some of the upper South Alligator River valley deposits (Palette, El Sherana, El Sherana West and Rockhole 1 and 2). Sixteen small sized deposits are documented (figure 10 and table 5) which include Caramel, 7J, Ranger 1 (#2), 4, 13 and 43. Sleisbeck is a small-sized deposit in the south of the ARR, with the remaining ten small-sized deposits being located in the upper South Alligator River valley area. Figure 11 and table 6 highlight the majority of radiation anomalies (135 anomalies) in the ARR are “occurrence only” sized (< 1 tonne) deposits.

According to the Australian Water Resources Commission Drainage Divisions and Basins (AUSLIG), the major catchments that are partly covered by the ARR include the Wildman River catchment, South Alligator River catchment, East Alligator River catchment, Goomadeer River catchment, Liverpool River catchment, Daly River catchment, and the Mary River catchment. No known commodities are located in the ARR portions of the Goomadeer or Liverpool Rivers catchments. Four anomalies are located in the broad

Wildman River catchment, including Anomaly 5A and Crusader 2 (U), Kapalga and Crusader 1 (Fe). Three commodities are located in the Mary River catchment section of the ARR, including Highway (Au), Mary River Junction (Cu) and Namoonna (Pb). Fourteen uranium commodities are located in the Daly River catchment, including Sleisbeck, AN 321 and 12 unnamed deposits. The ARR encompasses the majority of the South Alligator River catchment (according to the AUSLIG drainage divisions), with 127 commodities being located in this drainage division. Of these, five are gold deposits, thirteen copper, one deposit each of iron and thorium, six lead deposits and the remaining 101 commodities being uranium. For the East Alligator catchment, there are two copper deposits, one deposit each of nickel and tin and the remaining 47 commodities being uranium. Relating the location and type of commodity with the major drainage division provides an indication of the natural occurrences of potentially elevated metals in streams and rivers. Unfortunately, a more comprehensive spatial subdivision (in digital format) of the major rivers and streams does not exist for the ARR, although this work is in progress, with the hydrological sub-divisions for the ARR being reinterpreted. Sub-river catchments of Kakadu National Park (see appendix) are located on CDROM, although no documentation exists and the source of data is unknown.

5 Future Work

5.1 Catchment identification and anomaly association

The next stage of the project will be to identify catchments and the likely streams that may be impacted from a known occurrence location. Once sub-river divisions, particularly for the eastern catchments, have been reinterpreted, the anomaly locations will be associated with these boundaries in order to identify potential stream impacts.

5.2 Airborne gamma survey interpretation

A further process of the project will be an examination of existing available airborne gamma spectrometry (AGS) data covering the ARR in order to evaluate any potential anomalies that have not been identified in this review. This data is available free of charge from NTDMR. Following this interpretation, areas of higher radiological signal may be groundtruthed. In addition to the semi-detailed AGS data held by NTGS, a number of higher resolution AGS surveys have been acquired over three uranium mining-related areas. *eriss* and DBIRD acquired a higher resolution airborne gamma survey (AGS) in 1999 over the Nabarlek region (refer to Martin 2000) at 100 m line spacing. *eriss* and PAN acquired high resolution AGS over the upper South Alligator River valley area at 50 m line spacing in 2000 (Pfitzner and Martin 2001, Pfitzner et al 2001a, Pfitzner et al 2001b) and over the abandoned Sleisbeck mine at 25 m line spacing in 2002 (Pfitzner et al 2003).

Refer to figure 13 for the spatial coverage of both the semi-detailed AGS data held by NTGS and the location of the three more detailed AGS surveys. Table 8 lists the specifications of existing NTGS survey data covering the ARR.

Figure 13 highlights that not the entire Region has been surveyed using AGS techniques. Figure 13 and table 8 also demonstrate that different areas have been surveyed with varying specifications, including differing dates of data acquisition (and therefore different navigation techniques), varying line (and tie) spacing (of up to 500 m), differing flight directions, above ground level terrain clearance and spectrometer specifications. In addition to the AGS data mentioned, ERARM have flown a detailed AGS survey over the Ranger/Jabiluka leases, although this data has not been released for use. A further area of work that would add value

to the radiological assessment of the ARR would be to commission a detailed AGS over the Magela Creek catchment (including Ranger mine), combined with ground spectrometer sampling, which would present a complete coverage of the surveyed area, and highlight where anomalies might be present.

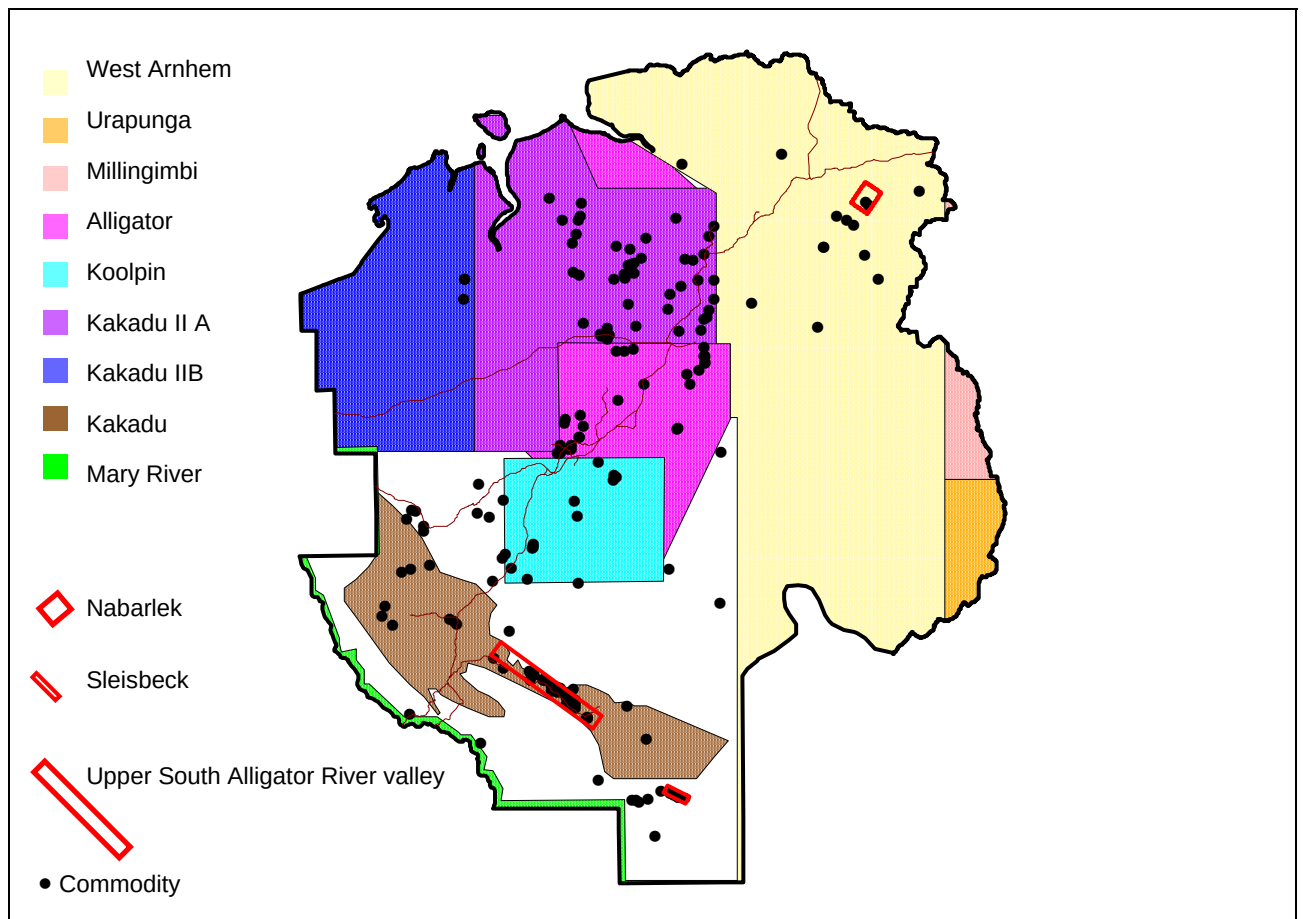
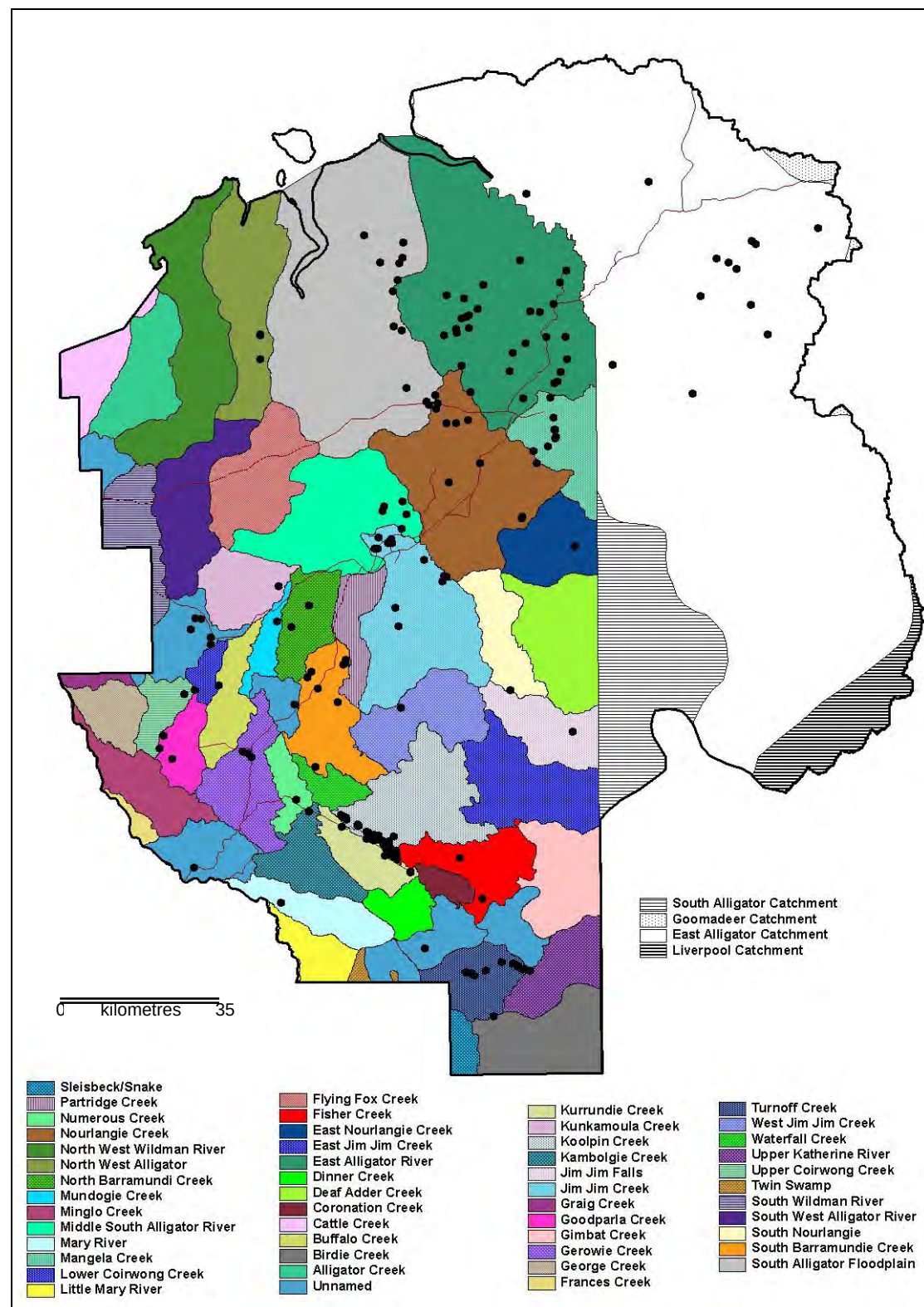


Figure 13 Existing AGS data available over the ARR, as available from NTGS

Table 8 Specifications of existing NTGS survey data covering the ARR (some information unknown)

Survey Name	West Arnhem	Urapunga	Milingimbi	Alligator	Koolpin	Kakadu II A	Kakadu II B	Kakadu	Mary River
Acquisition Period	2000	1994	1992	1976	1974	1982	1982	1988	2000
Contractor	UTS (processed by Pitt Research)	World Geoscience	Geotrex International Corporation			Austirex International	Austirex International	BMR	Kevron
Navigation	DGPS	DGPS	Doppler assisted aerial photography			Doppler assisted aerial photography	Doppler assisted aerial photography		DGPS
Flight line spacing	400 m	500 m	500 m	300 m	500	150 m	250 m	250 m	400 m
Flight line direction	180°	90°	90°	30°	90°	90°	90°	25°	90°
Tie line spacing	4000 m	5000 m	5000 m			2000 m	3000 m	2000 m	4000 m
Tie line direction	90°	180°	180°			180°	180°	115°	180°
Spectrometer and model	Na (TI) Exploranium GR820	Na (TI) Picodas PGAM 1000	Na (TI) Nuclear Data ADC/ND-560			Geometrics GR-800/900	NaI Geometrics GR-800/900		Na (TI) Exploranium GR820
Sample rate (s)	1 s	1 s	1 s						1 s
Interval (m)	50 m	65 m	60 m					60 m	70 m
Crystal volume (litres) 50.4		33.6	33.6			50.3	50.3	33.6	33.6
Terrain Clearance AGL (m)	60 m	100 m	100 m			80 m	80 m	100 m	80 m

Appendix – subcatchment detail of KNP (source unknown)



References

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- Pfützner K, Ryan B, Bollhöfer & Martin P 2001. Airborne gamma survey of the upper South Alligator River valley: Third Report. Internal Report 383, Supervising Scientist, Darwin. Unpublished paper.
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Ancillary data from the MODAT mineral database

Site Id	Common_Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
5	Tadpole	Mineral occurrence	Oenpelli	294500	8651800	-12.189244	133.111231	Occurrence only	Sheet	
39	Anomaly 5A	Mineral occurrence	Mundogie	192500	8553700	-13.06726	132.164657	Occurrence only	Irregular	
52	Ranger 50	Mineral occurrence	East Alligator	234000	8633700	-12.348409	132.553976	Occurrence only	Unknown	
53	Anomaly 5a	Mineral occurrence	Mundogie	193700	8553400	-13.07009	132.175681	Occurrence only	Irregular	
62	Ranger 30	Mineral occurrence	East Alligator	239200	8638200	-12.308176	132.602133	Occurrence only	Unknown	
73	Ranger 29	Mineral occurrence	East Alligator	239100	8634800	-12.338887	132.600935	Occurrence only	Unknown	
74	Anomaly 77 South	Mineral occurrence	Mundogie	214000	8551700	-13.087424	132.362555	Occurrence only	Irregular	
82	Ranger 45	Mineral occurrence	East Alligator	238400	8633500	-12.350576	132.594394	Occurrence only	Unknown	
93	Magela 2	Mineral occurrence	East Alligator	265400	8634200	-12.34633	132.842601	Occurrence only	Irregular	
100	Ranger 49	Mineral occurrence	East Alligator	275900	8632000	-12.366959	132.938959	Occurrence only	Irregular	
101	Anomaly 5073	Mineral occurrence	Mundogie	195900	8549300	-13.107341	132.195531	Occurrence only	Irregular	
112	Mordijimuk	Mineral occurrence	Oenpelli	309700	8634600	-12.345635	133.249862	Occurrence only	Unknown	
113	Anomaly 5087	Mineral occurrence	Mundogie	195800	8547800	-13.120879	132.194456	Occurrence only	Irregular	
119	Anomaly N84	Mineral occurrence	Oenpelli	312400	8633700	-12.353928	133.274632	Occurrence only	Unknown	Fine
128	Unnamed	Mineral occurrence	Oenpelli	314300	8632200	-12.367597	133.292013	Occurrence only	Unknown	
138	Anomaly N147	Mineral occurrence	Oenpelli	318500	8637800	-12.317217	133.330952	Occurrence only	Unknown	Fine
139	Anomaly 5P	Mineral occurrence	Mundogie	218500	8541600	-13.179081	132.403064	Occurrence only	Unknown	
143	Ranger 26	Mineral occurrence	East Alligator	238000	8629700	-12.384877	132.590404	Occurrence only	Unknown	
144	Anomaly TE-1	Mineral occurrence	Mundogie	217700	8540400	-13.189846	132.395574	Occurrence only	Irregular	
154	Ranger 24	Mineral occurrence	East Alligator	237000	8619400	-12.477855	132.580351	Occurrence only	Unknown	
155	Coirwong Gorge	Mineral occurrence	Mundogie	192300	8537500	-13.213549	132.161132	Occurrence only	Unknown	
158	Ranger 23	Mineral occurrence	East Alligator	238900	8618500	-12.486143	132.597746	Occurrence only	Irregular	
159	Anomaly 5G	Mineral occurrence	Mundogie	189900	8536500	-13.222333	132.138903	Occurrence only	Irregular	

Site Id	Common_Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
172	Ranger 58	Mineral occurrence	East Alligator	252300	8621200	-12.462816	132.721176	Occurrence only	Unknown	
173	Graveside	Mineral occurrence	Jim Jim	238600	8533600	-13.253168	132.587662	Occurrence only	Sheet	
175	Ranger 8	Mineral occurrence	East Alligator	251100	8618700	-12.485312	132.709944	Occurrence only	Irregular	
181	Ranger 17	Mineral occurrence	East Alligator	251300	8617800	-12.49346	132.711711	Occurrence only	Irregular	
182	Anomalies 5218 & 5219	Mineral occurrence	Mundogie	214800	8534200	-13.245577	132.368238	Occurrence only	Irregular	
187	Ranger 60	Mineral occurrence	East Alligator	252900	8625600	-12.423105	132.727039	Occurrence only	Irregular	
190	Ranger 32	Mineral occurrence	Cahill	257200	8628700	-12.395421	132.76681	Occurrence only	Irregular	
194	Ranger 31	Mineral occurrence	East Alligator	255900	8623200	-12.445021	132.754433	Occurrence only	Irregular	
199	Ranger 2	Mineral occurrence	East Alligator	253900	8621900	-12.456615	132.735943	Occurrence only	Irregular	
202	Ranger 71	Mineral occurrence	East Alligator	253400	8621400	-12.461094	132.731306	Occurrence only	Irregular	
205	Ranger 61	Mineral occurrence	East Alligator	254000	8619000	-12.482827	132.736634	Occurrence only	Irregular	
210	Ranger 44	Mineral occurrence	East Alligator	267900	8622800	-12.44953	132.864741	Occurrence only	Irregular	
215	Ranger 33	Mineral occurrence	East Alligator	270000	8622500	-12.452393	132.884029	Occurrence only	Irregular	
218	Ranger 35	Mineral occurrence	East Alligator	273100	8624300	-12.436348	132.912665	Occurrence only	Irregular	
219	Gerowie Creek No1	Mineral occurrence	Mundogie	203100	8523700	-13.339278	132.259293	Occurrence only	Irregular	
226	Gerowie Creek No2	Mineral occurrence	Mundogie	204100	8523200	-13.343893	132.268466	Occurrence only	Irregular	
231	Gorrunghar	Mineral occurrence	Oepelli	306100	8626100	-12.422249	133.216243	Occurrence only	Irregular	
232	Gerowie Creek No3	Mineral occurrence	Mundogie	205100	8522400	-13.351219	132.277609	Occurrence only	Irregular	
238	Gurrigarri	Mineral occurrence	Oepelli	306100	8626100	-12.422249	133.216243	Occurrence only	Tabular	
239	Waterfall Creek	Mineral occurrence	Mundogie	219500	8520300	-13.371582	132.410243	Occurrence only	Irregular	
247	Five Sisters	Mineral occurrence	Jim Jim	277400	8528200	-13.3051	132.945142	Occurrence only	Irregular	
256	Ranger 4	Prospect	Cahill	263900	8613400	-12.53418	132.827251	Small	Irregular	
271	BMR 1	Mineral occurrence	Cahill	276000	8612000	-12.547709	132.938451	Occurrence only	Unknown	
272	O'Dwyers	Abandoned mine	Mundogie	226100	8508900	-13.47518	132.470057	Small	Tabular	Fine
278	Ranger 28	Mineral occurrence	Cahill	239900	8605400	-12.604584	132.605847	Occurrence only	Irregular	

Site Id	Common_Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
282	Ranger 10	Mineral occurrence	Cahill	244500	8602400	-12.632066	132.647916	Occurrence only	Unknown	
283	9600NW Anomaly	Prospect	Mundogie	228900	8507200	-13.490796	132.495742	Occurrence only	Tabular	
287	Ranger 54	Mineral occurrence	Cahill	244900	8601700	-12.638423	132.651538	Occurrence only	Unknown	
288	9200NW Anomaly	Mineral occurrence	Mundogie	229100	8506900	-13.493525	132.49756	Occurrence only	Tabular	
292	Ranger 53	Mineral occurrence	Cahill	246500	8600800	-12.646684	132.666185	Occurrence only	Unknown	
294	Austatom	Prospect	Cahill	246400	8603800	-12.61957	132.665511	Occurrence only	Irregular	
295	Airstrip	Mineral occurrence	Mundogie	229000	8506900	-13.493516	132.496637	Occurrence only	Tabular	
298	Ranger 37	Mineral occurrence	Cahill	246900	8602100	-12.63497	132.669972	Occurrence only	Irregular	
299	El Sherana North Anomaly	Mineral occurrence	Stow	231300	8505500	-13.506374	132.517738	Occurrence only	Tabular	
301	Ranger 55	Mineral occurrence	Cahill	254400	8604500	-12.613878	132.739169	Occurrence only	Irregular	
302	Stag Creek	Mineral occurrence	Stow	231000	8505700	-13.50454	132.514988	Occurrence only	Tabular	
311	Ranger 19	Mineral occurrence	Cahill	272300	8603400	-12.625163	132.903783	Occurrence only	Irregular	
312	High Road	Mineral occurrence	Stow	231900	8504800	-13.512753	132.523212	Occurrence only	Tabular	
315	El Sherana East	Mineral occurrence	Stow	232300	8504600	-13.514596	132.526887	Occurrence only	Tabular	
318	Hades Flats	Prospect	Cahill	273900	8606900	-12.593649	132.918761	Occurrence only	Tabular	Fine
319	Carvats	Mineral occurrence	Stow	232800	8505000	-13.511028	132.53154	Occurrence only	Tabular	
322	7J	Prospect	Cahill	274600	8609000	-12.574721	132.925354	Small	Tabular	Fine
323	Orchid Gully	Mineral occurrence	Stow	233600	8504800	-13.512907	132.538907	Occurrence only	Irregular	
329	Ranger 14 west	Mineral occurrence	Cahill	249000	8597600	-12.675798	132.688928	Occurrence only	Irregular	
330	Alligator Fault	Mineral occurrence	Stow	231000	8504000	-13.519897	132.514828	Occurrence only	Irregular	
333	Ranger 14 east	Mineral occurrence	Cahill	251100	8597500	-12.676869	132.708244	Occurrence only	Irregular	
337	Monolith	Mineral occurrence	Stow	234000	8503800	-13.521977	132.542507	Occurrence only	Tabular	
344	Ranger 1 No 2	Prospect	Cahill	273300	8594200	-12.708374	132.912308	Small	Tabular	
345	Koolpin East	Mineral occurrence	Stow	234900	8503100	-13.528383	132.550752	Occurrence only	Tabular	
348	Unnamed	Mineral occurrence	Cahill	249500	8584200	-12.796914	132.692433	Occurrence only	Unknown	

Site Id	Common Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
351	Anomaly Q	Mineral occurrence	Cahill	255500	8588500	-12.758616	132.757224	Occurrence only	Unknown	
352	Cliff Face	Prospect	Stow	235400	8502600	-13.532945	132.555323	Occurrence only	Tabular	Fine
355	Scinto 5 South	Prospect	Stow	235100	8502500	-13.533821	132.552543	Occurrence only	Tabular	
360	Palette	Abandoned mine	Stow	236100	8502300	-13.535718	132.561758	Medium	Pipe-like	Fine
364	Unnamed	Mineral occurrence	Cahill	234600	8577800	-12.853498	132.554704	Occurrence only	Unknown	
368	Palms	Mineral occurrence	Stow	235500	8501700	-13.541085	132.556163	Occurrence only	Tabular	
378	Unnamed	Mineral occurrence	Stow	237600	8501300	-13.544887	132.575517	Occurrence only	Irregular	
381	Unnamed	Mineral occurrence	Cahill	233600	8571800	-12.907618	132.544968	Occurrence only	Irregular	
382	Saddle Ridge Northeast	Prospect	Stow	237200	8501000	-13.547561	132.571796	Occurrence only	Tabular	
384	Unnamed	Mineral occurrence	Cahill	235800	8570500	-12.919553	132.565115	Occurrence only	Tabular	Fine
385	Saddle Ridge North	Mineral occurrence	Stow	237300	8500800	-13.549377	132.572701	Occurrence only	Tabular	
388	Unnamed	Mineral occurrence	Cahill	236500	8571500	-12.910578	132.57165	Occurrence only	Tabular	Fine
389	Clear Springs	Mineral occurrence	Stow	236400	8500400	-13.55291	132.564354	Occurrence only	Irregular	
392	Unnamed	Mineral occurrence	Cahill	236700	8570500	-12.91963	132.573405	Occurrence only	Tabular	Fine
397	Saddle Ridge	Abandoned mine	Stow	236800	8500400	-13.552946	132.568047	Small	Tabular	
401	Unnamed	Mineral occurrence	Cahill	232800	8569400	-12.929231	132.537388	Occurrence only	Tabular	Fine
405	Unnamed	Mineral occurrence	Cahill	233500	8569400	-12.929292	132.543835	Occurrence only	Tabular	Fine
406	Saddle Ridge East	Prospect	Stow	237500	8500500	-13.552105	132.57452	Occurrence only	Tabular	
411	Unnamed	Mineral occurrence	Cahill	248400	8563200	-12.986567	132.680559	Occurrence only	Unknown	
412	Saddle Ridge East Extended	Mineral occurrence	Stow	237800	8500200	-13.554843	132.577263	Occurrence only	Tabular	
414	Unnamed	Mineral occurrence	Cahill	248000	8562000	-12.997376	132.676773	Occurrence only	Unknown	
415	Saddle Ridge South	Prospect	Stow	237100	8499900	-13.55749	132.570771	Occurrence only	Tabular	
417	Unnamed	Mineral occurrence	Cahill	249000	8563000	-12.988423	132.68607	Occurrence only	Unknown	
420	Anomaly A	Mineral occurrence	Cahill	277800	8569800	-12.9292	132.951948	Occurrence only	Unknown	
427	Coronation South	Mineral occurrence	Stow	240800	8496400	-13.58944	132.604621	Occurrence only	Sheet	

Site Id	Common_Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
475	3/171 Prospect	Mineral occurrence	Stow	257100	8490600	-13.643247	132.754678	Occurrence only	Sheet	Fine
479	Unnamed	Mineral occurrence	Stow	244000	8479300	-13.744212	132.632633	Occurrence only	Tabular	
679	Unnamed	Mineral occurrence	Stow	261300	8476300	-13.772801	132.792274	Occurrence only	Irregular	
681	Unnamed	Mineral occurrence	Stow	263800	8475900	-13.776622	132.815351	Occurrence only	Irregular	
684	Unnamed	Mineral occurrence	Stow	264100	8475900	-13.776646	132.818124	Occurrence only	Irregular	
687	Unnamed	Mineral occurrence	Stow	264700	8475600	-13.779406	132.823646	Occurrence only	Irregular	
689	Unnamed	Mineral occurrence	Stow	265900	8474700	-13.787636	132.834664	Occurrence only	Tabular	
691	Unnamed	Mineral occurrence	Stow	266100	8474700	-13.787653	132.836513	Occurrence only	Tabular	
693	Unnamed	Mineral occurrence	Stow	266500	8474700	-13.787685	132.840211	Occurrence only	Tabular	
695	Unnamed	Mineral occurrence	Stow	267800	8474400	-13.790501	132.852205	Occurrence only	Irregular	
697	Unnamed	Mineral occurrence	Stow	257800	8474300	-13.790579	132.759748	Occurrence only	Irregular	
699	AN 321	Mineral occurrence	Stow	253300	8474000	-13.792907	132.718121	Occurrence only	Irregular	
701	Unnamed	Mineral occurrence	Stow	254500	8473800	-13.794817	132.729197	Occurrence only	Irregular	
704	Unnamed	Mineral occurrence	Stow	255300	8473300	-13.799403	132.736549	Occurrence only	Irregular	
1082	Ranger 43	Prospect	East Alligator	230400	8639800	-12.292999	132.521411	Small	Irregular	
1083	Ranger 13	Prospect	Cahill	253700	8598200	-12.670749	132.732226	Small	Irregular	
1352	Ranger 1, No 3	Operating mine	Cahill	273300	8596100	-12.691204	132.912448	Large	Tabular	Fine
1419	El Sherana	Abandoned mine	Stow	231500	8505100	-13.510006	132.519547	Medium	Tabular	Medium
1420	El Sherana West	Abandoned mine	Stow	231200	8505200	-13.509075	132.516787	Medium	Tabular	Medium
1421	Flying Fox	Mineral occurrence	Stow	232600	8503700	-13.522754	132.529572	Occurrence only	Tabular	Fine
1426	Koolpin	Abandoned mine	Stow	234400	8503600	-13.523821	132.546182	Small	Tabular	Fine
1435	Scinto 1	Prospect	Stow	235500	8502000	-13.538374	132.556191	Occurrence only	Tabular	Fine
1436	Scinto 5	Abandoned mine	Stow	234800	8502700	-13.531987	132.549792	Small	Tabular	Fine
1437	Scinto 6	Abandoned mine	Stow	235900	8503500	-13.524859	132.560022	Small	Tabular	Fine
1438	Scinto Camp	Mineral occurrence	Stow	235500	8501600	-13.541988	132.556154	Occurrence only	Tabular	

Site Id	Common Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
1442	Sterrets No1	Abandoned mine	Mundogie	226400	8508400	-13.479725	132.472779	Small	Tabular	Fine
1443	Sterrets No2	Abandoned mine	Mundogie	226200	8508800	-13.476093	132.470971	Small	Tabular	Fine
1444	Stockpile 1	Mineral occurrence	Stow	232300	8504100	-13.519113	132.52684	Occurrence only	Tabular	Fine
1445	Stockpile 2	Mineral occurrence	Stow	232500	8503800	-13.521841	132.528659	Occurrence only	Tabular	Fine
1448	Teagues	Mineral occurrence	Mundogie	225100	8509400	-13.47057	132.460874	Occurrence only	Tabular	Fine
1468	Beatrice	Mineral occurrence	Howship	304400	8604200	-12.620089	133.199237	Occurrence only	Irregular	
1486	Ranger 68	Mineral occurrence	Cahill	266800	8615600	-12.514514	132.85409	Occurrence only	Tabular	Fine
1773	Unnamed	Prospect	Stow	259600	8464000	-13.883793	132.775504	Occurrence only	Irregular	
1832	Barramundie Creek	Mineral occurrence	Mundogie	218000	8556500	-13.044439	132.399869	Occurrence only	Unknown	
1833	Christmas Creek	Mineral occurrence	Stow	235100	8500300	-13.553696	132.55234	Occurrence only	Tabular	
1879	Ranger 59	Mineral occurrence	East Alligator	249000	8626400	-12.415573	132.691248	Occurrence only	Unknown	
1880	Ranger 20	Mineral occurrence	Cahill	268500	8591200	-12.735132	132.8679	Occurrence only	Unknown	
1908	Caramel	Prospect	Oenpelli	321300	8617500	-12.500872	133.355541	Small	Tabular	Fine
1910	Sandstone South	Mineral occurrence	Mundogie	225300	8506800	-13.494076	132.462472	Occurrence only	Tabular	
1911	Sandstone North	Mineral occurrence	Mundogie	217900	8510200	-13.462663	132.394497	Occurrence only	Irregular	
1915	Ranger 25	Mineral occurrence	East Alligator	236900	8627300	-12.406471	132.580093	Occurrence only	Unknown	
1916	Ranger 57	Mineral occurrence	East Alligator	263100	8609200	-12.572073	132.819573	Occurrence only	Unknown	
1917	Urralugoorwa	Mineral occurrence	Cahill	252300	8610500	-12.5595	132.720327	Occurrence only	Irregular	
2204	Ranger 63	Mineral occurrence	Cahill	273200	8606500	-12.597213	132.912292	Occurrence only	Irregular	
2205	Ranger 9	Mineral occurrence	East Alligator	248400	8617400	-12.496847	132.685011	Occurrence only	Unknown	
2245	Anomaly 5C	Mineral occurrence	Mundogie	191300	8551100	-13.09062	132.153332	Occurrence only	Irregular	
2246	Barramundie South	Mineral occurrence	Mundogie	224400	8534800	-13.241055	132.456819	Occurrence only	Irregular	
2314	Anomaly 2J	Mineral occurrence	Mundogie	215100	8512900	-13.438005	132.368922	Occurrence only	Tabular	
2317	Coronation Hill	Abandoned mine	Stow	240900	8496600	-13.587642	132.605563	Small	Tabular	Fine
2318	Skull	Abandoned mine	Stow	236300	8501800	-13.540253	132.563559	Small	Tabular	Fine

Site_Id	Common_Name	Status	100K_Map	AMG_E AGD66	AMG_N AGD66	Latitude AGD66	Longitude AGD66	Size	Orebody Shape	Grain Size
2319	Sleisbeck	Abandoned mine	Stow	265000	8475400	-13.781238	132.826402	Small	Tabular	
2320	Rockhole No2	Abandoned mine	Mundogie	225700	8509100	-13.473336	132.466394	Medium	Tabular	Fine
2321	Rockhole No1	Abandoned mine	Mundogie	225400	8509100	-13.473308	132.463615	Medium	Tabular	Fine
2467	Arrarra	Mineral occurrence	East Alligator	267000	8649100	-12.211797	132.858396	Occurrence only	Tabular	
2468	Crusader 2	Mineral occurrence	Field Island	207100	8617500	-12.492412	132.305291	Occurrence only	Unknown	
2564	Koongarra 1	Prospect	Cahill	265800	8576180	-12.87065724	132.8418905	Large	Tabular	Fine
2565	North Ranger 1	Prospect	Cahill	275800	8617000	-12.502509	132.93697	Medium	Tabular	Fine
2567	Ranger 1 No. 1	Abandoned mine	Cahill	273200	8596100	-12.691197	132.911528	Large	Tabular	
2568	Nabarlek	Abandoned mine	Oenpelli	317600	8638500	-12.310839	133.322718	Large	Tabular	Fine
2624	Koongarra 2	Prospect	Cahill	266000	8576450	-12.8682326	132.8437534	Small	Tabular	Fine
2625	Algodo	Prospect	Howship	286400	8610700	-12.56017608	133.0340357	Occurrence only	Unknown	
2626	Ranger 1 No4	Prospect	Cahill	273100	8598800	-12.66679012	132.9108065	Occurrence only		Fine
2627	Ranger 1 No5	Prospect	Cahill	273500	8594500	-12.70567756	132.9141713	Occurrence only		Fine
2628	Ranger 1 No9	Prospect	Cahill	271800	8592300	-12.72543492	132.8983598	Occurrence only		Fine

Site Id	Common_Name	Mineral_Field	Model	Overall_Style1	Overall_Style2	Ore_Controls1	Ore_Controls2	Mining_Method
5	Tadpole	Alligator River Uranium Field	vein	vein		fault		
39	Anomaly 5A		secondary enrichment	disseminated				
52	Ranger 50	Alligator River Uranium Field	secondary enrichment					
53	Anomaly 5a		secondary enrichment	disseminated				
62	Ranger 30	Alligator River Uranium Field	secondary enrichment					
73	Ranger 29	Alligator River Uranium Field	secondary enrichment					
74	Anomaly 77 South		secondary enrichment	disseminated				
82	Ranger 45	Alligator River Uranium Field	secondary enrichment					
93	Magela 2	Alligator River Uranium Field	secondary enrichment			Host rock		
100	Ranger 49	Alligator River Uranium Field	secondary enrichment			Host rock		
101	Anomaly 5073		secondary enrichment	disseminated				
112	Mordijimuk	Alligator River Uranium Field	secondary enrichment			Host rock		
113	Anomaly 5087		secondary enrichment	disseminated				
119	Anomaly N84	Alligator River Uranium Field	secondary enrichment			Host rock		
128	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
138	Anomaly N147	Alligator River Uranium Field	secondary enrichment			Host rock		
139	Anomaly 5P		Unknown	disseminated		Host rock		
143	Ranger 26	Alligator River Uranium Field	secondary enrichment					
144	Anomaly TE-1		secondary enrichment	disseminated		Host rock		
154	Ranger 24	Alligator River Uranium Field	secondary enrichment					
155	Coirwong Gorge	South Alligator Valley Mineral Field	Unknown	disseminated		Host rock		
158	Ranger 23	Alligator River Uranium Field	secondary enrichment					
159	Anomaly 5G		secondary enrichment	disseminated				
172	Ranger 58	Alligator River Uranium Field	secondary enrichment					

173	Graveside	Alligator River Uranium Field	vein				shear		
175	Ranger 8	Alligator River Uranium Field	secondary enrichment						
181	Ranger 17	Alligator River Uranium Field	secondary enrichment						
182	Anomalies 5218 & 5219		secondary enrichment	disseminated			Host rock		
187	Ranger 60	Alligator River Uranium Field	secondary enrichment						
190	Ranger 32	Alligator River Uranium Field	secondary enrichment						
194	Ranger 31	Alligator River Uranium Field	secondary enrichment				Host rock		
199	Ranger 2	Alligator River Uranium Field	secondary enrichment				Host rock		
202	Ranger 71	Alligator River Uranium Field	secondary enrichment				Host rock		
205	Ranger 61	Alligator River Uranium Field	secondary enrichment						
210	Ranger 44	Alligator River Uranium Field	secondary enrichment						
215	Ranger 33	Alligator River Uranium Field	secondary enrichment				Host rock		
218	Ranger 35	Alligator River Uranium Field	secondary enrichment						
219	Gerowie Creek No1	South Alligator Valley Mineral Field	secondary enrichment	disseminated			Host rock		
226	Gerowie Creek No2	South Alligator Valley Mineral Field	secondary enrichment	disseminated			Host rock		
231	Gorrunghar	Alligator River Uranium Field	unconformity related	breccia fill	disseminated		fault	Host rock	
232	Gerowie Creek No3	South Alligator Valley Mineral Field	secondary enrichment	disseminated			Host rock		
238	Gurrigarri	Alligator River Uranium Field	unconformity related	breccia fill			fault	Host rock	
239	Waterfall Creek	South Alligator Valley Mineral Field	secondary enrichment	disseminated			fault		
247	Five Sisters	Alligator River Uranium Field	secondary enrichment	disseminated					
256	Ranger 4	Alligator River Uranium Field	unconformity related	breccia fill	disseminated		fault	Host rock	
271	BMR 1	Alligator River Uranium Field	secondary enrichment				Host rock		
272	O'Dwyers	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork		fault	Host rock	Underground
278	Ranger 28	Alligator River Uranium Field	unconformity related	disseminated			Host rock		
282	Ranger 10	Alligator River Uranium Field	unconformity related	disseminated			Host rock		
283	9600NW Anomaly	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork		fault	Host rock	

287	Ranger 54	Alligator River Uranium Field	unconformity related	disseminated		Host rock			
288	9200NW Anomaly	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock		
292	Ranger 53	Alligator River Uranium Field	unconformity related	disseminated		Host rock			
294	Austatom	Alligator River Uranium Field	unconformity related	disseminated		Host rock			
295	Airstrip	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Underground	
298	Ranger 37	Alligator River Uranium Field	unconformity related	disseminated		Host rock			
299	El Sherana North Anomaly	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock		
301	Ranger 55	Alligator River Uranium Field	secondary enrichment						
302	Stag Creek	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock		
311	Ranger 19	Alligator River Uranium Field	unconformity related	disseminated		Host rock			
312	High Road	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Underground	
315	El Sherana East	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock		
318	Hades Flats	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock		
319	Carvats	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock		
322	7J	Alligator River Uranium Field	unconformity related	multi-vein	disseminated	fault	Host rock		
323	Orchid Gully	South Alligator Valley Mineral Field	Superficial enrichment	disseminated		fault			
329	Ranger 14 west	Alligator River Uranium Field	secondary enrichment			Host rock			
330	Alligator Fault	South Alligator Valley Mineral Field	Superficial enrichment	disseminated		fault			
333	Ranger 14 east	Alligator River Uranium Field	secondary enrichment			Host rock			
337	Monolith	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Surface	
344	Ranger 1 No 2	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock		
345	Koolpin East	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock		
348	Unnamed	Alligator River Uranium Field	secondary enrichment						
351	Anomaly Q	Alligator River Uranium Field	secondary enrichment			Host rock			
352	Cliff Face	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Surface	
355	Sainto 5 South	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Surface	

360	Palette	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Open Cut/Underground
364	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
368	Palms	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
378	Unnamed	South Alligator Valley Mineral Field	secondary enrichment	disseminated				
381	Unnamed	Alligator River Uranium Field	secondary enrichment					
382	Saddle Ridge Northeast	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Surface
384	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
385	Saddle Ridge North	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
388	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
389	Clear Springs	South Alligator Valley Mineral Field	secondary enrichment	disseminated		fault		
392	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
397	Saddle Ridge	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Open Cut
401	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
405	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
406	Saddle Ridge East	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
411	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
412	Saddle Ridge East Extended	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
414	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
415	Saddle Ridge South	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Underground
417	Unnamed	Alligator River Uranium Field	secondary enrichment			Host rock		
420	Anomaly A	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	Host rock		
427	Coronation South	South Alligator Valley Mineral Field	vein	multi-vein		fault		
475	3/171 Prospect		vein	breccia fill	multi-vein	fault		
479	Unnamed		secondary enrichment	disseminated				
679	Unnamed		secondary enrichment	disseminated				
681	Unnamed		secondary enrichment	disseminated				

684	Unnamed		secondary enrichment	disseminated					
687	Unnamed		secondary enrichment	disseminated					
689	Unnamed		secondary enrichment	disseminated					
691	Unnamed		secondary enrichment	disseminated					Open Cut
693	Unnamed		secondary enrichment	disseminated					
695	Unnamed		secondary enrichment	disseminated					
697	Unnamed		secondary enrichment	disseminated					
699	AN 321		secondary enrichment	disseminated					
701	Unnamed		secondary enrichment	disseminated					
704	Unnamed		secondary enrichment	disseminated					
1082	Ranger 43	Alligator River Uranium Field	secondary enrichment				Host rock		
1083	Ranger 13	Alligator River Uranium Field	secondary enrichment						
1352	Ranger 1, No 3	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	Host rock			Open Cut
1419	El Sherana	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Open Cut
1420	El Sherana West	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Underground/Open Cut
1421	Flying Fox	South Alligator Valley Mineral Field	secondary enrichment	disseminated		fault			
1426	Koolpin	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Open Cut
1435	Scinto 1	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Surface
1436	Scinto 5	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Open Cut
1437	Scinto 6	South Alligator Valley Mineral Field	secondary enrichment	disseminated		fault			Open Cut
1438	Scinto Camp	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	
1442	Sterrets No1	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Underground
1443	Sterrets No2	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Underground
1444	Stockpile 1	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	
1445	Stockpile 2	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	
1448	Teagues	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault		Host rock	Underground

1468	Beatrice	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	Host rock		
1486	Ranger 68	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	Host rock		
1773	Unnamed		secondary enrichment	disseminated				
1832	Barramundie Creek		Unknown	disseminated		Host rock		
1833	Christmas Creek	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
1879	Ranger 59	Alligator River Uranium Field	secondary enrichment					
1880	Ranger 20	Alligator River Uranium Field	secondary enrichment			Host rock		
1908	Caramel	Alligator River Uranium Field	unconformity related	breccia fill	multi-vein	fault	Host rock	
1910	Sandstone South	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
1911	Sandstone North		secondary enrichment	disseminated		Host rock		
1915	Ranger 25	Alligator River Uranium Field	secondary enrichment					
1916	Ranger 57	Alligator River Uranium Field	secondary enrichment					
1917	Urralugoonwa	Alligator River Uranium Field	secondary enrichment					
2204	Ranger 63	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock	
2205	Ranger 9	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock	
2245	Anomaly 5C		secondary enrichment	disseminated		Host rock		
2246	Barramundie South		secondary enrichment	disseminated		Host rock		
2314	Anomaly 2J		unconformity related	disseminated		Host rock		
2317	Coronation Hill	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	
2318	Skull	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Underground
2319	Sleisbeck		secondary enrichment	disseminated				Open Cut
2320	Rockhole No2	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Underground
2321	Rockhole No1	South Alligator Valley Mineral Field	unconformity related	breccia fill	stockwork	fault	Host rock	Underground
2467	Arrarra	Alligator River Uranium Field	unconformity related	disseminated		Host rock	unconformity	
2468	Crusader 2		secondary enrichment					
2564	Koongarra 1	Alligator River Uranium Field	unconformity related	breccia fill	multi-vein	fault	Host rock	

2565	North Ranger 1	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock	
2567	Ranger 1 No. 1	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock	
2568	Nabarlek	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock	Open Cut
2624	Koongarra 2	Alligator River Uranium Field	unconformity related	breccia fill	disseminated	fault	Host rock	
2625	Algodo	Alligator River Uranium Field	unconformity related					
2626	Ranger 1 No4	Alligator River Uranium Field	unconformity related					
2627	Ranger 1 No5	Alligator River Uranium Field	unconformity related					
2628	Ranger 1 No9	Alligator River Uranium Field	unconformity related					

Site Id	Common Name	Mine_Workings_Description	Opencut Length	Opencut Width	Opencut Depth	Strike	Dip	Dip_Direction	Plunge	Plunge Direction	Length	Width	Depth
5	Tadpole												
39	Anomaly 5A												
52	Ranger 50												
53	Anomaly 5a												
62	Ranger 30												
73	Ranger 29												
74	Anomaly 77 South												
82	Ranger 45												
93	Magela 2												
100	Ranger 49												
101	Anomaly 5073												
112	Mordijimuk												
113	Anomaly 5087												
119	Anomaly N84												
128	Unnamed												
138	Anomaly N147												
139	Anomaly 5P										1000	300	
143	Ranger 26												
144	Anomaly TE-1					090	78	180					
154	Ranger 24												
155	Coirwong Gorge												
158	Ranger 23												
159	Anomaly 5G												
172	Ranger 58												

Site Id	Common Name	Classification	Host_Relation ship	Weather_ Effect	Weather_ Depth	Name_Of_Age	Radio metric Age (Ma)	comm_mi nor	ore_mineral_major_ primary	ore_mineral_minor_primary
5	Tadpole		discordant						Uraninite	
39	Anomaly 5A									
52	Ranger 50		unconformity							
53	Anomaly 5a									
62	Ranger 30		unconformity							
73	Ranger 29		unconformity							
74	Anomaly 77 South							Cu		
82	Ranger 45		unconformity							
93	Magela 2									
100	Ranger 49									
101	Anomaly 5073									
112	Mordijimuk		Unknown							
113	Anomaly 5087									
119	Anomaly N84		Unknown						Uraninite	
128	Unnamed		Unknown							
138	Anomaly N147		Unknown						Uraninite	
139	Anomaly 5P		Unknown						Pitchblende	
143	Ranger 26		Unknown							
144	Anomaly TE-1							Ni,Zn		
154	Ranger 24		Unknown							
155	Coirwong Gorge		Unknown							
158	Ranger 23		Unknown							
159	Anomaly 5G									

283	9600NW Anomaly	Unconformity U-Au	unconformity										
287	Ranger 54	Unconformity U-Au	stratabound						Cu				
288	9200NW Anomaly	Unconformity U-Au	unconformity										
292	Ranger 53	Unconformity U-Au	stratabound						Cu				
294	Austatom	Unconformity U-Au	stratabound								Pitchblende		
295	Airstrip	Unconformity U-Au	unconformity						Au,Pd,Pt				
298	Ranger 37	Unconformity U-Au	stratabound						Cu,Pb				
299	El Sherana North Anomaly	Unconformity U-Au	unconformity						Au				
301	Ranger 55										Uraninite		
302	Stag Creek	Unconformity U-Au	unconformity										
311	Ranger 19	Unconformity U-Au	stratabound								Uraninite		
312	High Road	Unconformity U-Au	unconformity										
315	El Sherana East	Unconformity U-Au	unconformity						Au				
318	Hades Flats	Unconformity U-Au	stratabound								Pitchblende		
319	Carvats	Unconformity U-Au	unconformity										
322	7J	Unconformity U-Au	unconformity								Pitchblende		Hematite,Limonite
323	Orchid Gully		stratabound										
329	Ranger 14 west		stratabound										
330	Alligator Fault												
333	Ranger 14 east		stratabound										
337	Monolith	Unconformity U-Au	unconformity										
344	Ranger 1 No 2	Unconformity U-Au	stratabound								Pitchblende		
345	Koolpin East	Unconformity U-Au	unconformity										
348	Unnamed		Unknown										
351	Anomaly Q		stratabound										
352	Cliff Face	Unconformity U-Au	unconformity										

355	Scinto 5 South	Unconformity U-Au	unconformity	Oxidation				Au		
360	Palette	Unconformity U-Au	unconformity	Oxidation		Palaeoproterozoic		Au	Pitchblende	Chalcopyrite, Galena, Gold, Pyrite
364	Unnamed		stratabound							
368	Palms	Unconformity U-Au	unconformity							
378	Unnamed									
381	Unnamed		Irregular							
382	Saddle Ridge Northeast	Unconformity U-Au	unconformity							
384	Unnamed		stratabound		30	Palaeoproterozoic				
385	Saddle Ridge North	Unconformity U-Au	unconformity	Oxidation						
388	Unnamed		stratabound		30	Palaeoproterozoic				
389	Clear Springs		stratabound							
392	Unnamed		stratabound		30					
397	Saddle Ridge	Unconformity U-Au	unconformity	Oxidation		Palaeoproterozoic			Pitchblende	
401	Unnamed		stratabound		30	Palaeoproterozoic				
405	Unnamed		stratabound		30	Palaeoproterozoic				
406	Saddle Ridge East	Unconformity U-Au	unconformity							
411	Unnamed		stratabound					Th		
412	Saddle Ridge East Extended	Unconformity U-Au	unconformity							
414	Unnamed		stratabound					Th		
415	Saddle Ridge South	Unconformity U-Au	unconformity					Au		
417	Unnamed		stratabound					Th		
420	Anomaly A	Unconformity U-Au	unconformity			Palaeoproterozoic				
427	Coronation South		discordant	Oxidation		Palaeoproterozoic			Pitchblende	
475	3/171 Prospect		discordant	Oxidation	30	Palaeoproterozoic		Ag,Pb	Pitchblende	Chalcopyrite, Galena, Pyrite
479	Unnamed		stratabound							
679	Unnamed									

1448	Teagues		Unconformity U-Au	unconformity				Palaeoproterozoic		Au	Pitchblende	Gold, Pyrite
1468	Beatrice		Unconformity U-Au	discordant								
1486	Ranger 68		Unconformity U-Au	stratabound				Palaeoproterozoic		Au, Cu	Pitchblende	Gold
1773	Unnamed			Irregular								
1832	Barramundie Creek			Unknown								
1833	Christmas Creek		Unconformity U-Au	unconformity	Oxidation							
1879	Ranger 59			Unknown								
1880	Ranger 20			stratabound								
1908	Caramel		Unconformity U-Au	unconformity	Oxidation	30		Palaeoproterozoic			Pitchblende, Uranium	
1910	Sandstone South		Unconformity U-Au	unconformity								
1911	Sandstone North			Irregular								
1915	Ranger 25			Unknown								
1916	Ranger 57			Unknown								
1917	Urralugoorwa			Irregular								
2204	Ranger 63		Unconformity U-Au	unconformity								
2205	Ranger 9		Unconformity U-Au	unconformity					Au			
2245	Anomaly 5C			Irregular								
2246	Barramundie South			Irregular								
2314	Anomaly 2J			stratabound	Oxidation			Palaeoproterozoic				
2317	Coronation Hill		Unconformity U-Au	unconformity	Oxidation	50		Palaeoproterozoic		Au	Pitchblende	Chalcopyrite, Gold, Niccolite, Pyrite
2318	Skull		Unconformity U-Au	unconformity	Oxidation						Pitchblende	
2319	Sleisbeck			stratabound	Oxidation			Palaeoproterozoic			Pitchblende	
2320	Rockhole No2		Unconformity U-Au	unconformity	Oxidation			Palaeoproterozoic		Au	Pitchblende	Clausthalite, Galena, Gold, Pyrite
2321	Rockhole No1		Unconformity U-Au	unconformity	Oxidation					Au	Pitchblende	Chalcopyrite, Galena, Gold, Pyrite
2467	Arrarra		Unconformity U-Au	unconformity								
2468	Crusader 2			Unknown		30				Th		

2564	Koongarra 1	Unconformity U-Au	discordant	Oxidation	30		Palaeoproterozoic	1600	Au	Uraninite	
2565	North Ranger 1	Unconformity U-Au	stratabound	Oxidation	30		Palaeoproterozoic			Pitchblende, Uraninite	
2567	Ranger 1 No. 1	Unconformity U-Au	stratabound	Oxidation	18		Palaeoproterozoic	1737	Au	Pitchblende, Uraninite	Brannerite, Coffinite, Gold
2568	Nabarlek	Unconformity U-Au	discordant	Oxidation	15		Neoproterozoic	1616		Coffinite, Uraninite	Pitchblende
2624	Koongarra 2	Unconformity U-Au	stratabound		0		Palaeoproterozoic				
2625	Algodo	Unconformity U-Au	stratabound		0						
2626	Ranger 1 No4	Unconformity U-Au	stratabound		0		Palaeoproterozoic				
2627	Ranger 1 No5	Unconformity U-Au	stratabound		0		Palaeoproterozoic				
2628	Ranger 1 No9	Unconformity U-Au	stratabound		0		Palaeoproterozoic				

Site Id	Common Name	ore_mineral_minor_secondary	gangue_mineral_major	gangue_mineral_minor
5	Tadpole			
39	Anomaly 5A			
52	Ranger 50			
53	Anomaly 5a			
62	Ranger 30			
73	Ranger 29			
74	Anomaly 77 South	Chrysocolla, Malachite		
82	Ranger 45			
93	Magela 2			
100	Ranger 49			
101	Anomaly 5073			
112	Mordijimuk			
113	Anomaly 5087			
119	Anomaly N84		Chlorite, Hematite	Biotite
128	Unnamed			
138	Anomaly N147		Chlorite, Hematite	Biotite
139	Anomaly 5P			
143	Ranger 26			
144	Anomaly TE-1			
154	Ranger 24			
155	Coirwong Gorge			
158	Ranger 23			
159	Anomaly 5G			
172	Ranger 58			

173	Graveside					
175	Ranger 8					
181	Ranger 17					
182	Anomalies 5218 & 5219					
187	Ranger 60					
190	Ranger 32					
194	Ranger 31					
199	Ranger 2	Autonite, Saleeite		Chlorite		Quartz
202	Ranger 71					
205	Ranger 61					
210	Ranger 44					
215	Ranger 33					
218	Ranger 35					
219	Gerowie Creek No1					
226	Gerowie Creek No2					
231	Gorrunghar					
232	Gerowie Creek No3					
238	Gurrigarri					
239	Waterfall Creek			Chlorite		Sericite
247	Five Sisters					
256	Ranger 4			Chlorite		Quartz
271	BMR 1					
272	O'Dwyers	Uranyl phosphates				
278	Ranger 28			Chlorite		Quartz
282	Ranger 10			Chlorite, Feldspar, Quartz		Chalcopyrite, Pyrite
283	9600NW Anomaly					

287	Ranger 54					
288	9200NW Anomaly					
292	Ranger 53					
294	Austatom					
295	Airstrip					
298	Ranger 37					
299	El Sherana North Anomaly					
301	Ranger 55					
302	Stag Creek					
311	Ranger 19			Chlorite		Quartz
312	High Road					
315	El Sherana East					
318	Hades Flats		Thucholite		Hematite, Limonite	
319	Carvats		Torbernite			
322	7J					
323	Orchid Gully					
329	Ranger 14 west					
330	Alligator Fault					
333	Ranger 14 east					
337	Monolith		Torbernite			
344	Ranger 1 No 2					
345	Koolpin East					
348	Unnamed					
351	Anomaly Q		Limonite, Malachite			
352	Cliff Face					
355	Sainto 5 South		Torbernite			

360	Palette	Anglesite,Coloradoite,Phosphuranylite, Uranophane	Hematite	
364	Unnamed			
368	Palms			
378	Unnamed			
381	Unnamed			
382	Saddle Ridge Northeast	Torbernite		
384	Unnamed		Chlorite, Graphite, Quartz	
385	Saddle Ridge North			
388	Unnamed		Chlorite, Graphite, Quartz	
389	Clear Springs			
392	Unnamed		Chlorite, Graphite, Quartz	
397	Saddle Ridge	Autonite, Phosphuranylite, Sabugalite, Torbernite		
401	Unnamed		Chlorite, Graphite, Quartz	
405	Unnamed		Chlorite, Graphite, Quartz	
406	Saddle Ridge East	Torbernite		
411	Unnamed			
412	Saddle Ridge East Extended			
414	Unnamed			
415	Saddle Ridge South	uranium	Hematite	Apatite, Quartz
417	Unnamed			
420	Anomaly A			
427	Coronation South	Autonite, Torbernite		
475	3/171 Prospect	Azurite, Malachite, Torbernite	Quartz	Chlorite
479	Unnamed			
679	Unnamed			
681	Unnamed			

684	Unnamed					
687	Unnamed					
689	Unnamed					
691	Unnamed					
693	Unnamed					
695	Unnamed		Torbernite			
697	Unnamed					
699	AN 321					
701	Unnamed					
704	Unnamed					
1082	Ranger 43					
1083	Ranger 13				Biotite	Feldspar, Quartz
1352	Ranger 1, No 3		Autonite, Saleeite, Torbernite		Chlorite, Muscovite, Quartz	Calcite, Dolomite, Hematite
1419	El Sherana		Anglesite, Autonite, Metatorbernite, Rutherfordine			
1420	El Sherana West		Autonite, Metatorbernite, Rutherfordine			
1421	Flying Fox		Uranium			
1426	Koolpin					
1435	Scinto 1		Torbernite			
1436	Scinto 5		Torbernite			
1437	Scinto 6		Autonite, Saleeite, Torbernite			
1438	Scinto Camp					
1442	Sterrets No1					
1443	Sterrets No2					
1444	Stockpile 1		Gummit			
1445	Stockpile 2		Gummit			
1448	Teagues		Rutherfordine			

1468	Beatrice	Autonite			
1486	Ranger 68	Chalcocite		Chlorite, Quartz	Chlorite, Hematite
1773	Unnamed				
1832	Barramundie Creek				
1833	Christmas Creek	Torbernite			
1879	Ranger 59				
1880	Ranger 20				
1908	Caramel			Chlorite, Muscovite, Quartz	Hematite, Limonite
1910	Sandstone South			Quartz	
1911	Sandstone North			Quartz	
1915	Ranger 25				
1916	Ranger 57				
1917	Urralagoonwa				
2204	Ranger 63				
2205	Ranger 9				
2245	Anomaly 5C				
2246	Barramundie South				
2314	Anomaly 2J	Metatorbernite			
2317	Coronation Hill	Autonite, Chalcocite, Torbernite, Uranophane			
2318	Skull				
2319	Sleisbeck	Autonite, Torbernite			
2320	Rockhole No2	Carnotite, Ruthenfordine, Torbernite			
2321	Rockhole No1	Renardite, Ruthenfordine			
2467	Arrarra				
2468	Crusader 2			Quartz	
2564	Koongarra 1	Curite, Kasolite, Metatorbernite, Renardite, Saleeite, Sklodowskite, Vandendriesscheite		Chlorite, Muscovite	Galena, Garnet, Hematite, Pyrite, Quartz

2565	North Ranger 1	Autonite, Saleeite, Sklodowskite	Chlorite, Quartz, Sericite	Goethite, Hematite
2567	Ranger 1 No. 1	Autonite, Saleeite, Torbernite	Chlorite, Muscovite, Quartz	Calcite, Dolomite
2568	Nabarlek	Autonite, Curite, Saleeite, Sklodowskite	Chlorite, Quartz, Sericite	Goethite, Hematite
2624	Koongarra 2			
2625	Algodo			
2626	Ranger 1 No4			
2627	Ranger 1 No5			
2628	Ranger 1 No9			

Site Id	Common Name	major_hostrock_lit hology	minor_hostrock_lithology	lithology_group_formation	comb_ore_textures	metamorphism_type_facies
5	Tadpole	schist		Myra Falls Metamorphics		Regional(Amphibolite)
39	Anomaly 5A	Laterite	siltstone	Czi		Regional(Greenschist)
52	Ranger 50	gneiss		Nanambu Complex		Regional(Amphibolite)
53	Anomaly 5a	laterite	siltstone	Czi		
62	Ranger 30	gneiss		Nanambu Complex		Regional(Amphibolite)
73	Ranger 29	gneiss		Nanambu Complex		Regional(Amphibolite)
74	Anomaly 77 South	shale	arkose	Mundogie Sandstone		
82	Ranger 45	gneiss		Nanambu Complex		Regional(Amphibolite)
93	Magela 2	schist		Koolpin Formation		Regional(Amphibolite)
100	Ranger 49	schist		Nourlangie Schist		
101	Anomaly 5073	Laterite	breccia,shale	Czi		
112	Mordijimuk	schist		Myra Falls Metamorphics		Regional(Amphibolite)
113	Anomaly 5087	Laterite		Czi		
119	Anomaly N84	breccia	schist	Myra Falls Metamorphics		Regional(Amphibolite)
128	Unnamed	schist		Myra Falls Metamorphics		Regional(Amphibolite)
138	Anomaly N147			Myra Falls Metamorphics	Banded	Regional(Amphibolite)
139	Anomaly 5P	breccia	breccia	Masson Formation		
143	Ranger 26	Ferricrete		Czs		
144	Anomaly TE-1	arenite,clay	shale	Koolpin Formation		Regional(Greenschist)
154	Ranger 24	gneiss		Nanambu Complex		Regional(Amphibolite)
155	Coirwong Gorge			Koolpin Formation		Regional(Greenschist)
158	Ranger 23	gneiss		Nanambu Complex		Regional(Amphibolite)
159	Anomaly 5G	Laterite	sandstone,siltstone	Czi		Regional(Greenschist)
172	Ranger 58	gneiss		Nanambu Complex		Regional(Amphibolite)

173	Graveside	phyllite			Nourlangie Schist		Regional(Greenschist)
175	Ranger 8	gneiss			Nanambu Complex		Regional(Amphibolite)
181	Ranger 17	gneiss			Nanambu Complex		Regional(Amphibolite)
182	Anomalies 5218 & 5219	Siltstone			Fisher Creek Siltstone		
187	Ranger 60				Czs		
190	Ranger 32	gneiss			Nanambu Complex		Regional(Amphibolite)
194	Ranger 31				Cahill Formation		Regional(Amphibolite)
199	Ranger 2	schist			Cahill Formation		Regional(Amphibolite)
202	Ranger 71	schist			Cahill Formation		Regional(Amphibolite)
205	Ranger 61	gneiss			Nanambu Complex		Regional(Amphibolite)
210	Ranger 44				Czs		
215	Ranger 33	schist			Koolpin Formation		Regional(Amphibolite)
218	Ranger 35			laterite,sand	Czs		
219	Gerowie Creek No1	shale		siltstone	Koolpin Formation		Regional(Greenschist)
226	Gerowie Creek No2	siltstone			Koolpin Formation		Regional(Greenschist)
231	Gorrunghar	schist			Cahill Formation		Regional(Amphibolite)
232	Gerowie Creek No3	Siltstone		greywacke,shale	Koolpin Formation		Regional(Greenschist)
238	Gurrigarri	schist			Myra Falls Metamorphics		Regional(Amphibolite)
239	Waterfall Creek	shale		dolerite	Fisher Creek Siltstone		Regional(Greenschist)
247	Five Sisters	Schist		dolomite	Nourlangie Schist		Regional(Greenschist)
256	Ranger 4	schist		pegmatite	Cahill Formation		Regional(Amphibolite)
271	BMR 1				Cahill Formation		Regional(Amphibolite)
272	O'Dwyers	shale		sandstone,siltstone	Koolpin Formation	Disseminated,Pods,Veinlet	Regional(Greenschist)
278	Ranger 28	schist			Cahill Formation		Regional(Amphibolite)
282	Ranger 10	schist			Cahill Formation		Regional(Amphibolite)
283	9600NW Anomaly	siltstone		chert	Koolpin Formation		Regional(Greenschist)

287	Ranger 54	schist		Cahill Formation		Regional(Amphibolite)
288	9200NW Anomaly	siltstone	shale,shale	Koolpin Formation		Regional(Greenschist)
292	Ranger 53	schist		Cahill Formation		Regional(Amphibolite)
294	Austatom		breccia,schist	Cahill Formation		Regional(Amphibolite)
295	Airstrip	siltstone	sandstone	Koolpin Formation		Regional(Greenschist)
298	Ranger 37	schist	dolomite	Cahill Formation		Regional(Amphibolite)
299	El Sherana North Anomaly	shale,shale		Koolpin Formation		Regional(Greenschist)
301	Ranger 55	gneiss		Nanambu Complex		Regional(Amphibolite)
302	Stag Creek	shale	shale	Koolpin Formation		Regional(Greenschist)
311	Ranger 19	schist		Cahill Formation		Regional(Amphibolite)
312	High Road	siltstone	slate	Koolpin Formation		Regional(Greenschist)
315	El Sherana East	shale,shale,shale		Koolpin Formation		Regional(Greenschist)
318	Hades Flats	schist	breccia,schist	Cahill Formation		Regional(Amphibolite)
319	Carvats	rhyolite		Pul Pul Rhyolite		
322	7J	schist		Cahill Formation		Regional(Amphibolite)
323	Orchid Gully	sandstone	shale	Coronation Sandstone		
329	Ranger 14 west	schist	carbonate rock	Cahill Formation		Regional(Amphibolite)
330	Alligator Fault	shale	sandstone	Masson Formation		Regional(Greenschist)
333	Ranger 14 east	schist	carbonate rock	Cahill Formation		Regional(Amphibolite)
337	Monolith	siltstone		Koolpin Formation		Regional(Greenschist)
344	Ranger 1 No 2			Cahill Formation		Regional(Amphibolite)
345	Koolpin East	shale	sandstone,shale	Koolpin Formation		Regional(Greenschist)
348	Unnamed			Czs		
351	Anomaly Q	schist	breccia	Cahill Formation		Regional(Amphibolite)
352	Cliff Face	shale,shale	breccia,siltstone	Kapalga Formation	Disseminated,Pods	Regional(Greenschist)
355	Santo 5 South	shale	breccia	Koolpin Formation		Regional(Greenschist)

360	Palette	shale	sandstone, shale	Koolpin Formation	Disseminated, Nodular, Veinlet	Regional (Greenschist)
364	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
368	Palms	shale		Scinto Breccia		
378	Unnamed	Sandstone		Coronation Sandstone		
381	Unnamed			Czs		
382	Saddle Ridge Northeast		sandstone, siltstone	Kapalga Formation		
384	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
385	Saddle Ridge North	Breccia	sandstone	Coronation Sandstone		
388	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
389	Clear Springs	rhyolite		Pul Pul Rhyolite		
392	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
397	Saddle Ridge	shale	dolerite, rhyolite	Koolpin Formation	Disseminated	Regional (Greenschist)
401	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
405	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
406	Saddle Ridge East		sandstone	Pul Pul Rhyolite	Disseminated	
411	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
412	Saddle Ridge East Extended	siltstone, siltstone	sandstone	Koolpin Formation		Regional (Greenschist)
414	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
415	Saddle Ridge South	breccia	dolomite	Scinto Breccia		
417	Unnamed	schist		Cahill Formation		Regional (Amphibolite)
420	Anomaly A	schist		Cahill Formation		Regional (Amphibolite)
427	Coronation South	sandstone	rhyolite	Coronation Sandstone	Disseminated	
475	3/171 Prospect	siltstone	phyllite, sandstone, shale	Burrell Creek Formation	Pods, Veinlet	Regional (Greenschist)
479	Unnamed	shale		Koolpin Formation		Regional (Greenschist)
679	Unnamed	sandstone		Kombolgje Formation		
681	Unnamed	breccia	siltstone	Scinto Breccia		

684	Unnamed	breccia	sandstone	Scinto Breccia			
687	Unnamed	breccia	sandstone	Scinto Breccia			
689	Unnamed	Phyllite	sandstone	Kapalga Formation			Regional(Greenschist)
691	Unnamed	phyllite		Kapalga Formation			Regional(Greenschist)
693	Unnamed	schist,schist	sandstone	Kapalga Formation			Regional(Greenschist)
695	Unnamed	sandstone	breccia,siltstone	Kombolgje Formation	Veinlet		
697	Unnamed	rhyolite		Big Sunday Formation			
699	AN 321	rhyolite	porphyry,tuff	Big Sunday Formation			
701	Unnamed	rhyolite	tuff	Big Sunday Formation			
704	Unnamed	rhyolite		Big Sunday Formation			
1082	Ranger 43			Cahill Formation			Regional(Amphibolite)
1083	Ranger 13			Nanambu Complex			Regional(Amphibolite)
1352	Ranger 1, No 3	schist		Cahill Formation	Disseminated,Stringer		Regional(Amphibolite)
1419	El Sherana	shale,shale	rhyolite,sandstone	Koolpin Formation	Disseminated,Nodular,Veinlet		Regional(Greenschist)
1420	El Sherana West	shale,shale	sandstone	Koolpin Formation	Disseminated,Nodular,Veinlet		Regional(Greenschist)
1421	Flying Fox	rhyolite		Pul Pul Rhyolite	Disseminated		
1426	Koolpin	shale	phyllite,sandstone	Koolpin Formation	Disseminated,Veinlet		Regional(Greenschist)
1435	Scinto 1	shale		Scinto Breccia	Smears		
1436	Scinto 5	siltstone	phyllite	Koolpin Formation	Disseminated		Regional(Greenschist)
1437	Scinto 6	porphyry	dolerite,shale	Kapalga Formation	Disseminated		
1438	Scinto Camp	breccia		Scinto Breccia			
1442	Sterrets No1	shale		Koolpin Formation	Disseminated,Pods,Veinlet		Regional(Greenschist)
1443	Sterrets No2	shale	sandstone	Koolpin Formation	Disseminated,Pods,Veinlet		Regional(Greenschist)
1444	Stockpile 1	rhyolite		Pul Pul Rhyolite	Disseminated		
1445	Stockpile 2	phyllite	breccia,sandstone	Pul Pul Rhyolite	Disseminated		
1448	Teagues	shale	sandstone	Koolpin Formation	Nodular,Veinlet		Regional(Greenschist)

1468	Beatrice	schist		Myra Falls Metamorphics		Regional(Amphibolite)
1486	Ranger 68		breccia,pegmatite,schist	Cahill Formation		Regional(Amphibolite)
1773	Unnamed	breccia		Scinto Breccia		
1832	Barramundie Creek			Masson Formation		Regional(Amphibolite)
1833	Christmas Creek	sandstone	conglomerate	Coronation Sandstone		
1879	Ranger 59			Czs		
1880	Ranger 20	schist	gneiss	Cahill Formation		Regional(Amphibolite)
1908	Caramel	schist		Myra Falls Metamorphics		Regional(Amphibolite)
1910	Sandstone South	sandstone	andesite	Plum Tree Creek Volcanics		Regional(Greenschist)
1911	Sandstone North	sandstone	andesite	Plum Tree Creek Volcanics		
1915	Ranger 25	gneiss		Nanambu Complex		Regional(Amphibolite)
1916	Ranger 57	gneiss		Nanambu Complex		Regional(Amphibolite)
1917	Urralugoonwa	gneiss		Nanambu Complex		Regional(Amphibolite)
2204	Ranger 63	schist		Cahill Formation		Regional(Amphibolite)
2205	Ranger 9	gneiss		Cahill Formation		Regional(Amphibolite)
2245	Anomaly 5C	Laterite	dolomite	Czi		Regional(Greenschist)
2246	Barramundie South		schist	Czi		
2314	Anomaly 2J	tuff	basalt	Stag Creek Volcanics		Regional(Greenschist)
2317	Coronation Hill	shale	conglomerate,rhyolite	Koolpin Formation	Disseminated,Veinlet	Regional(Greenschist)
2318	Skull	shale	basalt,sandstone,shale	Kapalga Formation	Disseminated,Nodular,Veinlet	Regional(Greenschist)
2319	Sleisbeck	schist	phyllite,quartzite,tuff	Kapalga Formation	Disseminated	Regional(Greenschist)
2320	Rockhole No2	siltstone	sandstone,shale,shale	Koolpin Formation	Disseminated,Pods,Veinlet	Regional(Greenschist)
2321	Rockhole No1	arenite	shale	Coronation Sandstone	Disseminated,Pods,Veinlet	Regional(Greenschist)
2467	Arrarra	schist		Cahill Formation		Regional(Amphibolite)
2468	Crusader 2	Sandstone	siltstone	Mundogie Sandstone		Regional(Amphibolite)
2564	Koongarra 1		schist,serpentinite	Cahill Formation	Disseminated,Stringer,Veinlet	Regional(Amphibolite)

2565	North Ranger 1	Schist			Cahill Formation			Regional(Amphibolite)	
2567	Ranger 1 No. 1	breccia	chert,quartzite		Cahill Formation	Disseminated,Stringer		Regional(Amphibolite)	
2568	Nabarlek		amphibolite		Myra Falls Metamorphics	Disseminated,Stringer,Veinlet		Regional(Amphibolite)	
2624	Koongarra 2				Cahill Formation				
2625	Algodo								
2626	Ranger 1 No4								
2627	Ranger 1 No5								
2628	Ranger 1 No9								

Site_id	Common_Name	alteration_type_location	structure	Resources	Reserves	Production
5	Tadpole			U	U	
39	Anomaly 5A			U	U	
52	Ranger 50			U	U	
53	Anomaly 5a			U	U	
62	Ranger 30			U	U	
73	Ranger 29			U	U	
74	Anomaly 77 South		Bedding	Cu,U	Cu,U	
82	Ranger 45			U	U	
93	Magela 2			U	U	
100	Ranger 49			U	U	
101	Anomaly 5073			U	U	
112	Mordijimuk			U	U	
113	Anomaly 5087			U	U	
119	Anomaly N84	Chloritic, Hematitic, Sericitic		U	U	
128	Unnamed			U	U	
138	Anomaly N147	Chloritic, Hematitic, Sericitic		U	U	
139	Anomaly 5P		Bedding	U	U	
143	Ranger 26			U	U	
144	Anomaly TE-1		Bedding, Fault	Ni,U,Zn	Ni,U,Zn	
154	Ranger 24			U	U	
155	Coirwong Gorge		Bedding	U	U	
158	Ranger 23			U	U	
159	Anomaly 5G		Bedding	U	U	
172	Ranger 58			U	U	

173	Graveside				U		
175	Ranger 8				U		
181	Ranger 17				U		
182	Anomalies 5218 & 5219			Bedding	U		
187	Ranger 60				U		
190	Ranger 32				U		
194	Ranger 31				U		
199	Ranger 2				U		
202	Ranger 71				U		
205	Ranger 61				U		
210	Ranger 44				U		
215	Ranger 33				U		
218	Ranger 35				U		
219	Gerowie Creek No1			Bedding	U		
226	Gerowie Creek No2			Bedding	U		
231	Gorrunghar				U		
232	Gerowie Creek No3			Bedding	U		
238	Gurrigarri				U		
239	Waterfall Creek	Carbonitisation, Chloritic		Bedding, Fault	U		
247	Five Sisters				U		
256	Ranger 4				U		
271	BMR 1				U		
272	O'Dwyers			Bedding, Fault	Au, U		U(1955 - 1962, 13418, 1.12%, 127t)
278	Ranger 28				Pb, U, Zn		
282	Ranger 10				Cu, U		
283	9600NW Anomaly			Bedding, Fault	U		

287	Ranger 54					Cu,U		
288	9200NW Anomaly			Bedding, Fault		U		
292	Ranger 53					Cu,U		
294	Austatom					U(Unknown,10000t,)		
295	Airstrip			Bedding, Fault		Au,Pd,Pt,U		
298	Ranger 37					Cu,Pb,U		
299	El Sherana North Anomaly			Bedding, Fault		Au,U		
301	Ranger 55					U		
302	Stag Creek			Bedding, Fault		U		
311	Ranger 19					U		
312	High Road			Bedding, Fault		U		
315	El Sherana East			Bedding		Au,U		
318	Hades Flats		Chloritic,Hematitic,Sericitic			U		
319	Carvats					U		
322	7J		Chloritic,Hematitic,Sericitic			U		
323	Orchid Gully			Fault		U		
329	Ranger 14 west					U		
330	Alligator Fault			Bedding, Fault		U		
333	Ranger 14 east					U		
337	Monolith			Bedding, Fracture		U		
344	Ranger 1 No 2					U		
345	Koolpin East					U		
348	Unnamed					U		
351	Anomaly Q		Chloritic,Hematitic,Sericitic			Cu,Pb,U,Zn		
352	Cliff Face		Silicic	Fault, Fault		Au,U		U(Unknown,8t,0.67%,0.053t)
355	Santo 5 South			Bedding, Fault		Au,U		

360	Palette	Chloritic	Fault, Fault	Au, U	Au, U	Au(1956 - 1963, 0.62g/t, 0.3t), U(1956 - 1963, 4850t, 2.5%, 104t)
364	Unnamed			U	U	
368	Palms		Fault, Fracture	U	U	
378	Unnamed			U	U	
381	Unnamed			U	U	
382	Saddle Ridge Northeast		Fault	U	U	
384	Unnamed			U	U	
385	Saddle Ridge North	Silicic	Fault	U	U	
388	Unnamed			U	U	
389	Clear Springs		Bedding, Fault	U	U	
392	Unnamed			U	U	
397	Saddle Ridge	Hematitic	Bedding, Fault	U	U	U(1960 - 1961, 30340t, 0.24%, 65.5t)
401	Unnamed			U	U	
405	Unnamed			U	U	
406	Saddle Ridge East		Fault	U	U	
411	Unnamed			Th, U	Th, U	
412	Saddle Ridge East Extended		Fault	U	U	
414	Unnamed			Th, U	Th, U	
415	Saddle Ridge South	Hematitic	Bedding, Fault	Au, U	Au, U	
417	Unnamed			Th, U	Th, U	
420	Anomaly A			U	U	
427	Coronation South		Bedding, Fracture	U	U	
475	3/171 Prospect	Chloritic, Hematitic, Tourmalinisation	Bedding, Fault	Ag, Pb, U	Ag, Pb, U	
479	Unnamed			U	U	
679	Unnamed		Bedding	U	U	
681	Unnamed		Bedding, Fault	U	U	

684	Unnamed		Bedding, Fault	U	U	
687	Unnamed		Bedding, Fault	U	U	
689	Unnamed		Bedding, Fault	U	U	
691	Unnamed		Bedding, Fault	U	U	
693	Unnamed		Bedding, Fault	U	U	
695	Unnamed		Bedding, Fault	U	U	
697	Unnamed			U	U	
699	AN 321		Fracture, Shear	U	U	
701	Unnamed		Shear	U	U	
704	Unnamed			U	U	
1082	Ranger 43			U	U	
1083	Ranger 13			U	U	
1352	Ranger 1, No 3	Chloritic, Hematitic, Sericitic		U	U(Total, 17.1Mt, 0.29%, 49546T)	
1419	El Sherana		Bedding, Fault	Au, U	Au, U	Au(1960, 50000t, 5.4g/t, 0.33t), U(1956 - 1959, 39052t, 0.55%, 190t)
1420	El Sherana West	Chloritic, Hematitic	Bedding, Fault	Au, U	Au, U	Au(Unknown, 0.0, 0.007t), U(1962 - 1964, 21657t, 0.8%, 155.4t)
1421	Flying Fox		Bedding	U	U	
1426	Koolpin		Bedding, Fault	U	U	U(1956 - 1964, 2327t, 0.12%, 3t)
1435	Scinto 1		Bedding, Fault	Au, U	Au, U	
1436	Scinto 5		Bedding, Fault	Au, U	Au, U	U(1956 - 1964, 5804t, 0.4%, 18.5t)
1437	Scinto 6	Sericitic	Bedding, Shear	U	U	U(1956 - 1964, 1751t, 0.15%, 3t)
1438	Scinto Camp		Bedding, Fault	U	U	
1442	Sterrets No1		Unconformity	Au, U	Au, U	Au, U(1955 - 1962, 13418t, 1.12%, 150.28t)
1443	Sterrets No2		Unconformity	Au, U	Au, U	Au, U(1955 - 1962, 13418t, 1.12%, 150.28t)
1444	Stockpile 1		Bedding, Fault	U	U	
1445	Stockpile 2		Bedding, Fault	U	U	

1448	Teagues		Bedding, Fault	Au, U	Au, U	
1468	Beatrice			U	U	
1486	Ranger 68	Chloritic, Sericitic		Au, Cu, U (Measured, 1500000t, 0.35 %)	Au, Cu, U	
1773	Unnamed		Bedding, Fracture	U	U	
1832	Barramundie Creek			U	U	
1833	Christmas Creek		Fault	U	U	
1879	Ranger 59			U	U	
1880	Ranger 20		Fault	U	U	
1908	Caramel	Chloritic, Hematitic, Sericitic	Reverse fault	U	U	
1910	Sandstone South		Bedding, syncline	U	U	
1911	Sandstone North		Bedding	U	U	
1915	Ranger 25			U	U	
1916	Ranger 57			U	U	
1917	Urralugoorwa			U	U	
2204	Ranger 63			U	U	
2205	Ranger 9			Au, U	Au, U	
2245	Anomaly 5C		Bedding	U	U	
2246	Barramundie South		Bedding	U	U	
2314	Anomaly 2J	Chloritic	Bedding	U	U	
2317	Coronation Hill	Chloritic, Hematitic, Sericitic	Bedding, Fault	Au, U	Au, U	U(1961 - 1962, 26122t, 0.26%, 63t)
2318	Skull	Hematitic	Fracture	U	U	U(1956 - 1964, 531t, 0.5%, 2.2t)
2319	Sleisbeck		Bedding, Fault	U	U	U(1957, 637t, 0.3%, 1.6t)
2320	Rockhole No2		Bedding, Fault	Au, U	Au, U	U(1955 - 1962, 13418t, 1.12%, 150.28t)
2321	Rockhole No1		Bedding, Fault	Au, U	Au, U	U(1955 - 1962, 13418t, 1.12%, 150.28t)
2467	Arrarra	Chloritic (In Ore)	Fault	U	U	
2468	Crusader 2		Fold	Th, U	Th, U	

2564	Koongarra 1	Chloritic, Hematitic, Sericitic	Reverse fault	Au, U (Measured, 3453000t, 0.44%,)	Au, U	
2565	North Ranger 1	Chloritic, Hematitic, Sericitic	Syncline	U (Unknown, 1300000t, 0.25%,)	U	
2567	Ranger 1 No. 1	Chloritic, Hematitic, Sericitic	Reverse fault, syncline	Au, U (Unknown, 6419000t, 0.32%,)	Au, U	U (1981 - 1994, 19, 782Mt, 0.321%, 63404t)
2568	Nabarlek	Chloritic, Hematitic, Sericitic	Reverse fault	U	U (Proved 606890t, 2.39%, 0)	U (1979 - 1988, 568402t, 1.95%, 11084t)
2624	Koongarra 2			U (Indicated 2000t, 0.3%)	U	U
2625	Algodo			U	U	U
2626	Ranger 1 No4			U	U	U
2627	Ranger 1 No5			U	U	U
2628	Ranger 1 No9			U	U	U